Section 1 Contents

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1 INTRODUCTION

1.1 Purpose of the Groundwater Sustainability Plan

In 2014, Governor Edmund G. Brown, Jr. signed three laws that make up the Sustainable Groundwater Management Act (SGMA). SGMA took effect on January 1, 2015 requiring local water agencies to manage groundwater sustainably. This Groundwater Sustainability Plan (GSP or Plan) is a collaborative effort between local water agencies, technical experts, land use agencies, environmental managers, and community members to manage the groundwater basin sustainably. This Plan is prepared by the Santa Cruz Mid-County Groundwater Agency (MGA). Together the people involved in the preparation of this Plan represent water uses and users within the Santa Cruz Mid-County Groundwater Basin (Basin) (Figure 1-1). The intent of the Plan is to guide long-term management of the shared groundwater resource to ensure a reliable water supply for community needs and the natural environment now and into the future.

Statewide, California's groundwater basins support at least one-third of the water used by nearly 39 million people, sustain the nation's most robust agricultural industry, and support hundreds of billions of dollars in economic activity each year (DWR, 2018a).The Basin is located at the northern end of the Central Coast region. This region gets approximately 85% of its water supply from groundwater and is the most groundwater dependent hydrologic region in all of California (DWR, 2013). All the major water supply purveyors in Santa Cruz County rely upon local sources and receive no imported water from outside the County.

The Basin is a high priority groundwater basin in critical overdraft and threatened by seawater intrusion (DWR, 2018b). For many years, the amount of groundwater extracted from the Basin exceeded the amount naturally recharging groundwater through rainfall. Despite extensive water conservation efforts and reductions in groundwater pumping in recent years compared to prior decades, the long-term overdraft of the Basin lowered groundwater elevations along portions of the coast. Lowered groundwater levels have allowed seawater intrusion into coastal portions of the groundwater aquifers and pose the threat of more widespread seawater contamination of groundwater. Once contaminated with seawater, it can be irreversible and can result in either abandoning water supply wells or requiring costly treatment to make the water useable.

While the state's SGMA mandate now requires groundwater sustainability for all high and medium priority groundwater basins, SGMA was not the catalyzing event for sustainable groundwater management in the Santa Cruz Mid-County Groundwater Basin. The water management agencies that share responsibility for our groundwater resources have studied the Basin since the mid-1960s and developed groundwater management strategies to actively manage the Basin since the 1980s in response to the threat of further seawater intrusion impacts to the Basin's freshwater aquifers. Discussion of seawater intrusion is found throughout the GSP, especially in Sections 2.1.4.1; 2.2.4; 3.3.3.3; and 3.6.

