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Sonoma County GSAs
Water Use Efficiency
2025 Pilot Program Report

PREPARED FOR

Petaluma Valley GSA
Santa Rosa Plain GSA
Sonoma Valley GSA

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GROUNDWATER
SUSTAINABILITY AGENCIES

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LIST OF ACRONYMS AND ABBREVIATIONS

AC-FT	Acre Feet
AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association
CAFF	Community Alliance with Family Farmers
CalWEP	California Water Efficiency Partnership
CDFA	California Department of Food and Agriculture
CRM	Constituent Resource Management
DIY	Do-It-Yourself
DU	Distribution Uniformity
DWR	California Department of Water Resources
Gold Ridge RCD	Gold Ridge Resource Conversation District
GSA	Groundwater Sustainability Agencies
GSP	Groundwater Sustainability Plan
GUIDE	Well Resources Guide
Maddux Ranch	Maddux Ranch Regional Park
MOU	Memorandum of Understanding
MWM	Maddaus Water Management
Plan	Outreach and Engagement Plan
Sonoma RCD	Sonoma Resource Conservation District
SWEEP	State Water Efficiency and Enhancement Program
UCCE	UC Cooperative Extension
USEPA	United States Environmental Protection Agency
WUE	Water Use Efficiency

Sonoma County GSAs Water Use Efficiency 2025 Pilot Program Report

1.0 EXECUTIVE SUMMARY

The Petaluma Valley Groundwater Sustainability Agency (GSA), Santa Rosa Plain GSA, and Sonoma Valley GSA – collectively called the Sonoma County GSAs – implemented the Well Aware Pilot Program to advance groundwater sustainability through water-use efficiency (WUE) strategies targeted at non-municipal groundwater users. The pilot was funded through the California Department of Water Resources' Sustainable Groundwater Management Implementation Round 2 Grant and implemented during 2025.

The purpose of the Well Aware Pilot Program was to translate findings from a countywide groundwater demand assessment into practical, voluntary strategies that engage groundwater users, build awareness of groundwater conditions, and prepare the GSAs for continued education and potential future incentive-based WUE programs to meet the goals and objectives identified in each basin's Groundwater Sustainability Plan.

1.1 Background and Need

Water use efficiency and alternate water source projects were identified in each of the three Sonoma County Groundwater Sustainability Plans (GSPs) as key Project and Management Actions that should be conducted and explored during the first five years of GSP Implementation (2022-2026). In 2022, the three GSAs applied for funding under the California Department of Water Resources' (DWR) Sustainable Groundwater Management Implementation Grant – Round 2 to conduct a water use efficiency assessment and Pilot Program. Funding was awarded to each GSA in 2023; the Project commenced in 2024.

In 2024, Phase 1 of the project, a groundwater demand assessment, was completed. The demand assessment identified that non-municipal groundwater use is significant across all three basins, with outdoor irrigation—particularly vineyards and rural residential landscapes—accounting for the majority of demand. While agricultural water use is relatively efficient on a per-acre basis, it represents the largest overall demand. The assessment also identified aging indoor fixtures, lack of metering, and limited groundwater-specific outreach as key barriers to achieving water savings. Education, trusted messengers, and site-specific assistance were identified as essential components of any effective WUE program.

Based on result of the groundwater demand assessment and funding limitations of the grant, the GSAs developed an education- and engagement-focused pilot, Phase 2, designed to refine messaging, test outreach strategies, and establish partnerships that could support future incentive programs. The pilot was branded as the "Well Aware Pilot Program" to distinguish it from other GSA community programs and to highlight the need for added awareness about private wells and groundwater use.

1.2 Pilot Program Design

The Well Aware Pilot Program was structured around four complementary strategies:

- Education and Outreach – Development and delivery of groundwater-specific educational materials, workshops, tabling events, presentations, and digital outreach.
- Well Aware Toolkit – Creation of an online, map-based resource that provides parcel-specific groundwater information and tailored water-use efficiency guidance.

- Consultations – Delivery of on-site and technical assistance delivered through trusted partners to address site-specific water challenges.
- Demonstration Site – Development of a publicly accessible site showcasing groundwater-protective practices and educational signage.

Implementation was led by GSA staff with support from Woodard & Curran, Land IQ, Maddaus Water Management (MWM), Daily Acts, Watershed Progressive, and a network of partners including Sonoma Water, the Sonoma and Gold Ridge Resource Conservation Districts (RCDs), Community Alliance with Family Farmers (CAFF), UC Cooperative Extension, Master Gardeners, and others. This partnership-based approach was central to building trust and reaching diverse groundwater user groups.

1.3 Key Outcomes

- **Broad Reach and Engagement:** The Well Aware program generated an estimated 40,000 touchpoints through workshops, tabling events, presentations, newsletters, social media, and community outreach. Engagement spanned rural residential users, agricultural producers, and institutional and commercial audiences.
- **Growing Interest and Awareness:** Subscriber interest in GSA communications increased 30 percent during the pilot year, indicating strong demand for groundwater-specific information and assistance.
- **Consultation From Trusted Partners Provide Water Savings Potential:** Consultation programs delivered through established, trusted organizations—such as Master Gardeners and Daily Acts—were highly successful at identifying water saving potential projects.
- **Parcel Level Outreach Toolkit Launch for Well Users:** The "Well Aware Toolkit" was successfully launched in November 2025, providing a scalable, low-maintenance platform for parcel level education and engagement. Robust descriptions of on-site potential best management practices are provided along with links to free online educational guidance for well-user WUE implementation.
- **Demonstration Site Lessons**: While original plans for a large-scale demonstration project were constrained by land ownership and maintenance requirements, the final installation of educational signage at Maddux Ranch Regional Park effectively showcases groundwater-protective practices and offers a replicable, lower-cost model.

1.4 Water Savings Insights

Direct measurement of water savings from education-based programs is inherently challenging. However, modeling and literature [1]suggest that outreach and education can yield modest but meaningful behavioral water savings, particularly when paired with technical assistance and incentives. Consultations and targeted assistance demonstrated higher potential water savings per participant, reinforcing the value of combining broad education with focused, site-specific support.

[1] American Water Works Association (AWWA) Water Conservation Programs- A planning Manual, M52, Second Edition, 2017.

1.5 Key Findings

There is strong interest in all three basins and across all groundwater use sectors about water-use efficiency, but continued education is needed to clarify groundwater conditions and the GSAs' roles.

- Repetition and sustained presence are critical to building recognition and participation.
- Trust in local partners significantly increases engagement.
- Groundwater users express strong interest in financial incentives and technical assistance.
- Agricultural and vineyard users require tailored, context-specific approaches.
- Tracking engagement and outcomes will be essential for future program refinement.

1.6 Recommendations and Next Steps

Based on the WUE pilot program results, the GSAs should:

- Continue and expand the Well Aware education and outreach program to maintain momentum and familiarity.
- Pursue grant funding to support incentive-based WUE programs.
- Build on successful consultation models, particularly those that prequalify sites for future funding.
- Advance regional collaboration through participation in the Sonoma-Marin Saving Water Partnership and California Water Efficiency Partnership (CalWEP).
- Establish realistic, measurable water-savings goals supported by a mix of education, technical assistance, and incentives.

The Well Aware Pilot Program represents the GSAs' first coordinated step toward a comprehensive groundwater water-use efficiency program. The pilot successfully established a foundation of partnerships, tools, and insights that position the GSAs to implement more targeted and impactful groundwater sustainability efforts in the future.

2.0 BACKGROUND

The Petaluma Valley GSA, Santa Rosa Plain GSA, and Sonoma Valley GSA, collectively referred to as the Sonoma County Groundwater Sustainability Agencies (GSAs), each have a Groundwater Sustainability Plan (GSP) that includes goals to study and implement WUE measures during the first five years of GSP Implementation (2022-2026). The GSAs applied for and were awarded grant funding through the California Department of Water Resources Sustainable Groundwater Management Implementation Round 2 Grant Funding to conduct a water use efficiency assessment and Pilot Program. The water use efficiency assessment, Phase 1 of the broader project, was conducted in 2024 and informed the development of the Phase 2 pilot program. This report describes the WUE pilot program implemented by the GSAs and summarizes associated participation, outcomes, and findings.

2.1 Non-Municipal Supplied Groundwater Demand Assessment

The Phase 1 demand assessment was performed by consultants MWM with sub-consultants Land IQ and Daily Acts. The analysis combined parcel-scale data integration, remote sensing, modeling, and empirical assumptions to estimate non-municipal groundwater demand and identify WUE opportunities across the

three Sonoma County GSA basins (Petaluma Valley, Santa Rosa Plain, Sonoma Valley). The assessment evaluated both outdoor irrigation demand and indoor residential demand and included screening and prioritization of WUE measures to support a pilot program development.

The assessment identified the following findings:

- There is significant groundwater use by private well owners (non-municipal supplied groundwater).
- Outdoor irrigation dominates groundwater demand and in particular vineyards, non-vineyard agriculture, and rural residential irrigation make up the largest sectors.
- Vineyards use water efficiently per acre but represent the single largest groundwater use sector – making up 40 percent of outdoor groundwater use demand.
- Rural residential users represent a key opportunity for water savings – making up 26 percent of outdoor groundwater use demand.
- Indoor water use is likely inefficient due to aged fixtures.
- Lack of metering limits accuracy and could hide leaking infrastructure.
- Education and trusted messengers are essential.

The Final Groundwater Demand Assessment Report can be found on the GSAs website at www.sonomacountygroundwater.org .

2.2 Development of Water Use Efficiency (WUE) Pilot Program

The results of the demand assessment informed the strategies of the WUE pilot program. Based on the funding limitations of the grant, the GSAs developed an education and engagement focused pilot program designed to refine messaging, test outreach strategies, and establish partnerships that could support future incentive programs.

The demand assessment identified that groundwater users have had limited direct WUE outreach and messaging and instead have received regional messaging from local urban water municipalities that may or may not be relevant to their groundwater systems. To address the communication gap, the pilot was envisioned as the launching point for the GSAs to engage directly with groundwater users on WUE practices related to groundwater use.

The pilot program goals included:

- Initiate conversations around WUE for agricultural, rural residential, and commercial users that rely solely or partially on groundwater.
- Improve understanding of the types of WUE assistance groundwater users may need and what motivates them.
- Identify challenges and motivations for groundwater users to save water.

Several outreach focused strategies were considered during the demand assessment's evaluation of WUE measures and the list was narrowed to four priority strategies that captured the goals the GSAs and were included in the WUE pilot, namely encouraging engagement and generating water ambassadors for the GSAs around WUE, providing resources and education to the variety of groundwater users, connecting

groundwater users with experts, and lastly showcasing early adopters and water using champions within the basins through a demonstration site.

The four pilot strategies chosen for implementation during the year 2025 included:

1. Development of Outreach and Education materials
2. Development of an Online Resource guide
3. Provide consultations through various mechanism and pathways
4. Establish a demonstration site to showcase WUE practices

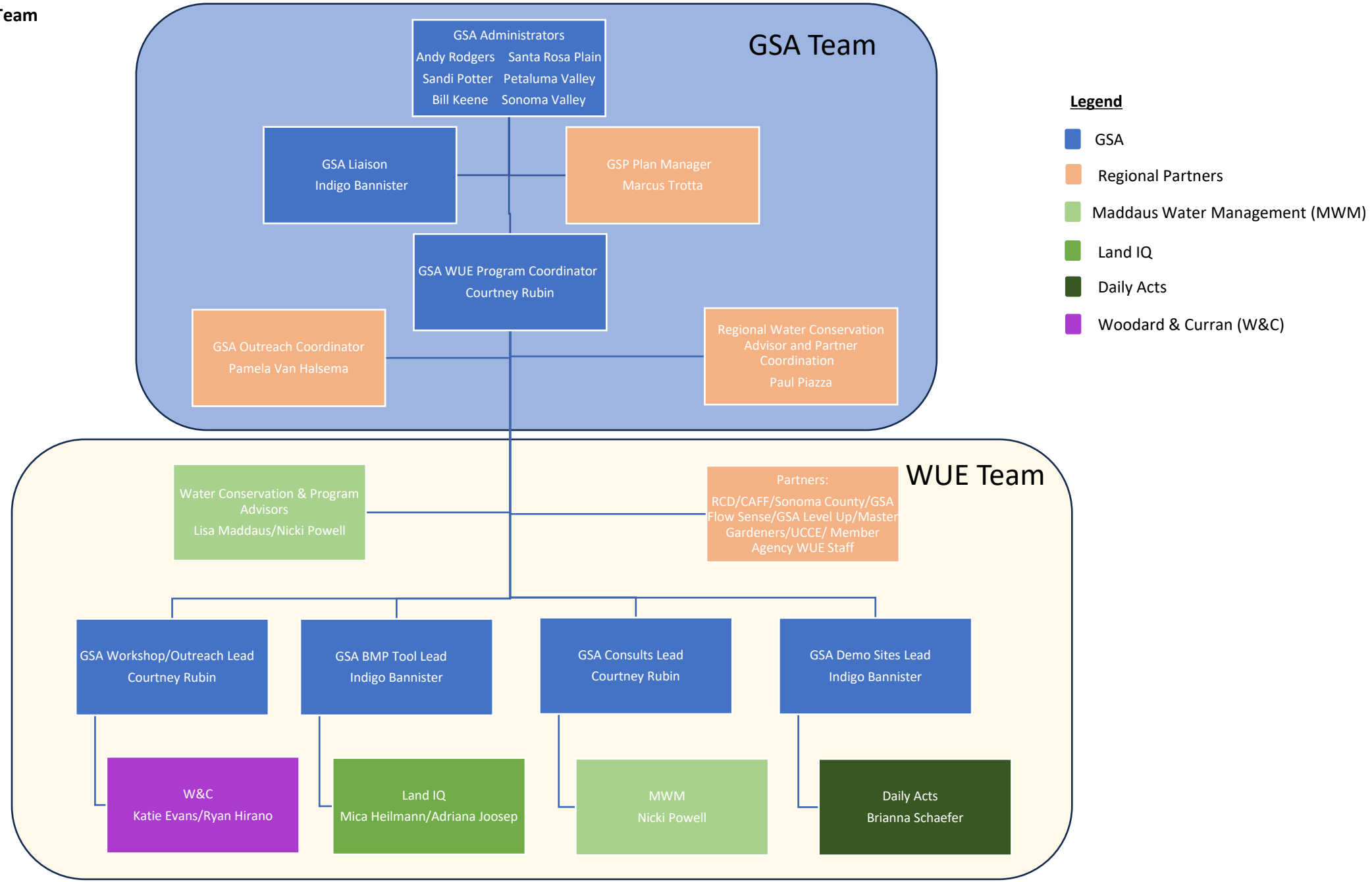
2.3 WUE Pilot Program Implementation Organization

Implementation of the pilot program was overseen by each GSA administrator, with GSA staff leading day to day coordination and Sonoma Water representatives providing outreach guidance and advisory support. Each of the four pilot strategies was supported by GSA staff and consultants. Local representatives from CAFF, Sonoma Resource Conservation District (Sonoma RCD) and Gold Ridge Resource Conservation District (Gold Ridge RCD) were contracted to provide feedback on strategy development, outreach support, and guidance on water efficient programs. In addition, the GSAs formed partnerships with the following community organizations that voluntarily supported marketing and outreach of the WUE program due to shared organizational goals:

- University of California Cooperative Extension Sonoma County (UCCE)
- UC Master Gardeners of Sonoma County
- Sonoma Clean Power
- Food Systems Alliance
- Farmer Council of Sonoma County

The project organization included numerous partners, many of whom served in multiple roles. An organizational chart was developed to provide clarity on roles and responsibilities and is shown on Figure 1 Sonoma County GSA WUE Pilot Program Implementation Team.

Figure 1. Sonoma County GSA WUE Pilot Program Implementation Team



3.0 WUE "WELL AWARE" PILOT PROGRAM LAUNCH

The WUE pilot program was initiated in January 2025. An early task of the WUE program was to develop branding including a recognizable name for the program. The team selected the name Well Aware to align with and distinguish itself from other GSA programs launched in 2024 - the Flow Smart Voluntary Flow Metering Program and the Level Up! Voluntary Groundwater Level Monitoring Program. The "Well Aware" name was chosen to highlight the need for added awareness about private wells and groundwater use. Consistent with other GSA programs, the Well Aware logo uses the GSAs branded color palette and includes a tagline capturing the program's intent. The Well Aware tagline is 'Tools for building local groundwater sustainability.' The logo features a water drop with a leaf growing from the top. The visual is intended to connect the importance of a reliable water supply to agriculture, the environment, and communities.



Figure 2. "Well Aware" Program Logo

3.1 Strategy 1: Education and Outreach

While education and outreach overlap across all strategies, Strategy 1 differed from the other strategies by focusing on creating targeted educational materials designed to promote WUE messaging and support implementation of the other pilot strategies.

This section describes the outreach and educational efforts developed during the Well Aware pilot program. Many outreach efforts began in the early part of 2025 and evolved over the course of the year in response to feedback or observed reception. The activities described below do not represent their order of completion, as most continued to evolve throughout the year:

- Identifying and Collaborating with Ambassadors
- Workshops
- Tabling
- Website
- Electronic Outreach
- Educational Handout Materials
- Outreach Plan

3.1.1 Fostering Ambassadors

The GSAs presented virtual presentations introducing the Well Aware program and explaining the GSA's role and responsibilities to three groups identified as potential ambassadors for promoting the Well Aware Program. The presentations aimed to provide background and understanding of the GSA's role, GSP requirements, basin conditions, and GSA programs. Each presentation concluded with an overview of the Well Aware program and identified ways the audience could support groundwater sustainability and help promote the program. Table 1 summarizes the presentations.

Table 1. Summary of Ambassador Presentations

Ambassador Name	Presentation Summary	Attendees
UC Master Gardeners of Sonoma County	Introduced the Well Aware program as a resource for the Garden Sense program and highlighted potential needs of groundwater well users.	33
Sonoma County Food System Alliance	Presentation shared with CAFF representative highlighted challenges faced by small farmers.	12
Sonoma-Marin Saving Water Partnership	Introduced the Well Aware program to water conservation representatives of urban water municipalities to seek opportunities for combined resources and collaboration.	38

Each presentation included time for questions and discussion, which provided valuable feedback and insights for clarifying information for future outreach efforts. These audiences represented new connections for the GSA that are anticipated to continue in the future.

Additionally, GSA staff reached out informally to staff from University of California Cooperative Extension Sonoma County (UCCE) and Sonoma Clean Power to explore partnership opportunities based on shared goals. UCCE provided valuable insights into the challenges faced by vineyards and agricultural users. In addition, UCCE utilized their network to support outreach of Well Aware programs and was identified as a technical resource for groundwater users seeking expertise and problem-solving assistance. Sonoma Clean Power offered to support evaluating energy and carbon savings associated with reduced groundwater pumping. Energy savings represents a promising metric for demonstrating the potential return on investment of groundwater saving fixtures and practices, as well pumps can be one of the largest energy users for private well owners. This work remains on-going and will continue to develop beyond this grant period.

Conversations with water conservation staff from urban water municipalities encouraged the GSAs to consider joining the Sonoma-Marin Water Saving Partnership (Partnership). The Sonoma-Marin Saving Water Partnership is a known leader of water conservation messaging for residential and commercial water users across Sonoma and Marin counties. Given this, the Partnership offers the ability for the GSAs to further benefit from regional water conservation messaging and campaigns. The Partnership website is organized to provide a user-friendly platform to provide educational materials that apply across all of Sonoma County and could support the GSAs program outreach.

To join the Partnership, the GSAs would need to sign a Memorandum of Understanding (MOU). The current Partnership MOU envisions GSAs as potential members, and includes requirements such as joining CalWEP, paying Partnership membership fees, and dedicating funds to WUE programs. The GSAs are currently evaluating the idea of joining the Partnership, working with Partnership staff to identify what

requirements could reasonably be met, suggesting potential edits that would need to be made to the MOU in order for GSA membership to be feasible, and evaluating potential costs.

As part of the conversations around entering the Partnership, the GSAs entered into discussions with CalWEP. These conversations indicated that CalWEP is a promising resource for the GSAs through representation at the State level for attaining future funding, providing additional WUE educational resources, and providing administrative services for future potential incentive programs. Currently the GSAs are still pursuing the idea and are expected to continue conversations with the Partnership and CalWEP.

3.1.2 Workshops:

The GSAs and partner organizations held five workshops during the pilot program year. Two workshops were hosted by the GSAs and supported by community partners through tabling at resource fairs. The other three were held for targeted audiences hosted by either Sonoma RCD and/or CAFF and included a hands-on component. Workshops provided an effective forum for sharing GSA related updates and engaging in meaningful conversations with groundwater users. The workshops are described below.

3.1.2.1 Sonoma Valley GSA Spring Workshop

The Sonoma Valley GSA hosted an evening workshop on May 1, 2025. The workshop was titled "*Declining Groundwater in Sonoma Valley: What Can We Do?*" and focused on informing groundwater users about declining groundwater levels, highlighting areas of emerging concern, and discussing potential sustainability solutions. Approximately 55 participants attended the event. A resource fair followed the meeting presentation featuring local partners and GSA hosted tables providing local services to promote sustainable groundwater practices.

The GSAs and local partners promoted the workshop through mailers, newsletters, social media, newspaper notices, and flyers distributed around town at community boards. The majority of attendees were rural residential groundwater well owners, including a number that had never before engaged with the GSA.

During the resource fair, feedback stations were located throughout the room to capture interest in WUE programs and asked attendees to describe the water wise practices they are implementing or will implement. High level themes from the feedback boards included:

- Strong demand for measurement, data, and accountability.
- Concerns around equity and fairness: small users feel disproportionately impacted while larger users like agricultural sectors should be further engaged.
- Large interest in nature-based recharge solutions.

3.1.2.2 Petaluma Valley and Santa Rosa Plain GSAs Fall Workshop

The Petaluma Valley and Santa Rosa Plain GSAs co-hosted a fall workshop in August 21st, 2025 to showcase groundwater sustainability efforts within their respective basins. The workshop name was "*Beneath the Surface: 10 Years of Local Groundwater Basin Stewardship*," which highlighted the GSAs' accomplishments since conception as well as future sustainability plans. The workshop focused on progress made toward sustainability, given that groundwater levels in these two basins are relatively stable.

The workshop was advertised through social media, newsletters, flyers posted at community boards, and partner social media. The GSA created an Eventbrite to capture RSVPs and question prior to the meeting. Pre-registration was not required for attendance. Prior to the meeting, registration was at 68 and approximately 40 attended the event.

The workshop featured a resource fair with tables highlighting the various GSA programs as well as partner organizations focused on promoting groundwater sustainability. The fall workshop provided the GSAs an opportunity to introduce two new Well Aware strategies since the spring workshop: the Well-designed Landscape consultation program and the on-line Well Aware Toolkit resource. Feedback boards placed throughout the room collected attendee thoughts and comments on two questions: (1) which groundwater conservation programs participants would actually use, and (2) which incentives or rebates they would you participate in if offered. Below is a summary of the results:

- High interest in conservation exists for landscape plant and irrigation design via technical support and physical tools for reducing water use.
- Most popular incentives and rebates included graywater systems, high-efficiency irrigation spray heads and equipment, soil moisture sensors, and weather-based irrigation controllers.
- Write-in comments across both boards included a desire for drought education and resources and leak detection assistance.

3.1.2.3 Train the Trainer Workshop

Sonoma RCD hosted a Spanish-language irrigation efficiency workshop in April 2025 titled "Entrene al Entrenador: Salud de la Tierra Y Evaluación De Irrigación." Or in English "*Train the Trainer: Soil Health and Irrigation Assessment Workshop".* The workshop was attended by 25 irrigation technicians primarily working on vineyard sites. Workshop topics included soil health, appropriate irrigation scheduling, and groundwater supply considerations.

3.1.2.4 Know Your Water, Know Your Use

CAFF hosted a hands-on workshop for 15 small farmers interested in water application for agricultural crops entitled *Know Your Water, Know Your Use*. The workshop was held at a local tree nursery within the Santa Rosa Plain basin. Partners from UCCE presented on soil health, soil amendments with organic material and mulch, use of soil probes to determine plant irrigation needs, and proper use of tensiometer. The GSA presented an overview of available programs and the state of the groundwater basin. The conclusion of the workshop included a tensiometer making exercise funded by CAFF.

Following surveys and feedback from attendees, the GSA had these takeaways:

- Workshops increase knowledge and confidence in an effective and digestible way that encourages peer learning and community education.
- There is a strong desire for tools that support smart water use, although funding and technical assistance are key barriers.
- Water challenges are diverse and context-specific for small farmers, but a desire to learn is high.
- Meeting farmers at locations they frequent or at their sites is a valuable way to connect with the diverse and time challenged agricultural community.

3.1.2.5 CAFF Agricultural Virtual Resource Fair

CAFF convened an Agricultural Virtual Resource Fair called *Water and Well Aware Virtual Fair* in September 2025 with partners and the GSA presenting water-related programs and funding for farmers. Spanish translation was provided as well as a Resource Guide distributed to summarize each resource/grant opportunity. The event was attended by 15 people representing various agricultural farms.

3.1.3 Tabling Events

Community fairs and events throughout Sonoma County provide a valuable opportunity to directly connect with a variety of groundwater users. Events were tabled by a combination of GSA staff and partner staff, depending on availability and what entities were planning to attend.

Table 2 summarizes events at which the Well Aware program was promoted and the estimated number of touchpoints for each event. Touchpoints represent the estimated number of individuals who would have seen the GSAs material and messaging and engaged with the table. These events proved effective opportunities to inform the general public about the state of groundwater within the county and available GSA programs and resources for groundwater sustainability.

Table 2. Events Promoting Well Aware Program

Event Name	Staffing Lead/Partner	Touchpoints
Cotati Climate Ready Fair	Master Gardener	25
Petaluma Butter and Eggs Days	Master Gardener/City of Petaluma	650
Windsor Earth Day	Master Gardener	25
Cool Petaluma Expo	Master Gardener	25
Eco-Friendly Garden Tour	Sonoma County GSAs	175
Santa Rosa Water Expo	Master Gardener	25
Petaluma Art and Garden Festival	Master Gardener	25
Farm Fest	CAFF/Sonoma RCD	1,000
Windsor Neighborhood Event/Welcome Wagon	Master Gardener	25
Sebastopol Gravenstein Festival	CAFF	8,000
Bayer Farm's Harvest Festival	Sonoma RCD	
Petaluma River Clean Up	Sonoma RCD	200
CAFF Membership Meeting	CAFF	60
Harvest Festival at Sonoma Garden Park	Sonoma RCD/Sonoma Ecology Center	250
Los Cien	Sonoma RCD/Sonoma Water	250
North Bay Discovery Day	Sonoma RCD	250
Steelhead Festival	Sonoma RCD	250
Ag Days (Petaluma and Santa Rosa)	Sonoma RCD	250
Sonoma RCDs Ag Heritage Day	Sonoma RCD	250
Ag + Open Space Open House	Sonoma RCD	250
Alexander Von Humboldt Festival	Sonoma RCD	250
Transhumance Festival	CAFF/Sonoma RCD	200
	Totals	**12,735**

Through coordination with all the local partners, the Well Aware program was present at twenty-three (23) community fairs and had visibility to just under 13,000 touchpoints.

3.1.4 Website

The Well Aware website was created early in the pilot year to inform groundwater users of the planned WUE strategies. Partner websites were linked for cross-promotion of programs and resources. The website served as a centralized resource-hub for links and in-depth information contained on early resource handouts created for outreach events.

As the pilot program evolved, additional promotional elements and educational materials were added to the Well Aware website. Water saving graphics were added to target residential users. The graphics highlight simple, actionable water saving practices and associated water savings. The graphics add an educational component to the website that is quick and easy to understand, as well as visual interest and movement to an otherwise text heavy website.

Website analytics collected during the pilot program indicate increased engagement following promotional campaigns.

3.1.5 Electronic Outreach

Throughout the WUE pilot, the Well Aware program was promoted through various electronic platforms such as newsletters, email blasts, and social media sites such as Facebook and Next Door. The GSAs invested in a constituent relationship management (CRM) system to track interested users and outreach engagement. Over the course of the year, through promotion of all the programs offered by the GSAs, the growth of interested subscribers to the GSAs mailing list increased from 1,745 in March 2025 to 2,500 by December 2025.

The GSA created quarterly newsletter articles and blog posts to highlight programs and actions taken by the GSA through the WUE pilot year. The GSA benefited from inclusion in partner newsletters extending the reach and network of readers. An article for the Sonoma Gazette, a free local paper, was drafted and submitted for an April edition featuring Earth Day; however, the article was not selected for publication. The GSA posted the article on the GSA website and highlighted it on social media. Additional outreach occurred through targeted emails or social media blasts to highlight seasonal messaging.

3.1.6 Educational Handout Materials

The Sonoma County GSAs generated several resource materials intended for distribution as printed handouts and as downloadable PDF documents.

3.1.6.1 Water Efficiency Resources: Tools within Sonoma County

Initial surveys conducted through a separate GSA policy and program initiative indicated strong interest from groundwater users for educational resources and do-it-yourself (DIY) actions. In response, the GSAs developed a flyer showcasing a list of resources locally available within Sonoma County. The two-page resource guide provides resources for rural residential, commercial and institutional, and agriculture users. The front-page features educational resources, while the back page lists free resources such as compost and technical assistance programs. The printed guide includes a QR code linking to the Well Aware website where more in-depth information for each resource is linked. The guide is available in Spanish and English. Reception of the guide seemed mixed. While many people welcomed the printed copy, online activity linked to the guide remained limited.

The resource flyer is included in Appendix A.

3.1.6.2 Well Resources Guide

Through interviews conducted by Daily Acts during the Demand Assessment, the GSAs recognized the need for more education on well maintenance and construction. In response, the GSAs created a Well Resource Guide (Guide), which serves as a first point of connection with well users. The Guide addresses requirements on well drilling, water quality, septic health, and wise-water use practices. The GSAs partnered with the County of Sonoma on the development of the Guide, with staff from Permit Sonoma and the Department of Emergency Management contributing to the document. The Guide will be printed and available as an online document. Print versions are anticipated to be distributed to Permit Sonoma, Well and Septic Division and drilling and pump companies to be made available to new and future well users.

The Well Resources Guide is included in Appendix B

3.1.6.3 Water-Wise Tools

Through partnerships with urban water municipalities, the GSAs obtained donated faucet aerators, showerheads, and dye tablets. The GSAs distributed the tools to groundwater users at tabling events and workshops, providing direct tools for water savings.

3.1.6.4 Fact Sheets

Fact sheets were created to market the Well Aware Toolkit and the Demonstration site. The fact sheets were created towards the end of the pilot program and will be promoted by the GSAs moving forward through GSA and partner attended events, online promotion, and social media posts. The fact sheets highlight the projects and encourage public participation and use.

The fact sheets are included in Appendix C.

3.1.6.5 Case Studies

The GSAs sought to showcase local water champions who have implemented WUE practices. The project team developed case studies for five different groundwater users. At the time of this report, the case studies remain in development and are not included in this report. Each case study tells the story of site-specific water challenges, and the measures implemented to address them. Featured sites include Sonoma State University, a rural residential user, a Homeowner Association, an elementary school, and a vineyard manager.

Highlighted water efficient measures include drought tolerant plantings, removal of turf, irrigation system upgrades, rainwater catchment and raingarden installations, and irrigation management tools.

Once finalized the case studies will be produced in a hardcopy format for tabling and outreach events as well as a digital version to be available on the website and shared through social media.

3.1.7 Outreach Plan

Woodard and Curran drafted an Outreach and Engagement Plan (Plan) documenting outreach elements produced during the pilot program. The Plan aligns with the GSA's broader GSP Outreach and Engagement Plans and builds off currently implemented marketing mechanisms and platforms such as the newsletter and social media presence.

The Plan provides an implementation path for continued outreach and education with materials created during the pilot program but also provides suggestions on elements that could be added to strengthen outreach as well as ideas for outreach and engagement if the GSAs implement a future incentive program.

The Outreach and Engagement Plan is included in Appendix D.

3.1.8 Strategy 1: Outreach and Education Summary

Over the course of the pilot year, the Well Aware program helped build the GSAs recognition, establish the importance of groundwater sustainability, and promote WUE resources in several ways to a wide audience. Partnerships played a critical role in expanding reach and connecting with target audiences. Shared goals with partner organizations amplified Well Aware messaging and informed future approaches to achieving groundwater sustainability.

Table 3 provides a summary of the Well Aware Outreach Efforts. The number of touchpoints is provided and represents the number of times the Well Aware program was estimated to have been seen.

Table 3. Summary of Well Aware Outreach Engagement

Outreach Tool	Estimated Touchpoints	Target Audience
Outreach Fair/Tabling Events	12,735	Rural Residential, Vineyards, Ag
Ambassador Presentations	80	Rural Residential, Ag
Newsletters/ Social Media/Website	9,225	Rural Residential, Vineyards, Ag
Workshops	150	Rural Residential, Vineyards, Ag
Rounded Total	**22,000**	-

Through education and outreach efforts, the Well Aware program had approximately 22,000 touchpoints. The touchpoints likely include populations outside and inside the basin as well as duplication of individuals. Duplication and out of basin connections are important in that duplication and word of mouth conversations help build familiarity, placing Well Aware as a more commonly known program across the county. In addition, whether or not a touchpoint is a groundwater user, they likely know a groundwater user and can help with extending the network of people aware of the GSAs and groundwater conservation messaging. Educational programs with local partners should continue and build on the momentum created around the Well Aware pilot program for continued recognition through repetition and familiarity.

3.2 Strategy 2: Online WUE Best Management Practices "Well Aware" Toolkit

Strategy 2 focused on building a webtool to empower parcel owners to implement WUE measures by increasing awareness of water savings strategies associated with land and water use on their parcels. During the Demand Assessment, the GSAs acknowledged that while incentives/rebates, technical expertise, and water conservation messaging had not previously been offered to groundwater users, many resources already existed that groundwater users could take advantage of. The issue was that these resources were spread across numerous organizations, websites, and materials. To simplify access and centralize regionally specific resources, the GSAs built an interactive tool using the existing Guide database and data collected during the Phase 1 groundwater demand assessment.

3.2.1 Toolkit Capabilities

The Well Aware Toolkit allows groundwater users within the GSAs' boundaries to locate their property on an interactive map and view customized water related information on a dedicated results page. Displayed information includes the land use type, parcel acreage, irrigated acreage, number of living units, water sources, soil composition, planting zone and elevations. Water saving ideas are suggested based on the land uses associated with the property.

The Well Aware Toolkit includes informational resources for a variety of groundwater use types, including rural residential, commercial, produce and specialty crops, golf courses and lawns, tree crops, pasture and hay, and vineyards. Highlighted topics include indoor water saving ideas and outdoor irrigation water-efficiency suggestions. Resources come from local organizations as well as trusted organizations outside of Sonoma County. Additional tabs provide suggestions on organizations that can provide technical assistance and resources with potential funding support.

The GSAs developed a how-to video to guide users through the site. The Toolkit also allows users to voluntarily share water-saving success stories with the GSAs.

3.2.2 Well Aware Toolkit Development and Design Considerations

Toolkit design focused on providing easy access to parcel specific information and water savings ideas and resources. Design and functionality were tested by GSA Advisory Committee members who provided suggestions strengthening the Well Aware Toolkit. While the Demand Assessment had generated per parcel estimates of groundwater use, during development, concerns were raised around privacy. Password protected data access was considered, but the GSAs prioritized an accessible, low maintenance design and did not include parcel-specific water savings estimates in the tool. Water savings is instead encouraged through the suggestion of water saving practices appropriate for specific parcel land uses.

3.2.3 Well Aware Toolkit Launch and Early Engagement

The GSAs coordinated the Well Aware Toolkit launch to support engagement tracking and evaluate how users accessed and interacted with the platform. The official launch occurred in November 2025 and included a series of emails, newsletter promotions, and social media posts. The GSAs used static messaging as well as dynamic short videos to further promote the toolkit. In addition, the how-to video further promoted the Well Aware Toolkit and increase engagement.

Early activity suggests the following regarding engagement with the Well Aware Toolkit:

- Within the first three months of launch, the Well Aware Toolkit has received about 3,500 views and just over 1,300 active users engaging with the site overall. Analytics further show that 111 users spent significant time investigating water saving practices.
- Most engaged categories include commercial, residential, produce and specialty crops followed closely by vineyards and tree crops.
- Strong interest exists in learning WUE practices involving gardening, irrigation efficiency, and plant water demand.
- Users primarily accessed the site through site referrals, email blasts, and Facebook.

Early engagement metrics and feedback suggest strong interest in the Well Aware Toolkit as an educational resource; continued monitoring will inform future enhancements.

3.3 Strategy 3: Consultations

Consultations provided under the Well Aware program targeted groundwater users at their locations to address site specific water concerns. The outcome served to meet two objectives for the GSAs. First, consultations provided expert assistance to help groundwater users meet their water use goals. Second, consultations provided the GSAs with insight into groundwater use patterns, user challenges, and future potential water saving program opportunities. Consultation offerings evolved throughout the pilot year based on partner capacity, budget considerations, and user interest. The GSAs partnered with several organizations for consultations, examining several strategies for targeting different groundwater user types based on what organizational structures already exist and where there might be gaps in existing offerings.

3.3.1 Master Gardener Program - Garden Sense

During phase 1 of the grant, the GSAs identified the Master Gardener Program of Sonoma County's free Garden Sense program as an existing resource aligned with Well Aware objectives that was available to groundwater users. Garden Sense is available to all residents of Sonoma County with partial funding by the Sonoma-Marin Saving Water Partnership. The program sends a Master Gardener to an interested applicant's home to assess their landscape and irrigation for potential water-wise improvements. During each visit, the Master Gardener evaluates the irrigation system for leaks, breaks, and overspray, and identifies additional water-saving opportunities, including system upgrades and drought-tolerant planting. Following the visit, the homeowner receives a report summarizing priority recommendations. The visit functions as a water audit and includes a final checklist with recommendations, outdoor water conservation resources, and, where applicable, pre-qualification for municipal turf replacement rebate programs.

During the pilot program, the GSAs partnered with Master Gardeners to cross-promote programs, update audit forms to collect well data during Garden Sense visits and distribute toilet dye tablets for indoor leak detection. The Master Gardener program sends a follow-up survey in April to participants of the previous year. Survey results will not be included in this report but are anticipated to be shared with the GSAs in 2026.

The partnership is expected to continue, and future implementation goals include adding groundwater-related questions to the Garden Sense checklist and continuing distribution of dye tablets for leak detection.

3.3.2 Sonoma RCD - Efficiency Testing

Through a separate grant, the Sonoma RCD was in the process of providing distribution uniformity (DU) testing and well pump efficiency tests for vineyard sites. The GSAs were able to extend that effort to support additional assessments performed in each GSA groundwater basin.

The goals of pump efficiency and DU tests aim to improve irrigation efficiency and identify opportunities to reduce both water and energy use. Outreach for these services targeted vineyard owners and managers and was conducted through existing grower networks, direct email outreach, Sonoma RCD's eNews and social media platforms, and in-person engagement at ongoing agriculture events. Outreach efforts were most successful within established grower networks and partnerships, where trust had previously been built, and contact information for key connections was up-to-date. Many producers were also enthusiastic about the opportunity for free technical assistance and funding for an evaluation, especially as harvest wrapped up. The tests proved to be a valuable relationship-building opportunity for both the GSAs and producers, supporting collaborative identification of groundwater-saving measures.

Several challenges were encountered during outreach and enrollment, particularly related to identifying eligible vineyard blocks within GSA boundaries. Additional time was needed to verify that properties were located within basin boundaries, as vineyard management companies often operated blocks both inside and outside the boundaries. Sonoma RCD staff worked directly with vineyard managers to use an online tool to identify eligible blocks. In addition, outreach to new contacts required a trust-building process to assure producers that confidential or sensitive data would not be shared publicly or with the GSAs. The timing of the testing also proved critical, as it is challenging and inefficient to test irrigation systems during the wet winter season.

DU testing is used to evaluate how evenly irrigation systems apply water across vineyard blocks using pressure and emitter flow measurements. DU test results from within the basins generally indicated low to fair performance, with lower scores reflecting uneven water application and inefficient irrigation. Common issues seen included inconsistent emitter flow rates, aging equipment, and limited system maintenance. When these issues are addressed, regional studies have indicated water savings can range anywhere between 18 percent to 46 percent. [2]Participating growers received technical reports summarizing test results and providing recommendations to improve irrigation uniformity, scheduling, and overall water-use efficiency.

Pump efficiency testing was conducted to establish baseline performance data related to pump condition, operational efficiency, and energy use. These evaluations support improved irrigation scheduling, identification of energy savings opportunities, and documentation needed for greenhouse gas emissions reporting, regulatory compliance, and California Department of Food and Agriculture (CDFA) State Water Efficiency and Enhancement Program (SWEEP) grant applications. Pump test results included cost-savings analyses that estimated potential dollar savings associated with efficiency upgrades and optimized irrigation run times, helping producers quantify the economic benefits of improvements that also reduce groundwater use inefficiencies.

3.3.3 Daily Acts/Watershed Progressive – Well Designed Landscape

In partnership with Daily Acts and Watershed Progressive, a geospatial analysis tool was developed to assess the water conservation opportunities for rural well water users within the Santa Rosa Plain groundwater subbasin. The analysis tool is incorporated in a program known as the Well-Designed Landscape Program and offers a consultation and Catalog of Projects for up to 25 Santa Rosa Plain basin well water users. This project is an extension of an existing program through the Land Resilience Partnership Program, which is a voluntary, non-regulatory incentive program which connects land stewards with technical experts and offers grant funding for construction of future drought resilience projects.

Daily Acts' Catalog of Projects is a concept level design that lists projects and priorities that can be implemented on site to save water, mitigate flooding, and build land resilience. The Catalog of Projects provides project specific data that captures the water savings benefit associated with each project, and designs for the following water-use efficiency measures:

- Turf Conversion & Sheet Mulching

[2] Luhdorff & Scalmanini Consulting Engineers. ERA Economics., 2024. *Napa County Water Conservation Workplan: A Guide for Vineyards, Wineries, and Other Water Users*. Napa County Groundwater Sustainability Agency. https://www.napacounty.gov/DocumentCenter/View/30301/Napa-County-Water-Conservation-Workplan-PDF?bidId=

- Irrigation Efficiency Upgrades
- Rainwater Harvesting
- Rain Gardens & Stormwater Management
- Laundry Greywater Reuse
- Climate Appropriate Planting

The Well Designed Landscape program process includes review of a submitted application, intake phone call, and an on-site consultation. The program launched in August 2025 and was marketed through social media posts, flyers at community boards, emails, newsletters, and direct mailing of postcards. To date, 16 out of 25 Catalogs of Projects have been completed and delivered, with 3 more in process, and 3 site assessments scheduled.

The project has been offered for less than half the year and has already generated many applicants. The program builds on an existing grant funded program that is scheduled to have additional funding for implementation of the Catalog of Projects being developed currently. Current qualification is limited to groundwater users in the Santa Rosa Plain subbasin, but users in other basins have expressed interest as well. Potential water savings from the program is significant and is helping inform the GSAs of the types of incentives that could yield high water savings. Initial assessments from Daily Acts have identified 7.8 acre-feet per year of water saving potential.

3.3.4 Sonoma County GSAs - Water Consultations

To better understand the water challenges of commercial, institutional, and non-vineyard agricultural sites, the GSAs planned to offer up to three water consultations. High water using sites, as well as CAFF-recommended smaller farm sites, were analyzed and vetted with community partners to determine potential interested partners. Several sites were approached such as a golf course, an HOA, and a row crop agricultural site. Ultimately, a small local agricultural row crop site was evaluated. Land IQ, with assistance from MWM, performed the consultation. The process included an initial meeting held virtually to speak with the property owner to understand the needs of the site and determine the data needs to prepare for the site visit, followed by an onsite evaluation.

Opportunities for the GSA to assist a small farm site in the future, based on information learned during the consultation, include engineering support for irrigation sizing and equipment, support with field moisture monitors or other irrigation application products, and understanding of groundwater levels. During the consultation, the farmer mentioned receiving support from a local nursery on irrigation design. Many nurseries and garden centers are the informational hub for water related advice and the GSA could consider a partnership with those local nurseries as a way to support farmers in the future. The GSA could collaborate with nurseries on educational seminars or promoting incentive programs, with a point-of- purchase marketing of water efficient technologies.

3.3.5 Consultation Results

While the pilot program demonstrated strong interest in on-site consultations, actual participation strongly correlated with trust in the consultation provider. The Master Gardener's Water Sense program has been available for many years and is a popular program throughout the county. Enrollment among private well users remained consistent with prior years, indicating steady interest. The Garden Sense program has been used by urban municipalities for years as a way to prequalify for rebate programs. If the GSAs pursue rebate-based incentive programs requiring pre-qualification, Master Gardeners could serve as a resource; however, careful coordination would be required given the program's volunteer structure.

The Well Designed Landscape program success includes the Catalog of Projects that positions a property for future grant funds for turf removal or other project support. The program's management by a trusted local organization contributed to high participation.

Sonoma RCD's DU and pump efficiency testing faced qualification challenges due to vineyards locations spanning across basin boundaries as well as concerns around privacy and data sharing with the GSA. Results from the testing yield high savings potential and future opportunities for direct assistance with irrigation upgrades and water application management tools.

Consultations offered directly by the GSAs and their consultants resulted in only one completed on-site consultation. Lower participation likely reflected trust concerns and uncertainty about GSAs involvement. Additionally, the consultation provided by the GSAs lacked definite future program implementation assistance. The list of potential sites should be maintained for future support.

Table 4 provides a summary of the consultations, comparing the number of interested sites versus actual consultations performed.

Table 4. Summary of Consultation Participants

Consultation	Interest	Actual	Target Audience
Garden Sense	68	51	Rural Residential
DU and Pump Efficiency Tests	15	4	Vineyards, Ag
Well Designed Landscape	52	16	Rural Residential, Commercial
GSA Consultation	3	1	Rural Residential, Vineyards, Ag
Total	**138**	**72**	-

Actual numbers represent the number of consultations that occurred during the calendar year 2025. Interested numbers represent groundwater users who initially submitted a request for a consultation. The difference in interest versus actual participation represents a change in desire for a consultation or the interested party did not meet the minimum criteria to participate such as being out of basin.

3.4 Strategy 4: Demonstration Site

The development and selection of the demonstration site followed a comprehensive and collaborative process, aimed at identifying an appropriate site to showcase WUE practices within the groundwater context. Due to budget allocations, the demonstration site would be located within the Santa Rosa Plain GSA boundary. The process involved several stages, from site filtering to site visits and final selection. Due to stipulations of the grant, the ideal site would be required to be a site accessible by the public and able to sign an agreement to maintain the improvement for fifteen years. Additional evaluation criteria included the site's visibility, water conservation potential, and ability to maintain the constructed WUE measure.

To approach the project, Daily Acts in collaboration with CAFF and the RCDs developed a list of potential sites and feasible WUE measures to pilot. An application was created to capture interest and help evaluate feasibility. Several interested projects did not qualify due to being a private site or located outside of the Santa Rosa Plain groundwater basin.

Five sites expressed interest, and four sites were moved forward as sites with the highest potential. Site inspections and cost estimates were performed on the four highest potential sites. Appendix E contains a breakdown of the potential projects considered for each site and their associated costs and water savings.

Based on the evaluation of water savings and cost, landowner availability and willingness, and public accessibility, the selected site was Maddux Ranch Regional Park (Maddux Ranch), referenced as Site 3 above. Maddux Ranch hosts the Larkfield Community Garden and Learning Center, leased by Community Soil Foundation. The site is accessible to the public, includes a community learning space, and is located near a local elementary school and neighborhood. The original concept plan for the demonstration site drafted by Sonoma RCD was to convert 10,000 square feet of turf watered with high-impact rotor sprayheads to climate appropriate plantings watered with drip irrigation. Mulch would be applied as well as a gravel walking trail through the new plantings with identification labels.

After the project concept was developed, the Regional Park withdrew from the project due to concerns around the maintenance agreement.

The project team then focused on the second site on the list, a non-profit farm. The water-efficient needs of the site included application of compost and creation of bioswales. The site already hosted several other water efficient practices that the team planned to highlight in public signage. However, like Maddux Ranch, the site withdrew due to land ownership issues complicating its potential for the demonstration site.

Ultimately, the project team returned to Maddux Ranch, especially looking at the Community Garden. The final scope for the site included designing and installing educational signage focused on existing water-saving practices, such as soil health building, irrigation efficiency, and rainwater harvesting, alongside the importance of groundwater awareness and protection. A submeter was installed on the water line supplying the Community Garden. The educational signage can be found within the Community Garden at the entrance, near the submeter, and next to the rainwater tank.

Content of the three educational signs included:

- The Water Hiding Under Our Feet: Intro to groundwater basins, aquifers, and wells.
- Why Groundwater Matters: Who uses groundwater, how groundwater is used and managed, how groundwater supports wildlife.
- Protecting Our Groundwater: Tools used at Maddux Ranch to protect groundwater (rain tank, rain garden, groundwater flow meter, etc.).

The signage is included in Appendix F.

The Maddux Ranch Community Garden will be marketed as a demonstration site for groundwater aware practices though social media posts, the GSAs websites, and a fact sheet flyer for inclusion in tabling materials. The site will also be included as part of the 2026 Eco-friendly Garden Tour program held by Sonoma Marin Water Saving Partnership in May 2026.

3.4.1 Leak Detected

The submeter installed by the GSAs is advanced metering infrastructure (AMI)-enabled. Shortly after activation, the AMI system detected continuous low-level usage, indicating a leak that is currently being investigated and fixed. Installation of this submeter is an excellent example of the water conservation benefits of meter installation and possible case study for future development.

