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SECTION 6: **Project and Management Actions [Article 5, SubArticle 5]**

6.1 Introduction [§354.42, 354.44(a),(c), and (d)]

§354.42 Introduction to Projects and Management Actions. This Subarticle describes the criteria for projects and management actions to be included in a Plan to meet the sustainability goal for the basin in a manner that can be maintained over the planning and implementation horizon.

§354.44 Projects and Management Actions

(a) Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.

(c) Projects and management actions shall be supported by best available information and best available science.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

Sustainable Groundwater Management Act (SGMA) regulations require each Groundwater Sustainability Plan to include a description of projects and management actions necessary to achieve the basin sustainability goals and to respond to changing conditions in the basin. This section describes the projects and management actions that the Carpinteria GSA believes will, when implemented, help the Basin attain sustainability in accordance with § 354.42 and § 354.44 of SGMA regulations. The concepts for the proposed projects and management actions were developed during working sessions with GSA staff, meetings with the Carpinteria GSA Technical Coordination Committee, meetings with the GSA GSPAC, and in public workshops between April and August, 2023. In the context of this GSP, projects are defined as activities supporting groundwater sustainability that require significant funding, infrastructure, and engineering support. Groundwater management actions generally refer to activities that support groundwater sustainability through policy and regulations without significant infrastructure requirements or capital investments. The effectiveness of the projects and management actions will be assessed based on the ability to avoid undesirable results as discussed in Section 5 of this Plan.

The Carpinteria GSA has developed a portfolio of potential projects and management actions that can be implemented in a phased manner as the conditions in the Basin dictate. Based on the results of the analysis that was performed in conjunction with the development of this Plan, the Carpinteria GSA concludes that the sustainability goals described in this Plan and required under the provisions of SGMA can be achieved through the implementation, as needed, of the projects and management actions described in Sections 6.3 through 6.14. This GSP categorizes listed projects as either Tier 1 projects or Tier 2 projects. Tier 1 projects are priority projects expected to be implemented within the first 5-year SGMA implementation period; two projects are identified as Tier 1 projects. Tier 2 projects are non-priority projects also identified for possible future consideration. It is expected that all management actions discussed in this section will be evaluated and implemented as appropriate in the first 5-year SGMA implementation period.

The Carpinteria GSA plans to continually monitor and assess its progress toward meeting the sustainable management criteria described in Section 5. Under conditions where minimum thresholds are projected to be achieved, the Carpinteria GSA will perform assessments to determine whether the trends are related to groundwater pumping, drought conditions, or other factors. If groundwater level data are trending toward reaching minimum thresholds as a direct consequence of groundwater pumping in the Basin, then the Carpinteria GSA will determine which additional project(s) and/or management action(s) to implement to address these conditions.

Management actions and potential future projects discussed in this section have been developed to address sustainability goals, measurable objectives, and undesirable results identified for the Basin in Section 5. Inclusion of projects and management actions in this Plan does not forego obligations under local, state, or federal regulatory programs. While the Carpinteria GSA has an obligation to oversee progress toward groundwater sustainability, it is not the primary regulator of land use, water quality, or environmental project compliance. The GSA will work with the County of Santa Barbara and the City of Carpinteria land use staff and other outside regulatory agencies, as needed, to ensure that projects and management actions undertaken pursuant to SGMA are in compliance with all applicable laws. The Carpinteria GSA may choose to collaborate with land use and regulatory agencies on specific overlapping interests, such as well permitting, water supply considerations, water quality monitoring, and oversight of projects developed within the Basin.

The projects and management actions in this Plan are designed to achieve several outcomes, including:

- Achieving groundwater sustainability within 20 years of Plan adoption.
- Preventing or reducing the impacts of seawater intrusion in the Basin.
- Ensuring that projects and management actions benefit all uses and users of groundwater.
- Developing sources of funding for GSA operations. Funds will also be used for future Basin monitoring and the implementation of projects and management actions that are identified by the GSA to be appropriate.
- Providing controls and incentives to manage groundwater pumping, if needed, to support sustainability goals.
- Supporting the health of groundwater-dependent ecosystems in the Basin.

The projects and management actions described in this section provide a framework for achieving sustainability. However, not all details for proposed projects are known at the time of adoption of this GSP. Specific details will need to be finalized and negotiated before many of the projects and management actions can be implemented. Costs for implementing projects and management actions may come from grant funding or from GSA operating revenues, depending on the project.. The array of projects and management actions developed by the GSA included in this section demonstrate that options and alternative paths exist to reach sustainability, and it may not be necessary to implement all the projects and management actions to maintain sustainability over the long term. Importantly, the projects and management actions included herein should be considered as a list of options that will be refined during Plan implementation, during which stakeholders will be provided additional opportunities to participate in the public process before projects and management actions are implemented.

SGMA regulation § 354.44 requires that projects and management actions described in the Plan include a discussion of the following:

- Relevant measurable objectives being addressed
- The expected benefits of the action

- The circumstances under which management actions or projects will be implemented
- How the public will be notified
- Relevant regulatory and permitting considerations
- Implementation schedules
- Legal authority required to take the actions
- Estimated costs

A summary of the projects and management actions identified by the Carpinteria GSA are listed below. Tier 1 projects are expected to be implemented within the first 5-year SGMA implementation period. Tier 2 projects will be evaluated and ranked during the first 5-year period for potential future implementation. Some projects or management actions may occur if drivers other than sustainability, such as water supply management flexibility, necessitate the implementation.

Tier 1 Projects

- Carpinteria Advanced Purification Project (CAPP)
- Carpinteria Sentinel Monitoring Well Network Expansion

Tier 2 Projects

- Carpinteria Seawater Intrusion Barrier Project
- Aquifer Storage and Recovery (ASR) Projects
- Recharge Enhancement (Recharge Basins and Creek De-lining)
- Regional Infrastructure Tie-Ins and Agreements with Neighboring Basins

Potential Management Actions

- Municipal Pumping Re-Distribution
- Annual Reports
- Address Data Gaps
  - Perform Video Surveys in Representative Wells that Currently Do Not Have Adequate Construction Records to Confirm Well Construction
  - Identify wells in the Ventura County portion of the Basin that can be monitored for water levels or water quality
  - Survey and Investigate Potential Groundwater Dependent Ecosystems (GDEs) in the Basin
  - Geophysical monitoring along coast every 5 years to evaluate seawater intrusion.
- Groundwater Pumping Fee Program
- Well Registration and Well Meter Installation Programs
- Water Use Efficiency Programs
- Groundwater Model Revisions and Updates

As work on supplemental water supply and resource management efforts is ongoing, additional projects and/or management actions may be identified and added to the list in future Plan updates.

6.2 Project and Management Action Implementation Approach [§354.44(b)(6)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(6) An explanation of how the project or management action will be accomplished. If the project or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.

The amount of groundwater pumping in the Basin in recent years has exceeded the historically-estimated sustainable yield of about 3,600 to 4,000 acre-feet per year (AFY), as discussed in Section 3.3. Declining groundwater levels were documented in many areas during the recent drought. As a result, the Carpinteria GSA will initiate implementation of Tier 1 projects and selected management actions within the first 5-year SGMA implementation period. The effect of these activities will be reviewed and discussed in the Basin annual reports required under SGMA. Additional projects and management actions may be considered and implemented as necessary to avoid undesirable results.

In general, the management actions are intended to apply to all areas within the Basin. The management actions reflect basic Plan implementation requirements, such as necessary studies and early planning work, extraction measurement, monitoring, reporting and outreach, monitoring and filling data gaps, annual reports and Plan updates. The Carpinteria GSA anticipates that new policies, ordinances, and regulations may be necessary to implement some of the potential projects and management actions. Developing and adopting these policies, ordinances, and regulations would likely require substantial planning and negotiations among the Carpinteria GSA, local public, and various Basin stakeholders. Outreach and negotiations will be used to define and gain approvals for the scope and detail associated with GSA-imposed requirements after Plan adoption. Public meetings and hearings will be held, as needed, during the process of determining when and where in the Basin projects and management actions may be implemented to maximize their benefits to the Basin. Implementation of some of these actions may require compliance with CEQA and other legal requirements.

A feasible approach to funding implementation of the Plan will be developed in accordance with all state laws and applicable public process requirements. Public meetings and hearings will be held to hear input from the public, interested stakeholders, and groundwater pumpers. All input will be considered and incorporated into the decision-making process. The Carpinteria GSA will annually assess the progress that the implemented projects and management actions have made in stabilizing groundwater levels and meeting the sustainability metrics described in this Plan, and include discussion of this assessment in Annual Reports. The Carpinteria GSA will reassess the need for continuing and/or expanding planned actions. At a minimum, the reassessment process will be done as part of the required 5-year review and reporting on the Plan to California Department of Water Resources (DWR).