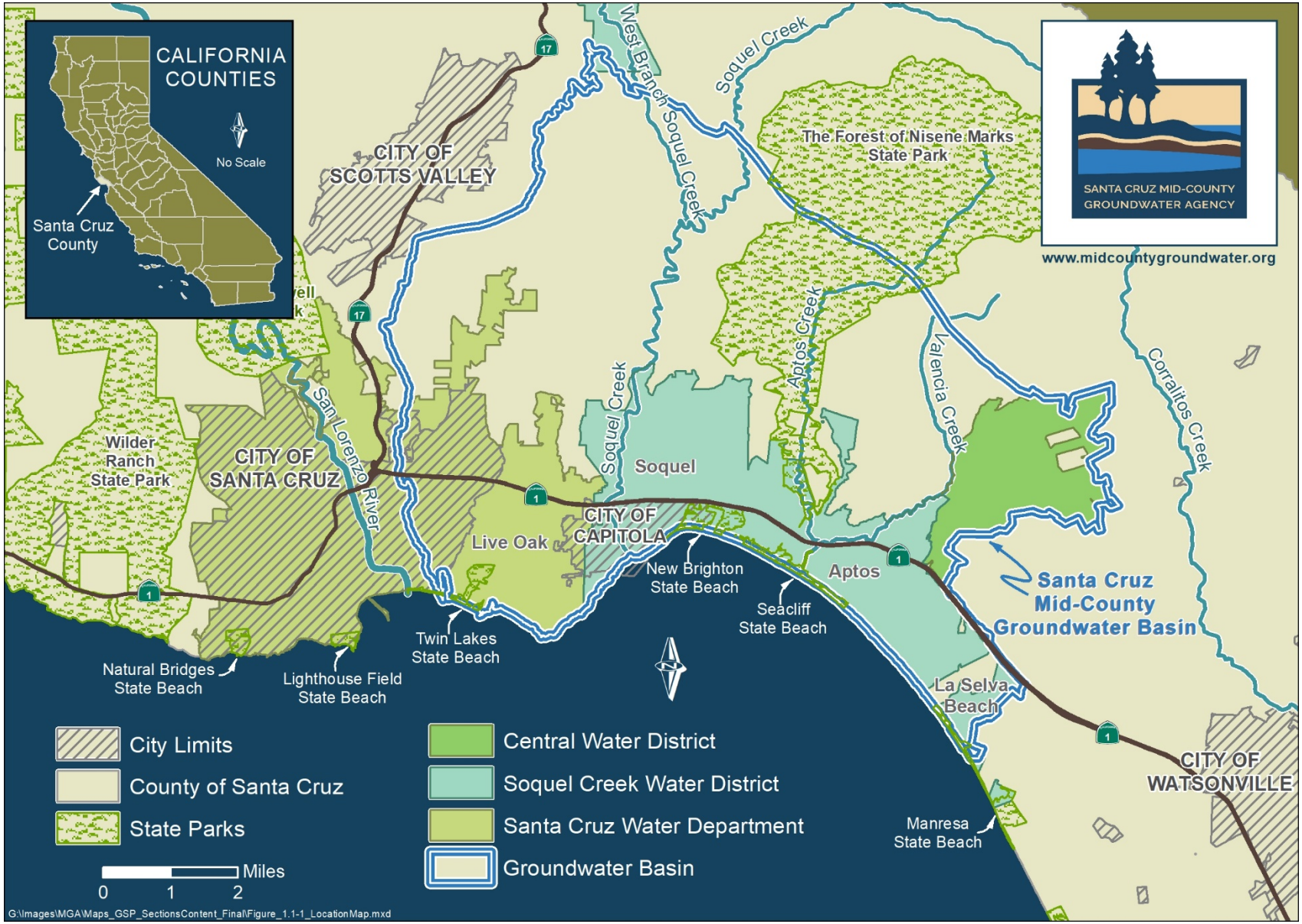

Figure 1-1. Basin Location Map

The Association of Monterey Bay Area Government projects the population within the Basin in 2018 is approximately 92,000 (AMBAG, 2018). Of those, approximately 50,000 Basin residents are primarily served by groundwater wells or municipal suppliers whose only source of water is groundwater. The remaining 42,000 are served by the City of Santa Cruz Water Department, primarily with surface water. In years with average or above average precipitation the City's water supply is approximately 95% surface water from sources outside the Basin and 5% groundwater from the Basin (SCWD, 2016). The amount of groundwater needed from the Basin to fulfill the City of Santa Cruz's water demand goes up in years with below average rainfall.

The goal of SGMA legislation is to avoid undesirable results for the six sustainability indicators identified by the State of California. The six sustainability indicators are: groundwater level declines, groundwater storage reductions, land subsidence, interconnected surface water depletion, seawater intrusion, and water quality degradation.

The two key sustainability indicators in the Basin are seawater intrusion and interconnected surface water depletion. Successful implementation of projects and management actions to effectively protect against adverse impacts for these two regionally significant sustainability indicators should result in groundwater conditions that protect the Basin against undesirable effects for all six state identified sustainability indicators.

