

# Napa County

1195 THIRD STREET  
SUITE 310  
NAPA, CA 94559



## Agenda

**Thursday, May 11, 2023**

**1:30 PM**

**Board of Supervisors Chambers  
1195 Third Street, Third Floor**

### **Technical Advisory Group**

*Member Monica Cooper*

*Member Albert Filipelli*

*Member Mathias Kondolf*

*Member Julie Chambon*

*Member Miguel Garcia*

*Brian Bordona, Secretary- Interim Director*

*Chris Apallas, County Counsel*

*Jamison Crosby, Natural Resources, Planning Manager*

*Brendan McGovern, Natural Resources, Planner III*

*Ryan Melendez, Natural Resources, Planner II*

*Alexandria Quackenbush, Committee Clerk*

*Aime Ramos, Committee Clerk*

*Jason Hall, Committee Clerk*

**How to Watch or Listen to the Napa County Technical Advisory Group Meetings**

The Napa County Technical Advisory Group will continue to meet the 2nd Thursday of each month.

The Napa County Technical Advisory Group realizes that not all County residents have the same ways to stay engaged, so several alternatives are offered. Remote Zoom participation for members of the public is provided for convenience only. In the event that the Zoom connection malfunctions for any reason, the Technical Advisory Group reserves the right to conduct the meeting without remote access.

Please watch or listen to the Technical Advisory Group meeting in one of the following ways:

1. Attend in-person at the Board of Supervisors Chambers, 1195 Third Street, Napa, Third Floor.
3. Watch on Zoom using the attendee link: <https://countyofnapa.zoom.us/j/89426085834>. Make sure the browser is up-to-date.
4. Listen on Zoom by calling 1-669-900-6833 (Meeting ID: 894-2608-5834).

**If you are unable to attend the meeting in person and wish to submit a general public comment or a comment on a specific agenda item, please do the following:**

1. Email your comment to [meetingclerk@countyofnapa.org](mailto:meetingclerk@countyofnapa.org). Emails will not be read aloud but will still become part of the public record and shared with the Technical Advisory Group.
2. Use the Zoom attendee link: <https://Countyofnapa.zoom.us/j/89426085834>. Make sure the browser is up-to-date. When the Chair calls for the item on which you wish to speak, click "raise hand". Please limit your remarks to three minutes.
3. Call the Zoom phone number: 1-669-900-6833. (Meeting ID: 894-2608-5834). When the Chair calls for the item on which you wish to speak, press \*9 to raise hand. Please limit your remarks to three minutes.

**\*\*Please note that phone numbers in their entirety will be visible online while speakers are speaking\*\***

For more information, please contact us via telephone at (707) 253-4417 or send an email to [meetingclerk@countyofnapa.org](mailto:meetingclerk@countyofnapa.org).

**1. CALL TO ORDER; ROLL CALL****2. PUBLIC COMMENTS AND RECOMMENDATIONS**

**(The Committee invites comments and recommendations from the public concerning issues relevant to the charge of the Technical Advisory Group. Anyone who wishes to speak to the Technical Advisory Group on such a matter, if it is not on the agenda, may do so at this time. At the discretion of the Chair, individuals will be limited to a three-minute presentation. No action will be taken by the Technical Advisory Group as a result of any item presented at this time.)**

**3. APPROVAL OF MINUTES**

- A. The Secretary of the committee requests approval of the minutes from the April 13, 2023 TAG meeting. [23-0835](#)

**Attachments:** [Draft TAG Meeting Minutes - April 13, 2023](#)

**4. AGENDA REVIEW****5. ADMINISTRATIVE ITEMS**

- A. The Technical Advisory Group members will receive an update from California Department of Water Resources' Facilitation Support Services team on progress to assist the Napa County GSA improve outreach and engagement efforts. [23-0839](#)

**Attachments:** [2020 NCGSA Communication and Engagement Plan](#)

- B. The Technical Advisory Group members will receive: 1) an update on implementation activities since Groundwater Sustainability Plan (GSP) adoption, and 2) a summary of key elements of GSP implementation efforts leading to the GSP five-year update due to the Department of Water Resources January 31, 2027, the GSP's adaptive management process, and response actions occurring in response to groundwater conditions. [23-0836](#)

**Attachments:** [Napa Subbasin GSP Implementation: The First 5 Years](#)

- C. The Technical Advisory Group (TAG) members will receive a status update on the evaluation of evapotranspiration (ET) data collection activities and preliminary data analysis. This will include an overview of previous discussions, current outreach activities, and presentation of collected data. This is an informational item to inform the TAG members of ongoing work occurring in relation to quantifying total consumptive use of water. [23-0842](#)

**Attachments:** [Update on Evaluating ET - Presentation](#)

- D. The Technical Advisory Group (TAG) will receive an update on progress developing potential water conservation actions for the Groundwater Pumping Reduction Workplan (GPR Workplan). This will include an overview of the GPR Workplan, the draft results of the water conservation practices summary matrix, a discussion of development of an implementation plan and next steps. Several framing questions are included to receive feedback and direction from the TAG. [23-0841](#)