6.3 Carpinteria Advanced Purification Project (CAPP) [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.3.1 Project Description

The CAPP is a Tier 1 project. The objective of the CAPP is to develop a new sustainable locally controlled future water supply for the Basin through implementation of an Indirect Potable Reuse (IPR) project. Planning, design, and funding for this project have been administered by the CVWD. The recent drought and projected changes to the area's existing water supplies highlight several water resource vulnerabilities and the need for a local, reliable water supply. Water supply issues include State Water Project (SWP) conveyance system capacity limitations, decreased reliability, and increasing costs to sustain reliability; potential yield reductions for the Cachuma Project, increased competition for Lake Cachuma storage, and vulnerability of Cachuma Project conveyance systems; and stricter groundwater management resulting from SGMA implementation. These vulnerabilities support the need for a local, reliable, and drought-resistant recycled water project.

In 2016, the District, along with Carpinteria Sanitary District (CSD) and City of Carpinteria (City), completed a *Recycled Water Facilities Plan* (CVWD 2015) that obtained partial funding by the California State Water Resources Control Board. This plan recommended alternatives for a recycled water project with groundwater recharge. The recommended project consists of producing approximately 1,100 acre-feet per year (AFY) (1.0 million gallons per day (MGD)) of purified water from the CSD Wastewater Treatment Plant (WWTP) for injection into the local groundwater basin. After adequate retention time in the aquifer, the injected water ultimately will be recovered through existing CVWD production wells (Headquarters well and El Caro well) and used for District potable water supply. The ultimate project assumes an expansion of treatment capacity from 1.0 MGD to 1.5 MGD based on projected future increases in WWTP flows. The ultimate implementation of the CAPP includes the following facilities (see **Figure 6-1**):

- Advanced Water Purification Facility (AWPF) consisting of equalization tank, microfiltration (MF), reverse osmosis (RO), and an advanced oxidation process (AOP)
- Purified Water Pump Station (PWPS), to be located on the WWTP site
- 6,100 linear feet (LF) of 12-inch conveyance pipeline from the PWPS to a well lateral split point, including CalTrans installation for the Linden Avenue overpass over US Highway 101
- 2,000 LF of 8-inch conveyance pipeline from the well lateral split point to individual injection wells
- Up to three 14-inch injection wells with backwash pumps and a 42,000 gallon backwash tank

- Approximately 1,400 LF of 12-inch well backwash discharge piping to existing sanitary sewers.
- Six clustered monitoring wells
- Existing CVWD Headquarters and El Carro production wells

The CAPP is not a proposed project planned for possible future development; the project is moving forward as of the adoption of the GSP. Funding from numerous sources has been secured, Final design underway, construction elements have been scheduled, and the project is anticipated to be completed and ready for startup by 2027.

FIGURE 6-1

Carpinteria Advanced Purification Project (CAPP) Facilities

Carpinteria Basin Groundwater Sustainability Plan

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6.3.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

Development of IPR projects through use of advanced treated wastewater as a water supply source is a proven technology with current projects either implemented or in the planning stages throughout California. Implementation of the CAPP would essentially introduce a new source of water supply to the Basin. Although in many years the project is likely to be operated using a put-and-take strategy, during wet years when surface water sources are plentiful, it is possible that the operation of the CAPP will result in a reduction of District pumping of native groundwater. Even during the put-and-take years, project operations would have the effect of raising water levels locally in the vicinity of the injection wells and reducing the pumping of native groundwater. Therefore, implementation of the CAPP will improve conditions relevant to the measurable objectives for the chronic decline of groundwater levels and the reduction of groundwater in storage sustainability indicators. Preliminary application of the Basin groundwater model indicates that implementation of the CAPP will result in small increases in groundwater elevations along the coast, and an ancillary reduction of inland flows from beneath the ocean. As such, implementation of the CAPP will also help produce conditions to achieve the measurable objectives for seawater intrusion in the Basin.

6.3.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

Implementation of the CAPP is proceeding at the time of the publication of this GSP. Therefore, there are no future triggers which will activate development of this project in the future.

6.3.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Notification to the public regarding the concept for this project and the need to implement this project to avoid undesirable conditions in ongoing groundwater management was provided during the public process associated with the development of this GSP. Additionally, during project development and the CEQA & permitting process, public notification consistent with the requirements of CEQA was carried out.

6.3.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

The CVWD completed the CEQA review process for the CAPP in January 2019 and is currently completing the permitting phase of the project at the time of the adoption of this GSP. An addendum to the Environmental Impact Report (EIR) will likely be necessary as final design is completed. Construction of the CAPP will require a coastal development permit (CDP) and a conditional use permit (CUP) issued by the City of Carpinteria. Title 22, National Pollutant Discharge Elimination System and waste discharge requirement (WDR) permits issued by the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB) will be required for the operation of the CAPP.[1]

[1] Personal communication, R. McDonald, CVWD GM, to D. O'Rourke, GSI Water Solutions, Inc. September 24, 2023.

6.3.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

Planning for the CAPP in its current conception began with a regional reuse study and an IPR facilities study in 2015-2016. CVWD and CSD agreed to the terms of the project in 2017. Preliminary design was completed in 2018. The EIR was completed in 2019. Grant funding was pursued in 2020-2021, and awarded in 2022. At the time of the adoption of this GSP, it is anticipated that final design will be in progress and construction will begin in 2025, and the CAPP startup is anticipated to occur in 2027.

6.3.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

The CAPP is expected to recharge the Basin with approximately 1,100 AFY of advanced purified water into two injection well locations in the central area of the Basin. to provide new supply and to locally increase groundwater elevations in the Basin. This new source of recharge to the Basin will result in increased water levels in the area that has been shown to historically have a depression in water levels during dry periods. Additionally, management of water levels at the injection site in conjunction with overall water supply availability will lead to reduced withdrawal, by CVWD, of native groundwater over time. Because of this water levels and groundwater in storage will benefit.

A detailed groundwater modeling study of the CAPP was performed to support planning for this GSP. A Technical Memo prepared by Pueblo Water Resources is included in **Appendix F**. These modeling results indicate the following:

- The CAPP will result in increased water levels over Baseline scenario results,
- SMCs for the Water Level Decline and Reduction in Storage sustainability indicators will be successfully achieved at the RMS wells.
- Implementation of the CAPP will result in an increase in sustainable yield of the Basin of approximately 1,000 AFY.
- Increased water levels resulting from implementation of the CAPP result in reduced inflow from the ocean, thereby mitigating against conditions that could lead to sweater intrusion (although the CAPP by itself is not expected to protect against seawater intrusion.)

6.3.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

California state law gives Water Districts the authority to implement actions deemed necessary to supply sufficient water for present and future beneficial use. CVWD has legal authority to pursue and implement the CAPP.

6.3.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

The CAPP is projected to cost about $50 million to permit and construct to deliver the 1,100 AFY of water to the Basin. The project will be funded through a combination of grant funding and low-interest loans, as detailed in Table 6-1.

Table 6-1. Carpinteria Advanced Purification Project (CAPP) Funding Summary

	Status
Grant Program	
U.S. Bureau of Reclamation Title XVI	August 2022: Awarded $9.7M July 2023: Will apply for additional funds (25 percent of capital costs; ~$2.7M)
DWR Integrated Regional Water Management	Fall 2022: Awarded $1.1M; Agreement expected summer 2023
SWRCB Water Recycling Funding Program	September 2022: Awarded $10.8M February 2023: Will request additional funds (35 percent of construction costs; ~$2.5M)
DWR SGMA Planning	Awarded $0.7M for monitoring well; will construct in 2023
Loan Program	
California State Revolving Fund, Low-Interest Loan	Working on final agreement for up to $30M
Water Infrastructure Finance and Innovation Act	Back-up Loan Program for $30M

Notes

DWR = California Department of Water Resources

M = million

SGMA = Sustainable Groundwater Management Act

SWRCB = State Water Resources Control Board

6.4 Sentinel Monitoring Well Network Expansion Project [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.4.1 Project Description