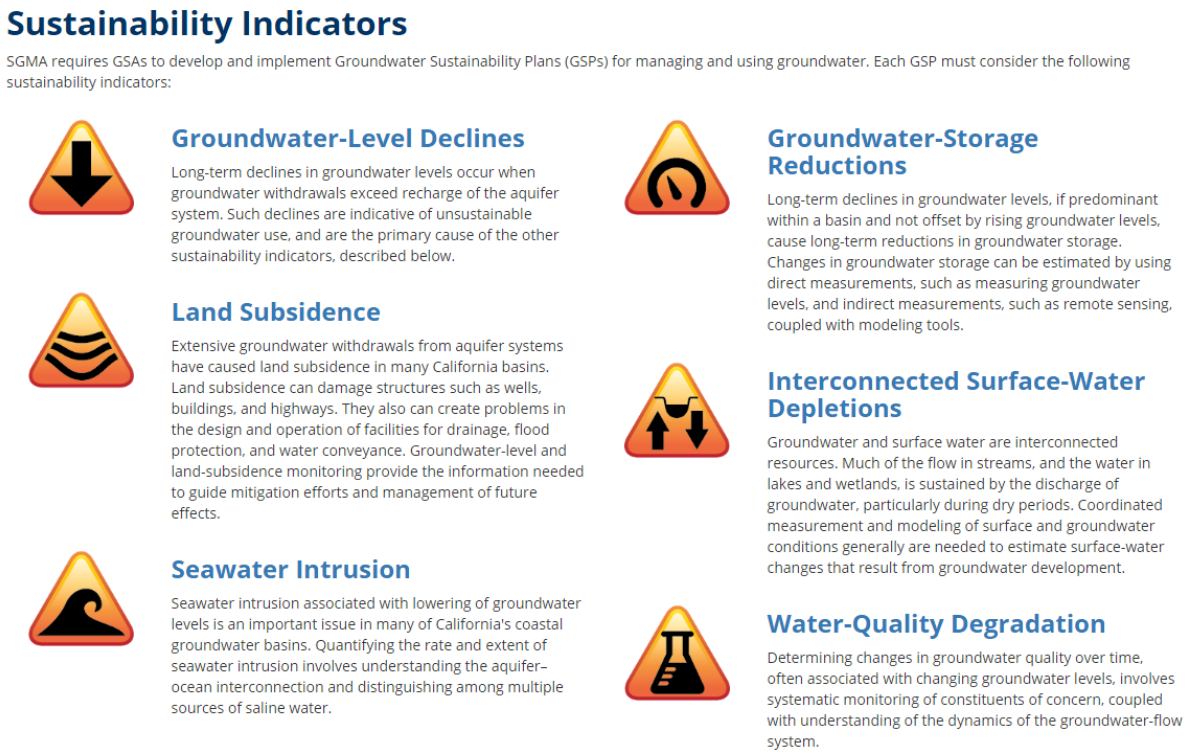

Figure 1-2. Sustainability Indicators[1]

[1] Figure courtesy USGS

1.2 Sustainability Goal

Regulations prepared by the Department of Water Resources (DWR) to implement SGMA require that each Plan develop a sustainability goal that "…culminates in the absence of undesirable results within 20 years…." (23 CCR § 354.24) The Plan must include Basin information used to establish the sustainability goal and a discussion of the measures that will be implemented to ensure that the Basin will be operated to achieve sustainability within the 20-year planning timeframe.

As discussed in Section 2.1.5, the MGA selected a GSP Advisory Committee consisting of representatives of the Basin's groundwater users, interest groups and stakeholders. The Advisory Committee analyzed and provided recommendations to the MGA Board on key policy issues to inform the development of the GSP. Together with MGA staff, technical consultants, and community input, the GSP Advisory Committee developed the Basin sustainability goal and included it among its recommendations to the MGA Board. The MGA Board of Directors adopted the GSP Advisory Committee's recommendations on September 19, 2019.