**Attachments:** [Presentation: ERA Economics, NV Subbasin, GPR Workplan, May 2023](#)

[GW Pumping Reduction Workplan, Draft Outline, February 6, 2023](#)

**6. FUTURE AGENDA ITEMS**

**7. ADJOURNMENT**

I HEREBY CERTIFY THAT THE AGENDA FOR THE ABOVE STATED MEETING WAS POSTED AT A LOCATION FREELY ACCESSIBLE TO MEMBERS OF THE PUBLIC AT THE NAPA COUNTY ADMINISTRATIVE BUILDING, 1195 THIRD STREET, NAPA, CALIFORNIA ON 5/8/2023 BY 12:00 P.M. A HARDCOPY SIGNED VERSION OF THE CERTIFICATE IS ON FILE WITH THE COMMITTEE CLERK AND AVAILABLE FOR PUBLIC INSPECTION.

Jason Hall (By e-signature)

JASON HALL, Committee Clerk



# Napa County

## Board Agenda Letter

1195 THIRD STREET  
SUITE 310  
NAPA, CA 94559  
www.countyofnapa.org  
Main: (707) 253-4580

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Technical Advisory Group

**Agenda Date:** 5/11/2023

**File ID #:** 23-0835

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**TO:** Technical Advisory Group for the Napa County Groundwater Sustainability Agency  
**FROM:** Brian Bordona - Interim Director of Planning, Building and Environmental Services  
**REPORT BY:** Jamison Crosby, Natural Resources Conservation Manager  
**SUBJECT:** TAG Minutes from April 13, 2023

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### **RECOMMENDATION**

The Secretary of the committee requests approval of the minutes from the April 13, 2023 TAG meeting.

### **EXECUTIVE SUMMARY**

The TAG held its ninth meeting on April 13, 2023. Minutes were prepared and are ready for the committee's approval.

### **ENVIRONMENTAL IMPACT**

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

### **BACKGROUND AND DISCUSSION**

The TAG held its ninth meeting on April 13, 2023. Minutes were prepared and are ready for the committee's approval.



## **Draft Meeting Minutes**

### **Technical Advisory Group**

Monica Cooper  
Albert Filipelli  
Mathias Kondolf  
Julie Chambon  
Miguel Garcia

David Morrison, Secretary  
Chris Apallas, County Counsel  
Jamison Crosby, Natural Resources Planning Manager  
Brendan McGovern, Natural Resources, Planner III  
Alexandria Quackenbush, Committee Clerk  
Jason Hall, Committee Clerk  
Aime Ramos, Committee Clerk

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**Thursday, April 13, 2023**

**1:30 PM**

**Board of Supervisors Chambers  
1195 Third Street, Third Floor**

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**1. CALL TO ORDER / ROLL CALL**

Group Members Present: Monica Cooper, Albert Filipelli, Mathias Kondolf, Miguel Garcia, Julie Chambon (joined during Item 3).

Group Members Excused: None.

Staff Present: Jamison Crosby, Brendan McGovern, Jason Hall, Aime Ramos.

**2. PUBLIC COMMENTS AND RECOMMENDATIONS**

None.

**3. APPROVAL OF MINUTES**

March 9, 2023, minutes were approved.  
MG-JC-AF-MC-MK

**4. AGENDA REVIEW**

Jamison Crosby gave the agenda review.

**5. ADMINISTRATIVE ITEMS**

A. TAG members will receive and oral presentation from Stantec staff on the Facilitation Support Services (FSS) contract between Department of Water Resources' contractor, Stantec and Napa County.

The Technical Advisory Group received the presentation from Lisa Beutler. No action taken.

(1) Public Comment was heard.

- B. Provide information to the Technical Advisory Group (TAG) on the development of Managing Interconnected Surface Water (ISW) and Groundwater Dependent Ecosystems Workplan with emphasis on Task 3 – Development of Ecohydrological Conceptual Model.

The Technical Advisory Group received the presentation from Christian Braudrick. No action taken.

(2) Public Comments were heard.

- C. Provide and update to the Technical Advisory Group (TAG) on progress developing potential water conservation actions for the Groundwater Pumping Reduction Workplan (GPR Workplan).

The Technical Advisory Group received the presentation from Richael Young. No action taken.

(3) public comments were heard.

**6. FUTURE AGENDA ITEMS**

- The TAG will hear from Molly Williams of Napa Grape Growers next month.
- The TAG will be provided another Pump Plan Reduction update next month.

**7. ADJOURNMENT**

Meeting adjourned to May 11, 2023, regular meeting.

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JASON HALL, Clerk of the Committee

Key

Vote: MC = Monica Cooper; AF = Albert Filipelli; MK = Mathias Kondolf;  
JC = Julie Chambon; MG = Miguel Garcia.

The maker of the motion and second are reflected respectively in the order of the recorded vote.

