3 STATUS OF PROJECTS AND MANAGEMENT ACTIONS

3.1 5-Year Evaluation of Projects and Management Actions

In the last 5 years, SVBGSA has made steady progress on projects and management actions (PMAs) in the GSP. This section provides a summary of the activities from January 2020 to December 2024. The 2020 GSP and Amendment 1 PMAs provide adequate options for reaching sustainability in the 180/400Subbasin within 20 years and maintaining sustainability for an additional 30 years; however, as stated in the GSP, not all will need to be implemented.

Both the 2020 GSP and Amendment 1 stress that projects in this Subbasin should be integrated with projects for the other SVBGSA subbasins as appropriate during GSP implementation. Development of the 2020 GSP involved a broad stakeholder process and considered a Valley-wide approach to PMAs. Following its submittal, SVBGSA shifted to an integrated subbasin approach, whereby PMAs were identified for each subbasin and then integrated across the Valley.

In September 2022, SVBGSA completed Amendment 1 to the 180/400 Subbasin to align with the GSPs for the other 5 SVBGSA subbasins. Amendment 1 updated the list of PMA and their descriptions, incorporating input from partner agencies, the 180/400 Subbasin Planning Committee, and other interested parties. A summary of the PMA changes made in Amendment 1 is included in Section 3.2 below.

With GSPs prepared for the remaining subbasins, the Amendment 1 PMA list was updated with more focus on the 180/400 Subbasin. A new category was created for “Cross Boundary” PMAs that are included in other GSPs but would likely provide some groundwater benefit to the 180/400 Subbasin. In 2022, SVBGSA also developed an Integrated Implementation Plan (IIP) to tie the SVBGSA GSPs together and describe how the Salinas Valley’s groundwater system functions holistically. This plan was called for in the 2020 GSP. While this plan has been put on hold pending additional modeling and other activities, it will be revisited as a tool for an integrated approach to PMAs in the Salinas Valley, where applicable.

MCWRA has built water resources projects for the Salinas Valley since the 1940’s. Several projects in the GSPs rely on infrastructure owned by MCWRA. Past projects led by MCWRA include the Nacimiento and San Antonio Reservoirs and the Monterey County Recycled Water Projects, which comprises 3 main components: 1) CSIP, 2) Salinas Valley Reclamation Project (SVRP), and 3) SRDF. M1W owns the SVRP and operates the recycled water facilities with funding from MCWRA. CSIP distributes in lieu agricultural irrigation supplies from 3 sources: SVRP recycled water, SRDF re-diversion of stored water from the reservoirs, and groundwater pumping from supplemental wells. The CSIP distribution system covers approximately 12,000 acres of the historically seawater intruded area in the 180/400 Subbasin.

GSP Amendment 1 includes projects that provide upgrades to MCWRA's facilities and operates through SVBGSA partnership with MCWRA and M1W. In 2022, MCWRA and SVBGSA finalized a Memorandum of Understanding that outlines the roles of the 2 agencies in implementation of the GSPs. SVBGSA executed a subgrant agreement with MCWRA to provide funding from the Round 1 SGM Implementation Grant to make modifications to the SVRP and CSIP distribution system. SVBGSA also executed a technical services agreement with MCWRA for data collection, other support services, and cooperative activities.

SVBGSA collaborates with several other agencies on PMAs. In the 180/400 Subbasin, SVBGSA coordinates GSP implementation with the Marina Coast Water District Groundwater Sustainability Agency (MCWDGSA). GSP Amendment 1 adds several MCWDGSA projects that are also included in the Monterey Subbasin GSP as cross-boundary projects. The Resource Conservation District of Monterey County (RCDMC) oversees the priority project, P1 Multi-benefit Stream Channel Improvements, in both the 2020 GSP and 2022 Amendment 1.

Since 2022, SVBGSA's main focus has been on grant-funded activities further discussed below. A large share of this work involves feasibility studies to address seawater intrusion, a long standing and critical issue in the Subbasin, as well as other activities discussed in Section 3.3 below. Table 3-1 provides a summary of each PMA and its status.

An all-encompassing project selection process is needed to determine a suite of projects for moving forward across all Salinas Valley subbasins. SVBGSA plans to complete this by January 2027, concurrently with the GSP 2025 Evaluations for SVBGSA's 5 other subbasins. SVBGSA intends to prepare the next periodic evaluation of the 180/400 Subbasin GSP at the same time, to align future GSP periodic evaluations across the 6 SVBGSA subbasins, as well to review and consider next steps on PMAs across all subbasins concurrently. A range of PMAs that would improve groundwater conditions in multiple subbasins will continue to be analyzed and considered in that selection process. Some PMAs will be implemented across multiple subbasins or, if appropriate, Valley-wide. SVBGSA received a DWR Round 1 SGM Implementation Grant for the 180/400 Subbasin that funded many of the efforts related to PMAs in this Subbasin. Some efforts related to PMAs that are primarily or partially in other SVBGSA subbasins are funded through DWR Round 2 SGM Implementation Grants for the Monterey Subbasin or the Eastside, Forebay, Langley, and Upper Valley Subbasins.

3.2 Project and Management Actions Updates in GSP Amendment 1

GSP Amendment 1 updates the 2020 GSP list of PMAs. During WY 2022, SVBGSA held 11 meetings of the 180/400 Subbasin Planning Committee to develop Amendment 1. They considered the PMA chapter at 3 points in the process: giving input prior to making revisions, reviewing a draft revised chapter, and considering comments on the public review draft of

Amendment 1. In addition, the Advisory Committee and Board received and commented on the PMA chapter. In general, the priority of projects between 2020 and 2022 stayed the same.

Amendment 1 makes the following types of updates: accounting for actions taken following GSP submittal, updating descriptions based on further refinement and needed clarifications, and separating demand planning from funding. It also added Implementation Actions that contribute to groundwater management and GSP implementation but do not directly help the Subbasin reach or maintain sustainability. These Implementation Actions are discussed further in Sections 7 and 8.

The category of "Alternative Projects" was taken out in Amendment 1. Instead, projects that occur in or address groundwater conditions in adjacent subbasins were separated into a new category called Cross Boundary projects, if they would have positive groundwater benefits for the 180/400 Subbasin. New projects were added through the development of GSPs in adjacent subbasins.

Table 3-1 summarizes the updates to 2020 GSP PMAs in GSP Amendment 1. The italicized rows represent Cross Boundary projects.

Table 3-1. Summary of Amendment 1 Projects and Management Action Updates, Modifications or Additions

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
P1	Invasive Species Eradication	P1	Multi-benefit Stream Channel Improvements	Amendment 1 revised project to P1: Multi-benefit Stream Channel Improvements. The project has been widened from the Invasive Species Eradication project in the 2020 GSP to combine complementary and overlapping programs into 1 project. It includes the invasive species eradication work that was in the 2020 GSP, plus the Stream Maintenance Program and floodplain restoration for a more holistic project. This program takes a 3-pronged approach to stream channel improvements. First, it addresses vegetation growth and geomorphic conditions in the river channel by removing perennial native and non-native vegetation in designated maintenance channels (and removing Arundo donax (arundo) and Tamarix sp. (tamarisk) throughout the river corridor. Second, the program reduces the height of sediment bars that have been identified to meet criteria for impeding flow. Third, it enhances floodplains to increase groundwater recharge.
P2	Optimize CSIP Operations	P2	CSIP Optimization	The CSIP system is owned by the MCWRA and operated by M1W by agreement with MCWRA. MCWRA and M1W are continuing to evaluate opportunities to optimize the CSIP distribution system. The 2020 GSP identified the following approach for general activities under CSIP system optimization: 1) hydraulic modeling, 2) irrigation/scheduling system development, 3) how to add water storage, and 4) distribution system pipe upgrades. Amendment 1 added 2 activities: the installation of remote monitoring units and how to add new source water. It also moved/consolidated the "Maximize Existing SRDF Diversion" project as an activity under CSIP Optimization.

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
P3	Modify M1W Recycled Water Plant	P3	Modify M1W Recycled Water Plant	The 2020 GSP identified that modifications are required at the Monterey One Water (M1W) Regional Treatment Plant to efficiently treat and deliver recycled water during the wet weather months. Under the M1W Recycled Water Plant Modifications Project, the SVRP will be improved to allow delivery of tertiary treated wastewater to the CSIP system when recycled water demand is less than 5 million gallons per day (mgd). In Amendment 1, this was further refined to identify that the project consists of 2 parts: upgrading the chlorine scrubbers to minimize the winter maintenance shutdown and improving the Reclamation Plant to allow delivery of tertiary treated wastewater to CSIP when water demand is less than 5 mgd. Improvements to the SVRP include minor modifications to the chlorine contact basins and construction of a new conveyance pipeline to the distribution system.
P4	Expand Area Served by CSIP	P4	CSIP Expansion	Amendment 1 clarifies the 2020 GSP project that existing CSIP supplies may not be sufficient to meet the summertime demand of an expanded CSIP area without an increase in water supply from the SRDF or another source. New water sources other than river water will require additional project costs. If additional water supply sources are available in the summer, an expanded service area could deliver summer irrigation water. The CSIP Optimization Project must be implemented prior to CSIP Expansion due to existing system constraints.
P5	Maximize Existing SRDF Diversion	P2	CSIP Optimization	Dependent on CSIP optimization; moved/consolidated into P2 CSIP Optimization.

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
P6	Seawater Intrusion Pumping Barrier	P5	Seawater Intrusion Extraction Barrier	Amendment 1 refines the GSP project concept to add that extracted water could be conveyed to a new or existing desalting facility where it could be treated for direct use, such as the Regional Municipal Supply Project (P6). The water extracted from these wells will be brackish due to historical seawater intrusion. It states that feasibility studies will evaluate the best location for extraction barrier wells and the associated benefits.
P7	*11043 Diversion Facilities Phase I: Chualar*	*R2*	*11043 Diversion Facilities at Chualar*	*This project is moved under the Cross Boundary Project category of projects outside the Subbasin that likely would have indirect benefits for the 180/400 Subbasin or reduce the need for other projects and management actions. It primarily benefits the Eastside Subbasin but may have groundwater benefits for the 180/400 Subbasin. The scoping progressed with the development of Project B1 of the Eastside Subbasin GSP.*
P8	*11043 Diversion Facilities Phase II: Soledad*	*R3*	*11043 Diversion Facilities at Soledad*	*This project is moved under the Cross Boundary Project category of projects outside the Subbasin that likely would have indirect benefits for the 180/400 Subbasin or reduce the need for other projects and management actions. It primarily benefits the Eastside Subbasin but may have groundwater benefits for the 180/400 Subbasin. The scoping progressed with the development of Project B2 of the Eastside Subbasin GSP.*

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
P9	SRDF Winter Flow Injection	P7	Seasonal Release with ASR	Amendment 1 updates the SRDF Winter Flow Injection Project based on further discussions with MCWRA and interested parties' input. A reservoir reoperation feasibility study could be paired with this project. The project concept modifies reservoir releases for the MCWRA's Conservation Program and SRDF re-diversions to store at least a portion of these releases during wet seasons in the 180-Foot and 400-Foot Aquifers. Water released during the wet season from Nacimiento and San Antonio Reservoirs would be diverted from the Salinas River using the existing SRDF at a maximum flow rate of 36 cfs. Water would then be pumped to a surface water treatment plant where it would be treated to the standard necessary for groundwater injection and conveyed to new injection wells in the 180/400 Subbasin. In addition to direct injection for groundwater recharge, seasonal releases could be used for direct delivery for municipal supply.
Alt P1	Desalt Water from the Seawater Barrier Extraction Wells	P6	Regional Municipal Supply Project	Amendment 1 updates the 2020 GSP to clarify that this is not a stand-alone project but could be a potential supplemental project to the seawater intrusion extraction barrier project. This project would construct a regional desalting plant to treat the brackish water extracted from the proposed seawater intrusion extraction barrier. It would deliver water for direct potable use to municipal systems in the 180/400 Subbasin and other subbasins within Salinas Valley. This project provides in lieu recharge to the groundwater system through reduced extraction by municipal systems. If the plant produced more water than could be used for direct potable use, excess water could be used for irrigation or reinjected into the 180-Foot or 400-Foot Aquifer. The water would be available year-round.