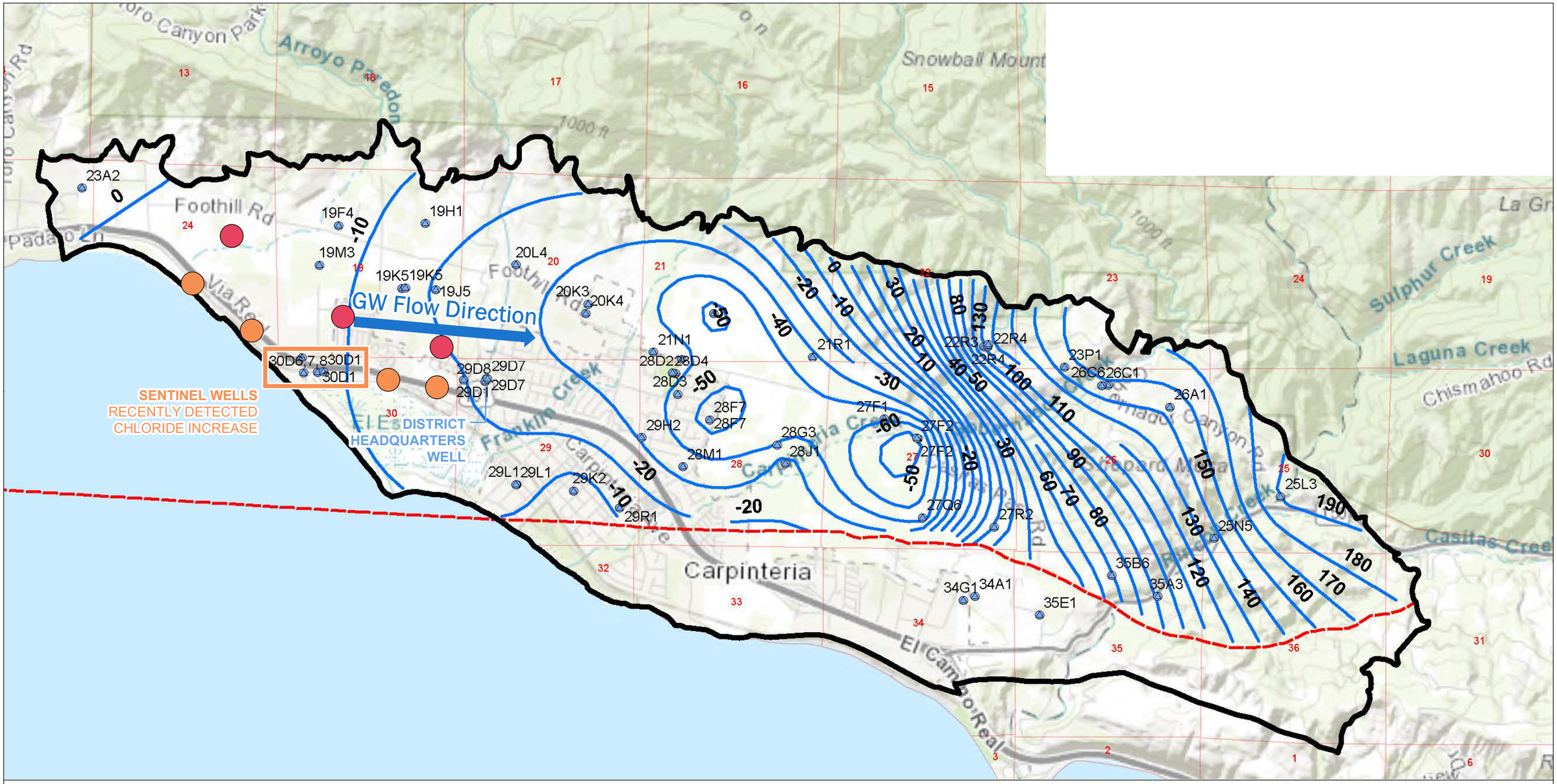
The Sentinel Monitoring Well Network Expansion Project is Tier 1 project. In 2019, the CVWD sponsored the construction of a cluster of three monitoring wells for the purpose of characterizing groundwater conditions in the A-zone, B-zone, and C-zone along the coast side of the Basin west of the Rincon Fault (see **Figure 6-2**). The wells are identified as the Sentinel Wells and were installed for the following objectives:

- Determine baseline water quality conditions at this key location within the Basin;
- Allow for the regular collection of water level and water quality data through routine monitoring;
- Establish a mechanism to track transient water quality changes in distinct water bearing zones through induction logging; and
- Serve as an early warning indicator for seawater intrusion into the basin.

The Sentinel Wells are incorporated into the District's existing Groundwater Monitoring Network (see **Figure 4-1**). The wells are completed in the three principal water bearing zones within the basin, the "A", "B", and "C" zones (see **Figure 3-31**).

As discussed in Section 3.2.3, at the time of installation of the Sentinel wells in 2019, water quality samples collected from the A zones contained chloride concentrations below the Secondary MCL of 250 mg/L (see **Figure 3-34**). Samples collected from the B-zone initially had chloride concentrations above the Secondary MCL, but more recently had concentrations below the SMCL (see **Figure 3-33**). Samples collected from the C-zone initially had concentrations below the SMCL, but have been increasing since 2020 to concentrations higher than the SMCL (see **Figure 3-32**).

The nearest CVWD production well to the Sentinel Wells is the Headquarters Well, which pumps from the A-zone and B-zone, and which is located about 1 mile to the east of the Sentinel Wells. The CVWD El Caro Well, which pumps form all three Basin aquifer zones, is located about two miles east of the Sentinel Wells. In summer 2023, a well cluster with monitor wells screening each of the three zones was installed in El Carro Park as part of this monitor well network expansion. These wells will characterize hydrogeologic conditions father inland from the coast for basin-wide context.



LEGEND

- Conceptual Sentinel Well Location
- Conceptual Barrier Well Location
- Monitoring Well
- Basin Boundary
- Rincon Creek Fault
- Water Level Contour (feet, NAVD88)

NOTE

Groundwater Elevation Contours from Fall 2020

FIGURE 6-2

Conceptual Sentinel Well and Seawater Intrusion Barrier Locations

Carpinteria Basin Groundwater Sustainability Plan

CARPINTERIA GSA
GROUNDWATER SUSTAINABILITY AGENCY

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Neither the physical parameters of the three aquifer zones (thickness, transmissivity, porosity, storativity, etc.) nor the water quality in this area along the coast are well characterized. The GSA recognizes the importance of collecting additional data in this area along the coast to monitor water quality parameters that could indicate the presence or movement of brackish groundwater farther inland to the Basin. To that end, the GSA applied for grant funding to assist with the planning and implementation of this project, but the grant application was denied in 2022.

It is anticipated that the Sentinel Well Monitoring Network expansion may be implemented in phases, depending on funding availability and other factors. The initial phase would prioritize the area between the Sentinel Wells and the CVWD Headquarters well, because the groundwater elevations in the central portion of the Basin indicate a depression in the groundwater surface that could cause migration of poorer quality groundwater in that direction, toward currently operating District wells. A second phase would target the area along the coast to the northwest of the existing Sentinel well (see **Figure 6-2**). (The well locations presented in **Figure 6-2** are conceptual; specific siting considerations will be analyzed prior to final well design.)

6.4.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

The Sentinel Well Network Expansion project is intended to provide supporting data to characterize water quality conditions in areas at potential risk from seawater intrusion, and thus to identify conditions to maintain the MOs and avoid the MTs (identified as a chloride isocontour line in **Figure 5-10**) associated with the Seawater Intrusion sustainability indicator.

6.4.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

Water quality samples have been collected from the existing Sentinel Wells since 2019. There have been samples collected from both the B-zone and the C-zone that have exceeded the Secondary MCL for chloride of 250 mg/L. These are the data that have triggered the recognition that additional characterization of hydrogeologic conditions along the coast is necessary. No additional triggers are anticipated that would drive a need to implement this project differently than described in this GSP.

6.4.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Notification to the public regarding the concept for this project and the need to implement this project to avoid undesirable conditions in ongoing groundwater management was provided during the public process associated with the development of this GSP. As this project progresses, and specific well locations are identified, appropriate public notification will be maintained in conformance with the GSA Stakeholder Communication and Engagement Plan (Appendix C), and compliance with other permit conditions associated with well installation will be maintained.

6.4.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

County or City permits are required for monitor well installation depending on the location in the Basin. Since these wells are strictly for the purpose of monitoring, with no associated pumping or production, it is not anticipated that permitting will pose a significant hurdle to project implementation.

6.4.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

The original Sentinel Well cluster was installed in 2019. The El Caro Park monitoring well cluster was installed in summer 2023. As mentioned in Section 6.4.1, it is anticipated to prioritize new Sentinel well locations between the existing Sentinel wells and the CVWD Headquarters well due to the documented groundwater flow direction in this area. It is anticipated that, at a minimum, one to two monitor well clusters will be installed between the existing Sentinel Wells and the CVWD Headquarters well during the initial 5-year SGMA Implementation period. Additional monitor well clusters northwest of the existing Sentinel wells will be considered after completion of the first phase.

6.4.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

Anticipated benefits of this project include:

- Improved characterization of physical aquifer conditions in the area for all three producing zones, potentially including zone thickness, transmissivity, storativity, porosity, where in the basin the producing zones either pinch-out or become undifferentiated, and other hydrogeologic parameters.
- Improved characterization of ambient groundwater chemistry along the coastal areas of the Basin
- Ability to monitor transient groundwater conditions on a continuous basis to document the potential migration of saline water from the coast to inland areas of the Basin.
- Collection of data that could be useful in future updates to the Basin groundwater model used to support groundwater management decisions in the future.

6.4.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

The GSA has legal authority to pursue projects and management actions necessary to implement sustainable groundwater management within the Basin boundaries.

6.4.9 Cost & Funding [§354.44(b)(8)]

The installation of the El Carro Monitor wells in summer 2023 has provided a recent estimate of drilling costs for a well cluster of individual wells screening the A-zone, B-zone, and C-zone.

- Drilling costs are estimated to be $750,000 for each cluster of three monitor wells.
- Associated engineering, consulting, and permitting costs are anticipated to be about $150,000 for each well cluster.

Thus the anticipated costs to install two new Sentinel well clusters during the initial 5-year SGMA implementation period is $1.8 million. The GSA will continue to pursue potential grant funding opportunities during the implementation period.