Notations under vote: N = No; A = Abstain; X = Excused



# Napa County

## Board Agenda Letter

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Main: (707) 253-4580

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Technical Advisory Group

**Agenda Date:** 5/11/2023

**File ID #:** 23-0839

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**TO:** Technical Advisory Group for the Napa County Groundwater Sustainability Agency  
**FROM:** Brian Bordona - Interim Director of Planning, Building and Environmental Services  
**REPORT BY:** Jamison Crosby, Natural Resources Conservation Manager  
**SUBJECT:** Update on DWR's Facilitation Support Services

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### **RECOMMENDATION**

The Technical Advisory Group members will receive an update from California Department of Water Resources' Facilitation Support Services team on progress to assist the Napa County GSA improve outreach and engagement efforts.

### **EXECUTIVE SUMMARY**

Overview of Facilitation Support Services provided to the Napa County Groundwater Sustainability Agency by DWR's Facilitation Support Services.

#### **Procedure**

Staff introduces the item

Questions and answers with the TAG.

Public comments.

### **ENVIRONMENTAL IMPACT**

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

### **BACKGROUND AND DISCUSSION**

The NCGSA submitted a request to DWR for Facilitation Support Services in late January to assist the GSA with several efforts including:

1. Provide facilitation and support for the Technical Advisory Group meetings,
2. Update the 2020 NCGSA Stakeholder Communication and Engagement Plan (CEP), and
3. Assist with public meetings and the development of informational materials.



In the April Technical Advisory (TAG) Group meeting the TAG received a presentation on Communications and Engagement Services the California Department of Water Resources (DWR) is providing to the NCGSA through its Facilitation Support Services (FSS) program.

During this meeting Lisa Beutler, Senior Facilitator from Stantec, will provide an update on her team's initial steps and activities since the last TAG meeting and provide an overview of their review of the existing Communications and Engagement Plan (CEP). She will highlight areas of the CEP the facilitators plan to focus on during the update process and seek input from the TAG on their priorities and suggestions for the update. They will also provide a preview of planned activities for May and June 2023.

### **SUPPORTING DOCUMENTS**

#### A. NCGSA Stakeholder Communications and Engagement Plan (2020)



# NAPA COUNTY GROUNDWATER SUSTAINABILITY AGENCY STAKEHOLDER COMMUNICATION AND ENGAGEMENT PLAN

Adopted December 15, 2020

Prepared for the  
Napa County Groundwater Sustainability Agency  
1195 Third Street, Napa CA 94559

Under Napa County PSA Number PSA200362C  
DWR Agreement #4600013565, Category (b)–Stakeholder Engagement/Outreach

Prepared by CONCUR, Inc.  
1832 Second Street, Suite N  
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## 1. Introduction & Context

The 2014 Sustainable Groundwater Management Act (SGMA) provides a framework for sustainable management of groundwater resources by local authorities. It requires the development of Groundwater Sustainability Plans (GSPs) for all groundwater basins designated as medium or high priority. The act establishes a 20-year timeline to implement actions to achieve long-term groundwater sustainability. The primary goal of the GSP is to develop and implement sustainable groundwater management practices resulting in achievement of the sustainability goal within 20 years.

As part of GSP development and implementation, SGMA requires outreach and engagement with a broad range of stakeholders to ensure that their interests are considered. This Stakeholder Communication and Engagement Plan (CEP) is developed to guide local efforts to meet the SGMA requirements and to involve stakeholders in the development of an effective GSP.