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
Alt P2	*Recharge Local Runoff from Eastside Range*	*R1*	*Eastside Floodplain Enhancement and Recharge*	*This project is moved under the Cross Boundary Project category of projects outside the Subbasin that likely would have indirect benefits for the 180/400 Subbasin or reduce the need for other projects and management actions. It primarily benefits the Eastside Subbasin but may have groundwater benefits for the 180/400 Subbasin. The scoping progressed with the development of Project A2 of the Eastside Subbasin GSP.*
-	*Not included in 2020*	*M1*	*MCWD Demand Management Measures*	*This project is moved under the Cross Boundary Project category of projects outside the Subbasin that likely would have indirect benefits for the 180/400 Subbasin or reduce the need for other projects and management actions. It primarily benefits the Monterey Subbasin through potable demand reductions.*
-	*Not included in 2020*	*M2*	*Stormwater Recharge Management*	*This project is moved under the Cross Boundary Project category of projects outside the Subbasin that likely would have indirect benefits for the 180/400 Subbasin or reduce the need for other projects and management actions. It primarily benefits the Monterey Subbasin through policies that will facilitate additional stormwater catchment and infiltration beyond existing efforts as development and redevelopment occurs, providing recharge to the groundwater basin.*

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
Alt P3	*Winter Potable Reuse Water Injection*	*M3*	*Recycled Water Reuse Through Landscape Irrigation and Indirect Potable Reuse*	*This project is moved under the Cross Boundary Project category of projects outside the Subbasin that likely would have indirect benefits for the 180/400 Subbasin or reduce the need for other projects and management actions. This MCWD GSA Project consists of recycled water reuse through landscape irrigation and/or indirect potable reuse (IPR) within MCWD's service area. As described below, the source water for both of these options is recycled water from the M1W Regional Treatment Plant (RTP), which would undergo advanced treatment to meet criteria under Title 22 of the California Code Regulations (CCR) for subsurface applications of recycled water. Advanced treated recycled water is non-potable. Reuse of this water through IPR involves injection into a groundwater aquifer and recovery through an appropriately permitted Groundwater Replenishment Reuse Project (GRRP), which provides seasonal storage and generates potable water that can meet a larger portion of MCWD's water demand beyond irrigation and non-potable needs.*
Alt P4	Use the Southern Portion of the 180/400 Subbasin for Seasonal Storage	P8	Irrigation Water Supply Project (or Somavia Road Project)	Amendment 1 updates the project name and revises the project concept similar to Eastside Irrigation Water Supply Project (Somavia Road) in the 2022 Eastside Subbasin GSP. Both projects rely on extracting the same source water but distribute it to different locations, so 1 project would need to be selected or source water split between the 2 projects.

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
-	*Not included in 2020*	*C1*	*Corral de Tierra Pumping Allocation and Control*	*Amendment 1 adds this Cross Boundary Project. While it primarily benefits the Corral de Tierra, the management action may have groundwater benefits for the 180/400 Subbasin. This, or other types of demand management, would focus on reducing pumping. It could take many forms and be developed based on various criteria.*
OTHER	*Water Charges Framework*	MA1	Demand Planning (funding moved to Ch 10)	The 2020 GSP proposed a Water Charges Framework for the Salinas Valley. Amendment 1 widens the management action to Demand Planning to include other types of demand planning. It separates demand planning from the funding mechanism, so as to not preclude options. Demand planning includes, but is not limited to, pumping allocations, pumping controls, and pumping reductions. It is included in the GSP to show that there are options that can be developed; however, further action is needed to establish pumping allocations nor pumping controls. A full stakeholder engagement process and in-depth analysis needs to be undertaken to assess demand planning options and implement actions. Stakeholder engagement will include outreach to water systems, homeowners, and landowners so that those interested can participate in the development of demand planning.

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
MA1	Agricultural Land and Pumping Allowance Retirement	MA2	Fallowing, Fallow Bank, and Agricultural Land Retirement	Revised such that it could be undertaken with or without pumping allocations. To reduce groundwater extraction temporarily or permanently, this management action includes 3 actions that could be implemented on an as-needed basis to reduce irrigated land. These actions provide options for voluntary fallowing and land retirement that can be targeted to specific locations that have declining groundwater elevations or recharge potential, such as floodplains. Water quality and access to drinking water wells will also be considered when deciding where to incentivize fallowing or land retirement.
MA2	Outreach and Education for Agricultural BMPs	MA3	Conservation and Agricultural BMPs	BMPs are being developed as part of Ag Order 4.0. SVBGSA will work to complement and not replicate those efforts. Potential practices that will be part of a program include: 1) ET Data - The incorporation of ET data with soil moisture sensors, soil nutrient data, and flow meter data can help inform more efficient irrigation practices. The GSA could support the development and utilization of these tools through securing funding or coordinating with existing local agricultural extension specialists who conduct research and provide technical assistance to growers. 2) Education and Outreach -. SVBGSA will support existing local agricultural extension specialists with their education and outreach on BMPs that would increase water conservation and decrease pumping.

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
MA3	Reservoir Reoperation	MA4	Reservoir Reoperation	Amendment 1 includes an updated version of the Reservoir Reoperation management action that was in the 2020 GSP based on further interested parties discussions. Requires collaboration with MCWRA and other interested parties to evaluate potential reoperation scenarios that promote sustainability while operating within the committed purposes of existing infrastructure. Analysis of reservoir reoperation would consider other beneficial users dependent on reservoir flows, such as steelhead trout and users in other subbasins. Focus is on reoperation of the Nacimiento and San Antonio Reservoirs that would prevent or reduce the curtailment of reservoir releases in consecutive years. Includes a feasibility study by working with MCWRA to simulate reservoir operations and groundwater-surface water interactions along the Salinas River. These projects will affect the entire Salinas Valley, and the analyses of these projects must consider the impact on all subbasins. Reservoir reoperation is a management action to help maintain groundwater sustainability along the Salinas River, including some portion that augments groundwater in the 180/400 Subbasin. Details of this management action are dependent on the outcome and progress of other activities, including the Habitat Conservation Plan (HCP) that is under development by MCWRA. It could be paired with potential capital projects that are within the sustainability horizon of the GSP. New source of dedicated funding would be required.
MA4	Restrict Pumping in CSIP Area	MA1	Demand Planning	Moved under MA1 - Demand Planning. Some projects included in Amendment 1 are designed to ensure a reliable, year-round supply of water to growers in the CSIP area. These projects will reduce need for groundwater pumping in the CSIP area. To promote use of CSIP water, an ordinance could be adopted preventing any pumping for irrigating agricultural lands served by CSIP. MCWRA already has some restrictions in place that need to be reviewed.

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
MA5	Support and Strengthen Monterey County Restrictions on Additional Wells in the Deep Aquifers	MA5	Undertake and Operationalize Guidance from Deep Aquifers Study	The need for additional studies about the Deep Aquifers has been identified in the context of stopping seawater intrusion and effectively managing groundwater sustainability. 2020 GSP called for the SVBGSA to support Monterey County reimposing a prohibition on drilling any new wells into the Deep Aquifers until more information is known about the Deep Aquifers' sustainable yield. However, in 2020 the County's interim ordinance expired. The Seawater Intrusion Working Group (SWIG) supported the development of an RFP and scope of work for the Deep Aquifers Study. The Deep Aquifers Study was planned for in 2021, funded in 2022, and completed in April 2024. The Deep Aquifers Study describes the geology, hydrogeology, and extents of the Deep Aquifers; develops a water budget; and includes guidance on management issues and recommendations for monitoring. Since completion of the Study, agencies have been meeting as the Deep Aquifers Agency Working Group to determine how to operationalize guidance from the Study.
MA6	Seawater Intrusion Working Group (SWIG)	-	Completed; not included in Amendment 1	This group was established to develop consensus on the current understanding of seawater intrusion in the Subbasin and adjacent subbasins subject to seawater intrusion, identify data gaps, and develop a broad-based plan for controlling seawater intrusion. In 2022, SVBGSA Board of Directors transitioned the responsibilities of the SWIG and Integrated Implementation Committee to the existing Advisory Committee, and the responsibilities of the SWIG Technical Advisory Committee to a new, broader Groundwater Technical Advisory Committee. Moved to Completed Actions.

2020 GSP Priority #	2020 GSP Project or Management Action	Amendment 1 #	Amendment 1 GSP Project or Management Action	Summary of Amendment 1 Updates
-	Not included in 2020	MA6	MCWRA Drought Reoperation	In 2020, MCWRA formed a drought operations technical advisory committee (D-TAC) to develop standards and guiding principles for managing the operations of Nacimiento and San Antonio reservoirs during multi-year drought periods. In February 2021, MCWRA adopted the D-TAC recommended standards and guiding principles for drought operations. The D-TAC will meet any time a drought trigger occurs to develop a recommended release schedule for Nacimiento and San Antonio Reservoirs.

Italics – GSP Amendment 1 Cross Boundary Project

3.3 Project and Management Actions Activities

The following is a summary of activities and work performed on PMAs during the 5-year evaluation period.

3.3.1 P1 Multi-benefit Stream Channel Improvements

Multi-benefit Stream Channel Improvement components apply across the 180/400, Monterey, Forebay Aquifer, and Upper Valley Aquifer subbasins along the entire length of the Salinas River in Monterey County. Updates on the work completed are for the Program as a whole, and not by subbasin.

- Component 1: Salinas River Stream Maintenance Program (SMP) – The SMP, led by the Resource Conservation District of Monterey County (RCDMC), continues to coordinate with project partners to maintain the river corridor to reduce flood risk and minimize bank and levee erosion, while maintaining and improving ecological conditions for fish and wildlife consistent with other priorities for the Salinas River. Building on 88 acres of arundo removed between 2014 and 2018, there were 32.64 acres removed for the SMP from 2019 to 2024.

  FlowWest developed a hydraulic model (Salinas River HEC-RAS) to inform the original design of the SMP in 2015. In 2024, FlowWest updated the HEC-RAS model to 2023 topography and 2024 statistical hydrology. Stream flow gage records were analyzed for their variability and accuracy of prediction of flows, which relates to channel capacity. Channel capacity and the stage of water in secondary channels are datasets that inform the potential for groundwater recharge. A sample of hydraulic model outputs from HEC-RAS was used to assess the potential for coupling or otherwise integrating the HEC-RAS model with groundwater models and analysis to assess the potential groundwater benefit from vegetation removal and sediment management.

- Component 2: Invasive Species Eradication – The RCDMC grant-funded Arundo Control Program initiated treatment of 448 acres of arundo between 2014 and 2018, and another 489 acres between 2019 and the start of 2024. Initially treated arundo is re-treated every 1-5 years. Approximately 733 acres were retreated. Untreated arundo continues to expand and a new estimate of remaining arundo in the river is underway.

  The RCDMC conducted a study to estimate water savings from arundo removal, also considering the replacement vegetation that grows in treated arundo stands (Zefferman and Barker 2024). The study calculates the approximate water savings via a reduction in consumptive use of 21.1 (+/- 3.0) inches or 1.76 (+/- 0.25) feet of water per year over the treated area based on the average difference in ET between untreated arundo and herbaceous vegetation. For the Salinas River Arundo Eradication Program as a whole, 1,054.4 acres of arundo have been treated since 2014. The cumulative water savings is

estimated at 1,855.7 (+/- 263.6) AF/yr that is from both groundwater and surface water sources. Over time, these water savings may diminish as some former arundo stands develop later-successional vegetation like large willows and cottonwoods.

- Component 3: Floodplain Enhancement and Recharge – Recharge potential is being studied by under the Multi-benefit Land Repurposing Grant (MLRP) and conducted by researchers from U.C. Davis.

The SMP and Arundo Control programs and activities are funded by multiple sources. The SMP program is primarily funded by landowners, who pay for all of the on-the-ground vegetation and sediment management activities and some of the administration and permit compliance costs. Administration and permit compliance are also funded by grants from DWR's Integrated Regional Water Management Program, MCWRA, and SVBGSA regulatory fees.

The Arundo Control program has been funded mostly by state and federal grants from several agencies, including the California Wildlife Conservation Board, USDA NRCS Regional Conservation Partnership Program, California Department of Food and Agriculture's Noxious Weed Program, DWR's Integrated Regional Water Management Program, and US Bureau of Reclamation. Local funding has come from the Monterey County Agricultural Commissioner, private landowner contributions and contracts, and mitigation fees. Ongoing funding requirements and reliance on grants pose a challenge for long-term implementation.

The RCDMC tracks changes in the plant communities in areas where arundo has been controlled to determine the efficacy of arundo treatments and the progress of natural revegetation. In the next evaluation period, additional work under the SMP will depend on landowner interest, and continued arundo removal will depend on the ability to secure additional funding. The permits to comply with the Federal and State Clean Water Acts and the California Department of Fish and Wildlife Routine Maintenance Agreement will need to be renewed, in addition to the approval of the Annual Work Plans for the SMP.

3.3.2 P2 CSIP Optimization

The P2 CSIP Optimization Program includes CSIP, SVRP, and the SRDF. Its purpose is to slow seawater intrusion in the 180/400 Subbasin through the delivery of alternative water supplies for irrigation within the CSIP service area in lieu of groundwater pumping. SVRP recycles wastewater for agricultural use, and SRDF rediverts stored water from MCWRA's Nacimiento and San Antonio Reservoirs to further augment the CSIP alternative water supplies. CSIP also includes supplemental wells as a source of supply and provides groundwater when the SVRP and/or SRDF re-diversions are unavailable, meet high/increased demand, and increase system pressure as part of the distribution system design.

The CSIP system is operated and maintained by M1W under a contract with MCWRA. During the evaluation period, MCWRA and M1W undertook several activities to address existing CSIP system constraints and to identify infrastructure and operational improvements needed to optimize the CSIP Program. These activities are intended to better accommodate diurnal and seasonal fluctuation in irrigation demand, to maximize use of water supplied from the SVRP and SRDF, and to reduce the need for groundwater pumping from the CSIP supplemental wells. Amendment 1 updated these activities and moved and consolidated the 2020 GSP project concept to maximize existing SRDF diversion under CSIP optimization.