3.4.2 Demonstration Site Summary

Although the final demonstration site scope differed from the original concept, the process provided valuable insight into the costs, savings, and feasibility of implementing WUE projects. Turf removal projects involve higher upfront costs but yield substantial water savings. Farm sites have an opportunity for water savings but require site specific assessment and close coordination with the landowner or site manager. The GSAs also encountered significant challenges related to land ownership and long-term maintenance agreements. Maintenance in general was an obstacle. Drought-tolerant plantings with mulch have a perceived higher maintenance responsibility. In the case of a park, the maintenance responsibility shifts from the typical lawn maintenance routine to now including additional areas that would require weeding and pruning. The altered maintenance approach is ultimately what stalled the project and should be considered in future messaging and demonstration sites. Demonstration sites may not be a water saving investment worth pursuing in the future given the complications encountered within the pilot program unless a desired location is secured prior to applying for funding.

4.0 WUE PROGRAM STRATEGY AND WORK PLAN

The GSAs collaborated with Sonoma RCD, Gold Ridge RCD, and Daily Acts to investigate existing WUE programs throughout the west coast region and developed recommendations for future WUE program measures and administrative structure. Recommendations were included in a Program Strategy and Work Plan and were based on interviews, past experience, and literature review of potential water savings.

The Work Plan recommends that GSAs prioritize implementation of the following incentive initiatives to yield the most cost-effective savings:

- Metering
- Irrigation evaluations and upgrades (agriculture)
- Smart irrigation controllers
- Turf conversion (residential and commercial)
- High-efficiency indoor appliances

This workplan can be leveraged for future funding opportunities and to help the GSAs meet WUE specific goals.

The Workplan is included in Appendix G.

5.0 WUE PILOT PROGRAM ESTIMATED POTENTIAL WATER SAVINGS

Throughout the pilot program, the Well Aware initiative engaged groundwater users through multiple outreach and direct assistance strategies. This section attempts to quantify the water savings from the pilot program, however water savings from public outreach and education alone can be difficult to measure and quantify - estimates place savings between 0.5-5 percent of existing water use.[3]

[3] United States Environmental Protection Agency (USEPA) Water Conservation Plan Guidelines, August 6, 1998.

American Water Works Association (AWWA) Water Conservation Programs- A planning Manual, M52, Second Edition, 2017.

Water saving estimates presented in this section are intended to demonstrate the potential impact of the pilot program. If the GSAs continue with an educational-only program moving forward, the water savings would be expected to be similar with a slow build. If additional targeted consultations and incentivized water saving tools were developed and implemented, the GSAs could expect to see higher projected water savings, potentially at a faster pace. When viewing the water savings estimates, it should be noted that early interested groundwater users may inherently yield less water savings compared to the whole as they are likely already water efficient users. As the program expands to reach new groundwater users the savings yielded would expect to increase.

5.1 Savings Potential and Estimated Water Savings

Water saving estimates are derived from the four piloted strategies and summarized in Table 5. The methodology for assumed water savings, participation uptake, and useful life for each strategy is described below. In general, the GSAs assumed that the lower percent savings of a range of savings was appropriate for each strategy as this was a pilot level effort and likely to attract early adopters who may already be water conscious.

- **Strategy 1 - Education and Outreach.** Educational outreach influences behavior. Determining the water savings from behavior is highly variable compared to estimating water savings from the retrofit of a heavy water-using fixture. However, education and outreach remain essential components that complement incentive-based programs. For planning purposes, this report assumes a conservative potential savings of 1 percent of assumed acre-feet per year water use for each rural residential touchpoint reached during the pilot program period. Water savings for participants of the agricultural focused workshops is assumed at a 2.5 percent water savings based on average groundwater use per agricultural parcel due to the hands-on nature of the workshop. It is assumed that 5 percent of the touchpoints modified their behavior with a useful life of two years.
- **Strategy 2 – Well Aware Toolkit.** The water savings potential for the Well Aware Toolkit is based on interactions seen through the data analytics. The Well Aware Toolkit is similar to outreach and education although differs in that users have control over the subject investigated and more engagement is likely to translate to action than general messaging. More than 688 first time users visited the Well Aware Toolkit online with more than 111 unique users exhibiting advanced investigation and engagement in a use category. The estimated water savings is calculated from these 111 unique users and assumed to be 5 percent of the average water use for the user category explored. The useful life is considered to be a modest one year.
- **Strategy 3 – Consults.** Direct engagement approaches, such as surveys and consultations, demonstrate higher water savings of up to 15 percent[4] due to the ability to provide site-specific recommendations. Actual savings would increase if participants implemented the recommended actions or install water-efficient equipment. Anticipated water savings is calculated differently for each consultation type performed during the pilot program and is based on the results of irrigation efficiency testing and identification of potential water saving practices during the consultation. Assumed useful life for the on-site consultation is 1 year for simplification of the analysis but could be higher in practice.

[4] American Water Works Association (AWWA) Water Conservation Programs- A planning Manual, M52, Second Edition, 2017.

- **Strategy 4 – Demonstration Site.** The demonstration site has potential to yield water savings through education and outreach. The potential water savings is not included in this assessment as the demonstration site was completed towards the end of the pilot program, and no visitation statistics were available at the time of report writing Additionally, the water savings may be concentrated within the Santa Rosa Plain basin rather than evenly distributed across all three basins.

5.2 Summary of Savings Potential

While the potential for water savings of 356.6 acre-feet per year speaks to the success of the Well Aware program, the 22,000 touchpoints that occurred over the WUE pilot program year is to the best indicator of the successful launch of the Well Aware program. When the pilot began, the GSAs did not know what could be achieved through outreach. Now, a baseline goal can be established for future years and the lessons learned through this pilot can inform future programs. Engagement increased over the course of the year, and with continued investment is expected to continue to grow. The GSAs will continue to see real water savings if the momentum and engagement is continued.

Table 5. Summary of Well Aware Pilot Program Participation and Potential Water Savings

Well Aware Strategy	Touchpoints	Estimated Participants Acting on Information	Percent of Water Use Savings per Person or Per Parcel	Existing Estimated Water Demand in AFY[(a)]	Assumed Useful Life	Potential Water Savings, AFY
Outreach and Education						
Events	12735	5%	1%	0.3	2	2.2
Ambassador Presentations	81	5%	1%	0.3	2	5
Electronic Outreach	9225	5%	1%	0.3	2	1.5
Workshops (Residential)	110	5%	2.5%	0.3	2	21.5
Workshops (Ag)	40	10%	1%	7.9	2	287
Total	**22,191**	-	-	-	-	**317.5**
Well Aware Toolkit						
Commercial	25	100%	5%	0.9	1	1.1
Residential	26	100%	5%	0.3	1	0.4
Produce and Specialty Crops	16	100%	5%	7.9	1	6.3
Vineyards	25	100%	5%	7.9	1	9.9
Tree Crops	19	100%	5%	7.9	1	7.5
Total	**111**	-	-	-	-	**25.2**
Consultations						
Garden Sense	51	NA	5-15%	NA	1	5
Well Designed Landscape	16	NA	5-15%	NA	1	7.8
DU Testing	4	NA	5-15%	NA	1	1
GSA Consultations	1	NA	5-15%	NA	1	0.1
Total	**72**	-	-	-	-	**13.9**
Total	**22,374**	-	-	-	-	**356.6**

(a) The estimated demand per user category was derived from the Demand Assessment.

6.0 CONCLUSION

6.1 Lessons Learned/Findings

The following are key findings and lessons learned through implementation of the Well Aware pilot program:

- Strong Interest exists in WUE, however continued education is needed to clarify groundwater issues and the GSA's role in promoting sustainable groundwater management.
- Water conservation messaging is an investment that builds over time. The Well Aware program is the official launch of a WUE program for the GSAs. Recognition and engagement increased as the program evolved and messaging repeated. Repetition is an important component of outreach and education, and the GSAs should continue to seek multiple ways to engage with the groundwater user community. Participation increased after the Well Aware Toolkit marketing was seen multiple times by audiences. Additionally, the GSAs should continue to build their contact information for groundwater users for future direct marketing of educational tools and incentive programs.
- The messenger matters. Participation increased when the Well Aware program was promoted and encouraged by local partners. There is hesitation by groundwater users to engage with the GSAs, partly because the GSA's motivations and role are still possibly unclear to groundwater users. The GSAs are government agencies that have the potential to increase fees and change how groundwater is used. During the pilot program, the GSAs heard many hesitations from potential users around participation in the program. Fear of unknown consequences from participation or privacy issues are real concerns and something the GSAs should look to mitigate in the future as it is sure to continue to be an obstacle.
- Financial and technical assistance is desired by well owners/users. The Well Aware programs' free consultation under the Well Designed Landscape program was popular and well received as a technical assistance program. Survey results from the Program and Policy work show interest in rebate and incentive programs for indoor and outdoor water use. Workshops and DIY tools were seen as valuable and would complement any future programs.
- Future efforts should build on existing programs and develop partnerships and collaborations that build on each other. For example, working with Watershed Progressive and the Land Resilient Partnership program allowed the Well Aware program to pre-qualify and position sites for future funding through other grant programs.
- Vineyards and agricultural audiences may require further focus and investigation. Engagement with vineyards and small farm sites primarily occurred through partner connections with CAFF and the RCDs. The GSAs began efforts and planning to engage with this community and found that each situation may be very unique and further challenged by privacy issues around water application. Water use on agricultural sites is complex and further work is required to determine the effective tools to provide water management assistance. In the limited consultations performed on agricultural sites, experience suggests that consultation programs may require repeated site visits over the course of the year to effectively provide guidance. There is high water savings potential in engaging with the agricultural community as one person frequently represents several water using parcels.
- Track engagement. The pilot program involved several initiatives and programs that were rolled out simultaneously over a one-year period, making it challenging to track engagement. Future phases could track engagement by quarter, which could be beneficial in helping the GSAs determine the best times to promote messaging and future programs.

6.2 Recommendations

Based on pilot program outcomes, the GSAs should consider the following next steps:

- Set a realistic water savings goal that can be achieved through water-use efficiency. Based on the goal, the GSAs should determine the most appropriate water saving practices to encourage. Ideally the GSAs should consider a suite of incentive and assistance type programs that complement each other and provide options for groundwater users of all user categories.
- Look for future grant opportunities to provide incentives to groundwater users. Administration of the program by a third party could alleviate some concerns around groundwater user fears and reduce the burden of handling checks and determining if program criteria are met on a site. Local trusted partners should be considered for the marketing and customer interaction tasks. Partner organizations can connect the GSAs with their networks and users may more easily opt in to a program from a trusted source.
- Continue to build momentum from the pilot program and continue to promote the Well Aware program. Continue to collaborate with local partners through tabling and outreach events.
- Continue to pursue joining the Sonoma-Marin Saving Water Partnership and concurrent enrollment in CalWEP to leverage regional opportunities and future state grant implementation.
- Connect with local vendors such as nurseries and irrigation suppliers to collaborate on outreach events, educational outreach, and funding partnerships.
- Continue to prioritize engagement with the agricultural community, which offers significant water savings potential.

6.3 Conclusion

Based on work performed during this pilot year, the GSAs should continue educational outreach and partnership with local, trusted organizations. The GSAs should seek future funding to increase educational outreach for target messaging across various user groups and look to include financial incentives to increase participation and water savings.

The results of the pilot program suggest a strong interest from groundwater users in water efficient practices and desire for assistance in solutions and financial assistance. The increase in GSA newsletter subscribers further reflects demand for groundwater-specific information and support. Consultation results and outreach activities indicate substantial water savings potential across all groundwater user groups. The GSAs should continue the momentum generated during the pilot program while seeking funding for direct incentives.

7.0 REFERENCES

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Appendix A

Well Aware Resource Handout

WATER EFFICIENCY RESOURCES: TOOLS WITHIN SONOMA COUNTY

WAYS TO LEARN

Through the Well Aware Program, the Sonoma County GSAs are connecting well users with practical tools and resources to help with groundwater management and sustainability, including tools to increase water use efficiency. Through our trusted partners we are able to offer water saving tools available to all well users, rural residents, small and large farms, vineyards, wineries, and businesses. This Resource Guide is your hub to the programs and resources available to you.

WELL AWARE
Tools for building local groundwater sustainability

Scan QR code to visit the Well Aware website

Do-it-yourself classes and workshops

Daily Acts offers an assortment of programs like workshops, tours, webinars, presentations and installations to educate the public on topics including:

- Lawn Replacement
- Graywater Systems
- Garden Design and Installation
- Rainwater Harvesting & Rain Gardens
- Soil Health & Carbon Sequestration

Sonoma-Marin Landscape Design Templates

The Sonoma-Marin Saving Water Partnership has developed eight free, scalable, water-efficient, front-yard landscape design templates. These are permit ready with your site-specific modifications and user selectable options.

WaterSmart Gardens Maintenance Manual

This free Water Smart Gardens Maintenance Manual is a step-by-step guide on how and why to maintain a low water use landscape. The manual also features a maintenance calendar that illustrates when seasonally important tasks like weeding, pruning and adjustments to irrigation scheduling should occur.

Russian River Friendly Landscaping Practices

Russian River-Friendly Landscaping provides information on how to to design, construct and maintain landscaping that supports the integrity of the econsystem.

Dry Farming Education

CA Sustainable Winegrowing Alliance (CSWA) offers a dry farming education and decision support tools for growers seeking to develop or convert to dry farmed vineyards.

Interactive webinars are also available

Best Practices Water Guide to Support Water Use Efficiency

The Land Stewardship Division of the Sonoma County Department of Agriculture/Weights & Measures has a best management practices guide to prevent erosion and support water use efficiency.

Agricultural Commercial Rural Residential

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GROUNDWATER SUSTAINABILITY AGENCIES

SERVICES & GIVEAWAYS

Compost Giveaway

Zero Waste Sonoma offers free compost to Sonoma County residents throughout the year at permanent pickup locations throughout the county and giveaway events. In addition, they offer a 10% rebate for compost and mulch purchases totaling at least 20 cubic yards, up to $25,000 each year.

Indoor Residential Toolkit

Indoor residential water assessments can be self-administered using the Do-It-Yourself Energy and Water Savings Toolkit, available for checkout through the Sonoma County Library. The DIY Toolkit provides guidance to conduct an indoor water assessment and includes free-to-install-and-keep high-efficiency plumbing fixtures (showerheads & faucet aerators) and irrigation leak repair parts.

Water Savings Inspections and Installations

In Petaluma, through the Land Resilience Partnership Program, Daily Acts is providing technical assistance to 125 residential and public sites. The program provides land-based assessments for all aspects of water use indoor and outdoor. Participants receive a customized catalog of projects, site-specific design, metrics on water savings, infiltration and capture, along with resources on how to Do-It Yourself or seek contractor support. Of these sites, 60 will be chosen for grant-funded installation.

Sonoma County Green Business Certification Program

Businesses interested in becoming Green Business certified can receive free water and energy assessments through the Sonoma County Green Business Program.

Qualified Water Efficient Landscaper (QWEL) Program

The Qualified Water Efficient Landscaper (QWEL) program is an EPA WaterSense labeled professional certification in irrigation system audits. Hire a QWEL Professional for all your landscape needs.

Planning and Technical Assistance

Landsmart Program:
The LandSmart® Program provides conservation planning, technical assistance, and on the ground projects through partnerships with landowners striving to achieve productive lands and thriving streams. In Sonoma County, it is led by Gold Ridge and Sonoma Resource Conservation Districts (RCDs).

URCTA Technical Assistance

The Underrepresented Communities, California Tribes, and Small Farmers Groundwater Technical Assistance (URCTA) Program provides groundwater-related technical assistance services to eligible individuals, communities, and Tribes within Sustainable Groundwater Management Act-regulated basins, free of charge. Services include: analysis of groundwater conditions and water quality, water well and pump repairs, needs assessments, soil moisture monitoring, and more.

RECURSOS DE EFICIENCIA DEL AGUA: HERRAMIENTAS DENTRO DEL CONDADO DE SONOMA

FORMAS DE APRENDER

A través del Programa Well Aware, las GSAs del Condado de Sonoma están conectando a los usuarios de pozos con herramientas y recursos prácticos para ayudar con la gestión y sostenibilidad del agua subterránea, incluyendo herramientas para aumentar la eficiencia en el uso del agua. A través de nuestros socios de confianza, podemos ofrecer herramientas de ahorro de agua disponibles para todos los usuarios de pozos, residentes rurales, pequeñas y grandes granjas, viñedos, bodegas y negocios. Esta Guía de Recursos es tu centro para los programas y recursos disponibles para ti.

WELL AWARE
Tools for building local groundwater sustainability

Escanee el QR para visitar el sitio web Well Aware

Clases y talleres de bricolajes

Daily Acts ofrece una variedad de programas como talleres, recorridos, seminarios web, presentaciones e instalaciones para educar al público sobre temas que incluyen:

- Reemplazo de césped
- Sistemas de aguas grises
- Recolección de agua de lluvia y jardines de lluvia
- Diseño e instalación de jardines
- Salud del suelo y secuestro de carbono

Plantillas de Diseño de Paisajes Sonoma-Marin

La Asociación Sonoma-Marin Saving Water ha desarrollado 8 plantillas de diseño de paisajes para el frente de la casa, escalables y eficientes en el uso del agua. Estas están listas para permisos con modificaciones específicas del sitio y opciones seleccionables por el usuario.

Manual de Mantenimiento de Jardines WaterSmart

Este manual gratuito de mantenimiento de jardines Water Smart es una guía paso a paso sobre cómo y por qué mantener un paisaje de bajo consumo de agua. El manual también incluye un calendario de mantenimiento que ilustra cuándo deben realizarse tareas importantes según la temporada, como deshierbar, podar y ajustar la programación de riego.

Prácticas de Paisajismo Amigable con el Río Ruso

El paisajismo amigable con el río Ruso proporciona información sobre cómo diseñar, construir y mantener paisajes que apoyen la integridad del ecosistema.

Educación sobre Agricultura de Secano

La Alianza de Viticultura Sostenible de California (CSWA) ofrece educación sobre agricultura de secano y herramientas de apoyo a la toma de decisiones para los cultivadores que buscan desarrollar o convertir viñedos a agricultura de secano.

También están disponibles seminarios web interactivos

Guía de Mejores Prácticas para Apoyar la Eficiencia en el Uso del Agua

La División de Administración de Tierras del Departamento de Agricultura/Pesos y Medidas del Condado de Sonoma tiene una guía de mejores prácticas de gestión para prevenir la erosión y apoyar la eficiencia en el uso del agua.

Agrícola Comercial Residencial Rural

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SERVICIOS Y REGALOS

Regalo de Compost

Zero Waste Sonoma ofrece compost gratuito a los residentes del Condado de Sonoma durante todo el año en ubicaciones permanentes de recogida en todo el condado y eventos de regalo. Además, ofrecen un reembolso del 10% para compras de compost y mantillo que sumen al menos 20 yardas cúbicas, hasta $25,000 cada año.

Kit de Herramientas Residenciales para Interiores

Las evaluaciones de agua residencial interior pueden ser auto-administradas utilizando el Kit de Herramientas de Ahorro de Energía y Agua de Bricolaje, disponible para préstamo a través de la Biblioteca del Condado de Sonoma. El Kit de Bricolaje proporciona orientación para realizar una evaluación de agua interior e incluye accesorios de plomería de alta eficiencia (cabezales de ducha y aireadores de grifos) y piezas de reparación de fugas de riego, que son gratuitos para instalar y conservar.

Inspecciones e Instalaciones de Ahorro de Agua

En Petaluma, a través del Programa de Asociación de Resiliencia de la Tierra, Daily Acts está proporcionando asistencia técnica a 125 sitios residenciales y públicos. El programa ofrece evaluaciones basadas en la tierra para todos los aspectos del uso del agua, tanto interior como exterior. Los participantes reciben un catálogo personalizado de proyectos, diseño específico del sitio, métricas sobre ahorro de agua, infiltración y captura, junto con recursos sobre cómo hacerlo tú mismo o buscar apoyo de contratistas. De estos sitios, 60 serán elegidos para instalaciones financiadas por subvenciones.

Programa de Certificación de Negocios Verdes del Condado de Sonoma

Las empresas interesadas en obtener la certificación de Negocios Verdes pueden recibir evaluaciones gratuitas de agua y energía a través del Programa de Negocios Verdes del Condado de Sonoma.

Programa de Paisajista Calificado en Eficiencia del Agua

El programa de Paisajista Calificado en Eficiencia del Agua (QWEL) es una certificación profesional etiquetada por EPA WaterSense en auditorías de sistemas de riego. Contrata a un profesional QWEL para todas tus necesidades de paisajismos.

Planificación y Asistencia Técnica

Programa Landsmart: El Programa LandSmart® proporciona planificación de conservación, asistencia técnica y proyectos en el terreno a través de asociaciones con propietarios de tierras que buscan lograr tierras productivas y arroyos prósperos. En el Condado de Sonoma, está dirigido por los Distritos de Conservación de Recursos Gold Ridge y Sonoma.

Asistencia Técnica URCTA

El Programa de Asistencia Técnica en Agua Subterránea para Comunidades Subrepresentadas, Tribus de California y Pequeños Agricultores (URCTA) proporciona servicios de asistencia técnica relacionados con el agua subterránea a individuos, comunidades y tribus elegibles dentro de las cuencas reguladas por la Ley de Gestión Sostenible del Agua Subterránea, sin costo alguno. Los servicios incluyen: análisis de condiciones de agua subterránea y calidad del agua, reparaciones de pozos y bombas de agua, evaluaciones de necesidades, monitoreo de humedad del suelo y más.

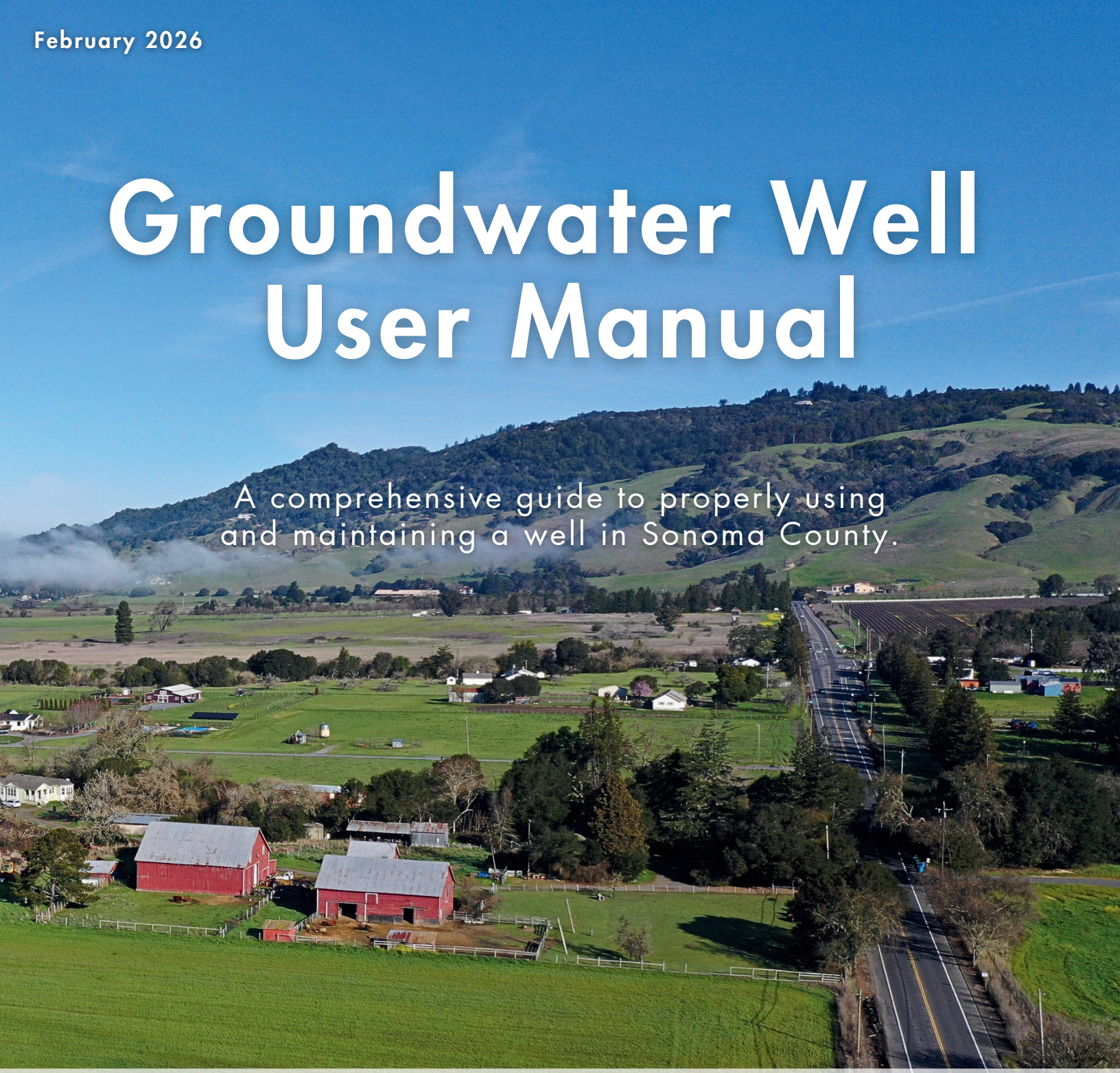
Appendix B

Well Resources Guide

February 2026

Groundwater Well User Manual

A comprehensive guide to properly using and maintaining a well in Sonoma County.



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GROUNDWATER SUSTAINABILITY AGENCIES

www.sonomacountygroundwater.org
www.permitsonoma.com

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This manual is available on the Sonoma County Groundwater Sustainability Agencies (GSAs) website at: www.sonomacountygroundwater.org.

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Introduction

This manual is intended to provide information and guidance to private well owners and users about local groundwater supply and the installation, operation, and maintenance of groundwater wells.

The manual is designed to:

- Introduce new well owners and users to the basics of well construction, maintenance, and destruction;
- Alert well owners and users to the potential for contamination and the need for water quality testing;
- Provide information to well owners and users on ways to optimize well longevity and productivity;
- Introduce well owners and users to groundwater sustainability programs available to them; and
- Provide tips and resources to advance groundwater sustainability.

This publication is meant to serve as guidance. The recommendations made here may not work in every situation or address every possible scenario or contaminant. Any reference to trade names and companies does not constitute an endorsement.

Groundwater Protection is a Shared Responsibility

Approximately 40% of Sonoma County's total water supply comes from **groundwater.** **Groundwater** is widely used by cities and towns, rural residents, commercial and industrial operations, and agriculture. There are more than 40,000 wells in Sonoma County, the second most of any county in California and the most per capita.

Groundwater 101

Groundwater: Water that collects and is stored underground in aquifers.

Aquifer: Areas below ground where the spaces between sediments and rock fractures are saturated and provide water to wells and springs.

Basin: Aquifer or stacked aquifers with a reasonably well defined boundary.

Groundwater is widely used because **aquifers** serve as an inexpensive and efficient water storage, treatment, and distribution system. Aquifers provide natural treatment and filtration as water percolates through soil and rock. It also transmits large quantities of water underground over long distances without the need for tanks, pipes, and pumping plants.

The main threats to groundwater quality and supply are contamination and overuse. Groundwater moves very slowly, often only a few feet per year. If groundwater is polluted by a man-made chemical, it can take decades or longer for it to be naturally flushed clean. Our drinking water **basins** can be impacted from accidental spills, leaking underground storage tanks, misuse of chemicals on the land, untreated sewage, and more. Water quality problems can be worsened by the presence of improperly constructed wells, abandoned wells, or wells located too near a contaminant source, like a septic system. These wells can act as vertical pathways, allowing chemicals and pathogens on the surface or in shallow aquifers to seep into our deep drinking water aquifers. Manually cleaning pollutants out of groundwater can be extremely costly and difficult.

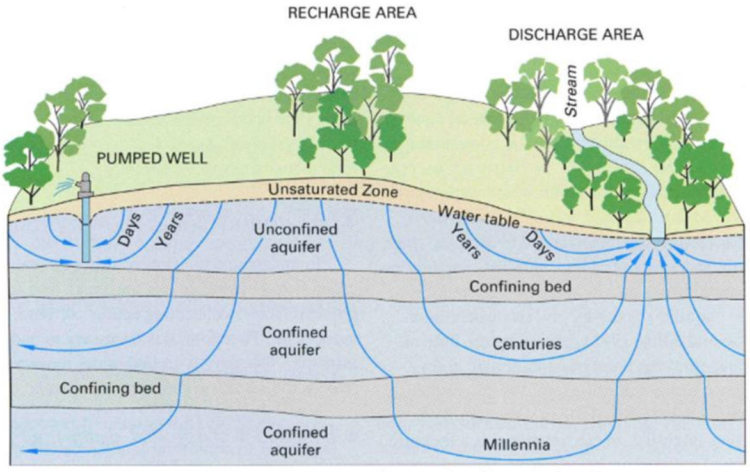
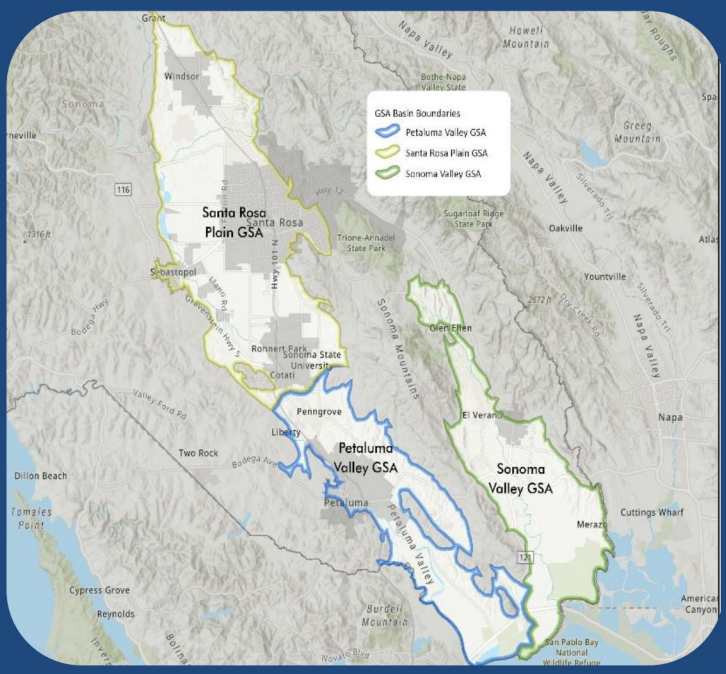


Image from US Geological Survey Circular 1139

In addition to protecting groundwater quality, it is important to maintain stable groundwater levels. If too many people use too much water too quickly, an aquifer can be depleted. A depleted aquifer can take decades or longer to recharge. Over pumping groundwater can lead to dry wells, poor water quality, reduced streamflow, and, in extreme cases, land subsidence.

Often, the immediate solution to these groundwater problems is to find an alternative source of water. This is why taking care of your well and using groundwater responsibly is so vital to Sonoma County. As groundwater users, we have a shared responsibility to conserve groundwater and protect it from contamination, ensuring we always have access to this important resource.



Did you know?

There are three agencies dedicated to groundwater sustainability in Sonoma County: Santa Rosa Plain, Petaluma Valley, and Sonoma Valley Groundwater Sustainability Agencies (GSAs). Not sure if you are in one of the three basins? Use our Data Dashboard at bit.ly/SoCoDataDashboard and type in your address or APN.

Well Permitting Requirements

To protect public health and maintain the high quality of our drinking water aquifers, well owners are required to comply with various state and local laws. Well construction, modification, or abandonment requires a permit and must conform with both local and state regulations.

"For most well owners, groundwater is their only source of water for drinking and other uses. Therefore, it should be protected."

In Sonoma County, permitting[1] for water supply wells is administered by the County's building and planning department, Permit Sonoma. Note that only a licensed C-57 Well Drilling Contractor may apply for a well permit and perform work on a well. Below are some key considerations for a well permit.

- A complete well application package must comply with the provisions of the Sonoma County Code, Chapter 25B[2], and includes:
    - Site Plan, showing the proposed and existing well locations, GPS coordinates, and nearby potential contamination sources.
    - Water Conservation forms.
    - Water Resources Monitoring application, if metering or groundwater level monitoring is required.
- To prevent contamination from surface water or shallow groundwater, wells must be sealed and maintained to prevent the introduction of pollutants and to protect drinking water aquifers.
- Installation of a water flow meter and reporting of water use is required of new wells, except for wells serving a single residential parcel with total groundwater use of 2.0 **acre-feet** or less per year. Monitoring of groundwater depth is also required for wells using more than 5.0 acre-feet per year.

Definition

Acre Foot: 326,851 gallons. The amount of water to cover an acre of land at a depth of one foot.

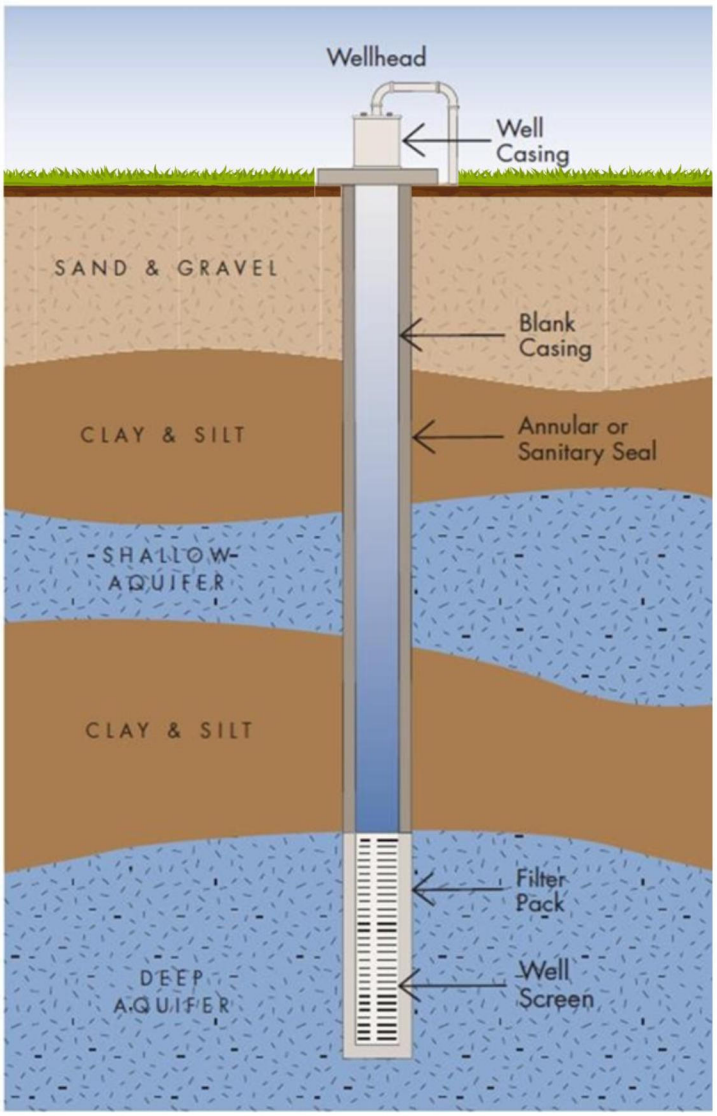
- Proposed wells near known sites of soil or groundwater contamination are prohibited unless a report prepared by a geologist or hydrogeologist is submitted and finds the proposed well will be safe from potential contamination.
- New wells on parcels using greater than 2.0 acre-feet per year and located within the designated Public Trust Review Area[3] may be subject to an additional permitting process that considers impacts of groundwater use on streams and rivers.
- Abandoned or unused wells must be properly destroyed in accordance with Sonoma County and State standards to prevent them from becoming conduits for contamination.

For detailed application instructions and downloadable forms, visit the Permit Sonoma Well & Septic Permit Submittal Requirements page: permitsonoma.com/instructionsandforms/wellandseptic, or contact Permit Sonoma at: (707) 565-1900.

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[1] https://permitsonoma.org/divisions/engineeringandconstruction/wellandsepticsystems/waterwells
[2] https://library.municode.com/ca/sonoma_county/codes/code_of_ordinances?nodeId=CH25BWAWECOST
[3] https://permitsonoma.org/divisions/engineeringandconstruction/wellandsepticsystems/waterwells/publictrustreview

Well Construction



Properly constructing wells protects water quality for the individual groundwater user, neighboring wells, and the basin as a whole. A typical domestic well in Sonoma County is constructed by drilling a hole in the ground to a depth of 100 to 500 feet. As the well driller is drilling the hole, they record the depth and the various soil and rock materials encountered. This information is documented on a driller log (also called a well completion report), which is filed with the CA Department of Water Resources (DWR) and Permit Sonoma, and provided to the well owner.

The well is constructed once the driller finds a suitable aquifer that meets the well owner's needs. The driller then builds the well by installing a perforated casing referred to as a well screen at depths with water producing layers. Solid or blank casing is installed in the upper section of the well near the ground surface and in areas where materials such as clay or silt were encountered that will not produce significant quantities of water. The well casing keeps the hole from collapsing and allows pumping equipment to be installed.

To keep fine sediment from passing through the well screen and into the well, the well driller installs a sand or gravel "filter pack" between the well screen and the borehole wall. The filter pack and well screen allows water to pass through, but limits sediment from traveling into the well that can reduce the life of the well and pump.

Above the well screen and filter pack, the driller installs a concrete or cement seal (annular or sanitary seal) between the blank casing and the borehole. The seal prevents surface water, which is often not fit for drinking, from flowing easily along the smooth well casing into the aquifer and protects against groundwater contamination. In Sonoma County, the minimum seal depth is 20 feet or at least two feet into the first impervious layer, whichever is greater. In the case of a shallow well where no water-bearing layer is encountered below 20 feet, the seal must extend to a minimum depth of 10 feet. For

water wells that will serve a public water system, the seal must extend to a minimum depth of 50 feet, or two feet into impervious soil, whichever is greater.

"Your well is a direct connection between you and your water supply."

The sanitary seal extends to the ground surface, where it is incorporated into a concrete pad or collar around the well casing. These surface features make up what is called the wellhead. At the wellhead, the casing extends at least one foot above the ground surface and is securely capped to prevent anything, including surface water, from entering the well. The concrete pad is sloped away from the casing to protect the well from damage and surface water contamination.

A submersible pump is installed in the lower section of the well and connected to a drop pipe that extends to the surface and connects to a flow meter, storage tank and/or a pressure tank and other equipment. The pump is cycled on and off by switches monitoring water level or pressure in tanks. All of these components work together to ensure that water is delivered safely and without contaminants. Once the well is fully constructed, the well and pump contractors will clear any residual sediment created during construction and sample the water to ensure it is safe and help determine if water treatment is necessary. To learn more about potential groundwater contaminants and treatment options, see the Water Quality Sampling and Testing section. The next section details how to properly maintain your well to ensure safe and reliable delivery into the future.

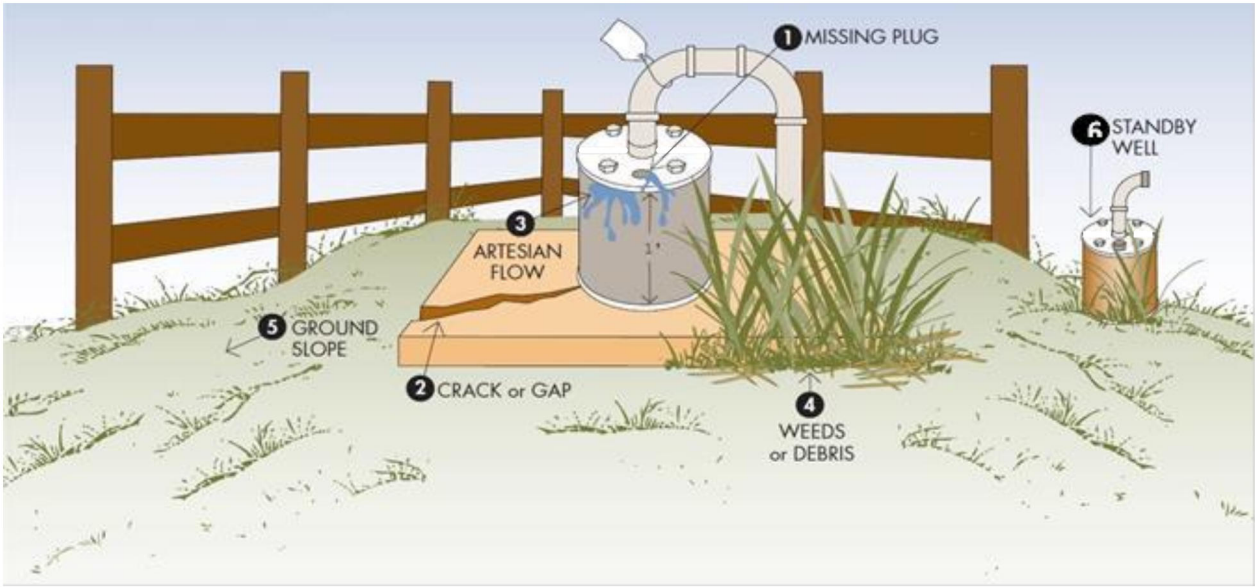
Well Maintenance

A poorly maintained well can lead to poor water quality and reductions in the amount of water your well can produce. To minimize these potential problems, a well maintenance routine is recommended. This section details ways to inspect your wellhead, create a zone of protection around your well, maintain complete well records, maintain your septic system, and understand what can cause well deterioration. It also provides guidance on what to do if your well runs dry, and what to do if you need to abandon your well.

Inspect your Wellhead

You should inspect your well at least once a year – but more often is better. A quick visual check every few months can help catch small issues before they become bigger problems.

- Every few months: Take a quick walk around your well. Look for cracks in the concrete pad, signs of animal activity, or anything that looks out of place.
- Seasonally or after major events: Check that the ground still slopes away from the well, the well cap is secure, and no damage has occurred.
- Annually: Do a full detailed inspection of your wellhead and the area around it, as detailed below.



1. Look for openings that insects, rodents, water, or anything else can enter. Cap, seal, or otherwise plug any openings.
2. Look for cracks in the concrete pad that would allow water, and any contaminants it may be carrying, to enter the well casing and flow down into your drinking water. Seal any cracks or re-pour a new concrete pad.
3. If water is flowing out the top of the well, call a licensed well and pump contractor to investigate. If water can leak out, contaminants may be able to seep in.

4. Remove weeds, leaves, and other debris from around your well. These can create shelter for rodents and other pests. Do not use herbicides or chemicals near the well to control weeds.
5. Make sure the ground slopes away from your well so that surface water does not collect or flow near the well.
6. If you have an inactive well, turn the pump on several times during the year to make sure that the well is functioning properly. Inspect and maintain your inactive well following the same guidelines as an active well. If you plan to never use the well again, you are legally required to properly destroy it (per Sonoma County Code Chapter 25B).

Regular maintenance helps protect your water supply and can save you money in the long run. If you're ever unsure about your well's condition, contact a licensed well and pump contractor.

Create a Zone of Protection

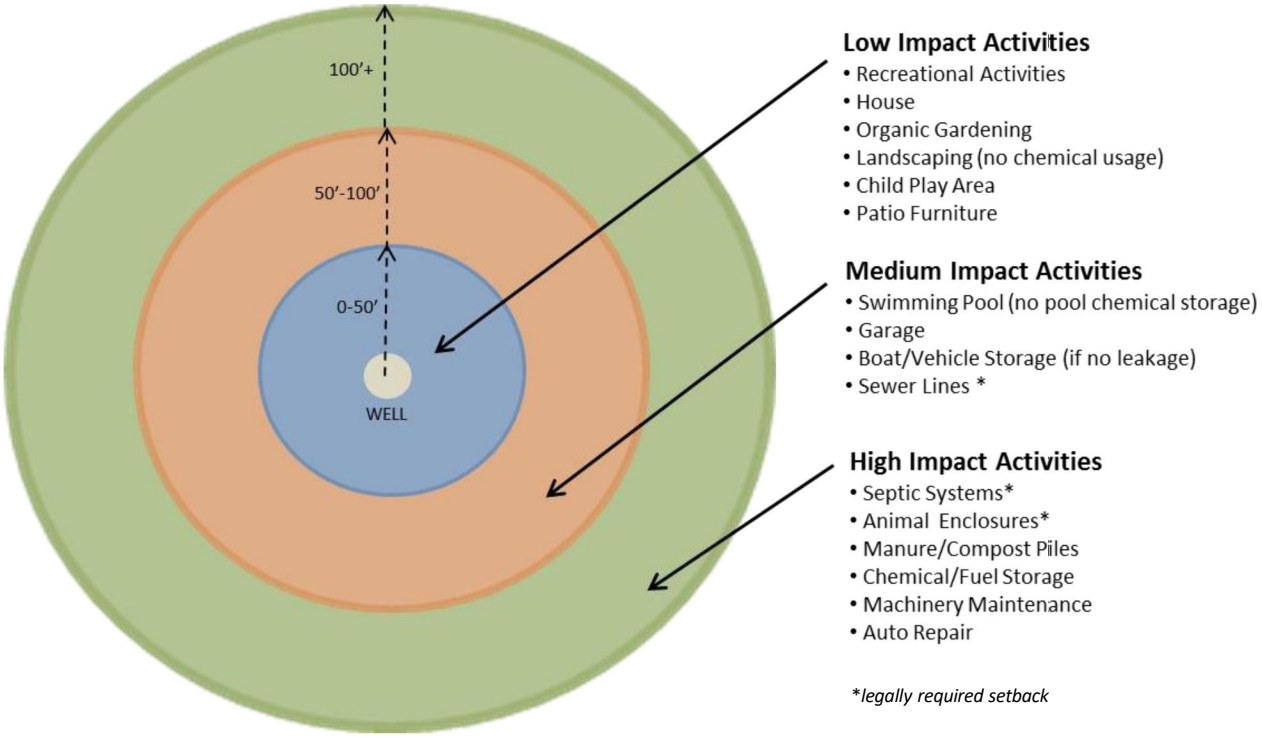
The safest way to protect your well from being damaged is to build a small structure or fence around it. Lock the well enclosure to minimize the chance of vandalism. If you don't have a structure around your well, then clearly mark it so you can still find it when plants grow tall in the spring.

Water and contaminants carried by that water can potentially flow down an improperly protected well. Keeping contaminants far from your well will prevent potential groundwater quality impacts. Create a circle at least 50 feet in diameter around your well where you don't store, mix, spray, spill, bury, or dump anything that you don't want to drink.

If your neighbor's well is near your property line, try to have an open dialogue about well maintenance, because any contamination in their well can travel into your well and vice versa.

Some activities legally require more than a 50-foot zone of protection. In most cases, high impact activities such as septic tanks, leach fields, and animal enclosures must be located at least 100 feet away from any well to ensure that no waste products reach your drinking water. Irrigation with graywater (wastewater collected from showers, bathtubs, bathroom sinks, and washing machines) should also be at least 100 feet away from your well.

Well Setback Distances



Maintain Complete Well Records

You should work with your water well and pump contractor to keep complete records and establish routine inspection and maintenance schedules based on you and your well's needs. Complete well records should include:

"Effective maintenance begins with complete records on the construction, testing, and maintenance of your well."

1. **The driller log (well completion report):** This document describes the construction of the well—how deep it is, from what depth it draws water (the screened interval), and the soil types encountered while drilling. This information is important to help troubleshoot any future problems.
   The drilling contractor should provide you with a copy of the driller log following completion of the well construction and testing. If you do not have a copy of the driller log (well completion report), it may be available from state or local records. Visit: water.ca.gov/Programs/Groundwater-Management/Wells/Well-Completion-Reports to learn how to obtain the record for your well, or check with Permit Sonoma by calling (707) 565-1900.
2. **Distribution map** - Draw a map showing the location of all the buried water pipes connected to the well. If you share a well with adjacent properties, it is a good idea to have a map of the plumbing on all properties connected to the shared well. This information can be invaluable as the properties change hands, as repairs are needed, or as new wells are added.
3. **The physical location of the well** - Measure the distance to the well from permanent structures and property lines (e.g. the centerline of the road or corner of the house). GPS coordinates should be recorded if available.
4. **Maintenance records** - Record whenever you have maintenance done on your water supply system, such as replacing the pump, controls, or check valves. This is important information to keep track of how old the various components are, and who repaired them last.
5. **Water quality data** - Keep all of your past water quality testing information in one place. By comparing results from one year to the next you will be able to better detect changes which may indicate potential problems or need for maintenance.
6. **Disinfection history** - If you disinfect your well, keep track of when, why, and how it was done.
7. **Pump test data** - A pump test provides an estimate on how much water the well can produce. This information is useful to assess well performance as the well ages. More information on how to conduct a pump test is included on page 16.
8. **Static water level data** - Measure the depth to water of your well with a water level meter in the spring and fall. This measurement is best taken after not using your pump for 10-12 hours, at a minimum after two hours. Knowing this information helps you understand your local aquifer levels and if you could be impacted in a drought. To learn how you can measure your depth to water level visit sonomacountygroundwater.org/voluntary-monitoring/ or see the Level Up section of this manual.
9. **Pumping water level data** - This is similar to a static water level measurement, but is instead measured during or after using your pump. It measures how quickly the aquifer levels rise to

normal levels after pumping out water. This helps you understand the efficiency of your well in relation to what the aquifer can produce. This data can be more difficult to obtain, but it can help you monitor performance trends and anticipate repair needs and cost.

10. **Gallons per kilowatt of energy** - This is another measure of your pump's efficiency. Every month, look at your totalizer meter on your well to see how much water you pumped in the past month, then compare with your energy bill to see how many gallons you were able to pump per kilowatt of energy. This is only applicable if you have a separate electrical meter for your well. As your pump becomes less efficient, it will slowly get more expensive, but if there is a sudden change, then your well screen may be clogged.