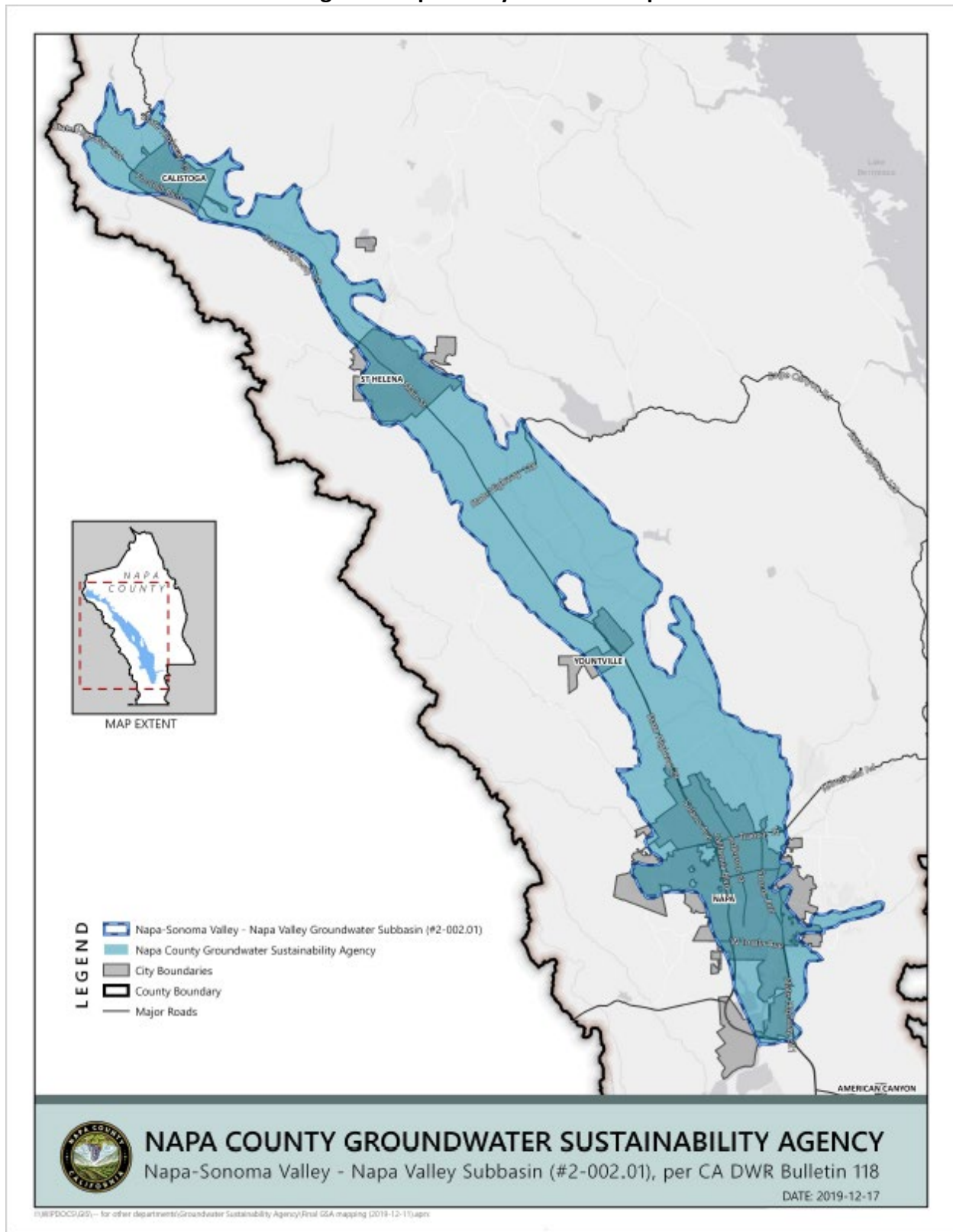
The Napa Valley Subbasin is designated as a high priority basin by the California Department of Water Resources (DWR). Based on DWR's statewide scoring criteria, the Subbasin is designated as high priority based on the relatively high use and importance of groundwater. The Subbasin covers approximately 45,900 acres within Napa County. It includes the Cities of Napa, St. Helena and Calistoga and the Town of Yountville and is depicted in Figure 1. Land uses within the Subbasin include urban and developed areas, agriculture and open space.

Napa County conducted an online Groundwater Stakeholder Survey between June 2019 and July 2020 to gain an understanding of the array of community interests in groundwater-related issues and to inform and guide future outreach and engagement efforts, including the development of this Stakeholder Communication and Engagement Plan. A total of 79 responses were received. Responding stakeholders included domestic well owners, agricultural water users, public water system customers, environmental users of groundwater, commercial or industrial users of groundwater, representatives of public water systems, land use planning agencies and disadvantaged community organizations. Key suggestions from the survey regarding outreach and engagement included:

- Be persistent and consistent in outreach efforts
- Use multiple communication methods and platforms
- Provide regular updates to communicate basic hydrology and track and substantively report the status of the groundwater resource
- Organize and convene periodic education events, using multiple forums and formats, including podcasts, webinars and workshops

This CEP incorporates those suggestions, as described in the sections that follow. Additionally, the CEP builds on the important early work of the Groundwater Resources Advisory Committee (GRAC), the Watershed Information and Conservation Council (WICC), the 2016 Alternative to a Groundwater Sustainability Plan development process and the water resources-related education efforts of the Napa County Resource Conservation District.

Figure 1 Napa Valley Subbasin Map



## **2. Engagement Strategy Goals and Objectives**

The goal of the Napa Valley Subbasin Stakeholder Engagement and Communication Plan is to provide guidance for the Napa County Groundwater Sustainability Agency (NCGSA) to create meaningful opportunities for a broad range of stakeholders (including those outside of the Napa Valley Subbasin) to learn about and share their concerns and ideas regarding groundwater management in order to develop and implement an effective GSP.

The CEP relies on partnerships with organizations that can help to reach important constituencies with interests in long-term sustainability of Napa County's groundwater.

The CEP has the following overarching objectives:

- Build on existing partnerships with agencies and organizations, foster new partnerships, and leverage existing related efforts to reach and engage a broad range of community members
- Communicate key groundwater science and planning principles and their implications for the GSP in an accessible and compelling manner
- Build trust in the GSP development and implementation process by providing transparency and creating opportunities for stakeholders to listen to one another and develop a shared understanding of the issues and the science
- Provide inclusive and equitable opportunities for timely public comment and substantive feedback on draft GSP sections, in a manner that complements and builds on the deliberations of the GSPAC and shows stakeholders how their ideas and comments are reflected in the GSP
- Support effective development and implementation of the GSP by ensuring meaningful stakeholder engagement