During the evaluation period, MCWRA and M1W made progress on several activities. SVBGSA has partially supported these activities through a subgrant agreement with MCWRA from the Round 1 SGM Implementation Grant for the 180/400 Subbasin, augmenting funding from MCWRA's revenue coming from assessments, fees, and charges for the CSIP Program. This work has included the following:

- CSIP Pipeline Pressure Verification Project: Installation of remote pressure monitoring devices to fill data gaps for pressure in the CSIP System to assist in the Dynamic Hydraulic Modeling Project, continuously collecting data to improve model calibration and model results. MCWRA has also been rebuilding and recalibrating flow meters at the turnouts with the goal to improve accuracy on water usage and volumes for the remote monitoring units.
- Dynamic Hydraulic Modeling Project: MCWRA developed a dynamic hydraulic model of the CSIP Program, focusing on SVRP production, system storage, CSIP distribution system conveyance capacity (pressure and flows throughout the system), and current irrigation flow demands to inform the programming and control narrative for safe, efficient operations of the system and appropriate demand limits throughout the system to inform the development of a water scheduling system and other needed improvements.
- Development of a Water Scheduling System: M1W has been developing water scheduling system to provide MCWRA and M1W the ability to schedule water orders from CSIP irrigators to use recycled water based on the results of the dynamic hydraulic modeling. The scheduling system will be integrated with the hydraulic model in the next evaluation period and used to conduct ongoing monitoring to ensure that CSIP irrigators use recycled water as ordered and to manage the CSIP system proactively and adaptively. The scheduling system development has beta tested by members of the Water Quality and Operations Committee, as well as through additional outreach to CSIP irrigators.
- Booster Station Enhancements: There are 3 booster stations located in the CSIP distribution system that were designed to provide increased pressure during low pressure situations in the system as well as aid in circulating water to the far end lines of the system during high demand usage. M1W and MCWRA have been implementing performance enhancements on the Molera, Lapis, and Espinosa booster stations to allow

more variability and control of the station pressure output and flow, equalizing the pressure needed. The booster pump enhancements will provide increased pressure in the system at critical low-pressure areas, which then decreases the need to turn on groundwater wells.

Building from this work, MCWRA has now proposed a CSIP Program Water Master Plan (WMP) to further define and guide CSIP optimization projects and funding requirements to implement them in the future. The WMP may include a budget and financing program, technical elements, implementation plan schedules, data compilation and data analysis, and definition of facility needs and alternatives. Expected outcomes are to understand current and future water system needs, strategically invest resources, and plan for infrastructure improvements. It will help to adopt sustainable financing strategies, prioritize Capital Improvement Program (CIP) projects, and identify a sustainable financial program.

MCWRA is currently soliciting proposals for consultant support to prepare the WMP and plans to initiate this effort in the first half of 2025. MCWRA staff estimate 12-18 months for WMP completion; however, a better schedule will be known upon receipt of proposals.

3.3.3 P3 Modify M1W Recycled Water Plant – Winter Modifications

The Winter Modifications project consists of 2 parts: upgrading the chlorine scrubbers to minimize the winter maintenance shutdown and improving the Reclamation Plant to allow delivery of tertiary treated wastewater to CSIP when water demand is less than 5 million gallons per day (mgd).

In June 2024, M1W completed the upgrade to chlorine scrubbers, installing a new dry scrubber system to reduce annual maintenance requirements. This project was completed with funding from the Round 1 SGM Implementation Grant through a subgrant agreement with MCWRA.

Additional SVRP improvements to allow winter delivery of tertiary treated wastewater to the CSIP distribution system will continue to be considered during the next evaluation period, pending funding availability. This project could be considered in the CSIP Program WMP and further evaluated and prioritized among other needed improvements.

3.3.4 P4 CSIP Expansion

As stated in Amendment 1, because of system constraints, the CSIP Optimization Project must be implemented prior to CSIP expansion. During the next evaluation period, SVBGSA will work with MCWRA to conduct a feasibility study to further evaluate CSIP expansion. Funding for a preliminary feasibility study is available in SVBGSA's Round 2 SGM Implementation Grant due to the potential for CSIP expansion to also serve the Eastside and Langley Subbasins.

Considerations for CSIP expansion include identification of potential source waters, the potential service area, how it would relate to the existing CSIP system, and other policy issues.

3.3.5 Brackish Groundwater Restoration Project (P5 - Seawater Intrusion Extraction Barrier/P6 Regional Municipal Supply Project)

SVBGSA is working with Carollo Engineers (Carollo) and M&A to prepare a feasibility study for these 2 projects, with funding from the Round 1 SGM Implementation Grant. The current approach is moving forward as a single project with a revised project name, the Brackish Groundwater Restoration Project. The concept for this project is to establish a line of extraction wells across the aquifer roughly parallel to the coast to form an extraction barrier and capture seawater on the coastal side of the wells while starting to pull back intruded groundwater from the inland side of the wells. This extracted brackish groundwater would then be treated through reverse osmosis to remove salts and create a supply that meets potable water standards. The treated water would be distributed inland to offset groundwater users for both domestic and agricultural customers. The extraction wells and treatment would be run at a steady flow rate to prevent seawater intrusion from leaking past the wells. This would result in times—particularly winter months—where more treated water is available than user demands. This excess treated water would be injected back into the groundwater basin inland along the edge of the seawater intrusion front to assist in raising groundwater levels to push the intruded zone back toward the coast. The injection of high-quality water would also improve groundwater quality.

The project concept was developed over the course of many months with SVBGSA, Carollo, and the M&A groundwater modeling team working closely together to model the project's effects on addressing seawater intrusion, chronically low groundwater levels, and overdraft conditions. The feasibility study includes 3 alternatives for a small-, medium-, and large-scale project. The small project would extract 39,700 AF/yr of brackish water and produce 28,000 AF/yr of treated water. The medium project would extract 66,900 AF/yr of brackish water and produce 46,900 AF/yr of treated water. The medium project would extract 96,800 AF/yr of brackish water and produce 64,900 AF/yr of treated water.

These alternatives were developed through an iterative process to assess viability and performance of different configurations of extraction wells, groundwater user offsets, and injection wells. Optimal extraction well configurations were determined by trying to strike a balance between avoiding coastal environmental resources and floodplains, while not placing the wells too far inland. Potential end users and locations for deliveries were identified through review of groundwater extraction, water use records, and personal communication with utility representatives. The strategy of adding injection wells was evaluated by modeling configurations with and without the injection wells. The finding from the modeling runs was that injection wells augment the overall effectiveness of the project.

Project cost estimates for the small, medium, and large alternatives are more than substantial, from $720M, $1B, or $1.48B. The annualized unit cost for each alternative is less than $3,000 AF/yr, which is comparable to many of the recycled water projects being implemented across California to provide a drought proof, reliable source of potable water. While this cost is much greater than the existing cost to pump groundwater, as shown by the historical problems in the region, it is not sustainable to continue the current pumping practices. The regional benefits provided by this project would allow the spreading of costs out to a broader area rather than only charging the specific end users of the new water supply. In the next evaluation period, SVBGSA will investigate ways to cost share for implementation of regional projects.

The feasibility study is planned to be completed in the first quarter of 2025, concurrent with the submittal of the GSP 2025 Evaluation. A summary memo of the project is included as Appendix 4A. The preliminary feasibility study findings will be included in a project update report (discussed below), as well as preliminary feasibility of demand management, to help guide decision making on the next phase of GSP PMA implementation. Should SVBGSA decide to move forward with the Brackish Groundwater Restoration Project, the following steps will be necessary to implement the project (listed in no specific order):

- Continue to position for grant funding for planning, design, environmental, and construction costs.
- Line up end users, regional support, and agreements for participation, funding, ownership, and operation of project.
- Develop financial plan and rate study.
- Design and construct the recommended alternative.
- Obtain permits and clearances from applicable regulatory agencies (CCRWQCB, SWRCB, State and Federal Agencies).
- Conduct environmental process (California Environmental Quality Act [CEQA] and National Environmental Policy Act [NEPA] compliance and compliance documents).

To inform implementation, there are 3 areas that would benefit from additional research prior to design/environmental analysis/construction: 1) a reverse osmosis pilot to determine effectiveness and required treatment configuration, 2) additional groundwater quality data, and 3) an injection well pilot.

This project has the potential to address seawater intrusion and raise groundwater levels in multiple subbasins, including Eastside and Monterey. In the next year, SVBGSA has funding to continue to assess feasibility with preliminary distribution system design and preparation of a CEQA Initial Study in its Round 2 SGM Implementation Grant.

3.3.6 P7 Seasonal Release with ASR

With Round 1 SGM Implementation Grant funding, SVBGSA and M&A are preparing a preliminary feasibility analysis of this project. As conceptualized in the 2022 GSP Amendment 1, the Seasonal Release with ASR project would be achieved through 2 separate but related processes. First, conservation releases from MCWRA Nacimiento and San Antonio Dams would be shifted to the winter and spring. These releases would recharge groundwater along the Salinas River and be rediverted at the SRDF. Second, the rediverted reservoir water would be injected into the 180-Foot and 400-Foot Aquifers for storage and later use. Injected water would help increase groundwater levels, improve water quality, and prevent further seawater intrusion.

The GSP project concept was designed to use existing water rights and facilities to the extent practical. Therefore, the purpose of the current study has been to complete a conceptual analysis that evaluates the feasibility of ASR to meet GSP sustainability goals, and to uncover any potential constraints in the existing reservoir and CSIP distribution system with respect to the project concept. To that end, SVBGSA and MCWRA, as well as M1W, held focused meetings on the existing systems and operations of the reservoirs and re-diversion under MCWRA's water right licenses for these facilities, and considered the feasibility of and constraints to the GSP project concept. In addition, the preliminary, grant-funded study reviews MCWRA's water rights and opportunity to use existing permits or licenses for the project concept and summarizes other project permitting considerations. The study also includes an analysis of existing and readily available Salinas River water quality data and the development of a water sampling plan that would need to be implemented in subsequent phases of feasibility to fill data gaps and support the analysis for treatment design. Finally, groundwater modeling was conducted to evaluate the project's ability to address seawater intrusion and raise groundwater levels. It is planned to be completed in early 2025, concurrent with the submittal of the GSP 2025 Evaluation.

Key findings of the initial feasibility analyses include:

- Winter reservoir releases are challenging primarily due to the need to respond to uncertain reservoir inflows while trying to prevent flooding and maintain as much water in storage for later in the year as possible, to meet all supply demands and environmental requirements.
- Existing CSIP and SRDF infrastructure upgrades would be required, and operation of the SRDF with high winter flows would have operational challenges.
- Diverted water would need to be treated to Title 22 drinking water standards before injection.
- New infrastructure required to supplement the existing system includes conveyance from SRDF to storage, storage facilities, water treatment plant, distribution pipelines to ASR wells, ASR wells, and distribution of extracted water to CSIP system.

- Groundwater modeling shows this project concept would not achieve the goal of meeting the minimum threshold for seawater intrusion defined in the GSP.

Based on the constraints identified for the GSP project concept, Alternatives 1 and 1A were developed as an approach to use a parallel system to the current SRDF/CSIP system that avoid constraints and allow more flexibility in ASR operations. With these alternatives, normal reservoir operations would continue from April to October in support of the conservation program and SRDF operations. The ASR system would be developed with a separate diversion facility to divert surface water for injection, likely using a radial well collector screened in the alluvium under the river. Modification of an existing Salinas River water right or a new water right would be required to use other available watershed flows for this diversion. These alternatives address concerns with operating the SRDF during the winter, and not supplying CSIP with surface water during the peak growing season. Alternative 1A is essentially the same as Alternative 1, except the injection occurs only in the 400-Foot Aquifer. Groundwater modeling shows that Alternative 1 does not meet the seawater intrusion minimum thresholds. Alternative 1A comes close to meeting the minimum threshold in the 400-Foot Aquifer by 2070.

Work conducted at this stage does not include any facility siting or engineering design. The GSP project concept cost estimate was updated based on the preliminary feasibility analysis, with a capital cost of $333,420,000 and total annualized cost of $33,133,400. Alternative 1 has an estimated capital cost of $231,800,000 (assumes only 1 radial well collector at $18,900,000) and total annualized cost of $21,862,700.

As noted in the GSP, reservoir reoperations resulting from the Reservoir Reoperation Management Action feasibility study could be paired with this project in a future study. Any reservoir reoperation would affect the entire Salinas River, and therefore analyses and decisions regarding reservoir reoperation must consider the impact on all Salinas Valley subbasins. Work planned under this PMA title is discussed below in Section 3.3.11.

3.3.7 P8 Irrigation Water Supply Project (or Somavia Road Project)

The Irrigation Water Supply Project at Somavia Road informs the 180/400 Subbasin Irrigation Water Supply Project and other projects described in the Eastside Subbasin GSP. The Salinas River Recharge project assesses Salinas River recharge around Somavia Road, an area where the Salinas Valley Aquitard is less prominent. Potential projects could potentially use extraction wells to increase aquifer recharge from the Salinas River to some of the more productive aquifer zones and supply irrigation water for delivery in the summer.