As required by the SGMA regulations, the MGA developed a sustainability goal for the Basin, which is to:

> Manage the groundwater Basin to ensure beneficial uses and users have access to a safe and reliable groundwater supply that meets current and future Basin demand without causing undesirable results to:
>
> - Ensure groundwater is available for beneficial uses and a diverse population of beneficial users;
> - Protect groundwater supply against seawater intrusion;
> - Prevent groundwater overdraft within the Basin and resolves problems resulting from prior overdraft;
> - Maintain or enhance groundwater levels where groundwater dependent ecosystems exist;
> - Maintain or enhance groundwater contributions to streamflow;
> - Support reliable groundwater supply and quality to promote public health and welfare;
> - Ensure operational flexibility within the Basin by maintaining a drought reserve;
> - Account for changing groundwater conditions related to projected climate change and sea level rise in Basin planning and management;
> - Do no harm to neighboring groundwater basins in regional efforts to achieve groundwater sustainability.

MGA modeling results of the Basin and Projects and Management Actions (presented in Section 4) indicate that maintaining groundwater elevations needed to protect against seawater intrusion will largely prevent undesirable results occurring for all six sustainability indicators. As discussed in Section 2.2.4.5, Basin geology is not susceptible to land subsidence. While

subsidence monitoring is recommended in Section 3.8, minimum thresholds and measurable objectives are not identified for this sustainability indicator.

Additional localized groundwater pumping management in the Purisima aquifers where those aquifers are connected to surface water may also be necessary. This additional pumping management may be needed to ensure significant and unreasonable depletion of surface water supporting groundwater dependent ecosystems does not occur from groundwater pumping.

The Basin water budget and water demand forecasts presented in Section 2 indicate that to achieve groundwater sustainability in the Basin will require multiple projects and management actions. These will include the continuation of Group 1 water conservation and demand management, the redistribution of municipal groundwater pumping, and the development of Group 2 water augmentation Projects and Management Actions as presented in Sections 4.1 and 4.2

1.3 Agency Information

In March 2016, the Santa Cruz Mid-County Groundwater Agency (MGA) formed. The four member agencies include: Central Water District, City of Santa Cruz, County of Santa Cruz, and Soquel Creek Water District. These are the principal public agencies that extract groundwater from or regulate groundwater extraction and/or land use activities in the Basin. In May 2016, the MGA submitted an Initial Notice of Intent to DWR to become the Groundwater Sustainability Agency (GSA) for the Santa Cruz Mid-County Groundwater Basin. In August 2017, the MGA filed the initial notification to prepare a GSP for the Santa Cruz Mid-County Groundwater Basin.

The MGA contact information and mailing address is:

Santa Cruz Mid-County Groundwater Agency
c/o Soquel Creek Water District
Attention: Board Secretary
5180 Soquel Drive
Soquel, CA 95073

1.3.1 Organization and Management of the Santa Cruz Mid-County Groundwater Agency

The MGA was created in March 2016 under a Joint Exercise of Powers Agreement. The MGA is governed by an 11-member board of directors consisting of representatives from each member agency and private well representatives within the boundaries of the MGA. The MGA board is comprised of:

- Two representatives from the Central Water District appointed by the Central Water District Board of Directors.

- Two representatives from the City of Santa Cruz appointed by the City of Santa Cruz City Council.
- Two representatives from the County of Santa Cruz appointed by the County of Santa Cruz Board of Supervisors.
- Two representatives from the Soquel Creek Water District appointed by the Soquel Creek Water District Board of Directors.
- Three representatives of private well owners in the Basin appointed by majority vote of the eight public agency MGA directors.
- In addition, an alternate representative for each member agency and for the private well owners is appointed to act in the absence of a representative at Board meetings.

In May 2016, the MGA adopted bylaws establishing provisions relating to how the MGA conducts its affairs, including the duties of its directors and officers, provisions relating to committees and working groups, the framework for the MGA's administration, management and the collaborative staffing approach. The JPA and Bylaws serve as the governing documents for the MGA. The Board is to convene at minimum on a quarterly basis; currently the Board convenes its public meetings every other month (six times per year).

The MGA uses a collaborative staffing model to accomplish its work. Professional and technical staff from MGA member agencies provide staff leadership, management, work products, and administrative support for the MGA. MGA member agency executive staff, comprised of the member agency general managers and directors, provide staff support for MGA officers and Board members. The MGA also contracts with the Regional Water Management Foundation (RWMF) for administrative and planning support.