## **3. Roles, Responsibilities and Decision-making for the GSP and the Stakeholder Engagement Plan**

**Napa County Groundwater Sustainability Agency:** The governing board of the Napa County Groundwater Sustainability Agency (NCGSA) is the designated decision-making entity for the GSP process and will oversee the development of the GSP, including direction, funding and approval of the GSP. The NCGSA is also responsible for implementation of the GSP and this CEP. The NCGSA Board of Directors is comprised of the five members of the Napa County Board of Supervisors who are listed in Appendix A. The NCGSA meets monthly. Meetings are publicly noticed, are open to the public and include time for public comment. Meeting agendas, minutes and materials are available on the NCGSA's website:

[https://napa.granicus.com/ViewPublisher.php?view\\_id=33](https://napa.granicus.com/ViewPublisher.php?view_id=33)

**Groundwater Sustainability Plan Advisory Committee:** The NCGSA Board appointed the Groundwater Sustainability Plan Advisory Committee (GSPAC) to advise the NCGSA on matters related to GSP preparation, including policies and recommendations for groundwater management. The GSPAC has 25 members representing a broad range of stakeholders and is charged with generating and submitting a recommended GSP to the NCGSA Board of Directors

no later than November 1, 2021. The members are listed in Appendix A. The GSPAC members also serve as a conduit of information regarding the GSP process by sharing information with community members with whom they interact and conveying stakeholder feedback back to the NCGSA and NCGSA staff. The GSPAC meets the second Thursday of every month at 1:30pm. Meetings are publicly noticed, are open to the public and include time for public comment. Meeting agendas, materials and minutes are available online at [https://napa.granicus.com/ViewPublisher.php?view\\_id=35](https://napa.granicus.com/ViewPublisher.php?view_id=35).<sup>1</sup>

**NCGSA Staff Contacts and Consultants:** Napa County staff support the NCGSA and are engaged in GSP development, stakeholder engagement and GSP implementation. They also oversee a team comprised of technical consultants responsible for data collection, groundwater modeling and drafting of GSP sections and facilitation consultants helping to facilitate planning and meetings of the GSPAC. The staff and technical consultants are also responsible for implementation of the GSP, annual reporting of groundwater conditions and taking appropriate management actions identified in the GSP to ensure groundwater sustainability for the Subbasin.

**Napa County Resource Conservation District:** Under a Joint Powers Agreement with Napa County, the RCD will support County staff in conducting groundwater-related outreach, monitoring, planning, education and engagement. The RCD has many decades of experience in the County working with community members to enhance understanding of stewardship of natural resources. They are a trusted source for information and science and have strong networks with the community.

**Watershed Information & Conservation Council (WICC):** The WICC was created by the Napa County Board of Supervisors in 2002 to assist the Supervisors in their decision-making process and serve as a conduit for citizen input by gathering, analyzing and recommending options related to the management of watershed resources countywide. Its mission is to improve the health of Napa County's watershed by informing, engaging and fostering partnerships within the community. As such, the WICC is an important partner in providing groundwater information to stakeholders.

**Partner Organizations:** Partner organizations will be critical for helping to reach stakeholders, particularly community participants who are not typically engaged in groundwater management and planning. Partner organizations include tribal organizations, social service organizations, Latinx community service organizations, the agriculture industry, environmental groups, and others. Organizations that have been identified so far are listed in Appendix B.<sup>2</sup>

#### **4. Initial Topics for Stakeholder Discussion and Input**

Based on input from the previous work of the Groundwater Resources Advisory Committee (GRAC, 2011-2014), input during the Alternative development process, the recent groundwater

<sup>1</sup> NCGSA and GSPAC meetings are also announced to the County's groundwater email list.

<sup>2</sup> Appendix B is a dynamic list that will build over time.

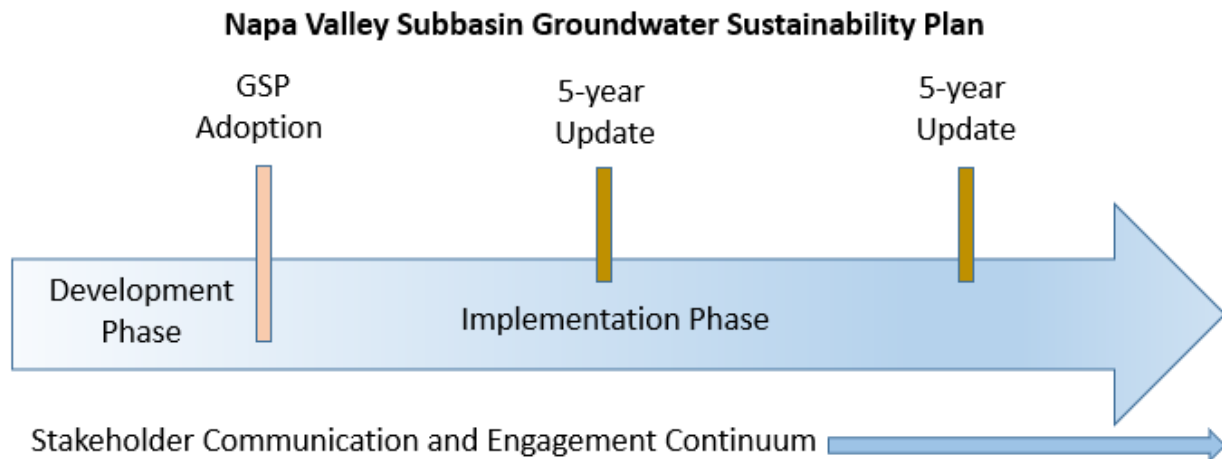
stakeholder survey, GSPAC members and NCGSA staff, below are some topics of interest to stakeholders that have been identified so far and are expected to be subjects for stakeholder discussion and input.