In summer 2024, SVBGSA initiated feasibility work for this project. The goal of the analysis is to characterize the spatial distribution and timing of Salinas River losses to the groundwater system using multiple lines of reasoning, including reach-scale gaging, point-specific riverbed flux measurement methods, and analysis of historical streamflow records and reservoir release

data. Balance Hydrologics is completing field studies that began in fall 2024. They have completed 2 dry-season baseflow synoptic flow surveys, installed 1 temporary gaging station, and installed piezometers and shallow temperature probes to estimate recharge rates. The study will be conducted through 2025.

Once the recharge analysis is completed, the findings will be included in a sustainability strategy report which will summarize updated information on PMAs and refine estimates of project costs and groundwater impacts.

3.3.8 MA1 Demand Planning

GSP Amendment 1 added a new management action for demand planning to determine how extraction should be regulated and controlled, if needed. With funding from the Round 1 SGM Implementation Grant, SVBGSA contracted with Mr. David Ceppos of the California State University Sacramento Consensus and Collaboration Program (CCP) to complete a Situation Assessment in late 2022 and early 2023. This assessment was intended to gage understanding and readiness for demand management policy or program development.

The overarching finding of the 2022/2023 assessment was that it was premature to pursue a formal Demand Management Policy because of diverse and periodically inaccurate perspectives about what demand management is, and the associated social and economic concerns that these discrepancies raised. The concern was that immediate political actions by the SVBGSA Board would exacerbate regional tension about the topic. Therefore, the further recommendation was that rather than action on a Valley-wide policy, instead SVBGSA should sponsor a comprehensive, stakeholder-based Demand Management Dialogue Process to engage interested parties in the Valley in a meaningful, transparent, focused, and time limited collaborative process. The purpose of this approach was to inform the broad community of interested parties about the range of demand management options available as a means to reframe the regional discussion. SVBGSA has since followed this recommendation as described below.

In the spring of 2024, SVBGSA held 5 community workshops titled - *Our Water Future in the Salinas Valley: Planning for Uncertainty.* The workshops were held across the Salinas Valley and provided an opportunity for dialogue about the following:

- The future of water availability and protection in the Salinas Valley
- Local water management responsibilities and partnerships
- Ongoing efforts on water use efficiency
- Management tools for urban and agricultural water users in times of uncertainty
- Methods for water demand management and regulation

The workshops—which offered Spanish interpretation—provided valuable information about how water is managed in the Valley, the steps residents and businesses have taken toward more efficient water use, and the wide range of options to consider in minimizing water waste, improving efficiencies, and reallocating resources to ensure continued availability of water for the Salinas Valley. Materials from these workshops are available on SVBGSA's website here: https://svbgsa.org/demand-management-workshops/

Similarly consistent with the adopted recommendations, the SVBGSA commenced more subbasin-specific, demand planning discussions with beneficial users in fall 2024with the 180/400 Committee, as well as with the Eastside and Monterey Committees. The committees for the other SVBGSA subbasins will follow in 2025. Recognizing the geographic scale and governance complexity of the Salinas Valley, the process has been designed to implement in phases and with opportunities for the SVBGSA Board to evaluate how the process is going and determine if any modifications are necessary.

SVBGSA has contracted with Minasian Law, LLP, to prepare a legal analysis for demand management measures. That work is underway and is intended to be a resource for evaluating the feasibility of implementing various demand management measures. It is being prepared with input from legal counsel for the other partner GSAs and agencies with local authorities (County of Monterey and MCWRA).

In August 2024, the SVBGSA added another component to this workstream by executing a contract with ERA Economics to conduct an economic analysis of demand management options. The economic analysis similarly is planned to be done not only for the 180/400 Subbasin but in all other subbasins, concurrent with the planning work described above. The work is being funded by both Round 1 and Round 2 SGM Implementation Grants.

In the next evaluation period, SVBGSA will continue demand planning and program development to determine subbasin, regional, or Valley-wide mechanisms to reduce groundwater use. In addition to necessary interested party engagement, work will include using both groundwater and economic models to evaluate methods, options, and costs; addressing economic, legal, and policy considerations; and creating work plans for implementation of preferred approaches to demand management.

3.3.9 MA2 Fallowing, Fallow Bank, and Agricultural Land Retirement

At this time, SVBGSA is considering this management action as part of the demand planning and MLRP programs.

3.3.10 MA3 Conservation and Agricultural Best Management Practices (BMPs)

MCWRA has been tracking agricultural irrigation efficiency and use of BMPs since 1995. Agriculture Water Conservation Plans (AWCP) track conservation measures implemented each year, as well as the irrigation methods used for each crop type. MCWRA issued a report in 2021 summarizing the past 25 years of groundwater extraction reporting. The report indicates that agricultural water efficiency across the reporting area in the Salinas Valley has improved over the period of record, with all areas applying less than 2.5 acre-feet/acre on all crops. Also, over the past 25 years, 85% of reported irrigated acres use automatic time clocks on pumps and/or pressure switches on booster pumps and many others use a range of practices from leakage reduction, off-wind irrigation, pre-irrigation reduction, and others.

SVBGSA's focus is to support existing extension efforts for implementing agricultural BMPs for irrigation efficiency through the development of the Central Coast Ag Water Efficiency Website (CCAWE). CCAWE is being created with the University of California Cooperative Extension, Pajaro Valley Water Management Agency, SVBGSA, and the Resource Conservation Districts of Santa Cruz and Monterey Counties. The goal of CCAWE is to provide a Central Coast specific resource for irrigation efficiency information and tools that are easily accessible. In the next evaluation period, CCAWE will be made public, use and impact will be tracked and the content will be updated and managed by irrigation management specialists.

3.3.11 MA4 Reservoir Reoperation

SVBGSA is planning to further evaluate the Reservoir Reoperation management action in a feasibility study. This work is planned to be done in 2025 with funding from SVBGSA's Round 2 SGM Implementation Grant. The feasibility study will design and model reservoir reoperation scenarios for enhanced groundwater recharge and/or to help meet GSP interconnected surface water SMC goals. This high-level feasibility study will be conducted in collaboration with MCWRA, ASGSA, and other interested parties to simulate reservoir operations and groundwater surface water interactions along the Salinas River. The updated SVOM will be used to build on MCWRA's work to develop a Habitat Conservation Plan (HCP) and incorporate other Salinas Valley groundwater projects as needed. For example, the scenarios could modify reservoir reoperations in response to projects that shift the seasonality of reservoir releases for ASR. Reservoir reoperation scenarios will be developed in collaboration with MCWRA, and modeled scenarios will be evaluated for groundwater benefits and to better assess stream depletion. In the next evaluation period, CCAWE will be made public, use and impact will be tracked, and the content will be updated and managed by irrigation management specialists.

3.3.12 MA5 Undertake and Operationalize Guidance from Deep Aquifers Study

The need for additional study of the Deep Aquifers was identified in the context of stopping seawater intrusion and effectively managing groundwater sustainably. In 2017, MCWRA issued "Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin" (MCWRA, 2017). In 2018, the County of Monterey issued interim ordinance No. 5302 (extended by No. 5303), which prohibited construction of new wells in the Deep Aquifers unless exempted by ordinance and directed MCWRA to complete a study of the Deep Aquifers. In 2020, MCWRA updated its 2017 report (MCWRA, 2020); however, some recommendations were not implemented and the interim ordinance expired. The expiration of the ordinance, coupled with data on well construction and groundwater extraction in the Deep Aquifers that occurred while the ordinance was in place, highlighted the need to complete this critical study.

In the fall of 2021, SVBGSA put together a funding agreement, issued a request for qualifications (RFQ) and, with input from other agencies, selected M&A to complete the study. The collaborative funding partners include ALCO Water, California Water Service, Castroville Community Services District, City of Salinas, Irrigated Agriculture, MCWD GSA, County of Monterey, SVBGSA, and MCWRA. The Study began in January 2022 and was planned to take 2 years to complete.

During the Study preparation, SVBGSA invited diverse technical expert input on M&A's interim work products and findings from the Groundwater Technical Advisory Committee (GTAC), which evolved out of the SWIG Technical Advisory Committee. GTAC peer review of an administrative draft extended the original December 2023 completion timeline to April 2024. The GTAC provided input on numerous aspects of the Study, including the following:

- Key tasks to be included in the scope of the study
- Definition of Deep Aquifers
- Review of preliminary findings and interim guidance
- Newly collected data and how they inform the Deep Aquifers HCM
- Water budget
- Current conditions, monitoring recommendations, and guidance for management

The Deep Aquifers Study was completed in April 2024. It compiles all available data into a scientifically robust report characterizing the geology and hydrogeology of the Deep Aquifers in the Salinas Valley. Collection and integration of different types of data fills key data gaps and provides science-based guidance for management. It provides definition of the Deep Aquifers and an HCM that describes the geology and hydrogeology, extent of the Deep Aquifers, aquifer

hydraulic properties, groundwater chemistry, and potential natural recharge and discharge pathways. It includes a water budget and reviews historical and recent conditions. Lastly, it provides guidance for management. See Section 4.1.1 for additional description of the Study's findings.

Over the summer of 2024, the Deep Aquifers Study was received by the SVBGSA, MCWRA, MCWDGSA Boards, and Monterey County Board of Supervisors. Staff from these agencies have formed a working group to develop recommendations to operationalize the study guidance. The Study is available on SVBGSA's website here: https://svbgsa.org/deep-aquifer-study/

The Deep Aquifers Agency Working Group will continue to work together to develop a monitoring plan and next steps for management of the Deep Aquifers based on the Study guidance in 2025 and will continue ongoing management into the future.

3.3.13 MA6 MCWRA Drought Reoperation

In 2020, MCWRA formed the Drought Operations Technical Advisory Committee (D-TAC). As noted in GSP Amendment 1, the purpose of the D-TAC is to provide technical input and advice when drought triggers occur regarding the operations of Nacimiento and San Antonio Reservoirs. The D-TAC developed Standards and Guiding Principles to be used in the development of a proposed reservoir release schedule triggered under specific, seasonally defined conditions. This management action would result in decisions on reservoir operations and flow releases during a drought. The recommendations of the D-TAC may change with the development and adoption of an HCP, but the D-TAC Standards, Guiding Principles, and Implementation procedures will remain in place unless modified by an HCP.

The winter of 2020-2021 produced only a single significant inflow event, resulting in combined reservoir storage volumes sufficient for only an abbreviated SRDF operation season (April-July, instead of April-October). Drought conditions and limited reservoir inflow persisted in the winter of 2021-2022. The D-TAC was convened and reached consensus that, barring significant late season inflow events, minimum fisheries release rates be made for the entirety of 2022. The D-TAC unsuccessfully tried to develop a Dry Winter Scenario Narrative for January-March 2023; however, large storm events during that period ended up negating the need for it. If drought triggers occur over the next evaluation period, MCWRA will convene the D-TAC to advise on the reservoir release schedule and winter scenario narrative.

3.3.14 Seawater Intrusion Working Group (not included in GSP Amendment 1)

The Seawater Intrusion Working Group (SWIG) management action was completed during the 5-year evaluation period. In 2020, SVBGSA formed the SWIG and a SWIG Technical Advisory Committee to provide input on early project planning.

In 2020 and 2021, SWIG TAC provided technical advice on the effectiveness of potential projects or actions that may halt or reverse seawater intrusion. It also supported the development of a scope of work and RFQ for a Deep Aquifers Study and reviewed the Monterey County Well Ordinance and the well permitting processes to gain a better understanding of the concerns regarding the Deep Aquifers. Other activities included improving the working knowledge of CSIP, and focused on better understanding additional projects that could stop seawater intrusion. This included demand management, various project types, and specific project ideas such as an extraction barrier and ASR. This input from the SWIG and SWIG TAC resulted in the GSP Amendment 1 PMA updates.

In 2022, SVBGSA Board of Directors transitioned the responsibilities of the SWIG to the existing Advisory Committee, and the responsibilities of the SWIG TAC to a new, broader GTAC.

3.3.15 Cross Boundary and Other PMAs

In addition to PMAs in the GSP, SVBGSA and other partner organizations have conducted additional activities for PMAs that further groundwater management goals of the GSAs. Cross boundary projects that may have indirect benefits to the 180/400 Subbasin are discussed here.

3.3.15.1 R2 and R3 Permit 11043 Cross-Boundary Projects

Diversion of water using MCWRA's Permit 11043 has been intended to primarily benefit the Eastside Subbasin, so with the 2022 GSPs it was shifted to the Eastside Subbasin GSP. It was listed as a cross-boundary project in the 180/400 Subbasin GSP Amendment 1 since it may have groundwater benefits for the 180/400 Subbasin.