The development of the GSP was supported by MGA member agency staff, RWMF staff, and consultants providing hydrologic technical support, planning process and facilitation support of the GSP Advisory Committee, and public engagement support.

The contact information for the GSP manager is:

Sierra Ryan, Water Resources Planner
County of Santa Cruz Environmental Health
Health Services Agency
701 Ocean Street **|** Room 312 | 831.454.3133
Sierra.Ryan@santacruzcounty.us
www.midcountygroundwater.org

1.3.2 Legal Authority of the Santa Cruz Mid-County Groundwater Agency

The MGA has legal authority to perform duties, exercise powers, and accept responsibility for managing groundwater sustainably within the Santa Cruz Mid-County Groundwater Basin. Legal authority comes from the Sustainable Groundwater Management Act, the JPA signed by MGA member agencies and effective on March 17, 2016 and the MGA Bylaws. The JPA is attached as Appendix 1-A to this document. These laws and agreements, taken together, provide the necessary legal authority for the MGA Board to carry out the preparation and implementation of the Basin's Groundwater Sustainability Plan.

1.3.3 Estimated Cost of Implementing the GSP and the MGA's Approach to Meet Costs

MGA is funded by its member agencies through annual contributions based on a cost sharing agreement of estimated impacts to Basin sustainability under SGMA. The member agreed cost sharing allocation has been in place prior to the inception of the agency in March 2016. Costs are allocated 70% to Soquel Creek Water District and 10% each to the County, the City, and Central Water District. This cost allocation may change as the MGA learns more about Basin sustainability impacts through GSP data collection and the beneficial impacts of agency projects and management actions that improve sustainability. Individual member agencies will pay the costs for their projects and management actions as discussed in Sections 4 and 5.

The estimated cost of implementing the GSP is presented by category identified below but also includes maintaining a prudent fiscal reserve and other miscellaneous costs. The major cost categories include:

- Agency Administration and Operations
- Legal
- Management & Coordination
- Data Collection, Analysis, and Reporting
- GSP Reporting (annual and 5-year reports) and
- Outreach and Education
- Contingency (10%)

As presented in Section 5, the estimated cost of implementing the GSP over a twenty-year time horizon is $15.8 million. These are based on the current best estimates with some uncertainties, so the actual costs may vary from those used in making the cost estimate projection. The MGA will not serve as the lead implementing agency for projects in the Basin, this is a role the individual member agencies will continue to fulfill. The various projects, costs and potential funding mechanisms are discussed individually in more detail in Sections 4 and 5.

The MGA's approach to meeting the GSP implementation costs is considered in two phases. In the initial GSP Implementation Phase 1 (2020 – 2025) funding is anticipated to be obtained from

the annual contributions of the MGA member agencies. This funding approach has been used since the MGA's formation in 2016. The contribution amounts will be assessed based upon the MGA's annual budget. The MGA will continue to pursue funding from state and federal sources to support GSP planning and implementation activities.

The approach to meeting the GSP implementation costs in Phase 2 (2026 – 2040) will be further evaluated as GSP implementation proceeds. As described in Section 5, the MGA conducted a preliminary evaluation of funding mechanisms and fee criteria to identify opportunities for the MGA to recover costs of GSP administration and Basin management. As authorized under Chapter 8 of SGMA, a GSA may impose fees, including, but not limited to, permit fees and fees on groundwater extraction or other regulated activity, to fund the costs including groundwater sustainability planning and program activities and administration. The MGA will further evaluate the funding mechanisms, the potential application of fees and the fee criteria for non-*de minimis* and *de minimis* users alike.

A key success factor is developing a cost allocation that is equitable to GSA members and Basin users. MGA member agencies agreed early in the SGMA process that the general approach to fund the Plan implementation will be to spread the costs of achieving basin sustainability among groundwater users in a manner that allocates a greater share of costs to users with greater impacts upon groundwater sustainability indicators in the Basin. The findings from the MGA model will support an assessment of impacts to the Basin and will inform the evaluation of funding mechanisms and fee criteria as the GSP implementation proceeds.

