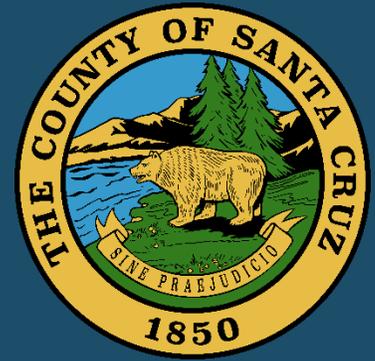


SANTA CRUZ COUNTY DROUGHT RESPONSE AND OUTREACH PLAN (DROP)



for Small Water Systems and
Domestic Wells

Santa Cruz County Environmental Health
Water Resources Division

701 Ocean St, Room 312
Santa Cruz, CA 95060



Table of Contents

Introduction	3
a. Summary of SB 552	3
b. Summary of process used to develop the plan.....	3
c. Overview of plan/ plan organization	5
d. Relationship to other Plans and Processes	6
e. Phased Approach to SB 552 Compliance	7
Summary of Water Resources and Vulnerable Areas.....	9
a. Physical Vulnerabilities: Water Supply and Quality	10
b. Socioeconomic Vulnerabilities	13
Domestic Well Drought Mitigation Plan	15
a. Summary of domestic well users	15
b. Domestic Well Outreach Strategy.....	18
c. Domestic Well Drought Mitigation Strategies	19
d. Funding Solutions for Domestic Wells	20
Small Water Systems Support Plan.....	22
a. Summary of small water systems in County	22
b. Small Water System Outreach Strategy.....	25
c. Small Water System Drought Mitigation Strategies	26
d. Funding solutions for small water systems.....	28
Emergency Response	30
a. Potential Disaster Situations.....	30
b. County role during the emergency	31
c. County role in recovery.....	32
d. Outreach Strategy for Emergencies.....	32
e. Long term mitigation strategies.....	33
f. Funding solutions for emergencies.....	33
Conclusion.....	35

Table of Figures

Figure 1: SB 552 as a critical piece of the water supply puzzle.	7
Figure 2: Phased approach to SB 552 Compliance	7
Figure 3: Overview of Water Resource Management	9
Figure 5: Priority Areas Based on Physical Vulnerability	12
Figure 6: Dashboard for DWR Risk Map tool for Santa Cruz County.....	14
Figure 7: Parcels Served by Domestic Wells	16
Figure 8: Location of Water Systems by Size.	23

Appendices

Appendix A: Recommendations Table from Drought Response Working Group	36
Appendix B: Table of Interim and Permanent Well Mitigation Strategies for Wells.....	39

Introduction

a. Summary of SB 552

Governor Newsom signed Senate Bill (SB) 552 into law on September 21, 2021. Among other things, SB 552 places the drought and water shortage planning responsibility on counties for State Small Water Systems and domestic wells within the county's jurisdiction.

There are three primary categories of water sources referred to in this document:

- Domestic wells (systems serving between 1-4 connections)
- State Small Water Systems (SSWSs; systems serving between 5-14 connections)
- Small Public Water Systems (systems serving over 15 connections). They consist of Community Water Systems that support homes, and Nontransient-Noncommunity Water Systems that are typically schools or businesses that supply their own water.

The DROP uses the term "small water systems" as a catch-all for situations that apply to both SSWSs and Small Public Water Systems.

Chapter 3 of SB 552 (commencing with California Water Code (CWC) Section 10609.70) imposes responsibilities on counties to improve drought resilience for SSWSs and domestic wells within their jurisdiction. SSWSs and domestic wells are not public water systems as defined in the California Health and Safety Code (HSC) Section 116275(h).

Because the County of Santa Cruz has limited authority and control over water resources, the ability of the County to directly influence drought relief is limited. Therefore, the roles outlined in this document focus on coordination, outreach, and serving as funding intermediary and liaison to the State, water supply agencies, and groundwater sustainability agencies.

b. Summary of process used to develop the plan

Chapter 3 of SB 552 states that "a county shall establish a standing county drought and water shortage task force to facilitate drought and water shortage preparedness for SSWSs and domestic wells within the county's jurisdiction..." Outside agencies and interested parties must be invited to participate. Santa Cruz County opted to use an alternative approach to the Drought Task Force as there is already a standing body, known as the Water Advisory Commission (Commission) which is responsible for advising the Board of Supervisors on water related issues. At the December 1, 2021 Commission meeting, the Commission voted to adopt the responsibility for implementing SB 552 through the alternative process.

Per the requirements of SB 552, the County was required to write a plan that includes potential drought and water shortage risk analysis and proposed interim and long-term solutions for SSWSs and domestic wells within the county. This Plan, now referred to as the *Santa Cruz County Drought Response and Outreach Plan (DROP)* will be incorporated into the County's Climate Action and Adaptation Plan process. Per SB 552, it must include a discussion of the following:

1. Consolidations for existing water systems and domestic wells.
2. Domestic well drinking water mitigation programs.
3. Provision of emergency and interim drinking water solutions.
4. An analysis of the steps necessary to implement the plan.
5. An analysis of local, state, and federal funding sources available to implement the plan.

In order to meet the requirements of SB 552 and to achieve the goal of a comprehensive and inclusive plan, the Commission formed a Subcommittee to include outside agencies and interested parties. This Subcommittee was known as the Drought Response Working Group (Working Group). To align with the SB 552 guidance for Drought Task Force participants, the Commission has designated the following composition for the Working Group (Table 1):

Table 1: Drought Response Working Group Members

Interested Party/Organization	Selected Representative
Water Advisory Commission (Small water systems) <i>Selected by Commission</i>	Paul Lego
Water Advisory Commission <i>Selected by Commission</i>	Frank Cheap
Water Advisory Commission <i>Selected by Commission</i>	Brian Lockwood
Pajaro Valley Water Management Agency (PV Water) <i>Selected by PV Water Board</i>	Stephen Rider
Santa Cruz Mid-County Groundwater Agency (MGA) <i>Selected by MGA Board</i>	Jon Kennedy
Santa Margarita Groundwater Agency (SMGWA) <i>Selected by SMGWA Board</i>	Edan Cassidy
Disadvantaged Communities <i>Rural Community Assistance Corp selected by staff</i>	Rachel Smith (RCAC)
At-Large Environmental <i>Selected through application process</i>	John Ricker
At-Large Domestic Well or Small Water System Customer <i>Selected through application process</i>	Becky Steinbruner

The purpose of the Working Group is to develop a plan to assess risks and define the County’s responsibilities to promote resiliency for small water systems and domestic wells in a drier

future, inclusive of all of the components required under SB 552. Working Group met four times between May and August 2022 to provide staff with input and recommendations. The meetings were broken into the following focus areas:

Meeting 1: Introduction. Topics included SB 552, county water resources orientation, and the Climate Action and Adaptation Plan.

Meeting 2: Domestic wells. Topics included current permit forms, vulnerability assessments, available well logs, and existing grant funds.

Meeting 3: Small Water Systems. Topics included results from a survey on interest in consolidation, an evaluation of challenges for these systems, and a discussion of reserve funds and rate setting.

Meeting 4: Emergency Response and Final Recommendations. Topics included lessons learned from the CZU Lightning Complex Fire, the role of the County in facilitating emergency access to water and reviewing the Working Groups recommendations to include in the DROP.

The materials for the meetings can be found at the website:

<https://scceh.com/NewHome/Programs/WaterResources/SenateBill552Compliance.aspx>.

In order to align with the Climate Action and Adaptation Planning process, the draft DROP was completed in September 2022, and available for a 3-week public comment period. The final DROP was submitted to the Santa Cruz County Board of Supervisors in December 2022. All the recommendations provided by the Working Group can be found in Appendix A. The Board of Supervisors will be the final authority in adopting the DROP and the Climate Action and Adaptation Strategy that it folds into.

c. Overview of plan/ plan organization

The organization of the DROP mirrors the Working Group meeting topics and is intended to make it simple for readers to find the information they are most interested in as easily as possible while providing all of the content required under SB 552. The DROP is broken into four primary sections:

i. Introduction

This section provides background information on SB 552 and the county's approach to compliance.

ii. Water Resources and Vulnerabilities in Santa Cruz County

This section describes the current state of water resources in the County and the physical and socioeconomic vulnerabilities faced by the populations served by domestic wells and small water systems.

iii. Domestic Wells

This section describes the County's plans to improve data collection and provide resources to well owners.

iv. Small Water Systems

This section describes the County’s plans to improve data collection and provide resources to small water systems with a focus on SSWSs. In addition to many of the same vulnerabilities faced by domestic wells, small water systems are further stressed by deferred maintenance, upcoming regulations, and minimal reserve funding.

v. Emergency response

This section focuses on the County’s role in providing assistance to residents that rely on wells and small water systems during emergencies. Drought is the primary focus of the legislation, however other emergencies such as wildfire are also discussed.

d. Relationship to other Plans and Processes

The DROP is just one of many plans and processes underway that collectively ensure regional water supply security to all residents of Santa Cruz County.

i. The Sustainable Groundwater Management Act of 2014 (SGMA)

SGMA went into effect in 2015 and requires identified groundwater basins to meet requirements including the development of a Groundwater Sustainability Agency and writing and implementing a Groundwater Sustainability Plan. There are three Groundwater Sustainability Agencies in Santa Cruz County – the Santa Margarita Groundwater Agency, the Santa Cruz Mid-County Groundwater Agency, and the Pajaro Valley Water Management Agency, all of which were represented on the Working Group. Highlights of SGMA as it relates to water supply are:

- Prevents further groundwater depletion
- Requires analysis of beneficial uses and users of groundwater
- Limited geographically to defined basins, does not benefit vulnerable water users outside those basins
- Looks at groundwater levels regionally, does not protect individual wells
- Exempts droughts from “sustainability”

As a member agency of the Santa Margarita and Santa Cruz Mid-County Groundwater Agencies, and close collaborator to the Pajaro Valley Water Management Agency, the County is in a good position to act as a liaison between individuals or small water systems, and the GSAs. This role may be appropriate when there may be a collective impact on those water users by larger groundwater pumpers.

ii. Municipal Water Supply Planning

Municipal water agencies have spent decades planning for water supply shortages, though efforts have increased in recent years. There are five water agencies within the County of Santa Cruz that have been actively working on developing new water supplies and have been required to write Urban Water Management Plans and Drought Contingency Plans – the San Lorenzo Valley Water District, the Scotts Valley Water District, City of Santa Cruz Water Department,

Soquel Creek Water District, and City of Watsonville Municipal Utilities. Through their individual and collective planning, they are looking at:

- Providing alternatives to groundwater for municipal uses during drought
- Closing gaps between sustainable supply and current and future demand
- Filling gaps left by SGMA (drought impacts) and SB 552 (source water for emergency supplies)

iii. Climate Action and Adaptation Plan (CAAP)

The process to update the County of Santa Cruz CAAP serves many functions related to water but outside the scope of the DROP:

- Summarizes regional vulnerabilities and climate hazards based on future hydrologic regime, temperatures, and sea level rise projections
- Looks at impacts of drought beyond water supply such as streamflow reduction and fire
- Looks for system-wide mitigation and adaptation

iv. SB 552 Requirements

SB 552 fills the gaps left by existing planning efforts to provide a safety net for remaining vulnerable members of the population served by domestic wells and small water systems (Figure 1).