In 2025, SVBGSA will coordinate with MCWRA to further evaluate the feasibility of projects to use MCWRA's Permit 11043 for diversion of surface water off the Salinas River. Permit conditions only allow water to be diverted when there are natural flows in the river that exceed minimum specified criteria, constrained by an established maximum diversion rate. In coordination with MCWRA, a preliminary feasibility analysis will use the updated SVIHM/SVOM, and potentially the USGS' HSPF model, to refine initial estimates of benefits from diverting water from the river for recharge or in lieu use. The analysis will assess the feasibility of recharging the diverted water through infiltration basins or injection wells and identify favorable areas using well logs, geologic cross sections, and AEM data. The analysis will identify where site-specific analyses could subsequently be conducted if the project is further pursued. The analysis will consider potential impacts from at least 2 climate change scenarios, at least 2 diversion points, different sizes of diversion structures, and options for end uses. Once the preliminary feasibility study is completed, the findings will be included in a sustainability strategy report that will summarize updated information on PMAs and refine estimates of project costs and groundwater impacts.

3.3.15.2 M1, M2, and M3 Marina Coast Water District Cross Boundary Projects

MCWDGSA has made progress on 3 cross-boundary projects located in the Monterey Subbasin:

- M1 – MCWD Demand Management Measures: MCWD continues to implement conservation efforts within its service area to meet and exceed legislative requirements as part of Senate Bill x7-7 and the "Making Water Conservation a California Way of Life" framework. Additional information on the conservation effort can be found in the 2020 MCWD Urban Water Management Plan (MCWD, 2020) and the District's website (https://www.mcwd.org/conserve.html)[2].

- M2 – Stormwater Recharge Management: The Cities of Marina and Seaside, the 2 major municipalities within the Marina-Ord Area, have policies to facilitate additional stormwater catchment and infiltration beyond existing efforts as development and redevelopment occurs. The policies allow ongoing recharge of stormwater into the underlying groundwater basins. Information regarding the cities' stormwater management policies can be found on the city websites (https://www.ci.seaside.ca.us/436/Stormwater and https://cityofmarina.org/757/Stormwater-Management-Program).

- M3 – Recycled Water Reuse Through Landscape Irrigation and Indirect Potable Reuse: The project consists of recycled water reuse through landscape irrigation and/or indirect potable reuse (IPR) within MCWD's service area. MCWD began providing recycled water for irrigation to the Seaside Golf Course and other customers in 2022. Approximately 600 AF/yr of recycled water is delivered to customers in the Monterey and Seaside Subbasins on an annual basis.

  In November 2022, MCWD completed a feasibility study and confirmed the possibility of implementing an IPR project and recommended injection into the Deep Aquifers as the preferred option. The recommended project includes injecting 827 AF/yr advanced treated recycled water into the Monterey Subbasin for extraction by MCWD's existing Deep Aquifer production wells. The study was partially funded by a grant through the SWRCB's Water Recycling Funding Program and was finalized and submitted to the SWRCB. The study (1) conducted a multi-factor screening of project alternatives; (2) performed groundwater modeling to determine the project capture zone and verified aquifer residence times; and (3) performed engineering analysis of cost, energy use, and water quality impacts.

  The MCWDGSA is tracking and pursuing funding opportunities to support implementation of the IPR project. The IPR project was included in the Monterey

Subbasin's Round 2 Implementation Grant application; however, funding was not awarded for this component. The MCWDGSA is currently applying for a U.S. Bureau of Reclamation grant for a first phase of the project. The IPR project is currently scheduled on the MCWDGSA's CIP as a grant-funded project but may be financed through GSA funds if grant funding is unavailable. It is estimated that completion of the project is anticipated in the next 3.5 to 5 years, depending on funding and financing.

3.3.15.3 Protection of Domestic Drinking Water Supplies for the Lower Salinas Valley Project (Not in GSP or Amendment 1)

In 2019, MCWRA initiated the Protection of Domestic Drinking Water Supplies for the Lower Salinas Valley Project, with funding from a Proposition 1 Implementation Grant administered by the State Water Resources Control Board. The purpose of this project is to destroy abandoned or inactive wells to prevent conduits that allow movement of seawater- and nitrate-contaminated groundwater into drinking water supply wells. The current goal is to destroy a minimum of 59 wells. MCWRA's timeline for this effort has been extended to February 2026.

3.3.15.4 Multi-benefit Land Repurposing Program (Not in GSP or Amendment 1)

MLRP is a California Department of Conservation initiative to reduce reliance on overdrafted groundwater basins. Working with a broad coalition of interested parties, an MLRP Plan is being drafted to outline and structure how to strategically and voluntarily repurpose the least viable agricultural lands in the Lower Salinas Valley that can provide multiple water resource benefits.

The California Marine Sanctuary Foundation (CMSF), Central Coast Wetlands Group, Greater Monterey County Integrated Regional Water Management (IRWM) Group, and SVBGSA are implementing a $10 million MLRP grant for the acquisition of portions of agricultural ranches where interested landowners wish to transition farmlands to projects that require less water and create additional community and environmental benefits. Some potential project benefits could be increased groundwater recharge and storage, reduced flooding, habitat enhancement, and water quality improvement. Community input is being requested to help identify the communities' desired benefits.

Technical work includes recharge suitability mapping to help understand where there are potential opportunities for recharging surface water runoff into principal aquifers. The SVBGSA and MLRP partners are working with researchers from the University of California Davis to develop a recharge suitability map and Multi-Criteria Decision Analysis (MCDA) tool. Recharge Suitability Mapping begins with identifying the local goals of groundwater recharge. A Multi-Criteria Decision Analysis (MCDA) will be an outcome of this work that will help the region prioritize suitable recharge locations.

Where recharge potential is limited—for example where there are thick layers of clay and old lake beds—surface water storage and treatment might be a water resource benefit for several project ideas identified in the 180/400 Subbasin. The project concept is to take irrigated acres out of production because they are flood prone, difficult to farm, and the landowner is interested in selling. In addition to reduced groundwater pumping, the potential benefits would be to improve surface water quality, provide flood attenuation, and create freshwater habitat. The projects could also explore surface water storage and conveyance after a water rights analysis.

The MLRP project team is working with landowners who have expressed interest in participating. Future activities include appraisals and high-level project scoping. In addition, the MLRP Plan is being drafted and will be completed in 2025. Land acquisition or long-term leases will be completed by 2027. The MLRP Plan will help guide the program into subsequent years if there is community interest and funding.

Table 3-2 provides a summary of the above discussion on each PMA and its status.

Table 3-2. Status of Projects and Management Actions in Amendment 1

Project/ Management Action #	Project/ Management Action Name	Project/ Management Action Description	Project Benefits	Quantification of Project Benefits	Cost[3]	Targeted Sustainability Indicator	Project Status	Expected Schedule
MA – MANAGEMENT ACTIONS								
MA1	Demand Planning	Proactively determines how extraction should be controlled and planned for	Decreases extraction if needed	Range of potential benefits	Approximately $415,000 for program development, ongoing/annual and future costs being evaluated in planning process	Groundwater Levels, Storage, Subsidence, Seawater intrusion, ISW	Underway. Completed Situation Assessment in 2023. Held Valley-wide workshops held in spring 2024. 180/400 Committee dialogue was initiated fall 2024. Legal and economic analyses underway.	2025 – Develop recommendations, including economic and legal considerations, and create a work plan for a demand management program. 2026 forward - program implementation.
MA2	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	Dependent on program participation	$675-$2,095/AF if land is fallowed $1,295-$3,210/AF if land is retired Demand planning economic analyses to further refine land values and costs.	Groundwater Levels, Storage, Subsidence, Seawater intrusion	May be implemented through MLRP projects or considered under demand planning. 2023-2024 – CCWG developed plan and structure to voluntarily repurpose agricultural land under MLRP.	2024-2025 – UCD developing recharge suitability mapping. If selected, see above demand planning schedule.
MA3	Conservation and Agricultural BMPs	Promote agricultural best management practices 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	Dependent on specific BMPs implemented	Approximately $104,000 for 4 workshops, grant writing, and demonstration trials. Cost could be reduced if shared between subbasins.	Groundwater Levels, Storage, Subsidence, Seawater intrusion	2023-2024 – RCDMC, RCDSC, PVWMA, SVBGSA and UCCE development of Central Coast Ag BMP website.	Ongoing - maintain website and update as needed, conduct additional outreach activities.
MA4	Reservoir Reoperation	Collaborate with MCWRA to evaluate potential reoperation scenarios, which could be paired with projects such as the Interlake Tunnel, seasonal reservoir releases with aquifer storage and recovery (ASR), or other potential projects	More regular annual reservoir releases, including dry years, which could provide water for seasonal storage through ASR in the northern Salinas Valley	Unable to quantify benefits until feasibility study is completed	Multi-subbasin: Approximately $518,000	Groundwater Levels, Storage, Subsidence, Seawater intrusion, ISW	Feasibility partially funded (modeling), not yet started.	2025-2026 – complete feasibility modeling.
MA5	Undertake and Operationalize Guidance from Deep Aquifers Study	Complete study of the Deep Aquifers to enable better management of groundwater and seawater intrusion and operationalize guidance	Increase understanding of Deep Aquifers; protect Deep Aquifers from seawater intrusion and groundwater level decline	Unable to quantify until Deep Aquifers Study completed	Multi-subbasin: $875,000 for Study; cost for operationalizing depends on monitoring plan and management activities, to be determined.	Groundwater Levels, Storage, Subsidence, Seawater intrusion	Deep Aquifers Study completed May 2024, presented to agency Boards summer 2024, and working group started fall 2024.	2025 –Agencies Working Group to develop monitoring plan and recommend management activities. 2026 forward, ongoing management.
MA6	MCWRA Drought Reoperation	Support the existing D-TAC when it develops plans for how to manage reservoir releases during drought	Multi-subbasin benefits: more regular seasonal reservoir releases; drought resilience	Unable to quantify benefits since drought operations have yet to be triggered	Minimal SVBGSA staffing costs for participation. No additional MCWRA costs since already formed	Groundwater Levels, Storage, Subsidence, Seawater intrusion	MCWRA convenes in years when triggers are met. D-TAC convened in 2020, 2021, and 2022.	Ongoing, as needed.

[3] For this GSP 2025 Evaluation, the 2022 cost estimates in GSP Amendment 1 have been updated only for inflation on the costs included in GSP Amendment 1 Table 9-1, unless additional feasibility studies have provided more detailed cost estimates than what was included in the GSP.

Project/ Management Action #	Project/ Management Action Name	Project/ Management Action Description	Project Benefits	Quantification of Project Benefits	Cost[3]	Targeted Sustainability Indicator	Project Status	Expected Schedule
P – PROJECTS								
P1	Multi-benefit Stream Channel Improvements	Prune native vegetation and remove non-native vegetation, manage sediment, and enhance floodplains for recharge. Includes 3 components: Stream Maintenance Program (SMP), Invasive Species Eradication, Floodplain Enhancement and Recharge	Groundwater recharge, flood risk reduction, returns streams to a natural state of dynamic equilibrium	Component 1: Multi-subbasin benefits not quantified Component 2: Multi-subbasin benefit of 2,790 to 20,880 AF/yr of increased recharge Component 3: Multi-subbasin benefit of 1,000 AF/yr from 10 recharge basins	<u>Component 1</u> Multi-subbasin cost: $155,000 for annual administration and $98,000 for occasional certification; $807,000 for the first year of treatment on 650 acres, and $471,000 for annual retreatment of all acres <u>Component 2</u> Multi-subbasin Average Cost: $17,078,000 Unit Cost: $65 to $625/AF <u>Component 3</u> Multi-subbasin Cost: $11,550,000 Unit Cost: $965/AF	Groundwater Levels, Storage, Subsidence, Seawater intrusion, ISW	Underway. 2023-2024 – FlowWest assessing groundwater recharge benefits HECRAS model.	SMP and Arundo Control are ongoing (depending on funding, permitting and landowner interest). 2025 and 2026 – Recharge related to the multi-benefit channel improvement will be informed by the recharge suitability analysis under MLRP and HECRAS modeling.
P2	CSIP System Optimization	Infrastructure and program implementation improvements to better accommodate diurnal and seasonal fluctuation in irrigation demand in the CSIP system, maximize use of recycled and Salinas River water, and further reduce groundwater extraction	Decreased groundwater extraction	Benefit of up to 5,000 AF/yr of recycled and river water provided for irrigation in-lieu of groundwater extraction.	Capital cost $25,150,000. Unit cost: $445/AF/yr	Groundwater Levels, Storage, Subsidence, Seawater intrusion	Underway. 2022 - 2024 – Remote monitoring units installed, scheduling system in beta testing, hydraulic model under development.	2025 – Develop Master Plan, design improvements, operationalize scheduling system. 2026 forward – implement Master Plan.
P3	Modify M1W Recycled Water Plant	Infrastructure upgrades to prevent the winter maintenance shutdown and allow delivery of tertiary treated wastewater to CSIP instead of groundwater when water demand is low	Decreased groundwater extraction	Up to 800 AF/yr of recycled water provided for irrigation in-lieu of groundwater extraction.	Capital Cost: $9,281,000, and Unit Cost: $925/AF.	Groundwater Levels, Storage, Subsidence, Seawater intrusion	Partially complete. 2022-2024 – Chlorination System (Dry scrubbers) upgraded.	Other future RTP Winter Modifications TBD.
P4	CSIP Expansion	Expand service area of CSIP to provide a combination of Salinas River water, recycled water, and, when needed, groundwater in lieu of groundwater extraction	Decreased groundwater extraction	Multi-subbasin benefit for 3,500-acre expansion: up to 7,000 AF/yr of recycled and river water provided for irrigation in-lieu of groundwater extraction	Multi-subbasin Capital Cost for 3,500-acre expansion: $91,121,000 Unit Cost: $1,110/AF.	Groundwater Levels, Storage, Subsidence, Seawater intrusion	High level feasibility funded.	2025 – preliminary feasibility including assessment of options for expansion and source waters, address legal and policy issues