6.5 Carpinteria Seawater Intrusion Barrier Project [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.5.1 Project Description

This is a Tier 2 project, anticipated for implementation after the initial 5-year SGMA implementation period.

As discussed previously in Section 3.2.6, water quality sampling at the Sentinel wells has indicated some samples with elevated concentrations of chlorides in the B-zone and C-zone over the past 3-4 years. These

data may be indicative of seawater intrusion. However, to date this phenomenon is limited to a single well cluster location. Additional hydrogeologic characterization along the coast is necessary to

With the proximity to the ocean to the Basin, seawater has the potential to migrate into the aquifers and mix with native groundwater, impacting municipal and agricultural use. To prevent seawater intrusion, a seawater intrusion barrier project is proposed as a potential Tier 2 project to consider for sustainable management, after data collected during the Sentinel Network Expansion project is analyzed. A seawater intrusion barrier is a series of injection wells positioned like a dam between the ocean and the groundwater aquifer. These wells inject water along the barrier to maintain water levels near the ocean high enough to keep the seawater from migrating into the aquifer.

This project is not expected to proceed to implementation during the initial 5-year SGMA implementation period. It is acknowledged by the GSA that current data regarding many important details of the project such as potential source water, current groundwater quality, number and design of injection wells necessary, are incomplete or lack definition. As discussed in Section 6.4, it is expected that the Sentinel Well Network Expansion will be completed first, and data from that project will inform the further analysis of a seawater intrusion barrier project.

6.5.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

The relevant measurable objective for a seawater intrusion barrier project is the measurable objective for the seawater intrusion sustainability indicator. The project would increase groundwater elevations near the coast, thus mitigating against conditions that could contribute to seawater intrusion.

6.5.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

Additional engineering and hydrogeologic analysis of this project will be undertaken as appropriate after collection of the data expected to arise from the Sentinel Well Network Expansion project. Project implementation would proceed after thorough engineering and hydrogeologic analysis.

6.5.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Notification to the public regarding the concept for this project and the need to implement this project to avoid undesirable conditions in ongoing groundwater management was provided during the public process associated with the development of this GSP. As this project progresses, and specific well locations are identified, appropriate public notification will be maintained in conformance with the GSA Stakeholder Communication and Engagement Plan (Appendix C), and compliance with other permit conditions associated with well installation will be maintained.

6.5.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

Any project that involves injection of water into an aquifer is subject to the regulatory process administered under the authority of the SWRCB or RWQCB. County and City permits are required for monitor well installation in the Basin. There will be a number of local, county, and state permits, rights of way, and easements necessary depending on the selected pipeline alignments, stream and road crossings, etc.

6.5.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

Detailed evaluation and analysis of a seawater intrusion barrier project will proceed after the completion of the Sentinel Well network expansion project.

6.5.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

A seawater intrusion barrier project will benefit beneficial users in the Basin by providing mitigation against groundwater conditions that could contribute to seawater intrusion. The project would benefit municipal, industrial, and agricultural users in the Basin.

6.5.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

The GSA has legal authority under SGMA to pursue projects and management actions necessary to maintain sustainable groundwater management within the Basin boundaries.

6.5.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

At the time of the adoption of this GSA, there is insufficient information to generate a cost estimate as to the design, construction, and implementation of this project. Project details necessary for a cost estimate such as number of wells, anticipated injection rates, pipeline lengths and routes, and source water are significant cost elements that are not currently defined. As discussed previously, further engineering analysis will be performed after data from the Sentinel Well Network expansion project are considered.

6.6 Aquifer Storage and Recovery Project [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.6.1 Project Description

Aquifer storage and Recovery is a Tier 2 project. Aquifer storage and recovery (ASR) would provide for the injection of supplemental surface water supplies, to the extent they are available, into the natural structure of the basin aquifer for use as an underground storage reservoir. The source water for injection must be drinking water quality. Water stored in the Basin as a result of an ASR project could provide a drought supply for the District service area or could be used in conjunction with other projects and management actions in the Basin to achieve sustainability.

Potential ASR projects have been considered in the Basin in the past. In 2003, Injection/Storage/Recovery testing of the Headquarters well was performed by the District. Approximately 12 million gallons of water were injected, and 19 million gallons of water were recovered during this field study, and it was determined that no fatal flaw exists that would prevent the construction of an ASR project in the Basin (Padre 2003). During the development of the Carpinteria Basin Groundwater model (Pueblo, 2012), a model simulation was performed that indicated that an ASR project would be feasible in the Basin and could benefit storage

and water levels in the Basin. In 2012, the District performed successful injection testing on the El Caro #2 production well at an injection rate of about 400 gpm.

With the ongoing progress of the CAPP being the District's primary infrastructure project in the near term, there is currently no specific ASR project identified, However, both the CVWD Headquarters well and the El Caro well were designed to be convertible to an ASR well if such a strategy is feasible. Those two wells have now been dedicated for use in the CAPP, but future production well replacements by the District may incorporate an ASR design factor for future flexibility in the sustainable management of the Basin.

Prior to implementing an ASR project, the GSA would perform supplemental hydrogeologic and engineering investigations and initiate a pilot testing program. Pilot testing involves injecting water into the Basin's aquifers and recovering it to assess injection and recovery capacities and monitor water quality impacts to native groundwater resources and recovered water quality, as was done by the District in 2003 at the Headquarters well and in 2012 at El Caro Well #2. Information generated by pilot test evaluations will help quantify the degree to which ASR is a feasible part of GSA strategy to improve the sustainable management of the Basin.

6.6.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

Because an ASR project would contribute periodic storage to the aquifer during the operation of the project, this project would improve hydrogeologic conditions contributing to the successful attainment of the measurable objectives for the chronic groundwater level decline and reduction in storage sustainability indicators. If an ASR project is sited near the coastal portion of the aquifer north of the Rincon fault, it is possible that ASR operations might contribute to conditions helping to achieve the measurable objective for the seawater intrusion sustainability indicator.

6.6.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

There is no anticipated implementation trigger identified that would cause this project to design or construction during the initial 5-year SGMA implementation phase. ASR projects will continue to be evaluated by the GSA as appropriate to the management of the Basin, and as future funding sources to support such a project may become available. Other drivers such as water supply management flexibility by CVWD may trigger implementation of ASR well development and operations.

6.6.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Notification to the public regarding the concept for this project and the need to implement this project to avoid undesirable conditions in ongoing groundwater management was provided during the public process associated with the development of this GSP. If this project progresses, appropriate public notification will be maintained in conformance with the GSA Stakeholder Communication and Engagement Plan (Appendix C), and compliance with other permit conditions associated with well installation will be maintained.

6.6.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

Any ASR project would require planning and permitting prior to implementation, and all would require compliance with applicable regulations, including CEQA. Any project that involves injection of water into the Basin aquifer is subject to regulatory requirements promulgated by the SWRCB and RWQCB. These permitting and regulatory compliance issues for any specific project would be addressed during the study, planning, preliminary design/engineering, and permitting phases of any project that is identified by the GSA for potential future consideration.

6.6.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

Because an ASR project is currently not identified as a Tier 1 project, there is no anticipated timeline identified for this project's implementation. The GSA has no near-term plans to initiate construction of an ASR project.

6.6.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

An ASR project would result in an increase in basin groundwater storage, increased water levels, and possibly an ancillary impact on water levels along the coast that could mitigate against conditions conducive to seawater intrusion. It would also provide drought supplies, which would reduce the dependence on pumping of native groundwater by CVWD during drought periods.

6.6.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

The GSA has legal authority under SGMA to pursue projects and management actions necessary to effect sustainable groundwater management within the Basin boundaries. California state law gives Water Districts the authority to implement actions deemed necessary to supply sufficient water for present and future beneficial use. CVWD has legal authority to pursue and implement an ASR project shout it determine to be necessary for the sustainable management of the groundwater basin.

6.6.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

Project costs and proposed mechanisms for funding for any specific project would be addressed during the study, planning, preliminary design/engineering, and permitting phases of all projects that are identified by the GSA for potential future consideration.

6.7 Recharge Enhancement Projects [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.7.1 Project Description

Recharge enhancement projects are identified as a Tier 2 project.

Infiltration of precipitation and infiltration of streamflow are the two most significant sources of recharge to the Basin aquifer. Recharge enhancement projects are proposed as projects that would increase the amount of natural recharge into the Basin through a) the "de-lining" of channelized sections of Santa Monica and Franklin Creeks, or b) direction of precipitation runoff to constructed recharge basins. Projects employing a strategy of enhancing natural recharge could help to reduce the storage deficit and maintain long-term water supply reliability.