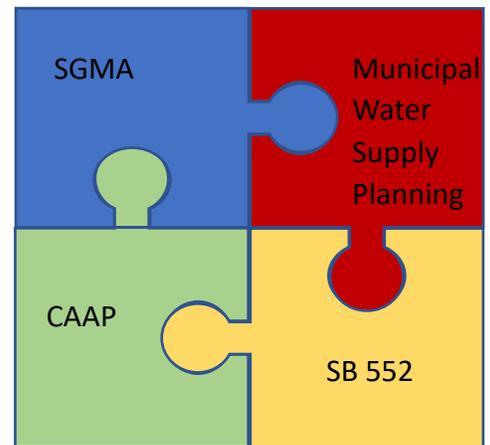


Figure 1: SB 552 as a critical piece of the water supply puzzle.

e. Phased Approach to SB 552 Compliance

The efforts undertaken by County staff and the Working Group have generated as many questions as answers. While the DROP and Recommendations Table found in Appendix A provide staff with actionable next steps, ongoing and increasingly intensive effort will be needed to support residents on domestic wells and the operators of small water systems during periods of sustained drought and other

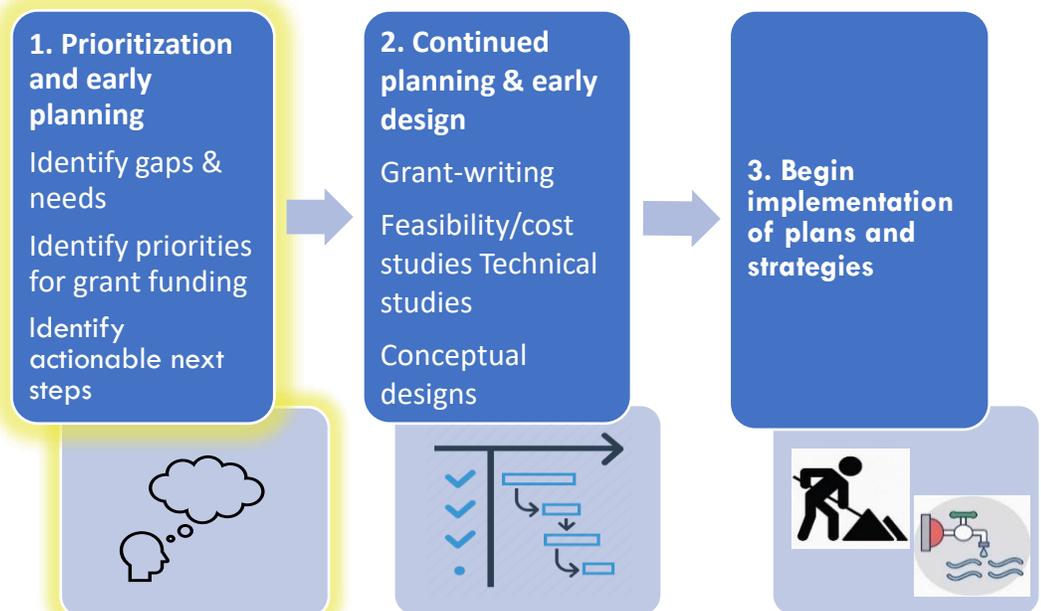


Figure 2: Phased approach to SB 552 Compliance

natural hazards related to climate change. Now that priority areas for both water supply and water quality have been identified, and mechanisms for outreach and communication are planned, the County can begin to seek out funding to assist residents in areas that are prioritized for investigating options to secure water supply. This will require additional studies and grants to cover those costs. After projects have been studied, further work will be required to bring those projects through the implementation phase. The phased approach is shown in Figure 2: Phased approach to SB 552 Compliance.

Summary of Water Resources and Vulnerable Areas

The overwhelming majority of Santa Cruz County’s water supply is locally derived – a unique situation in a state supported by large federal and state water projects. Domestic supply in Santa Cruz County is 78% groundwater, 19% surface water, and 3% recycled water. The City of Santa Cruz (serving ~100,000 residents) is 95% reliant on surface water, including the one reservoir in the County, Loch Lomond. The other large water agencies in the County rely on either a combination of groundwater and surface water, or entirely groundwater.

Groundwater for these large suppliers comes almost entirely from the County’s three primary groundwater basins: Santa Margarita, Santa Cruz Mid-County, and Pajaro Valley (see Figure 3).

For small water systems, roughly 87% of the supply is from groundwater, 6% from surface water and 7% purchased from a large water supplier ([2021 Water Status Report](#)). Individual household supply is commonly supplied by domestic wells, though some homes in the County depend on surface water. Many of the County’s domestic wells are located within a primary groundwater basin, but some are not. Wells that are not pumping from a primary groundwater basin are utilizing less productive aquifers that may be more vulnerable to drought.

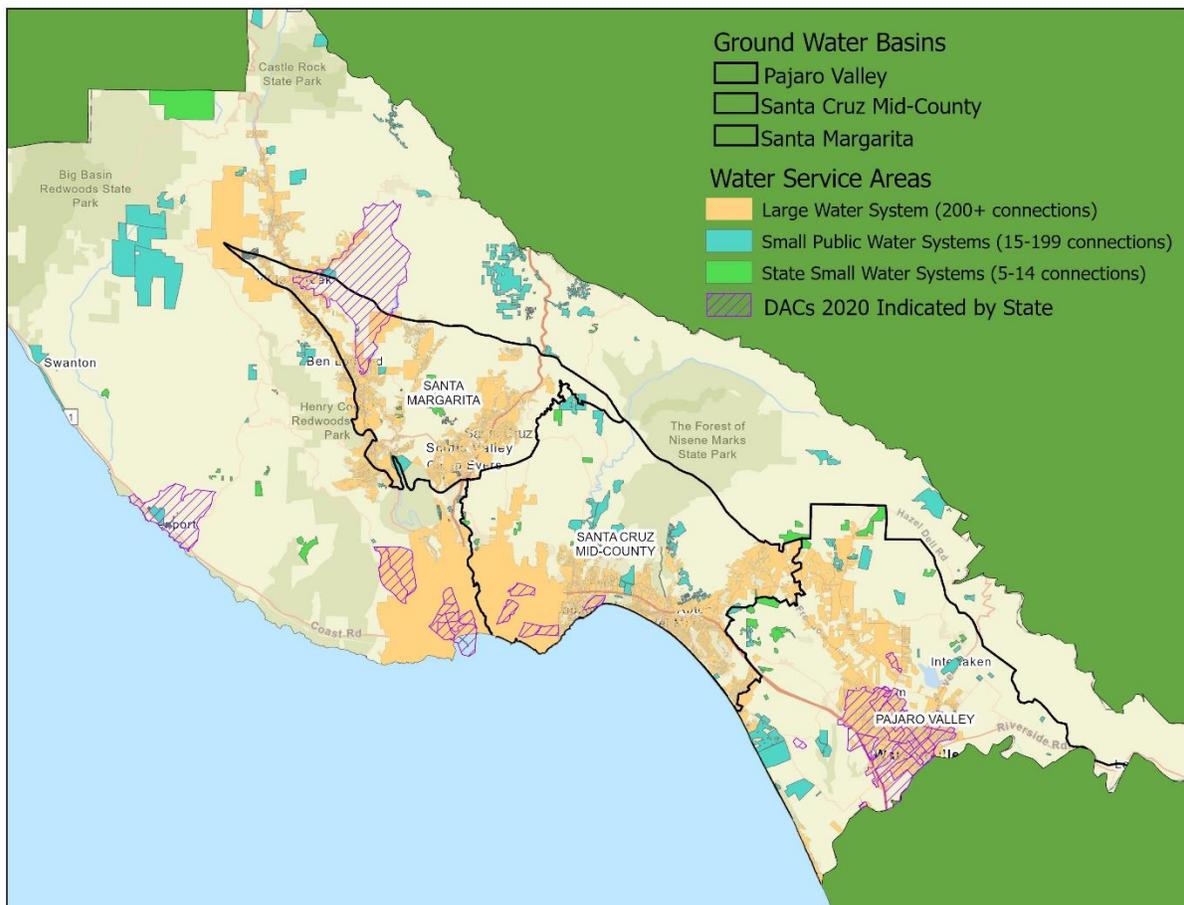


Figure 3: Overview of Water Resource Management

Like many other areas of California, the County faces water resource challenges including impaired water quality, overdrafted groundwater basins, depleted streams, and degraded riparian habitat. Changes in weather patterns threaten the future of water resources in the County. Predictions based on recent modeling project a future with a similar total precipitation, but mostly coming during less frequent and more intense storms. According to the [Integrated Regional Water Management Plan](#), this change in rainfall patterns could lead to up to 30% reduction in groundwater recharge, exacerbating vulnerabilities during drought periods. Even before the current period of drought began, surface water supply was barely sufficient to meet demand and two groundwater basins were in overdraft.

A regional commitment to water conservation has benefited the County. Considerable work has been done by the County's large water agencies to improve the management of water resources. However, domestic well users and small water systems have less ability to adapt to these challenges. Addressing this disparity was one of the primary goals of SB 552, which directs counties to provide a safety net for these vulnerable populations.

There are two major factors that could make users of domestic wells or small water systems vulnerable to drought. The first is physical vulnerability, or how exposed a system is to drought-related challenges. The second is socioeconomic vulnerability, which is a population's capacity to respond to drought-related challenges. The Working Group recommended that physical vulnerability be the primary criteria for assessing risk areas.

a. Physical Vulnerabilities: Water Supply and Quality

Water supply risk is the potential for complete loss of water, such as a well or spring going dry. The heavily driven by geologic features, with parts of the County more susceptible to declining groundwater levels than others. Water quality risk is when a particular contaminant becomes more prevalent in drought conditions and reaches a level that exceeds potable water standards.

Staff consulted multiple resources to identify areas of physical vulnerability:

- [Dry Domestic Well Susceptibility Tool](#) (2022): This tool located on the Department of Water Resources (DWR) Groundwater Live website provides a mapping dashboard that estimates dry domestic well susceptibility for California Counties. Susceptibility to going dry is based on a combination of domestic well locations, depths, and local groundwater level conditions. This tool indicates that domestic wells susceptible to going dry tend to be located in the Santa Cruz Mountains in the northern half of Santa Cruz County.
- [Drought & Water Shortage Risk Explorer](#): This tool provided by DWR shows the relative risk of water shortage in rural areas. The criteria for high risk include physical vulnerability, such as well depths, fractured rock formations, wildfire, basin overdraft, and water quality concerns, among others. This tool shows that the physical vulnerabilities are largely located in the Santa Cruz Mountains and in the Pajaro Valley. This tool also looked at socioeconomic vulnerability which will be discussed in the next section.