Project/ Management Action #	Project/ Management Action Name	Project/ Management Action Description	Project Benefits	Quantification of Project Benefits	Cost[3]	Targeted Sustainability Indicator	Project Status	Expected Schedule
P5/P6	Brackish Groundwater Restoration Project (previously Seawater Intrusion Extraction Barrier/ Regional Municipal Supply Project)	Install a series of wells in the 180-Foot and 400-Foot Aquifers to extract brackish groundwater to form a hydraulic barrier that prevents seawater intrusion from advancing inland of the wells and build a regional brackish treatment plant to supply water to both agricultural and urban end users in this Subbasin and other subbasins	Prevention of seawater intrusion inland of wells, alternative water supply, less groundwater pumping, reduced risk of seawater intrusion	The total agricultural land use that falls within the seawater intrusion boundary is modeled as 27,835 acres by 2070 under the no project scenario. Approximately up to 149 wells fall between the no project alternative and the Brackish Groundwater Restoration Project chloride boundaries. The total usage of groundwater for these 149 wells is 30,077 AF/yr. The proposed project would protect the water quality of these wells. Volume of treated water produced for end users and injection. Small alternative – 28,008 AF/yr of treated water, Medium alternative – 46,858 AF/yr of treated water, Large alternative – 64,920 AF/yr	Feasibility Study Capital Cost Small Alternative - $720,780,000; Unit Cost for 28,008 AF/yr treated: $2,931/AF Capital Cost Medium Alternative - $ 1,013,690,000; Unit Cost for 46,858 AF/yr treated: $2,365/AF Capital Cost Large Alternative - $1,482,690,000; Unit Cost for 64,920 AF/yr treated: $2,669/AF	Seawater intrusion, Groundwater Levels, Storage, Subsidence,	Phase 1 feasibility study initiated in Summer 2023, to be completed first quarter 2025	If selected, project planning through 2025 - 2028, pilot/demonstration phase 2025 - 2029, environmental review, permitting and construction 2027-2034
P7	Seasonal Release with ASR	Release flows from reservoirs during the winter/spring, for groundwater recharge and then diversion at the SRDF. Diverted water will be treated and then injected into the 180-Foot and 400-Foot Aquifers for seasonal storage, and then extracted for delivery to CSIP during the peak irrigation season and/or delivered for direct municipal use.	Seasonal storage of winter/spring flows in the northern Salinas Valley; reduced coastal pumping during peak irrigation season	14,600 AF/yr injected; 6,800 AF/yr of additional groundwater storage in the 180/400 Subbasin (Feasibility Study modeling to update this estimated of benefits)	Preliminary Feasibility Study – To be updated as part of feasibility analysis	Groundwater Levels, Storage, Subsidence, Seawater intrusion, ISW	Preliminary feasibility study to be completed January 2025	If selected, additional feasibility analysis 2025 – 2026
P8	Irrigation Water Supply Project (or Somavia Road Project)	Extract groundwater during the peak irrigation season to induce greater groundwater recharge and storage during the winter/spring	Less groundwater pumping in area where extracted water is delivered	3,000 AF/yr of extracted water for in lieu use or recharge	Capital Cost: $6,133,000 Unit Cost: $455/AF for extraction wells (not including distribution costs)	Groundwater Levels, Storage, Subsidence	Preliminary feasibility and recharge study funded and underway.	Upon completion of preliminary feasibility in 2025, determine next steps.
CROSS-BOUNDARY PROJECTS ***(projects outside the Subbasin that will likely have indirect benefits for the 180/400 Subbasin that may reduce the need for other PMAs)***								
R1	Eastside Floodplain Enhancement and Recharge	Restore creeks and floodplains to slow the flow of water	More infiltration, less erosion, less flooding	2,300 AF/yr of water available for recharge in Eastside Subbasin. 1,000 AF/yr increase in storage in Eastside Subbasin. 200 AF/yr increase in storage in the 180/400 Subbasin	Capital Cost: $13,037,000 Unit Cost: $1,086/AF	Groundwater Levels, Storage, Subsidence	Partially underway through MLRP. During 2023-2024 – CCWG developed plan and structure to voluntarily repurpose agricultural land.	Through 2025 – UCD will develop recharge suitability mapping.
R2	11043 Diversion at Chualar	Build a new facility near Chualar that would be allowed to divert water from the Salinas River when streamflow is high	Less groundwater pumping, moderately less seawater intrusion in other subbasins	Multi-subbasin: Annual average of 6,000 AF/yr of excess streamflow for in lieu use or recharge, resulting in approximately 4,600 AF/yr increase in storage, mainly in the Eastside.	Capital Cost: $57,633,000 Unit Cost: $1,325/AF	Groundwater Levels, Storage, Subsidence	Flow availability analysis funded.	2025 – complete analysis.

Project/ Management Action #	Project/ Management Action Name	Project/ Management Action Description	Project Benefits	Quantification of Project Benefits	Cost[3]	Targeted Sustainability Indicator	Project Status	Expected Schedule
R3	11043 Diversion at Soledad	Build a new facility near Soledad that would be allowed to divert water from the Salinas River when streamflow is high	Less groundwater pumping, slightly less seawater intrusion in other subbasins	Multi-subbasin: Annual average of 6,000 AF/yr of excess streamflow is diverted for in lieu use or recharge, resulting in approximately 4,600 AF/yr increase in storage, mainly in the Eastside.	Capital Cost: $108,353,000 Unit Cost: $2,185/AF	Groundwater Levels, Storage, Subsidence	Flow availability analysis funded.	2025 – complete analysis.
M1	MCWD Demand Management Measures	Provides in-lieu recharge through reducing groundwater demands.	Reduced pumping in the principal aquifers resulting in an in-lieu recharge benefit; slightly less seawater intrusion.	Equivalent to a 2,500 AF/yr in-lieu recharge benefit at the current population for MCWD service area.	$363,000 to $466,000 annually	Groundwater Levels, Storage, Seawater Intrusion	Ongoing.	Ongoing.
M2	Stormwater Recharge Management	Existing policies will facilitate and result in additional stormwater catchment and infiltration over time as redevelopment occurs	Groundwater recharge, urban flood risk reduction	Under the existing urban development footprint approximately 550 AF/yr of stormwater is generated and infiltrated west of Highway 1 in Marina. Groundwater modeling indicates that stormwater recharge catchment and recharge will increase to 1,100 AF/yr on average as further projected development occurs which will increase net subbasin infiltration rates by 200 AF/yr to 500 AF/yr in the Monterey Subbasin.	No additional cost to implement	Groundwater Levels, Storage, Seawater Intrusion	Ongoing.	Ongoing.
M3	Indirect Potable Reuse	Direct non-potable irrigation use and/or injection of advanced treated water from Monterey One Water (M1W) and extraction using existing MCWD wells or new production wells.	Reduced pumping in the principal aquifers resulting in an in-lieu recharge benefit; slightly less seawater intrusion.	Approximately 2,200 AF/yr to 5,500 AF/yr advance treated recycled water available to MCWD based on current and projected wastewater flows.	Investments have already been made to deliver 1,427 AF/yr for landscape irrigation. Unit cost: $2,485/AF Approximately 2,400 AF/yr recharge through IPR: Capital cost: $67.5 million Unit cost: $3,415/AF Costs per AF would likely decrease at higher production capacities due to economies of scale.	Groundwater Levels, Storage, Seawater Intrusion	Providing recycled water to customers in Seaside and Monterey Subbasins for landscape irrigation; Feasibility Study completed for indirect potable reuse.	Continue and expand recycled water deliveries in 2024-25 and continue to identify funding for indirect potable reuse.
C1	Corral de Tierra Pumping Allocation and Control	Proactively determine how extraction should be fairly divided and controlled in the Corral de Tierra Management Area	Decreased extraction; range of potential benefits, which may include increased flows to the 180/400 Subbasin	Variable based on pumping controls	$517,500 for establishment of pumping allocations and controls	Groundwater Levels, Storage, Subsidence, ISW	Now referred to as Demand Management. 2023 – Valley-wide Situation Assessment Completed. Spring 2024 – hold Valley-wide community workshops. Modeling and interested parties' outreach and engagement activities funded through Q1 2026.	If selected, see above demand planning schedule.

3.4 Considerations for Future PMA Updates or Plan Amendments

The following are considerations for updates to the PMAs or additions in the next plan amendment. These items incorporate committee and public input, with notes where work is underway:

- Multi-benefit Land Repurposing Program – As discussed in Section 3.3.15.8, the MLRP has been conducted by SVBGSA and partner agencies. MLRP should be added to the PMAs in the next plan amendment. The 180/400 Committee suggested several potential projects to consider under MLRP.

- CSIP Optimization – As noted in Section 3.3.2, MCWRA intends to develop a Water Master Plan to support this project. Committee suggestions and public comments included looking at additional storage for CSIP, maximizing how much water is passing SRDF that could be captured/impounded with new storage, and sending more water to M1W treatment (e.g. City of Salinas industrial ponds).

  These items are generally included in work underway. MCWRA is evaluating storage options through its CSIP hydraulic modeling scenarios. Initial modeling of the potential for additional diversions at SRDF is being done as part of the ASR feasibility study. The industrial ponds have been under discussion by M1W, MCWRA, and City of Salinas.

- Aquifer Storage and Recovery (ASR) – MCWRA and the 180/400 Committee suggested the ASR concept be modified to capture excess winter flows, not just releases from the reservoirs, and to consider other diversion systems. This has been incorporated into the feasibility study. It has resulted in the identification of a new alternative to the GSP Project Concept.

- Northern 180/400 Subbasin Rural Residential Area – The northern area of the 180/400 Subbasin, north of Highway 156, is predominantly in rural residential land uses and is distinct topographically from the valley floor. It is more similar in character to the adjacent Langley Subbasin on the east, and also shares characteristics with the Pajaro Valley Groundwater Basin on the north. SVBGSA recommends further evaluation of the unique challenges in these areas, as well as coordination with Pajaro Valley Water Management Agency and the Langley Subbasin on PMA to address them.

  Through the demand planning workstream, SVBGSA has identified a need to focus on improving domestic water efficiency and extending conservation programs that have long been available to urban, large public water systems. SVBGSA is initiating a Water Efficiency Pilot Project (WEPP) in targeting rural residential areas of the Salinas Valley, including the northern portion of the 180/400 Subbasin.

- Integrated Implementation Plan – SVBGSA plans to develop a road map for holistic strategy in the GSP implementation in the Salinas Valley.
    - As per 2020 GSP, SVBGSA developed a draft Integrated Implementation Plan (IIP) to tie the SVBGSA GSPs together and describe how the Salinas Valley's groundwater system functions holistically. The draft IIP was put on hold until additional modeling efforts were completed.
    - SVBGSA will revisit this tool for an integrated approach to PMAs in the Salinas Valley.

During the review of GSP Amendment 1 PMAs for this 5-year evaluation, the 180/400 Committee and public also suggested the following new ideas and/or PMAs to consider adding in a future GSP amendment. These ideas require further vetting to determine if they are supported by the full Committee and approved by the Board to be investigated as part of Annual Work plans. These ideas included:

- Adding a project called "Pipeline from Reservoirs to the North"
- Expanding recycled water for outdoor irrigation in urban areas (e.g. Salinas)
- Evaluating feasibility of collecting irrigated lands runoff from tile drains, addressing water quality, and putting it in storage or reuse
- Evaluating a new rubber dam (like SRDF) near Somavia Road to add river diversions to irrigation in this area
    - This concept will be informed by the feasibility work underway for P8 Irrigation Water Supply Project, discussed in Section 3.3.7.

3.5 Quantification of Benefits to Address Seawater Intrusion

Seawater intrusion is the primary reason the Subbasin is classified as critically overdrafted and addressing seawater intrusion is the main focus of PMAs and SVBGSA's sustainability planning for this Subbasin. The Salinas Valley Seawater Intrusion Model (SWI Model) provides a tool to assist in designing and assessing PMAs that address seawater intrusion in the Salinas Valley.