Santa Monica and Franklin Creeks were channelized into concrete-lined box channels as part of the Carpinteria Valley Watershed Project in 1974. The purpose of this project was to mitigate against local flooding in the valley by increasing streamflow velocity and channel discharge capacity to move stormwater runoff to the ocean more quickly than occurred under natural channel conditions. This strategy was commonplace during this time period. More recently, watershed management strategies have recognized that prior projects may not be beneficial to biological resources in the region and may have the effect of reducing recharge to the Basin aquifer. During the development of the Basin groundwater model, Pueblo Water Resources estimated that during the 1985-2008 base period, annual increase in recharge via the mechanism of streambed percolation would range from effectively 0 AFY in very dry years to 520 acre-feet in the wettest year, and would average 165 AFY over that time period (PWR, 2012). (It should be noted that this was only a modeling analysis, and did not include engineering analysis factors such as cost estimates, construction feasibility, etc.). It should be noted that Santa Barbara County Flood Control District would need to be a cooperative partner in any project which potentially affects flood conditions in the Basin.

To enhance natural recharge in the Basin, localized construction of groundwater recharge basins to percolate runoff of natural precipitation is discussed. A groundwater recharge basin is a bermed basin structure designed for the purpose of efficiently allowing water collected in the basin to infiltrate through the ground surface, percolate through the vadose zone, and ultimately recharge the underlying aquifer. The concept of this type of recharge enhancement project is to direct natural runoff to a constructed recharge basin rather than allowing it to flow to the creeks and out to the ocean. Infiltration can be accomplished in surface basins, typically having an area of 1 to 5 acres, or potentially through flooding of agricultural fields or flood plains, use of drywells, or other strategies. Smaller projects might provide additional benefit, but unit costs are likely to be somewhat greater. A variation of GSA owned and operated spreading basins may be

incentivizing private landowners to spread runoff from precipitation, tailwater or other available water. This type of project will be analyzed along with traditional enhanced recharge projects. Larger projects may require more infrastructure and/or maintenance costs, and land purchase costs.

The initial phase of this project would include the completion of an engineering feasibility study to identify the possible number and location of a series of recharge basin facilities, based on hydrogeologic and watershed conditions. The subject study may include an evaluation of the potential benefits to the GSA. It is anticipated that a desktop level feasibility analysis and ranking study of all Tier 2 projects will be performed during the initial 5-year SGMA implementation period to inform decisions on implementation of future projects.

6.7.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

Because enhancement recharge projects would contribute periodic storage to the aquifer during wet weather periods, this project would contribute to conditions contributing to the successful attainment of the measurable objectives for the chronic groundwater level decline and reduction in storage sustainability indicators.

6.7.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

There is no anticipated implementation trigger identified that would cause this project to proceed to design or construction during the initial 5-year SGMA implementation phase. It is anticipated that a desktop feasibility study addressing this project will be completed in the initial 5-year SGMA implementation period. Recharge enhancement projects will continue to be evaluated by the GSA as appropriate to the management of the Basin, and as future funding sources to support such a project may become available.

6.7.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Notification to the public regarding the concept for this project and the need to implement this project to avoid undesirable conditions in ongoing groundwater management was provided during the public process associated with the development of this GSP. If this project progresses, appropriate public notification will be maintained in conformance with the GSA Stakeholder Communication and Engagement Plan (Appendix C), and compliance with other permit conditions associated with project implementation will be maintained.

6.7.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

Any recharge enhancement project would require planning and permitting prior to implementation, and all would require compliance with applicable regulations, including CEQA. Any project that involves construction or de-lining of Franklin and Santa Monica Creeks would require coordination with the Santa Barbara Flood Control District and the Natural Resources Conservation Service. Permitting and regulatory compliance issues for any specific project would be addressed during the study, planning, preliminary design/engineering, and permitting phases of any project that is identified by the GSA for potential future consideration.

6.7.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

Because a recharge enhancement project is currently not identified as a Tier 1 project of the GSP, there is no anticipated timeline identified for this project's implementation. The GSA has no near-term plans to initiate construction of a recharge enhancement project.

6.7.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

The anticipated benefits of enhancement recharge projects would contribute additional storage to the aquifer than currently is realized during wet weather periods. These projects, if pursued, would improve conditions contributing to the successful attainment of the measurable objectives for the chronic groundwater level decline and reduction in storage sustainability indicators.

6.7.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

The GSA has legal authority under SGMA to pursue projects and management actions necessary to effect sustainable groundwater management within the Basin boundaries. California state law gives Water Districts the authority to implement actions deemed necessary to supply sufficient water for present and future beneficial use.

6.7.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

Project costs and proposed mechanisms for funding a recharge enhancement project will be assessed in a desktop study evaluating Tier 2 projects during the first 5-year SGMA implementation period. Project cost estimates for any specific project would be addressed during the study, planning, preliminary design/engineering, and permitting phases of all projects that are identified by the GSA for potential future consideration.

6.8 Local Infrastructure Water System Interties and Water Banking Agreements [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.8.1 Project Description

The infrastructure component (Intertie Project) of this GSP project is a Tier 1 project with a projected cost of ~$21M. The Intertie will be a bidirectional high capacity pipeline allowing water to be delivered between Santa Barbara County and Ventura County. The Intertie Project will construct an interconnection between CVWD's pipeline network, including transmission lines connected to the State Water Project, and the network of the neighboring Casitas Municipal Water District located to the west of the Carpinteria Basin in Ventura County; This component includes ~1.5 miles of 16 inch diameter pipeline, two booster pump stations and water treatment facilities for chlorination/chloramination. Construction of the Intertie Project is expected to occur during the initial 5-year SGMA implementation period. CVWD pipeline infrastructure is already connected to the Montecito Water District (MWD) through a regional transmission pipeline called the South Coast Conduit-part of the Cachuma Project. Water banking agreements with Casitas Municipal Water District and Montecito Water District are not in place as of the adoption of this GSP; only preliminary conceptual discussions have been broached, and any development and operation of such an agreement is considered as a Tier 2 project for this GSP to be further evaluated prior to implementation.

The project concept is as follows. The Carpinteria Basin has available storage space in the aquifer as indicated by a depth to water in many parts of the aquifer in excess of 100 feet, and has the potential to either construct a new ASR well or convert an existing well to use as an ASR well to place stored water into the aquifer, and a pipeline distribution network capable of moving water between Districts. MWD and CMWD have no available storage space or infrastructure to get stored water into the aquifer. In times of wet and normal years when higher allotments of State water and Cachuma water are available for delivery, the three Districts may have rights to more water than they are able to utilize in a timely fashion. During these times, it may be beneficial for any of the parties to wheel unused surface water allotments to the Carpinteria Basin for temporary storage in their available aquifer space. An alternative to direct physical aquifer recharge could be in operation in lieu of recharge, wherein the wheeled water could be delivered directly to District users in

lieu of an equivalent reduction in Basin pumping. CVWD would negotiate an agreement with the neighboring Districts to agree to store their water for eventual delivery back to the neighboring Districts when called for, in exchange for agreement for the neighboring Districts to leave behind a portion of the stored water for CVWD's use. The percentage of "leave behind" water would be subject to future negations among the neighboring Districts.

6.8.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

Because any local water banking agreements negotiated with neighboring districts would include a percentage of the stored water to be left behind in the Carpinteria aquifer, operation of a water banking project would include an additional component of recharge to the Basin that is not currently realized. Because water banking projects would contribute periodic storage to the aquifer, this project would contribute to conditions contributing to the successful attainment of the measurable objectives for the chronic groundwater level decline and reduction in storage sustainability indicators.

6.8.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

There is no anticipated implementation trigger identified that would cause this project to proceed to design or construction during the initial 5-year SGMA implementation phase. It is anticipated that a desktop feasibility study addressing this project will be completed in the initial 5-year SGMA implementation period, and that preliminary discussions with neighboring districts would proceed. Consideration of this project will continue to be evaluated by the GSA as appropriate to the management of the Basin, as discussions with neighboring basins continue, and as future funding sources to support such a project may become available.

6.8.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Notification to the public regarding the concept for this project and the need to implement this project to avoid undesirable conditions in ongoing groundwater management was provided during the public process associated with the development of this GSP. If this project progresses, appropriate public notification will be maintained in conformance with the GSA Stakeholder Communication and Engagement Plan (Appendix C), and compliance with other permit conditions associated with project implementation will be maintained.

6.8.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

Any water banking project would require planning and permitting prior to implementation, and all would require compliance with applicable regulations, including CEQA. Any project that involves injection of water into the Basin aquifer for storage is subject to regulatory requirements promulgated by the SWRCB and RWQCB. These permitting and regulatory compliance issues for any specific project would be addressed during the study, planning, preliminary design/engineering, and permitting phases of any project that is identified by the GSA for potential future consideration.

6.8.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

Funding for the Intertie Project with the Casitas Municipal Water District has been procured, and the construction of the Intertie Project is anticipated to occur within the initial 5-year SGMA implementation plan. Because the water banking agreement of the project is currently not identified as a Tier 1 project of the GSP, there is no anticipated timeline identified for this project's implementation. The GSA has no near-term plans to initiate the water banking component of this project.

6.8.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

The anticipated benefits of local water banking agreements would be additional storage placed into the aquifer above the level currently realized during wet weather periods. These projects, if pursued, would improve conditions contributing to the successful attainment of the measurable objectives for the chronic groundwater level decline and reduction in storage sustainability indicators.