- [SWRCB 2022 Aquifer Risk Map](#): This tool from the State Water Resources Control Board (SWRCB) displays water quality data for domestic wells throughout the County. It shows that there are multiple chemicals of concern including nitrate, 1,2,3-TCP, and hexavalent chromium in the Pajaro Valley and arsenic in the San Lorenzo Valley.

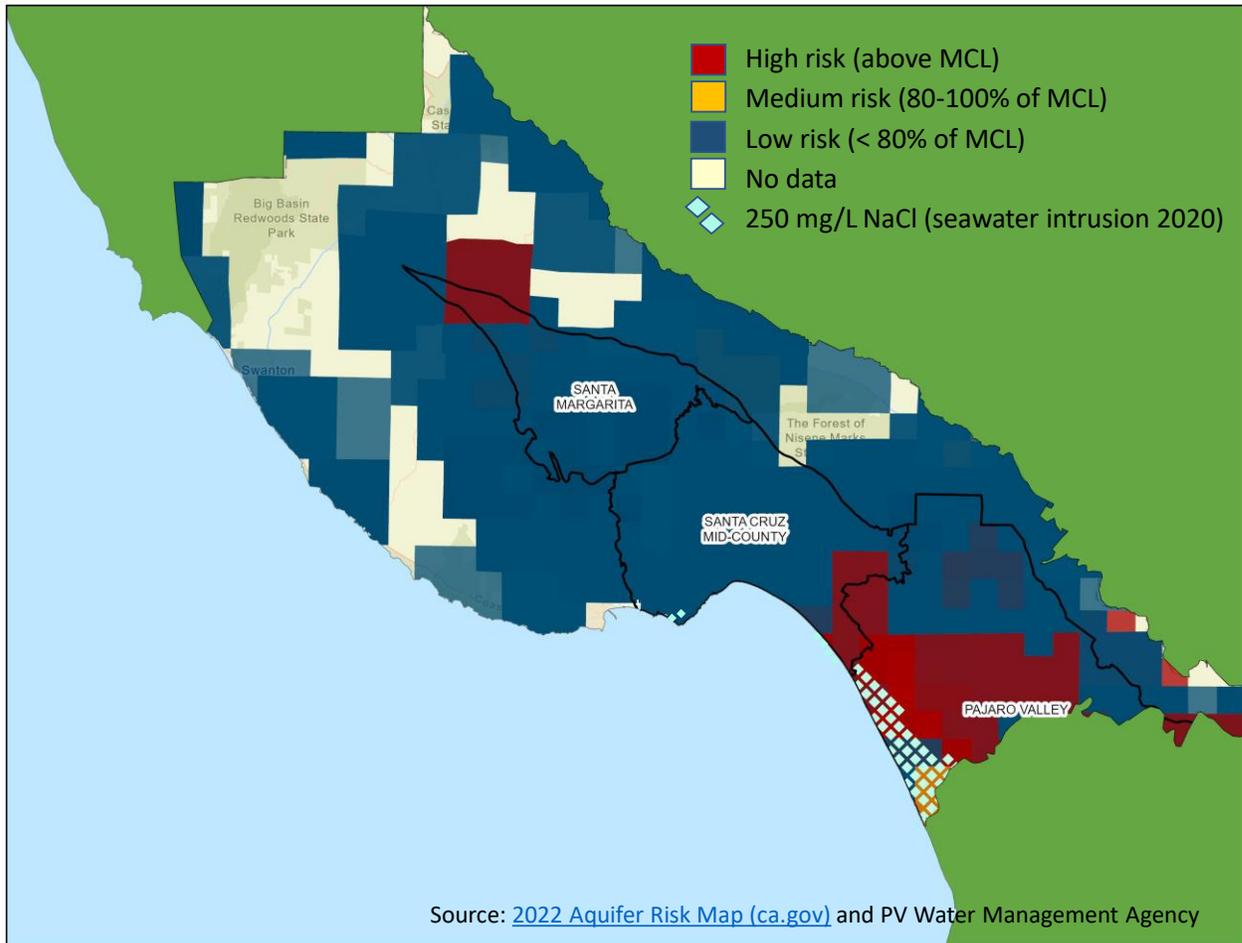


Figure 4: Combined Water Quality Risk Map

- [Community Water Center Drinking Water Tool](#) summarizes data from multiple sources related to water quality and supply. No supply data is available for Santa Cruz County, but the map does reiterate that the primary water quality concerns are nitrate, 1,2,3-TCP, and hexavalent chromium in the Pajaro Valley and arsenic in the San Lorenzo Valley.

In addition to these resources, staff consulted with the Working Group and local experts to make sure that local knowledge agrees with the state resources. This information all pointed to two general areas of highest concern - the upper Santa Cruz Mountains and the Pajaro Valley. These are both areas with relatively high physical vulnerability and a substantial population served by domestic wells or small water systems. Figure 5 is a synthesis of the areas of highest risk determined by local experts, the Working Group, and the tools outlined above.

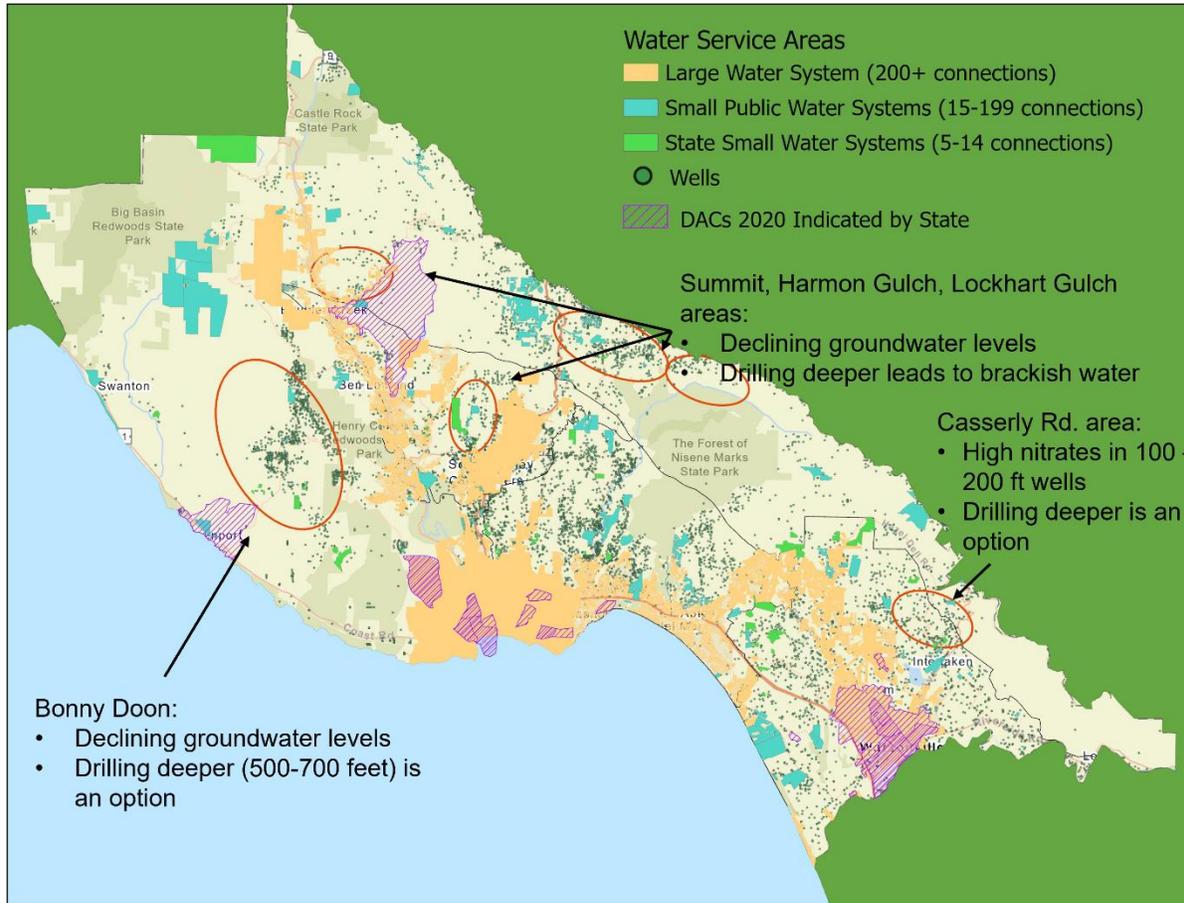


Figure 5: Priority Areas Based on Physical Vulnerability

1. **Santa Cruz Mountains:** Areas of concern in the Santa Cruz Mountains include Harmon Gulch, Lockhart Gulch, higher elevation areas including the Lexington Hills and Summit Road, and the town of Bonny Doon. Many wells in these areas are pumping from fractured geologic formations, widely exposed in this part of the County, but not principal aquifers. These areas are of concern due to declining groundwater levels. Wells pumping from these geologic formations may have a pronounced response to drought and increased water usage (Santa Margarita Groundwater Sustainability Plan, 2021). Often, drilling deeper wells is not feasible because deeper aquifers are brackish due to their natural characteristics.
2. **Pajaro Valley:** The areas along San Andreas Rd, the census-designated area of Interlaken, and areas around Casserly Rd., are of concern. These areas are located on or near intensively irrigated crop lands, making them vulnerable to water supply impacts of high production wells, and to water quality impacts associated with irrigated agriculture. Based on information available by DWR and Community Water Center, domestic wells in this area are susceptible to nitrate and 1,2,3-TCP exceedances. Drilling deeper wells is a feasible option in this area.

b. Socioeconomic Vulnerabilities

The populations served by domestic wells and small water systems are diverse and some are more able than others to adapt to the challenges presented by drought. Attributes such as language, income, and education, may create disadvantages for accessing resources and mitigating impacts of drought ([DWR, 2021](#)). Staff and the Working Group referenced several tools, in combination with local knowledge and expertise, to begin an assessment of socioeconomic vulnerability to drought.

As an initial step in evaluating socioeconomic vulnerability within Santa Cruz County, the staff referenced [DWR maps](#) showing locations of Disadvantaged Communities (DACs) within the County. DACs are defined in Water Code 79505.5 as a community with an annual median household income (MHI) that is less than 80% of the statewide annual median household income, or \$56,982. A severely disadvantaged community is defined by MHI below 60% of the statewide average, or \$43,737 (2022). As shown in Figure 3, the DAC communities that are dependent on domestic wells are mostly in South County, including many of the areas surrounding the City of Watsonville such as Interlaken, Freedom, Corralitos, La Selva Beach, Larkin Valley and other rural neighborhoods. These areas also coincide with areas of high risk to water supply and water quality impacts. Due to high risk of impacts to water supply and water quality, and socioeconomic vulnerability, these communities are likely among the most vulnerable to drought-related impacts to domestic wells in Santa Cruz County.