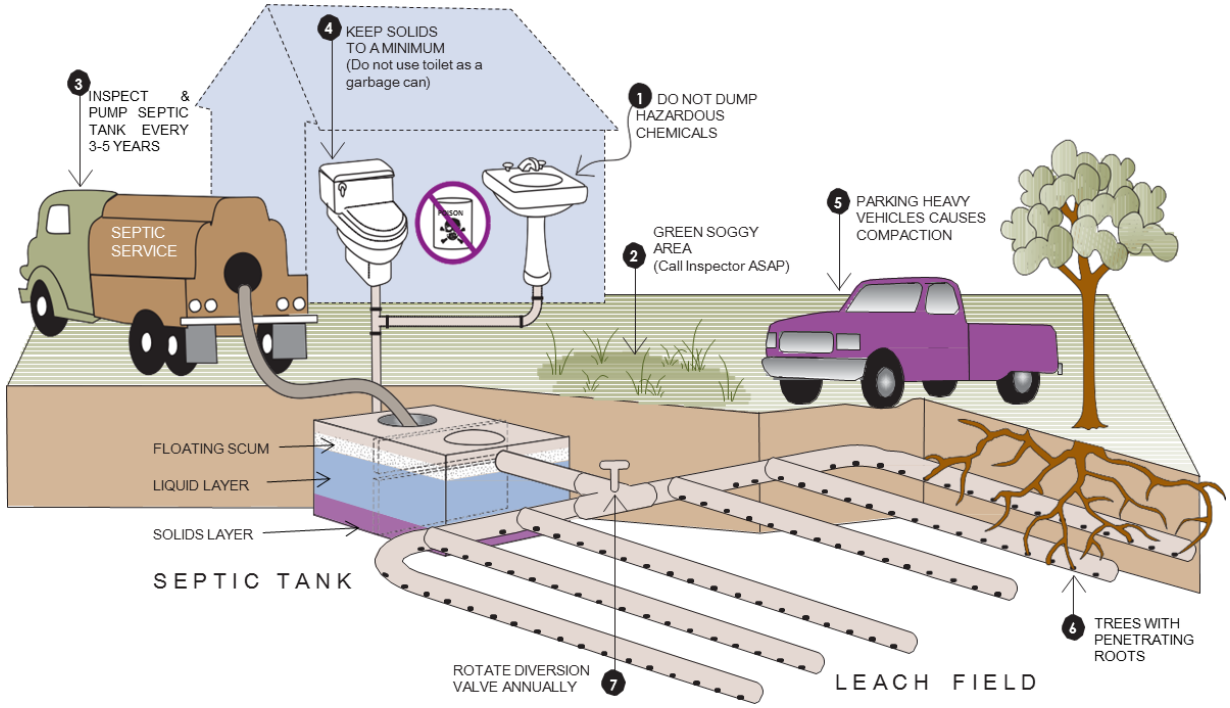
Maintain your Septic System

If you have a septic system, whatever goes down the drain may find its way into your drinking water. When your septic system is working properly the effluent is filtered and the system protects against contamination with bacteria and viruses. The required 100-foot setback between wells and septic systems adds additional protection. However, septic systems and setbacks are not designed to protect against some potentially harmful chemicals like hazardous household cleaners, paint and paint cleaners, automotive wastes, hazardous art supplies, pesticides, flushed medications, and other hazardous chemicals that may not break down and filter out easily.

Did you know?

If you have a septic tank, all the wastewater from inside the home flows into the first compartment where the solids settle to the bottom. Bacteria and other microorganisms break down the solid material. As the liquid separates from the solids, it overflows into the second compartment where more separation and decomposition occurs. This flows into the leach/drain field, a network of perforated pipes within a trench of washed drain rock buried about one to one and a half feet deep. The liquid waste flows out of the perforated pipe, trickles into the drain rock and filters down through the soil. If the septic system is operating properly, by the time wastewater reaches groundwater, few impurities remain, and no pollution occurs.

Septic Tank Maintenance



Tips on Septic System Maintenance

"Always keep in mind that you live on top of your drinking water."

1. Do not dump hazardous chemicals down the drain. If your drain is plugged, try using boiling water or a drain snake instead of chemical drain cleaners. Try to use less toxic cleaning supplies whenever possible and take all hazardous chemicals to a hazardous waste drop-off for disposal. Hazardous chemicals can be dropped off at the Central Disposal Site (Bldg. 5), 500 Mecham Rd., Petaluma. Find more information at zerowastesonoma.gov/recycle-dispose/residents/household-hazardous-waste-facility. Do not dump old medications down the drain. Take any old medications to a free and secure drop off site, like a police station or pharmacy. To find a safe medicine disposal location near you, use rrwatershed.org/-watershed-map.
2. If you notice a sewage smell, continuously wet area in your yard, unusually lush vegetation around the septic tank or leach field, or liquid waste backing up through your drains, then something is not working properly. Contact a licensed septic tank inspector immediately.
3. Have your septic tank inspected and pumped every three to five years (more often if you have a garbage disposal). If the solid waste in the tank builds up too high, it can flow into the leach lines, plug them, and cause your system to fail.
4. Keep the solids in your system to a minimum. Do not use your toilet as a garbage can. Use toilet paper only and do not flush wipes. Food wastes, feminine hygiene products, and other household solids are better placed in the garbage or compost.
5. Do not park or drive heavy equipment over your leach lines. This may compact the soil around the lines and prevent adequate percolation of the liquid waste, causing your system to fail.
6. Do not plant trees near your leach line. Tree roots often seek out the moist environment inside your leach lines and plug them, causing your system to fail.
7. If you have a dual leach field system, change the diversion valve setting once a year.

Properly maintaining your septic system will protect drinking water quality and prevent contamination of the groundwater aquifer.

Deteriorating Well Performance

The performance of all wells will deteriorate over time, but proper well construction and maintenance can delay this problem. An average domestic production well can last 75-80 years if properly maintained and repaired, and even longer under ideal conditions. The typical causes of performance deterioration include:

- mineral encrustation or biofouling (bacteriological encrustation) of the well screen;
- physical plugging of the well screen, filter pack, and surrounding soils by fine particles; and
- corrosion of the well casing and pump problems.

Many of these problems can be prevented by proper well design and construction, pump sizing, operation and maintenance, or preventative well maintenance. If addressed early-on, most well performance problems can be corrected. To prevent or correct performance problems, you should work with your licensed water well and pump contractor. If mineral encrustation is suspected as a possible cause for lower yields, consult your well and pump contractor about a possible well rehabilitation (cleaning) to help try to improve the yield of the well.

Well performance can be monitored by conducting a well pump test and calculating the "specific capacity," which is the ratio of the well's discharge to the water level drawdown during sustained pumping.

$$Specific\ Capacity = \frac{\text{Discharge Rate}}{\text{Drawdown}} = \frac{\text{Discharge Rate}}{(\text{Static Water Level} - \text{Pumping Water Level})}$$

Permit Sonoma's Policy and Procedure #9-2-28, Well Pump Test Guidelines in Water Scarce Areas[4], provides instructions for completing a well yield test and calculating specific yield. Note, if the purpose of the test is to monitor specific capacity, then there is no requirement to get a permit and the test can be completed by a well owner if they have the necessary water level monitoring equipment. It is advisable to conduct a well yield test and record specific capacity once every 5 years (or more frequently). The static water level measurement is also useful for monitoring trends in groundwater levels of the local aquifer.

Trends in static water levels and trends in specific capacity are useful for diagnosing the probable cause when a well has reduced yield or is no longer providing adequate amounts of water. Installing an automated water level monitoring device in the well or taking seasonal water level measurements may help identify potential problems early on.

- If static water levels have not changed, yet the specific capacity of your well has declined, then it is likely that reduced performance is due to clogging or encrustation of the well screen or filter pack.

[4] permitsonoma.org/Microsites/Permit%20Sonoma/Documents/Policies%20and%20Procedures/9-0%20Engineering%20and%20Construction/9-2-28_Well_Pump_Test_Guidelines_Water_Scarce.pdf

- If both groundwater levels and specific capacity have not changed appreciably, then reduced well yield is likely related to problems with the well pump or other components of the plumbing system.
- If both groundwater levels and specific capacity have declined, then reduced yield and reduced specific capacity could be attributed to multiple factors including pulling water from deeper sections of the local aquifer that may be less productive. However, clogging or encrustation of the well screen or filter pack cannot be ruled out.

Troubleshooting Issues with your Well

If your well is not producing adequate water, then it is recommended to hire a well and pump contractor to diagnose the problem. However, well owners may wish to investigate and attempt to address or diagnose the problem first. Well water systems can fail or provide inadequate water for a variety of reasons including:

- Electrical, pump, or mechanical failures;
- Running the well dry due to:
    - Continuous pumping caused by a leak or increased demand;
    - Reduced performance due to clogging of the wells screen or filter pack; or
    - Lowered groundwater levels in the local aquifer.

Below are basic steps to help diagnose the problem:

Power? If water is not coming out of the tap, the first step is to confirm that electricity is reaching your pump and water conveyance system. You may be able to tell whether your pump and water system are "live" by flipping the switches on those devices on and off and listening for a hum from the pump(s), or by using a voltmeter to test electrical connections. If you have any doubts about your ability to do this safely, call an electrician or a well and pump contractor.

Leaks? If the well has power and appears to be pumping, but no water is coming out of the tap or flow is intermittent or sputtering, it may be that there is a leak and the well or storage tank have run dry due to continuous pumping. If you suspect your well is running dry, and your well is not equipped with an automated low water shutoff, turn off the pump immediately. Running a pump without water can cause serious and irreversible damage.

Find and fix the leak. Some leaks aren't really leaks but are just a faucet or hose left running. Some leaks have obvious signs including an unexplained wet spot in the yard, soggy soil near the wellhead, or the sound of running water when no fixtures are in use. Common leaks are faulty irrigation valves and timers, broken irrigation lines, and leaking toilets. See the Leak Detection section on page 29 of this manual for more recommendations for finding leaks.

Has Your Well Gone Dry? If there is power, the pump and other mechanical equipment is working, and

there are no leaks, it is possible that your well is running dry due to clogging or encrustation or your well's filter pack or well screen, lowered water levels in the local aquifer, increased well water use, or a combination of factors. If you suspect your well is running dry it is recommended that you contact a well and pump contractor immediately.

Measurements of depth-to water in your well are helpful for diagnosing a potential problem. Depth to water is measured by first turning the pump off, allowing the well to stabilize and equilibrate to a "static water level", and then, before restarting the pump, recording the depth to water. Equilibration to static water level can be considered achieved if the depth to water has not changed by more than 0.1 feet over a one hour period. Typically, a 10-12 hour non-pumping period is sufficient.

If the depth to water is near the same level as the depth to the pump, then your well could be running dry during pumping when the water level drops further. Even if the water level is significantly higher than the pump intake, it may be running dry during pumping depending on the pumping rate and efficiency of your well. You can test this by turning on the well and continuing to take water level measurements to see if the water level drops to the level of the pump.

If your well is running dry, a well and pump contractor may be able to resolve the issue through various measures such as well rehabilitation where the efficiency of the well may improve, by lowering the level of the pump, by reducing the pumping rate, or by adding above ground storage so that the well can be pumped at a lower rate for a longer duration without water levels dropping below the pump intake. These are likely to be lower cost options compared with drilling a new well.

Depending on the situation, drilling a new and deeper well may be the recommended solution. However, deeper water is not guaranteed, and you could still be at risk to run out of water in the future if the basin is not managed sustainably and water levels decline. Contacting a qualified well drilling contractor and a local government agency such as Permit Sonoma or a local Groundwater Sustainability Agency is highly recommended.

If your well runs dry and a new well is determined necessary:

- Initiate emergency permitting: Permit Sonoma prioritizes emergency well replacement permits for wells impacted by drought or other urgent conditions. Contact Permit Sonoma at (707) 565-1900 to begin the process. A licensed C-57 well drilling contractor must submit the drilling application.
- Report dry wells: Reporting helps the County track groundwater conditions and respond to community needs. You can report a dry well to Permit Sonoma at (707) 565-1900 or through the California Department of Water Resources (DWR) Dry Well Reporting System at mydrywatersupply.water.ca.gov/report/.

Well Destruction

Because unused, abandoned wells can act as pathways that allow poor quality surface water or shallow groundwater to move into deeper drinking water aquifers, it is very important that they are properly destroyed. This is especially true if other water supply wells are operating in the area. When a well is being used in the vicinity of an abandoned well, the pumping activity in the operating well can pull poor quality water down the abandoned well, into the drinking water aquifers, and then into the operating well.

"Any well that is no longer being used for its intended purpose is required by law to be properly destroyed."

To eliminate these vertical pathways for contaminant migration, abandoned wells must be properly destroyed. As with all well construction, modification or destruction, work must be completed by a licensed C-57 contractor and under County permit. Following destruction, the contractor is required to submit a Well Completion Report to both the County and the Department of Water Resources to document that the former well has been sealed according to state and local standards.

Water Quality Sampling and Testing

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up contaminants from animal waste and human activity. Contaminants that may be present include:

- Microbial contaminants such as viruses and bacteria that come from sewage treatment systems, septic systems, agricultural livestock operations, and wildlife.
- Inorganic containments, such as salts and metals, that can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, animal waste, mining, or agriculture.
- Pesticides and herbicides that may come from urban stormwater runoff and landscape and agricultural application.
- Organic chemical contaminants, including synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, agricultural application, and septic systems.

More information about contaminants and potential health effects can be obtained by visiting: epa.gov/privatewells.

Common Groundwater Contaminants

The most common groundwater contaminants of concern in Sonoma County are pathogens (bacteria and virus), arsenic, and nitrate. Information about how to test your water for these contaminants is covered on page 24.

Pathogens:

Contamination with pathogens can occur when rainfall or flooding washes waste into surface water or shallow groundwater. Wells that are improperly sealed, poorly constructed, or not disinfected after repairs are especially vulnerable.

Groundwater Contaminant Definitions

Pathogen: A bacterium, virus, or other microorganism that can cause disease.

Arsenic: A naturally occurring chemical element, often used in wood preservatives and alloys.

Nitrate: A compound of nitrogen and oxygen naturally found in air, soil, water, and some food.

Electrical Conductivity: A measure of water's ability to conduct electricity through dissolved ions.

Drinking water is assessed for pathogens by testing for coliform bacteria, which are naturally found in the intestines of humans and animals, as well as in soil. While most coliforms are not harmful themselves, their presence in drinking water indicates that other, potentially dangerous pathogens may also be present. Fecal coliforms, including *Escherichia coli* (*E. coli*), are a subgroup of bacteria associated specifically with human and animal waste. The detection of fecal coliforms in well water is a strong indication of recent contamination from sewage or animal sources.

Water testing typically includes sampling for total coliforms. If detected, further testing is done to determine whether fecal coliforms or *E. coli* are present. Total coliforms are a general indicator and may not be harmful, but their presence suggests that the water system may be compromised and that harmful pathogens could be present. If *E. coli* is present, the County Department of Environmental Health recommends using bottled water for drinking and cooking until the bacteria is eliminated.

Arsenic:

Arsenic is a naturally occurring element found in some rocks and soil. In Sonoma County, arsenic detected in well water is typically the result of natural weathering of local geologic formations, especially in deeper aquifers. While arsenic has also been used in industrial applications—such as wood preservatives, pesticides, dyes, and semiconductors—these are not the primary sources of arsenic in local groundwater.

The Maximum Contaminant Level (MCL) for arsenic in drinking water, as set by the U.S. Environmental Protection Agency (EPA) and adopted by California, is 10 micrograms per liter (µg/L). Long-term exposure to arsenic above this level can increase the risk of cancer and other serious health effects.

If your well draws from deeper groundwater zones (greater than 200 feet) or geothermal areas—such as those near the Sonoma Valley—testing for arsenic is strongly recommended. If arsenic is detected, point-of-use or point-of-entry treatment systems, such as reverse osmosis or adsorptive media filters, can effectively reduce arsenic levels when properly installed and maintained. The Sonoma County Department of Environmental Health and certified water treatment professionals can help interpret test results and recommend appropriate treatment options.

Nitrate:

Nitrate is a naturally occurring compound, but high amounts of nitrate in groundwater are typically due to human activity such as excessive fertilizer applications, septic systems, animal enclosures, and historic poultry farming. Nitrate in drinking water at levels above 10 milligrams per liter (MCL) is a health risk, especially for infants less than six months of age, pregnant women, and people with certain specific enzyme deficiencies. Nitrate concentrations in groundwater may rise quickly for short periods of time because of rainfall or agricultural activity.

Electrical Conductivity and Total Dissolved Solids (TDS):

Electrical Conductivity (EC) is a measure of water's ability to conduct electricity through dissolved ions. Ions are charged particles from dissolved minerals/solids. A higher EC or TDS means there are more dissolved minerals in your water. By itself, EC does not tell you if your water is safe to drink, but can give you a baseline to compare to. Since electrical conductivity testing is easy and inexpensive, it can be used as an indicator of changing conditions that may require further testing.

Recommended Tests and Frequency

There are dozens of drinking water tests and the options can be overwhelming. This section has three tables: (1) recommended water tests, (2) what to test for if you notice a specific issue with your water, and (3) what land uses could be causing problems with your water. This information should be used as general guidance. We recommend testing for coliform bacteria, arsenic, and nitrate, since they are the most common contaminants of concern in Sonoma County. Testing for electrical conductivity and minerals is recommended to establish a baseline understanding of the water quality in your well and to notice changes. Some contaminants can affect your health (primary drinking standards), whereas some contaminants can affect the aesthetics of the water (secondary contaminants).

Table 1. The most commonly performed tests and their recommended testing frequencies.

Recommended Test			**Interpreting your Results**	
Test	**Recommended Frequency**	**Cost**	**If the lab report shows:**	**Then you may want to:**
Total Coliform Bacteria	Annually	$20 – 60	Total coliform present	• Eliminate cause, disinfect and re-test. • Increase testing frequency. • Install a treatment system or find an alternative water supply. • Consult a water treatment professional for more advice.
Nitrate	Annually	$15 – 50	≥ 45 mg/l as nitrate (NO_3) or ≥ 10 mg/l as nitrogen (N)	• Install a treatment system or find an alternate water supply. Reverse osmosis, distillation, or anion exchange will remove some of the nitrate. • Consult a water treatment professional for more advice. • Increase testing frequency.
Electrical Conductivity (EC)	Annually	$15 – 30	≥ 900 umhos/cm or significantly different from previous year result	• Conduct further testing, such as nitrate and/or minerals to determine the cause of the high EC, or the change in EC.
Minerals: • **Aluminum (Al)** • **Arsenic (As)** • **Barium (Ba)** • **Cadmium (Cd)** • **Chromium, total (Cr)** • **Fluoride (F)** • **Iron (Fe)** • **Lead (Pb)** • **Manganese (Mn)** • **Mercury (Hg)** • **Selenium (Se)** • **Silver (Ag)**	Every 5-10 years, or: • If EC changes significantly. • If taste, color, odor or surrounding land use change.	Package $90 – 300 Individual $20 – 35 Mercury $15 – 60	Al ≥ 1.0 mg/l As ≥ 0.01 mg/l Ba ≥ 1.0 mg/l Cd ≥ 0.005 mg/l Cr ≥ 0.05 mg/l F ≥ 2.0 mg/l Fe ≥ 0.3 mg/l Pb ≥ 0.015 mg/l Mn ≥ 0.05 mg/l Hg ≥ 0.002 mg/l Se ≥ 0.05 mg/l Ag ≥ 0.1 mg/l	• Compare to previous results. • Install a treatment system or find an alternate water supply. The appropriate treatment system is dependent on your overall water chemistry and what constituents you would like to remove. • Consult a water treatment professional for more advice.

Table 2. Common drinking water problems and their possible causes.

Problem	Possible Cause
Water is orange or reddish brown	This may be due to high levels of **iron (Fe)** or iron bacteria.
Porcelain fixtures or laundry are stained brown or black	This is commonly a result of high manganese (Mn) and/or iron (Fe) levels. As little as 50 parts per billion (ppb) manganese and 300 ppb iron can cause staining.
White spots on the dishes or white encrustations around fixtures	High levels of **calcium (Ca)** and **magnesium (Mg)** can cause hard water, which leaves spots. **Hardness** can also be measured directly.
Water is blue	Blue water or blue deposits may be due to high levels of **copper (Cu)**, especially if coupled with corrosive water.
Water smells like rotten eggs	This is most likely caused by **hydrogen sulfide (H_2S)**.
Water heater is corroding	Water can be corrosive, neutral, or noncorrosive. Water that is very corrosive can damage metal pipes and water heaters. The lab can calculate the corrosivity of your water by measuring **calcium**, **pH**, **total dissolved solids (TDS)**, and **alkalinity**.
Water appears cloudy, frothy, or colored	**Suspended particulates**, measured directly or as **turbidity**, can cause the water to appear cloudy, frothy, or colored. **Detergents** and/or **sewage waste** may also be the culprit.
Water has a turpentine odor	This may be due to **methyl tertiary butyl ether (MTBE)**.
Water has chemical smell or taste	This may be due to **volatile** or **semi volatile organic compounds (VOCs)** or **pesticides**.
Home's plumbing system has lead pipes, fittings, or solder joints	**Corrosive** water can cause **lead (Pb)**, **copper (Cu)**, **cadmium (Cd)**, and/or **zinc (Zn)** to be leached from lead pipes, fittings, and solder joints.

Table 3. Common land uses and their possible contaminants.

Land Use	Possible Contaminants
Landfill, industry, or dry cleaning operation	Consider testing for **volatile organic compounds (VOCs)**, **pH**, **total dissolved solids (TDS)**, **chloride (Cl)**, **sulfate (SO_4)**, and **metals**.
Agricultural crop production	Consider testing for **pesticides** commonly used near the well (consult the farmer or Department of Agriculture for a list), **nitrate (NO_3)**, **pH**, and **total dissolved solids (TDS)**.
Livestock enclosure, manure, or compost storage area	Consider testing for **bacteria**, **nitrate (NO_3)**, and **total dissolved solids (TDS)**.
Gas station or automobile repair shop	Consider testing for **total petroleum hydrocarbons (TPH)**; **total oil**, **grease (TOG)**; **benzene**, **toluene**, **ethylbenzene**, **xylenes (BTEX)**; **MTBE**; **ethylene dibromide (EDB)**.

How to Test your Groundwater

Below are local resources for who can help you test your well water:

- Sonoma County offers water quality testing for total coliforms and *E. coli.* Details can be found here: sonomacounty.ca.gov/health-and-human-services/health-services/divisions/public-health/public-health-regional-laboratory/water-testing. They do not test for chemicals, metals, or minerals.
- For more comprehensive testing specific to wells, use Sonoma County's list of State Certified Laboratories for Bacteriological and/or Chemical Analysis at: sonomacounty.ca.gov/health-and-human-services/health-services/divisions/public-health/environmental-health/programs-and-services/well-water-quality/well-water-water-testing.
- If you choose to test your well, contact the lab directly for instructions on how to collect a sample and submit it for testing. Specific containers and methods for refrigeration may be required. Water samples may need to be returned to the laboratory within a specified time period. Failure to follow the instructions provided by the lab can lead to inaccurate results.

Once the water is tested, well users are advised to consult certified laboratories, licensed water treatment professionals, or the Department of Health Services to help you interpret your results.

Water Treatment

Many groundwater sources do not require any treatment. If you have found a water quality problem that you want to treat, there are many different types of treatment available. When choosing a treatment system consider whether a point-of-use (POU) or point-of-entry (POE) installation is more appropriate. POU systems treat water at a single tap, typically the kitchen sink, and are generally more water efficient. POE systems treat all water entering the home and may be necessary in cases where multiple contaminants are present, but they tend to use more water and energy. An important note for reverse osmosis (RO) systems is that for one gallon of treated water, approximately 5.6 gallons are used in the process of removing the contaminant. For large Some water treatment options remove a greater percent of the concentration than others. Talk with the manufacturer or a water treatment professional to guarantee the system will work in your situation.

"Know what contaminants you want to remove and if you will be able to perform the routine maintenance yourself before you invest in a water treatment system."

Water Conservation

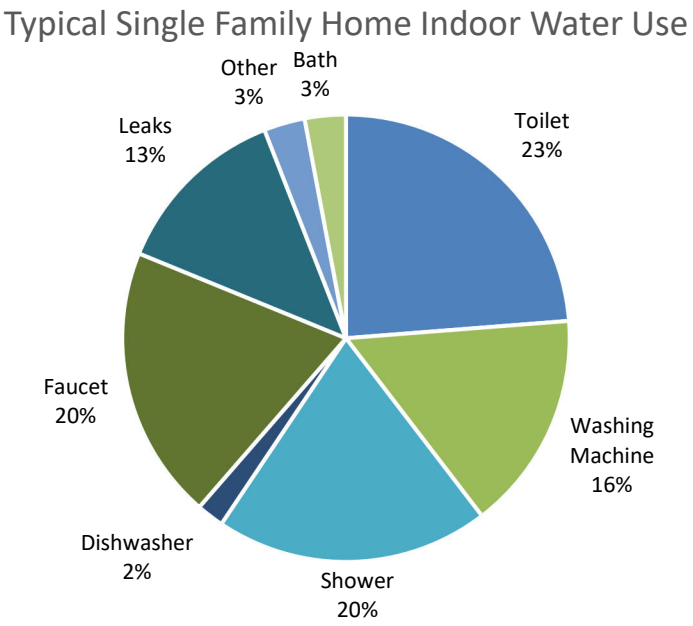
For most well users, groundwater is the only source of water available to the property. That means every drop comes directly from the aquifer beneath your property and must be pumped to the surface, stored, possibly treated, and pressurized before it's used. Reducing your water use preserves groundwater supply for the future, reduces energy required for pumping, and minimizes wear and tear on your well pump. Using too much water can also have a draw down effect on your neighbors' wells, and put their supply at risk. Reducing groundwater use helps not only you, but also your neighbors and other groundwater users in your basin maintain a sustainable supply.

Did you know?

The Well Aware Toolkit offers personalized groundwater savings practices based on your parcel's land use. This interactive tool allows you to explore water saving practices, funding opportunities, installation guides for rain catchment or graywater systems, or find experts to assist you. Use the toolkit at wellawaretoolkit.org.

Indoor Water Conservation

The pie chart below shows the typical breakdown of indoor water use in a single-family home. Toilets, showers, faucets, leaks, and clothes washers account for most indoor water use. Additionally, many of these fixtures use hot water which takes energy for storing and heating. Reducing indoor use through upgraded water-efficient fixtures can save both groundwater supplies and energy.



Source: 2016 Residential End Uses of Water Study

When upgrading appliances or fixtures, look for products that carry ENERGY STAR label. ENERGY STAR-certified appliances are designed to use less energy and water than conventional models, helping reduce both electricity use and groundwater demand. To help residents use less water, the Sonoma-Marin Saving Water Partnership (SMSWP) has partnered with local libraries to offer Do-It-Yourself (DIY) Home

Energy and Water Savings Toolkits. These Toolkits include free water saving aerators and showerheads, toilet leak detection tablets, and tools to help you measure and improve your home's water and energy efficiency. Find locations and more details at savingwaterpartnership.org/programs_list/diy-energy-water-savings-toolkit/.

Table 4. Potential water savings from switching to water efficient fixtures.

Fixture	Typical Water Usage	Efficient Water Usage[5]	% Water Savings Per Use	Water Use Tips
Toilets 	Models older than 1980 use 6 gallons per flush or more. Models manufactured between 1980-1992 use 3.5 gallons per flush. Models manufactured between 1992- 2014 use 1.6 gallons per flush.	High Efficiency Toilets: 1.28 gallons per flush[5] Dual flush: 1.1 gallons per flush[5]	20-80%	• Avoid using the toilet as a wastebasket (also not recommended for septic systems). • Check toilets and flappers regularly for leaks.
Washing Machines 	Older top-loading models use 30-45 gallons per load. Newer standard models use 20-25 gallons per load.	High efficiency front-loading models: 16-20 gallons per load	25-50% (Provides Energy Savings also)	• Run full loads for maximum efficiency. • Choose cold water settings when appropriate. • Perform routine maintenance like cleaning filters and dispenser, including inspecting hoses.
Showerheads 	2.5-10 gallons per minute.	1.8 gallons per minute	25-80% (Provides Energy Savings also)	• Limit shower times. • Install a shut-off valve for pausing flow during shampooing or lathering time.
Sink Aerators 	Bathroom sinks use 2.2 gallons per minute. Kitchen sinks use 2.2-2.5 gallons per minute.	Bathroom sink- 1.0 gallons per minute Kitchen sink- 1.8 gallons per minute	30-60% (Provides Energy Savings also)	• Turnoff the tap while brushing teeth, shaving, or washing dishes.

[5] 2022 California Green Building Standards Code

Outdoor Water Conservation

Water savings aren't limited to inside the home. See the tables below for smart outdoor water use choices. Making water efficient outdoor choices can reduce water use from 18-50%.

"Reducing groundwater use starts in the home, but can extend to the whole property."

Table 5. Water efficient tools and their benefits.

Water Efficient Tools	Benefits to Groundwater Sustainability and Landscape
Irrigation	• Hand watering delivers water only to the plants that need it. • Drip Irrigation delivers water directly to the plant roots reducing overspray, weed growth, and wind-drift. • Weather based irrigation controllers adjust water times according to plant needs.
Mulch/Compost	Applying around plants helps retain soil moisture, reduce evaporation, and suppress weed growth.
Fire-Wise/Drought Tolerant Plants	Requires less water and increase resilience to dry conditions. Reduce and replace lawn areas that require a lot of water.
Qualified Water Efficient Landscaper (QWEL)	QWEL certified professionals are specifically trained on water efficient irrigation practices.
Water Efficient Landscape	Replace turf and other high-water landscapes with drought tolerant species adapted to local conditions. For high traffic areas, consider hardscapes or mulch in place of lawn.
Rain Gardens	Captures and absorbs rainwater runoff from roofs, driveways, and other surfaces encouraging groundwater recharge.
Rainwater Catchment	Allows for the collection and storage of rainwater for later use in irrigation.
Graywater System	Reuses water from sinks, showers, and laundry to water plants.
Pool Covers	Reduces evaporation loss by as much as 30-50%.

Table 6. Smart outdoor watering practices.

Smart Outdoor Watering Practices	
Adjust Irrigation Timers Seasonally	Adjust watering times each season to accommodate plant needs and avoid overwatering.
Encourage Deep Watering	Water for short periods, multiple cycles per night to encourage water to infiltrate to deeper levels of the soil resulting in healthy strong plant roots. Use the Sonoma Marin Saving Water Partnership (SMSWP) Irrigation Scheduling Tool for assistance.[6]
Monitor for Leaks and Breaks	Regularly check irrigation systems for leaks, breaks or misalignment.
Replace Controller Batteries	Replace controller batteries regularly to ensure irrigation controllers maintain programmed schedules during power outages.

[6] savingwaterpartnership.org/watering-times/

Find and Detect Leaks

Leaks can be a hidden, but significant, source of water loss- especially for well users who may not receive a monthly water bill to alert them to changes in use. Identifying and fixing leaks early helps reduce unnecessary wear and tear on your pump and reduce energy use. Some leaks have obvious signs. A sudden drop in water pressure, unexplained wet spots in the yard, soggy soil near the wellhead, or the sound of running water when no fixtures are in use can all point to a leak. Indoors, dripping faucets, damp cabinets, or mold growth may also be signs of hidden plumbing issues. Even small leaks can add up over time, so it's important to address them promptly. Below are several other ways well owners can monitor for leaks using tools and observations available around the home.

Flow Meter

If your well is equipped with a flow meter, it can be one of the most effective tools for leak detection. To learn more about flow meters, see page 33 of this manual.

Toilet Dye Tabs

Toilets are one of the most common sources of indoor leaks. A worn flapper valve can allow water to leak silently from the tank into the bowl. To test for a leak, place a few drops of food coloring or a dye tablet in the tank. Wait 15 to 30 minutes without flushing. If color appears in the bowl, the toilet is leaking and should be repaired. This simple test can save hundreds of gallons of water per day.



Monitor Energy Use

Because most well systems rely on electric pumps, a sudden increase in your electricity bill may mean that your pump is running more often than usual. This could be caused by a leak in the system, a failing pressure tank, or a stuck valve. If your energy use increases unexpectedly and you haven't changed your water use habits, it's worth investigating your water system.

Participate in Groundwater Sustainability

While groundwater is utilized across the county, there are three basins in Sonoma County that have been identified by the state as high or medium priority and are regulated under the Sustainable Groundwater Management Act (SGMA): Petaluma Valley, Santa Rosa Plain, and Sonoma Valley. Each basin has a dedicated Groundwater Sustainability Agency (GSA) and basin-specific Groundwater Sustainability Plan (GSP). Collectively referred to as the Sonoma County GSAs, these agencies implement many projects and activities to achieve groundwater sustainability and connect groundwater users with accessible programs and resources. Whether or not your well is within one of the three GSA basins, you can access these programs or implement these practices to help with regional groundwater sustainability.

Not sure if you are in one of the three basins?

Use our Data Dashboard at bit.ly/SoCoDataDashboard to type in your address or APN.

Sign up for updates!

You can sign up for Sonoma County GSA email updates at: bit.ly/GSA_newsletter

Monitor Groundwater Levels

Why should I measure the water depth in my well?

Like checking your car's fuel gauge to see if you have enough gas for a road trip, checking your local groundwater level compared to the depth of your well pump helps you understand how much water you have access to. This gives you a direct look into the health of your groundwater basin, and helps you be proactive if you notice chronic lowering of groundwater levels. Monitoring groundwater levels over multiple years sheds light on how your groundwater basin responds to winter recharge and use during the dry summer months. Measurements are best taken in the spring and fall over multiple years to understand the long-term seasonal trends.

How is groundwater level data used for groundwater sustainability?

Groundwater basins are not perfectly uniform underground and are difficult to assess from the surface. This makes it complicated to understand the health of the overall basin. Every time someone measures their groundwater level, it's like a direct view into basin conditions at that location. The more well owners that monitor their groundwater levels, the clearer we can understand overall basin conditions. This helps inform groundwater managers who make decisions for the basin and develop essential programs.

"Groundwater is invisible until it comes out of the tap - unless you measure groundwater levels."

How do I measure the depth to water in my well?

Depth to water is measured with a water level meter or an acoustic sounder, as shown on page 31. Water level meters are like a long measuring tape that tells you the depth to water. Acoustic sounders do the same thing, but are not lowered into a wellhead. Both work well, but acoustic sounders are

significantly more expensive to purchase. Your well and pump contractor can also measure your water level for you, or even install an automated water level monitoring device on your well. If you want to learn more about how to measure groundwater levels without purchasing a tool, read the next section about Sonoma County's **Level Up!** program.

How to measure depth to water with a water level meter



1. Plan to take your measurement after not using your well for 10-12 hours, at a minimum after two hours. This will better reflect static groundwater level conditions.
2. Open the access port/bung on the wellhead, which is usually opposite to the electrical connection.
3. Turn on the water level meter.
4. Carefully lower the tape into the access port/bung. Note that it can get tangled in other parts of the well head if the access port/bung is not individually cased.
5. Lower the tape until you hear it buzz.
6. Write down the number shown on the calibrated tape or cable.
7. Rinse off the water level meter and wipe down to remove any debris and prevent cross contamination of future wells.
8. Record the measurement, time, and date.

How to measure depth to water with an acoustic sounder



(Information also in this video: youtube.com/watch?v=17daioGiYdY)

1. Plan to take your measurement after not using your well for 10-12 hours, at a minimum after two hours. This will better reflect static groundwater level conditions.
2. Open the access port/bung on the wellhead, which is usually opposite to the electrical connection.
3. Put the acoustic sounder device in the access port/bung while holding it level. Holding it at an angle could cause an invalid measurement.
4. Turn it on to take the measurement.
5. Take three measurements to ensure accuracy.
6. Turn off and wipe off the sounder.
7. Record the measurement, time, and date.

Participate in Level Up!: Voluntary Groundwater Monitoring Program

Level Up! helps well owners in Sonoma County measure their groundwater level without having to purchase their own equipment. This program organizes measurement of groundwater levels in the spring and fall. These measurements improve the understanding of groundwater for both the well owner and groundwater managers. The program continues to expand the voluntary well monitoring network to areas where additional data is needed.



If you are interested in joining **Level Up!**, sign up at: sonomacountygroundwater.org/voluntary-monitoring/

The GSAs publish an annual report on the status of groundwater conditions in each of the SGMA basins. These reports can be found by visiting:

- santarosaplaingroundwater.org/annual-reports
- petalumavalleygroundwater.org/annual-reports
- sonomavalleygroundwater.org/annual-reports

Did you know?

The Sonoma County Groundwater **Data Dashboard** shows current and historical water levels for the three SGMA basins. This data is essential information for individual well owners and for the GSA groundwater managers to develop groundwater sustainability programs and projects. You can use the Data Dashboard to see groundwater levels from monitoring wells and **Level Up!** participants. This includes hydrographs that show the year to year changes in groundwater levels. Any information provided by **Level Up!** participants is kept private.

Access the Data Dashboard at bit.ly/SoCoDataDashboard and watch a helpful orientation video at youtube.com/watch?v=cSbZPR66JIg

Measure Groundwater Usage

Why should I meter water use from my well?

If measuring your groundwater level is like checking your fuel gauge, then measuring your water use with a flow meter is like reading an odometer. Without an odometer, you have no clue how far you have driven, and without a flow meter you don't know how much water you are using. With a flow meter, you can see exactly how much water you use and quickly detect anomalies. This can help you detect leaks and better track well and pump performance.

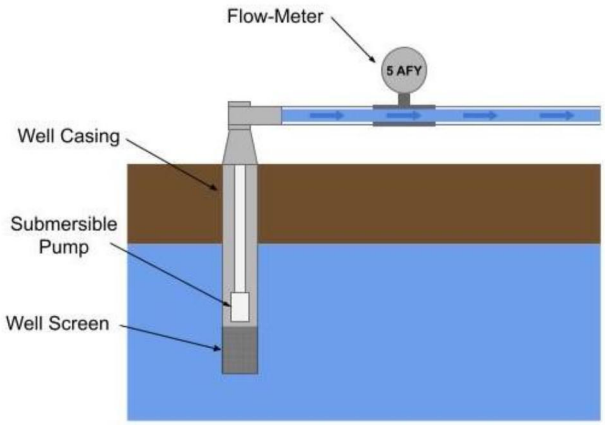
"Flow meters help you understand your water use and detect leaks quicker."

How is water use data used for groundwater sustainability?

Every well is like a straw that sucks out water from the basin. It is difficult to assess how much water is pumped out of a basin if no one has a meter. Understanding water use helps groundwater managers understand basin health and if a basin is in danger of overdraft. Flow meters also help well owners detect leaks quicker, which reduces wasteful uses.

How do I detect leaks with a flow meter?

If you have a flow meter and it is installed "downstream" of the pressure tank of gravity tank that pressurizes the plumbing system, begin by turning off all water-using appliances and fixtures in the home. If the meter dial or digital display continues to move, water is flowing somewhere it shouldn't be. Some meters also include a small leak indicator that spins even with very low flow. The leak indicator helps you quickly and easily determine if water is flowing through the flow meter. Newer automated meters have digital platforms that can alert you if a leak is detected and store your usage history.



How can I get a water meter?

There are many different types of meters to choose from. Installing meters often requires altering the piping of a well, which should be done by a professional. If you need help from a local professional, consider contacting one of the following local firms (listed in alphabetical order):

- Jerry & Don's Yager Pump and Well Service: jerryanddonsyager.com (707) 542-5242
- Larbre Well and Pumps: larbrewellandpumps.com (707) 996-1819
- Les Peterson: lespetersen.com (707) 545-0246
- PumpMan NorCal: pumpman.com/locations/norcal (707) 584-9191
- RH and Sons Water Services: rhsons.com 1 (800) 675-3569
- Sonoma County Pump and Well: sonomacountypump.com (707) 823-8008
- Weeks Drilling and Pump: weeksdrilling.com (707) 823-3184

Participate in Flow Smart: Voluntary Flow-Metering Program

Flow Smart is a voluntary program that provides well owners in Sonoma County the opportunity to report their groundwater usage and potentially receive free flow meters depending on grant funding availability. This helps groundwater users and the GSAs better understand groundwater usage in Sonoma County. Any groundwater usage information collected through Flow Smart is kept confidential. You can learn more about Flow Smart at sonomacountygroundwater.org/flow-smart/

Did you know?

The Groundwater Users Information Data Exchange (GUIDE) program was developed to provide the GSAs with better information about groundwater use across the basins and to give groundwater users an opportunity to view the available data about their parcel's assumed groundwater use. Access GUIDE at bit.ly/SoCoGUIDE and view your property's data by typing in your address or APN (Assessor Parcel Number). Through the GUIDE program, you can view, correct, or confirm the data the GSAs have assumed for your property.

Increase Groundwater Recharge

Another way that groundwater users can improve the health of aquifers is by letting more water sink into the ground. Groundwater recharge is the process of allowing water on the surface to percolate down into an aquifer, boosting its groundwater levels. In our urban environment, impervious surfaces, like concrete, are widespread and typically direct stormwater runoff into our streets, gutters, and storm drains. This reduces the overall area available for groundwater recharge. You can combat this on your property by implementing "Slow It, Spread It, Sink It!"

Try to find opportunities to **slow** down water when there are excess flows. Instead of letting runoff travel through a gutter and directly into the street and storm drains, try to divert this water to areas it can be used and absorbed. **Spread** out this water on gardens, swales, permeable pavers, or even a shallow depression in the ground. This will give the water time to **sink** into the ground. If you want to learn more about stormwater management practices that could boost groundwater recharge, read this guide created by the Sonoma Resource Conservation District: sonomarcd.org/wp-content/uploads/2017/06/Slow-it-Spread-it-Sink-it-Store-it.pdf.

Groundwater Recharge Practices

Permeable Pavers



laturfandpaver.com

Bioretention & Rain Gardens



flickr.com/photos/oceanflynn/53879260996/

Vegetated Swales, Buffers & Strips



flickr.com/photos/87297882@N03/52024994356

Impervious Surface Reduction & Disconnection



flickr.com/photos/tracy_olson/2917482360

Additional Resources

Local Government and Agencies

Local Non-Governmental Organizations (NGOs) – These NGOs partner with groundwater sustainability programs or projects. Some organizations provide resources to individual property owners or well users, whereas others conduct recharge projects or research groundwater sustainability issues (non-exclusive and listed alphabetically):

- Community Alliance with Family Farmers (CAFF): www.caff.org
- Daily Acts: www.dailyacts.org
- Friends of the Petaluma River: www.fopr.org
- Laguna de Santa Rosa Foundation: www.lagunafoundation.org
- Pepperwood Preserve: www.pepperwoodpreserve.org
- Sonoma County Farm Bureau: www.sonomafb.org
- Sonoma County University of California Cooperative Extension (UCCE): www.ucanr.edu/county/ucce-sonoma-county
- Sonoma Ecology Center: www.sonomaecologycenter.org
- Sonoma Land Trust: www.sonomalandtrust.org

Permit Sonoma – Permit Sonoma is Sonoma County's consolidated land use planning and development permitting agency. Virtually any land development or construction in the unincorporated area of Sonoma County (outside the city limits of the nine cities) is reviewed, permitted, and inspected by Permit Sonoma. Permit Sonoma has information on permitting and maintenance requirements for wastewater disposal systems, water wells, water conservation, well metering and monitoring, and general land use planning. (707) 565-1900 | www.permitsonoma.org/wellpermittinginfo

Sonoma County Agriculture Commissioner – The primary goal and purpose of the Sonoma County Agricultural Commissioner is supporting agriculture and farmers in Sonoma County. If you are an agricultural groundwater user, they are available to you. (707) 565-2371 | www.sonomacounty.gov/natural-resources/agriculture-weights-and-measures/divisions/agricultural-division

Sonoma County Department of Health Services – Environmental Health – Environmental Health regulates small public water systems with 5 to 15 connections, issues permits for monitoring wells associated with contaminated sites, and provides information and expertise on drinking water standards, health risks, and drinking water system maintenance and disinfection. (707) 565-6565 | www.sonomacounty.gov/health-and-human-services/health-services/divisions/public-health/environmental-health

Sonoma County Groundwater Sustainability Agencies (GSAs) – The three GSAs, Petaluma Valley, Santa Rosa Plain, and Sonoma Valley, support groundwater users throughout Sonoma County to promote

groundwater sustainability. (707) 243-8555 | www.sonomacountygroundwater.org/

- Data Dashboard: bit.ly/SoCoDataDashboard
- GUIDE Program: bit.ly/SoCoGUIDE
- Flow Smart Program: sonomacountygroundwater.org/flow-smart/
- Level Up! program: sonomacountygroundwater.org/voluntary-monitoring/
- Well Aware Toolkit: wellawaretoolkit.org
- Sign up for updates: bit.ly/GSA-newsletter

Sonoma and Gold Ridge Resource Conservation Districts (RCDs) – The two RCDs within Sonoma County provide support primarily to rural residential well users and agricultural ranchers and farmers. RCD program elements include technical assistance, irrigation system evaluations, and support of groundwater management and stormwater recharge efforts. The RCDs also offer the LandSmart Water Resources Program, which promotes productive lands and thriving streams through planning and on-the ground implementation of beneficial management practices, including efficient irrigation and alternative water source development. Sonoma RCD: (707) 569-1448 | www.sonomarcd.org Gold Ridge RCD: (707) 823-5244 | www.goldridgercd.org

Sonoma Marin Water Saving Partnership (**SMWSP**) – The Sonoma Marin Water Saving Partnership represents 13 water utilities in Sonoma and Marin Counties to provide regional solutions for water efficiency. They have information about rebates, a water savings calculator, water smart plants, and landscape design templates. www.savingwaterpartnership.org

Sonoma Water – Sonoma Water is the primary water supplier in Sonoma County for most cities in Sonoma County. Water from Lake Sonoma and Lake Mendocino are the primary sources of drinking water, however, groundwater is also used as a supplementary source, particularly in periods of drought. To increase water system resilience, Sonoma Water is conducting groundwater banking and aquifer storage and recovery projects. (707) 547-1900 | www.sonomawater.org/groundwater

Regional and State Government

California Department of Water Resources (DWR) – Groundwater resources play a vital role in maintaining California's economic and environmental sustainability. During an average year, California's 515 alluvial groundwater basins and subbasins contribute approximately 38 percent toward the State's total water supply. During dry years, groundwater contributes up to 46 percent (or more) of the statewide annual supply, and serves as a critical buffer against the impacts of drought and climate change. www.water.ca.gov/groundwater

The Sustainable Groundwater Management Act (SGMA), administered by DWR, established a framework for sustainable, local groundwater management. SGMA requires groundwater-dependent regions to halt overdraft and bring basins into balanced levels of pumping and recharge. Information

about Groundwater Sustainability Agencies, resources available to local agencies and the public, the latest tools and guidance in managing groundwater basins sustainably can be found at www.water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management.

Department of Toxic Substances Control – The Department of Toxic Substances Control can help answer questions about what is considered hazardous waste, how to reduce household hazardous waste, where to report spills and illegal dumping, as well as provide information on specific hazardous waste disposal or handling facilities. (800) 728-6942 | www.dtsc.ca.gov

San Francisco Bay and North Coast Regional Water Quality Control Boards – The San Francisco Bay and North Coast Regional Water Quality Control Boards are the branches of the State Water Control Board providing local oversight for Sonoma County. (510) 622-2300 and (707) 576-2220 | www.swrcb.ca.gov/rwqcb2 and www.waterboards.ca.gov/northcoast.