6.8.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

The GSA has legal authority under SGMA to pursue projects and management actions necessary to effect sustainable groundwater management within the Basin boundaries. California state law gives Water Districts the authority to implement actions deemed necessary to supply sufficient water for present and future beneficial use.

6.8.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

Project costs and proposed mechanisms for funding a recharge enhancement project will be assessed in a desktop study evaluating Tier 2 projects during the first 5-year SGMA implementation period. Project cost estimates for any specific project would be addressed during the study, planning, preliminary design/engineering, and permitting phases of all projects that are identified by the GSA for potential future consideration.

6.9 Municipal Pumping Re-Distribution Management Action [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

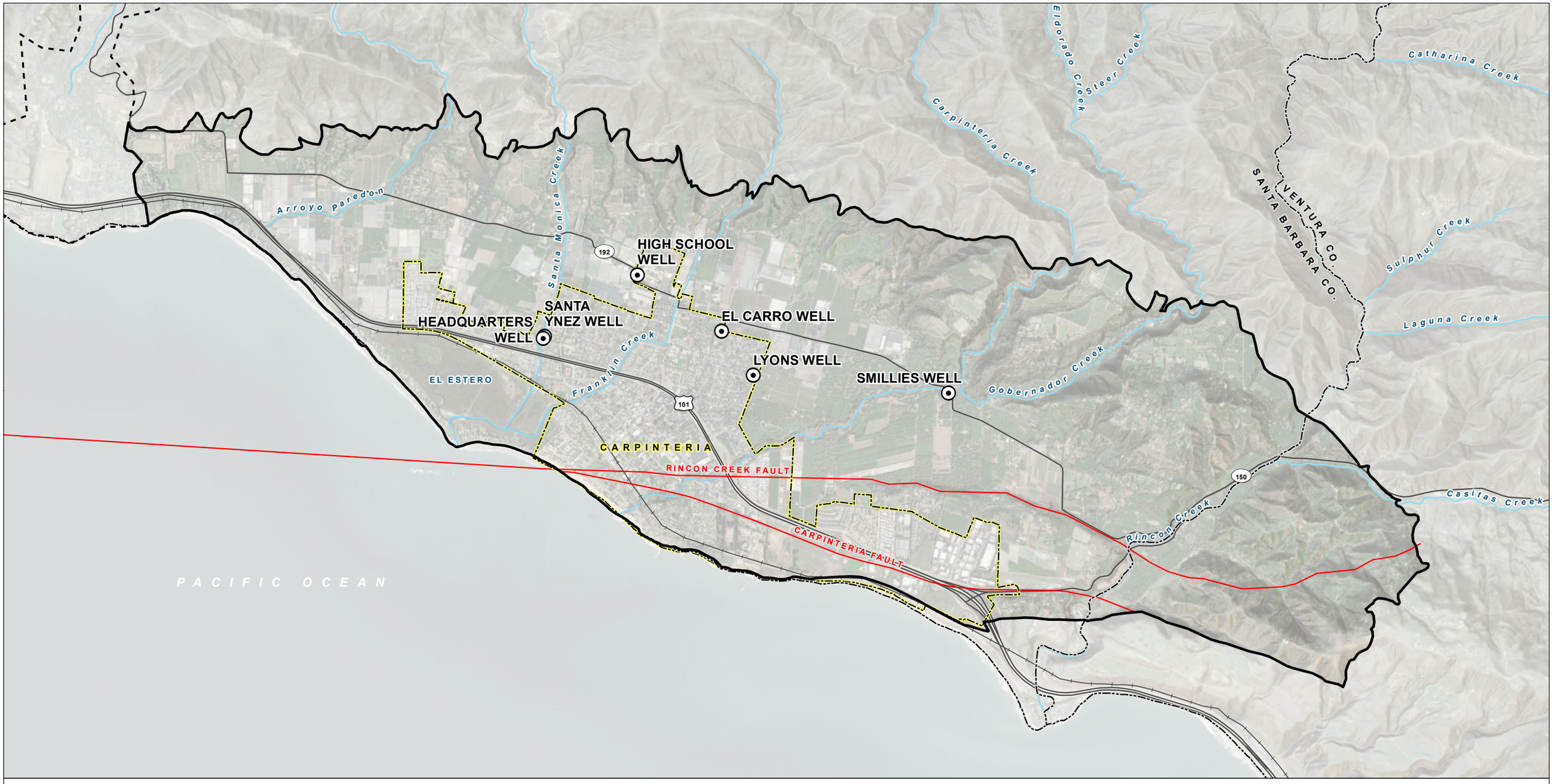
(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.9.1 Project Description

The CVWD provides virtually all of the potable water used by municipal and industrial users in the Basin. CVWD currently produces approximately 25 to 30 percent of the total groundwater pumping in the Basin from three wells: the Headquarters Well, the El Carro Well, and the Smillie well (see **Figure 6-3**). Two of the District's wells, the High School Well and the Lyons Well, are not currently used to produce groundwater for the District. The Headquarters well is the closest well to the coast that is north of the Rincon Fault. Due to the detection of increasing chlorides in the Sentinel monitoring wells, there is newfound concern regarding the possibility of seawater intrusion impacting water quality conditions at the Headquarters well, among other possible private wells that could be impacted. Several other projects discussed in this section (Sentinel Well Network Expansion, Seawater Barrier Project) have the objective of managing potential seawater intrusion along the coast. This project of Municipal Pumping Re-Distribution is also presented with the objective of maintaining conditions along the coast to minimize the potential impact from seater intrusion.

Reduction of pumping at the Headquarters well could minimize future water level declines in this area, and thereby mitigate against conditions that might contribute to future seawater intrusion. The project concept for this project is to reduce overall pumping at the Headquarters well and make up that same quantity of required municipal production by increasing pumping at the El Caro well and the Smillie well or some other future inland well. Ultimately, new District wells could be drilled at either the Lyons or High School sites, or possibly at alternate sites yet to be acquired by the District, to re-distribute Headquarters well pumping to other locations than the currently active wells.



LEGEND

- CVWD District Well

All Other Features

- Carpinteria Groundwater Basin
- Montecito Groundwater Basin
- County Boundary
- City Boundary
- Fault
- Railroad
- Major Road
- Watercourse

FIGURE 6-3

CVWD Production Wells

Carpinteria Basin Groundwater Sustainability Plan

N

0 1,500 3,000 4,500

feet

CARPINTERIA GSA
GROUNDWATER SUSTAINABILITY AGENCY

Document Path: Y:\2006_Carpinteria_Basin_GSA\Source_Figures\001_GSA\GW_Sustainability_Plan\Chapter_6\Figure6-3_CVWD_Production_Wells.mxd, npalmer

6.9.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

The purpose of potential redistribution of municipal production from the Headquarters well is to contribute to conditions required to achieve the Measurable Objective for the Seawater Intrusion.

6.9.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

It is anticipated that the District will begin to evaluate this action to assess any constraints or costs associated with its operation early in the initial 5-year SGMA implementation period, and implement the concept as appropriate after that. Therefore, there is no future implementation trigger to consider.

6.9.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Notification to the public regarding the concept for this project and the need to implement this project to avoid undesirable conditions in ongoing groundwater management was provided during the public process associated with the development of this GSP. If this project progresses, appropriate public notification will be maintained in conformance with the GSA Stakeholder Communication and Engagement Plan (Appendix C), and compliance with other permit conditions associated with project implementation will be maintained.

6.9.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

Because this management action involves the internal operational decisions of the CVWD, it is not expected to involve any additional permitting or regulatory requirements to implement. If new wells are ultimately constructed by the District, there will be normal county and city drilling permits to procure.

6.9.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

This project has no significant design requirements or construction costs to implement. As such, it is anticipated that the District will begin to evaluate this action early in the initial 5-year SGMA implementation

period. Any constraints or costs associated with its operation will be assessed, and the management strategy will be implemented as appropriate after that.

6.9.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

The anticipated benefits of this management action are to minimize declines in groundwater elevation in the coastal area of the aquifer north of the Rincon Fault. This will mitigate against conditions that could contribute to seawater intrusion.

6.9.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

California Water Code §10726.2 provides GSAs the authority to purchase, among other things, land, water rights, and privileges in the furtherance of sustainable groundwater management in the Basin.

6.9.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

Because some portion of any offset pumping from the Headquarters well can be performed at existing wells with existing infrastructure, there is not expected to be any significant construction or operational costs associated with implementation of this strategy, unless and until it may be determined that new municipal well construction may be required.

6.10 Well Registration and Metering Program Management Action [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.10.1 Management Action Description

The CVWD currently delivers water to both municipal and agricultural customers in the Basin. However, most of the agricultural pumping in the Basin is done by private well owners. The GSA will evaluate a program that may require that all groundwater production wells, including wells used by agricultural pumpers, be registered with the GSA, and that all wells be equipped with a meter to measure pumping extractions from the wells throughout the year. If the wells have a meter, the meter should be calibrated on a regular schedule in accordance with manufacturer standards and any programs developed by the GSA. Well registration is intended to establish an accurate count of all the active wells in the Basin. Well metering is intended to improve estimates of the amount of groundwater extracted from the Basin. The District has identified only a single de minimis pumper in the Basin, so this pumping category is not significant.