Staff also utilized the DWR [Drought & Water Shortage Risk Explorer](#) (Figure 6), which was developed to support drought resilience planning for rural communities. The tool incorporates data for 20 indicators of vulnerability to drought to create an overall risk profile for each census designated area in Santa Cruz County. When considering both physical and socioeconomic vulnerability, the communities in Pajaro Valley have the highest overall risk scores. The Santa Cruz Mountains tend to have higher average incomes and fewer language barriers, which lowered their overall risk scores. DWR is in the process of updating and improving the tools they provide, and those results will be used to update DROP implementation when available.

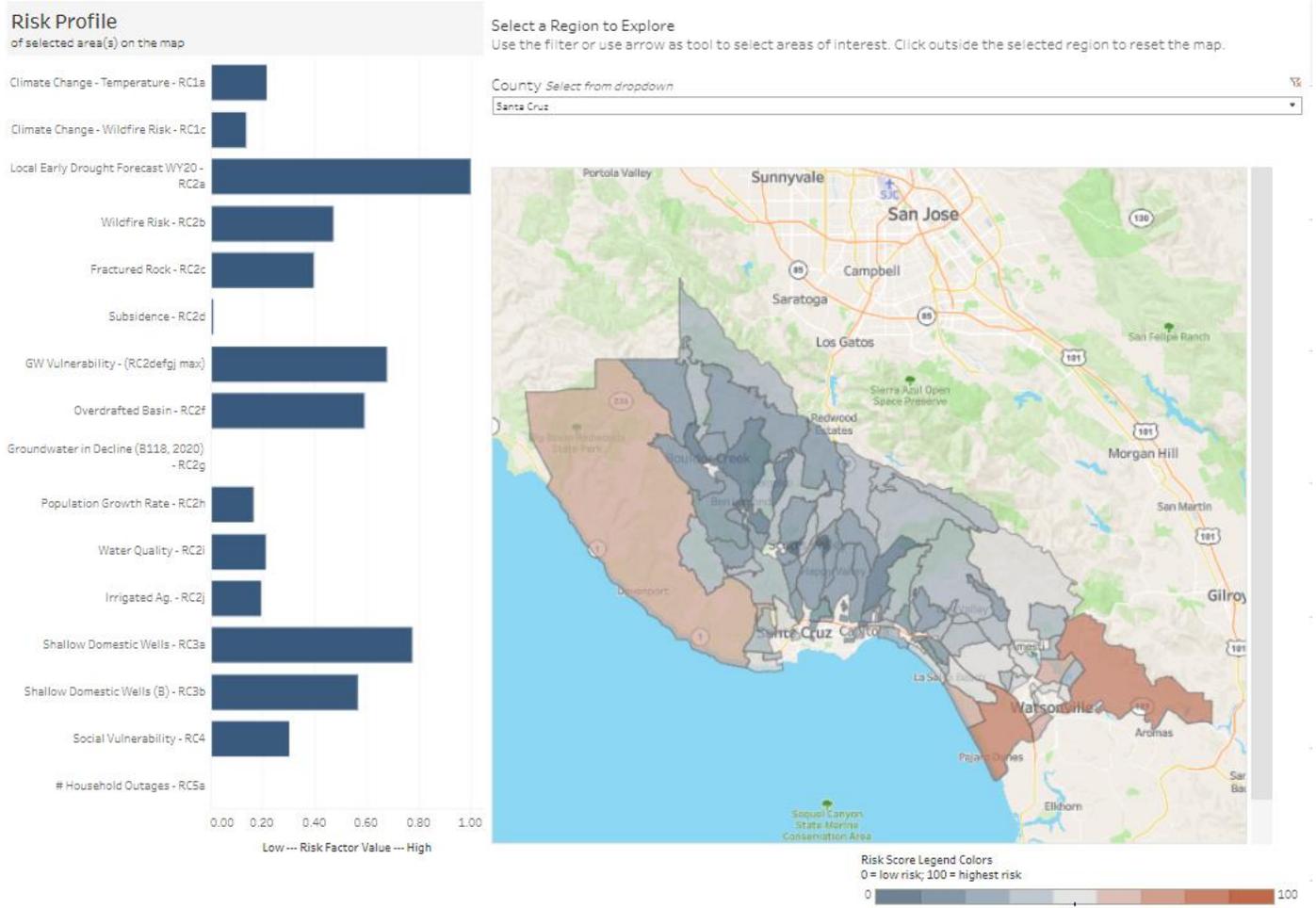


Figure 6: [Dashboard for DWR Risk Map tool for Santa Cruz County](#)

Domestic Well Drought Mitigation Plan

County residents that depend on domestic wells for their water supply may be particularly vulnerable to impacts of drought. A domestic well is a well that serves 1-4 connections, which may be on multiple parcels. While conditions vary throughout the county, private domestic wells are often more shallow than larger public supply wells. These lower capacity wells may be extracting water from shallow aquifers that do not have a reliable long-term supply of high-quality water, or they may be vulnerable to impacts of public supply wells that are extracting water from the same aquifer at much higher rates. Domestic wells are also more vulnerable to nitrate contamination than public supply wells because they are shallower and are often closer to septic systems, agriculture, or other sources of nitrate. While domestic well users may have the benefit of not paying service fees to a water provider, they may be subject to very expensive costs if their well is producing poorly or is producing water of unsuitable quality. In short, residents that depend on privately owned domestic wells are particularly vulnerable to impacts of drought because they lack the resources and economies of scale that public water systems have for addressing impacts to water supply ([Self-help Enterprises, Leadership Council for Justice and Accountability, Community Water Center, 2019](#)).

The Domestic Well Drought Mitigation Plan is intended to build resiliency and prepare for potential drought-related impacts to private domestic wells. Development of the Plan included an assessment of the County population that relies on domestic wells, planning for outreach and education, a preliminary vulnerability assessment, and identification of well mitigation strategies that can be implemented to provide water in the short-term (interim strategies) and long-term (permanent strategies). A summary of the interim and permanent mitigation strategies is included in Appendix B.

a. Summary of domestic well users

An essential step in developing the Domestic Well Drought Mitigation Plan is to identify the households that depend on domestic wells. For reasons that will be discussed below, there is no exact record of which parcels are served by a domestic well. To address this, county staff used ArcGIS software to identify parcels that have been developed for residential use, but do not fall within the service area of any water system (Figure 7). The preliminary results of this task indicate that 8,436 residential parcels likely rely on a domestic well. Assuming an average household size of 2.8 people, approximately 23,620 people in Santa Cruz County are dependent on a domestic well for their water supply. Because one domestic well may serve up to four households, there are likely fewer domestic wells than parcels served by domestic wells.

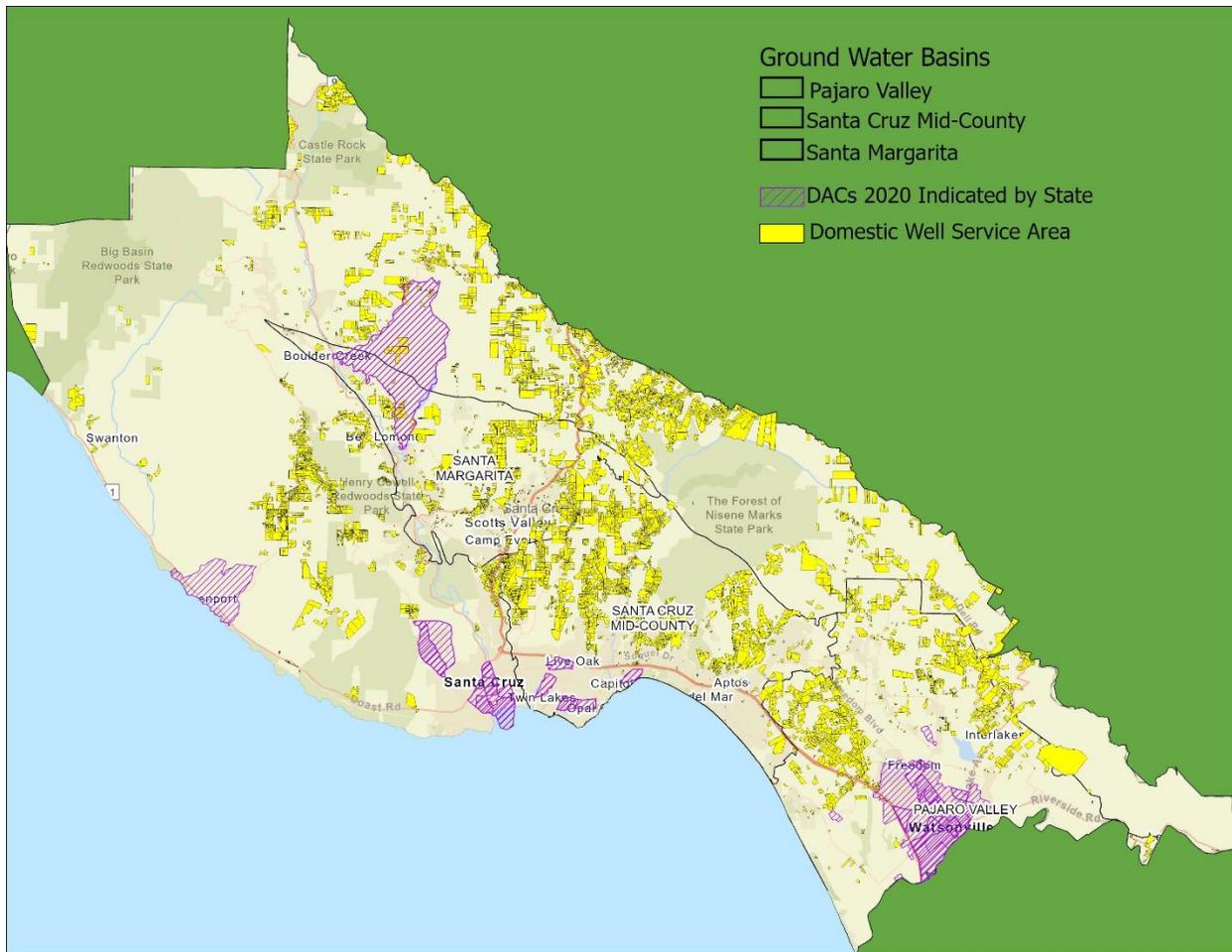


Figure 7: Parcels Served by Domestic Wells

i. Domestic Well Information and Data Gaps

1. Number of Domestic Wells

The Working Group was presented with a summary of the information available for domestic wells and gaps in that information. The exact number of active domestic wells in Santa Cruz County is unknown because protocols for tracking well installations have changed over time. Starting in 1969, California Water Code 13751 required a well completion report to be filed for the installation of any type of well in the State. Well completion reports are maintained by the DWR. Prior to 1969, well completion reports were not required so there are no records for many older wells. DWR’s database includes 9,682 records for Santa Cruz County, with the earliest record dating back to 1933.