- SGMA and the GSP: Establish a common base of understanding about the impetus for SGMA and the purpose of the GSP.
  - Communicate the overall structure of the GSP, the content and status of the evolving draft GSP, and adoption and implementation
  - Explain the GSP in context of other laws and regulations for protection of water resources and the environment
- Hydrology and Groundwater “101”: Provide a clear presentation of baseline information on key topics that are essential to understand so that stakeholders can contribute their ideas and concerns during the GSP development process. For example:
  - What is groundwater and where does it come from?
  - How are groundwater and local geology related? What is the Napa Valley Subbasin? What does it mean to be high priority?
- How groundwater and surface water are connected; groundwater-dependent ecosystems; impacts of groundwater pumping on the Napa River
- Past and present groundwater conditions including groundwater supply, groundwater use and groundwater quality
- The impacts on people of the status of groundwater relative to conditions of sustainability, costs of effective and ineffective groundwater stewardship
- Groundwater stewardship practices, current and future
- Data gathering, analysis, synthesis and evaluation: Data collection and transparency in dissemination and disclosure is a key concern. Public outreach and engagement will be an important element of the collection, review and evaluation of empirical data that will form the basis of the GSP and its implementation
- Sustainability goal, monitoring objectives, development of sustainable management criteria, regular monitoring for and avoidance of undesirable results, and annual reporting of groundwater conditions

## **5. Potential Outreach and Engagement Methods**

Outreach and engagement will occur throughout the GSP development and implementation phases as indicated in the conceptual graphic that follows.





To achieve the goals and objectives of this CEP, the NCGSA will be guided by the principles described below.

#### **Outreach and Engagement Principles:**

- Strive for accessibility by providing multiple levels of information and multiple ways to participate. Ensure that meetings are held at times that support participation and in locations and formats that are convenient, accessible and comfortable.
- Provide key documents and outreach materials in both English and Spanish and provide Spanish interpretation at meetings as needed.
- Focus initially on virtual engagement opportunities due to pandemic and current health concerns.
- Partner with organizations and community leaders to help reach a diversity of stakeholders, including those not traditionally participating in water management issues. This can include the agriculture industry, environmental groups, public health and social service organizations and local municipalities and elected officials. Focus especially on organizations and individuals with connections to under-represented and disadvantaged communities<sup>3</sup> (e.g., Latinx communities, tribal members, low income populations) and work with these organizations to develop and provide content and engage community members.
- Outreach, and engagement should be an ongoing, iterative and adaptive process to consistently involve and update stakeholders as GSP development and implementation proceeds and as outreach and engagement lessons are learned.
- Outreach and engagement should foster dialogue among stakeholders and offer community members ways to meaningfully provide input into the process and the GSP.

<sup>3</sup> Disadvantaged communities (DACs) are defined in the California Water Code based on income as communities with an annual median household income (MHI) that is less than 80 percent (\$51,026) of the Statewide annual median household income (\$63,783) (Water Code §79505.5)

## Outreach and Engagement Methods:

The NCGSA will use a variety of methods to engage stakeholders in the development and implementation of the GSP. The approaches listed below reflect a range of options that the NCGSA may choose from in order to effectively engage as many stakeholders as possible.

### Meetings/Workshops:

- Regularly noticed public meetings of the 25-member Groundwater Sustainability Plan Advisory Committee (GSPAC), scheduled to meet at monthly intervals to provide stakeholder perspectives and information integral to the representation of the beneficial users and uses of groundwater
- Regularly noticed public meetings of the NCGSA Board of Directors (usually keyed to the schedule of the Napa County Board of Supervisors)
- Opportunities to provide focused public comment during GSPAC meetings and online as the NCGSA releases draft GSP sections for public review and comment, with meetings structured around draft GSP sections, and post hoc surveys to elicit comments on the clarity and completeness of the draft
- Public meeting(s) and 60-day comment period on the compiled final Draft GSP
- Community meetings and workshops for stakeholders in various formats—open house, small group discussions, town hall, field trips
- Presentations and dialogue with stakeholders at scheduled meetings of community organizations
- Presentations at public meetings on related water resources planning efforts, e.g., Drought Contingency Plan, State Water Project Supplies, LAFCO Municipal Service Reviews and others
- Work with municipalities to provide opportunities for engagement at city/town meetings
- Provide webinars on key GSP topics
- Consider holding drop-in office hours or short brown bag events for community members to talk informally with NCGSA staff about the GSP

### Website, Social Media and Electronic Communications:

- Website: The NCGSA is developing a website that will include information on the GSP development process such as existing groundwater information from the WICC and Napa County webpages, a calendar of key events and meetings, a document library, links to relevant reports and plans, fact sheets/ brochures and Frequently Asked Questions. Given current resources and work demands, this website should be ready by the end of 2020. The website is intended to be easily navigated, approachable and frequently updated. It will be located at this link: [www.countyofnapa.org/groundwater](http://www.countyofnapa.org/groundwater). The website will include a link to sign up for electronic communications and clear information on how to get involved.
- Electronic news distribution list: The NCGSA maintains an outreach list of stakeholders that is updated regularly. The current link to join this list is here:

<http://eepurl.com/bWgdin>. This list is used for email distribution of materials including meeting notices, documents, news and outreach and education materials. In addition, the NCGSA will use existing stakeholder lists from partner organizations to disperse GSP information to their members as appropriate.