The GSA will consider requiring all private groundwater pumpers to report extractions at an interval to be determined by the GSA, and use a water-measuring method satisfactory to the GSA in accordance with Water Code § 10725.8. If the GSA moves forward with this program, it is anticipated that the GSA would develop and adopt guidelines and a regulatory framework to implement this program, which may also include a system for reporting and accounting for water conservation initiatives, voluntary irrigated land fallowing (temporary and permanent), stormwater capture projects (for recharge), or other activities that individual pumpers may elect to implement. The information collected will be used to account for annual pumping in the basin, to provide additional information to be used by the GSA for analyzing projected conditions, updating the HCM, and completing annual reports and 5-year GSP assessment reports for DWR.

Agriculture irrigators have voiced concerns regarding the costs associated with the requirement for meters. Although the cost associated with installing and maintaining meters is a legitimate concern, meters can improve the overall management of water and improve the efficiency of the groundwater supply system. The resulting improvement of water efficiency provides a return on the investment. Research and on-the-ground observations have demonstrated that greater water use efficiency directly benefits pumpers by lowering pumping and distribution costs and reducing water use. Research at the Irrigation Technology Center at Texas A&M University has demonstrated that water measurement by itself can reduce crop irrigation water use by 10 percent. When measurement was combined with education about on-farm irrigation management, water use was reduced by 20 to 40 percent (TWRI, 2001).

Although the GSA does not have permitting authority for issuing permits for new well construction within the Basin (permits for new wells are required to be obtained from the Santa Barbara County Department of Public Health Environmental Health Services), the GSA will consider requiring registration of all new wells and the installation of meters on those wells. The GSA will work with the County as the well permitting authority to evaluate the applicability of CEQA for new wells, or categories thereof, in the Basin.

6.10.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

The Well Registration and Well Meter Installation Programs, if adopted, will be designed and implemented for the specific purpose of obtaining data that will allow an enhanced understanding of the total volume of water being extracted from the Basin, both spatially and temporally. The information that will be gained through this management action will provide the basis for future refinements in the Basin HCM and the water budget (see Sections 3.1 and 3.2). The installation of metering on non-de minimis wells, particularly in conjunction with a fee program, is projected to result in a reduction in the volume of groundwater extracted on an annual basis. These reductions would result in progress toward achieving or maintaining relevant measurable objectives in the Basin, including:

- **Groundwater Elevation Measurable Objectives:** Well Registration and Well Meter Installation Programs will focus on reducing pumping through an enhanced understanding of actual water usage by the pumper. Less pumping will result in higher groundwater elevations.
- **Groundwater Storage Measurable Objectives:** This measurable objective is based on water levels in Basin RMS wells, which are correlated with Basin storage and pumping. The implementation of Well Registration and Well Meter Installation Programs will focus on providing the water user with an enhanced understanding of actual water usage that will encourage reduced pumping and will help achieve the goal of reducing total extractions to the long-term sustainable yield.

6.10.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

The management action described in this section will be evaluated during the first 5-year SGMA implementation period. Public input from private well owners will be considered before any action is taken regarding adoption and enforcement of this action.

6.10.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Notification to the public regarding the concept for this project and the need to implement this project to avoid undesirable conditions in ongoing groundwater management was provided during the public process associated with the development of this GSP. If this project progresses, appropriate public notification will be maintained in conformance with the GSA Stakeholder Communication and Engagement Plan (Appendix C), and compliance with other permit conditions associated with project implementation will be maintained.

6.10.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

To implement this management action, the GSA will develop a program that requires all non-de minimis extractors to report extractions and use a water-measuring method satisfactory to the GSA in accordance with Water Code § 10725.8. The GSA may adopt a regulation governing the Well Registration and Well Meter Installation Program.

6.10.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

The management action described in this section will be evaluated during the first 5-year SGMA implementation period. Public input from private well owners will be considered before any action is taken regarding adoption and enforcement of this action. It is possible that this program may be initiated during the first 5-year SGMA implementation period.

6.10.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

The management action described in this section will be designed and implemented for the specific purpose of obtaining data that will allow an enhanced understanding of the total volume of water being extracted from the Basin, from both a spatial and temporal perspective. The information that will be gained through this management action will provide the basis for future refinements in the Basin HCM and the water budget (see Sections 3.1 and 3.3, respectively). In addition, the information acquired though the implementation of the management action described in this section will help guide the GSA in determining the optimal strategy for sequencing the implementation of the future management actions and projects should they be necessary.

Additionally, studies have shown that the installation of meters on wells can directly result in reduced groundwater pumping by 10 percent or more. For perspective, assuming the meter installation program achieves a 5 percent reduction in agricultural pumping, the resulting benefit would be approximately 150 AFY.

6.10.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

The legal authority to empower the GSA to require well registration and groundwater extraction by pumpers in the Basin is included in SGMA. Water Code § 10725.8 authorizes a GSA to require through its GSP that the use of every groundwater extraction facility (except those operated by de minimis extractors) be measured.

6.10.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

Planning-level costs for developing and establishing the Well Registration and Well Meter Installation Programs will be estimated during the Tier 2 Project and Management action feasibility evaluation expected to occur early in the initial 5-year SGMA implementation period. (Estimates for implementation of this program in other Santa Barbara County basins range from approximately $75,000 to $100,000 and are separate from development of this GSP.) According to SGMA § 10725.8(b), costs associated with individual measurement devices are to be borne by the well owner/operator, so the cost exposure to GSA for implementing a Well Registration and Well Metering Program can be distributed among all well owners. Depending on the method of extraction measurement that the GSA approves, the costs associated with the selected method to measure and record groundwater extractions within the Basin may vary widely, based on the requirements for equipment, infrastructure, installation, and for operations and maintenance. GSA members that provide public water supplies (i.e., CVWD) already fund and operate metering facilities on their wells; therefore, costs associated with the acquisition and installation of metering equipment will be borne by the owners of wells used for agricultural irrigation and other non-de minimis well owners.

Potential sources of funding for the Well Registration and Well Meter Installation Programs components may include well owners, state and/or federal grants, reimbursement via groundwater extraction fees, transaction fees from extraction credit trades, and other mechanisms as may be identified by the GSA.

6.11 Water Use Efficiency Programs Management Action [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.11.1 Project Description

The GSA has included the implementation of Water Use Efficiency Programs for public water agencies, and agricultural groundwater pumpers in the identified management actions. The Water Use Efficiency Programs are generally described as follows:

- **Urban and Domestic Water Use Efficiency Programs:** Initiatives that promote increasing water use efficiency by achieving reductions in the amount of water used for municipal, commercial, industrial, landscape irrigation, rural domestic, and aesthetic purposes. These programs can include incentives, public education, technical support, and other efficiency-enhancing programs.
- **Agricultural Water Use Efficiency Programs:** Initiatives that promote increasing water use and irrigation efficiency and achieving reductions in the amount of water used for agricultural irrigation. These programs can include incentives, public education, technical support, training, implementation of best management practices (BMPs), and other efficiency-enhancing programs.

Urban and agricultural water use efficiency has been practiced in the Basin for more than two decades and has been effective in limiting water use within the Basin. Existing programs promote responsible design of landscapes and appropriate choices of appliances, irrigation equipment, and the other water-using devices to enhance the efficient use of water. In recent years, many agencies in the state have passed regulations that require efficient plumbing devices, appliances, and landscape designs. CVWD may sponsor programs that encourage and/or require customers to conserve.

The water use efficiency management actions to be developed for implementation by municipal and agricultural pumpers will promote expansion and supplementation of the existing water use efficiency programs that currently exist. These programs will also be developed to be aligned with the requirements of water conservation mandates that have been put in place by the State of California. Effective urban water use efficiency measures could include the following:

- High Water Use Outreach (High Use Reports)
- Meter Audits to Proactively Detect Leaks (Leak Reports)
- Rebates on Water-Saving Fixtures (i.e., clothes/dish washers)
- Rebates on Sustainable Landscape Conversion Programs (i.e., Cash for Grass)

- Water Awareness Outreach Events (i.e., at library/outdoor market events)
- Enhanced Efficient Irrigation/BMPs
- U.S. Environmental Protection Agency's WaterSense Program Alignment (Fix-a-Leak Week)

As described in Section 3, groundwater pumping from the Basin for agricultural irrigation represents a significant demand. For this reason, the GSA will strongly encourage and incentivize pumpers to implement the most effective water use efficiency methods applicable, often referred to as Best Management Practices (BMPs). Provisions of the Agricultural Water Conservation Act (amending Division 6, Part 2.55 of the Water Code and passed into law in November 2009 regarding agricultural water conservation and management) can be used to inform GSA decisions and water use efficiency programs. While these new laws do not require water use objectives or savings thresholds, they do encourage more efficient use of water by the agricultural sector. It is anticipated that key stakeholders and industry leaders in the Basin will assist the GSA in facilitating workshops and technical training programs or support the implementation of other programs designed to communicate the latest best water use practices for their industry. Effective BMPs could result in the following:

- Enhanced efficient irrigation/BMPs.
- Irrigation audits and delivery of technical support for optimizing water use.
- Development of new weather stations and automated data for landowners.
- Encourage use of soil amendments (i.e., compost) to improve health of soils, plant health, and reduce water use.
- Encourage cover cropping and no-till/reduced tillage for increased water percolation/infiltration and less runoff, decreased soil moisture loss and less bare soil.
- More optimal irrigation practices by monitoring crop water use with soil and plant monitoring devices and tie monitoring data to evapotranspiration estimates.
- Encourage conversion from high water demand crops to lower water demand crops.
- Use satellite spectral/remote sensing data to refine irrigation practices.
- Encourage urban greening, shade trees, and grass to increase evapotranspiration rates for cooling and to reduce heat buildup from surfaces such as roofs, roads, and sidewalks.