Inconsistencies in the quality and type of information collected with well completion reports presents many challenges for mitigating the impacts of drought on domestic wells. Many well completion reports lack important information like an exact location, depth to water, well pumping rates, and the type of well installed (domestic, irrigation, industrial). The ability to track the status of existing wells is constrained because wells are not always properly destroyed

when no longer in use and, even when they are, the original well completion report does not reflect that. Further, most existing well completion reports are physical documents that were scanned into a database. This method of cataloging the data makes it very difficult to manage the data contained in them using digital data management tools.

Santa Cruz County maintains a large GIS database of over 8,000 private well entries, but it is not comprehensive or up to date. County well completion records date back to the late 1960s. More recent well records are entered into the GIS, while an extensive collection of older records is not entered into the GIS. This data has the same inconsistencies and management constraints as those described above.

To support drought resilience planning, DWR has made a number of tools available that provide information about domestic wells in each county. In the [Drought and Water Shortage Risk Explorer tool](#), which is discussed in Section 2, DWR estimates 3,796 domestic well completion reports have been submitted since 1970. In 2022, DWR released an online tool [California's Groundwater Live](#), that provides information about domestic well completion reports received since 1977. Based on this tool, 2,700 domestic well completion reports have been received for Santa Cruz County.

2. Water Quality for Domestic Wells

Water quality information is a data gap for domestic wells. Water quality testing for bacteria, nitrate, iron, manganese, TDS, and chlorite is required at the time of well installation in order to ensure compliance with drinking water standards. But ongoing water quality monitoring is not required, and water quality data was either not collected or not recorded in many older wells. Because water quality data for domestic wells has historically been collected for compliance purposes only, data are not cataloged in a way that is readily accessible to inform drought resilience planning. Furthermore, well owners may be unaware of water quality impairments in their water supply as the quality of water sources and regulatory limits change over time.

3. Ground Water Levels in Domestic Wells

Well completion reports are meant to include the depth to water for completed wells. However, as discussed above, the reports are often incomplete and the data they provide is not easily accessed.

The County does measure groundwater levels upon request through the voluntary domestic well monitoring network. The County uses a sounder to measure water levels at 32 domestic wells in the County in the spring and fall. The wells are concentrated primarily in the Mid-County groundwater basin. In order to improve geographic range and to forecast changes in groundwater levels, additional wells should be added to the monitoring network.

The Working Group reviewed information collected in well permit applications. Currently, information collected for new well construction includes basic well parameters (type of well, depth, diameter, depth of seal), general location of the well on the property including proximity to property lines, sewer lines, leachfields and other features that could be impacted by a newly

installed well, other parcels that will be served by the well, and water conservation measures that will be implemented for wells that produce more than two acre-feet of water per year. Gaps in readily accessible information needed for drought mitigation planning include GPS points for mapping exact well locations, depth to water, depth of screens, lithology information from driller logs, and for replacement wells, reasons for decreased productivity of existing wells.

As a result of these discussions, the Working Group made the following recommendations for managing well information (a complete list of recommendations is included in Appendix A):

- Create a spatial data layer in GIS representing residences served by wells. Use this to make a mailing list.
- Improve the well database GIS layer (add new wells, review historic well logs, include information from well completion reports where available).
- Improve well permit application forms to collect more information including the GPS location of the well and reason for replacement wells.
- Request that staff work with the Commission to review the Well Ordinance. One item of consideration will be possibly restricting new well installation in areas that are highly vulnerable to drought.

b. Domestic Well Outreach Strategy

The overall outreach goal is to ensure all residents who rely on a domestic well that is impacted by drought have access to an interim potable water supply, and receive assistance with accessing a reliable, permanent supply. Outreach will aim to establish contact with all users of domestic wells, provide education, make resources broadly accessible, and increase utilization of available resources.

The outreach approach will use diverse strategies to ensure broad dissemination of well mitigation resources and to maximize the number of residents contacted. Strategies may include mailers, print, radio, social media, a County-sponsored web page, and tabling at in-person outreach events. Outreach steps include the following:

- 1) Identify all residences (by situs address) that depend on private domestic wells
- 2) Identify high priority areas
- 3) Perform community-level assessments of high priority areas. Partner with outreach specialists and community members to inform this work.
- 4) Send outreach mailers to domestic well users in English, Spanish, and other languages as appropriate, providing options for accessing tools and resources including:
 - A link to the State Dry Well Reporting Portal to report dry/impacted wells and find resources
 - A new County Drought Portal that will include well mitigation resources and funding options for water hauling, when available. The target implementation date for the County Portal is January 2023.

- Voluntary well monitoring services
 - Upcoming outreach events
 - Other information and resources, as they become available.
- 5) Hold outreach events in locations that provide County-wide coverage and focus on high priority areas.
- Ensure that events are accessible, maximize participation, and facilitate open communication. Receive assistance from outreach specialists such as Rural Community Assistance Corporation (RCAC), Community Water Center (CWC), Leadership Council for Justice & Accountability (LCJA) and others.
 - Leverage existing forums such as town hall meetings, agricultural group meetings, and Connecting the Drops (a local water resources meeting series). Use contact lists from these events and from sources such as DWR and the Santa Cruz County Community Emergency Response Team (CERT).
- 6) Increase water use awareness and participation in voluntary services.
- Increase enrollment in voluntary well sounding program.
 - Increase usage of flowmeters and other tools to improve water use efficiency, based on available funding.
 - Encourage and incentivize voluntary metering and data loggers for wells.
 - Adapt strategies based on residents' concerns about taxes, privacy, costs or other concerns.

c. Domestic Well Drought Mitigation Strategies

Resources will be made available to help residents build resiliency and respond to drought-related impacts to their wells.

County staff referenced the [Framework for a Drinking Water Well Impact Mitigation Program](#) (2019) to develop drought mitigation strategies for domestic wells. The strategies were revised based on feedback from the Working Group and reflect local costs and conditions. A list of interim and permanent mitigation strategies, including notes about the pros and cons, and costs of each strategy, are included in Appendix B.

Interim solutions include delivered, potable bulk water, potable bottled water, and point of entry (POE)/point of use (POU) water treatment systems. Residents dependent on domestic wells that are producing poorly due to drought will be eligible to receive bulk, potable water deliveries through a grant-funded County contract with a water hauler. (More details about this service and the Urgent Drinking Water grant that will fund it are included in the Funding section below.)

In order to streamline access to bulk water, and ensure there are no conflicts with restrictions on places of use, the County plans to develop Memorandums of Understanding (MOUs) or other agreements with the large water suppliers capable of providing water to the haulers. These will outline information such as when the County can direct water haulers to each water

district and limitations on total amounts of water that can be taken, where the water can be used, for how long it can be made available, and which charges will be applicable.

One challenge facing water haulers in some parts of the County is the limited availability of automated water vending stations. For example, San Lorenzo Valley Water District will sell water to the County for the hauling program, but it must be picked up when staff is available to operate the water filling station. The County will work with the districts to find funding for the installation of machines at strategic locations that would be available for use at all hours.

Implementation of permanent solutions will be more resource and time intensive. For this reason, the Working Group recommendations focus on providing assistance with accessing funds, technical support, and providing education and decision-support tools.

Public water systems often provide a more reliable drinking water source than privately-owned domestic wells. Therefore, permanent solutions may include facilitating the connection of impacted well users to a nearby water system when all parties are interested in that option. When funds are available, the County may provide technical and financial support for other permanent solutions, including troubleshooting and/or retrofitting wells and pumps, drilling new, deeper wells or installing water treatment systems.

d. Funding Solutions for Domestic Wells

i. Coordination between County and State

One of the County's important roles is to access financial assistance to support the development and implementation of water use efficiency and well mitigation strategies. County staff will seek funding to offer voluntary water conservation audits, leak detection, and conservation incentive rebates to households on domestic wells. Staff will also seek funding to offer financial assistance with flowmeters and dataloggers for interested residents, to encourage and incentivize better water use tracking.

ii. Current Urgent Drinking Water grant

Santa Cruz County Environmental Health was awarded funding through the SWRCB SAFER grant program and the DWR Urgent Drinking Water grant in 2021. Funding is expected to be available in 2023. This funding will be used to make progress to implement this plan, beginning with the tasks outlined in Table 2: Funding Received by Santa Cruz County below (subject to change as the work progresses).

Table 2: Funding Received by Santa Cruz County

Task	Funding allocated	Funding source
Purchase of new Inductively Coupled Plasma (ICP) Metal Analysis to test for heavy metals in drinking water samples	\$150,000	SWRCB SAFER program
GIS database update to identify and map all parcels served by domestic wells	\$5,000	SWRCB SAFER program
Small system & domestic well outreach	\$11,000	SWRCB SAFER program
Create drought resources web portal	\$5,000	SWRCB SAFER program
Domestic well inspections (voluntary well soundings and water quality testing)	\$30,000	SWRCB SAFER program
POU/POE treatment systems* (*recipients must meet income requirements)	\$250,000	SWRCB SAFER program
Create a dry well reporting tool	\$5,000	SWRCB SAFER program
Contract with bulk, potable water hauler	\$160,000	\$80,000 SAFER program, recipients must be income limited + \$80,000 DWR
Feasibility studies/planning assistance for permanent solutions	\$50,000	SWRCB SAFER program

The County is in the process of securing a 2-3 year contract with a bulk, potable water hauler to respond to drought-related water supply problems that may affect residents. Eligible residents will receive up to 50 gallons of bottled water per person per month or 3,800 gallons of hauled water per household every 6 weeks at no cost, while a permanent solution is pursued by the property owner. Well users currently have access to other direct forms of assistance including well soundings to monitor water levels and water quality testing.

Small Water Systems Support Plan

Small water systems will face significant challenges with increasing drought conditions. According to the [Framework for a Drinking Water Well Impact Mitigation Program](#) (2019), small water system wells are often shallower and more vulnerable to contamination than larger public supply wells. In Santa Cruz County, the average depth of the SSWSs is 291 feet, which is significantly shallower than large water systems. The small populations served by these systems also make the relative cost for repairs and system upgrades higher for each individual customer. At the same time, these systems must meet increasingly strict regulatory requirements, adding further costs beyond those for domestic well owners.

There are two primary categories of small water system that the DROP focuses on:

- SSWSs (SSWS) serve between 5-14 connections
- Small Public Water Systems serve over 15 connections. They consist of Community Water Systems that support homes, and Nontransient-Noncommunity Water Systems that are typically schools or businesses that supply their own water).