SVBGSA began development of the SWI Model in 2021 to account for the differing densities of freshwater, seawater, and brackish water to simulate seawater intrusion in the Salinas Valley. The SWI Model covers multiple subbasins, including portions of the 180/400 Subbasin and Eastside Subbasin, and the entirety of the Monterey, Langley, and Seaside Subbasins. Reports documenting the SWI Model and model updates are available on SVBGSA's website here: https://svbgsa.org/resources/seawater-intrusion/salinas-valley-seawater-intrusion-model/

The predictive version of the SWI Model enables estimation of future groundwater conditions with and without PMAs. It simulates potential seawater intrusion starting from the end of the historical model, WY 2020, through WY 2070. Projected impacts are typically reviewed by comparing predictive simulation results of various projects and management actions to a no

project scenario. The feasibility studies for the Brackish Groundwater Restoration Project, ASR, and Demand Management are using the SWI Model to evaluate effectiveness to meet sustainability criteria for seawater intrusion, as well as to understand potential effects on groundwater levels across the model area.

The No Project Scenario shows the leading edge of the 500 mg/L chloride isocontour of seawater intrusion advancing to the northeast side of Salinas in the 180-Foot Aquifer and its stratigraphic equivalent in the Eastside Subbasin. In the 400-Foot Aquifer, the separated "islands" of seawater intrusion merge together and the 500 mg/L chloride isocontour advances to the City of Salinas, intruding across Castroville and the City of Marina. Figure 3-1 shows the advancement of the 500 mg/L chloride isocontour over time in the No Project Scenario. Figure 3-2 shows the estimated chloride concentration in 2070 for each the 180-Foot and 400-Foot Aquifers and their stratigraphic equivalents. In the 400-Foot Aquifer and its stratigraphic equivalent, the new islands and hook shape show the risk of seawater intrusion from vertical migration down from the 180-Foot Aquifer if there are wells screened across both aquifers. The wells screened across both aquifers in the model have unknown screen intervals or aquifer designations; however, it is unknown if the real wells are actually screened across both aquifers.

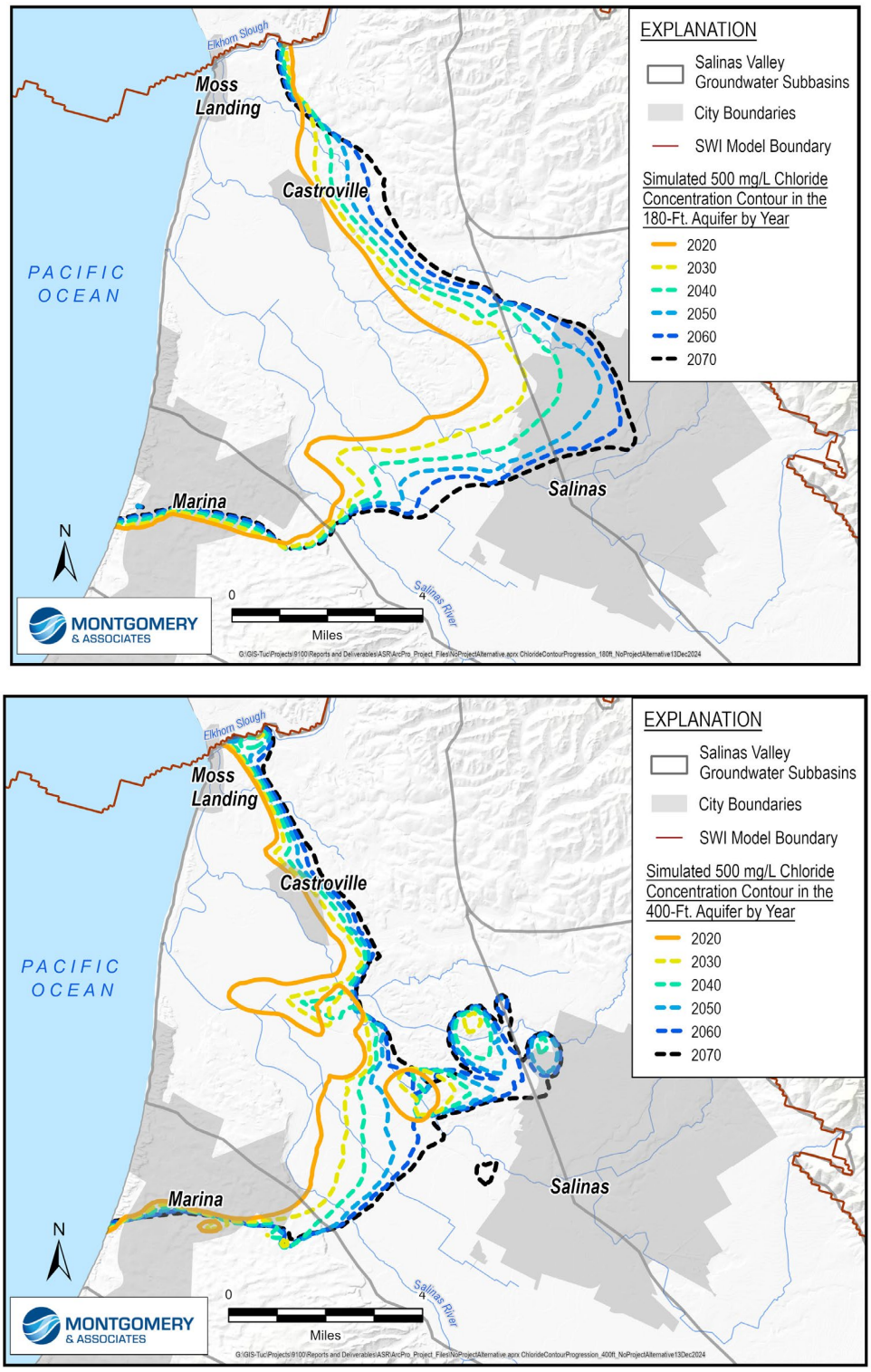

Figure 3-1. No Project Scenario Simulated 500 mg/L Chloride Concentration Contours from 2020 to 2070 in the 180-Foot and 400-Foot Aquifers and their Stratigraphic Equivalents

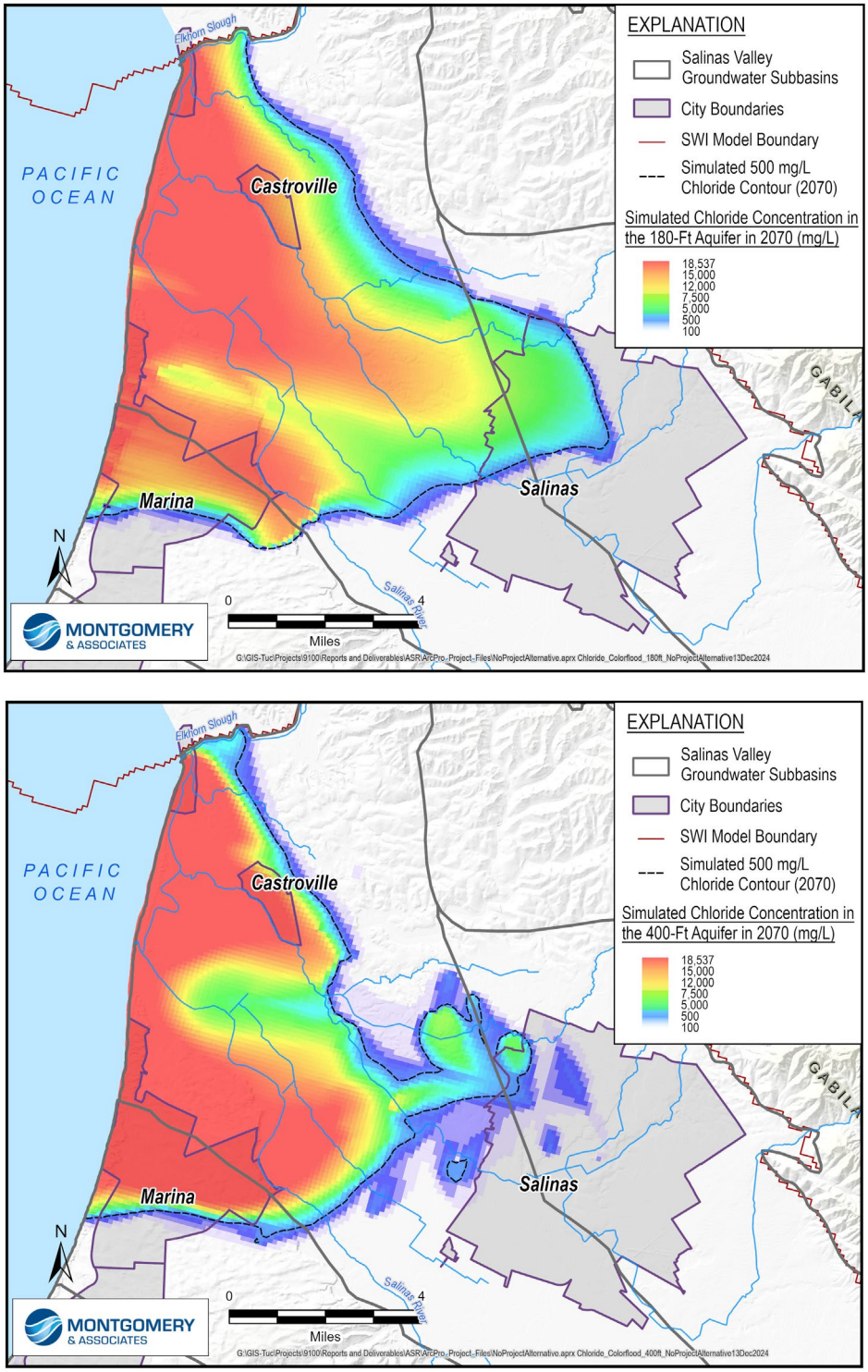

Figure 3-2. No Project Scenario Simulated Chloride Concentration in 2070 for the 180-Foot and 400-Foot Aquifers and their Stratigraphic Equivalents

The No Project Scenario includes current infrastructure and operational rules. It does not include climate change assumptions, as that introduces uncertainty; however, SVBGSA plans to evaluate climate scenarios and compare the results in 2025. The No Project Scenario repeats the representative hydrologic period of 1996-2018, and keeps land use and pumping constant.

The project update report noted above will compare the findings of the feasibility studies for the Brackish Groundwater Restoration Project, Seasonal Release with ASR, and Demand Management. This will include comparing modeling scenarios and results for several alternatives for each of these PMAs with the No Project Scenario. The results inform and update quantification of benefits for these PMAs. This information will be provided in the next annual report and DWR's new SGMA Portal for PMAs. However, at the time of this GSP 2025 Evaluation, this analysis has not yet been completed.

3.6 Project and Management Actions Challenges and Uncertainties

New projects to address seawater intrusion and other groundwater sustainability indicators in the 180/400 Subbasin are still conceptual at the time of this GSP 2025 Evaluation. The pre-construction phase of large-scale infrastructure and projects poses many challenges and uncertainties. Getting through CEQA and NEPA environmental review and permitting will be time consuming and costly. MCWRA has an HCP for current reservoir operations under preparation, and any new operations or projects may trigger a reevaluation of its requirements or other Endangered Species Act (ESA) regulatory compliance. Project construction timelines are likely 5-10 years out.

It is important to ensure that the selected PMAs align with the problems that need to be addressed under the framework of SGMA. As of now, only the Brackish Groundwater Restoration Project appears able to achieve the seawater intrusion minimum thresholds and improve conditions toward the measurable objective. SVBGSA continues to use the SWI Model to evaluate other PMAs and to develop a recommendation on the suite of PMAs for addressing seawater intrusion.

In the next evaluation period, SVBGSA will build on what has been done during the last 5 years. SVBGSA, along with other agencies and interested parties, will conduct a project selection process for the Valley to determine which priority PMAs should be moved forward in an integrated approach, including quantifying the benefits in multiple subbasins where applicable. Through this process, SVBGSA will re-evaluate water budgets and groundwater conditions with and without PMAs. The selection of PMAs to move forward into the next phase of implementation is recommended as part of the GSP 2027 Evaluations for the other 5 Salinas Valley Subbasin and a GSP 2027 Evaluation for the 180/400 Subbasin. This will facilitate a comprehensive and coordinated approach to PMAs across the Valley.

The following section identifies specific challenges facing the SVBGSA.

3.6.1 Maintenance of Existing Facilities

Salinas Valley beneficial users have invested in projects and management actions over many decades prior to the enactment of SGMA. Monterey County does not receive any imported water from State or Federal water projects. MCWRA facilities that serve the Salinas Valley, including the 180/400 Subbasin, are critical components of the existing infrastructure that must be maintained and upgraded along with the construction of any new projects. Recurring operations and maintenance costs of these facilities need to be taken into consideration since they have priority for funding in the near term and add to the overall infrastructure funding needed for SGMA implementation.

Nacimiento and San Antonio Reservoirs play an important role in supplying water to this subbasin. SRDF is operated to redivert stored water through reservoir releases and then supplies that water to CSIP. MCWRA is working on several dam safety projects for Nacimiento and San Antonio Dam facilities to fulfill Federal and State regulatory requirements and to continue to provide flood protection and a sustainable water supply – these are surface water projects that are not included in the GSPs. However, at the estimated price tag of $200 million, the financial burden will be borne by the same constituents that will likely be asked to pay for SGMA PMAs.