Many growers already use BMPs, but it is expected that Basin-wide, improvements can be made. A goal of promoting BMPs is to broaden their use to more growers in the Basin. Promoting BMPs will include broad outreach to groundwater pumpers in the Basin to emphasize the importance of using BMPs and communicate their positive benefits for mitigating declining groundwater levels and avoiding potential mandated limitations in groundwater extraction on their properties.

The GSA will also collaborate with other entities that can offer resources and technical assistance to the water users in the Basin. The organizations may include, the U.S. Department of Agriculture, Natural Resources Conservation Service, Conservation Technical Assistance Program; California Water Efficiency Partnership; Santa Barbara Water Wise Program; and the California Polytechnic State University Irrigation Training and Research Center, or others.

6.11.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

The measurable objectives benefiting from the implementation of Water Use Efficiency Programs include:

- **Groundwater Elevation Measurable Objectives:** Water use efficiency programs will focus on reducing pumping through water conservation. Less pumping can likely result in higher groundwater elevations.
- **Groundwater Storage Measurable Objectives:** This measurable objective is based on water levels at RMS wells in the Basin. Therefore, the implementation of water use efficiency programs will focus on identifying BMPs that will reduce pumping and will help achieve the goal of reducing total extractions to the long-term sustainable yield.
- **Degradation of Water Quality:** Improvements to water quality may occur as a result of Water Use Efficiency Programs that reduce irrigation return flows to the aquifer, thereby potentially limiting the amount of nitrate and TDS infiltrating to the aquifer.

6.11.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

The GSA will initiate evaluation and application of this management action within the first 5-year SGMA implementation period.

6.11.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Notification to the public regarding the concept for this project and the need to implement this project to avoid undesirable conditions in ongoing groundwater management was provided during the public process associated with the development of this GSP. If this project progresses, appropriate public notification will be maintained in conformance with the GSA Stakeholder Communication and Engagement Plan (Appendix C), and compliance with other permit conditions associated with project implementation will be maintained.

6.11.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

There is no permitting or regulatory process associated with the implementation of water use efficiency programs.

6.11.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

This project has no significant design requirements or construction costs to implement. As such, it is anticipated that the District will begin to evaluate this action early in the initial 5-year SGMA implementation period. Any constraints or costs associated with its operation will be assessed, and the management strategy will be implemented as appropriate after that.

6.11.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

The anticipated benefits of this management action are to minimize declines in groundwater elevation in the coastal area of the aquifer north of the Rincon Fault. This will mitigate against conditions that could contribute to seawater intrusion.

6.11.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

The GSA has the legal authority to implement conservation and efficiency programs in the Basin.

6.11.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

It is anticipated that the cost of implementation of conservation and efficiency programs in the Basin will be borne through standard operational expenses of the GSA and the CVWD.

6.12 Groundwater Model Revisions and Updates Management Action. [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.12.1 Project Description

The CVWD groundwater model of the basin aquifer was developed in 2012, and updated in 2022-2023 as part of the effort to produce this GSP. However, groundwater models are usually viewed as living tools, subject to additional revision and modification as new data become available. Although no future scopes regarding groundwater model revisions are currently under consideration, a number of items can be identified that might improve the usefulness of the modeling tool in the future. These might include:

- Incorporation of the current streamflow routing package (SFR2) to represent streams in the Basin. This would allow modeled estimates of streamflow losses to the aquifer, rather than the prescribed definition of recharge via streamflow percolation calculated outside of the model and directly defined.
- Development of a SEAWAT or equivalent model capable of representing density-dependent flow to simulate transient water quality conditions along the coast, and the expected efficacy of a seawater intrusion barrier project.
- Incorporation of updated aquifer parameters after the completion of the Sentinel Monitoring Well Network Expansion.

An updated model could be used to refine assessment of travel times in the coastal areas at risk of seawater intrusion, simulate migration of brackish groundwater along the coast under various scenarios, evaluate the hydrogeologic implications of re-distribution of municipal pumping, assess expected increased storage associated with recharge enhancement or water banking or ASR, assess reductions in pumping associated with metering and conservation programs, and many other potential applications associated with sustainable management of the basin.

6.12.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

An updated groundwater model will contribute to the understanding of various projects and management actions designed to achieve measurable objectives for the water level decline, reduction of groundwater storage, and seawater intrusion sustainability indicators.

6.12.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

It is anticipated that the District will begin to consider revisions to the model after the completion of the Sentinel Monitoring Well Network Expansion project, when there is expected to be a significant amount of new data to consider.

6.12.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

Model revisions will be sponsored by the GSA and do not require public notice to proceed. However, it is expected that any updates will be presented in a public forum associated with the 5-year update to this GSP.

6.12.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

Model revisions are not subject to any permitting or regulatory process. will be sponsored by the GSA and do not require public notice to proceed. However, it is expected that any updates will be presented in a public forum associated with the 5-year update to this GSP.

6.12.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

It is anticipated that the District will begin to consider revisions to the model after the completion of the Sentinel Monitoring Well Network Expansion project, when there is expected to be a significant amount of new data to consider.

6.12.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

The anticipated benefits of this management action are to obtain better understanding of the dynamics of the basin aquifer, and better understanding of the implications and expected outcomes of projects and management actions designed to achieve sustainability..

6.12.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

No legal authority is necessary for model revisions or associated planning activities.

6.12.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

The GSA's groundwater modeling consulting firm will provide a scope and fee for model revisions when the scope has been identified sometime prior to the 5-year GSP update.

6.13 Address Data Gaps [§354.44(b)(1), (d)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

6.13.1 Project Description

Various data gaps have been identified during the development of this GSP. These include:

- Lack of monitoring wells in Ventura County the Basin and near the boundary with Montecito Water District on the west end of the basin
- Information on two potential areas of GDEs
- Unknown well screen and depth information for some private wells
- Lack of hydrogeologic data in fault block area near RMS well 35E1
- Lack of hydrogeologic data along the coast (addressed in Sentinel Well Network Expansion project)
- Stream flows in Arroyo Pardon, Franklin, Santa Monica & Rincon Creeks
- Stream loss data in all unlined streams

It is expected that the GSA will pursue information to eliminate or clarify conditions regarding these and other data gaps that may be identified during SGMA implementation.

6.13.2 Relevant Measurable Objective(s) [§354.44(b)(1)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent.

Addressing the identified data gaps will lead to a more complete understanding of the hydrogeologic system in the Basin. This improved understanding will lead to better basin management, and help to achieve all measurable objectives associated with the sustainability indicators discussed in Section 5.

6.13.3 Implementation Triggers [§354.44(b)(1)(A)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

It is expected that the GSA will proceed with activities to address data gaps in the initial 5-year SGMA implementation period.

6.13.4 Public Notice Process [§354.44(b)(1)(B)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) The Plan shall include the following:

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

No public notice is required for data collection activities performed by the GSA.

6.13.5 Permitting and Regulatory Process [§354.44(b)(3)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(3) A summary of the permitting and regulatory process required for each project and management action.

No public notice is required for data collection activities performed by the GSA, unless they involve the construction of new monitor wells. In this case, County and City permit conditions may apply.

6.13.6 Implementation Timeline [§354.44(b)(4)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

It is expected that the GSA will proceed with activities to address data gaps in the initial 5-year SGMA implementation period.

6.13.7 Anticipated Benefits [§354.44(b)(5)]

§354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

Addressing the identified data gaps will lead to a more complete understanding of the hydrogeologic system in the Basin. This improved understanding will lead to better basin management, and help to achieve all measurable objectives associated with the sustainability indicators discussed in Section 5.

6.13.8 Legal Authority [§354.44(b)(7)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

The GSA has the legal authority to pursue data collection efforts within the Basin..

6.13.9 Cost & Funding [§354.44(b)(8)]

23 Cal. Code Regs §354.44 Projects and Management Actions.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

It is anticipated that the GSA will bear some minor costs in staff time and/or consultant fees to negotiate with landowners regarding well access, drill new monitoring wells, review available well data, and other actions in support of this management action. If new monitoring wells are constructed, there will be associated costs for contractor fees, permitting, etc., that will be administered by the GSA.