1.4 Member Agency Descriptions

1.4.1 Soquel Creek Water District

Soquel Creek Water District (SqCWD) was originally established as a county water district in 1961 to provide flood control and water conservation services. In 1964, SqCWD acquired Monterey Bay Water Company and began delivering water to customers. Today, SqCWD is a public agency that provides potable drinking water and groundwater resource management within its service area in the Santa Cruz Mid-County Groundwater Basin. SqCWD is the largest individual groundwater provider in the Basin and shares the Basin with the City of Santa Cruz Water Department (SCWD), Central Water District (CWD) and a variety of small private wells, small water systems, institutional, and agricultural groundwater pumpers. SqCWD serves a population of approximately 40,400 through 14,438 service connections, of which 94 percent are residential. SqCWD's service area includes portions of the City of Capitola, and the unincorporated communities of Aptos, La Selva Beach, Rio Del Mar, Seascape, Seacliff, and Soquel. As a water district, SqCWD has no land use authority within its service area.

Except for pilot surface water transfers with SCWD during the winter months that began in 2018, the sole water source for SqCWD is groundwater from the Basin. The Basin is currently listed in critical overdraft by DWR. As a result of historic Basin overdraft, portions of the groundwater basin along the coastline have been impacted by seawater intrusion. The Basin is still in long-

term overdraft with coastal groundwater elevations below protective levels at five of 13 coastal monitoring well locations (see Section 2.2.4.1.4 for a full discussion of protective elevations and how they are used to evaluate current groundwater levels).

1.4.2 City of Santa Cruz Water Department

The City of Santa Cruz (City), located on the northern shore of Monterey Bay, was established as a Spanish mission in 1791 and incorporated as a town in 1866. The City administers land use within its municipal boundaries and is the county seat of Santa Cruz County. The Santa Cruz Water Department (SCWD) provides water service to an area of approximately 20 square miles, including the entire City, adjoining unincorporated areas of Santa Cruz County, a small part of the City of Capitola, and coastal agricultural lands north of the City. SCWD is responsible for potable water supply in the SCWD's service area to 24,504 connections and a total population of approximately 98,000. The eastern half of the SCWD's service area is within the Basin with an estimated population of approximately 42,000.

The City first acquired an interest in the Basin in 1967 when it purchased its Beltz groundwater wells. SCWD relies on a water supply that is primarily dependent on local surface water runoff, with groundwater contributing only 5 percent of the annual water supply and no connection to an imported water source from outside the region. The strong reliance on local surface water sources and the system's limited ability to store wet season flows for use in the dry season as well as having its groundwater resources in an over-drafted basin that is subject to seawater intrusion are the primary threats to SCWD's water supply reliability. Due to the water system's limited ability to store wet season flows for use in the dry season, SCWD is currently focused on increasing its drought supply and is exploring a number of alternatives, including strategies to store wet season flows in regional aquifers for use during droughts.

1.4.3 Central Water District

Central Water District (CWD) was first organized and approved as Central Santa Cruz County Water District in 1950 by local residents, voters, and the County Board of Supervisors to address the shortage of potable water in the Pleasant Valley area. By December 1953, it had acquired Valencia Water Works and was serving 80 customers. In 1980, the name was shortened to Central Water District. CWD's service area is approximately 3,200 acres or 5 square miles in area and is completely contained within the Basin. Compared to other MGA member agencies, CWD is a relatively small water district serving a rural community that is 98% residential and primarily made up of large residential and agricultural parcels. CWD is solely dependent on groundwater for its water supply and pumps an average of 400 acre-feet per year. Average water use for customers within CWD's service area is approximately 120 gallons per person per day. CWD has participated in groundwater management activities within the Basin since 1995 and has two seats on the MGA board of directors. The total number of CWD's active service connections is 899 providing water to an approximate population of 2,700. As a water district, CWD has no land use authority within its service area.