State Water Resources Control Board (SWRCB) – SWRCB's Drinking Water Program regulates public drinking water systems. SWRCB certifies drinking water treatment devices which claim to treat water for contaminants related to public health, such as lead, bacteria, pesticides and heavy metals. SWRCB maintains a directory of certified residential water treatment devices, which can be found at the link below by searching "Residential Treatment." (916) 449-5577 | www.waterboards.ca.gov/drinking_water/programs/index.html

SWRCB Well Owner Guide: www.waterboards.ca.gov/gama/docs/wellowner_guide.pdf

Federal Government

Food and Drug Administration - Among other things, the Food and Drug Administration regulates the bottled water industry. Contact the FDA if you have questions about the safety or regulation of bottled water. (888) 463-6332 | www.fda.gov

USEPA's Safe Drinking Water Hotline - The U.S. Environmental Protection Agency's Safe Drinking Water Hotline is available to help the public, drinking water stakeholders, and state and local officials understand the regulations and programs developed in response to the Safe Drinking Water Act. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline. The hotline and web page also provide information on testing and protecting private well water and where to find more information. (800) 426-4791 | www.epa.gov/ground-water-and-drinking-water/safe-drinking-water-hotline

EPA private well publications www.epa.gov/privatewells/additional-private-well-publications

Other Resources

California Groundwater Association – The California Groundwater Association is a non-profit organization, whose members include water well drilling and pump contractors, suppliers and manufacturers, geologists, engineers, hydrologists, government employees and others working in the groundwater field throughout California. Contact CGA for information on the quantity, quality, and availability of California's groundwater resources. | www.groundh2o.org

Local Well and Pump Contractors – If you need any assistance with your well, you can contact a local well and pump contractor (non-exclusive and listed alphabetically):

- Jerry & Don's Yager Pump and Well Service: jerryanddonsyager.com | (707) 542-5242
- Larbre Well and Pumps: larbrewellandpumps.com | (707) 996-1819
- Les Peterson: lespetersen.com | (707) 545-0246
- PumpMan NorCal: pumpman.com/locations/norcal | (707) 584-9191
- RH and Sons Water Services: rhsons.com |1 (800) 675-3569
- Sonoma County Pump and Well: sonomacountypump.com | (707) 823-8008
- Weeks Drilling and Pump: weeksdrilling.com | (707) 823-3184

National Ground Water Association – The National Ground Water Association (NGWA) is a not-for-profit organization whose mission is to enhance the skills and credibility of all groundwater professionals, develop and exchange industry knowledge, and promote the groundwater industry and understanding of groundwater resources. Contact the NGWA for information on groundwater studies and publications nationwide, for answers to frequently asked questions about groundwater, and for the latest groundwater news and legislation. (800) 551-7379 | www.ngwa.org/Pages/default.aspx

National Sanitation Foundation – The National Sanitation Foundation (NSF) is a not-for-profit organization that tests products relating to health and the environment. NSF certifies that home treatment units meet the manufacturers' performance claims. Contact the NSF for a list of treatment units that are certified to remove your contaminant of concern. (800) 673-6275 | www.nsf.org

State Licensed Well Contractors – All well construction, destruction, or modification activities must be completed by a C-57 licensed contractor. To check if a contractor is licensed contact the Contractors State License Board at (800) 321-2752 or go to www.cslb.ca.gov

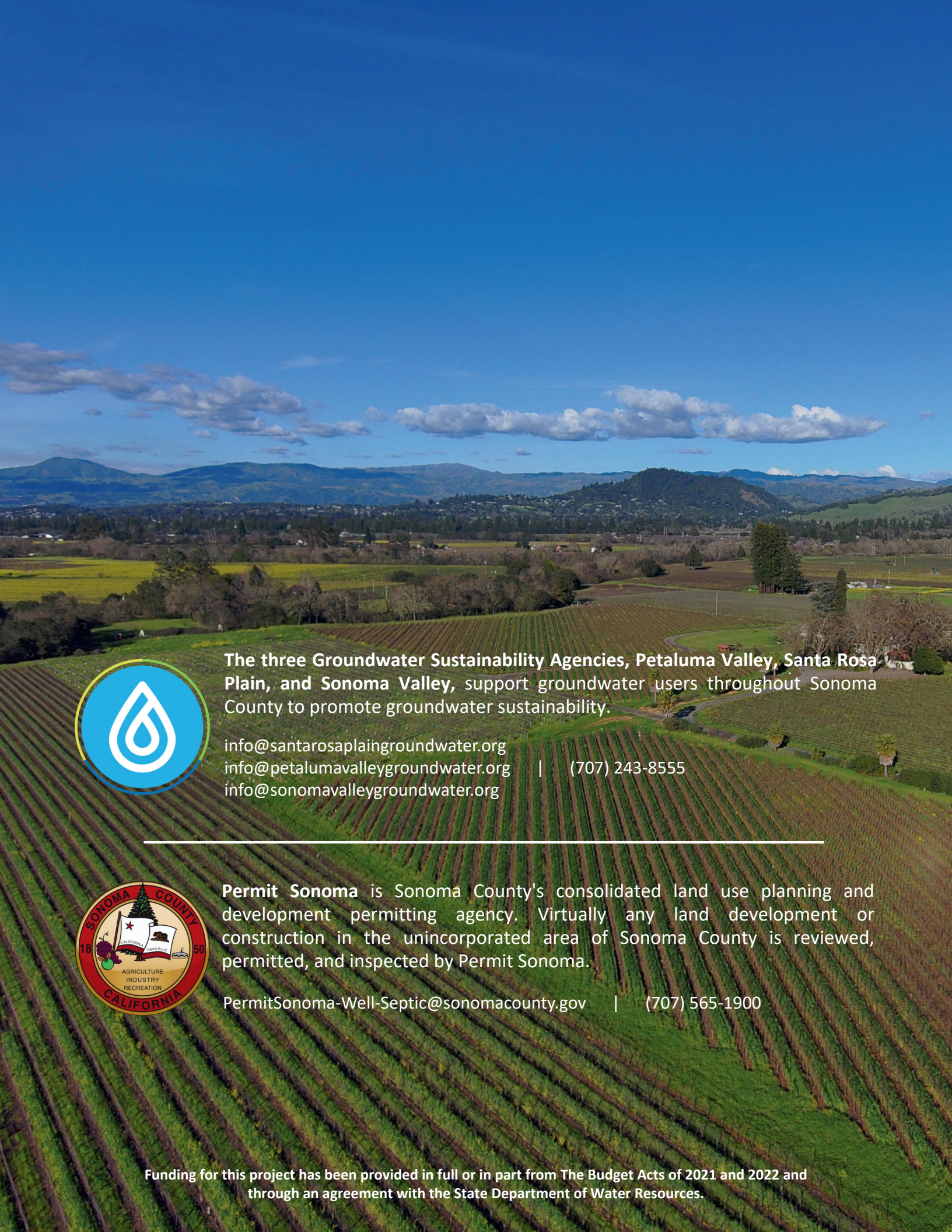
The Groundwater Foundation – The Groundwater Foundation (GWF) is a not-for-profit that is dedicated to informing the public about groundwater resources. They provide numerous educational programs and publications for all ages on the importance of groundwater and groundwater protection. The GWF also offers recognition and support for the Groundwater Guardian Communities and Affiliates. (800) 858-4844 | www.groundwater.org

The Private Well Class – The Private Well Class provides rural residents with training webinars, events and resources to maintaining and protecting their private well. www.privatewellclass.org

University of California Davis, Groundwater Information & Educational Resources – UC Davis offers groundwater, drought, and groundwater quality information and resources. www.groundwater.ucdavis.edu

Water Quality Association – The Water Quality Association (WQA) is a not-for-profit international trade association. WQA is a resource and information source for residential, commercial and industrial water treatment industry. The website includes a diagnostic tool to diagnose many types of water problems and offer potential treatments and solutions. The website also has a tool to help you find a water professional in your area. (630) 505-0160 | www.wqa.org

Water Systems Council – The Water Systems Council is a non-profit organization that supports Americans who depends on wells and works to educate well owners, consumers, and policymakers at the local, state, and federal levels about the importance of protecting our groundwater resources. Their website has helpful information sheets, a well owner support hotline, and other resources for well owners. (888) 395-1033 | www.watersystemscouncil.org



The three Groundwater Sustainability Agencies, Petaluma Valley, Santa Rosa Plain, and Sonoma Valley, support groundwater users throughout Sonoma County to promote groundwater sustainability.

info@santarosaplaingroundwater.org
info@petalumavalleygroundwater.org | (707) 243-8555
info@sonomavalleygroundwater.org

Permit Sonoma is Sonoma County's consolidated land use planning and development permitting agency. Virtually any land development or construction in the unincorporated area of Sonoma County is reviewed, permitted, and inspected by Permit Sonoma.

PermitSonoma-Well-Septic@sonomacounty.gov | (707) 565-1900

Funding for this project has been provided in full or in part from The Budget Acts of 2021 and 2022 and through an agreement with the State Department of Water Resources.

Appendix C

WUE Fact Sheets for Well Aware Toolkit and Demonstration Site

SANTA ROSA PLAIN • PETALUMA VALLEY • SONOMA VALLEY
GROUNDWATER SUSTAINABILITY AGENCIES

SONOMA COUNTY GROUNDWATER WELL AWARE TOOLKIT

Your Guide to Wiser Groundwater Use

Groundwater supports over 43,000 people and countless jobs within the Sonoma County GSA basins. Preserving this resource is critical to our region's long-term health. The **Well Aware Toolkit** is your one-stop shop for practical tools, resources, and inspiration to save water, reduce costs, and increase property value.

Whether you want to find custom water-saving strategies, financial assistance, or expert guidance, the Toolkit connects you with practical solutions tailored to your property.

What You Can Do with the Well Aware Toolkit:

Find water-saving solutions for your property
Enter your address to get personalized tips and programs for homes, farms, vineyards, businesses, and more.

Connect with financial assistance
Explore rebates and funding opportunities to support conservation and efficiency.

Get guidance from local experts
Access advice from trusted professionals who understand Sonoma County's unique groundwater needs.

See all property types covered
Residential, commercial, vineyards, golf courses, specialty crops, tree crops, pasture, and hay are all included.

Share your groundwater conservation story
Share groundwater conservation efforts that you have implemented that have advanced groundwater sustainability.

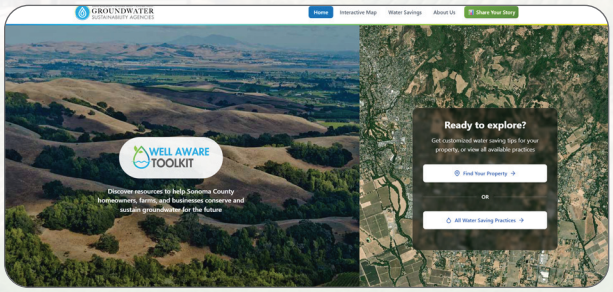
The Well Aware Toolkit has information for all property types:

- Residential
- Commercial
- Vineyards
- Golf Courses & Lawns
- Produce & Specialty Crops
- Tree Crops
- Pasture & Hay

Start Exploring Today!

Visit: https://wellawaretoolkit.org/

Watch a short orientation and discover how you can help build a sustainable water future for Sonoma County.



Common Questions the Toolkit Helps Answer

- What water-saving strategies work best for my property?
- How can I find financial assistance for groundwater conservation?
- Where can I get expert advice on groundwater management?
- What actions can I take to protect groundwater for future generations?

WELLAWARETOOLKIT.ORG

Funding for this project has been provided in full or in part from The Budget Acts of 2021 and 2022 and through an agreement with the State Department of Water Resources.

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GROUNDWATER SUSTAINABILITY AGENCIES

SONOMA COUNTY GSA PROGRAM TOOLS

The Sonoma County Groundwater Sustainability Agencies (GSAs) offer several resources to help you learn more about your local groundwater conditions, understand your groundwater use, and manage your groundwater use across the Petaluma Valley, Santa Rosa Plain, and Sonoma Valley groundwater basins. Join us in protecting groundwater for generations to come by utilizing these tools!

Data Dashboard

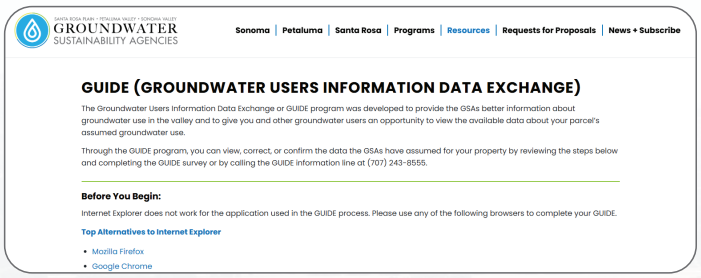
Explore current and historical groundwater levels for your region all in one easy-to-use online hub. The dashboard features interactive maps and hydrographs, letting you track trends at individual wells and compare groundwater with stream gauges. If you participate in the Level Up! Program, this is where you can track trends in your own well.



Visit: sonomacountygroundwater.org/data-dashboard/

GUIDE

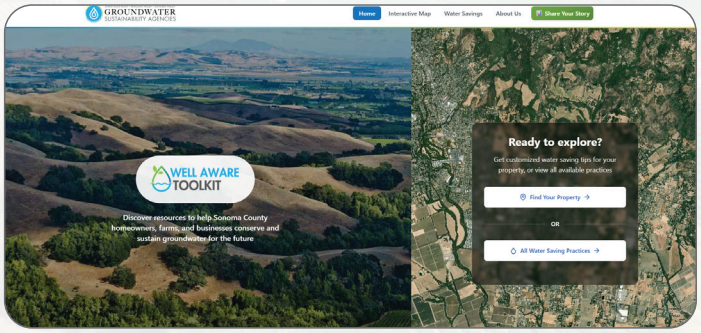
GUIDE (Groundwater Users Information Data Exchange) lets you easily view, confirm, or update the groundwater use data associated with your property and better understand your groundwater sustainability fees. By participating, you help your local GSAs improve data accuracy and support sustainable groundwater management for our community.



Learn more: sonomacountygroundwater.org/guide

Well Aware Toolkit

The Well Aware Toolkit is an interactive resource that allows users located in the Petaluma Valley basin, Santa Rosa Plain subbasin, and Sonoma Valley subbasin to enter their own property address to find personalized groundwater savings practices, funding opportunities for water conservation, and expert guidance tailored to the region. Not located in one of these areas? You can still access the groundwater savings recommendations, funding opportunities, and expert guidance to start saving water and protecting our shared resource.



To get started visit: wellawaretoolkit.org

SONOMACOUNTYGROUNDWATER.ORG

Funding for this project has been provided in full or in part from The Budget Acts of 2021 and 2022 and through an agreement with the State Department of Water Resources.

SANTA ROSA PLAIN • PETALUMA VALLEY • SONOMA VALLEY
GROUNDWATER SUSTAINABILITY AGENCIES

GROUNDWATER CONSERVATION DEMONSTRATION GARDEN

Your Resource for Water Efficient Landscape Ideas in Practice

The Community Soil Foundation's Larkfield Community Garden and Learning Center, located within Maddux Ranch Regional Park is a one-acre farm providing a community garden and gathering space for local students and residents. Well water is used on the property for irrigation of raised beds that grow food and native shrubs via drip irrigation. The Community Garden also employs other efficient water practices such as metering the water use to understand the amount of water being used and rainwater catchment to capture rainwater to stretch groundwater supplies.

The Santa Rosa Plain Groundwater Sustainability Agency collaborated with Daily Acts, Community Soil Foundation, and Sonoma County Regional Parks to create a series of educational signage to highlight the importance of groundwater and water efficient practices seen at the Community Garden.



450 Noonan Ranch Lane
Larkfield-Wikiup, CA
95403

Go on a Sign Scavenger Hunt! Can You Find the Three Signs?

The Water Hiding Under Our Feet

Past the bulletin board

An introduction to groundwater basins, aquifers, and wells

Why Groundwater Matters

Near the well meter

Learn who uses groundwater, and how groundwater is used, managed, and supports wildlife

Protecting Our Groundwater

By the rain tank

Discover tools used at Maddux Ranch to protect groundwater

How does the Larkfield Community Garden conserve groundwater?

Funding for this project has been provided in full or in part from The Budget Acts of 2021 and 2022 and through an agreement with the State Department of Water Resources.

SANTA ROSA PLAIN • PETALUMA VALLEY • SONOMA VALLEY
GROUNDWATER SUSTAINABILITY AGENCIES

OUNDWATER CONSERVATION DEMONSTRATION GARD

Water Efficient Practices Used at the Community Garden

- Rain Tank
- Rain Garden
- Groundwater Flowmeter
- Climate Appropriate Plantings
- Drip Irrigation
- Arbor Mulch

Together, these practices work to capture, conserve, measure, and efficiently use water while supporting healthier landscapes and ecosystems.

These practices reduce reliance on treated drinking water by harvesting rain, improving soil moisture retention, and delivering irrigation more efficiently. They also help restore natural water cycles by increasing groundwater recharge and reducing polluted stormwater runoff. This makes the garden a perfect place to see how you can implement these practices in your own landscapes!







Meet the Community Soil Foundation

Community Soil Foundation is a non-profit organization that raises awareness about practices and methods of regenerative farming and gardening including the benefits to individual, communal, and ecological health.

COMMUNITY SOIL FOUNDATION

How to Get Involved

Connect with the Community Soil Foundation to learn more and volunteer in the garden every third Saturday of the month from 10am - 2pm
Visit www.communitysoil.org/community-garden-and-farm or email info@communitysoil.org

Visit the Community Garden Today!

450 Noonan Ranch Lane, Larkfield-Wikiup, CA 95403

Funding for this project has been provided in full or in part from The Budget Acts of 2021 and 2022 and through an agreement with the State Department of Water Resources.

Appendix D

Well Aware Outreach and Engagement Plan

Sonoma County GSAs

Water Use Efficiency Community Outreach and Engagement Plan

Sonoma Valley Subbasin
Petaluma Valley Basin
Santa Rosa Plain Subbasin

November 2025

801 T Street
Sacramento, California 95811
800.426.4262

woodardcurran.com

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1. INTRODUCTION

In 2023, the Sonoma County Groundwater Sustainability Agencies (GSAs), including the Petaluma Valley GSA, Sonoma Valley GSA, and Santa Rosa Plain GSA, received approval from the California Department of Water Resources (DWR) for their Groundwater Sustainability Plans (GSPs) Each GSP includes implementation plans to ensure the long-term sustainable management of their respective basins, which requires public awareness, cooperation and participation to ensure optimal outcomes. The three approved GSPs include project and management actions focused on water-use efficiency and alternative water sources, designed to reduce groundwater use.

In 2024, the GSAs secured grant funding to evaluate and pilot various water use efficiency initiatives, which together are called the Well Aware Program. The pilot tested several strategies, including workshops, educational materials, a demonstration site, and expert consultations. This Water Use Efficiency Community Outreach and Engagement Plan (Plan) documents part of the Well Aware program and outlines outreach approaches specific to water use efficiency. During the 2024 pilot, several of the strategies were implemented. This document serves as a framework for the continuation of and future expansion of those efforts, pending additional funding.

This Plan provides key messaging, strategies and outreach methods for promoting water use efficiency to diverse stakeholder groups. It builds on the GSA's current Community Engagement Plan with specific guidance for words and activities the focus on GSP water use efficiency goals. The Plan also provides a summary of past and ongoing outreach efforts and provides recommendations for future activities. The Plan will be updated as necessary to adapt to the needs of the GSAs in implementing their respective GSPs related to the Well Aware program.

2. OUTREACH GOALS AND DESIRED OUTCOMES

The outreach goals stated in the three GSA Community Engagement Plans include:

- Enhance understanding and inform the public about water and groundwater resources in the basins
- Engage a diverse group of interested parties and promote informed community feedback throughout the GSP implementation processes
- Coordinate communication and involvement among the GSAs and other local agencies (including other GSAs), elected and appointed officials, Tribal governments, and the general public
- Employ a variety of outreach methods that make public participation easy and accessible
- Hold meetings at times and venues that encourage broad participation
- Respond to public concerns and provide accurate and up-to-date information
- Manage the community engagement program in a manner that provides maximum value to the public and efficient use of the GSAs and local agency resources.

The desired outcome of each GSA's Community Engagement Plan is to achieve Milestone Three of the GSP (GSP implementation to attain sustainability) by working with and incorporating input from Sonoma County's diverse stakeholders to address implementation issues. The development of policies and programs that promote groundwater use efficiency in each of the groundwater basins will contribute to the ultimate goal of reducing overall groundwater use.

The main goals of the GSPs related to water use efficiency outreach are to:

- encourage efficient water use practices for groundwater sustainability,
- increase the utilization of programs and tools offered throughout the county,
- be a trusted resource entity for groundwater users seeking information, and
- effectively market future programs for participation.

3. OUTREACH CHALLENGES

Previous outreach efforts around water use efficiency within Sonoma County have been more focused on water users connected to municipal systems and have generally not specifically targeted groundwater users (although they may still have received some general regional messaging), so this Plan is the first step toward directly engaging with groundwater users.

The biggest challenges in conducting future outreach on groundwater use efficiency in the region are both logistical and communicative. Logistical challenges are largely related to "how" to reach groundwater users. Water use efficiency messaging is best directed to the end water user. However, there is no database of all groundwater users and the GSAs are limited in what contact information they have for groundwater users. Further, the dynamic between landowners and lessees who operate agricultural activities further complicates outreach, as lessees often manage the land but are not included in official communications. The lessee may receive information but may not be able to change the groundwater use of the property as they are not the landowner.

The GSAs are primarily reliant on contact information available from the county parcel data which only includes the parcel owner name and mailing address. Given this, the GSAs have been reliant on direct mail as a primary method of reaching groundwater users, but that comes with a number of challenges, including high cost, limited effectiveness, inaccurate mailing addresses, and the fact that the parcel owner name does not always directly correlate with the person or entity that is occupying the parcel. The GSAs have begun the effort to create a customer relationship management (CRM) database that will allow the GSAs to obtain and connect interested owners or tenants to a parcel and allow for additional contact information to be collected such as email, phone number, and customer use details. However, effective utilization of the CRM will require extensive collection of contact information that is not easily accessible without landowners willingly reaching out to GSA staff.

Communicative challenges are related to the difficulty around messaging groundwater use efficiency. A significant hurdle is the general lack of public understanding about what GSAs are and what authority they hold, which often requires extensive explanation before any water use efficiency messaging can be delivered. Groundwater concepts, like recharge, overdraft, or safe yield, are technically complex and easily misunderstood so the complexity of groundwater data makes it difficult for the public to grasp the severity of groundwater issues. Additionally, groundwater is an invisible resource, making its depletion less tangible to the public and even giving some the perception that groundwater is an unlimited resource that is free to use without restriction. Groundwater use efficiency efforts often take years or decades to be visible in groundwater conditions, making it hard for users to see the results of their efforts. Groundwater users may feel that their individual actions have little effect on the overall aquifer system and that larger groundwater users are at fault. Because groundwater use is closely tied to livelihood, some might see water use efficiency messaging as threatening or have a mistrust of government agencies controlling their operations. During

droughts or economic hardship, users may prioritize immediate needs over groundwater sustainability goals to protect their livelihood.

Weather can impact the effectiveness of messaging. It's very difficult to convey the importance of water use efficiency during wet years, when water is plentiful. Water efficiency messaging must focus on long term groundwater health, sometimes taking decades or even centuries to shift, which is difficult for users to see the impact of their behavior changes. Water use efficiency tends to resonate more strongly during times of drought, however by that point in the weather pattern it's possible that impacts are already being felt (such as wells going dry).

Timing of some engagement activities such as meetings, workshops, or educational sessions is also a challenge, particularly for agricultural audiences who are too busy during harvest (and other high effort periods) to engage in discussions around groundwater. Generally, agricultural audiences are more receptive during the slower winter and early spring months and less available during the harvest season. Harvest season can begin as early as August and extend out through mid-October, as some wineries hold their crush events in early to mid-October.

4. CURRENT AND PREVIOUS OUTREACH EFFORTS

Each GSA has an individual community engagement plan that provides a roadmap on how the GSA engages the community on GSA related information. These community engagement plans are included in Appendix A. As identified in the community engagement plans, the GSAs currently use outreach strategies including direct mail campaigns, community meetings, social media, and participation in local events to engage the community on a range of topics. This outreach plan is specific to the Well Aware effort but is intended to align with the community engagement plans.

Prior to 2025, the GSAs had not conducted groundwater use efficiency outreach, and most groundwater users were not targeted for water use efficiency messaging. Regionally, a great deal of messaging has been centered around drought and water use efficiency, especially through the efforts of the Sonoma-Marin Saving Water Partnership (SMSWP), a partnership of 13 water utilities joined together to provide regional solutions for water use efficiency. While this work has focused on urban public water system customers, a number of their educational resources are open to anyone in the County. Agricultural groundwater users may have received water use efficiency messaging from organizations such as the Resource Conservation Districts and the California Sustainable Winegrowing Alliance. The Sonoma and Gold Ridge Resource Conservation Districts (RCDs) have water use efficiency programs traditionally focused on rural residential and agricultural irrigation practices or streamflow enhancement. Additionally, groundwater users have been introduced to water use efficiency initiatives built into farm plans, well permit requirements, and other agricultural planning in the basins.

Given the lack of direct outreach to all groundwater users, this Well Aware program Outreach and Engagement Plan recommends a specific outreach campaign targeted to groundwater users to improve local groundwater sustainability. Outreach should focus on groundwater users at multiple scales, from rural residential homeowners to large agricultural groundwater users as all have a part in local groundwater sustainability.

To address this gap in direct outreach, the Sonoma County GSAs launched a groundwater user outreach campaign focused on groundwater use efficiency beginning in 2025 as part of the Well Aware pilot program. The Well Aware outreach program has relied on partner organizations to play a crucial role in reaching specific demographics, including small farmers, by leveraging their existing networks and trust within those communities. Also in 2025, an online Well Aware Toolkit was created to connect parcel owners with water saving resources, water use efficiency messaging content was crafted for inclusion in blogs and newsletters, a flyer with a list of water efficient local resources was created, the GSAs have participated in local workshops and events, and a website was created to house all the resources online.

5. AUDIENCE

Tailored messages for different audiences will be key to the success of this effort. Outreach for the Sonoma County GSAs will focus on three main audiences: Agricultural Users, Commercial Users, and Rural Residential Users. These are the three main groundwater use categories within the subbasins. Other user groups in the basins include municipal water systems and turf/urban irrigation users. Municipal water systems have their own water use efficiency goals and messaging. The GSAs aim to develop goals and messaging that are aligned to those customers outside of the municipal water systems. Each audience has specific needs and will have specific outreach strategies applied as detailed below.

5.1 Agricultural Users

Agricultural pumping is a significant groundwater use in the region. Agricultural users are an important part of the local economy and have very specific seasonal water needs depending on their crops. Agricultural users tend to be acutely aware of their reliance on groundwater for their business operations and may be more aware than most about the need to sustainably manage groundwater resources. In addition, agricultural groundwater users may be interested in water use efficiency in order to save on costs of operation. Agricultural lands may also serve as a useful tool for groundwater recharge through managed flooding of land to increase recharge to the basin.

Agricultural users will primarily be targeted through a variety of methods including direct communications, particularly for those users who are less likely to access online materials frequently enough to see updates and invites in a timely manner. Workshops for agricultural water users may be beneficial but should be implemented specifically to the types of agricultural users described below and in collaboration with existing stakeholder/industry groups. GSAs may opt to make direct phone calls or request other representatives with existing relationships make phone calls on their behalf to ensure that Agricultural Users are aware of workshops, events, meetings, and programs that could benefit or affect their operations. As agricultural users are a large group, the GSAs will partner with other organizations to help engage, including the RCDs, Community Alliance with Family Farmers, UC Cooperative Extension, and the Sonoma County Farm Bureau.

Within the agricultural industry, specific audiences are further broken down as described below:

5.1.1 Lessee Farmers

Lessee Farmers, lease the land they farm, and may have a challenge participating in use efficiency programs with site modifications involved as they are not the landowners.

5.1.2 Large-Scale Farmers

Many large-scale farmers are already implementing water use efficiency practices and may even have a sustainability focused staff member. Large-Scale Farmers may be more concerned with privacy and reluctant to participate in programs where operations are documented. Conversations and outreach will likely need to be one-on-one conversations with Large-Scale Farmers. In Sonoma County, most Large-Scale Farmers are vineyards.

5.1.3 Small-Scale Farmers

Small-scale farmers sometimes utilize groundwater for both indoor and outdoor use. Small-Scale Farmers may believe that their water use is insignificant in comparison to larger counterparts and therefore be less motivated to make changes. Additionally, changes to their operations could lack the economies-of-scale benefits that large operations would see. Outreach with small-scale farmers will likely need to be conducted via "piggybacking" on existing industry meetings and workshops to avoid obligating small-scale farmers to additional time commitments.

5.1.4 Vineyard Farmers

Conversations with vineyard owners, operators, and/or managers will seek to explore their specific needs and interests in relation to groundwater sustainability, in hopes of developing ideas for vineyard-specific initiatives that align with sustainability goals. Many vineyards in Sonoma County are already certified as sustainable and utilize that designation in marketing. It should be noted that the scale of vineyard farmers can range from small scale to large scale and that the spectrum of size has some impact on the motivations and ability of the vineyard to be sustainable. Outreach efforts to vineyard representatives will likely to be implemented via in-person workshops.

5.2 Commercial Users

Commercial Users are another important part of the local economy and a significant user of groundwater. Commercial Users will likely be interested in programs or workshops that could result in bottom line savings for their businesses or assist with mitigating the impacts for the next drought.

Outreach platforms for Commercial Users will include direct communication, newsletters, social media posts, and workshops. Direct communication will be a primary outreach method with Commercial Users as well, particularly higher demand users. Billing data from the GSAs can be used to target specific high-demand users. Commercial Users may also be reached by newsletters in instances where after initial engagement, the GSAs can add key contacts for Commercial Users to the newsletter listserv. Social media posts may also be useful to entice Commercial Users to use programs or attend GSA events, though that is more likely to attract the attention of individual well users. Direct communications and social media posts can direct back to the Well Aware website, which will serve as a primary hub of information regarding the GSAs and help further direct Commercial Users to relevant programs. Sonoma County Economic Group has been a partner in previous water use efficiency work and could be utilized again in outreach or programmatic efforts.

5.3 Institutional Users

Institutional users include government buildings, schools, and parks and will be included in programs similar to commercial users.

Outreach platforms for Institutional users will include direct communication, newsletters, social media posts, and workshops. Direct communication will be a primary outreach method with institutional users as well, particularly higher demand users. A list of high demand water users can be obtained through the Groundwater Users Information Data Exchange (GUIDE), thus outreach can be targeted to specific high-demand users. Institutional users may also be reached by newsletters after initial engagement. The GSAs can add key contacts for institutional users to the newsletter listserv.

5.4 Rural Residential Users

Rural Residential Users can be individual well users or those who are connected to small public water systems. Their water use includes indoor and outdoor uses. Rural Residential Users are likely to take advantage of programs if they are at no cost to them or provide incentives payments.

Many rural residential groundwater users already feel like they are fairly sustainable in their groundwater use, especially since many are on septic and feel like most of their groundwater used is returned to the ground. In addition, many rural residential users feel like they are the lowest groundwater user group and therefore, they cannot make much difference. Other rural residential groundwater users are vacation homeowners that are not tuned into local groundwater issues and may have large groundwater use for landscaping without being present often.

Outreach platforms for Rural Residential Users will include direct mailers, presentations at community groups, social media, newsletters, and workshops. Direct communication will still be a primary outreach method. Direct mailers are likely to make the most impact on Rural Residential Users. Absentee rural landowners may live elsewhere and may not receive the mailers.

GSAs may connect with realtor groups working in rural areas, in hopes that they could connect new owners to the GSAs and resources upon property purchase. Targeting important community groups may help with publicizing and engaging more individuals. In addition, the GSAs should consider providing resources through well and septic companies that conduct routine maintenance on wells as they have the closest direct contact with groundwater users.

Presentations to groups like the Master Gardeners, local Grange halls, or local service organizations will be effective in promoting programs and encouraging utilization. It helps with word-of-mouth advertising. Tabling at local Farmers Markets or various local Grange Events could be useful to reach a wide range of users including local individual residential well users.

Social media posts and newsletters are effective in reaching Rural Residential Users, though online access may pose an issue to some users. For those with online access and capability, directing back to the website will help orient users to information on GSP implementation and the programs available to them for improving their water efficiency in their homes.

6. RECOMMENDATIONS

This section presents targeted recommendations designed to enhance water use efficiency outreach and engagement across Sonoma County's groundwater basins. Drawing on lessons learned from previous efforts and the Well Aware pilot program, these recommendations offer actionable strategies for ongoing communication, partnership development, and program promotion. By implementing these approaches,

the GSAs can more effectively reach diverse groundwater users, foster community participation, and support the long-term sustainability goals outlined in the Groundwater Sustainability Plans.

As the future Well Aware program is implemented, it is important to distinguish between broad marketing and outreach efforts that encourage overall awareness and behavior change, and those that specifically promote participation in individual programs or incentives. General outreach focuses on building understanding, shifting attitudes, and motivating the community to adopt water use efficiency as a shared value and everyday practice. This type of messaging often emphasizes the collective benefits of sustainable groundwater management and aims to inspire long-term stewardship. In contrast, program or incentive promotion is more targeted, providing information about specific opportunities such as rebates, workshops, or new tools, and encouraging immediate action or enrollment. Both approaches are essential: while broad outreach lays the foundation for a culture of water use efficiency, program-specific promotion drives measurable participation and supports the implementation of concrete solutions.

6.1 Ongoing Marketing Platforms

In addition to new efforts, outreach for the future Well Aware program should continue to take place after the pilot program has concluded through several engagement platforms previously and currently utilized by the Sonoma County GSAs. The GSAs each have a website, quarterly newsletter, social media, and host workshops throughout the year. In addition, there is a collective website representing all three Sonoma County GSAs. Each platform should continue to be used strategically for specific purposes and with an intended audience targeted.

The following platforms are currently used for outreach: .

6.1.1 Direct Communications

Direct and targeted communications are a primary outreach method, particularly for audiences that may not frequently check online communications (email, website, social media, etc.). Direct communications can include direct mail or individual conversations. This targeted outreach is used to engage on a specific topic or event, such as an upcoming workshop relevant to the user, a newly available program that would benefit the user, or a board meeting with specific impacts to the user. Direct communications are likely to be a useful tactic for all audiences and should continue to be used throughout implementation of the future Well Aware program.

Direct communications via email provides an additional benefit of providing analytics such as open rate and click through rate. For instance, the June 2025 newsletter, which included information about the Well Aware program, was sent to 1,797 email addresses and opened by 1,494 of them, demonstrating a high level of interest. Information can be gained by reviewing these analytics to see what type of messaging users are interested in.

6.1.2 Websites

The GSA websites provide information and updates for each GSA's activities and progress on the GSP implementation, as well as serving as an archive for meeting and communication materials, annual reports, and studies. The website hosts the GSP document, all published quarterly newsletters, and a directory of programs sponsored by the GSAs.

In 2025, as part of the water use efficiency pilot program, a Well Aware webpage was created for each GSA that includes specific resources and information related to the Well Aware program. The Well Aware websites should continue to serve as the hub of information with any outreach materials or other outreach methods directing back to resources hosted on the website. The GSAs will continue to update the website to promote new programs such as rebates or incentives. The websites should be reviewed quarterly for necessary updates.

6.1.3 Well Aware Toolkit

The Well Aware Toolkit (Toolkit) is an interactive toolkit that will help orient property owners to the resources and programs available to them. The Toolkit is publicly available and will allow property owners to enter their location to receive tools that will work best for their type of parcel. While the Toolkit does not post irrigation demand publicly, the information is available to the GSAs and can be used to specifically target higher demand users with water use efficiency resources to help reduce their demand. The toolkit offers the opportunity to promote current and future programs. The Toolkit launched in Fall 2025. At the time of launch, the GSAs supported promotion of the toolkit via a press release, social media posts, flyers, videos, email blasts, and newsletter articles. Driving water users to the toolkit will be a main priority of future outreach as the toolkit is the best place for actionable messaging, education, and data long-term. Materials created and promoted through the pilot program should continue to be used for on-going promotion.

6.1.4 Social Media

Sonoma County Groundwater profiles on Facebook and Instagram are utilized to share news and events on behalf of the Well Aware program, as well as other GSA programs. Video content is posted to both platforms as well as YouTube. Social media platforms help publicize events, such as workshops or meetings. Outreach via social media is broad and less targeted but can be used to reach a larger audience. While the GSA's social media following is currently low (219 followers each on Facebook and Instagram), paying for "boosted" content can attract a larger audience. The GSAs should continue to use social media for open events or programs to increase awareness of GSA activities and events.

During the Pilot Program, water use efficiency messaging was shared on social media over the summer months. The messaging served as a way to engage the community in the Pilot Program and provide timely water use efficiency messages. For ongoing messaging, the GSAs should use the suggested messaging items list in Section 8 of this Plan.

6.1.5 Newsletters

The GSAs send newsletters that provide news and information on the GSA's activities. Since 2023, newsletters have been published quarterly (in February, May, August, and November) and are available in English and Spanish. Interested parties can subscribe to receive newsletters. There are around 2,700 subscribers to the GSAs' newsletter.

Newsletters should be used to provide general updates on Well Aware programs, promotion of the Toolkit, and water use efficiency messaging with a focus on sharing seasonal water use efficiency tips and publicizing workshops for attendance. Newsletters are an effective means of directly connecting to interested parties and will be an important tool for marketing future programs.

6.1.6 Community Boards

Posting flyers at community boards in local coffee shops, libraries, and community centers or having postcards available at local retail stores such as nurseries, hardware stores, and grocery stores can be an effective way to reach groundwater users, although it is not targeted. This mechanism is most effective for advertising an upcoming workshop or a specific program.

During the Pilot program, the GSAs delivered postcard size flyers promoting the Well Aware workshops. The list of locations the postcards were posted in is in Attachment C. The GSAs should continue to expand this list and track the locations that seem to capture the targeted audience.

6.1.7 Workshops

Workshops are hosted periodically to discuss GSP progress and educate customers on available programs, including the Well Aware program. During the 2025 pilot program, two Well Aware community workshops were held across the three basins. The workshops each included a resource fair that promoted water efficient messaging.

The GSAs Community Engagement Plans state that workshops will continue to be held annually or around major milestones in GSP implementation. As these workshops are conducted, the Well Aware program may provide content that includes a water efficiency message either as a standalone topic during drought years or in combination with a timely GSA update.

Workshops will be publicized through the email listserv, website, social media, and quarterly newsletters. The GSAs should continue to aim to host two workshops each year with some content related to the Well Aware program. The target audience of the workshops could shift from year to year depending on the message or program being promoted. The timing of the workshops will depend on the target audience. Section 9 includes a suggested target workshop month by audience. Workshops are an excellent way to promote programs and encourage dialogue.

6.1.8 Presentations

The GSAs currently offer presentations to interested groups that can include a range of topics including:

- Groundwater use practical tips
- Water use efficiency tips (Well Aware Toolkit)
- Water use efficiency in outdoor landscaping
- Practical watering and irrigation tips
- Water use efficiency in small farms
- Rainwater catchment
- Graywater systems

The presenter may be a GSA representative or a trusted partner with expertise on the topic subject that is appropriate for the audience.

In addition to sharing information about water use efficiency tools and opportunities, these presentations should provide information on what the various sectors (rural residential, agricultural, commercial, etc.) are doing to promote groundwater sustainability. GSAs can provide materials for presentations to representatives of the GSAs to present at organizations that they have connections or affiliations

The GSAs have a slide deck that explains who the GSAs are and their purpose and goals, and includes the marketing of the GSA programs like Well Aware. This slide deck should continue to be used and expanded as the program grows.

6.1.9 Partnerships/Partner Outreach

Leveraging trusted partner organizations will help reach specific communities more effectively. Below is the list of partners currently utilized. Sonoma County Farm Bureau is not currently an established partner, but the GSAs intend to establish a partnership in the future.

Partner	Contact Person	Partner Mission or Existing work	Role in Pilot Program
Gold Ridge RCD	Noelle Johnson, noelle@goldridgercd.org	Gold Ridge RCD provides a variety of programs addressing resource concerns in western Sonoma County and along the western edge of the Santa Rosa Plain. They focus on providing technical assistance, outreach, education, and project implementation. Since most implementation programs are grant funded, they can be inconsistently available.	• Contracted partner. • Supported project outreach and landowner engagement. • Provided strategic input and consultation on the pilot program. • Assisted in program enrollment.
Sonoma RCD	Maria Wnorowski mwnorowski@sonomarcd.org	Sonoma RCD provides resources and programs for water resources including water management and conservation technical assistance, vineyard irrigation evaluations, alternative water supply development and groundwater well monitoring. Sonoma RCD's boundary crosses Petaluma Valley, Sonoma Valley, and Santa Rosa Plain basins.	• Contracted partner. • Supported project outreach and landowner engagement. • Provided strategic input and consultation on the pilot program. • Assisted in program enrollment.
Sonoma-Marin Saving Water Partnership	Paul Piazza Paul.Piazza@scwa.ca.gov	The Partnership represents 13 water utilities in Sonoma and Marin counties and leads regional efforts to promote water use	• Contracted partner. • Provided outreach and project advisory.

		efficiency. They make available rebate information, educational resources, and public engagement programs, including seasonal conservation messaging and landscape transformation tools.	• Participated in the outreach workshop fair.
Community Alliance with Family Farmers (CAFF)	Reyna Yagi reyna@caff.org	CAFF supports small and mid-sized farmers through technical assistance, policy advocacy, and programs that promote sustainable agriculture. Their work includes direct engagement with farmers on climate resilience, ecological practices, and market access.	• Contracted partner. • Provided outreach and communication to CAFF members. • Advised on outreach messaging. • Arranged and participated in workshops. • Assisted in program enrollment. • Distributed materials at outreach events.
University of California Cooperative Extension (UCCE)	Helaine M Berris <hmberris@ucanr.edu>; Christopher C Chen codchen@ucanr.edu Ellie Marie Andrews eandrews@ucanr.edu Mimi Enright mimi.enright@sonoma-county.org	UCCE provides science-based support to local communities, including technical assistance for farmers, climate-smart agriculture programs, and public education through networks like the Master Gardeners.	• Provided outreach. • Shared community insights and distributed outreach materials. • Participated in workshop fair.
Sonoma County Farm Bureau	Dayna Ghirardelli dayna@sonomafb.org	The Farm Bureau represents and advocates for the interests of farmers and ranchers in Sonoma County. Their work includes policy advocacy, education, and community engagement to	• Not directly involved in the Pilot Program.

		support the viability of local agriculture.	
Sonoma Clean Power	Adam Jorge ajorge@sonomacleanpower.org	A community-owned electricity provider serving Sonoma and Mendocino counties. SCP offers cleaner, renewable energy sourced from solar, wind, and geothermal at competitive rates. Its mission is to reduce greenhouse gas emissions, fight climate change, and deliver cost savings to customers through innovative programs and advocacy.	• Participated in outreach workshop fair. • Partnered on energy and water savings messaging.
Daily Acts	Brianna Schaefer brianna@dailyacts.org	Connects people and builds community through education, action and policy change to address climate change.	• Contracted partner. • Provided consultations and outreach material at events. • Participated in outreach workshop fair.
Urban Municipalities and Local Water Providers.		Water retailers to residents living within set service areas supplying groundwater, surface water, and recycled water.	• Shared GSA Well Aware outreach materials at outreach events. • Shared dye tabs and conservation materials.
Sonoma Ecology Center	Caitlin Cornwall caitlin@sonomaecologycenter.org	Work to address challenges related to water supply and quality	Participated in outreach workshop fair. Materials are shared on Well Aware website.

The GSAs should determine an effective means in staying in coordination with trusted partners such as regular meetings or casual check ins. Additionally, the GSAs should continue to leverage regional messaging provided through Sonoma-Marin Saving Water Partnership.

6.1.10 Events

Attending local events offers opportunities to engage with diverse audiences in person. By securing table space, the GSAs can reach a variety of audiences with handouts and giveaways promoting the Well Aware

program. Events encourage conversations around water use efficiency and GSA efforts. Staffing a booth may not be practical at times, so the GSAs should continue to work with partners by providing outreach material they can make available at events.

The GSAs should also consider attending or coordinating with partners who attend Grange events and local farmers markets around to broaden their outreach efforts to other communities and audiences.

Grange groups in the GSAs include:

- Bennett Valley Grange #16
- Rincon Valley Grange #710
- Sebastopol Grange #306
- Sonoma Valley Grange #407
- Windsor Grange #410
- Hessel Grange #750

A 2026 Events Calendar is included below. Many of the events occur annually and can be yearly touchpoints for the GSAs to receive feedback and interact with the community.

Key Community Events		
Event Name	**Potential Partners Presenting/Tabling**	**Typical Month**
Grape Day	Sonoma RCD	February
Cotati Climate Ready Fair	Master Gardeners	March
Petaluma Butter and Eggs Days	Master Gardeners/City of Petaluma	April
Windsor Earth Day	Master Gardeners	April
Cool Petaluma Expo	Master Gardeners	May
Eco-Friendly Garden Tour	SMSWP, Master Gardeners/Sonoma RCD	May
Santa Rosa Water Expo	Master Gardeners/City of Santa Rosa	June
Sonoma-Marin Fair	City of Petaluma	June
Petaluma Art and Garden Festival	Master Gardeners	July
Farm Fest	CAFF/Sonoma RCD	July
Windsor Neighborhood Event/Welcome Wagon	Master Gardeners	July
Sonoma County Fair	SMSWP / Master Gardeners	July
Sebastopol Gravenstein Festival	CAFF	August
Bayer Farm's Harvest Festival	Sonoma RCD	September
Petaluma River Clean Up	Sonoma RCD	September
Ag Days	Sonoma RCD	September

Harvest Festival at Sonoma Garden Park	Sonoma RCD, Sonoma Ecology Center	October

6.1.11 Videos, Fact Sheets, and Case Studies

Through the 2025 Well Aware Pilot Program several written and visual guides were created to promote the GSAs programs such as the Well Aware Toolkit. Case Studies were developed to highlight local groundwater users using water wisely on their properties. The GSAs should continue to print hardcopy materials to distribute at outreach events or post on social media to distribute.

As programs continue to expand, the GSAs should continue to develop similar materials with a uniform appearance to maintain branding and continuity.

6.2 Future Incentive Program Efforts

The GSAs may consider developing an incentive program, providing water efficient products to customers, as part of the Well Aware program. Incentive programs are a useful tool for increasing water use efficiency and public interest in the GSAs. Incentives could include conversion to drip irrigation systems or graywater systems, replacing household appliances with high-efficiency models, turf replacement, or other programs. In addition to incentive programs, the GSAs could provide additional technical assistance to groundwater users through water audits that provide customized water efficient education and customized suggestions. These types of programs require funding through rates/budgeting or grants and require administrative effort by the GSAs. Future funding opportunities could be used to bring these types of programs forward, adding exciting new components to water efficiency efforts.

6.2.1 Giveaways

Providing giveaways at events can help drive interest to the GSAs or partner booth at events. Giveaways can include Well Aware branded products or water use efficiency tools, including water efficient hose nozzles or rain gauges. Well Aware branded products can help spur peer-to-peer conversations between community members to spread word-of-mouth knowledge of the GSAs. Water use efficiency products will allow recipients to immediately begin conserving water when they get home and increase their interest in other water use efficiency measures they can employ. Giveaways can be paired with water use efficiency education, ways to stay involved with the GSAs, and a request for contact information so that recipients can be contacted and introduced to other programs. This may be a particularly useful way to increase the use of incentive or rebate programs.

Giveaways may also be useful to pair with mailers, dependent on shipping costs. Providing water use efficiency products to community members will increase the likelihood that the mailers are read and considered.

6.2.2 Partner with Sonoma-Marin Saving Water Partnership

The GSAs may also consider joining the Sonoma-Marin Saving Water Partnership. The Sonoma-Marin Saving Water Partnership has a regional directory of rebate programs that can be sorted by water provider and denotes which types of users are eligible. The GSAs, while not a water provider, could represent

groundwater users. Additional benefits to being within the Partnership could include development of programs on behalf of the GSAs and cross promotion of educational materials.

6.2.3 Seasonal Messaging

Water use efficiency tips should be deployed seasonally to help encourage customers to actively participate in water use efficiency efforts. As opportunity allows, key messages should be developed in a way that is multi-beneficial (such as messages that are both fire-wise and water-wise). Other organizations have also developed messaging resources that may be incorporated or purchased, for instance Sonoma-Marin Saving Water Partnership has developed strong water use efficiency messaging that the Well Aware program can share on a variety of platforms. Seasonal messaging ideas can be found in Appendix C, Section 11.1.

6.2.4 Maddux Ranch Demonstration Site

As part of the Pilot program, the Santa Rosa Plain GSA in collaboration with Daily Acts, Community Soils and Sonoma County Regional Parks created signage to highlight the water-wise initiatives instituted at Maddux Ranch Regional Park. Community Soils leases a portion of Maddux Ranch for a community garden. Signage was installed in the garden highlighting a sub-meter to track groundwater usage, a rain tank to harvest rainwater, a raingarden to increase groundwater recharge of stormwater, and efficient irrigation practices such as mulch and drip irrigation. Signage across the community garden also includes education around groundwater principles and use with a message for placing value and importance on protecting and preserving groundwater.

The GSAs have a promotional flyer to highlight the park's wise-water use. The Demonstration site should continue to be promoted through garden tours, school education field trips, social media videos, and other opportunities to encourage public traffic and visits.

6.2.5 School and Educational Programs

The GSAs should consider developing outreach and education programs specifically designed for local schools and youth organizations. Engaging students through classroom presentations, field trips, curriculum materials, and interactive activities can help build early awareness of groundwater sustainability and water use efficiency. By fostering partnerships with educators and integrating groundwater topics into science and environmental studies, the GSAs can inspire the next generation of stewards and encourage families to adopt conservation practices at home. School-based outreach is a valuable long-term strategy for expanding community engagement and supporting the overall goals of the Well Aware program.

6.2.6 Additional Workshops

Outreach and engagement will be an ongoing process throughout implementation of the Well Aware program. The GSAs should seek additional opportunities to conduct workshops. A sample workshop schedule is provided in Appendix B.

7. IMPLEMENTATION

Moving into the future, the Well Aware program should continue existing and expand upon the pilot outreach efforts to promote water use efficiency. The following strategies are recommended as implementation of the GSPs continues and to mitigate the outreach challenges:

- The Well Aware program is intended to be a resource hub with practical tools and resources to help with groundwater management and sustainability. Well Aware is the brand for the water use efficiency component of the GSAs efforts. As such, the work done within Well Aware should continue to align with Level Up! (the GSAs' voluntary well monitoring program) and Flow Smart (the GSAs' voluntary flow-metering program). These programs have various themes, and are branded independently, however their efforts and messaging are complementary.

- The GSA basins contain various groundwater users that require different approaches and water use efficiency messages to engage, making a one-message-fits-all approach unavailable. The Well Aware program outreach will need to be mindful of the various users and craft messaging in ways to best engage and assist them. This could include workshops that target different audiences, such as workshops for the agricultural community.

- The GSAs will continue to leverage partnerships as part of Well Aware outreach efforts. The partner organizations' established relationships with the communities they serve will help to increase trust in the GSAs. Increasing trust in the GSAs will increase the likelihood of feedback during the development of water use efficiency programs and policies and participation in programs that customers are eligible for.

- Messaging should focus on what various sectors are doing to support groundwater sustainability and should be accessible to a variety of users. Materials should be translated as necessary and be compliant with the Americans with Disabilities Act.

- There are specific needs to address misunderstandings or lack of education on topics (for example, explaining to septic users that their water use efficiency is important despite the fact that septic tank discharge goes back into the ground, as tank discharge may not replenish the aquifer from which their water is sourced). These topics should be considered before each Well Aware outreach strategy, specific to the intended audience.

- It will be critical to incorporate visual tools, such as maps, to clearly communicate the status of groundwater conditions and water use efficiency efforts.

- The use of icons can be especially helpful in targeting messages for different users. For example, a flyer highlighting various programs can use icons to convey what types of users are eligible for what programs.

- The GSAs may also explore options like creating Well Owners Guides or creating demonstration facilities.