The DROP uses the term “small water systems” as a catch-all for situations that apply to both categories.

Small Public Water Systems must meet many of the same requirements for water quality standards, testing, and reporting as a Large Water provider, despite having far fewer connections to support the costs. It should be noted that SB 552 adds several new requirements to increase the resilience of Small Public Water Systems with fewer than 1,000 connections as well as Nontransient-Noncommunity systems (These added resilience projects will be a significant added cost to these systems, which may already be struggling to maintain existing infrastructure. These requirements include:

1. Have electrical backup power by 2024
2. Have more than one source of water by 2027
3. Meter every service connection by 2032
4. Have the system capacity to meet fire flow requirements by 2032

This Small Water Systems Support Plan is intended to help these systems navigate coming challenges by providing emergency support and also assistance with taking proactive steps to build resiliency and avoid emergency situations. The Plan includes steps the County should take for outreach, education, and support strategies to provide water in the short-term (interim strategies) and long-term (permanent strategies).

a. Summary of Small Water Systems in County

There are 40 Small Public Water Systems and 41 SSWSs that collectively serve about 8,000 residents (Figure 8). The majority of these smaller systems are regulated by the County under

the Local Primacy Agency (LPA) authority given by the State. The majority of Santa Cruz County residents receive water from a large water supplier (200+ connections).



Figure 8: Location of Small Public Water Systems and SSWs.

iii. Small Water System information and Data Gaps:

Small water systems have much better data availability than domestic wells. As regulated entities, they have ongoing requirements for information reporting and water quality monitoring. On at least an annual basis, operators of these systems report the total population served, the total number of connections, monthly water production totals, and water system specifications including well completion reports. This ongoing contact with County staff means there are existing communication channels that can be utilized to distribute informational materials on various topics, including drought mitigation.

Though there is much more data available, there are still some data gaps:

- **Reserve funding:** A major data gap is the amount of reserve funding these small systems have on hand to deal with major system issues or disasters. The County does receive rate data from a portion of these systems, but there is no tracking of how much reserve balance

the system is maintaining. Currently, the County does not have any requirement for small water systems to maintain a reserve balance or charge for water at a rate that is sufficient to build reserves. As part of the Working Group process, a survey was sent out to all SSWSs that included a question on reserve balances. Only 11 of 44 systems responded, but the results indicate that these systems have insufficient reserves for routine maintenance and unexpected repairs. Privately owned Small Public Water Systems regulated by the California Public Utilities Commission are operated differently and are not expected to have reserves.

- Water Quality:** Another data gap is the water quality of SSWSs. These systems are not required to monitor for the full range of chemicals that a Small Public Water System is. They are also not required to take well source samples on an ongoing basis. Instead, they test for a limited set of inorganic chemicals only once, when a new water source is developed (Table 3). Water quality and regulatory limits change over time, so users of these systems may be unaware of exceedances of safe drinking water standards in their water supply.

Table 3: Requirements for State Small Water System water quality testing when a new water source is developed.

<i>Chemical</i>	<i>Maximum Contaminant Level, mg/L</i>
Aluminum	1.
Antimony	0.006
Arsenic	0.010
Asbestos*	7 MFL
Barium	1.
Beryllium	0.004
Cadmium	0.005
Chromium	0.05
Cyanide	0.15
Fluoride	2.0
Mercury	0.002
Nickel	0.1
Nitrate (as nitrogen)	10.
Nitrate+Nitrite (sum as nitrogen)	10.
Perchlorate	0.006
Selenium	0.05
Thallium	0.002

*Required only if water system uses asbestos-cement pipes.

b. Small Water System Outreach Strategy

Unlike the goals of outreach to domestic well users, outreach to small water systems has typically focused on contact with the system managers rather than with all residents served by these systems. This outreach should provide information regarding the resources available to them, with the ultimate goal of increasing the use of these resources to improve system resilience and mitigate drought impacts.

iv. Small Water Systems Forum Meetings

As mentioned in previous sections, County Environmental Health periodically hosts forum meetings for regulated small water systems as an opportunity to present relevant information and training, facilitate discussion, and build working relationships between systems. These meetings are open to SSWs as well as Small Public Water Systems, and targeted to the owners, operators, and Board members rather than customer. Previous water system forum meetings have included presentations by guest speakers on topics such as preventative maintenance for wells, water system insurance, important regulatory changes, and local groundwater management. Future guest speakers could also include representatives from local water districts and community organizations.

These meetings are typically held in the evening to account for the daytime work schedules of many water system volunteers and contract operators and have recently shifted to an online-only format. In-person meetings could be implemented once again moving forward, returning to the previous practice of holding meetings at various locations throughout the County to increase accessibility and encourage attendance. The County also has a training room at the government center in Santa Cruz with laptops available for computer-based training, which have been previously used for workshops focused on required annual reporting to the state (the Electronic Annual Report, or EAR) and reviewing information and water quality monitoring results and schedules available via California Drinking Water Watch.

v. Ongoing emails and web page updates

Small Public Water Systems are required to submit updated contact information via the EAR, while SSWs are asked to provide updated contact information to the County as needed each year. This can be used to distribute important updates regarding resources available to well and water system owners, guidance on drought preparation and other preparedness steps, and new laws related to groundwater management and the operation of water systems and wells. A new County Drought Portal, described in the Domestic Wells section above, will also be a valuable resource for updated information and links to other resources from the State, water agencies, community groups, water industry associations, the EPA, and others. The target date for launching the Drought Portal is January 2023.

c. **Small Water System Drought Mitigation Strategies**

Small water systems face significant challenges to maintaining their operational resilience and preparedness. They operate at a much smaller scale than larger water districts and lack the customer base to distribute costs with low impacts to the population served. The varied challenges these systems face require a range of mitigation strategies described below.

i. Provide direct support

Accessibility of resources for small water systems is a continuous challenge. Information must be presented in many formats, such as email updates, Drought Portal updates, in-person presentations, and paper mailings.

- **Water hauling:** As with domestic well owners, interim hauled or bottled water service is available to small water systems with sources impacted by drought conditions.
- **Water quality testing:** Limited water quality testing will be made available to SSWs since they have fewer resources, and they are not required to sample for the extensive set of contaminants which Small Public Water Systems must include in their water quality monitoring.
- **Water Treatment Systems:** In the event that poor water quality is discovered, SSWs may be able to take advantage of point of entry (POE)/point of use (POU) water treatment systems. For the next 2-3 years, income-limited residents served by a SSW will be eligible to receive financial assistance for POE/POU treatment systems.
- **Well soundings:** Free County well soundings are available to all small water systems, in addition to domestic well owners. This service can provide critical information about the status of a system's well or wells, particularly over time.

ii. Provide accessible information

One way to make a small water system more resilient is to ensure it has good information on what makes a system resilient. Accessibility of information for small water systems is a continuous challenge. Information must be presented in many formats, such as email updates, website updates, in-person presentations, and paper mailings. The turnover of water system board members and volunteers contributes to the challenge of keeping water systems informed and up to date on regulatory changes and new resources available to them. Most of the resources available through the County to domestic well owners referenced above are also available to small water systems. Resources which will be or are currently being provided include:

- **Guidance to inventory assets and assess their useful life:** Taking inventory of a water system's assets and tracking the condition, including estimating a replacement schedule, is a critical first step toward sustainable long-term management. While short-term costs are familiar for every water system, the long-term expenses of water system operation are much less visible. The County can offer resource materials and has previously hosted a training on assess inventory and building a reserve fund.
- **Reserve fund-building resources:** The County can offer tools to help educate small water systems about the importance of building a financial reserve and the steps

required to achieve this goal. As mentioned previously, this has been the subject of a training offered during a water system forum meeting and can be a topic for continued training.

- **Decision-support tool:** The County will develop tools to support decision-making about consolidations, and to support the consolidation process itself when that is the preferred option. This includes reviewing the options available to the water system to improve their water supply capacity and a consolidation cost-benefit analysis tool, among other potential resources.
- **Management Flow charts:** County staff will develop and post process flow charts to help water system owners and managers understand the steps to undertake activities they may not have done before. Topics could include steps needed to develop an emergency intertie, to receive funding for a project from the State, to enter into a consolidation with a neighboring agency, or to increase rates.
- **Dry well registration information:** DWR hosts a dry well reporting tool. The County can provide information for using this tool and to increase awareness of the statewide resources for well owners experiencing drought impacts.
- **Advocacy for additional funding:** County staff will also advocate for simplification of available funding structures to increase their accessibility and the inclusion of SSWs in more funding programs.
- **Maintain list of qualified professionals:** The County [already maintains lists of qualified professionals](#) including well pump contractors and well drillers. Additional contractor types and certified operators can also be added if there is a need.

vi. Interties Between Water Systems

Interties are a physical connection between two existing water systems and allow the systems to share water. Typically, this means a smaller water system can receive water from a larger water system in an emergency where the smaller system loses its regular source of water. While not feasible in many situations, interties with nearby water systems can present an effective intermediate step to increase available water supply. These can be established much more quickly than consolidations and provide a source of backup or emergency supply. Agreement conditions vary but often include increased charges to the receiving system.

vii. Consolidations Between Water Systems

Consolidation is when two systems merge into a single system. Often, the residents of a smaller system become customers of a larger system. Consolidations can be an effective long-term solution for some struggling water systems, provided that they are within a feasible distance of a neighboring water system that is willing to receive their service area. Consolidations are a high priority for the SWRCB given the available data showing higher incidences of water quality violations and other compliance issues with small water systems. The SWRCB has increased staffing dedicated to the topic of water system partnerships and consolidations, and these staff can provide guidance to water systems considering consolidation.

While there are many resources available from the state, additional resources should be developed at the County level to provide more information to local systems about important considerations and process. The County cannot force consolidation, but will help facilitate the process if it is desired by all parties. The authority to mandate or force consolidations is given only to the SWRCB and less than ten systems statewide have been ordered to consolidate. In all cases, this was due to severe and persistent water quality violations and general failure to provide safe and reliable water. Supporting voluntary consolidation is the preferred approach, with mandatory forced consolidation as a last resort to protect the health of customers reliant on a failing water system ([current criteria for a failing water system are provided by the State Water Resources Control Board](#)).

d. Funding Solutions for Small Water Systems

In addition to operational challenges, small water systems face obstacles to receiving funding from the State and other funding sources. Small systems often lack the capacity to apply for and meet the ongoing requirements of grants or low-interest loans. These loans often have significant reporting requirements that may take years to complete, which creates steep upfront costs to small systems and delays to being reimbursed. The Working Group recommendations include providing support to help small water systems access grants and low-interest loans, leveraging the help of community organizations and the state as appropriate.