- Work with partner organizations to present GSP-related content electronically to their networks that relates to partner goals and objectives.
- Work with public information officers of Napa County municipalities to help disseminate information and request feedback; encourage elected officials to share information with their constituencies via their newsletters, websites and social media.
- Consider using social media platforms to provide information, advertise engagement opportunities and solicit input. Examples include using NextDoor to disseminate information about the GSP, upcoming meetings and how to get involved; posting information on County and municipal Facebook, Instagram and Twitter accounts.

#### Surveys:

Surveys will be used to gather ideas and feedback on key issues and draft sections of the GSP. These surveys will be distributed to GSPAC members and the broader community. Staff may collaborate with partner organizations to ensure surveys are relevant to their constituents and to help reach underrepresented community members.

#### Do It Yourself Groundwater Level Monitoring:

Napa County has a groundwater self-monitoring program that offers training and a special hand-held sonic measuring device to well owners to engage in constructive citizen monitoring by determining the depth to groundwater. This program will help engage residents in groundwater data collection to better monitor and track groundwater levels and improve the understanding of groundwater conditions. See <https://www.napawatersheds.org/DIY-monitoring-program> for more information.

#### School Outreach:

Building on the RCD's experience and partnership with the Environmental Education Coalition of Napa County (EECNC), consider educational opportunities at schools and potential field trips.

#### Engaging Local News Media:

- Work with the *Napa Valley Register* (and local subsidiaries) and other relevant local media outlets to provide regular updates and links to the website for further information and to provide comments.
- Develop and distribute press releases at key points in the GSP development and implementation process
- Consider interviews with broadcasting outlets such as KVON and local podcasts

#### Supporting Materials:

- Accessible communication tools explaining key groundwater science and planning principles, such as short videos, infographics, interactive displays, etc. Efforts will be made to produce bilingual tools.
- A Frequently Asked Questions tool to communicate key terms and topics, including commonly used acronyms, and key definitions to create an accessible “vocabulary” for stakeholders with an interest in groundwater sustainability. To be posted on websites, social media, as handouts and distributed through partner organizations.
- Periodic electronic newsletters with updates on the GSP as well as useful information about groundwater conditions and related topics.
- A concise and accessible summary document that characterizes key comments and input from the GSPAC and stakeholders and indicates how the input is reflected in the GSP.
- Fact sheets/brochures on key GSP topics and issues.
- Create short videos with key messages about the GSP in English and Spanish to post to social media and distribute broadly.

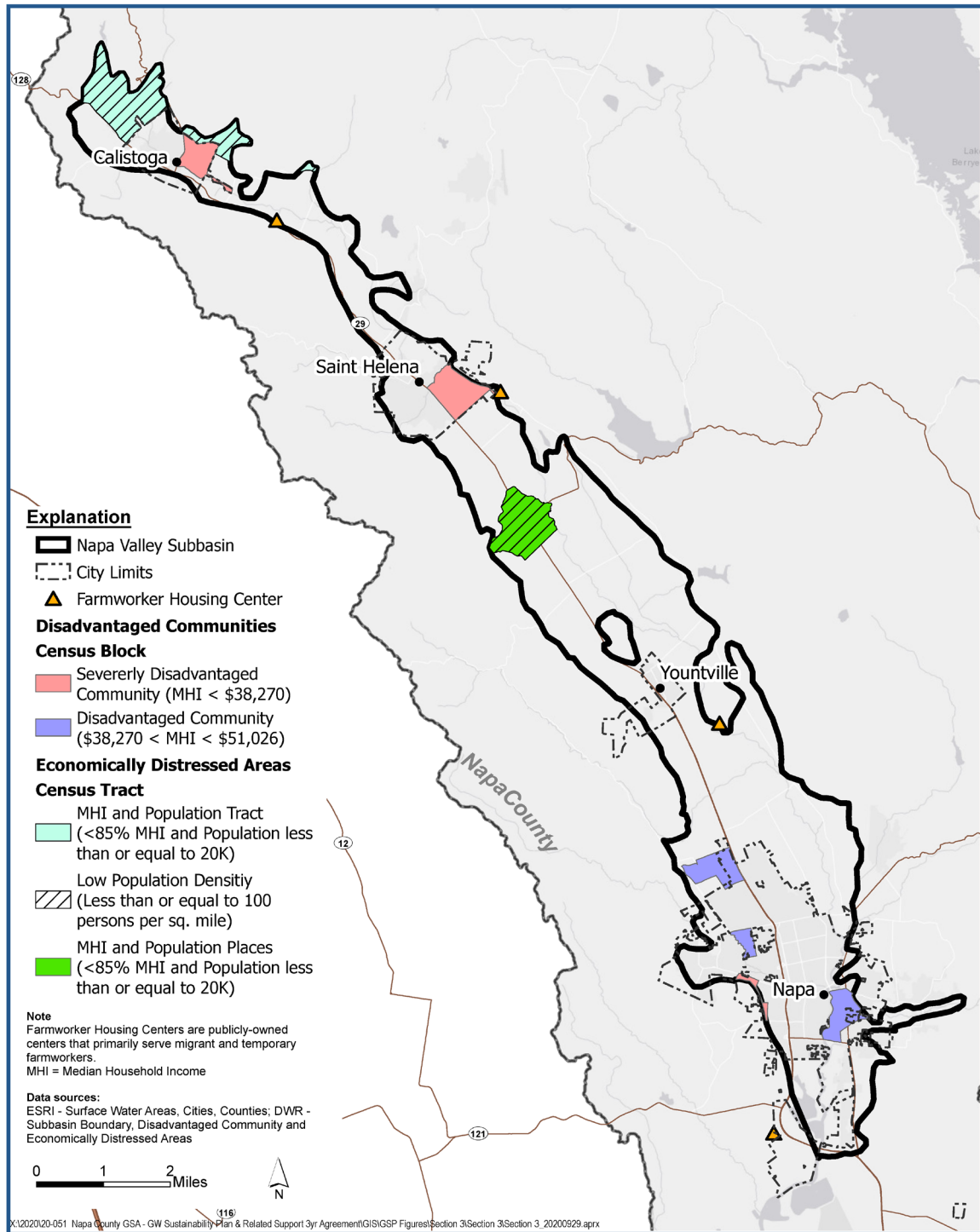
## **6. Engaging Underrepresented and Disadvantaged Communities:**