- Use of the CRM to collect user specific data and interests will allow for target marketing and tracking.

- The GSAs should pursue joining the Sonoma – Marin Saving Water Partnership for ease in consistent regional outreach and marketing.
- The GSAs can better engage companies that develop and sell water use efficiency technologies, as they could be valuable partners in promoting sustainable practices through the Well Aware program.
- Program staffing for outreach will vary depending on the programs offered by the GSAs. On-going outreach tasks include partner coordination, messaging production, and relationship management with interested users. Program specific outreach tasks during times of rebate or incentive program promotion and administration will be more involved. The GSAs will need to determine efficient staffing solutions for program specific outreach.
- Pursue future funding for further enhancement and determine how future incentive and marketing programs can be funded to allow for a direct incentive to groundwater users.
- Track engagement and feedback generated through outreach efforts by customer category to enable comparisons across multiple years.

7.1 Recommended Ongoing Outreach Implementation Plan

The following section outlines the recommended ongoing outreach implementation plan, detailing the platforms, actions, timelines, responsible parties, and performance indicators that will guide the GSAs' efforts to promote water use efficiency. This section serves as a practical framework to ensure that outreach activities are strategic, measurable, and responsive to the diverse needs of groundwater users across Sonoma County. The table below shows a quick reference on continuing ongoing outreach that occurred or was developed before or during the pilot program into the future Well Aware program.

Please note that the "Responsible Party" column below refers to a party responsible for this platform at the time of this writing. Responsibilities may change and opportunities for collaboration or coordination may arise. One important catalyst for change could be funding, for instance, if a party receives grant funding to perform a function, these actions could transfer to that party.

Platform	Recommended Actions	Frequency/ Timeline	Responsible Party	Performance Indicators
Direct Communications	• Continue targeted direct mail and emails. • Use analytics (open/click rates) to refine messaging and topics. • Personalize communications by audience type (agricultural, rural residential, commercial).	Ongoing (monthly for emails; as needed for mailers)	Well Aware Outreach Team	• Email open and click-through rates. • Mail response or program sign-ups. • Increase in CRM contacts.

Platform	Recommended Actions	Frequency/ Timeline	Responsible Party	Performance Indicators
Websites	• Maintain and update Well Aware websites quarterly. • Centralize all outreach resources on the Well Aware hub. • Add new tools, events, and updates regularly.	Quarterly updates	GSA Communications Lead	• Website traffic and resource downloads. • Bounce rate improvement.
Social Media	• Post regular water use efficiency content (monthly during summer) to the GSA social media channels. • Use video and short-form content for engagement. • Boost posts for broader reach.	Monthly; higher activity in summer (May–August)	GSA Communications Lead	• Follower growth and engagement rate. • Post reach and impressions. • Event attendance linked to social campaigns.
Newsletters	• The GSAs publish quarterly bilingual (English/Spanish) newsletters and the Well Aware program has the opportunity to contribute articles to those newsletters. • Highlight seasonal water use efficiency tips and program updates. • Include calls-to-action for workshops or surveys.	Quarterly (Feb, May, Aug, Nov)	GSA Communications Lead	• Subscriber growth. • Open and click rates. • Event participation via newsletter links.
Community Boards & Events	• Post flyers and postcards at community boards, libraries, coffee shops, nurseries, and hardware stores. • Track which locations generate the most inquiries or sign-ups.	Seasonal or tied to event promotion	GSA Coordinator; GSA Communications Lead	• Number of locations reached. • Feedback or inquiries generated. • Workshop attendance from flyer sources.
Workshops	• Host at least two workshops annually across basins.	Biannually	Well Aware Outreach Team; Partner Organizations	• Number of workshops held. • Participant

Platform	Recommended Actions	Frequency/ Timeline	Responsible Party	Performance Indicators
	• Tailor content to audience type (e.g., agriculture in fall, residential in spring). • Partner with RCDs, UCCE, CAFF for co-hosting.			attendance and feedback. • New contacts added to CRM.
Presentations	• Maintain and update GSA slide deck related to Well Aware. • Offer presentations to community groups on water efficiency, irrigation, and graywater systems. • Translate and adapt for different audiences.	Ongoing, by request or quarterly	GSA Staff	• Number of presentations delivered. • Audience size and engagement. • Requests for follow-up info.
Partnerships	• Hold regular coordination meetings or informal check-ins with partner agencies. • Share updates on joint outreach campaigns and co-brand materials. • Identify new collaboration opportunities.	Quarterly or as needed	GSA Staff	• Number of partner meetings held. • Co-branded materials produced. • Partner satisfaction/feedback.
Events	• Attend recurring fairs, expos, and festivals (e.g., Earth Day, Farm Fest, Butter & Eggs Days). • Provide giveaways (e.g., hose nozzles, rain gauges) tied to water use efficiency messaging. • Collect contact info for follow-up.	Seasonal / Annual	GSA Staff; Partner Organizations	• Number of events attended. • Community interactions logged. • Contacts added to CRM. • Giveaway engagement feedback.

7.1.1 Tracking Success

Success of outreach and marketing efforts should be tracked accordingly to help answer the following questions:

- Are people aware and knowledgeable?
- Do they have the tools and capacity to change behavior or infrastructure to implement the alternatives we suggest?
- Are people using less groundwater now than they did before?

Simple tracking of the outreach efforts can be through tracking engagement and CRM analytics. Further analysis can be performed through surveys and follow up emails to contacts.

7.1.2 Outreach Materials

A variety of outreach materials have been prepared as part of the Well Aware program and are included in Appendix C. These materials are intended to support ongoing outreach (described in the table above). We encourage the GSAs and their partners to utilize these resources to support and enhance their outreach efforts, ensuring consistent messaging and broad community engagement.

8. CONCLUSION

The Well Aware Water Use Efficiency Community Outreach and Engagement Plan provides a robust foundation for ongoing and future outreach efforts in Sonoma County's groundwater basins. As groundwater sustainability challenges and community needs evolve, the GSAs should regularly review and update this plan to incorporate new strategies, lessons learned, and opportunities for program expansion. Securing additional grant funding or other resources will be essential to broaden outreach capacity, especially during drought years or periods of heightened need. By remaining adaptive and collaborative, the GSAs can continue to build trust, foster stewardship, and achieve lasting groundwater sustainability for all basin users.

9. APPENDIX A: GSA COMMUNITY ENGAGEMENT PLANS

PETALUMA VALLEY GROUNDWATER SUSTAINABILITY AGENCY

Community Engagement Plan for the Implementation of the Groundwater Sustainability Plan

2025-2030

Purpose, Outcomes & Goals

The purpose of the Sustainable Groundwater Management Act (SGMA), signed by Governor Brown in 2014, is to ensure local sustainable groundwater management in medium- and high-priority groundwater basins statewide. California's Department of Water Resources has determined that three Sonoma County basins are subject to SGMA Implementation:

- Petaluma Valley basin
- Santa Rosa Plain subbasin
- Sonoma Valley subbasin

This Community Engagement Plan applies only to the Petaluma Valley Groundwater Sustainability Agency, although many outreach activities will be coordinated with the other Sonoma County basins.

The Petaluma Valley basin achieved the first SGMA milestone by creating a Groundwater Sustainability Agency (GSA) by June 30, 2017. The Petaluma Valley GSA is governed by a Board of Directors which receives feedback and input from a diverse, stakeholder-based Advisory Committee.

The second major SGMA milestone was the adoption of a Groundwater Sustainability Plan (GSP) in December of 2021. The GSP is prescribed by SGMA and accompanying regulations. The Petaluma Valley Subbasin GSP was approved by the Department of Water Resources (DWR) in January 2023.

The third major SGMA milestone is the implementation of the GSP is to achieve and maintain the sustainability of the groundwater basin by 2042. The Community Engagement Plan provides guidance for working with and incorporating input from Sonoma County's diverse stakeholders. The plan defines goals, outcomes, tools and strategies for outreach and engagement.

To achieve and maintain sustainability, the GSP includes several projects and management actions (see Section 6 of the GSP for a full description). The GSP also includes an implementation plan, which is fully described in Section 7, and can be summarized as follows:

- Adoption and implementation of a financing plan;
- Identifying and filling data gaps so that the GSA better understands what is happening in the basin;
- Monitoring the basin conditions in order to identify trends and possible areas of concern or improvements;
- Annual reporting to DWR and a five-year update of the GSP that will incorporate new information;

- Planning for and developing projects and actions that will address existing and potential future problems with groundwater levels, quality and other indicators of basin problems; and
- Educating people about the groundwater basin and engaging stakeholders in opportunities to understand and improve basin problems.

Outcomes: The desired outcome for this Community Engagement Plan is to achieve Milestone Three (GSP implementation to attain sustainability) by working with and incorporating input from Sonoma County's diverse stakeholders to address implementation issues.

Plan Goals: SGMA requires the GSA to consider the interests of all beneficial uses and users of groundwater, and encourage involvement of diverse social, cultural, and economic elements of the population within the Basin.

The goals of the Community Engagement Plan are to:

- Enhance understanding and inform the public about water and groundwater resources in the basin.
- Engage a diverse group of interested parties and promote informed community feedback throughout the GSP implementation process.
- Coordinate communication and involvement between the GSA and other local agencies (including other GSAs), elected and appointed officials, tribal governments, and the General public.
- Employ a variety of outreach methods that make public participation easy and accessible.
- Hold meetings at times and venues that encourage broad participation.
- Respond to public concerns and provide accurate and up-to-date information.
- Manage the community engagement program in a manner that provides maximum value to the public and efficient use of GSA and local agency resources.

Time Period: The Community Engagement Plan is intended to cover communication and outreach for the period between July 2025 and June 2030.

Interested Parties and other stakeholders

SGMA lists interested parties who the GSA must consider when developing and implementing the GSP, including:

- Agricultural users of water
- Domestic well owners
- Municipal well operators
- Public water systems
- Land use planning agencies
- Environmental users of groundwater
- Surface water users
- The federal government
- California Native American tribes
- Disadvantaged communities (including those served by private domestic wells or small community water systems).

Appendix A includes a list of interested parties and stakeholders in Petaluma Valley basin. Representatives of most of the interested parties are on the GSA Board or Advisory Committee. Local stakeholders that can be affected by decisions made by the GSA include businesses, schools, land stewardship organizations, and state government agencies.

Outreach Roles

The GSA Board, which is comprised of elected and appointed officials representing land-use agencies and entities responsible for water supply and management will make the ultimate decisions on funding options and implementation of specific projects and management actions. As required by the Joint Powers Authority agreement that created the GSA, the GSA Board will consider the recommendations of the Advisory Committee, which is comprised of representatives from stakeholder groups.

With regards to outreach, the Board is responsible for:

- Adopting and overseeing the implementation of the Community Engagement Plan
- Receiving public comments made in writing and at Board meetings;
- Considering the recommendations of the Advisory Committee.

In addition, the Board may choose to play a more active role in outreach through communication with the public, stakeholder groups and the entities it represents.

The Advisory Committee, which is comprised of members appointed by the GSA Board and entities that comprise the GSA, is charged with actively engaging with the public for input and feedback. This charge can be carried out through various mediums and a variety of activities, but generally includes:

- Advising staff in the drafting of the Community Engagement Plan;
- Actively engaging, educating and seeking input from the represented stakeholder groups on issues before the GSA;
- Sharing input and feedback with the full Advisory Committee meeting; and
- Making recommendations to the Board.

The Petaluma Valley GSA Board, the GSA Advisory Committee and GSA staff are committed to keeping the public informed, providing the public with balanced and objective information to assist the public in understanding SGMA, available options and recommendations. The Board, Advisory Committee and staff will listen and consider public input when evaluating options and making decisions. Input can be made during public comment periods at Advisory Committee and Board meetings, and through the GSA website.

True engagement requires policymakers and the public to not only talk, but to also listen. The Petaluma Valley GSA asks all participants – whatever their role – to follow these rules of engagement:

- Be a good listener. Listen to what is being said, find out why it is being said.
- Be respectful to all participants.

Community Engagement Plan

To truly engage the public when implementing the GSP project and management actions, the GSA will strive to meet these overall objectives:

- Educate the public in compelling ways. Communicate what may often be complex concepts in simple and compelling ways with graphics and examples.
- Ensure inclusion. Identify and engage local community groups to partner or assist in reaching out to economically, socially and culturally diverse communities.
- Manage expectations. The GSA and the GSP are not designed to solve all water problems in the basin. Develop materials and messages that clearly communicate the goal of the GSA and the GSP.
- Show how the input received has been incorporated into the process. Demonstrating to the public how their ideas have been reflected in the planning process is an important piece to the puzzle.
- Remain focused on results. Understand objectives of each public meeting and facilitate the achievement of those objectives.

The Community Engagement Plan is comprised of two categories of activities: Ongoing and project- or program-specific.

Ongoing activities are the "housekeeping" tasks of the GSA outreach, including website maintenance and updates, updates to the interested parties list, social media posts, updating fact sheets and FAQs, and issuing press releases about community meetings.

Project or program-specific engagement activities are developed to meet the outreach goals of each project or program and could include meetings and communications with affected neighbors or specific stakeholders and project-specific fact sheets, media releases and social media posts.

The goal of outreach for the first five years of GSP implementation will be educating and engaging the general public, stakeholders (including disadvantaged communities and tribes), the Advisory Committee and Board on the technical, fiscal and beneficial aspects of implementing the GSP. This phase will include a mix of communication tools, to be used in a variety of forums, including community meetings.

This plan is intended to be adaptive, with outreach staff working with the Advisory Committee (or a working group) to incorporate tools and techniques that worked well on prior projects and modifying or eliminating tools that failed to engage stakeholders.

Community engagement in areas of chronic decline or other indicators of undesirable results: The GSP Implementation may reveal that some areas of the subbasin are experiencing chronic problems of groundwater level decline, saltwater intrusion or some other indicator of concern, which could result in activities or policies that impact well owners in the affected zone. The Advisory Committee and staff will strategically employ communications tools outlined in this plan to conduct outreach to these specific areas using multiple platforms including but not limited to community events, outreach via existing organizations, public workshops, email correspondence, direct mail and social media.

Communication Forums & Communication Tools

Governance Agencies Briefings: Board members will brief their councils or boards regularly on GSA activities and will work with GSA staff to provide additional briefings on sensitive or important topics.

Stakeholder Briefings: Advisory Committee members will meet with and communicate regularly with organizations comprised of the stakeholder groups they represent. To avoid overlap and mixed messages, briefings will be coordinated with outreach staff.

Community Events: Community events are an opportunity to educate specific stakeholder groups through materials and informal conversations.

Disadvantaged Communities Outreach: Disadvantaged communities are specifically called out in SGMA as an interested party. The "A Portrait of Sonoma County: 2021 Update" highlights the disparities between the average Sonoma County resident and the average Latino resident and other minority groups. The report also highlights the disparities by geographic area, including within the three basins. Previous assessments of engaging Sonoma County's Spanish speaking community recommend using "food, faith and festivals" as opportunities to educate and interact with people on critical issues. Connecting with communities through existing organizations and through community events, churches and schools, provides an opportunity share information and solicit feedback on rate/fee options and GSP elements.

Spanish-language media is another method of reaching the Spanish-speaking community. To date, the GSA has participated in several Spanish-language radio programs discussing groundwater. This tool will continue to be used by the GSA to provide information to stakeholders on specific programs and projects.

Tribal outreach: SGMA also requires communication with and inclusion of California Native American tribes. During GSA formation, the County of Sonoma formally reached out to tribes within the basin to invite participation. As the GSA entered the implementation phase, a letter from the GSA chair was sent to tribal leaders to reassess interest.

Public Meetings/Hearings. Public meetings or hearings are formal opportunities for people to provide official comments on programs, plans and proposals. SGMA requires that a public meeting be held prior to the adoption of a fee and public hearings for the adoptions of GSP elements and the final plan. There are also constitutional requirements for public hearings for some fee/rate options. Public meetings and hearings are an important forum for people to share viewpoints and concerns, but often occur at the end of a process, when only one option is under consideration. The GSA will hold required public meetings and hearings but will also use less informal public workshops (described below) to solicit feedback and information early in the process.

Public Workshops. Public educational workshops provide less formal opportunities for people to learn about groundwater, SGMA, financing options, and GSP elements. Workshops can be organized in a variety of ways, including open houses, world cafes and traditional presentations with facilitated question and answer sessions. To solicit feedback from people who may not be comfortable speaking in public, workshops can include small group breakout discussions, "dot" voting, comment cards and other techniques. Whatever format of workshop is used, it will be designed to maximize opportunities for public input.

Public Notices. Should the GSA Board decide to take action on an item that is required to be publicly noticed, the GSA must provide a written statement describing the manner in which interested parties may participate in the development and implementation of the item. The statement must be provided to all the cities within the basin and to the County of Sonoma. As outlined in this Community Engagement Plan, there will be a variety of opportunities for people to participate, including workshops, public hearings, providing comments at Board and Advisory Committee meetings and through written comments.

Direct Mail. Public notices, project announcements and invitations to participate in GSP programs may be disseminated via targeted, direct mail campaigns to reach groundwater users regarding implementation activities and programs.

Individual Conversations. To garner feedback and help build trust, Staff and Advisory Committee members may reach out to individual well owners and interested parties for one-on-one conversations regarding implementation actions, program participation, and policy considerations.

Interested Persons List. SGMA mandates the creation of an Interested Persons List. Since 2017, the GSA has maintained a list of people who are interested in receiving information and updates. The list currently includes approximately 680 people within the Petaluma Valley basin. Monthly email updates are sent to the Interested Persons list, along with special updates on specific meetings and events.

Informational Materials. Developing a variety of informational materials is critical to the successful education and necessary to circulate consistent, accurate information. Outreach staff, with the input of the administrator, plan manager and the Advisory Committee, will develop materials, as needed, including at least the following:

Periodic Updates

- Talking Points: Clear, concise messages to be used by Board and Advisory Committee members and staff when communicating with media, organizations and stakeholders.
- Milestone Fact Sheets: For the rate/fee study and implementation of GSP elements.
- Slide Decks: Develop instructional slides with graphics and language for presentations both in person and online.
- Flyers and graphics: language and graphics on handouts and shareable digital media that provide simple, easy to digest descriptions of projects and programs with words and images
- Frequently Asked Questions: FAQs will be issued on the rate/fee study, projects and programs and for specific stakeholders, including private well owners.
- Newsletter Articles: A short paragraph (50-100 words) that Advisory Committee members can insert into organizational newsletters. These brief articles can also be published in the Sonoma County Water Agency's e-newsletter, which has a broad distribution.
- Newspaper editorials: Authored by outreach staff and Board or Advisory Committee members for submittal to local news sources.
- Briefing Packets: For milestone briefings. Packets will include standard talking points, PowerPoint presentations, and other materials to assist in educational outreach and for soliciting feedback.

Website. The GSA website, PetalumaValleyGroundwater.org, is a hub for the distribution and archiving of meeting and communication materials as well as a repository for annual reports and studies. Outreach staff update the subbasin website monthly. The website also provides pages that outline programs for public participation and a blog with current updates and feature articles about GSA Implementation projects and programs.

Social Media. Existing Sonoma County Groundwater profiles on Facebook and Instagram platforms will be utilized to share news and events. Video content is posted on YouTube.

Surveys. Online tools, such as Survey Monkey, will be used periodically to gather stakeholder ideas and to provide feedback on key issues.

Media Plan. Outreach staff will work with the administrator to develop press releases as needed and for milestones and community meetings. The press releases will be distributed to local and regional media and Legislative and Congressional representatives.

Appendix A:*

Consideration of Interests, as required by SGMA

* This list is not exhaustive or exclusive.

Cities, County

- City of Petaluma
- County of Sonoma

Tribal Stakeholders / AB52 Contact List

- Cloverdale Rancheria of Pomo Indians
- Kashia Band of Pomo Indians of the Stewarts Point Rancheria
- Dry Creek Rancheria of Pomo Indians
- Federated Indians of Graton Rancheria
- Guidiville Indian Rancheria
- Lytton Rancheria Band of Pomo Indians
- Middletown Rancheria of Pomo Indians
- Mishewal-Wappo Tribe of Alexander Valley
- Muwekma Ohlone Indian Tribe of the SF Bay Area
- Pinoleville Pomo Nation
- Robinson Rancheria of Pomo Indians
- Yocha Dehe Wintun Nation

Federal Government

- National Oceanic & Atmospheric Administration/NMFS
- US Army Corps of Engineers
- Natural Resource Conservation Service
- US Fish & Wildlife Service
- EPA

Public Water Systems

- City of Petaluma
- Sonoma County Water Agency

Agriculture

- Sonoma County Farm Bureau
- Community Alliance of Family Farmers
- Western United Dairymen's Association
- Sonoma County Winegrape Commission
- Sonoma County Vintners

- Barn & Ranch Owners of Northern California (BRONC)
- North Bay Agricultural Alliance
- Sonoma Resource Conservation District
- Sonoma County Growers Alliance
- Sonoma Valley Farmers Guild (formerly the Grange)
- Sonoma County Food System Alliance/ Ag Innovations

Organizations Representing Environmental Uses of Groundwater

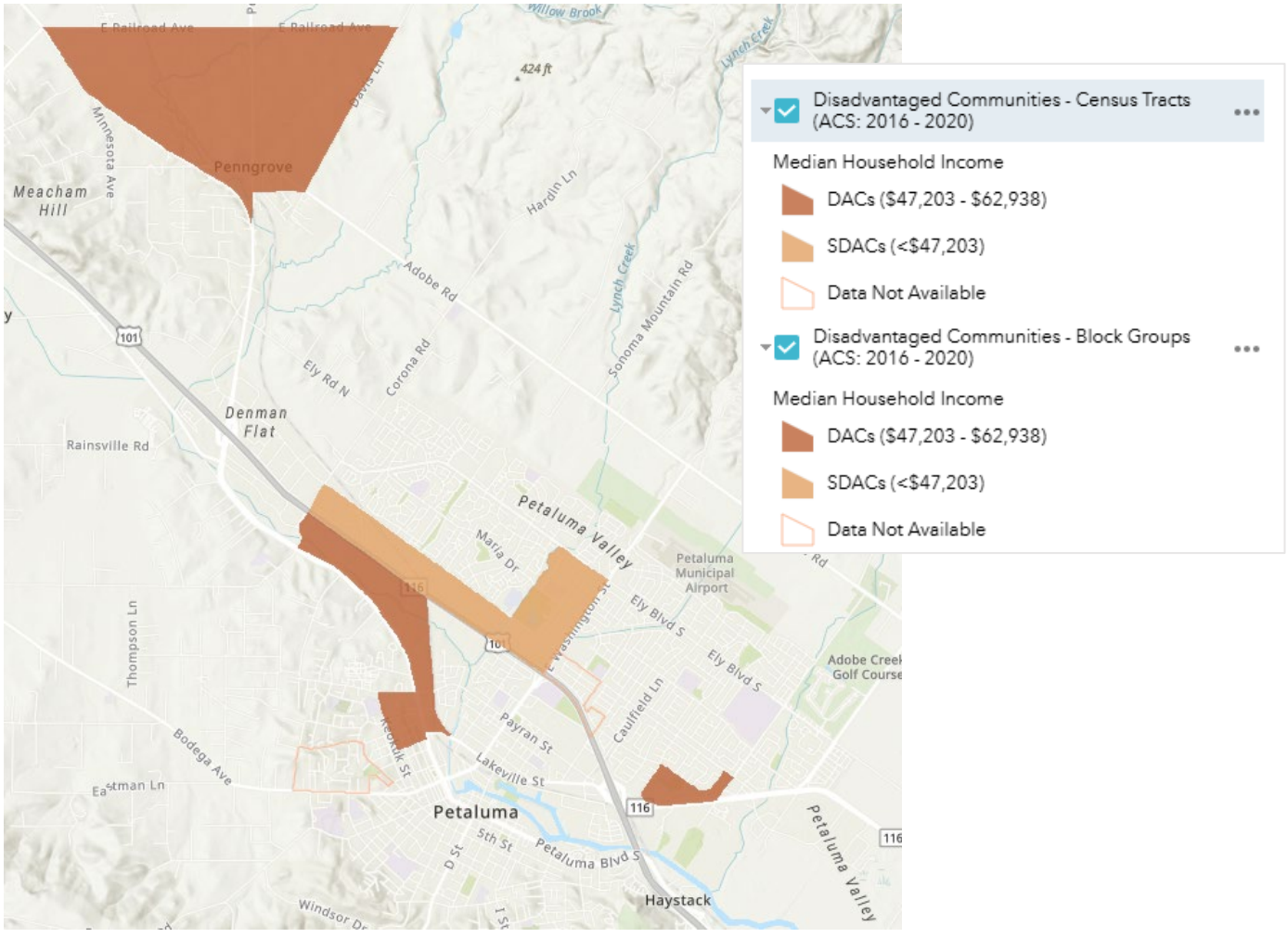
- Sonoma County Water Coalition
- Sonoma County Conservation Action
- Friends of Petaluma River
- Petaluma Wetlands Alliance

Well Owners (including domestic well owners – via list of parcels in unincorporated areas)

Mutual & PUC-Regulated Water Systems (within the basin)

- Penngrove Water Company

Disadvantaged Communities (as identified by on the CA Dept. of Water Resources Disadvantaged Communities Mapping tool: https://gis.water.ca.gov/app/dacs/ - map below)



Other Interested Parties

** While not required to be engaged under SGMA, these stakeholders will be included in the outreach program. This list is not exhaustive or exclusive.*

- Sonoma County Agricultural Preservation & Open Space District
- Sonoma County Planning Commission
- North Bay Watershed Association/Russian River Watershed Association
- School districts
- Regional Water Quality Control Board

Business / Developers

- Sonoma County Alliance
- North Bay Association of Realtors
- Economic Development Board
- Chambers of Commerce
- Citizens & Community Organizations
- Daily Acts
- League of Women Voters
- Democratic and Republican clubs
- Rotaries
- Kiwanis
- Sons of Retirement – Petaluma (Elks)

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Community Engagement Plan

for the Implementation of the
Groundwater Sustainability Plan
Santa Rosa Plain Groundwater Sustainability Agency

2025-2030

Purpose, Outcomes & Goals

The purpose of the Sustainable Groundwater Management Act (SGMA), signed by Governor Brown in 2014, is to ensure local sustainable groundwater management in medium- and high-priority groundwater basins statewide. California's Department of Water Resources has determined that Sonoma County has three medium -priority basins that are subject to SGMA Implementation:

- Petaluma Valley basin
- Santa Rosa Plain subbasin
- Sonoma Valley subbasin

This Community Engagement Plan applies only to the Santa Rosa Plain Groundwater Sustainability Agency, although many outreach activities will be coordinated with the other basins.

SGMA Milestones:

1. The Santa Rosa Plain basin achieved the first milestone in SGMA by creating a Groundwater Sustainability Agency (GSA) by June 30, 2017.
2. The second major milestone in the SGMA was the adoption of a Groundwater Sustainability Plan (GSP) by January 30, 2022 which was approved by the California Department of Water Resources in January 2023.
3. The third milestone is achieving sustainability through GSP Implementation by 2042.

Several key steps must be taken to ensure that the Groundwater Sustainability Plan is adopted, including:

- Adoption and implementation of a financing plan that will allow the Santa Rosa Plain GSA to be financially independent;
- Identifying and filling data gaps so that the GSA better understands what is happening in the subbasin.
- Monitoring the subbasin conditions to identify trends and possible areas of concern or improvements in order to address them.
- Annual reporting to DWR and a five-year update of the GSP that will incorporate new information.
- Planning, developing and implementing projects and actions that will address existing and potential future problems with groundwater levels, groundwater quality and other indicators of subbasin problems; and
- Educating people about the groundwater subbasin and engaging stakeholders in opportunities to understand and improve subbasin problems.

Outcomes: The desired outcome for this communication and outreach plan is to achieve Milestone Three with input from and in consideration of Sonoma County's diverse people, economy and ecosystems.

Plan Goals: SGMA requires the GSA to consider the interests of all beneficial uses and users of groundwater, and encourage involvement of diverse social, cultural, and economic elements of the population within the subbasin during GSP preparation and implementation.

The goals of the Community Engagement Plan are to:

- Enhance understanding and inform the public about water and groundwater resources in the Santa Rosa Plain, the purpose and need for sustainable groundwater management, the benefits of sustainable groundwater management and the need for a GSP.
- Engage a diverse group of interested parties and stakeholders and promote informed feedback from stakeholders, the community and groundwater-dependent users throughout the GSP implementation process.
- Reach out to and engage disadvantaged communities throughout the rate/fee study and GSP implementation process.
- Coordinate communication and involvement between the GSA (Board, Advisory Committee and staff), and other local agencies (including other GSAs), elected and appointed officials, and the general public.
- Utilize the GSA Advisory Committee to facilitate a comprehensive public engagement process.
- Employ a variety of outreach methods that make public participation easy and accessible. Hold meetings at times and venues that encourage broad participation.
- Respond to public concerns and provide accurate, accessible, and up-to-date information.
- Manage the community engagement program in a manner that provides maximum value to the public and an efficient use of GSA and local agency resources.

Time Period: The Community Engagement Plan is intended to cover communication and outreach for the time period between July 2025 and June 2030.

Interested Parties and other stakeholders: SGMA lists interested parties who the GSA must consider when developing and implementing the GSP, including:

- Agricultural users of water
- Domestic well owners
- Municipal well operators
- Public water systems
- Land use planning agencies
- Environmental users of groundwater
- Surface water users
- The federal government
- California Native American tribes
- Disadvantaged communities (including those served by private domestic wells or small community water systems).

See Appendix A for a list of the interested parties in Santa Rosa Plain. Representatives of most of the interested parties are included on the GSA Board or Advisory Committee.

Other stakeholders can also be impacted by decisions made by the GSA, including businesses, schools, land stewardship organizations, and state government agencies.

See Appendix B for a listing of additional stakeholders that were considered and solicited for feedback during GSP development and implementation.

Outreach Roles

The GSA Board, which is comprised of elected and appointed officials representing land-use agencies and entities responsible for water supply and management will make the ultimate decisions on funding options and implementation of specific projects and management actions. As required by the Joint Powers Authority agreement that created the GSA, the GSA Board will consider the recommendations of the Advisory Committee, which is comprised of appointed representatives from stakeholder groups.

In regard to outreach, the Board is responsible for:

- Adopting and overseeing implementation of the Community Engagement Plan;
- Receiving and considering public comments made in writing and at Board meetings;
- Considering the recommendations of the Advisory Committee.

In addition, the Board may choose to play a more active role in outreach through communication with the public, stakeholder groups, and the entities it represents.

The **Advisory Committee,** which is comprised of members appointed by the GSA Board, representatives of entities that comprise the GSA, and representatives of eligible entities not part of the GSA, will become familiar with issues and financing options and issues related to the GSP.

The Advisory Committee is charged with actively engaging with the public for input and feedback. This charge will be carried out through various mediums and a variety of activities, but generally includes:

- Advising staff in the drafting of the Community Engagement Plan;
- Actively seeking input from the represented stakeholder groups on issues before the GSA;
- Sharing input and feedback with the full Advisory Committee meeting; and
- Making recommendations to the Board.

The Santa Rosa Plain GSA Board, the Santa Rosa Plain GSA Advisory Committee, and staff are committed to keeping the **public informed**, providing the public with **balanced and objective information** to assist the public in understanding SGMA, available options and recommendations, and **creating an open process** for public input on the implementation of the GSP.

When evaluating the options and making decisions, the Board, Advisory Committee and staff will **solicit public input** through a variety of methods, including public workshops, written and verbal comments, meetings with stakeholder organizations and community events. Input can be made during public comment periods at Advisory Committee and Board meetings, and in writing.

True engagement requires policymakers and the public to not only talk, but to also listen. The Santa Rosa Plain GSA asks all participants – whatever their role – to follow these rules of engagement:

- Be a good listener. Listen to what is being said; find out why it is being said.
- Be respectful to all participants.

Community Engagement Plan

To truly engage the public when implementing the GSP project and management actions, the GSA will strive to meet these overall objectives:

- Educate the public in compelling ways. Communicate what may often be complex concepts in simple and compelling ways with graphics and examples.
- Ensure inclusion. Identify and engage local community groups to partner or assist in reaching out to economically, socially and culturally diverse communities.
- Manage expectations. The GSA and the GSP are not designed to solve all water problems in the subbasin. Develop materials and messages that clearly communicate the goals of the GSA and the GSP.
- Show how the input received has been incorporated into the process. Demonstrating to the public how their ideas have been reflected in the planning are important to successfully achieving the goals.
- Remain focused on results. Understand objectives of each public meeting and facilitate the achievement of those objectives.

The Community Engagement Plan is comprised of two categories of activities: ongoing and project- or program-specific.

Ongoing activities are the "housekeeping" tasks of the GSA outreach, including website maintenance and updates, updates to the interested parties list, social media posts, updating fact sheets and FAQs, and issuing press releases or advertisements about community meetings.

Project or program-specific engagement activities

Engagement activities are developed to meet the outreach goals of each project or program and could include meetings and communications with affected neighbors or specific stakeholders and project-specific fact sheets, media releases, and social media posts.

The goal of outreach for the first five years of GSP implementation (2022-2027) will be educating and engaging the general public, stakeholders (including disadvantaged communities and tribes), the Advisory Committee and Board on the technical, fiscal, and beneficial aspects of implementing the GSP. This phase will include a mix of communication tools, to be used in a variety of forums, including community meetings.

This plan is intended to be adaptive, with outreach staff working with the Advisory Committee (or a working group) to incorporate tools and techniques that worked well on prior projects and modifying or eliminating tools that failed to engage stakeholders.

Community Engagement in areas of chronic decline or other indicators of undesirable results: In the future, the GSP implementation could reveal that some areas of the subbasin are experiencing chronic problems of groundwater level decline or some other indicator of concern, which could result in activities or policies that impact well owners in the affected zone. If that occurs, the Advisory Committee and staff will strategically employ communications tools outlined in this plan to conduct outreach to these specific areas using multiple platforms including but not limited to community events, outreach via existing organizations, public workshops, email correspondence, direct mail and social media.

Communication Forums & Tools

Governance Agencies Briefings: Board members will brief their councils or boards regularly on GSA activities and will work with GSA staff to provide additional briefings on sensitive or important topics.

Stakeholder Briefings: Advisory Committee members will meet with and communicate regularly with organizations comprised of the stakeholder groups they represent. To avoid overlap and mixed messages, briefings will be coordinated with outreach staff.

Community events: Community events are an opportunity to educate specific stakeholder groups through materials and informal conversations.

Disadvantaged Community Engagement – Community Events & Using Existing Venues
Disadvantaged Communities (DACs) are specifically called out in SGMA as an interested party. Thirty-six percent of the area in the Santa Rosa Plain Basin is designated an Economically Distressed Area, and 24% of the area in the basin is categorized as DAC. A large percent of the people living in the DAC areas are relatively recent immigrants from Spanish-speaking and Asian countries. The “A Portrait of Sonoma County: 2021 Update”, highlights the disparities between the average Sonoma County resident and the average Latino resident. The report also highlights the disparities by geographic area, including within the three basins. Previous assessments of engaging Sonoma County’s Spanish speaking community recommend using “food, faith and festivals” as opportunities to educate and interact with people on critical issues. Connecting with communities through existing organizations and through community events, churches and schools provides an opportunity to share information and solicit feedback on GSP implementation elements and rate/fee options.

Spanish-language media is another method of reaching the Spanish-speaking community. To date, the GSA has participated in several Spanish-language radio programs discussing groundwater. This tool will continue to be used by the GSA to provide information to stakeholders on specific programs and projects.

Public Meetings/Hearing

Public meetings or hearings are formal opportunities for people to provide official comments on programs, plans and proposals. SGMA requires that a public meeting be held prior to the adoption of a fee and public hearings for the adoption of GSP elements and the final plan. There are also constitutional requirements for public hearings for some fee/rate options. Public meetings and hearings are an important forum for people to share viewpoints and concerns, but often occur at the end of a process, when only one option is under consideration. The GSA will hold the required public meetings and hearings but will also use less informal public workshops (described below) to solicit feedback and information throughout the process.

Public Workshops
Public educational workshops provide less-formal opportunities for people to learn about groundwater, SGMA, financing options, and GSP elements. Workshops can be organized in a variety of ways, including open houses, world cafes and traditional presentations with facilitated question and answer sessions. To solicit feedback from people who may not be comfortable speaking in public, workshops can include small group breakout discussions, "dot" voting, comment cards and other techniques. Whatever format of workshop is used, it will be designed to maximize opportunities for public input.

Public Notices.
Should the GSA Board decide to take action on an item that is required to be publicly noticed, the GSA must provide a written statement describing the manner in which interested parties may participate in the development and implementation of the item. The statement must be provided to all the cities within the subbasin and to the County of Sonoma. As outlined in this Community Engagement Plan, there will be a variety of opportunities for people to participate, including workshops, public hearings, providing comments at Board and Advisory Committee meetings and through written comments

Direct Mail.
Public notices, project announcements and invitations to participate in GSP programs may be disseminated via targeted, direct mail campaigns to reach groundwater users regarding implementation activities and programs.

Individual Conversations.
To garner feedback and help build trust, staff and Advisory Committee members may reach out to individual well owners and interested parties for one-on-one conversations regarding implementation actions, program participation, and policy considerations.

Specific tools will be used to inform and engage people, including:

Interested Persons List
SGMA mandates the creation of an Interested Persons List. Since 2017, the GSA has maintained a list of people who are interested in receiving information and updates. The list currently includes approximately 1295 people who indicated they want to receive information about the Santa Rosa Plain quarterly email newsletter with project, program and policy updates, as well as other notices are sent to the Interested Persons list, along with special updates on specific meetings and events.

Informational Materials. Developing a variety of informational materials is critical to successful education outreach and necessary to circulate consistent, accurate information. Outreach staff, with

the input of the Administrator, Plan Manager, and the Advisory Committee, will develop materials, as needed, including at least the following:

- Talking Points: Clear, concise messages to be used by Board and Advisory Committee members and staff when communicating with media, organizations and stakeholders.
- Milestone Fact Sheets: For the rate/fee study and implementation of GSP elements.
- Slide Decks: Develop instructional slides with graphics and language for presentations both in person and online.
- Flyers and graphics: language and graphics on handouts and shareable digital media that provide simple, easy to digest descriptions of projects and programs with words and images
- Frequently Asked Questions: FAQs will be issued on the rate/fee study, projects and programs and for specific stakeholders, including private well owners.
- Newsletter Articles: A short paragraph (50-100 words) that Advisory Committee members can insert into organizational newsletters. These brief articles can also be published in the Sonoma County Water Agency's e-newsletter, which has a broad distribution.
- Newspaper editorials: Authored by Outreach staff and Board or Advisory Committee members for submittal to local news sources.
- Briefing Packets: For milestone briefings. Packets will include standard talking points, PowerPoint presentations, and other materials to assist in educational outreach and for soliciting feedback.

Website. The GSA website, SantaRosaPlainGroundwater.org, is a hub for the distribution and archiving of meeting and communication materials as well as a repository for annual reports and studies. Outreach staff update the subbasin website monthly. The website also provides pages that outline programs for public participation and a blog with current updates and feature articles about GSA Implementation projects and programs.

Social Media. Existing Sonoma County Groundwater profiles on Facebook and Instagram platforms will be utilized to share news and events. Video content is posted on YouTube

Surveys. Online tools, such as Survey Monkey, will be used periodically to gather stakeholder ideas and to provide feedback on key issues.

Media Plan. Outreach staff will work with the administrator to develop press releases as needed and for milestones and community meetings. The press releases will be distributed to local and regional media and Legislative and Congressional representatives.

Appendix A:* Consideration of Interests, as required by SGMA[1]

*This list is not exhaustive or exclusive.

Cities, Town, County

- Cotati
- Rohnert Park
- Santa Rosa
- Sebastopol
- Windsor
- County of Sonoma
- Tribal Stakeholders / AB52 Contact List
- Cloverdale Rancheria of Pomo Indians
- Kashia Band of Pomo Indians of the Stewarts Point Rancheria
- Dry Creek Rancheria of Pomo Indians
- Federated Indians of Graton Rancheria
- Guidiville Indian Rancheria
- Lytton Rancheria Band of Pomo Indians
- Middletown Rancheria of Pomo Indians
- Mishewal-Wappo Tribe of Alexander Valley
- Muwekma Ohlone Indian Tribe of the SF Bay Area
- Pinoleville Pomo Nation
- Robinson Rancheria of Pomo Indians
- Yocha Dehe Wintun Nation

Federal Government

- National Oceanic & Atmospheric Administration/NMFS
- US Army Corps of Engineers
- Natural Resource Conservation Service
- USFWS
- EPA

Public Water Systems

(Note: Many of the mutual and PUC-regulated water companies listed below have joined together and hold one seat on the GSA Board and one seat on the GSA Advisory Committee. The other water companies have been contacted but are not currently interested in participating in the GSA.)

- Sonoma County Water Agency
- Cal-American, Larkfield
- Penngrove Water Company
- Athena Terrace Mutual Water Company
- Branger Mutual Water Company, Inc.
- Hawkins Water Co-Cal Water Service
- Holland Heights Mutual Water Company
- Madrone Mutual Water Company
- Mount Weske Estates Mutual Water Company
- Park Royal Mutual Water
- Wendell Water Company
- Willowside Mutual Water Company

[1] Water Code §10723.2

Agriculture

- Sonoma County Farm Bureau
- United Winegrowers
- Community Alliance of Family Farmers/Farmer's Guild
- Western United Dairymen's Association
- Sonoma County Winegrape Commission
- Sonoma County Vintners
- BRONC
- North Bay Agricultural Alliance
- Santa Rosa Plain Vintners and Growers
- Gold Ridge Resource Conservation District
- Sonoma Resource Conservation District
- Sonoma County Growers Alliance

Organizations that Represent Environmental Uses of Groundwater

- Sonoma County Water Coalition
- Sonoma County Conservation Action
- Fairfield Osborn Preserve
- Pepperwood Preserve
- Sebastopol Water Information Group (SWIG)

Disadvantaged Communities (and organizations that represent disadvantaged communities)[2]

- Roseland, Southwest Santa Rosa, Southeast Santa Rosa, Northwest Santa Rosa, Kawana Springs, Apple Valley
- Boys and Girls Club
- Los Cien
- Community Action Partnership
- Burbank Housing
- Catholic Charities
- Immigration advocacy groups
- North Bay Organizing Project
- North Bay Jobs with Justice
- National Association for the Advancement of Colored People (NAACP)-Santa Rosa/Sonoma County Branch
- Asian American Pacific Islander (AAPI) Coalition North Bay

Well Owners (including domestic well owners)

[2] As identified by the County of Sonoma

Appendix B:* Other Interested Parties[3]

* While not required to be engaged under SGMA, these stakeholders will be including in the outreach program. This list is not exhaustive or exclusive.

- Sonoma County Agricultural Preservation & Open Space District
- Sonoma County Planning Commission
- City/Town Planning Commissions
- Russian River Watershed Association
- Santa Rosa Plain school districts
- Sonoma State University
- Santa Rosa Junior College
- Memorial Hospital
- Sutter Hospital
- Kaiser Hospital

State Government

- Regional Water Quality Control Board
- California Department of Fish and Wildlife

Business / Developers

- Sonoma County Alliance
- Construction Coalition
- North Bay Association of Realtors
- Economic Development Board
- Chambers of Commerce

Citizens & Community Organizations

- League of Women Voters
- Democratic and Republican Club
- Rotaries
- Kiwanis
- SIRS
- Sonoma County Community Foundation
- Sonoma Land Trust
- Accountable Development Coalition
- Concerned Citizens for Santa Rosa
- Sierra Club

[3] Appendix B includes parties and organizations that may be interested in groundwater management, but are not specifically identified as an interest that must be considered under Water Code §1072

SONOMA VALLEY GROUNDWATER SUSTAINABILITY AGENCY

Community Engagement Plan for the Implementation of the Groundwater Sustainability Plan

2025-2030

Purpose, Outcomes & Goals

The purpose of the Sustainable Groundwater Management Act (SGMA), signed by Governor Brown in 2014, is to ensure local sustainable groundwater management in medium- and high-priority groundwater basins statewide. California's Department of Water Resources has determined that three Sonoma County basins are subject to SGMA Implementation:

- Petaluma Valley basin
- Santa Rosa Plain subbasin
- Sonoma Valley subbasin

This Community Engagement Plan applies only to the Sonoma Valley Groundwater Sustainability Agency, although many outreach activities will be coordinated with the other Sonoma County basins.

The Sonoma Valley subbasin achieved the first SGMA milestone by creating a Groundwater Sustainability Agency (GSA) by June 30, 2017. The Sonoma Valley GSA is governed by a Board of Directors which receives feedback and input from a diverse, stakeholder-based Advisory Committee.

The second major SGMA milestone was the adoption of a Groundwater Sustainability Plan (GSP) in December of 2021. The GSP is prescribed by SGMA and accompanying regulations. The Sonoma Valley Subbasin GSP was approved by the Department of Water Resources (DWR) in January 2023. The purpose of the GSP is to achieve and maintain the sustainability of the groundwater subbasin by 2042, which is the third SGMA milestone.

To achieve and maintain sustainability, the GSP includes several projects and management actions (see Section 6 of the GSP for a full description). The GSP also includes an implementation plan, which is fully described in Section 7, and can be summarized as follows:

- Adoption and implementation of a financing plan;
- Identifying and filling data gaps so that the GSA better understands what is happening in the subbasin;
- Monitoring the subbasin conditions in order to identify trends and possible areas of concern or improvements;

- Annual reporting to DWR and a five-year update of the GSP that will incorporate new information;
- Planning for and developing projects and actions that will address existing and potential future problems with groundwater levels, quality and other indicators of subbasin problems; and
- Educating people about the groundwater subbasin and engaging stakeholders in opportunities to understand and improve subbasin problems.

Outcomes: The desired outcome for this Community Engagement Plan is to achieve Milestone Three (achieve and maintain sustainability via GSP implementation) by working with and incorporating input from Sonoma County's diverse stakeholders to address implementation issues.

Plan Goals: SGMA requires the GSA to consider the interests of all beneficial uses and users of groundwater, and encourage involvement of diverse social, cultural, and economic elements of the population within the subbasin.

The goals of the Community Engagement Plan are to:

- Enhance understanding and inform the public about water and groundwater resources in the subbasin.
- Engage a diverse group of interested parties and promote informed community feedback throughout the GSP implementation process.
- Coordinate communication and involvement between the GSA and other local agencies (including other GSAs), elected and appointed officials, tribal governments and the general public.
- Employ a variety of outreach methods that make public participation easy and accessible.
- Hold meetings at times and venues that encourage broad participation.
- Respond to public concerns and provide accurate and up-to-date information.
- Manage the community engagement program in a manner that provides maximum value to the public and efficient use of GSA and local agency resources.

Time Period: The Community Engagement Plan is intended to cover communication and outreach for the time period between July 2025 and June 2030.

Interested Parties and other stakeholders

SGMA lists interested parties who the GSA must consider when developing and implementing the GSP, including:

- Agricultural users of water
- Domestic well owners
- Municipal well operators
- Public water systems
- Land use planning agencies

- Environmental users of groundwater
- Surface water users
- The federal government
- California Native American tribes
- Disadvantaged communities (including those served by private domestic wells or small community water systems).

Appendix A includes a list of interested parties and stakeholders in Sonoma Valley subbasin. Representatives of most of the interested parties are included on the GSA Board or Advisory Committee. Local stakeholders that can be affected by decisions made by the GSA also include businesses, schools, land stewardship organizations, and state government agencies.

Outreach Roles

The GSA Board, which is comprised of elected and appointed officials representing land-use agencies and entities responsible for water supply and management will make the ultimate decisions on funding options and implementation of specific projects and management actions. As required by the Joint Powers Authority agreement that created the GSA, the GSA Board will consider the recommendations of the Advisory Committee, which is comprised of representatives from stakeholder groups.

Regarding outreach, the Board is responsible for:

- Adopting and overseeing the implementation of the Community Engagement Plan
- Receiving public comments made in writing and at Board meetings;
- Considering the recommendations of the Advisory Committee.

In addition, the Board may choose to play a more active role in outreach through communication with the public, stakeholder groups and the entities it represents.

The Advisory Committee, which is comprised of members appointed by the GSA Board and entities that comprise the GSA, is charged with actively engaging with the public for input and feedback. This charge can be carried out through various mediums and a variety of activities, but generally includes:

- Advising staff in the drafting of the Community Engagement Plan;
- Actively engaging, educating and seeking input from the represented stakeholder groups on issues before the GSA;
- Sharing input and feedback with the full Advisory Committee meeting; and
- Making recommendations to the Board.

The Sonoma Valley GSA Board, the GSA Advisory Committee and GSA staff are committed to keeping the public informed, providing the public with balanced and objective information to assist the public in understanding SGMA, available options and recommendations. The Board,

Advisory Committee, and staff will listen and consider public input when evaluating options and making decisions. Input can be made during public comment periods at Advisory Committee and Board meetings, and through the GSA website.

True engagement requires policymakers and the public to not only talk but also listen. The Sonoma Valley GSA asks all participants – whatever their role – to follow these rules of engagement:

- Be a good listener. Listen to what is being said, find out why it is being said.
- Be respectful to all participants.

Community Engagement Plan

To truly engage the public when implementing the GSP project and management actions, the GSA will strive to meet these overall objectives:

- Educate the public in compelling ways. Communicate what may often be complex concepts in simple and compelling ways with graphics and examples.
- Ensure inclusion by identifying and engaging local community groups to partner or assist in reaching out to economically, socially and culturally diverse communities.
- Manage expectations. The GSA and the GSP are not designed to solve all water problems in the subbasin. Develop materials and messages that clearly communicate the goal of the GSA and the GSP.
- Show how the input received has been incorporated into the process. Demonstrating to the public how their ideas have been reflected in the planning process is an important piece to the puzzle.
- Remain focused on results. Understand objectives of each public meeting and facilitate the achievement of those objectives.