Current funding options for small water systems are discussed below.

viii. Current Urgent Drinking Water grant

Santa Cruz County Environmental Health was awarded funding through the SWRCB SAFER grant program and the DWR Urgent Drinking Water grant in 2021. Funding is expected to be available in 2023. This funding will be used to begin implementation of the DROP, including implementation of the tasks outlined in Table 2: Funding Received by Santa Cruz County (subject to change as implementation advances).

The County is in the process of securing a 2-3 year contract with a bulk, potable water hauler to respond to drought-related water supply problems that may affect residents. As with domestic wells, SWSs are also eligible to receive up to 50 gallons of bottled water per person per month or 3,800 gallons of hauled water per household every 6 weeks at no cost, while a permanent solution is pursued by the water system.

ix. Rate Changes

The most reliable funding source for small water systems comes from its rate structure. A rate that is structured to build reserves will make a system much more resilient to challenges created by drought and aging infrastructure. To reduce expense to their customers or members in the short term, small systems often do not include charges for long-term costs such as infrastructure replacement in their regular billings. A concerted effort is required for these systems to plan for future replacement of their system. Maintenance of a financial reserve is a critical step toward resiliency and has been the subject of a previous small water systems forum

meeting. Additional resources and guidance from the County would help these systems with financial planning and rate-setting to gradually increase rates as needed to build sufficient reserve funds, particularly accounting for the increased cost of materials and inflation.

x. State Revolving Fund (SRF)

The SRF program offers grants and low-interest loans to water systems in California. However, these funding opportunities are usually limited to public water systems serving DACs and excludes SWSs entirely. Even for systems that can apply, the process to get funding is extremely complicated. While the SWRCB has made improvements to streamline the application process and provides assistance with applications, this funding source continues to require prohibitively high investments of time and expense for most systems. The County will continue to collaborate with the State to address the challenges with this funding source.

xi. Private loans

While some funding is also available from the private sector, this route also presents similar challenges to small water systems. Private lenders often require extensive documentation which many small systems lack regarding organizational structure and financial compliance. Lenders may view small water systems as high-risk borrowers and offer terms including higher interest rates than public funding sources.

Emergency Response

While drought is the primary focus of the DROP, it is not the only natural disaster that can affect small water systems and domestic wells. Given the rural nature of most of Santa Cruz County, the risk for several different natural disasters is high. Additionally, domestic wells and small water systems are disproportionately located outside of the urban services line in the County and therefore have a heightened vulnerability to such disasters. Historically the County has not offered any direct services to ensure water supply for these user groups during and in the immediate aftermath of a disaster. However, as climate change makes these disasters more likely to occur, and more intense when they do, there are many things the County can and should do to prepare for and react to disasters.

a. Potential Disaster Situations

The following natural disasters are both possible in the rural portions of the County, and likely to impact water supply.

xii. Drought:

Climate change projections have made it clear that drought will be an increasing challenge in the future. Drought can lead to lowered groundwater levels, which if drawn below the bottom of an existing well, will cause the well to stop producing. Several Community and SWSs are reliant on surface water, which is even more sensitive to drought than groundwater.

xiii. Fire

The majority of the rural areas of the County are classified as being at high or very high risk of fire (https://osfm.fire.ca.gov/media/6768/fhszs_map44.pdf). A wildfire can disrupt water supply in a multitude of ways: above ground infrastructure can be destroyed, heat and fire can cause pipes to break, leading to loss of pressure and the possibility of contamination, and in some cases a loss of pressure can cause a vacuum effect that draws smoke from a burning home into the water pipes, potentially carrying dangerous chemicals such as benzene that may be hard to remove. Many mountainous areas use above ground polyethylene (PEX) and polyvinyl chloride (PVC) pipes which when melted, lead to concern about volatile organic compounds (VOCs) contamination.

The County has recently experienced one large wildfire, the CZU Lightning Complex Fire, which started in August 2020 and burned over 86,000 acres. The impact of the fire demonstrated the lack of resources available from the County to homeowners seeking assistance and feared their wells and pipes may have been impacted. Several Community and SWSs were destroyed in the fire and there were no resources available to assist them with FEMA applications or help them get access to temporary water supplies to serve residents whose houses survived the fire.

xiv. Flood

Flood is not considered a particularly high risk to most well owners or water systems. The areas of the County identified in the FEMA flood maps as being high risk are generally near the coast

or along large waterways. Those areas are mostly served by large water systems. Additionally, permitting setbacks in the County's Well Ordinance prevents wells from being installed immediately adjacent to waterways, which is where most of the flood risk is located. However, there are some exceptions. Three small water systems wells are located within the high risk flood zone, and four are very near the flood zone. Localized flooding could be caused by factors such as blocked drainages or log jams in creeks, and could lead to flood waters covering a well leading to possible water quality concerns.

xv. Landslide

Landslide is a risk in any location with significant slope. Vegetation loss caused by drought or fire exacerbate that risk. Landslides have the potential to damage water infrastructure for both individual and small water systems, leaving residents without water.

xvi. Earthquake

Earthquakes have the potential to damage water systems, causing leaks and loss of pressure. Systems with underground pipes may take time to repair, leaving residents with short-term or long-term water supply shortages.

b. County role during the emergency

The Working Group identified roles for the County in providing information and helping get water to places in need in the days and weeks during or immediately after an emergency.

xvii. Informational Materials

During the CZU Fire, the County produced two documents to help homeowners who were evacuated but whose homes survived the fire. One was a guide to returning to a home with a well after a fire, and one was an accompanying flow chart. These documents should be reviewed and updated to be used as the basis for similar documents tailored to different disasters.

xviii. Facilitating hauled water

The County has, for the first time, developed a multi-year contract with a water hauling service provider. This allows the County to act as a resource to supply water to residents who need it and have tanks. The County does not have any long-term funding for these services. However, during an emergency the County could potentially rely on FEMA to reimburse costs. The County currently has grant funding to provide both hauled water and temporary tanks to individuals and water systems that are impacted by drought.

xix. Water quality testing

The County Water Quality Laboratory (Lab) is centrally located and could be utilized as a community resource during any disaster that may result in water quality impairments. The Lab has the capabilities to test for microbial contaminants using sophisticated q(PCR) technology. The lab can also currently test for nutrients as well as certain volatiles. The Lab has been

approved for funding to purchase an ICP which can test for metals, though the equipment will not likely be purchased until early 2023.

With funding support, the Lab would be in a position to offer free or reduced cost water quality testing, targeted to contaminants associated with the natural disaster. Staff will continue to work with other departments in the County to determine if the County would like to be able to provide these services. The ability to offer these services requires ongoing training and Environmental Laboratory Accreditation Program certification which must be maintained at all times.

c. County role in recovery

The recovery time starts in the immediate aftermath, or even during a disaster, and lasts until the needed infrastructure has been repaired. Through the Working Group, the following opportunities for the County to help domestic well users and SWSs were identified:

xx. Help with FEMA forms

One of the biggest lessons learned from the immediate aftermath of the CZU Lightning Complex Fire was the lack of guidance available to water systems on how and when to fill out FEMA claims forms. Two water systems, located nearby each other, were provided different information, and took different approaches, ultimately resulting in one of the systems being provided millions of dollars for repairs, and the other provided nothing. The County should review previous successful FEMA claims forms and become well-versed in who is eligible for FEMA funding and how and when to apply. Ideally, example forms and process outlines will be included on the website.

xxi. Facilitate emergency interties

County staff will seek funding to work with water systems interested in constructing an emergency intertie to a nearby water system. This would benefit emergency situations such as drought and some natural disasters.

xxii. Facilitate grant funding

The recent round of Urgent Drinking Water Grant funding demonstrated that the State is likely to have counties act as the contract sponsor for any grant funding to benefit domestic wells and SWSs, while Small Public Water Systems will apply on their own. In that role, the County may be expected to identify individuals or water systems that may benefit from grant funding, provide assistance to apply for the funding, and administer the grant if received. County staff will need to determine the appropriate amount of funding to include in the grant applications to cover the cost of playing such a role.

d. Outreach Strategy for Emergencies

Emergency response outreach will entail proactive communication. The approach is based on communications with small water systems after the CZU fire and what lessons could be learned from that event:

1. Water systems and domestic well owners should inventory all of their assets, with photographs.
2. The replacement value of all of the assets should be covered by their insurance.
3. The County can offer help with temporary water hauling needed due to an emergency.
4. Systems that are vulnerable to one or more natural hazards should consider proactive measures such as emergency interties, or backup storage tanks and power supplies.
5. Resources may be available to fund resiliency measures through state grants.
6. The County website has resources including successful FEMA claims forms and guides for what to do after an emergency.

This information will be compiled in the County's Drought Portal, which will be the primary source of detailed information. The Drought Portal will be linked in multiple places on the County webpage, including the main page and the Office of Response, Recovery, and Resilience. The Domestic Well outreach and SSWs outreach efforts described above will also inform these populations about the County's Drought Portal.

e. Long term mitigation strategies

xxiii. Hazards

The hazards facing the County are likely going to increase in frequency, intensity, and duration due to the effects of climate change. The Working Group recommended that the County take a proactive approach to helping water systems and domestic wells:

1. Evaluate options to guarantee availability of hauled water in the County. Currently there is a risk that the few water hauling trucks that serve the area could be pulled away to other locations during an emergency. Evaluation will include investigating the feasibility of priority contracts with existing water haulers, and the feasibility of purchasing a water hauling truck
2. Create MOUs with municipal suppliers for water hauling would help streamline the County's ability to ensure that water haulers have access to source water throughout the County.
3. Proactively seek feasibility funding to investigate the costs and benefits of emergency interties and consolidation for vulnerable SSWs and domestic wells. In some situations, and when agreeable to all parties, the best solution to insecure water supply may be to annex one or more individual parcels, or an entire water system, into a larger water system with a more robust water supply portfolio.

f. Funding solutions for emergencies

xxiv. [FEMA Individual Assistance \(after a disaster\)](#)

FEMA is a source of funding for victims of a natural hazard, be it an individual property owner or a water system. The County will not be the recipient of FEMA funds on behalf of the victims, but can help provide information and recommendations to them about FEMA process.

xxv. [FEMA Hazard Mitigation Funding](#)

FEMA has a Hazard Mitigation Grant Program that can help communities rebuilding from a disaster invest in improved infrastructure that will make them less vulnerable to the next disaster.

xxvi. [FEMA Building Resilient Infrastructure and Communities](#)

The Building Resilient Infrastructure and Communities Grant Program provides funding for projects that will reduce the impacts of future disasters.

xxvii. [Other State and Federal Grant Funds](#)

As resilience becomes a higher priority for funding, more opportunities to help domestic well owners and water systems will likely become available. The County's role in these grants will vary depending on the source of funding and the project goals.

xxviii. [Reserve fund](#)

Preliminary results from a survey of the SSWSs indicated that, at least among the respondents, reserve funding is low. Building reserves will be critical for water systems that hope to continue operations in a more hazardous future. The County will provide resources to help water systems raise internal funds.