1.4.4 Santa Cruz County

The County of Santa Cruz (County) was founded in 1850 as one of the 27 original California counties at the time of statehood. The County has a total land area of 445 square miles (US Census Bureau, 2012). The County is the land use jurisdiction for all unincorporated areas outside of city boundaries and is the largest land use jurisdiction within the Basin. The population residing in the unincorporated area of the County within the Basin is approximately 69,500. Of this number, approximately 11,600 people reside in the unincorporated County and do not receive water from a municipal supplier.

The County does not provide water service but does permit and regulate private groundwater wells and small water systems that serve this population. The County's Environmental Health Services Agency (EH) includes the Water Resources Division which participates in countywide planning and management efforts on a variety of water resource programs, including: groundwater management, water quality, stormwater management, water conservation, fish (steelhead) monitoring, watershed and stream habitat protection. The County participated in establishing the groundwater estimates incorporated into the MGA's integrated surface water groundwater model (model) to estimate domestic private well and small water system groundwater pumping at 2,000 acre-feet per year. This estimate was based on groundwater production data from small water systems that are metered. Most private wells within the basin are not metered.

1.5 Private Well Owner Representation

Private well owner representatives participate in Basin groundwater management activities on the MGA Board of Directors. Private well owners, with four (4) or fewer households sharing a private well, have been included in groundwater management activities in the Soquel-Aptos area since at least the mid-1990s. In 2015, the Soquel-Aptos Groundwater Management Committee (SAGMC), a predecessor groundwater agency to the MGA, expanded private well representation to three seats on the SAGMC board. The MGA governance structure continues this engagement approach by including three private well owners on the MGA Board of Directors. MGA private well owner representatives are required to live within the Basin and receive their domestic or agricultural water supply from a private well, shared well, or small water system.

1.6 GSP Organization

1.6.1 Groundwater Sustainability Plan Organization

The MGA's GSP is organized based upon DWR's GSP Annotated Outline with additional information to address content requirements found in the *Preparation Checklist for GSP Submittal* (DWR, 2016).

The GSP is organized as follows:

- **Executive Summary:** This section presents an overview of the GSP, background information on the groundwater conditions in the Basin, an overview the GSP development process, and key information from each GSP sections.

- **Section 1.0 Introduction:** This section presents the purpose of the GSP, the Basin's Sustainably Goal, information about the MGA, and organization of the GSP.

- **Section 2.0 Plan and Basin Setting:** This section describes the Santa Cruz Mid-County Groundwater Basin, existing conditions in the Basin, provides historical data, and uses the data to make prospective estimates for future conditions in the Basin. It is this historic and projected data that set the stage for groundwater planning within the Basin. This section also provides the Basin water budget as context for this long-range groundwater planning effort.

- **Section 3.0 Sustainable Management Criteria:** This section presents the sustainability goal for the Basin and details the criteria for evaluating the SGMA's six sustainable management indicators and the associated undesirable results, minimum thresholds, and measureable objectives. These are the indicator's by which the sustainability of the Basin will be evaluated as GSP implementation occurs.

- **Section 4.0 Projects and Management Actions to Achieve Sustainability Goal:** This section provides a description of projects and management actions necessary to achieve the Basin sustainability goal and to respond to changing conditions in the Basin. These were developed to address sustainability goals, measurable objectives, and undesirable results. The projects and management actions are presented in three groups to provide the clearest description of how and when projects and management actions will be taken to reach sustainability. Group 1 includes projects and management actions that are already implemented and included in the model's baseline. Group 2 includes projects and management actions that are modeled and projected to reach Basin sustainability. Group 3 includes projects and management actions that may be needed if Group 1 & 2 projects fail to achieve Basin sustainability.

- **Section 5.0 Plan Implementation:** This section presents an estimate of GSP implementation costs, the implementation schedule, and outlines the procedural and substantive requirements for the annual and periodic (5-year) evaluations of the GSP.

- **Section 6.0 References and Technical Studies:** This section presents a compiled list of references and technical studies used to prepare this GSP.