The Community Engagement Plan is comprised of two categories of activities: Ongoing and project- or program-specific.

Ongoing activities are the “housekeeping” tasks of the GSA outreach, including website maintenance and updates, quarterly newsletter and other email updates to the interested parties list, social media posts, updating fact sheets and FAQs, and issuing press releases about community meetings.

Project or program-specific engagement activities are developed to meet the outreach goals of each project or program and could include meetings and communications with affected neighbors or specific stakeholders and project-specific fact sheets, media releases, and social media posts.

The goal of outreach for the first five years of GSP implementation will be educating and engaging the general public, stakeholders (including disadvantaged communities and tribes), the Advisory Committee and Board on the technical, fiscal, and beneficial aspects of

implementing the GSP. This phase will include a mix of communication tools, to be used in a variety of forums, including community meetings.

This plan is intended to be adaptive, with outreach staff working with the Advisory Committee (or a working group) to incorporate tools and techniques that worked well on prior projects and modifying or eliminating tools that failed to engage stakeholders.

Community Engagement in areas of chronic decline or other indicators of undesirable results: The GSP Implementation may reveal that some areas of the subbasin are experiencing chronic problems of groundwater level decline, saltwater intrusion or some other indicator of concern, which could result in activities or policies that impact well owners in the affected zone. The Advisory Committee and staff will strategically employ communications tools outlined in this plan to conduct outreach to these specific areas using multiple platforms including but not limited to community events, outreach via existing organizations, public workshops, email correspondence, and social media.

Communication Forums & Communication Tools

Governance Agencies Briefings: Board members will brief their councils or boards regularly on GSA activities and will work with GSA staff to provide additional briefings on sensitive or important topics.

Stakeholder Briefings: Advisory Committee members will meet with and communicate regularly with organizations comprised of the stakeholder groups they represent. To avoid overlap and mixed messages, briefings will be coordinated with outreach staff.

Community events: Community events are an opportunity to educate specific stakeholder groups through presentations, materials, and informal conversations.

Disadvantaged Communities Outreach: Disadvantaged communities are specifically called out in SGMA as an interested party. The “A Portrait of Sonoma County: 2021 Update”, highlights the disparities between the average Sonoma County resident and the average Latino resident. The report also highlights the disparities by geographic area, including within the three basins. Previous assessments of engaging Sonoma County’s Spanish speaking community recommend using “food, faith and festivals” as opportunities to educate and interact with people on critical issues. Connecting with communities through existing organizations and through community events, churches and schools, provides an opportunity to share information and solicit feedback on rate/fee options and GSP elements.

Spanish-language media is another method of reaching the Spanish-speaking community. To date, the GSA has participated in several Spanish-language radio programs discussing groundwater. This tool will continue to be used by the GSA to provide information to stakeholders on specific programs and projects.

Tribal outreach: SGMA also requires communication with and inclusion of California Native American tribes. During GSA formation, the County of Sonoma formally reached out to tribes within the subbasin to invite participation. As the GSA entered the implementation phase, in 2024, a letter from the GSA chair was sent to tribal leaders to reassess interest.

Public Meetings/Hearings. Public meetings or hearings are formal opportunities for people to provide official comments on programs, plans and proposals. SGMA requires that a public meeting be held prior to the adoption of a fee and public hearings for the adoptions of GSP elements and the final plan. There are also constitutional requirements for public hearings for some fee/rate options. Public meetings and hearings are an important forum for people to share viewpoints and concerns, but often occur at the end of a process, when only one option is under consideration. The GSA will hold required public meetings and hearings but will also use less informal public workshops (described below) to solicit feedback and information early in the process.

Public Workshops. Public educational workshops provide less-formal opportunities for people to learn about groundwater, SGMA, financing options, and GSP elements. Workshops can be organized in a variety of ways, including open houses, world cafes and traditional presentations with facilitated question and answer sessions. To solicit feedback from people who may not be comfortable speaking in public, workshops can include small group breakout discussions, "dot" voting, comment cards and other techniques. Whatever format of workshop is used; it will be designed to maximize opportunities for public input.

Public Notices. Should the GSA Board decide to take action on an item that is required to be publicly noticed, the GSA must provide a written statement describing the manner in which interested parties may participate in the development and implementation of the item. The statement must be provided to all the cities within the subbasin and to the County of Sonoma. As outlined in this Community Engagement Plan, there will be a variety of opportunities for people to participate, including workshops, public hearings, providing comments at Board and Advisory Committee meetings, and through written comments

Direct Mail. Public notices, project announcements and invitations to participate in GSP programs may be disseminated via targeted, direct mail campaigns to reach groundwater users regarding implementation activities and programs.

Individual Conversations. To garner feedback and help build trust, Staff and Advisory Committee members may reach out to individual well owners and interested parties for one-on-one conversations regarding implementation actions, program participation, and policy considerations.

Interested Persons List. SGMA mandates the creation of an Interested Persons List. Since 2017, the GSA has maintained a list of people who are interested in receiving information and updates. The list currently includes approximately 733 people who indicated they want to receive information about the Sonoma Valley subbasin. A quarterly email newsletter with

project, program and policy updates, as well as other notices are sent to the Interested Persons list, along with special updates on specific meetings and events.

Informational Materials. Developing a variety of informational materials is critical to the successful education and necessary to circulate consistent, accurate information to stakeholders and the public. Outreach staff, with the input of the Administrator, Plan Manager, and the Advisory Committee, will develop materials, as needed, including at least the following:

- Talking Points: Clear, concise messages to be used by Board and Advisory Committee members and staff when communicating with media, organizations and stakeholders.
- Milestone Fact Sheets: For the rate/fee study and implementation of GSP elements.
- Slide Decks: Develop instructional slides with graphics and language for presentations both in person and online.
- Flyers and graphics: language and graphics on handouts and shareable digital media that provide simple, easy to digest descriptions of projects and programs with words and images
- Frequently Asked Questions: FAQs will be issued on the rate/fee study, projects and programs and for specific stakeholders, including private well owners.
- Newsletter Articles: A short paragraph (50-100 words) that Advisory Committee members can insert into organizational newsletters. These brief articles can also be published in the Sonoma County Water Agency's e-newsletter, which has a broad distribution.
- Newspaper editorials: Authored by Outreach staff and Board or Advisory Committee members for submittal to local news sources.
- Briefing Packets: For milestone briefings. Packets will include standard talking points, PowerPoint presentations, and other materials to assist in educational outreach and for soliciting feedback.

Website. The GSA website, SonomaValleyGroundwater.org, is a hub for the distribution and archiving of meeting and communication materials as well as a repository for annual reports and studies. Outreach staff update the subbasin website monthly. The website also provides pages that outline programs for public participation and a blog with current updates and feature articles about GSA Implementation projects and programs.

Social Media. Existing Sonoma County Groundwater profiles on Facebook and Instagram platforms will be utilized to share news and events. Video content is posted on YouTube.

Surveys. Online tools, such as Survey Monkey, will be used periodically to gather stakeholder ideas and input, and to provide feedback on key issues.

Media Plan. Outreach staff will work with the administrator to develop press releases as needed, and for key milestones and community meetings. The press releases will be distributed to local and regional media and Legislative and Congressional representatives.

Appendix A:* Consideration of Interests, as required by SGMA

* This list is not exhaustive or exclusive.

Cities, County

- City of Sonoma
- County of Sonoma

Tribal Stakeholders / AB52 Contact List

- Cloverdale Rancheria of Pomo Indians
- Kashia Band of Pomo Indians of the Stewarts Point Rancheria
- Dry Creek Rancheria of Pomo Indians
- Federated Indians of Graton Rancheria
- Guidiville Indian Rancheria
- Lytton Rancheria Band of Pomo Indians
- Middletown Rancheria of Pomo Indians
- Mishewal-Wappo Tribe of Alexander Valley
- Muwekma Ohlone Indian Tribe of the SF Bay Area
- Pinoleville Pomo Nation
- Robinson Rancheria of Pomo Indians
- Yocha Dehe Wintun Nation

Federal Government

- National Oceanic & Atmospheric Administration/NMFS
- US Army Corps of Engineers
- Natural Resource Conservation Service
- US Fish & Wildlife Service
- EPA

Public Water Systems

- City of Sonoma
- Sonoma County Water Agency
- Valley of the Moon Water District

Agriculture

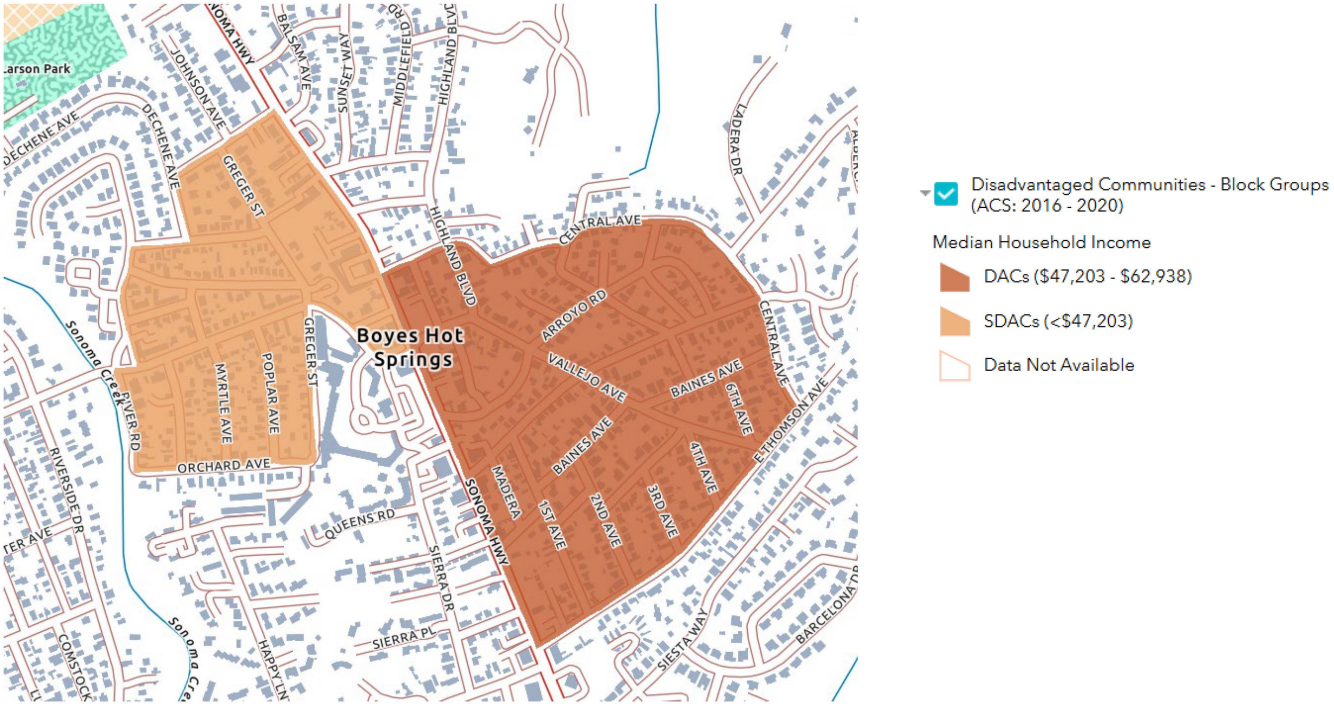
- Sonoma County Farm Bureau
- Community Alliance of Family Farmers
- Western United Dairymen's Association
- Sonoma County Winegrape Commission

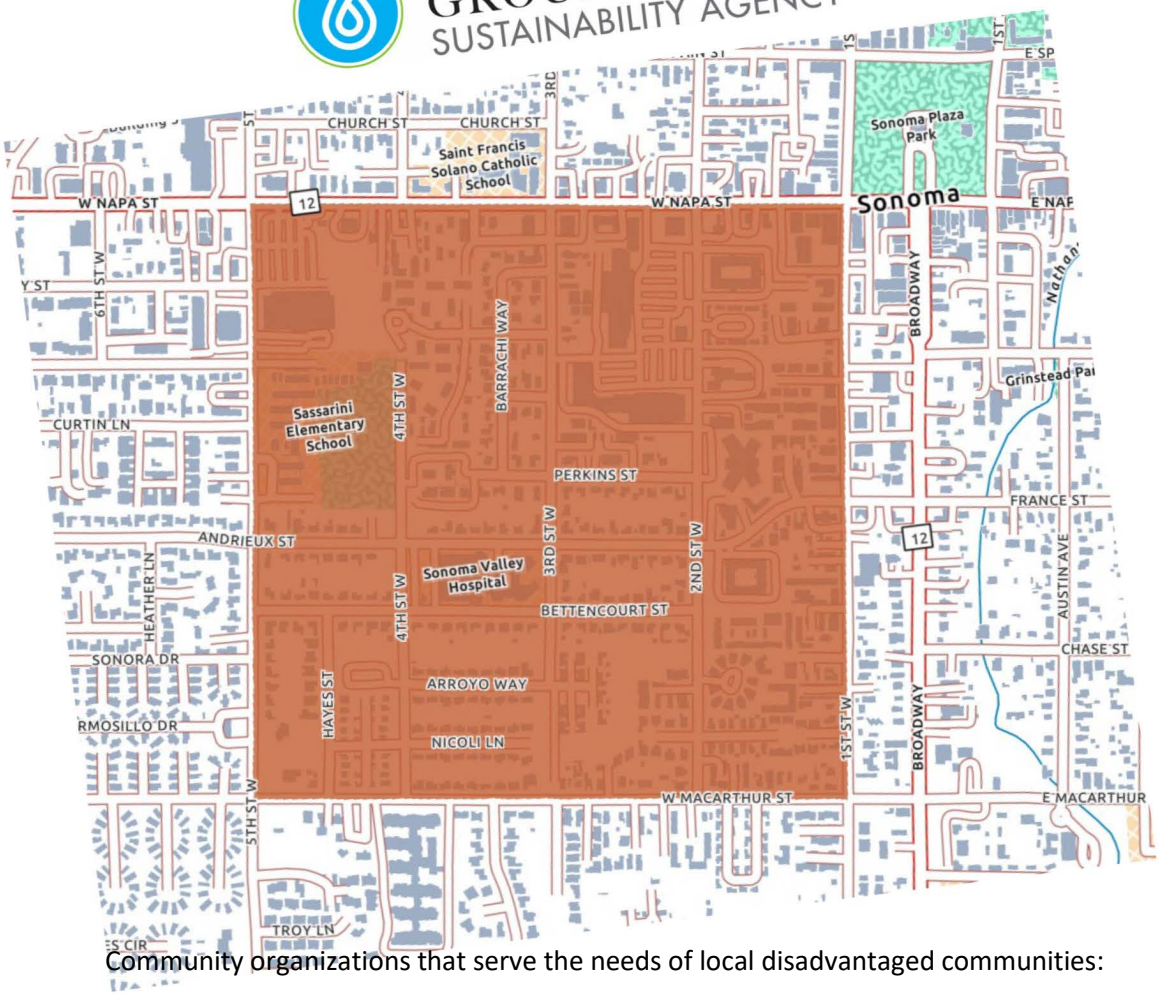
- Sonoma County Vintners
- North Bay Agricultural Alliance
- Sonoma Valley Vintners and Growers
- Sonoma County Growers Alliance
- Sonoma Valley Farmers Guild (formerly the Grange)
- Sonoma County Food System Alliance/Ag Innovations

Organizations Representing Environmental Uses of Groundwater

- Sonoma County Water Coalition
- Sonoma County Conservation Action
- Sonoma Ecology Center
- Bouverie Preserve
- Greenbelt Alliance
- Wine Water Watch

Disadvantaged Communities (as identified by on the CA Dept. of Water Resources Disadvantaged Communities Mapping tool using data from the American Community Survey 2016-2020: https://gis.water.ca.gov/app/dacs/ - 2 map areas below) Disadvantaged community areas will be updated based on updates to the American Community Survey.





Community organizations that serve the needs of local disadvantaged communities:

- La Luz
- Boys and Girls Club
- Sonoma Valley Health Center
- Environmental Coalition for Water Justice
- Sonoma Valley Housing Group
- Sonoma Valley Action Coalition
- Vintage House
- Nuestra Voz

Well Owners (including domestic well owners – via list of parcels in unincorporated areas)

Mutual & PUC-Regulated Water Systems*

*Within the subbasin there are approximately 45 contacts on our list in this category, including

- Common Water LLC (Sonoma Springs)
- Lawndale Mutual Water Company
- Sobre Vista Water Company

While not required to be engaged under SGMA, the following stakeholders will be included in the outreach program. This list is not exhaustive or exclusive.

HOAs

- Temelec Homeowners Association
- Creekside Village Homeowners Association
- Chanterelle Homeowners Association
- Seven Flags Homeowners Association

Government Agencies and Associations

- Sonoma County Agricultural Preservation & Open Space District
- Sonoma County Planning Commission
- North Bay Watershed Association/Russian River Watershed Association
- School districts
- Regional Water Quality Control Board
- Sonoma Resource Conservation District
- Sonoma County Economic Development Board

Business / Developers

- Sonoma County Alliance
- North Bay Association of Realtors
- Chambers of Commerce
- Citizens & Community Organizations
- Daily Acts
- League of Women Voters
- Democratic and Republican clubs
- Rotaries
- Kiwanis
- SIRS

10. APPENDIX B: MONTHLY ACTIVITY GUIDE

Month	Activities	Resource Source/Topic
January	• Community Partner Meeting to Plan Outreach events and coordination • EPA Fix a Leak Week Promotion	• Print Fact Sheets
February	• Newsletter Well Aware Spring Message	• Seasonal Water Use Messaging • Water Use Efficiency tips graphics
March	• Social Media Post on Well Aware Toolkit or Case studies	• Case Study • Well Aware Toolkit
April	• Review website for updates or refresh • Targeted Ag Audience Outreach	• Ag Water Use Efficiency Toolkit • Well Aware Tool Kit promotional materials
May	• Newsletter Well Aware Summer Message • Social Media Post • Water Awareness Month Promotion	• Seasonal Water Use Messaging • Water Use Efficiency tips graphics
June	• Community Partner Check In Meeting • Social Media Post	• Promote Fact Sheets • Highlight Demo Site
July	• Social Media Post • National Smart Irrigation Month Promotion	• Case Studies • Seasonal Water Use Messaging • Water Use Efficiency tips graphics
August	• Newsletter Well Aware Fall Message • Social Media Post on fall water guidelines	• Case study • Seasonal Water Use Messaging
September	• Review website for updates or refresh	
October	• Social Media Post	• Seasonal Water Use Messaging • Promote Well Aware Toolkit
November	• Newsletter Well Aware Winter Message	• Seasonal Water Use Messaging
December	• Targeted Ag Audience Outreach	• Ag Water Use Efficiency Toolkit • Well Aware Tool Kit promotional materials

11. APPENDIX C: OUTREACH MATERIALS

11.1 Seasonal Water Use Efficiency Messaging:

A list of key messages by season is included below. These messages may be periodically revisited and updated as needed.

Spring

- Optimize Irrigation
  - Adjust watering schedule when rain is forecasted using the Sonoma-Marin Saving Water Partnership Irrigation Scheduling Tool: https://www.savingwaterpartnership.org/watering-times
  - Use a rain gauge or a rain sensor to shut off irrigation systems during rainy days.
  - Add or refresh a mulch cover over the soil to reduce erosion and retain moisture.
- Attend a local Eco-Friendly Garden Tour: https://www.savingwaterpartnership.org/eco-friendly-garden-tour/
- Plant native and drought-resistant species
  - Spring is ideal timing to plant water-smart vegetation to establish deep roots before summer.
  - Calscape.org has nice locally appropriate plant choices that provide habitat for birds, bees and other pollinators
- Check out the free water efficient landscaping designs from the Sonoma Marin Saving Water Partnership: https://www.savingwaterpartnership.org/programs_list/landscape-design-templates/
- National Groundwater Awareness Week is the second week of March! See how you can participate at: https://www.ngwa.org/get-involved/gwaw.
- National Fix A Leak Week is the third week of March! See how you can check for leaks at: https://www.epa.gov/watersense/fix-leak-week
- May is Water Awareness Month! Head over to https://saveourwater.com/#1 to see how you can celebrate by protecting our water.

Summer

- Optimize Irrigation
  - Water early in the morning or late at night to reduce evaporation.
  - Add or refresh mulch cover to retain moisture.
- Monitor your water use.
  - Track your water consumption. Keeping an eye on your use helps spot leaks or other changes in water use.
- Check for leaks
  - Inspect wells, pipes, and irrigation systems to prevent unseen leaks.
  - Leaks can be expensive, especially if undetected for a long time.
  - Check out the Sonoma Marin DIY Toolkit from the Sonoma County library to measure how efficient your home is and learn about easy upgrades you can make: https://www.savingwaterpartnership.org/programs_list/diy-energy-water-savings-toolkit/
  - Check toilets and faucets for leaks that are wasting water inside your home.

- Upgrade fixtures or appliances
    - Install water-efficient appliances like showerheads, faucets, and toilets inside your home.
    - Replace dishwashers and washing machines with water-efficient models.
- Reuse water when you can
    - Collect water that you use rinse produce or waiting for water to warm and use it on your plants.
-
- July is National Smart Irrigation Month, check out our incentives and rebates to see if you can put in smart irrigation of your own.

Fall

- Recharge groundwater while irrigating your plants
    - Redirect downspouts to gardens instead of storm drains.
- Adjust irrigation needs
    - Reduce watering as the days shorten and temperatures begin to cool to prevent unnecessary groundwater withdrawals.
    - Consider a rain gauge and altering watering schedule based on rain forecasts.
- Optimize frost prevention techniques and best management practices
- Enroll in water use efficiency programs
    - Check out the programs offered by your GSA to find rebates and assessments that can help you be more water-efficient and support the sustainability of the water supply.

Winter

- Optimize Irrigation
    - Adjust watering schedule when rain is forecasted.
    - Use a rain gauge.
- Prevent well freezing and damage
    - Insulate exposed pipes and wellheads to avoid winter damage.
- Reduce watering for landscapes
    - Turn off irrigation systems, rainfall will naturally water plants.
- Enroll in water use efficiency programs
    - Check out the programs offered by your GSA to find rebates and assessments that can help you be more water-efficient and support the sustainability of the water supply.

11.2 Sample Workshop Schedule by Audience Type

Timing of Potential Workshops	Audience	Information Shared
September/October	Rural Residential	Share GSA updates and promote programs
Late October/November	Agriculture	Share information and programs specific to Agricultural customers
January-March	Vineyard	Share information and programs specific to vineyards customers
March	Commercial	Share information and programs specific to commercial customers
March/April	Rural Residential	Share GSA updates and promote programs

11.3 Water use efficiency tips graphics

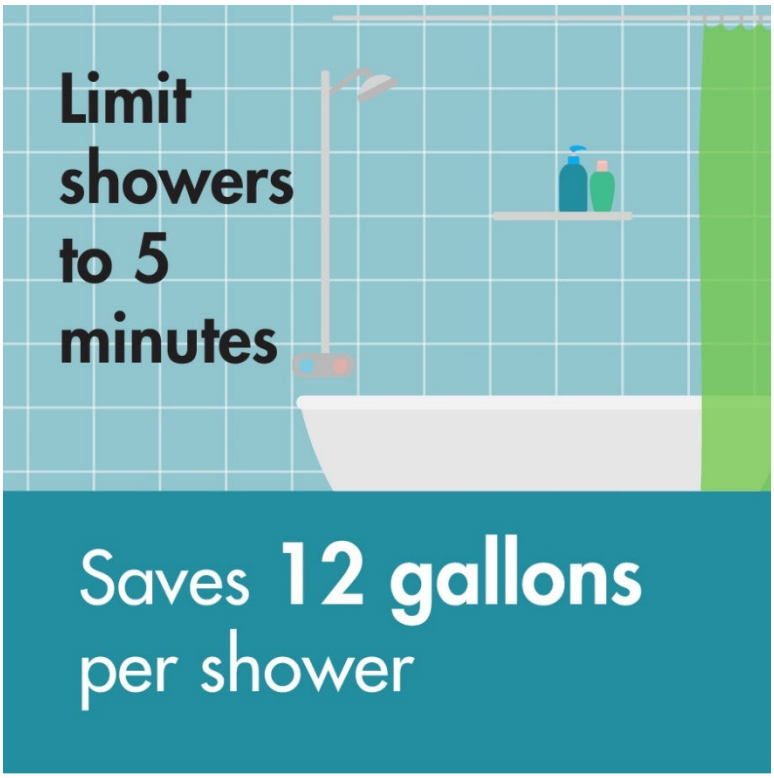



Adjust sprinklers to reduce overspray on sidewalks and driveways
Saves 20 gallons each time you water


Install drip-irrigation
Save 15 – 20 gallons each time you water


Fix leaks
Saves 30 – 90 gallons per day


Add mulch 2 – 3 inches around trees and plants
Saves 30 gallons per 1,000 sq. ft. each time you water


Limit showers to 5 minutes
Saves 12 gallons per shower


Install high-efficiency sprinklers
Saves 8 gallons per 1,000 sq. ft. per day


Install a "smart irrigation controller" that automatically adjusts watering times based on weather conditions
Saves 40 gallons per day


Repair damaged sprinklers and drip emitters
Saves 20 gallons per day per leak


Turn off the water when brushing teeth or shaving
Saves 8 gallons per day


Install a High Efficiency toilet
Saves 35 gallons per day

11.4 Case studies

In development.

11.5 Well Aware Toolkit promotional materials:

11.5.1 Eblast text

Well Aware Toolkit Launch Materials

Eblast – Please send Monday, November 10th

Dear Sonoma County Groundwater Community,

We're excited to announce the launch of the Well Aware Toolkit – a new, interactive resource from the Sonoma County Groundwater Sustainability Agencies (GSAs) designed to help you make smart, well-informed decisions about groundwater use on your property.

The Well Aware Toolkit allows you to enter your property address to be connected with:

- Custom water-saving strategies for your property
- Financial assistance programs to support conservation
- Guidance from trusted local experts who understand our region's needs

Whether you're a rural resident, small or large farm, vineyard, winery, or business, the Toolkit provides guidance tailored to your type of property. Simply enter your address to find your best path to personalized solutions.

Why should you use the Well Aware Toolkit?
Groundwater is a critical resource in Sonoma County, supporting families, farms, and ecosystems. About 43,000 people within the groundwater sustainability boundaries and many local jobs in Sonoma County solely rely on groundwater supplies. Preserving this resource is critical to the long-term health of our region.

The Well Aware Toolkit was created as part of the Well Aware Program, which connects well users with practical tools and resources to support groundwater management and sustainability. Water use efficiency is a key part of our plan to protect our basins and livelihoods. All of us being thoughtful about how we use water makes a difference. We aren't asking you to cut your water use, just to use what you need and help avoid waste. The Well Aware Toolkit is a one-stop-shop for all resources related to water use that will help users address leaks, choose proper equipment, and find rebate programs. These changes can help property owners save money, reduce water use, and provide inspiration on improvements that could increase property value.

Get Started Today!
Together, we live on Sonoma County's groundwater and we need to build a sustainable future.
Click this link to access the Toolkit today: https://wellawaretoolkit.org

Thank you for being part of Sonoma County's water-wise community!



Funding for this project has been provided in full or in part from The Budget Acts of 2021 and 2022 and through an agreement with the State Department of Water Resources.

11.5.2 Newsletter text

Well Aware Toolkit Launch Materials

Newsletter – Please include in November Newsletter

Headline: The Well Aware Toolkit is Here – Start Saving Water Now!

The Sonoma County Groundwater Sustainability Agencies (GSAs) are pleased to announce the launch of the Well Aware Toolkit! This new interactive resource provides personalized water savings tips, programs, and rebates for groundwater users. The resource has guidance for all property types including residential, commercial, vineyards, golf courses, specialty crops, and pasture.

Users can input their own address, and find specific solutions for their property including:

- Customized water-saving strategies for your property
- Financial assistance programs to support water conservation
- Guidance from trusted local experts who understand our region's needs

Groundwater is a critical resource in Sonoma County, supporting families, farms, and ecosystems. About 43,000 people within the groundwater sustainability boundaries and many local jobs in Sonoma County solely rely on groundwater supplies. Preserving this resource is critical to the long-term health of our region. Together, we can protect Sonoma County's groundwater and build a sustainable future.

Start using the Toolkit today: https://wellawaretoolkit.org

11.5.3 Social media post content

Well Aware Toolkit Launch Materials

Social Media Posts

Post Monday, November 10th:
Need a hand managing water use on your property? The Well Aware Toolkit is LIVE!
Groundwater is the lifeline of Sonoma County—supporting families, farms, and ecosystems. Now you can take action to save water through this new online tool. You can find:
✓ Personalized water-saving tips
✓ Funding opportunities
✓ Expert guidance
Start today and help protect our shared resource!
🔗 https://wellawaretoolkit.org
#SonomaCounty #GroundwaterMatters #SustainableLiving #WellAwareToolkit

Post Monday, November 17th:
Interested in ways to reduce water use on your property but not sure where to start? The Well Aware Toolkit is here—your guide to sustainable groundwater use!
Every action counts and the Toolkit shows you actions you can take specific to your property to help keep groundwater sustainable! Find more tips and resources now: https://wellawaretoolkit.org
Together, we can keep Sonoma County thriving!
#WaterWise #SonomaStrong #GroundwaterAwareness #WellAwareToolkit

Post Monday, November 24th:
You don't need to be an expert at water use efficiency – the new Well Aware Toolkit is here to guide you! , Groundwater is essential for our homes, farms, and environment. Now you have the tools to make a difference including:
✅ Personalized water-saving practices
✅ Funding opportunities for conservation
✅ Expert guidance tailored to our region
Start today and help protect Sonoma County's water future!
🔗 https://wellawaretoolkit.org
#SonomaCounty #GroundwaterMatters #SustainableLiving #WellAwareToolkit

Post Tuesday, December 2nd (Giving Tuesday):
Want to make a positive difference in your community? Did you know? About 43,000 people within the groundwater sustainability boundaries and many local jobs in Sonoma County solely rely on groundwater supplies. Every drop counts so do your part to help protect groundwater supplies! The new Well Aware Toolkit helps you make smart choices for a sustainable future, based on your own property.
Explore now: https://wellawaretoolkit.org
#SaveWater #SonomaStrong #GroundwaterAwareness #WellAwareToolkit #givingtuesday

Post Monday, December 8th:
Your actions matter!
Sonoma County's groundwater is precious—and together we can protect it. Use the new Well Aware Toolkit to find water-saving practices tailored to your property.
Start today: https://wellawaretoolkit.org
Tag a neighbor who cares about sustainability!
#WaterWise #SonomaCounty #SustainableFuture #WellAwareToolkit

11.5.4 Press release

Well Aware Toolkit Launch Materials

Press Release – Distribute Monday, November 10th

Sonoma County, CA – The Sonoma County Groundwater Sustainability Agencies (GSAs) are proud to announce the launch of the Well Aware Toolkit, a new online resource designed to help well owners and groundwater users make informed, sustainable water management decisions.

Funded by a grant from the California Department of Water Resources, the Well Aware Program was created to connect well users with practical tools and resources that promote groundwater sustainability. Water use efficiency is a critical part of the plan to protect local basins, and it depends on everyone being thoughtful about how they use water.

"Groundwater is a lifeline for Sonoma County, supporting homes, farms, and ecosystems," said [Insert GSA Representative Name]. "By using the Well Aware Toolkit, residents and businesses can take practical steps to ensure this vital resource remains available for generations to come."

The new Well Aware Toolkit is an interactive resource that allows users located in the Petaluma Valley basin, Santa Rosa Plain subbasin, and Sonoma Valley subbasin to enter their own property address to find personalized water savings practices, funding opportunities for water conservation, and expert guidance tailored to the region.

The Well Aware Toolkit is now live and available to all groundwater users in Sonoma County.
Visit https://wellawaretoolkit.org to start saving water and protecting our shared resource.

About the Well Aware Program
The Well Aware Program is a free, voluntary initiative for groundwater users. Its goal is simple: provide easy access to resources that help protect groundwater for future generations.

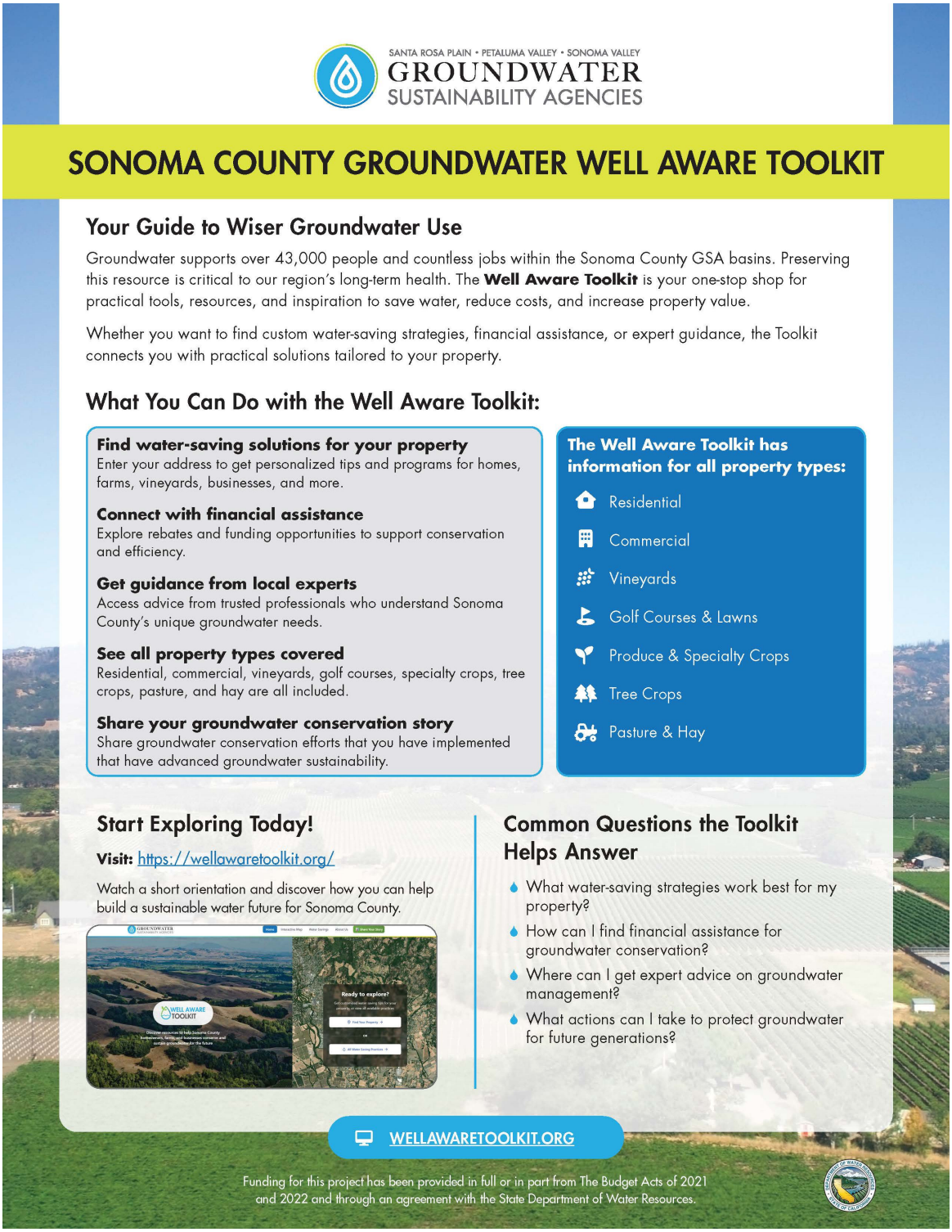
About the Sonoma County Groundwater Sustainability Agencies
The Sonoma County Groundwater GSAs, Petaluma Valley GSA, Santa Rosa Plain GSA, and Sonoma Valley GSA, are dedicated to protecting our groundwater resources and making sure our use of groundwater is sustainable across the three priority basins. The GSAs are working together to better understand groundwater conditions, plan for aquifer recharge, and improve water use efficiency.

11.5.5 Promotional flyer



11.6 Fact Sheets

11.6.1 Well Aware Tool Kit



11.6.2 Daily Acts information

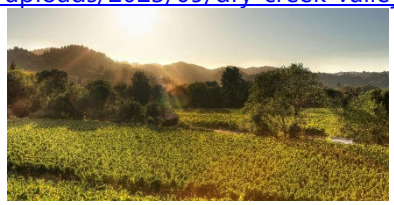
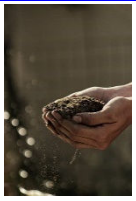
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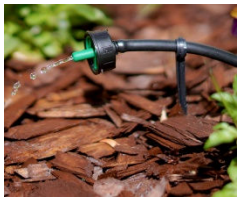
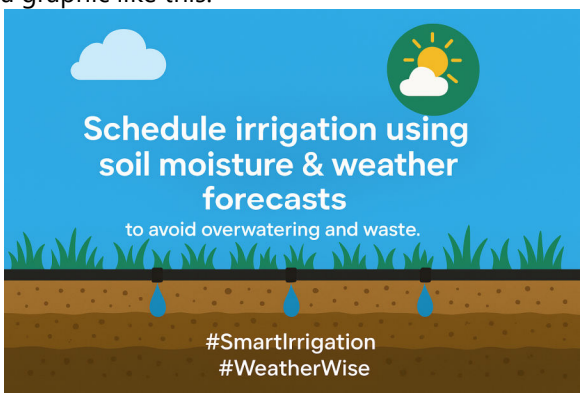
11.7 Agricultural Water Use Efficiency Toolkit

11.7.1 Social media posts

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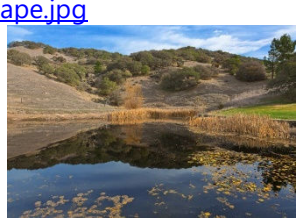
Sonoma County GSAs – Agricultural Water Conservation Outreach
Draft Social Media Posts

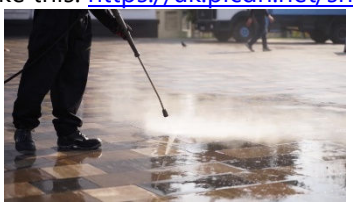
1. Grow Today. Refill Tomorrow. Track well levels and meter your flow—small tweaks add up to big savings for Sonoma's aquifers. Check out the Flow Smart program to get started: Flow Smart - Sonoma County Groundwater Sustainability Agencies #Groundwater #AgWater #SonomaCounty
2. Use what you need, keep water working. Well monitoring + flow meters help you fine-tune irrigation, cut energy costs, and protect your well—especially in dry years. Learn more at: Sonoma County Groundwater #WaterEfficiency #WellAware #datadrivenfarming
3. Groundwater is Sonoma County's hidden lifeline. Efficient irrigation keeps aquifers healthy for farms, wildlife, and local drinking water. #Stewardship #Sustainability #SonomaGSA
    a. Photo of Sonoma County landscape like this: https://www.sonomacounty.com/wp-content/uploads/2023/09/dry-creek-valley_fb_1920x968.jpg
    1. 
4. Efficiency pays off. Flow meters reveal leaks and over-watering, cutting pumping costs while safeguarding groundwater. Learn more at: Flow Smart - Sonoma County Groundwater Sustainability Agencies #SmartIrrigation #FlowMetering
5. Check out the Well Aware Toolkit: Get personalized tips, rebates, and program info for vineyards, orchards, specialty crops, livestock, and more. WellAware Toolkit #WellAware #SonomaCounty #AgWater
6. Dry farming? Assess site suitability, use soil moisture from winter rains, and taper irrigation after establishment. Flexible, not prescriptive—and it saves water. #DryFarming #SoilHealth
    a. Photo of soil like this: https://p1.pxfuel.com/preview/643/897/99/dirty-hand-palm-soil-royalty-free-thumbnail.jpg
    2. 
7. Healthy groundwater supports streams and ecosystems. Smarter irrigation preserves the balance between agriculture and nature. #EcosystemServices #WaterStewardship
    a. Photo of open space with farm in the background (like the one on the Well Aware toolkit)

8. Switch to drip or micro-irrigation to deliver water to roots, reduce evaporation, and lower energy costs. #DripIrrigation #EnergySavings
    a. Photo of drip emitter like this – I can't find one on public domain but I assume Pam has a stock photo of an emitter.
3. 
9. Schedule irrigation using soil moisture + weather forecasts to avoid over-watering and waste. #SmartIrrigation #WeatherWise
    a. Include a graphic like this:
4. 

10. Monitor your well to spot trends, detect changes early, and keep your operation resilient—even in dry years. Learn more about voluntary well monitoring here: Level Up! Voluntary Monitoring Program - Sonoma County Groundwater Sustainability Agencies #WellMonitoring #FarmResilience
11. Build healthy soils with compost + reduced tillage to improve water retention, reduce erosion, and cut fuel costs. #SoilHealth #WaterRetention
    a. Photo of soil being managed like this: https://c.pxhere.com/photos/96/bb/agricultural_machine_arable_agriculture_agricultural_tractor_agricultural_agro_photo_agrartechnik_agricultural_economics-1208099.jpg!s
5. 
12. Cover crops & mulch protect soil, enhance infiltration, and keep moisture where your roots need it. #CoverCrops #Mulch #RegenerativeAg
    a. Graphic like this:

6. 

13. Have you considered rainwater capture on your property? Ponds and basins can store runoff for reuse meaning less reliance on groundwater, more resilience. #RainwaterHarvesting #OnFarmStorage
    a. Photo like this: https://www.publicdomainpictures.net/pictures/100000/nahled/sonoma-pond-scape.jpg
7. 
14. A great way to save water - Convert turf at winery/hospitality areas to drought-tolerant landscaping. #WaterSmartFacilities #DroughtTolerant
15. Livestock operations can save water with automatic waterers with shut-offs, shaded troughs, recycled wash water, and rotational grazing reduce waste and improve infiltration. #Livestock #WaterSavings
    a. Photo like this: https://cdn.pixabay.com/photo/2018/02/20/21/05/cow-3168858_960_720.jpg
8. 
16. Automate watering with smart tech that responds to real-time soil moisture and weather—and flags leaks faster. #SmartAgTech #LeakDetection
17. Rotate crops strategically to improve soil structure, boost yields, and reduce water demand. #CropRotation #EfficientAg
    a. Photo like this: https://c.pxhere.com/photos/3b/25/vineyards_napa_valley_california_vine_winery_wine_rural_landscape-547384.jpg!s
9. 

18. Join local conservation programs to access rebates and technical support—make upgrades that pay off. Check out:
    a. Home - Sonoma-Marin Saving Water Partnership
    b. Sonoma Resource Conservation District | Local and accountable
    c. Gold Ridge Resource Conservation District
    d. Community Alliance with Family Farmers
    e. Garden Sense | UC Master Gardener Program of Sonoma County
    f.
19. Guard the Groundwater. Grow the Future. Take one step today—meter your flow, monitor your well, and share your success. #GroundwaterGuardians #SonomaGSA
    a. Sonoma County GSA logo
20. Frost protection: Use fans instead of sprinklers when possible; if sprinklers are needed, follow local dew point/temperature guidance. #FrostFans #WaterSmart
    a. Photo like this
    10. 
21. Process water reuse: recycle non-potable water for cleaning or irrigation to maximize every drop. #WaterReuse #CircularAg
    a. Photo like this: https://ak.picdn.net/shutterstock/videos/1048174951/thumb/1.jpg
    11. 
22. Innovation + stewardship go hand in hand. Embrace water-saving tech and practices to strengthen Sonoma's agricultural future. #Innovation #Stewardship
23. You've invested in your land—safeguarding groundwater is the next smart investment. Start with well monitoring and flow metering. Learn more at Sonoma County Groundwater #ProtectYourWell #SmartInvestment
24. Smart water, stronger seasons. Visit the Well Aware website and Toolkit for tailored tips, programs, and rebates for your operation. Well Aware - Sonoma County Groundwater Sustainability Agencies #WellAware #WaterSmartFarming

11.7.2 Water use efficiency tips graphic concepts

Potential Tips Graphics:

1. Switch to Drip or Microirrigation

- **Water savings:** 30–60% compared to traditional flood or sprinkler irrigation. Some studies show up to 70% savings in arid regions.
- Source | Source [greengardenguide.com]

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2. Schedule Irrigation Using Soil Moisture and Weather Forecasts

- **Water savings:** 20–30% by irrigating only when needed, using soil moisture sensors and weather data.
- EPA WaterSense: Soil Moisture Controllers
- WiseConn: Irrigation Scheduling [wiseconn.com]

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3. Track Water Use with Flow Meters

- **Water savings:** 15–30% by identifying leaks, overwatering, and optimizing irrigation schedules.
- FarmstandApp
- Comate Instruments [comate-ins...uments.com]

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4. Monitor Groundwater Levels (Well Monitoring)

- **Water savings:** Farms typically overwater by 20–40% without monitoring; monitoring can reduce irrigation costs by up to 30%.
- FarmstandApp [farmstandapp.com]

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5. Apply Regulated Deficit Irrigation (RDI)

- **Water savings:** 20–40% reduction in irrigation water use, with little or no yield loss when properly timed.
- McMullin Area GSA
- https://www.researchgate.net/publication/374085096_Optimizing_water_conservation_and_utilization_with_a_regulated_deficit_irrigation_strategy_in_woody_crops_A_review [researchgate.net]

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6. Harvest Rainwater

- **Water savings:** Can reduce groundwater use by 10–50% depending on system size and rainfall; increases water availability during dry periods.
- Aggram
- UPPCS Magazine [aggram.net]

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7. Build Healthy Soil (Compost & Reduced Tillage)

- **Water savings:** Conservation tillage and compost can increase water infiltration by 30–45% and reduce irrigation needs by 3–18% (up to 46% with full adoption).
- USDA ARS
- US Composting Council [ars.usda.gov]

---

8. Plant Cover Crops

- **Water savings:** Cover crops can reduce irrigation needs by 20–35%, increase water infiltration by up to 30%, and reduce evaporation by 40–50%.
- FarmstandApp
- Garden and Plants
- SARE [gardenandplants.com]

---

9. Use Mulch

- **Water savings:** Mulch can reduce evaporation by up to 70% and cut irrigation needs by 25–50%.
- FarmstandApp
- UNL Water [farmstandapp.com]

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10. Rotate Crops Strategically

- **Water savings:** Crop rotation can reduce irrigation needs by 20–30% and improve soil water retention.
- FarmstandApp
- H2O Global News [farmstandapp.com]

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11. Automate Watering with Smart Technology

- **Water savings:** Smart irrigation systems can save 20–50% compared to manual or timer-based systems.
- EPA WaterSense
- https://sustainabilitymedialab.com/smart-irrigation-systems/ [wiseconn.com]

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12. Convert Turf and High-Water-Use Areas

- **Water savings:** Replacing turf with drought-tolerant landscaping can reduce water use by 30–50% in those areas.
- https://www.epa.gov/watersense/landscaping-tips [wiseconn.com]

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13. Recycle Process Water

- **Water savings:** Reusing process water can reduce total water use by 10–20% in livestock and processing operations.
- FarmstandApp [farmstandapp.com]

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14. Shade or Cover Water Troughs (Livestock)

- **Water savings:** Shading troughs can reduce evaporation losses by 30–50%.
- FarmstandApp [farmstandapp.com]

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15. Implement Rotational Grazing

- **Water savings:** Improves infiltration and reduces runoff, leading to more effective use of rainfall and irrigation (quantified savings depend on site).
- USDA NRCS [nrcs.usda.gov]

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16. Join Local Conservation Programs

- **Water savings:** Varies by program, but participants often see 10–30% reductions in water use through technical support and incentives.
- https://www.nrcs.usda.gov/programs-initiatives/conservation-programs [nrcs.usda.gov]

11.7.3 Sample newsletter articles

Sample Newsletter Articles

Newsletter Article #1: Unlock Water Savings with the Well Aware Toolkit

Groundwater is the backbone of Sonoma County agriculture, but keeping it healthy requires smart management and community effort. The Well Aware Toolkit is designed to help farmers, ranchers, and landowners take practical steps toward groundwater sustainability—no matter the size or type of operation.

The Toolkit is your interactive guide to water savings. By answering a few questions about your property, you'll receive personalized recommendations for conservation practices, irrigation upgrades, and soil management. The Toolkit also connects you to local rebate programs, funding opportunities, and technical support, making it easier to invest in water-saving technology and practices.

Whether you manage vineyards, orchards, specialty crops, livestock, or a small farm, the Well Aware Toolkit offers tailored advice. You'll find tips on switching to drip or microirrigation, scheduling irrigation based on soil moisture and weather, and using moisture sensors to optimize watering. The Toolkit also highlights resources for rainwater harvesting, cover cropping, and soil health—all proven strategies to reduce groundwater demand.

By using the Well Aware Toolkit, you're not just helping your own operation, you're contributing to the long-term sustainability of Sonoma County's groundwater for families, businesses, and future generations of growers. Explore the Toolkit and discover how small changes can make a big impact.

For more information, visit the Well Aware website for educational materials, funding opportunities, and expert contacts: https://wellawarewater.org.

Newsletter article 2: Soil Management: The Foundation of Groundwater Sustainability

Healthy soil is the foundation of productive agriculture and resilient groundwater supplies. By improving soil structure and organic matter, farmers can dramatically increase the soil's ability to absorb and retain water, reducing runoff and the need for supplemental irrigation.

Start with compost and reduced tillage. Compost adds organic matter, boosting water retention and supporting beneficial microbes. Reduced tillage preserves soil structure, minimizes erosion, and lowers fuel costs. Together, these practices help keep more winter rain in the soil, available for crops throughout the growing season.

Cover crops are another powerful tool. Planted between main crops, cover crops protect soil from erosion, enhance infiltration, and retain moisture. They also improve nutrient cycling and support pollinators, making your farm more resilient to drought and climate variability.