Conclusion

The process to comply with SB 552 and develop this DROP has provided valuable insights into the weaknesses of the County's capacity when it comes to tracking and responding to the results of increasingly dry conditions and the impact those conditions have on the lives of people dependent on domestic wells or small water systems. Staff is aware that there is still uncertainty about the role the County can and should play in drought response. A lot of what the response will look like over time will be dependent on factors such as the availability of sustainable funding sources to support both staff time and programs such as water hauling. It will also depend on the interest in the affected communities in receiving assistance from the County.

As the County does not own any large systems or have a direct role in the management of any water (with the exception of the community of Davenport and the Rountree Correctional Facility), there are significant limitations to staff's ability to provide direct assistance. Instead, much of the role of the County that has been outlined through conversations with the Working Group, the DWR, and different agencies within the County government, will be that of a coordinator and a clearinghouse for information that must be disseminated. The County has a role to play in finding resources and services available and trying to get them to the people who need them. The County's unique position as the LPA and a member of two Groundwater Sustainability Agencies means staff is well-positioned to identify locations that are vulnerable and may need assistance. Without dedicated local funding, which does not currently exist, programs will be limited in when they are available by the opportunities provided through grant funding.

It is clear however, that even with the limitations on the County, there are many opportunities to step up and provide help. Simple activities such as developing a mailing list to all domestic well users, creating a drought portal with links to resources, connecting individuals and water systems to funding opportunities, offering services through the County, and creating decision support tools will go a long way. Improving data collection and tracking of dry wells will help refine our understanding of vulnerable areas and opportunities to address those vulnerabilities.

The County's drought response process will undoubtedly evolve over time. The dedication of the members of the Water Advisory Commission and the staff of County departments including the Environmental Health Water Resources Program, and the Office of Response, Recovery, and Resiliency, ensure that this process will have a purpose beyond simply complying with legislation. Through the implementation of this DROP, residents in County of Santa Cruz will have support in an era of changing climate.

Appendix A: Recommendations Table from Drought Response Working Group; August, 2022

	Category of recommendation	Recommendation we heard from Drought Response Working Group	Staff Time-Frame Recommendation	Resource Intensity
	<i>General, Data Collection, Outreach, Funding, Technical Assistance, Regulatory</i>	<i>Text of recommendation</i>	<i>Short, Medium, Long-term, Ongoing</i>	<i>1=low; 2=medium; 3=high</i>
General Drought Response				
1	General	Continue to work in collaboration with the State and/or elected officials when appropriate	Ongoing	1
2	General	Take advantage of existing resources provided by the State to leverage local efforts	Ongoing	1
3	Funding	Work with other County departments to identify how a grant writer position may be funded to assist with these efforts.		
4	Outreach	Create a private well email list, to use for updates as needed. Use existing email lists and postcards to solicit people to sign up.	Ongoing	2
5	Outreach	Work with regional water partners to hold another Connecting the Drops event	Short-term	2
6	Outreach	Website drought portal: <ul style="list-style-type: none"> • List of resources at the top • Once it's completed we can send out a mailer directing people to the website. • Direct to it from other County pages. • Recommend it is housed in the SCCEH website so we can update it. • Language accessible. 	Short-term	2
7	Funding/Outreach	Collaborate with outreach specialists, when funding is available.	Ongoing	2
8	General	County staff consider which department may benefit from becoming a member of Rural County Representatives of California (RCRC; they make information about new legislation available to rural communities)	Short-term	1
9	Regulatory	Request that staff work with the Water Advisory Commission to review the Well Ordinance and outline specific criteria for declaring a groundwater emergency	Short-term	2
10	Outreach	For each section of the Plan, in the outreach discussion: <ul style="list-style-type: none"> • Define goal, • identify multiple outreach strategies, • identify and leverage experts and community groups and relationships to effectively reach all potentially affected communities. • Leverage existing resources and events such as Board of Supervisors, agricultural groups, Connect the Drops, DWR and CERT rural community lists • Look to RCAC, SHE, CWC and LCJA as experts in outreach to disadvantaged communities 	Short-term (for Plan)	1
11	Data Collection	Maps to include in Plan: <ul style="list-style-type: none"> • Water Quality and Water Quantity (baselayer of DACS, wells, water systems) 	Short-term (for Plan)	1

		<ul style="list-style-type: none"> Water management (large water suppliers and GSAs; baselayer includes wells and small water systems). More maps in appendices. 		
Private Wells				
12	Data collection	Create a GIS layer of parcels served by wells. Use this to make a mailing list.	Short (if possible, have parcels served by wells done for Plan)	1
13	Data Collection	Improve well permit application forms to collect more information including GIS location of well	Short-term	1
14	General	Finalize Mitigation Strategy Table	Short-term	1
15	Technical Assistance	Get water hauler under contract	Short-term	1
16	Technical Assistance	Refer people to the dry well reporting tool created by the State rather than creating a County-specific reporting tool	Short-term	1
17	Outreach	Mailers to private well-served properties offering services	Medium-term (may be done to target priority areas first)	2
18	Outreach	Host outreach event/workshops that includes information on: <ul style="list-style-type: none"> Resources available/ training, Grant applications. Partner with RCAC, RCD, others. Possibly have County staff leave the room for some of the event. 	Medium-term	2
19	Outreach/Regulatory	Encourage and incentivize voluntary metering and data loggers for wells. There are benefits to metering but some will resist due to concerns about being taxed, loss of privacy, and costs. Primary means of encouragement will be through outreach and education.	Medium-term	
20	Data Collection	Improve well database GIS layer <ul style="list-style-type: none"> Actively add new wells, Go back through historic well logs Include information from well completion reports (depth of seal and screening), e-logs where available. 	Long-term	3
21	Funding	Seek funding to support voluntary water conservation audits, leak detection, and rebates for households on private wells.	Medium-term	3
Small Water Systems				
22	Outreach	Outreach event or Forum that includes information on resources available, training, grant applications. Partner with RCAC, RCD, others. Multiple locations.	Medium-term	2
23	Funding	Fee collection – provide information/support for the development of County Service Areas as a mechanism to help build financial reserves	Medium-term	2
24	Outreach/Technical Assistance	Encourage and provide resources to water systems to complete reserve analyses, and to build a reserve over time.	Medium-term	2
25	Funding	Provide grant-writing and/or grant administration support for State Small Water Systems	Medium-term	2-3
26	Technical Assistance	When funding is available:	Ongoing	2

		<ul style="list-style-type: none"> Cover costs of metering, POU treatments (especially for disadvantaged communities), Provide tools and assistance with leak detection 		
27	Technical Assistance	<p>Develop tools to support decision-making about consolidations, and to support consolidation process itself when that is the preferred option for all parties, including:</p> <ul style="list-style-type: none"> Reviewing options available Consolidation cost-benefit analysis tool Use meaningful phrasing of “consolidation”; it can be an opportunity in some cases Seek funding for engineering studies of systems to identify upgrades necessary to be annexed into a larger system. 	Long-term	3
28	Funding	Coordinate with State for financial support for consolidation. DAC’s in particular will have issue with the high cost of consolidating.	Long-term	2-3
29	Funding	Seek funding for voluntary water conservation audits and rebates for vulnerable systems	Medium-Term	3
Emergency Response				
30	Technical Assistance	Evaluate options to guarantee availability of hauled water in the county. Include investigating the feasibility of priority contracts with existing water haulers, and the purchase a water hauling truck (\$350,000)	Long-term	3
31	Technical Assistance	Get copies of successful FEMA claims for water systems and individuals (sensitive information redacted)	Short-term	1
32	Technical Assistance	Provide information to water systems about fire flow requirements to incorporate into their planning	Medium-Term	2
33	Data collection/Funding	Provide information about importance of appropriate tank sizing and assist parcels without tanks or with undersized tanks at risk from long term power shutoffs.	Medium-Term	3
34	Data Collection	Identify Social Vulnerabilities such as language constraints, population without vehicle, renters vs owners, population over 65.	Medium-Term	2
35	Outreach/Technical Assistance	Identify process and tip documents that the County should have on hand	Short-Term	1
36	Outreach/Technical Assistance	Educate community members on how to evaluate their insurance	Medium-term	2
37	Outreach	Include a topic at small water systems forum about lessons learned from the CZU Fire	Medium-term	2
38	General	Involve water systems and their operators in emergency response planning and give early site access when safe to do so	Ongoing	1

Appendix B: Interim and Permanent Well Mitigation Strategies

Solution	Problem	Options	Pros and Cons	Estimated Costs
Interim solution	Access to water	Delivered, potable bulk water and potable bottled water	Water from storage tank is not necessarily safe for drinking; the two must be paired	On-going costs: <ul style="list-style-type: none"> - Delivery of bulk potable water between \$400 - \$500 for 2,500 gallon delivery, varies by location. - Delivery of bottled water: \$50 to \$75 per month per house. - Other potential costs: Cost of tank maintenance and cleaning; cost of new storage tank, if needed (roughly \$4,600 for 5,000 gallon tank). - All costs above are for one house per parcel. Costs can vary depending on conditions.
	Water quality	POU (point of use)/ POE (point of entry)	POU treats water at one tap; POE treats water at the mainline; both treatments may be appropriate; require ongoing monitoring or maintenance	\$600 to \$4,500 per unit per home, for one year. Costs include: initial capital costs (installation, treatment system, monitoring system) and also ongoing operation, maintenance, routine monitoring, and waste disposal costs. <ul style="list-style-type: none"> - Costs vary depending on the contaminant and filtration.
	Water quality	Bottled water	Safe and effective but can be expensive in the long-term; can be difficult to distribute to isolated areas	\$50 - \$75 per month per house, including delivery

Solution	Problem	Options	Pros and Cons	Estimated Costs
Permanent solution	Access to water	Troubleshoot well to determine options, which may include the following:		
		Brushing/acid treatment or other maintenance	Can be effective if mineral build up (i.e., iron, manganese) is causing clogging or poor pump performance; typically doesn't restore flow that has been impeded for long time period; risk of collapsing well if older, iron casing	\$2,500
		Lowering of pump	Often not feasible because pump is already at the bottom of the well. If feasible, pump may need to be replaced with higher horsepower pump and/or sledge may need to be removed/maintenance performed. Energy use increases w depth. Water quality may decrease with depth.	\$1,000 - \$5,000, if feasible
		Drill a new deeper well	Well tests and water quality tests required to assess yield capacity and water quality; gamma ray tests may be required.	\$150 per foot for drilling, plus additional costs of any tests needed

	Access to water	Alternative water source/ Consolidation	Consolidation with local system is most likely alternative; Households must understand and agree with the advantages and disadvantages of connecting to a local water system.	Costs vary depending on the desired solution, technology, and number of households
	Water quality	Water treatment system	Technical, managerial, and financial capacity should be considered when assessing treatment options.	Costs vary depending on the technology, water contaminant(s), and number of households.