CSIP Optimization is the second priority project in the GSP. Since 1998, MCWRA and M1W have operated SVRP and CSIP, with the addition of SRDF in 2010, to reduce groundwater pumping in the seawater intruded area of the Subbasin. Groundwater pumping is estimated to have been reduced by ~250,000 AF/yr. Nevertheless, CSIP still relies partially on groundwater pumping. Only 8 wells are currently operational, out of the 22 supplemental wells in the original CSIP system. Seawater intrusion or other localized impacts have made some wells no longer usable, and some wells passed their usable life. The system is presently not operating as originally designed. Aging infrastructure in the CSIP system, now over 25 years old, is a concern. Pumping from both CSIP supplemental wells and private standby wells will likely increase if insufficient in-lieu recycled and surface water are not supplied. The worst-case scenario in the 180/400 Subbasin would be a failure of these systems. SVBGSA will continue to encourage and support system maintenance but is dependent on MCWRA and M1W for ongoing operations and maintenance of these projects.

3.6.2 Project Costs and Funding

While Salinas Valley water users have made historic and significant investments in projects to address seawater intrusion and ensure adequate water supplies, significant new investments will be needed to achieve sustainability under SGMA. Paying for water projects involves assembling funding from a mix of public, private, and/or innovative sources to cover sizable capital and operating costs. Each project's financing strategy depends on its size, purpose, and beneficiaries.

Many financial and economic uncertainties could impact project funding. Inflation, rising material costs, and fluctuating labor markets will increase construction costs over time. Securing adequate funding from public or private sources can be challenging, especially for multi-million-dollar projects requiring long-term financing. SVBGSA and other agencies will need to pursue financing mechanisms for new projects that ensure cost recovery while also keeping water affordable.

Funding a large-scale infrastructure project is always a challenge. Currently, the largest scale project with the greatest benefits that SVBGSA is studying is the Brackish Groundwater Restoration Project. It has an astounding capital cost estimate, ranging from $720 million to $1.5 billion depending on the scale, though this figure is on par with other projects of this magnitude in California. Instead, if multiple projects are selected to be implemented, these may collectively amount to a similar magnitude of costs. Demand management may be less expensive to implement but has other social, political, and economic implications. But if no new PMAs are implemented, this too would have economic impacts and costs associated with lack of action (e.g. being out of compliance with SGMA, dry wells, and/or need to treat groundwater due to seawater intrusion). Generally, implementing multiple large dollar projects would likely be infeasible.

This process will consider potential project costs to end users to determine reasonable and equitable cost shares for project financing and willingness to pay them. To implement PMAs, SVBGSA will need to develop agreements with multiple agencies and interested parties to participate in projects that benefit all participants. Urban water providers and the agricultural industry will need to agree to a cost allocation for projects benefiting their operations.

In the next evaluation cycle, SVBGSA is planning to explore different capital project funding options and financing strategies, which may include public financing, such as federal, state, or local grants or low-cost loan programs, user fees and charges, specialized financing mechanisms, or other innovative approaches. By combining funding approaches, large water infrastructure projects can secure the capital needed to meet the growing demands for sustainable and reliable water systems.

3.6.3 Implementation Timelines

Implementation timelines will be a key consideration in the PMA selection process during the next evaluation period. Several of the PMAs, if selected, have long project timelines to move from initial feasibility studies currently being done to “shovel ready” projects. Large projects often require years of planning, design, and approval, during which economic, environmental, or political conditions may change. PMAs could be phased or implemented on different timelines. For example, certain demand management measures may be needed while projects are being developed and implemented.

Various aspects of project pre-construction phases come with delay risks to implementation timelines. The regulatory and permitting process can often cause delays. Securing project approvals and permits under laws like the California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) can be time-intensive, particularly if the project faces opposition. Projects that require approval from multiple agencies (e.g., state, federal, and local) pose coordination and schedule challenges.

3.6.4 Public Acceptance and Social and Political Feasibility

Public support will be important to the success of GSP implementation. It will require ongoing and clear communication about project costs and benefits. Lack of support will pose a significant challenge to PMAs. Through active public outreach and engagement, SVBGSA will assess which PMAs have public support through a selection process to determine which PMAs should move forward to the next phase of GSP implementation.

3.6.5 Other Agency/Utility Projects

There are several other projects not included in the GSP but pertain in part to the 180/400 Subbasin. Implementation of GSP PMAs will very likely require coordination with these other projects to consider multiple initiatives.

3.6.5.1 Pure Water Monterey/Expansion

In the Monterey Peninsula region of Monterey County, water historically came from 2 sources: 1) a local river (Carmel River) and 2) groundwater (Seaside Groundwater Basin). Overuse of these 2 sources threatened water quality and habitats, leading to state and court-ordered reductions in these resources. To help address this challenge, M1W and its partners came together to create a drought-proof new and independent water supply: Pure Water Monterey (PWM).

Using a proven, multi-stage treatment process, PWM turns wastewater into a safe, reliable, and sustainable water supply that complies with or exceeds strict State and Federal drinking water standards. M1W collects, treats, and purifies the wastewater before conveying and injecting the water into the Seaside Groundwater Basin. M1W sells the new water supply to the Monterey Peninsula Water Management District (MPWMD) who has jurisdiction over the Seaside Groundwater Basin. MPWMD has a contract with California American Water (Cal Am) who extracts the water and delivers it to its customers in its Monterey main service district, outside of the Salinas Valley Groundwater Basin.

The PWM Expansion Project will expand the Advanced Water Purification Facility (AWPF) peak capacity from 5 mgd to 7.6 mgd and increase injection to the Seaside Groundwater Basin by an additional 2,250 AF/yr (for a total average yield of 5,750 AF/yr). The Project includes an

expanded injection well area and installation of approximately 12,100 linear feet of new product water conveyance pipelines, 2 injection wells, a backflush basin, and associated equipment.

MCWRA and M1W have an "Amended and Restated Water Recycling Agreement" for the CSIP/SVRP and PWM projects. Wastewater treated for both projects come through the Regional Treatment Plant. These agencies will continue to manage and monitor source waters available for recycling under this agreement and are planning updates to it. This may inform work on CSIP Optimization and feasibility of CSIP Expansion.

Because CSIP, PWM, and PWM Expansion Project rely on the availability of the same water, there are concerns about competing operational needs over time. The community of affected and interested stakeholders has diverse perspectives about the role these projects have in the overall management of water resources in the County. SVBGSA applied for the DWR professional facilitation support to conduct a stakeholder assessment and to create a broad and common understanding about CSIP, its benefits, opportunities, and limitations. This work is currently underway.

3.6.5.2 Monterey Peninsula Water Supply Project

The Monterey Peninsula Water Supply Project (MPWSP) will augment Cal-Am's Carmel River water rights and Seaside Groundwater Basin native supplies that are constrained by legal decisions (SWRCB Cease and Desist Order and Adjudication). In addition to adding PWM to the water supply portfolio, MPWSP includes 5 slant wells located at the site of the CEMEX Lapis sand mining operation that are being retired in the northern coastal area of the City of Marina and would extend offshore into the submerged lands of the Monterey Bay National Marine Sanctuary. A source water pipeline would convey the source water 2.5 miles inland from the wells to a 4.8 mgd capacity desalination plant to be constructed in unincorporated Monterey County. The brine is proposed to be discharged into the Monterey Bay National Marine Sanctuary through M1W's existing wastewater outfall. It also includes improvements to the existing Seaside Groundwater Basin aquifer storage and recovery (ASR) system facilities, which would enable CalAm to inject desalinated water into the groundwater basin in wetter years for subsequent extraction and distribution to customers in drier years.

CalAm is working on the implementation of the desalination components of the MPWSP. The CEMEX property is in the 180/400 Subbasin and is coincident with the County of Monterey GSA (see Section 6.6.1). Ongoing litigation related to this project will need to be resolved prior to project construction. There is uncertainty around the impact of this project on the 180/400 Subbasin and whether it would affect sustainability under SGMA. Continued controversy over the MPWSP may affect SVBGSA's PMA implementation if not resolved.

If the Brackish Groundwater Restoration Project is selected to move forward in the Salinas Valley, it too would rely on M1W's outfall for brine discharge. Both projects would require

modifications to the outfall to meet Ocean Plan requirements. Cumulative effects of these discharges will need to be further evaluated during the environmental review process.

3.6.5.3 Interlake Tunnel and San Antonio Spillway Modification Project

MCWRA's Interlake Tunnel and San Antonio Spillway Modification Project (ILT) connects existing facilities at Nacimiento and San Antonio Reservoirs to increase water storage capacity and achieve environmental and water conservation release efficiencies. The Interlake Tunnel Project would utilize existing storage infrastructure by designing and constructing a 12,000-foot underground tunnel between the Nacimiento and San Antonio reservoirs to transfer water and thereby increase the opportunity to store additional water when available. Cost estimates for this project in 2022 were $150 million. This project is not in the 180/400 Subbasin GSP.

MCWRA circulated a Draft EIR for the ILT project in early 2023, and a Final EIR has not yet been completed. MCWRA filed Petitions for Change to their Nacimiento and San Antonio Reservoir Water Rights in 2021 to facilitate its Interlake Tunnel Project, as well as a Petition for Extension of Time to complete use of water under its Permit 21089. The SWRCB has not yet issued orders on these petitions, so the requested changes remain outstanding. MCWRA will prepare a Final EIR once the water rights petitions progress further.

SVBGSA will continue to monitor this project and consider its potential effects on the feasibility of other PMA. It should be included in a cost and benefit analysis comparing PMA options in the Salinas Valley and be part of a project selection process.

3.6.6 Salinas Valley Integrated Implementation Plan

The 2020 GSP called for an integrated sustainability plan to achieve groundwater sustainability in all 6 of the Salinas Valley subbasins under SVBGSA's authority. PMAs included in the GSP were considered part of a larger set of integrated projects and actions for the entire Salinas Valley. In line with the 2022 GSPs prepared for the other 5 subbasins, the 180/400 Subbasin PMAs were updated in Amendment 1. Some PMAs are included in other GSPs where applicable. SVBGSA prepared an Integrated Implementation Plan (IIP) in 2022 that summarized groundwater conditions across the Salinas Valley.

The Advisory Committee recommended putting an IIP on hold until interested parties representing different areas of the Valley could use the USGS final Valley-wide SVIHM model for inter-subbasin modeling. There have been several delays in the completion of the SVIHM under development by USGS, most recently delayed to early 2025. While SVBGSA developed the SWI Model as a tool to estimate the effects of PMAs on seawater intrusion and it is currently being used, the SVIHM is needed for additional PMA feasibility studies and to understand PMA effects across subbasins.

Project priorities for all subbasins should be reviewed considering new information from feasibility studies and reconsidered in the next 2 years as part of the GSP 2027 Evaluations. More information is still needed to compare large scale infrastructure projects, and to determine which PMA or combinations of PMAs will best achieve sustainability goals. An addition to the Integrated Implementation Plan could serve as a tool for a review of PMAs across the Salinas Valley, to understand more broadly where projects would provide benefits and cross-boundary effects in multiple subbasins.

SVBGSA intends to update this document with the recent data and formalize it as a road map for holistic implementation of SGMA in the Salinas Valley.

3.7 Summary of Progress Toward Sustainability

As noted in Section 3, the 180/400 Subbasin has had undesirable results over the evaluation period for 4 of the 6 sustainability indicators: Groundwater Levels, Seawater Intrusion, Groundwater in Storage, and Interconnected Surface Water.

SVBGSA spent the first 5 years of GSP implementation filling data gaps, working with partner agencies to improve existing infrastructure, and conducting feasibility studies to determine which PMAs are best to achieve groundwater sustainability. Filling data gaps is important to understand which PMAs to implement, where to implement them, and how to design them. In addition to expanding the monitoring networks, SVBGSA developed the SWI Model to assess the impact of PMAs on seawater intrusion and groundwater levels in the coastal area.

With help from the Round 1 SGM Implementation Grant, SVBGSA explored the 3 types of PMAs that can potentially mitigate seawater intrusion: an extraction barrier, injection, and reducing extraction. Those will culminate in a project update report in early 2025, and be complemented by consideration of various combinations of PMAs in the 180/400 and other subbasins. These feasibility studies show that at least 1 project can meet the seawater intrusion minimum threshold: the Brackish Groundwater Restoration Project, which pairs an extraction barrier with desalination for a drought-proof alternative in-lieu supply.

In 2025, SVBGSA will explore whether combinations of PMAs would likewise meet the minimum threshold. Groundwater modeling shows the measurable objective may have been set unreasonably ambitious, and SVBGSA will consider if there are other ways to address the needs of beneficial users in the coastal area, such as CSIP expansion, alternative water supplies, and/or management of the Deep Aquifers.

SVBGSA intends to submit the next periodic evaluation for the 180/400 Subbasin in 2027 in line with the other 5 Salinas Valley subbasin periodic evaluations. In the next 2 years leading up to those periodic evaluations, SVBGSA will work on a comprehensive PMA selection process that will meet the sustainability needs of all subbasins individually and in an integrated manner.