Mulching is a simple but effective strategy. By applying organic mulch to bare ground, you keep soil cool and moist, reducing how often you need to irrigate. Mulch also suppresses weeds and adds nutrients as it breaks down.

Rotating crops strategically can further improve soil health, workability, and water availability. Each crop brings different benefits, and rotation helps break pest cycles and maintain balanced nutrients.
Investing in soil management pays off in higher yields, lower water use, and greater resilience. For practical tips and local resources, visit https://sonomarcd.org/soil-health/ and the https://wellawarewater.org/toolkit.

Newsletter article 3: Stormwater Capture: Turning Rain into Resilience

Stormwater capture is a win-win for farmers and groundwater sustainability. By collecting and storing rainwater during the wet season, you can reduce reliance on groundwater, buffer against drought, and recharge local aquifers.

There are many ways to capture stormwater on your property. Ponds and catchment basins store runoff for reuse in irrigation or livestock watering. Roof runoff can be directed into tanks for landscape irrigation or other non-potable uses. Swales and infiltration basins help slow and spread water, allowing it to soak into the ground and replenish groundwater.

Stormwater capture is especially valuable in Sonoma County, where winter rains can be unpredictable and summer droughts are common. By making the most of every drop, you build resilience for your operation and help maintain healthy aquifers for the community.

Before installing stormwater capture systems, assess your site's suitability and local regulations. Work with experts to design systems that maximize benefits and minimize risks. Many conservation programs offer technical assistance and rebates for stormwater projects.

Learn more about stormwater capture strategies and funding opportunities at https://www.sonomawater.org/stormwater and through the https://wellawarewater.org/toolkit

Newsletter article 4: The Power of Monitoring: Flow Meters and Well Monitoring for Smarter Water Management

Knowledge is power when it comes to groundwater sustainability. Flow meters and well monitoring are essential tools for farmers who want to manage water use efficiently, detect problems early, and protect their wells for the future.

Flow meters measure exactly how much water you're using, helping you fine-tune irrigation, spot leaks, and reduce waste. Well monitoring tracks groundwater levels over time, allowing you to see trends, respond to changes, and make informed decisions about water use, even in dry years.

By combining flow metering and well monitoring, you gain a complete picture of your water use and aquifer health. This data empowers you to adjust irrigation schedules, adopt conservation practices, and respond proactively to drought or regulatory changes.

Investing in monitoring technology pays off in lower energy bills, healthier crops, and a more sustainable water supply for everyone. Many local programs offer rebates and technical support to help you get started.

For step-by-step guidance, funding opportunities, and expert contacts, visit the https://wellawarewater.org/toolkit and https://sonomagroundwater.org/monitoring/

11.7.4 Webpage content

Agricultural Water Conservation Tips for Website:

Agricultural Water Savings Tips for Sonoma County Growers

- Switch to drip or microirrigation. By delivering water directly to plant roots, you can minimize evaporation, and lower water and energy costs.
- Schedule irrigation using soil moisture and weather forecasts. Avoid overwatering and waste by irrigating only when your crops need it. Use soil moisture sensors and check local weather before watering.
- Track water use with flow meters. Install flow meters to monitor exactly how much water you're using. This helps you spot leaks, fine-tune irrigation, and save money.
- Monitor groundwater levels regularly. Check your well's water level to spot changes early and protect your well's long-term health.
- Apply Regulated Deficit Irrigation (RDI) strategically to reduce irrigation during drought-tolerant growth stages to save water while maintaining crop yields.
- Harvest rainwater using ponds, tanks, or catchment basins to collect and store rainwater for reuse, reducing reliance on groundwater.
- Build Healthy Soil! Add compost and reduce tillage to improve water retention, reduce erosion, and support beneficial soil microbes.
- Plant cover crops to protect soil, enhance infiltration, and retain moisture for your main crops.
- Use Mulch! Mulch keeps soil cool and moist, reducing the need for frequent irrigation and suppressing weeds.
- Rotate crops strategically. Crop rotation improves soil structure, boosts yields, and increases water available for plants.
- Inspect you irrigation equipment regularly. Check pipelines, valves, and sprinklers for leaks or breaks to prevent water loss.
- Automate watering with smart technology. Use smart irrigation controllers that respond to real-time soil moisture and weather data, and flag leaks quickly.
- Convert turf and high-water-use areas to native landscape around farm facilities.
- Recycle process water! Reuse non-potable water for cleaning, irrigation, or other farm needs to maximize every drop.
- For livestock, shade or cover water troughs to reduce evaporation from open water sources.
- Reduce soil compaction and improve water infiltration by rotating livestock grazing areas.
- Join Local Conservation Programs! Access rebates, technical support, and funding opportunities to help you upgrade your water management practices.
- Use the Well Aware Toolkit to get personalized water savings tips, program info, and expert guidance for your operation: https://wellawarewater.org/toolkit

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Woodard & Curran

woodardcurran.com

Appendix E

Demonstration Site Project Cost and Water Savings

Demonstration Site Project Cost and Water Savings			
Demonstration Element	Estimated Cost, dollars	Estimated Annual Water Saved/Infiltrated (AC FT)	Cost per AC FT, rounded dollars
Site 1 - School			
Turf Conversion - 5000 sqft	30,000	-	-
Water-wise Plants	10,000	-	-
Drip Irrigation	7,500	-	-
Total	**$47,500**	**0.4 - 0.5**	**103,000 -115,000**
Site 2 – Non-profit Farm			
Rain tank - 10,000 gallons	50,000	-	-
Rain Garden with plants - 500 sqft	10,000	-	-
Irrigation audit/ retrofit - 10,000 sqft	20,000	-	-
Total	**$80,000**	**0.03-0.08**	**$1.0-2.4 M**
Site 3 – Regional Park			
Turf Conversion - 10,000 sqft	65,000	-	-
Water-wise Plants	20,000	-	-
Converting to Drip Irrigation	15,000	-	-
Total	**$100,000**	**0.8-0.9**	**$109,000-121,000**
Site 4 – Nonprofit Farm			
Irrigation audit/ retrofit - 5000 sqft	12,500	-	-
Bioswales - 1500 sqft	10,000	-	-

Appendix F

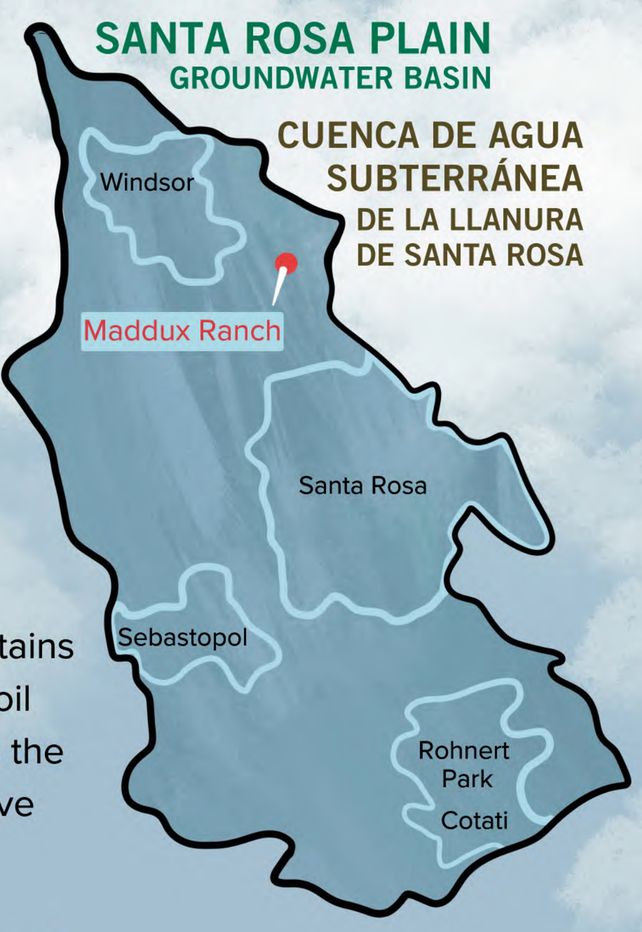
Maddux Ranch/Community Soils Demonstration Signage

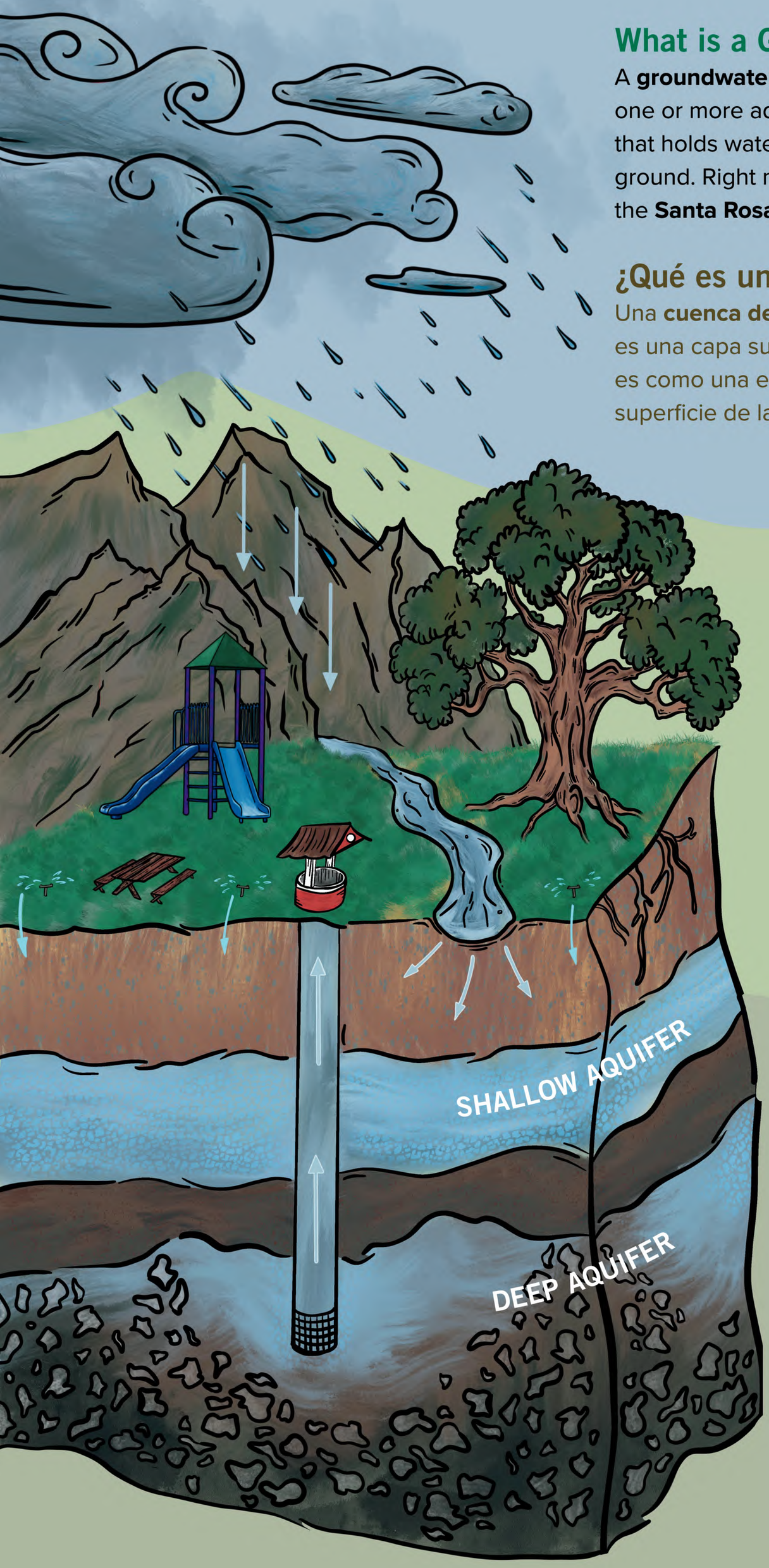
The Water Hiding Under Your Feet

El Agua Bajo Tus Pies

Did you know only 3% of Earth's water is fresh, and that 30% of that freshwater is underground? **This is called groundwater.** It comes from years of rain soaking deep into the ground and filling up the spaces between rocks, dirt, and sand, creating aquifers - nature's underground freshwater storage.

¿Sabías que solo 3% del agua en el planeta Tierra es dulce, y que 30% de esta se encuentra bajo tierra? **A esta agua se le llama agua subterránea**. Proviene de lluvia que se ha filtrado profundamente en el suelo por muchos años y llena los espacios entre las rocas, la tierra y la arena, creando acuíferos: el almacenamiento subterráneo de agua dulce de la naturaleza.





What is a Groundwater Basin?

A **groundwater basin** is an underground area that contains one or more aquifers. An **aquifer** is a layer of rock or soil that holds water. Think of it like a giant sponge deep in the ground. Right now, you're standing on the surface above the **Santa Rosa Plain Groundwater Basin!**

¿Qué es una Cuenca de Agua Subterránea?

Una **cuenca de agua subterránea** contiene uno o más acuíferos. Un **acuífero** es una capa subterránea especial de roca o suelo que retiene agua. Imagínate que es como una esponja gigante en las profundidades de la tierra. ¡Estás parado en la superficie de la **Cuenca de Agua Subterránea de la Llanura de Santa Rosa!**

Wells Bring Water to the Surface

A long time ago, people had to dig wells by hand to access groundwater. Today, machines drill deep holes to build a well to pump the water out. **When water comes from a well, it's called well water!**

Los Pozos Extraen Agua hacia la Superficie

Hace mucho tiempo, la gente tenía que cavar pozos a mano para extraer el agua subterránea. Hoy en día, hay máquinas que perforan hoyos profundos para construir un pozo y bombear el agua. **¡Cuando el agua proviene de un pozo, se le llama agua de pozo!**

A Football Field Deep?!

The Maddux Ranch well is **300 feet deep**. That's the length of an entire football field turned straight up and down! During the dry months, the well water is used to irrigate the lawns and garden.

¿¡Tiene la Profundidad de un Campo de Fútbol Americano!?

El pozo del rancho Maddux tiene **300 pies de profundidad**. ¡Eso equivale a la longitud de un campo de fútbol americano de cancha a cancha! Durante los meses secos, el agua del pozo se utiliza para regar el césped y el jardín.

Funding for this **3 part educational signage** has been provided in full or in part from The Budget Acts of 2021 and 2022 and through an agreement with the State Department of Water Resources.

Why Groundwater Matters

Por Que el Agua Subterránea es Importante

If we use too much groundwater, underground levels can drop and pumping can get more expensive. Wells may need replacing, and humans, streams, plants, and animals may suffer. In some areas of California, groundwater overuse is causing the ground to sink! Groundwater is a **limited natural resource** that we all depend on and need to protect.

Si usamos demasiada agua subterránea, los niveles de esta pueden descender y bombearla puede resultar más costoso. Es posible que haya que reemplazar los pozos y que tanto humanos, arroyos, plantas y animales sufran las consecuencias. En algunas zonas de California, el uso excesivo del agua subterránea está provocando el hundimiento de la tierra. El agua subterránea es un **recurso natural limitado** del que todos dependemos y debemos proteger.

Who Uses Groundwater?

Groundwater is used and managed by private residents, cities, farms, and agencies. Groundwater is also vital for the natural environment. Many creeks and rivers are fed not just by rain, but also from shallow groundwater, supporting local plants and animals during the dry summer months.

¿Quiénes Usan el Agua Subterránea?

El agua subterránea es utilizada y gestionada por usuarios privados, ciudades, granjas y agencias. También es vital para el medio ambiente. Muchos arroyos y ríos se alimentan no solo de la lluvia, sino también del agua subterránea superficial, lo que sustenta a la flora y fauna local durante los meses secos de verano.

Groundwater Keeps Wildlife Alive

In the Santa Rosa Plain Groundwater Basin, wildlife thrives in groundwater-fed streams and wetlands. By protecting groundwater, these habitats stay healthy and full of life! **Some key species include:**

El Agua Subterránea es Vital para la Vida Silvestre

En la cuenca del agua subterránea de la Llanura de Santa Rosa, la vida silvestre prospera en los arroyos y humedales alimentados por el agua subterránea. ¡Al proteger al agua subterránea, estos hábitats se mantienen sanos y llenos de vida! **Algunas especies clave incluyen:**

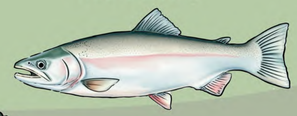
Red-Legged Frog
Rana de patas rojas



Chinook and Coho Salmon
Salmón Chinook y coho

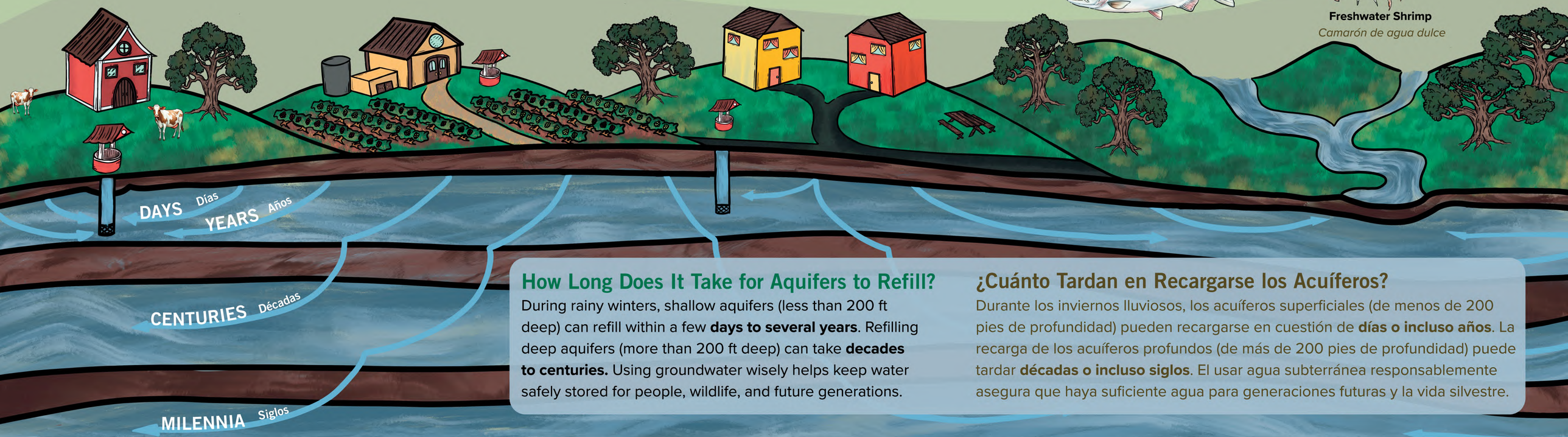


Steelhead Trout
Trucha arcoíris



Freshwater Shrimp
Camarón de agua dulce





How Long Does It Take for Aquifers to Refill?

During rainy winters, shallow aquifers (less than 200 ft deep) can refill within a few **days to several years**. Refilling deep aquifers (more than 200 ft deep) can take **decades to centuries.** Using groundwater wisely helps keep water safely stored for people, wildlife, and future generations.

¿Cuánto Tardan en Recargarse los Acuíferos?

Durante los inviernos lluviosos, los acuíferos superficiales (de menos de 200 pies de profundidad) pueden recargarse en cuestión de **días o incluso años**. La recarga de los acuíferos profundos (de más de 200 pies de profundidad) puede tardar **décadas o incluso siglos**. El usar agua subterránea responsablemente asegura que haya suficiente agua para generaciones futuras y la vida silvestre.

Protecting Our Groundwater

Por Que el Agua Subterranea es Importante

How Maddux Ranch is Protecting Our Groundwater

By using groundwater sparingly and creating areas for rain to sink into the ground, we help keep the groundwater basin full, the plants and trees thriving, and the creeks and wildlife happy! **Find these water-wise practices across the garden:**

Cómo Maddux Ranch Protege el Agua Subterránea

Al usar el agua subterránea con moderación y crear áreas para que la lluvia se filtre en el suelo, ayudamos a mantener un acuífero lleno, y plantas y árboles saludables, ¡también mantenemos a los arroyos y a la vida silvestre en óptimas condiciones! **Descubre como usar el agua eficientemente en todo el jardín:**

Groundwater Flow Meter

In 2025, we installed a special meter to track groundwater use. The meter helps us track how much water we are using from the aquifer and alerts us if pipes are leaking underground.

Medidor de Flujo de Agua Subterránea

En 2025, instalamos un medidor especial para controlar el uso de agua subterránea. Este medidor nos ayuda a controlar la cantidad de agua que extraemos del acuífero y nos alerta si hay fugas en las tuberías subterráneas.

Drip Irrigation

Tiny tubes deliver water directly to a plants' roots, so nothing is wasted.

Riego por Goteo

Tubos diminutos suministran agua directamente a las raíces de las plantas, evitando el desperdicio.

Climate Appropriate Plants

Plants that thrive in Sonoma County don't need much extra water during the dry season.

Plantas Adecuadas al Clima

Las plantas que prosperan en el condado de Sonoma no necesitan mucha agua adicional durante la estación seca.

Rain Garden

Our rain garden captures overflow from the rainwater tank, slowing and sinking rainwater into the soil to help refill shallow aquifers.

Jardín de Lluvia

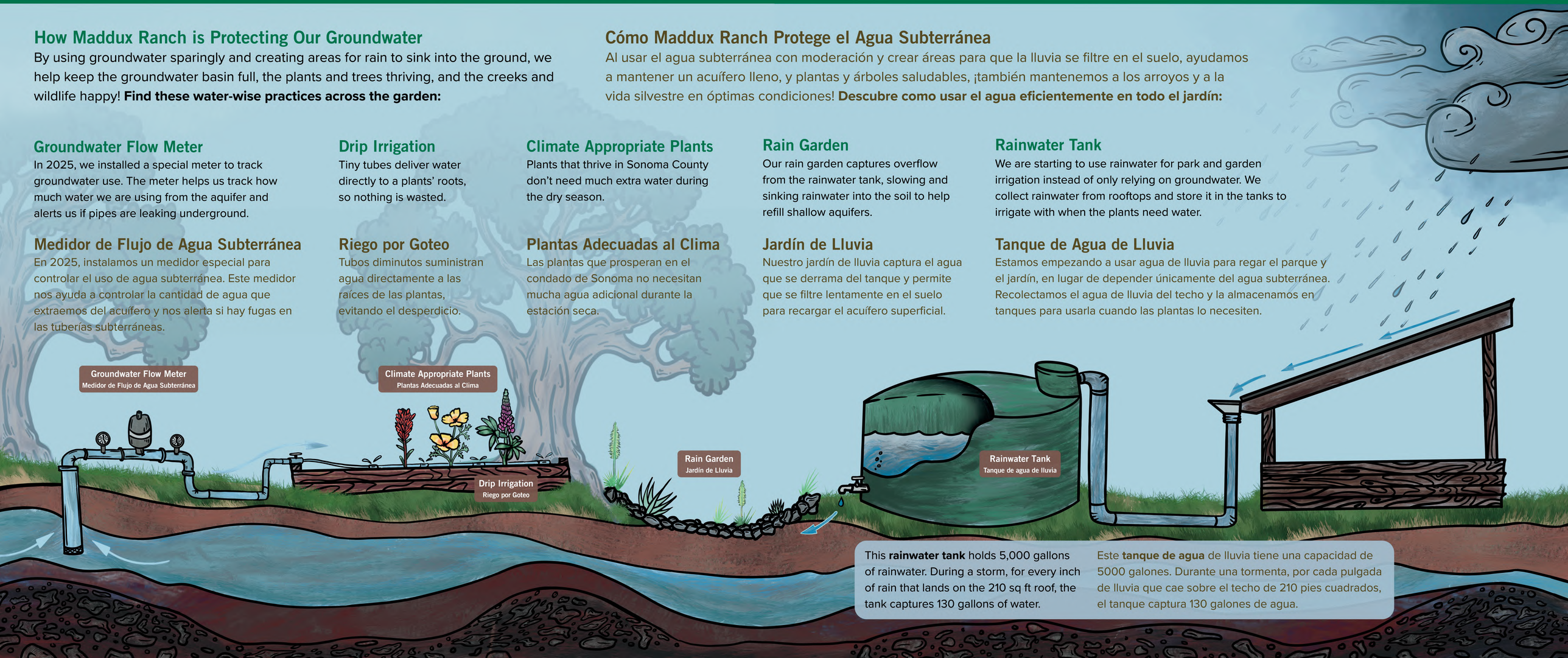
Nuestro jardín de lluvia captura el agua que se derrama del tanque y permite que se filtre lentamente en el suelo para recargar el acuífero superficial.

Rainwater Tank

We are starting to use rainwater for park and garden irrigation instead of only relying on groundwater. We collect rainwater from rooftops and store it in the tanks to irrigate with when the plants need water.

Tanque de Agua de Lluvia

Estamos empezando a usar agua de lluvia para regar el parque y el jardín, en lugar de depender únicamente del agua subterránea. Recolectamos el agua de lluvia del techo y la almacenamos en tanques para usarla cuando las plantas lo necesiten.



This **rainwater tank** holds 5,000 gallons of rainwater. During a storm, for every inch of rain that lands on the 210 sq ft roof, the tank captures 130 gallons of water.

Este **tanque de agua** de lluvia tiene una capacidad de 5000 galones. Durante una tormenta, por cada pulgada de lluvia que cae sobre el techo de 210 pies cuadrados, el tanque captura 130 galones de agua.

Appendix G

GSA Incentive Program Work Plan

GSA Incentive Program Work Plan



Prepared for: Sonoma County (Petaluma Valley, Santa Rosa Plain, and Sonoma Valley) Groundwater Sustainability Agencies

Prepared by: Sonoma Resource Conservation District, Gold Ridge Resource Conservation District, Daily Acts Organization, Sonoma Marin Water Savings Partnership, West Yost Associates (representing the GSAs)

Date: February 19, 2026

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1 Introduction

The three Groundwater Sustainability Agencies (GSAs) in Sonoma County - Petaluma Valley (PV), Santa Rosa Plain (SRP), and Sonoma Valley (SV) - would like to explore incentive programs to help meet their groundwater sustainability goals through groundwater use reduction. The GSAs requested the Project Team - made up of Sonoma Resource Conservation District (SRCD), Gold Ridge Resource Conservation District (GRRCD), Daily Acts Organization (DAO), and the Marin Sonoma Water Savings Partnership (MSWSP), in collaboration with West Yost Associates representing the GSAs - develop an Incentive Program Workplan that could be leveraged by the GSAs to launch incentive programs, pending future funding and demonstrated need. The Project Team developed a list of potential groundwater use reduction and groundwater recharge practices to assess, researched existing incentive programs both locally and across Western States, conducted interviews with existing program administrators, and analyzed practices for potential water savings and cost. The findings of this analysis were reviewed with the GSAs, and a prioritized selection of practices was chosen based on effectiveness in achieving water use reduction and/or groundwater recharge, cost, and complexity to administer. This Incentive Work Plan summarizes the research and analysis work done by the Project Team and includes recommendations for incentive program development for the GSAs.

2 Well Users

The Sonoma County GSAs have a multitude of well users including residential, agricultural, commercial, industrial, and institutional. Subcategories have been added within some of these larger categories, such as separating vineyards from other agricultural users and including only rural residential users. While many incentive programs could potentially serve a wide array of well users, this Work Plan looked specifically at programs that would serve four well user categories: Rural Residential (RR), Commercial Industrial and Institutional (CII), Vineyard Agriculture, and Non-Vineyard Agriculture. The Work Plan prioritized these categories as they represent a combination of both the largest water users within the GSAs (Agriculture is 47% and Rural Residential is 26%, Maddaus et al., 2024) and the greatest number of parcels (Rural residential: 9,589, Commercial: 750, Vineyard Ag: 1386, Non-Vineyard Ag: 362, GSA GUIDE, 2026).

3 Practices

The Project Team began by developing a list of potential practices that could reduce groundwater use for the targeted well user categories identified above. Practices that recharge groundwater were also considered, although recharge was not the primary objective of this investigation. The initial list included the following practices:

- Rainwater Harvesting
- Raingardens

- Leak Detection and Repair
- Metering Program
- Weather Based Irrigation Controllers
- Soil Moisture Probes
- Turf Conversion to Native Planting
- Irrigation Efficiency Evaluations
- High efficiency Indoor Appliance upgrades
- Water Use Audits
- Greywater/Laundry to Landscape
- Irrigation Scheduling Education
- Technical Assistance
- Curb Cuts
- Commercial High Efficiency Nozzles
- Shade Trees
- Mulch
- Home Hardening/Fire Resiliency Buffer
- Water Sense Reverse Osmosis and Softening Systems

These practices were initially categorized based on whether they use indoor and/or outdoor water and what category of well user they serve. The initial list was refined by the Project Team based on the greatest potential water savings and to consolidate related practices into broader categories (i.e. Smart Irrigation Controllers include weather based irrigation controllers; additional technologies such as soil moisture probes and raingardens were included as optional add-ons to turf conversion and rainwater harvesting). The refined list includes eight practices that were identified as priority practices warranting further consideration and detailed analysis.

- Rainwater Harvesting (and optional Raingarden)
- Leak Detection and Repair
- Metering
- Smart Irrigation Controller (and optional precision technology)
- Turf Conversion to Native Planting (and optional Raingarden)
- Irrigation Efficiency Evaluations and Upgrades
- High-Efficiency Indoor Appliance Upgrades
- Education (Water Use Audits/Technical Assistance/Irrigation Scheduling Education)

Fact sheets for each of the top eight practices are included in Appendix C.

4 Interviews

In developing the Work Plan, the Project Team sought to leverage information from existing incentive programs and from local well water users within the GSA who have demonstrated water savings

reductions. The Project Team researched relevant existing programs and developed a list of "water champions" to interview. The following describes the interview process for both groups.

4.1 Existing Incentive Programs

Incentive programs are a common tool among water districts, utilities, and municipalities to encourage a reduction of water use, and they can include rebates, direct installs, education, and assessments. The Project Team researched existing incentive programs throughout California and the Western US and identified 38 relevant programs. The 38 programs were narrowed to 15 by prioritizing programs aligned with the 8 priority practices listed above and programs that included practices with which the Project Team was less familiar (the Project Team has extensive experience administering or supporting rainwater tanks, turf conversions, and mulch rebates). The 15 programs (two from the City of Portland) interviewed are summarized in the following table.

Table 1: Existing Incentive Program Interview List

Program	Location	Details
Marin Water - Flume Smart Home Water Monitor (other options)	Marin, CA	Discounts on WiFi-enabled water monitors to Marin Water customers that display real-time water usage data through a smartphone app.
Landscape Rebate Program	Santa Clara, CA	Rebates to residential sites (up to $3,000) and commercial/ multi-family sites (up to $100,000 or higher in cost-share areas) for replacement of high-water-use landscapes, such as irrigated lawns or pools, with low-water-use landscapes.
Slow the Flow (free audits)	Denver Water & Partners, CO	Free sprinkler consultations/audits to improve irrigation distribution uniformity and scheduling.
Clean River Rewards + Treebate	Portland - Bureau of Environmental Services, OR	Perpetual stormwater bill discounts of up to ~35% for self-certified practices such as raingardens, also includes Treebate credits up to $50 per tree.
Water Efficiency Rebates	Scottsdale, AZ	Rebates for installations of qualifying smart-irrigation controllers (up to $250 for residences and $400 for multi-family or commercial applicants).
Weather Based Irrigation Controller Rebate - Commercial Rebate	Solano County, CA	Rebates up to $1,000 for installations of qualifying smart irrigation controllers.
Water Efficient Landscape Rebate (Residential and Commercial)	Solano County, CA	Rebates of $1.50 per square foot for lawn conversion to low-water-use landscaping.

Lawn Be Gone! and Raingardens	Bay Area Water Supply and Conservation Agency, CA (BAWSCA)	Rebates of up to $4.00 per square foot for lawn conversion, plus an additional $300 for associated raingarden installation.
Appliance Rebate (High Efficiency Clothes Washer)	Valley of the Moon, CA	High-Efficiency Clothes Washer Rebate ($50)
Leak Repair	Sacramento, CA	Provides free leak repairs and water-efficient upgrades to eligible low-income and single-family homeowners.
Agriculture Energy Savings Action Plan (AESAP)	Eligible PG&E customers, CA	Provides cash incentives on the installation of new, energy-efficient equipment or systems to eligible PG&E agriculture customers. Irrigation Practices incentivised include: Ag Well, Booster Pump Variable Frequency Drives (VFDs), Pump Upgrades, or other custom projects.
Agricultural Energy Efficiency Incentives (Did not respond for interview)	Bonneville Power Administration, OR	Financial reimbursements to farmers for eligible energy-efficiency measures, such as new high-efficiency irrigation pumps, VFDs, irrigation hardware upgrades, pump testing, and low elevation spray applications
Waterscape Rebate Program: Agricultural Irrigation Efficiency Program	San Diego, CA	Free irrigation audit and cost share for upgrading irrigation systems for water cost savings. Rebates start at $550 per acre or $5,000 per project.
Salinas Valley Basin GSA - Home WUE Assessment	Salinas Valley Basin GSA, CA	Free indoor and outdoor water use evaluations for residential properties, contracted with WaterWise Consulting

Separate from the interview process, the Project Team also had conversations with the California Water Efficiency Partnership (CalWEP). CalWEP focuses on maximizing urban-water efficiency and conservation through technology, policy, research, training, and collaboration with partnership members. CalWEP's members can participate in Smart Rebate Programs that enable CalWEP to handle the administrative tasks associated with processing and approving customer rebate applications.

An interview questionnaire template (see Appendix A) was developed to gather consistent information across interviews, including program type and structure, funding and costs, participation and outreach, and impact and evaluation. The Project Team conducted interviews with administrators or staff involved in the incentive programs throughout October and November 2025. The interview findings were summarized into four sections: Cost, Water Savings, Effectiveness, and Administration, which are included in Appendix A.

Several common themes emerged during the interview process. Many programs were created based on some type of mandate that the utility or municipality was trying to achieve such as water savings or storm-sewer capacity or driven by grant funding. The rebate value was often arbitrary and based on adjacent incentive programs rebates (i.e. what is the going incentive rate for lawn removal). Rather than being based on the actual cost of water, the rebates instead were tied to what it would take to encourage participation. There was also a theme of increased benefit with regional programs and messaging, where administrators saw more buy-in if there was a similar neighboring program.

The ability to accurately evaluate water savings benefits was dependent on the type of practice that was incentivized and was easier to assess with water meters (common in most water utility districts but not common for well users). The ability to evaluate participation and effectiveness of the program was also mixed. Limitations such as staff capacity or funding was a barrier to implementing effective follow-up or to evaluate program outcomes. As mentioned above, limited metering and privacy concerns around data sharing also inhibit program administrators in developing robust program assessment protocols. Program administration and labor requirements varied greatly depending on existing infrastructure (i.e. available staff and support roles and technology, such as meters, data tracking and softwares, etc, with programs often leveraging existing infrastructure within tight budgets and limited capacity).

4.2 Water Champions

The Project Team developed a list of local well users representing different stakeholders (rural residential, vineyard, and irrigation efficiency consultants) with the goal of learning what types of water use reduction or groundwater recharge practices they had undertaken and why; what the experience was like; whether they had any lessons learned from that experience; and whether they would recommend these practices be incentivised by the GSAs.

An interview questionnaire template for water champions was developed to cover practice adoption and motivation, outcomes and benefits, costs and challenges, and recommendations and future plans (see Appendix A) . The team contacted five water champions and was only able to conduct one interview, an agricultural and residential well user. The lack of response from the other water champions may be due to the timing of the interview requests which came during vineyard harvest season as well as the difficulty to schedule an interview with farmers, who are typically in the field. The summary of the interview can be found in Appendix A. The main takeaways from this interview included the need for increased technical assistance on how to utilize technology (such as soil moisture sensors), the strong interest in using ponds for irrigation, and a need for low-stake opportunities for experiments or field trials. The Project Team will continue to engage with water champions and relay feedback to the GSAs if incentive programs are developed in the future.

5 Analysis

Following the interview process, an analysis was undertaken to evaluate the eight priority practices described previously. This process estimated the annual water savings benefit and costs and outlined the programmatic structure and program administration for each practice. The water savings benefits were estimated across a calendar year for a typical parcel of a given well user category.

5.1 Well User Baseline Data

In order to estimate comparable water savings data, a baseline assumption for each category of well user was created. Typical water use scenarios were developed for the four well user categories: Rural Residential, Commercial (which includes Industrial and Institutional), Vineyard Agriculture, and Non-Vineyard Agriculture. The assumptions included average annual indoor and outdoor water use, average irrigated area, and average roof size per parcel. This baseline data for a typical site allows the costs and benefits of each practice to be evaluated comparatively as well as cumulatively based on the number of parcels in each GSA. Baseline data was ascertained from both the Non-Municipal Supplied Groundwater Demand Assessment Results and WUE Pilot Program Work Plan Technical Memorandum (Maddaus et al., 2024) and Outdoor Groundwater Demand Assessment Results for Petaluma Valley GSA, Santa Rosa Plan GSA and Sonoma Valley GSA (Land IQ, 2025). While rainwater catchment is a practice that can be used with any building, the volume of stored rainwater that could offset irrigation needs for commercial and agricultural properties would be larger than a typical 5,000 gallon plastic tank and often warrants a larger and more expensive metal tank or a pond. It is unlikely that an incentive program could fund a large enough amount to incentivise such large capital projects therefore average roof area (which is used for rainwater catchment) was only included for Rural Residentials. Indoor water use was also only included for Rural Residential as the indoor appliance practices are most relevant to residential use (with the exception of urinals, which were included for commercial properties. All outdoor water use is assumed to be for irrigation. For Rural Residential and Commercial the irrigation is assumed for turf. Non-vineyard agriculture included an average of multiple crop types (i.e. olives, apples, melons, etc.). The data highlights the significant water savings potential offered by rural residential properties as a user group, along with the need for an incentives-based strategy to best target the large number of residential parcels.

Table 2: Baseline Average Site Data

	Rural Residential	Commercial	Vineyard Agriculture	Non-Vineyard Agriculture
Average Annual Indoor Water Use Per Parcel (AF/year)[1]	0.15	N/A	N/A	N/A
Average Outdoor Water Use Per Acre (AF/acre/year)[2]	1.5	1.3	0.5	1.86
Average Irrigated Area (ac)[3]	0.12	0.45	23.3	4.3
Average Annual Outdoor Water Use Per Parcel (AF/year)[4]	0.2	0.6	11.7	8.0
Average Roof Area (sf)[5]	1,500	N/A	N/A	N/A
Number of single-use parcels across all GSAs[6]	7,346	1,969	378	61
Total Water Use (AF/year)[7]	**5,297**	**1,407**	**8,022**	**1,292**
Notes/Assumptions:				
1. Average Annual Indoor Water Use is based on the average across 3 GSAs of 51.6 Gallons Per Capita Per Day (GPCD), 2.5 people per home (Maddaus et al., 2024). This data was only available for residential and other land use categories were not included as the only incentives for indoor use were primarily for indoor residential appliances.				
2. Average Outdoor Water Use per acre per year was from the Outdoor Groundwater Demand Assessment (Land IQ, 2025). Non-Vineyard Ag was an average of all non-vineyard crops listed.				
3. Average Irrigated Area was obtained from the Outdoor Groundwater Demand Assessment (Land IQ, 2025). Residential area was assumed to be 25% of the total area, as many rural parcels do not irrigate their entire property.				
4. Average Annual Outdoor Water Use Per parcel multiplies the average irrigated area (acres) by the Average Outdoor Water Use per acre (af/acre).				
5. Average Roof Area was based on the Project Team's experience working with rural residential communities. Roof Areas for other land uses were not included as this category is only relevant to rainwater catchment.				
6. Number of parcels across the GSAs were determined by totalling the Outdoor Groundwater Demand Assessment (Land IQ, 2025) designations for each land use type except for Commercial, which is from GSA GUIDE (GUIDE, 2026). These numbers are only for parcels that have a single land use type. There are additional parcels that have multiple land use types however they were not included for simplicity of the analysis.				
7. Total water use is from the Demand Analysis (Maddaus et al. 2024) and is higher than the water use multiplied by single-use parcels, as it is an all encompassing estimate accounting for parcels with multiple land-uses and not based on averages.				

5.2 Water Savings

The annual water savings per parcel was estimated for each practice using the baseline data for each well user category. Certain practices have a simple determination of water savings (i.e. a 1,000 gallon rainwater tank will save 1,000 gallons of water per year) while others require a layering of calculations and assumptions (i.e. a low flush toilet saves 2.2 gallons per flush multiplied by x 2.5 users per household by 4 flushes each per day saves 22 gallons per day or 8,030 gallons per year). Some practices are harder to estimate annual water savings such as metering, irrigation efficiency evaluations, and irrigation scheduling education. For these practices, data from studies were used where possible, otherwise assumptions based on the Project Team's technical experience were used. Groundwater savings from water use efficiency measures have been estimated to range between 5%-20% (Intera Inc., 2025) and a majority of the savings values used in this analysis fall within that range. Average water savings potential on a per-parcel level for each practice including their basis for determination are included in Appendix B and Figures 1 through 4, below.

Water savings estimates for the education category were not included as it is difficult to estimate what, if any, water will be saved through education alone. Education and outreach events are often the first step in engaging well users and often lead to participation in incentive programs. Education was still included as an incentive category despite not having specific water savings values, based on GSA staff input. Similarly, water savings values were not included for leak detection and irrigation evaluations. These audit type programs provide information for a well user to make changes, however do not directly result in the adoption of a water savings practice. They function more like a direct educational program relying on behavioral changes. Leak detection and irrigation evaluations audits can be followed up with a secondary incentive such as leak repair and irrigation efficiency upgrades, which do have associated water savings values.

5.3 Cost

The cost for each incentive practice was evaluated in two categories: material and direct install. Material costs represent the cost of a physical item such as a rain tank or high efficiency washing machine. Costs for a direct install involve the labor costs for the GSA to install the item at prevailing wage rates. The proposed rebate value was created using comparable rebate values determined during the existing incentive program research and interview process. Finally, the percentage that the rebate would cover of the total cost was calculated. Rebate Costs on a typical per-parcel level (based on the average parcel size noted in Table 2) for each practice are included in Appendix B and Figures 1 through Figure 4, below. Costs for education were not included. The GSAs currently have an active education and outreach program that includes workshops and leveraging educational workshops provided by outside parties, including the RCDs. A typical workshop cost can range from $3,000 - $10,000 per workshop depending on the complexity and number of professionals involved. Costs for the administration of each incentive program (staffing, outreach, etc.) are not included however the level of administration was ranked and is further discussed in Section 5.6.

The following figures compare the water savings benefit of each priority practice for a typical parcel in each ground water user sector, along with the recommended rebate cap for each category of well user analyzed. Recommended rebate caps were based on existing nearby rebate programs or assuming that the rebate value would cover the material cost only. The team evaluated the rebate caps with the lens of what percentage of the total materials plus installation cost that it would cover. As discussed in the interview section, many incentive programs utilize somewhat arbitrary rebate cap amounts and base it solely on what neighboring programs are doing and what it would take to increase participation. There may be some adjustments needed if the GSAs were to roll out these programs after initial response and participation levels are evaluated.

Figure 1: Rural Residential Water Savings and Rebate Cap per Average Parcel

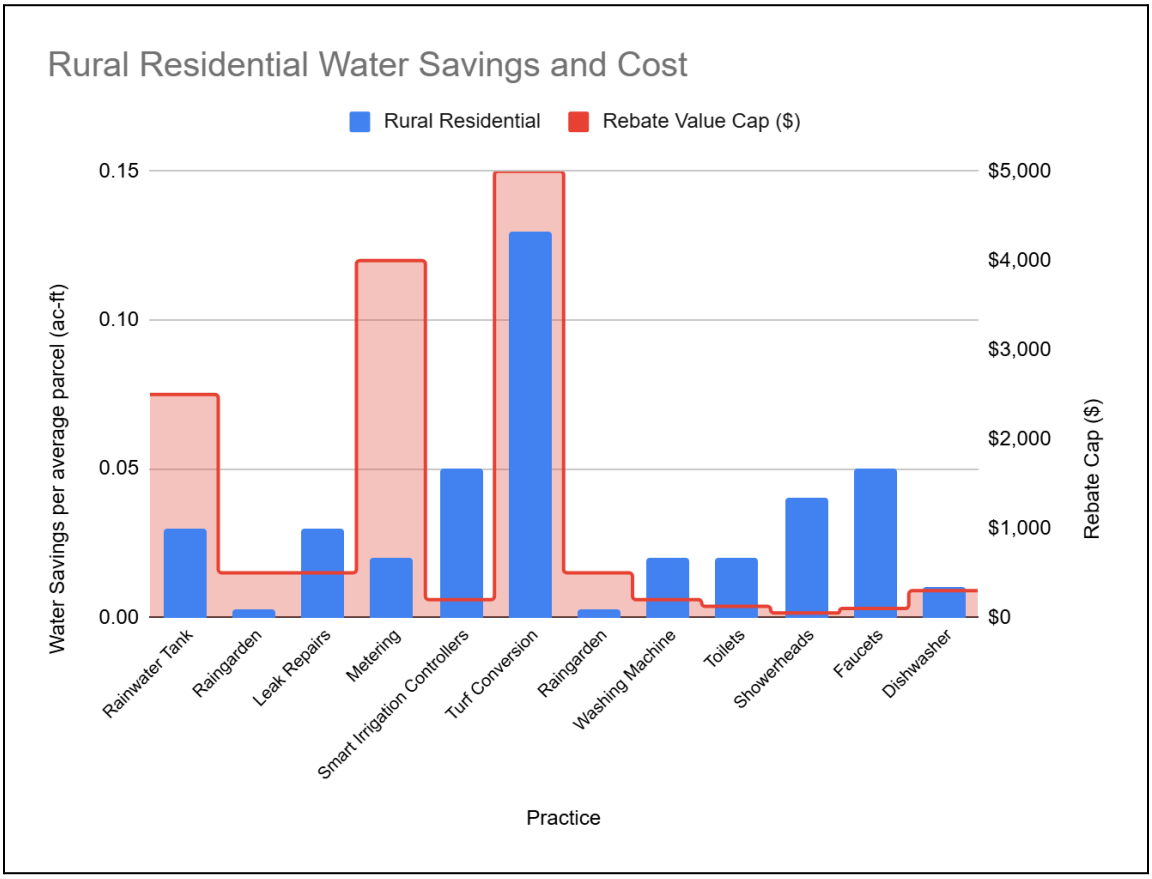


Figure 2: Commercial Water Savings and Rebate Cap per Average Parcel

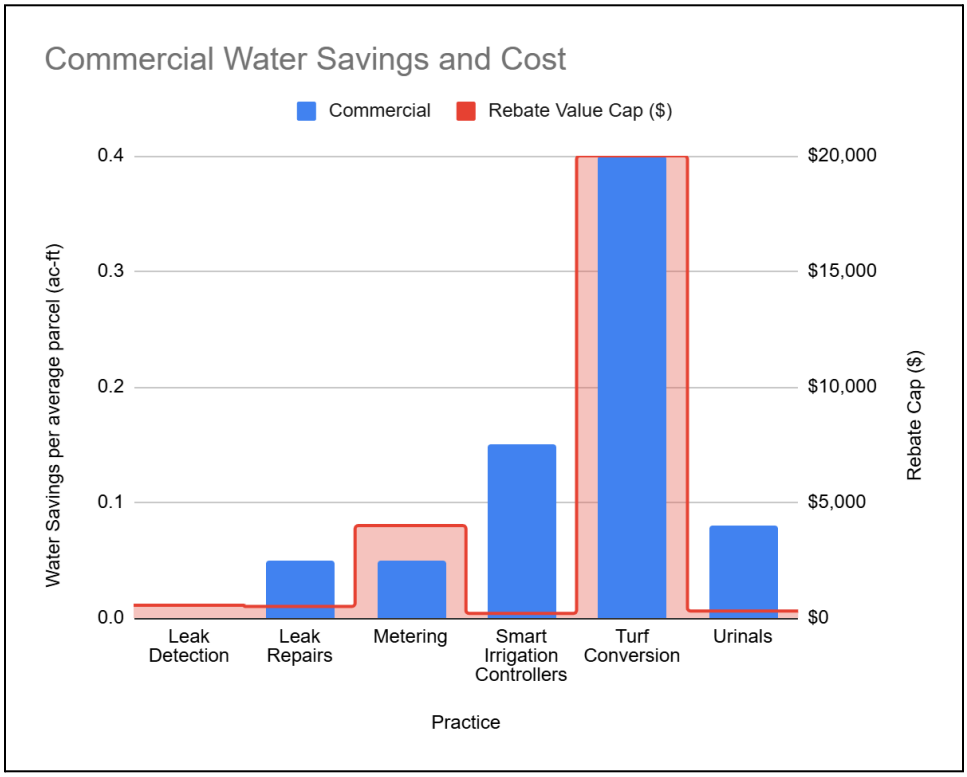


Figure 3: Vineyard Agriculture Water Savings and Rebate Cap per Average Parcel

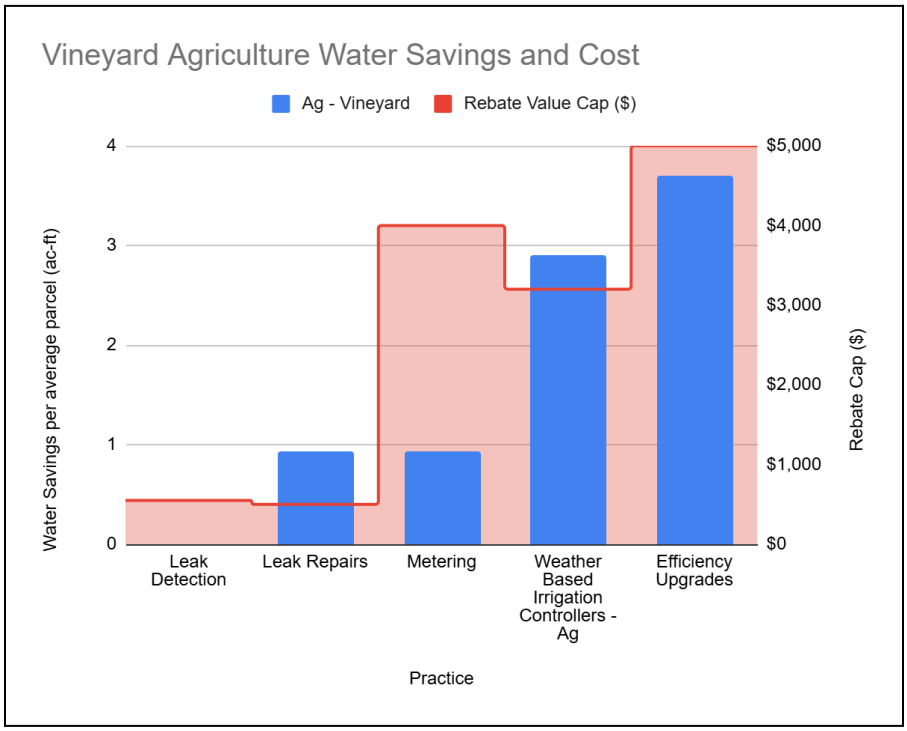
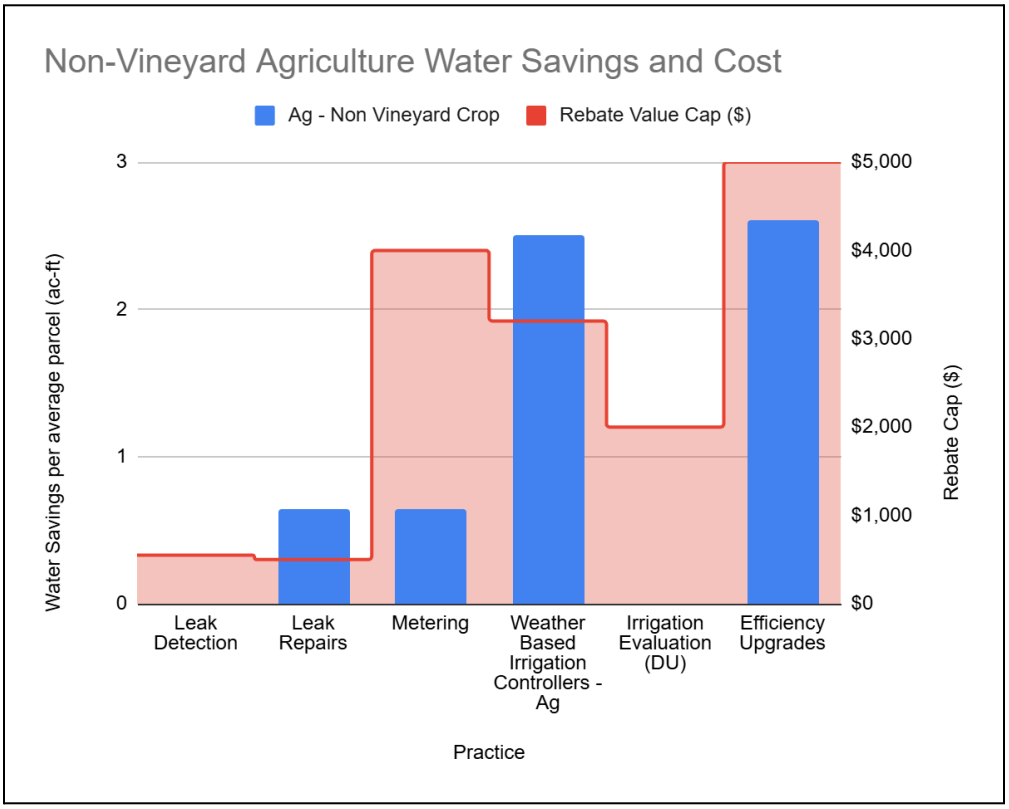


Figure 4: Non-Vineyard Agriculture Water Savings and Rebate Cap per Average Parcel



5.4 Participation Scenario

To understand the potential cumulative water savings benefits and associated rebate costs, a scenario was run assuming 5% uptake or participation rate across all three GSAs (i.e. if 5% of GSA well users in single-use parcels were to participate in these programs). As mentioned in Table 2, single-use parcels only include parcels that have a single land use type (i.e. residential, commercial). There are additional parcels that have multiple land use types however they were not included for simplicity of the analysis. Therefore, it is anticipated that the savings potential is even greater than what is reported below. The water savings potentials and costs with a 5% uptake rate are summarized in Table 3. It is unlikely that the 5% uptake would include all of the incentive practices and likely some well users would participate in only one or two incentive programs, so the total potential benefits at the bottom of the table should be viewed with this in mind.

Table 3: Potential Water Savings and Costs totally all 3 GSAs (5% Uptake)

Incentive Practice	Potential Water Savings (AF/year)				Estimated Cost							
	Rural Res.	Com.	Vin. Ag	Non-Vin. Ag	Rural Res.	Cost/AF	Com.	Cost/AF	Vin. Ag	Cost/AF	Non- Vin. Ag	Cost/AF
Rainwater Tank	11	-	-	-	$918,250	$83,333	-	-	-	-	-	-
Raingarden	1	-	-	-	$183,650	$166,667	-	-	-	-	-	-
Leak Detection	-	-	-	-	$202,015	-	$54,148	-	$10,395	-	$1,678	-
Leak Repairs	11	5	18	2	$183,650	$16,667	$49,225	$10,000	$9,450	$538	$1,525	$781
Metering	7	5	18	2	$1,469,200	$200,000	$393,800	$80,000	$75,600	$4,301	$12,200	$6,250
Weather Based Irrigation Controllers - Non-Ag	18	15	-	-	$73,460	$4,000	$19,690	$1,333	-	-	-	-
Weather Based Irrigation Controllers - Ag	-	-	55	8	-	-	-	-	$60,480	$1,103	$9,760	$1,280
Turf Conversion - Res	48	-	-	-	$1,836,500	$38,462	-	-	-	-	-	-
Turf Conversion - Com	-	39	-	-	-	-	$1,969,000	$50,000	-	-	-	-
Raingarden	1	-	-	-	$183,650	$166,667	-	-	-	-	-	-
Irrigation Evaluation (DU)	-	-	-	-	-	-	-	-	$37,800	-	$6,100	-
Efficiency Upgrades	-	-	70	8	-	-	-	-	$94,500	$1,351	$15,250	$1,923
Washing Machine	7	-	-	-	$73,460	$10,000	-	-	-	-	-	-
Toilets	7	-	-	-	$45,913	$6,250	-	-	-	-	-	-

Urinals (Commercial Only)	-	8	-	-	-	-	$29,535	$3,750	-	-	-	-
Showerheads	15	-	-	-	$18,365	$1,250	-	-	-	-	-	-
Faucets	18	-	-	-	$36,730	$2,000	-	-	-	-	-	-
Dishwasher	4	-	-	-	$110,190	$30,000	-	-	-	-	-	-
Ag Education	-	-	-	-	-	-	-	-	-	-	-	-
Residential Education	-	-	-	-	-	-	-	-	-	-	-	-
Total Potential	**149**	**72**	**160**	**19**	**$5,335,033**		**$2,515,398**		**$288,225**		**$46,513**	
Percentage of Total Water Use[1]	**3%**	**5%**	**2%**	**2%**								

1. *This value represents the percentage of total potential water savings from single use parcels of the total water use from the Demand Analysis (Maddaus et al. 2024). The total water use is higher than the water use from single-use parcels, as it is an all encompassing estimate accounting for parcels with multiple land-uses and not based on averages. Therefore, the percentage of total water use would likely increase if the multiple land-use parcels were to uptake the incentive program as well.*

The following figures demonstrate potential water savings for each well user category with the 5% participation scenario.

Figure 5: Rural Residential Water Savings Potential with 5% Participation

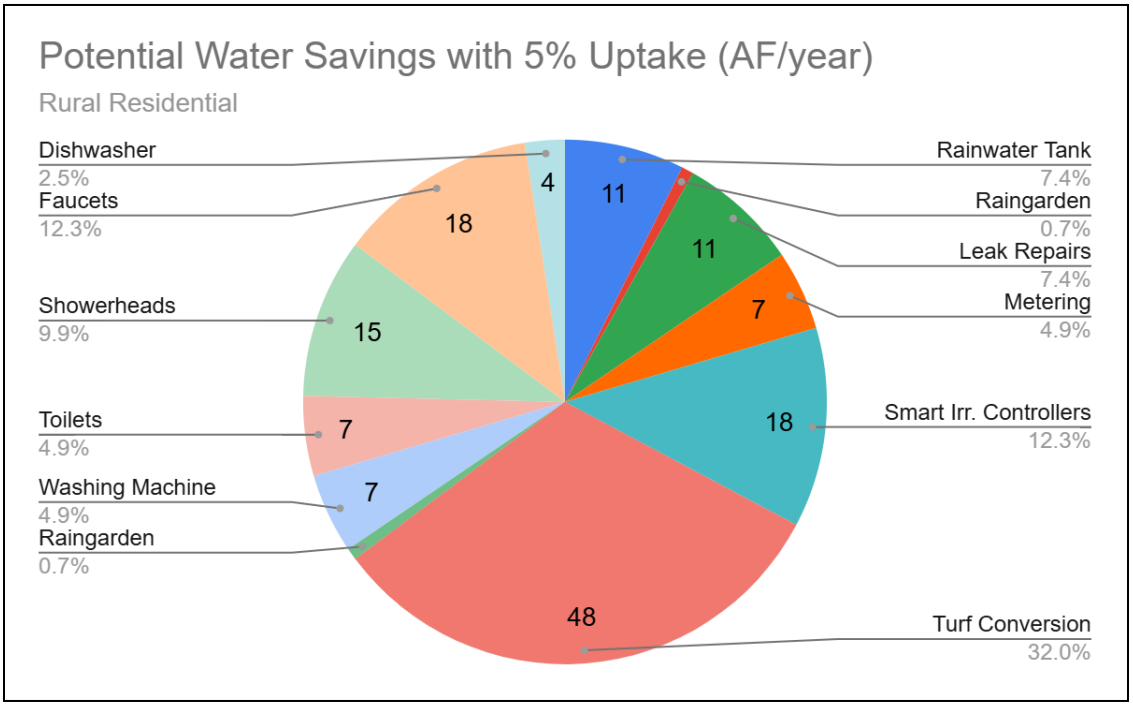


Figure 6: Commercial Water Savings Potential with 5% Participation

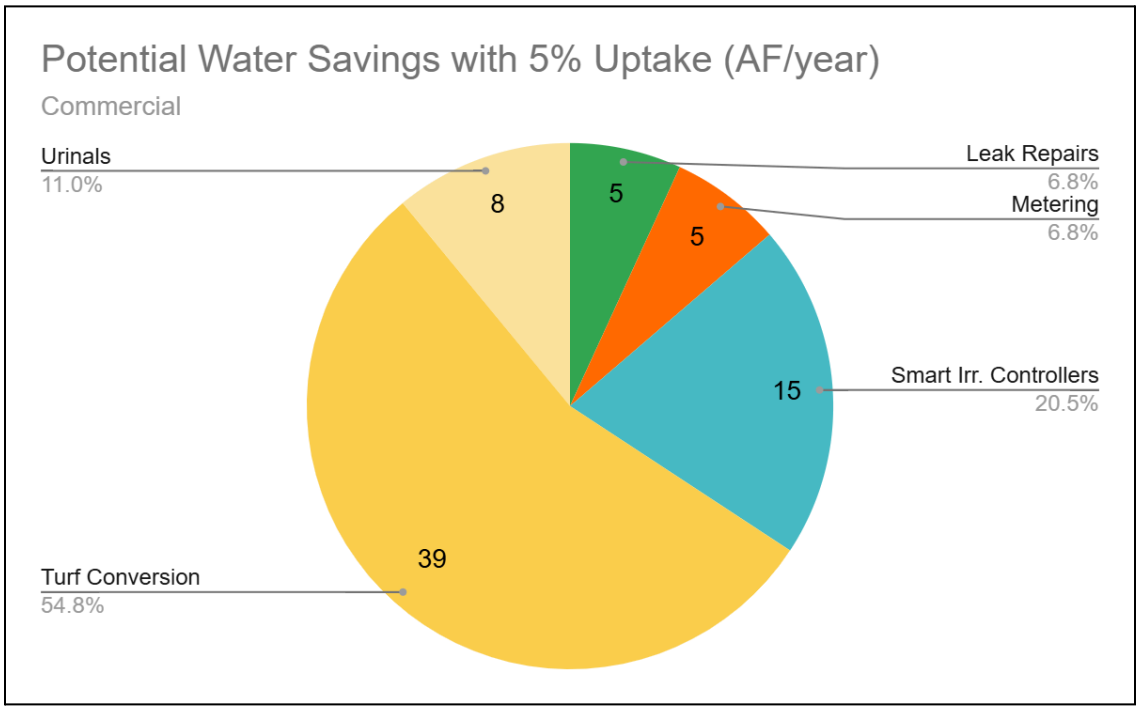


Figure 7: Vineyard Agricultural Water Savings Potential with 5% Participation

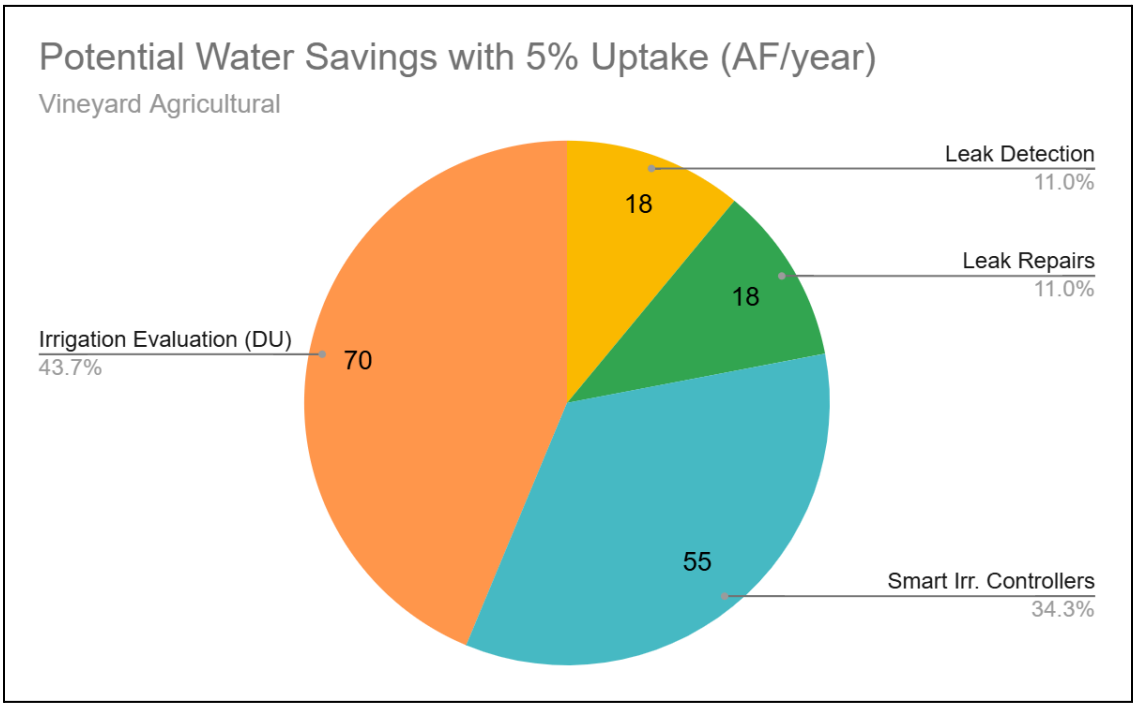
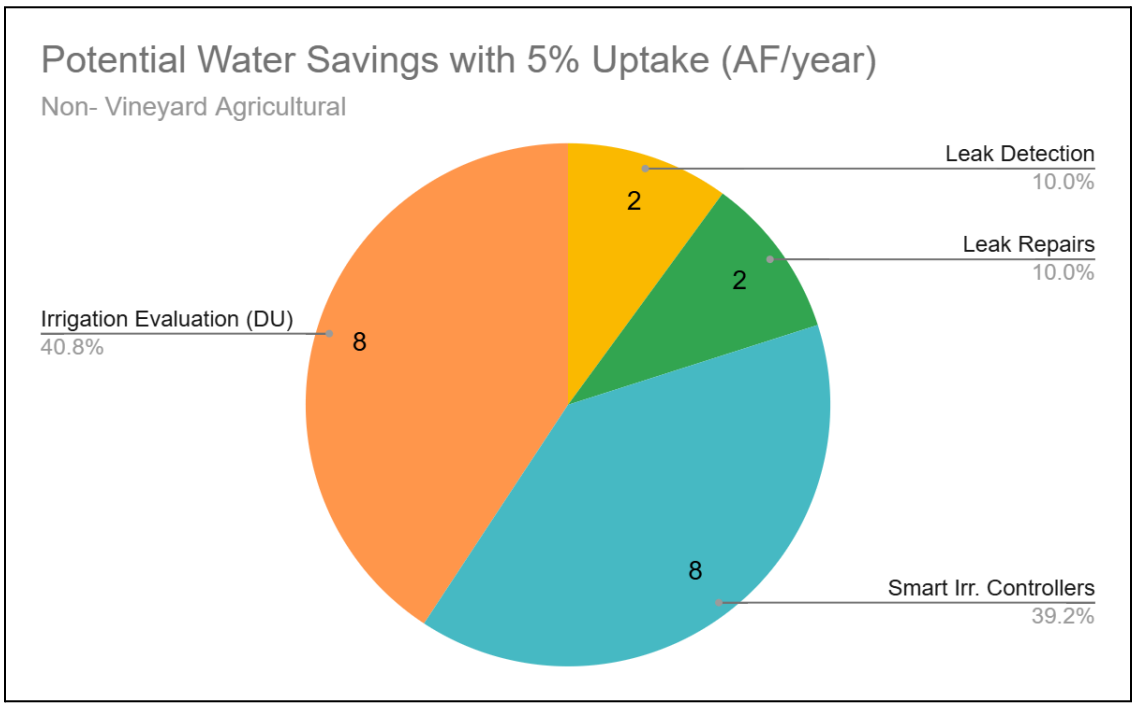


Figure 8: Non-Vineyard Agricultural Water Savings Potential with 5% Participation



5.5 Program Structure

There are a multitude of ways to structure an incentive program. Some involve very light touch, with minimal verification and contact with the recipient of the program, while others involve significant technical assistance and onsite verification at a substantially higher administrative cost. Some programs require Do-It-Yourself (DIY) installation or that participants contract directly with installers, and others cover direct installation of the practice. Program Structure cannot be easily compared as it does not represent a quantitative value such as cost or water savings. The project team developed recommended programmatic structures for each of the practices based on feedback from existing incentive program interviews. The program structure for each practice was summarized with a description of how the program might work. For example, irrigation efficiency evaluation would involve a participant application and selection process, outreach, evaluation, report, and follow up recommendations, followed by post-implementation verification and reimbursement for the upgrades. A summary of the program structure for each practice can be found in Appendix B.

5.6 Program Administration

Program Administration includes the evaluation of how an incentive program may be administered. Some programs are administered in-house by internal staff, and some are administered through a third party website or local community based organization. Descriptions of Program Administration were prepared for each practice. Similar to Program Structure, Program Administration is also difficult to compare as it is somewhat qualitative. A rating category of low, medium, and high was added to this component which indicates how easy (low) versus complex (high) an incentive program would be to administer. An example of a low score for Program Administration might include a DIY program with minimal verification that requires a less than 1.0 Full Time Equivalent (FTE) staff member to administer. An example of a high score for Program Administration might include a program that involves multiple partners, multiple steps in the process, has different user types, provides significant technical assistance to applicants, and/or requires in-person verification. A summary of the program structure descriptions and rating for each practice can be found in Appendix B.

5.7 Multibenefit

The incentive practices were also evaluated for multiple benefits beyond water use reduction and groundwater recharge. These benefits include things like increased water use awareness, drought resiliency, flood reduction, habitat enhancement, electricity cost reduction, crop quality improvement, etc. While the focus is on water savings and costs, noting the additional benefits for each practice will help the GSAs in evaluating, and ultimately selecting, which practices and incentive programs to launch, as well as to assist in locating funding partners. A summary of multibenefits can be found in Appendix B.

5.8 Existing Program Alignment

Several of the practices analyzed align with existing programs led by other organizations. For example, National Resource Conservation Service (NRCS) has rebate programs for farmers implementing conservation practices. Past and current grants from various state agencies have enabled some organizations from the Project Team to administer or support other programs such as the Sonoma County Rainwater Harvesting Rebate Program and the Petaluma Land Resilience Partnership that incentivize similar practices. Leveraging alignment with existing programs will allow the incentive value to go further and potentially reduce program administration. In some cases, the GSAs may wish to not offer a separate incentive and instead promote an existing incentive program with the goal of achieving water use reduction. A summary of existing program alignment was made for each practice and can be found in Appendix B.

6 Recommendations

After evaluating the 8 priority practices for water savings benefit, cost, program structure, program administration, and other considerations, the project team developed a short list of incentive programs that are recommended for the GSAs to consider, should future funding be available. The practices include:

- Metering
- Irrigation Evaluation and Upgrades
- Smart Irrigation Controllers
- Turf Conversion
- Indoor Appliances

It is assumed that the GSAs will continue their education program as well as leverage education programming from other entities (Marin Sonoma Water Savings Partnership, Master Gardeners, etc.) so this practice was not included in the list of recommended practices

6.1 Metering

The GSAs currently have a pilot metering incentive program, “Flow Smart” that covers the full cost of a meter installation and requires that metering data be shared with the GSAs. Studies have shown that metering can result in up to 8% water savings benefit (Cominola et al., 2021) due to the awareness that the meter can bring to system leaks and water use. Metering water use is foundational to all other incentive programs to determine their efficacy. The GSAs may decide to reduce the percentage that the rebate covers moving forward from 100% down to 50%. This program has some administrative complexities due to contracting with a 3rd party installer and coordinating site visits with participants and the installers. The complexity of the administration could be reduced further if it transitioned into a rebate program with the well user covering the install and the cost of the meter being the rebate. If participation in the metering program were to be uptaken by 5% of the single-use parcel well users in the

3 GSAs, that would result in water savings of 32 AF across all 3 GSAs and a total incentive cost of $1,950,800. This cost does not include administrative staffing or oversight of the program. The water savings estimates for metering are for outdoor water use only.

Pros for a metering incentive program include:

- Generates more data for continued implementation of Groundwater Sustainability Plans
- Creates awareness by well users and results in additional unanticipated water savings

Cons for a metering incentive program include:

- Resistance to metering due to privacy concerns
- Participation numbers may reach a limit after initial interest

6.2 Irrigation Evaluation and Upgrades

This program would provide Distribution Uniformity (DU) evaluations to assess how evenly irrigation water is applied across vineyard blocks and orchards. The tests generate quantitative data on system performance, helping identify inefficiencies such as pressure variation or emitter clogging. Results support data-driven irrigation decisions and system adjustments. Implementing recommendations that result in an improved DU score can increase water-use efficiency and conserve water. While an added cost, incentivizing the irrigation upgrades that result in an improved DU score would result in actual water savings and it is recommended that the rebate cover the full cost of the upgrades to solicit participation.

Pros for an Irrigation Evaluation and Upgrade incentive program include:

- Increased awareness of irrigation system efficiency and establishment of baseline performance data, enabling vineyard managers to make informed, data-driven irrigation and maintenance decisions.
- Energy cost savings through reduced pump run time and improved system performance, resulting from more efficient water application and optimized irrigation scheduling.
- Potential improvements in crop performance and fruit quality associated with more uniform water application and reduced plant stress.

Cons for an Irrigation Evaluation and Upgrade incentive program include:

- Irrigation upgrades and replacements represent a significant cost to growers, limiting participation without higher rebate levels.

6.3 Smart Irrigation Controllers

This program would incentivize the installation of smart irrigation controllers such as weather based irrigation controllers and include an option for precision technology such as weather gauges and soil moisture probes. The program would rebate the cost of the controller and provide technical assistance and education to the well owners. This is a program that could be applied to all categories of well users

described in this plan. Weather based irrigation controllers are significantly lower cost for residential uses compared to agricultural grade controllers. The administration of this program could be simple as a reimbursement based incentive where the cost of the controller is reimbursed following demonstration of installation. According to product reviews and user testimony, the water savings potential for agricultural parcels, both vineyard and non-vineyard, is high compared to the cost of the rebate. The efficacy of this incentive program would rely on technical understanding and uptake by the user so technical assistance and education is critical. For users that already have a smart controller, they could be incentivized to improve performance with a rebate for precision technology.

Pros for a Smart Irrigation Controller incentive program include:

- High water savings potential
- Simplistic program administration

Cons for a Smart Irrigation Controller incentive program include:

- Higher cost for agricultural controllers
- Requires technical understanding of usage for it to work effectively
- Some growers prefer to manually control their irrigation timing

6.4 Turf Conversion

The program would provide rebates to residential and commercial properties to incentivize the conversion of turf through sheet mulching into water-wise diverse landscapes. The rebate would include sheet mulching materials (cardboard, compost and mulch) as well as an irrigation conversion kit, and a selection of plants based on approved list. Turf conversion has the greatest potential for water savings compared to all other incentives for rural residential well users, however it also has the greatest cost. Costs could be reduced if the rebate only covered sheet mulch materials and not plants or if it was just operated as a rebate program and not cover any installation expenses.

Pros for a turf conversion incentive program include:

- Greatest water saving potential
- May have alignment/interest generation with upcoming non-functional turf bans, although those do not apply to residences

Cons for a turf conversion incentive program include:

- Highest cost
- Requires regular maintenance that some residences or commercial properties may not be willing to take on
- Complex administration depending on what materials/installation is included

6.5 Indoor Appliances

This program would provide rebates for high efficiency indoor appliances primarily to rural residential well users. However, urinals and toilets could be incentivised for commercial facilities. Indoor appliance incentive programs are simple to administer and can result in some significant water savings with faucets and showerheads generating the greatest potential savings. The costs of the rebates are also low compared to other incentive programs. These programs are often administered as a true rebate where the well user demonstrates installation and receives a reimbursement up to the rebate value.

Pros for an appliance incentive program include:

- Ease to administer
- Low cost for high water savings
- Potential for strong participation from rural residential well users who haven't historically qualified for rebates associated with a water utility

Cons for an appliance incentive program include:

- Some well users may already have water efficient appliances, so the benefits may not be as high as projected.

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Appendix A: Interview Documentation

- A-1: Incentive Program Questionnaire
- A-2: Incentive Program Interview Summary
- A-3: Water Champion Questionnaire
- A-4: Water Champion Interview Summary

Incentive Program Questionnaire
Name:
Organization:
Date:
Interviewed by:

1. Program Type and Structure

- What incentive programs do you administer?
- Is the program based on a reimbursement structure or materials/support (direct install) provided up front?
- Is there a range for the program (project size, cost, number of rebates)?
- Did you have a scoring/ranking system for both practices and participants?
- What made you decide and evaluate to focus on this specific incentive? (i.e., drought, feasibility, cost, etc.)

2. Funding & Costs

- What funded the program? (grant, tax, utility bills, etc.)
- What costs were associated with the program (administrative oversight, materials, labor, etc.)
- How much staff time was needed to administer the program?
- What percentage of costs did your program cover and how was that decided on? (accessibility vs. value)
- How do you calculate the rebate? What's it based on?

3. Participation & Outreach

- What is the criteria for participation?
- What are the demographics of program participants? (income, land use type, residential vs commercial, etc.)
- What is program uptake like? Is it seasonally dependent? How long have you offered it? Did participation shift over time?
- How was it promoted and which promotion mechanism seemed most effective?
- What other organizations were involved in the program (companies, partners, etc.)?

4. Impact & Evaluation

- What has the short-term and long-term impact been of the program? (i.e., still interest? how's the project looking?)
- How was success measured?
- Any challenges or lessons learned to share?
- What water savings benefit was associated with the program and how was that determined/quantified?

Existing programs Interviews - Key Takeaways/ Summaries

Program	Cost / Incentive Structure	Water Savings (How Measured)	Effectiveness / Participation	Administrative efforts involved
Mission RCD – Irrigation Rebate (San Diego)	Free DU test; $550/acre rebate if DU <80%; project cap $5,000; Prop 1 funding; past material/labor support discontinued due to prevailing wage	Water savings via CIMAS ET rates (harder to do in vineyards); DU score can be measured/improved	Drought years drive participation; cash reimbursement more effective than bill credits	Very lean: ~1 staff person handled evaluations, recommendations, and admin
Marin Water – Flume Device Rebates	~67% customer discount compiled from multiple sources: CalWEP provides discount, ; Marin Water contributes, and Flume provides a discount directly	~9,426 gal/year per unit; evaluated via Flume Data Labs, cumulative water savings estimated at 4863 AF,Marin Water uses the End Use data from Flumes Data Labs to evaluate water usage patterns and trends	4,064 devices since 2021; ~50% of installs non-functional due to batteries/user error; effectiveness declining	CalWEP handles program for 10% admin fee
Santa Clara Valley – Landscape Rebate Program	~$3M budgeted annually; $2.3M spent in 2024; flexible drought funding	70–80k AF/year across all rebates (2017–2022); turf conversion ~750k sq ft/year	750–1,000 participants/year considered successful; interest is main constraint	High lift: ~7–8 FTE plus PT interns; full in-house processing and inspections

Program	Cost / Incentive Structure	Water Savings (How Measured)	Effectiveness / Participation	Administrative efforts involved
Clean River Rewards – Stormwater Discount (Portland)	Fee reduction incentive; ~1,000 new participants/year (non-drought)	Modeled % fee reduction by practice; no direct water savings tracking	35,000 total participants; effectiveness inferred via watershed outcomes associated w. stormwater mandates	Contracts w. water wise consultants
Clean River Rewards – Direct Install (Portland)	Free direct install; labor at prevailing wage is largest cost; funded via Clean Energy Fund	Modeled using impervious surface capture	High participation, sends outreach letter in batches (~20% response); zero follow-up to ensure maintenance (benefits determined by modeling)	2 FTstaff + 12 PT interns, 2 PT water conservation specialists; limited follow-up capacity
Scottsdale, AZ – Water Efficiency Rebates	~$550k/year flexible rebate pool; rebates identified by need checks issued to customers	Pre/post water-use analysis; measured via controller installation: ~11 AF in one year	Strong residential uptake; commercial seen as high future potential	Low for simple rebates (~10 min each); site visits add staff time, uses online software platform
Solano County – Water		No formal water savings tracking; main goal of program is sustainability.	Popular due to alignment with existing homeowner interests	Moderate: FT intern + 25% manager time + 50% admin support

Program	Cost / Incentive Structure	Water Savings (How Measured)	Effectiveness / Participation	Administrative efforts involved
Efficient Landscape rebate	Cost-share model; lawn conversion ~$1.50/sq ft; mostly General Fund			
BAWSCA – Rain Garden & Landscape Rebates	Turf rebate $1/sq ft; rain garden add-on $300; funded by member agencies	Varies by practice; limited quantification	Participation varies by drought and supplier; engagement tool	Admin-heavy: check processing burdens; pathway under review
Sacramento – Leak Repair Program	$250–$500 per repair; funded via groundwater sales transfer, mandated that a % allocated to HU	Estimated leak flow × time avoided (up to 1 year)	Very high participation; highly cost-effective savings	Low–moderate: coordination-heavy but supported by customer service
Salinas Valley Basin GSA – Home WUE Pilot	TA-focused pilot program, DWR-funded	Survey results TBD: Focused on medium to small water systems, since Large water systems have mandates for water savings and small to medium dont. Thought there could be a gap here for water saving opportunities	Still evaluating reach and need and potential impact in small/rural systems	High startup effort; outreach time-intensive

Water Champion Questionnaire
Name:
Organization:
Date:
Interviewed by:

1. Adoption & Motivation

- What water savings measures have you implemented?
- What compelled you to implement this practice? (e.g., rebate, cost savings, sustainability goals)
- How did you get your company to buy into investing in this practice?
- What water efficiency measures have you implemented in your home/business?

2. Outcomes & Benefits

- What water use reductions have you seen?
- Did it result in any cost savings for your business/home?
- Have you noticed a reduction in your electric bill for well pumping?
- Do you advertise your water savings for your business?

3. Costs & Challenges

- How much did it cost and what was included in the costs?
- Were there any unforeseen costs?
- Any challenges or lessons learned to share?

4. Recommendations & Future Plans

- Would you recommend incentivizing this to others in your industry?
- What other water savings measures would you like to implement?
- Are there other local water savings champions you recommend we contact?
- Are you comfortable sharing your story?

	Water Champion Interview Summary
Operation	Relies on a well for 7.5 acres of grapes; summer flow ~0.2 gpm; adequate groundwater in winter but limited in summer; Redwood Empire Vineyard management helps manage the vineyard.
Irrigation Strategy	Limited irrigation (~7 hours total, including post-harvest)
Irrigation Strategy	Replants use 5 gph emitters; established vines use 1 gph; allows less frequent irrigation while meeting differing plant needs; irrigation managed in-house.
Irrigation Strategy	Soil moisture sensor not effectively used (damaged by dog); finds raw numbers hard to interpret; would prefer clearer guidance on when to irrigate and what readings mean.
Other Practices – Rainwater Capture	Installed rainwater capture from barn roof; 45,000 gallons storage, enough for full season
Other Practices – Soil Moisture Sensor	Soil moisture sensor not effectively used (damaged by dog); finds raw numbers hard to interpret; would prefer clearer guidance on when to irrigate and what readings mean.
Other Practices – Soil Amendments	Uses Hydretain (yucca/agave-based humectant) to improve soil moisture retention; some evidence it works, no trials conducted; low cost so perceived low risk; foggy conditions optimizes soil moisture retention strategies

Other Practices – Mulching	Applied ~10,000 tons of wood chips between rows via USDA grant; practices cover cropping; uses subsoil ripping/vibrating subsoiler to improve water penetration (rented from Redwood Empire).
Herbicide Use	Uses Roundup under water permit; tradeoff between irrigating grapes vs. weeds; with more water, could reduce or phase out herbicide use; similar issues seen in dry farming systems.
Other Interests	seasonal ponds/lakes to store winter water for summer use; open to switching to lower-water crops, though establishment is intensive.
Challenges	Biggest hurdle is cost; grape sale prices below cost of production; limits ability to invest in infrastructure or new systems.
Challenges	Challenges are knowing what works and what is feasible - what is effective
Other Notes	Management is highly context-specific; decisions based on available resources; recognizes complexity and absence of bright-line rules for irrigation and soil moisture management.

Appendix B: Incentive Practice Analysis

GSA Incentive Program - Practice Results				Annual Water Savings Benefit (acre-ft/parcel)				Cost				Program Administration	Multibenefit							Existing Program Alignment			
Practice	**Sub-Practice**	**Category (Indoor/ Outdoor)**	**Well User Served (A = Agriculture, CII = Commercial, RR = Rural Residential**	**Rural Residential**	**Commercial**	**Ag - Vineyard**	**Ag - Non Vineyard Crop**	**Material ($)**	**Install + Materials ($)**	**Rebate Value Cap ($)**	**Percentage Rebate Covers (%)**	**Rating (Low, Med, High)**	**Recharge**	**Energy Savings**	**Habitat Enhancement**	**Increased Water Use Awareness**	**Wildfire Resilience**	**Cost Savings**	**Crop Quality Improvement**	**Land Resilience Partnership**	**NRCS Conservation Practice**	**Sonoma Marin Water Savings Partnership**	**Existing Local Program**
Rainwater Harvesting	Rainwater Tank	Outdoor	RR	0.03	-	-	-	$10,000	$40,000	$2,500	6%	Medium/High				x	x			x			x
	Raingarden	Outdoor	RR	0.003	-	-	-	$500	$1,500	$500	33%		x		x					x			
Leak Detection & Repair	Leak Detection	Both	A/CII	-	-	-	-	$550	$550	$550	100%	Medium				x							
	Leak Repairs	Both	A/CII	0.03	0.05	0.93	0.64	$500	$1,000	$500	50%			x				x					
Metering	Metering	Both	All	0.02	0.05	0.93	0.64	$4,000	$6,000	$4,000	67%	Medium		x		x		x				x	x
Smart Irrigation Controller (and Optional Precision Technology)	Weather Based Irrigation Controllers - Non-Ag	Outdoor	RR/CII	0.05	0.15	-	-	$150	$300	$200	67%	Low/Medium		x		x		x	x			x	
	Weather Based Irrigation Controllers - Ag	Outdoor	Ag	-	-	2.9	2.5	$4,200	$6,200	$3,200	52%							x	x				
Turf Conversion/Native Planting	Turf Conversion - Res	Outdoor	RR	0.13	-	-	-	$15,000	$45,000	$5,000	11%	Low/Medium			x					x			x
	Turf Conversion - Com	Outdoor	CII	-	0.4	-	-	$30,000	$100,000	$20,000	20%				x					x			
	Raingarden	Outdoor	RR	0.003	-	-	-	$500	$1,500	$500	33%		x		x					x			
Irrigation Evaluation & Upgrades	Irrigation Evaluation (DU)	Outdoor	A	-	-	-	-	$2,000	$2,000	$2,000	100%	Medium/High				x							
	Efficiency Upgrades	Outdoor	A	-	-	3.7	2.6	$2,000	$5,000	$5,000	100%			x		x		x	x				
Indoor Appliances	Washing Machine	Indoor	RR	0.02	-	-	-	$800	$950	$200	21%	Low		x				x				x	x
	Toilets	Indoor	RR	0.02	-	-	-	$200	$350	$125	36%							x				x	x
	Urinals (Commercial Only)	Indoor	CII	-	0.08	-	-	$550	$700	$300	43%							x				x	x
	Showerheads	Indoor	RR	0.04	-	-	-	$50	$50	$50	100%							x				x	x
	Faucets	Indoor	RR	0.05	-	-	-	$140	$140	$100	71%							x				x	x
	Dishwasher	Indoor	RR	0.01	-	-	-	$600	$750	$300	40%			x				x				x	x
Education	Ag Education	Outdoor	A	-	-	-	-				N/A	Low				x							
	Residential Education	Both	RR	-	-	-	-				N/A					x							

Notes:

1. Rainwater Capture	Assumes 17.5 inches of rainfall in a dry year on an average roof size of 1,500 sf. This results in 12,500 gallons of rainwater. It is assumed that a typical rural residential parcel will have two 5,000 gallon poly tanks, resulting in a water savings of 10,000 gallons (0.03 af per year)
2. Raingardens	Assumed to capture 4% of a roof area (matching standard LID codes in Sonoma County), which generateds 934 gallons per year (average rainfall of 25 inches per year) = 0.0003 af
3. Leak Repair - Residential	Residential savings were pulled from Sacramento Water's similar Leak Repair program statistics reporting that in the average home wastes 10,000 gal/year saved per household
4. Leak Repair - Ag	Agricultural leak repair is assumed to yield 8% water savings, consistent with metering-based savings, under the assumption that meters effectively detect system leaks
5.Leak Repair - CII	CII leak repair is assumed to yield 8% water savings, consistent with metering-based savings, under the assumption that meters effectively detect system leaks
6. Metering	According to Cominola et al., 2021 , Metering achieved an 8% water use reduction in groundwater use, applied across all land uses.
7. WBIC	Weather based irrigation controllers + soil moisture probes: UC ANR reports that implementing smart irrigation technologies achieve between 20%-50% water savings - we used a 25% reduction across all baseline averages.
8. Turf Conversion	UC Master Gardener "Garden Sense" Program assumes a converted turf uses 1/3 of the amount of water as a typical lawn in Sonoma County, assuming 60% savings.
9. Distribution Uniformity and Irrigation	According to Zellman (2016), improving DU scores through irrigation upgrades and/or maintenance can result in 18–46% water savings; our analysis assumes 32% water savings from evaluations across each land use type.
10. Washing machine	Upgrading from 40-50 gal/load to 18-25gal/load and assuming 4 loads per week, this results in 108 gallons saved per week, or 15 gallons saved per household per day (~5,475 gallons per household per year).
11.Toilets	Assumes 2.5 people per home flushing 4 times per day, upgrading from 3.0 gal/flush to 0.8 gal/flush toilets, resulting in 22 gallons saved per household per day (~8,030 gallons per household per year).
12.Urinals (CII)	U.S. EPA site states that the "typical office building could reduce its water use from old, inefficient urinals by 26,000 gallons per year or more."
13. Showerheads	Assumes 2.5 people per home, average 8 minutes per shower, upgrading from 3.5 gpm to 1.5 gpm showerheads, resulting in 34 gallons saved per household per day (~12,410 gallons per household per year)
14. Faucets	Assumes 2.5 people per home, 5 minutes of sink use per person per day, upgrading fixtures from 5.0 gpm to 1.2 gpm (~17,337 gallons per household per year)
15. Dishwasher	Assumes 1 dishwasher load per day, upgrading from 16 gallons to 6 gallons per cycle, resulting in 6.5 gallons saved per household per day (~2,373 gallons per household per year)

Appendix C: Incentive Practice Fact Sheets

Incentive Practice: Rainwater Harvesting

Description

A rainwater harvesting rebate program would provide rebates to residential well users to incentivize the installation of roof rainwater catchment systems, designed to collect rainy season water to offset dry season extractive uses. An average roof size of 1,500 sf could fill 10,000 gallons (or two 5,000 gallon tanks). While the water conservation benefits are easily equated to the storage constructed, a greater benefit to groundwater is in stormwater attenuation and recharge facilitated by the associated overflow basin, given most household systems are capturing water from a catchment surface much larger than the storage can accommodate. Rebating raingardens from other downspouts not feeding the tanks would augment that benefit.

Well User Served: Rural Residential

Practice	Water Savings per parcel (acre-ft)	Cost
Rainwater Tank	0.03	• Material: $10,000 • Material + Install: $40,000 • Rebate Cap: $2,500
Raingarden (Optional Add-on)	0.003	• Material: $500 • Material + Install: $1,500 • Rebate Cap: $500

Program Structure and Administration

- Participant Interest Form
- Technical Assistance site visit to access feasibility
- Provide a list of installers that the participant would contract with directly
- $0.50/gal storage up to cap (rebate of $2,500)
- $500 flat rebate for raingarden following specs and 50 sf minimum capture area
- Community trainings, site tours, and demo projects at publicly accessible sites could promote the program
- Installer trainings every few years could help to ensure installer availability

Program Administration Rating: Medium/High

Multibenefit

- Increased Water Use Awareness
- Wildfire Resilience
- Recharge
- Habitat Enhancement

Incentive Practice: Leak Detection & Repair

Description

This program would contract with a plumber service to provide free/subsidized leak detection and evaluation, as well as rebates for repairs.

Well User Served: Agriculture, Commercial, Rural Residential

Practice	Water Savings per parcel (acre-ft)		Cost
Leak Detection	-		• Service: $550 • Rebate Cap: $550
Leak Repairs	Rural Res	0.03	• Material: $500 • Material + Install: $1,000 • Rebate Cap: $500
	Commercial	0.05	
	Ag Vineyard	0.93	
	Ag Non-Vineyard	0.64	

Program Structure and Administration

- Participant Interest Form and Project Prioritization
- Direct contract with Leak Detection Service Provider
- Provide rebate for implementation of repairs

Program Administration Rating: Medium

Multibenefit

- Increased Water Use Awareness
- Energy Savings
- Cost Savings

Incentive Practice: Metering

Description

This program would continue the GSA Flow Smart Program. The program partners with well owners to gather data on water use using well flow metering devices. The program covers direct installation of flow meters or allows well owners to report meter data if they have existing meters. The rebate cap would be reduced to cover materials only. Cost varies depending on meter size.

Well User Served: Agricultural, Commercial, Rural Residential

Practice	Water Savings per parcel (acre-ft)		Cost
Meter	Rural Res	0.02	• Material: $4,000 • Material + Install: $6,000 • Rebate Cap: $4,000
	Commercial	0.05	
	Ag Vineyard	0.93	
	Ag Non-Vineyard	0.64	

Program Structure and Administration

- Participant Interest form
- Follow up Q&A
- Contractor conducts initial well inspection
- Contractor installs the flow meter
- Follow up data collection

Program Administration Rating: Medium

Multibenefit

- Increased Water Use Awareness
- Energy Savings
- Cost Savings

Incentive Practice: Smart Irrigation Controller

Description

This program would incentivize the installation of smart irrigation controllers such as weather based irrigation controllers and soil moisture probes. The program would rebate the cost of the controller and provide technical assistance and education to the well owners.

Well User Served: Agricultural, Commercial, Rural Residential

Practice	Water Savings per parcel (acre-ft)		Cost
Weather Based Irrigation Controllers	Ag Vineyard	2.9	• Material: $4,200 • Material + Install: $6,200 • Rebate Cap: $3,200
	Ag Non-Vineyard	2.5	
	Commercial	0.15	• Material: $150 • Material + Install: $300 • Rebate Cap: $200
	Rural Residential	0.05	

Program Structure and Administration

- Participant Interest Form
- Receipt and Installation Documentation
- Rebate issue to cover material cost up to cap
- Technical Assistance site visit
- Community trainings, site tours, and demo projects at publicly accessible sites could promote the program

Program Administration Rating: Low to Medium

Multibenefit

- Increased Water Use Awareness
- Energy Savings
- Cost Savings
- Crop Quality Improvement

Incentive Practice: Turf Conversion/Native Planting

Description

The program would provide rebates to residential and commercial properties to incentivize the conversion of turf through sheet mulching into water-wise diverse landscapes. The rebate would include sheet mulching materials (cardboard, compost and mulch) as well as irrigation conversion kit, and a selection of plants based on approved list.

Well User Served: Commercial, Rural Residential

Practice	Water Savings per parcel (acre-ft)	Cost
Turf Conversion - Commercial	0.4	• Material: $20,000 • Material + Install: $100,000 • Rebate Cap: $15,000
Turf Conversion - Rural Residential	0.13	• Material: $15,000 • Material + Install: $45,000 • Rebate Cap: $5,000
Raingarden (Optional Add-on)	0.003	• Material: $500 • Material + Install: $1,500 • Rebate Cap: $500

Program Structure and Administration

- Mulch Madness
  - Participant Interest Form
  - Confirm lawn has been irrigated for minimum 3 years
  - Rebate Approval
  - Well owner has 8 months to schedule materials delivery
- Other
  - Participant Interest Form
  - Water-wise House Call to qualify
  - Well owner orders materials (under GSA account)
  - GSA provides irrigation conversion kit

Program Administration Rating: Medium

Multibenefit

- Habitat Enhancement
- Recharge

Incentive Practice: Irrigation Evaluation & Upgrades

Description

Provide free Distribution Uniformity (DU) evaluations assess how evenly irrigation water is applied across vineyard blocks. The tests generate quantitative data on system performance, helping identify inefficiencies such as pressure variation or emitter clogging. Results support data-driven irrigation decisions and system adjustments. Implementation of recommendations or upgrades from DU Score. Implementing recommendations can improve efficiency and conserve water. If budget allows, provide rebates for irrigation upgrades that result in an improved DU score.

Well User Served: Agricultural

Practice	Water Savings per parcel (acre-ft)	Cost
Irrigation Evaluation (DU Testing)	0.03	• Service: $2,000 • Rebate Cap: $2,000
Efficiency Upgrades - Ag Vineyard	3.7	• Material: $2,000 • Material + Install: $5,000 • Rebate Cap: up to $5,000
Efficiency Upgrades - Ag Non-Vineyard	2.6	

Program Structure and Administration

- Participant Interest Form
- Service Provider Conducts Evaluations and creates report
- If low score on report, provides recommended upgrades
- Well owner installs upgrades
- Upgrade Verification
- Rebate issued for approved materials and/or labor costs

Program Administration Rating: Medium/High

Multibenefit

- Energy Savings
- Increased Water Use Awareness
- Cost Savings
- Crop Quality Improvement

Incentive Practice: Indoor Appliances

Description

This program would provide rebates to homeowners to replace older, less efficient household appliances with newer, High Efficiency -qualified appliances

Well User Served: Commercial, Rural Residential

Practice	Water Savings per parcel (acre-ft)	Cost
Washing Machine	0.02	• Material: $800 • Material + Install: $950 • Rebate Cap: $200
Toilets	0.02	• Material: $200 • Material + Install: $350 • Rebate Cap: $125
Urinals (Commercial)	0.08	• Material: $550 • Material + Install: $700 • Rebate Cap: $300
Showerheads	0.04	• Material: $50 • Material + Install: DIY • Rebate Cap: $50
Faucets	0.05	• Material: $140 • Material + Install: DIY • Rebate Cap: $100
Dishwasher	0.01	• Material: $600 • Material + Install: $750 • Rebate Cap: $300

Program Structure and Administration

- Participant Interest Form/Pre-approval Process
- Submit Rebate Form with receipt and appliance specs
- Rebate issued

Program Administration Rating: Low

Multibenefit

- Energy Savings
- Cost Savings

Incentive Practice: Education

Description

The program would continue existing GSA outreach and education programming and partner with local organizations and experts to host workshops, in person and/or virtual on irrigation scheduling and water savings tools.

Well User Served: Agricultural, Rural Residential

Practice	Water Savings per parcel (acre-ft)	Cost
Ag Education	-	Workshop: $3,000 - $10,000
Residential Education	-	Workshop: $3,000 - $10,000

Program Structure and Administration

- Targeted outreach to Rural Residential and Agriculture well owners
- Technical Assistance materials and site visits
- Community trainings, site tours, and demo projects at publicly accessible sites could promote the program

Program Administration Rating: Low

Multibenefit

- Increased Water Use Awareness
- Wildfire Resilience
- Recharge
- Habitat Enhancement

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