In order to develop a GSP for the Napa Valley Subbasin that reflects the concerns and ideas of all stakeholders, it is important for the NCGSA to engage disadvantaged communities, tribal members, other underrepresented populations and people and groups who are not currently active in the groundwater management process.

This Stakeholder Communication and Engagement Plan aims to engage community members that may be harder to reach or may face barriers to participating in NCGSA efforts. This includes non-English speaking residents, tribal members, Latinx communities, and disadvantaged communities. Disadvantaged communities (DACs) are defined by the California Water Code as communities with an annual median household income (MHI) that is less than 80 percent (\$51,026) of the Statewide annual median household income (\$63,783) (Water Code §79505.5). Figure 2 shows the locations of DACs and Economically Distressed Areas within the Subbasin identified by the DWR using U.S. Census data. This includes 10.8% of the GSP area. Figure 2 also shows the location of farmworker housing centers, which are publicly-owned centers that primarily serve migrant and temporary farmworkers. Most of the mapped DACs fall within incorporated cities/town that are served by municipal water. However, the mapped DAC in the City of St. Helena is served by a municipal water system that uses both surface water and groundwater. In addition, there are other, limited DAC areas in the unincorporated areas of the Subbasin presumably served by groundwater.

Staff will work to identify barriers to participation for these groups and find ways to overcome them. Staff will build relationships with social service and other organizations that have connections to these community members to reach them and communicate effectively in

**Figure 2 Napa Valley Subbasin Disadvantaged Communities**



English and Spanish. NCGSA staff will work with Spanish-speaking staff at the RCD and will use translation resources available through DWR where possible.

While there are no federally recognized tribes within Napa County, there are members of tribes who reside in Napa County. The NCGSA will encourage the participation of local tribal organizations. The NCGSA is actively reaching out to the Yocha Dehe Wintun Nation, which is a federally recognized tribe in proximity to Napa County and the Napa Valley Subbasin, to identify whether and how they would like to be involved in GSP development and implementation.

## **7. GSP Development Schedule**

The schedule for GSP development is included in Figure 3.

## **8. Key Audiences/Stakeholder Groups**

The NCGSA will engage a range of audiences and stakeholder groups as described below.

- Agricultural Users: farmers, ranchers, dairy professionals, winery and vineyard owners
- Domestic Well Owners: There are approximately 1,450 domestic well owners in the Subbasin.
- Municipal Well Operators and Public Water Systems: This includes the City of Napa, the Town of Yountville, City of St. Helena, City of Calistoga, State of California and other non-community water system purveyors. Non-community water systems include a large number of wineries, but also account for schools, hospitals, and other businesses. The City of St. Helena is the only municipality in the Subbasin that utilizes groundwater in their municipal supply portfolio.
- Local land use planning agencies: This includes the County of Napa, the City of Napa, the Town of Yountville, the City of St. Helena and the City of Calistoga.
- Environmental users of groundwater and interconnected surface water, including entities that represent the interests of environmental users of groundwater: This includes groundwater-dependent ecosystems (GDEs) and species that rely on interconnected surface waters within the GSP area. Entities that have expressed concern about the viability of these groundwater-dependent ecosystems include the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, U.S. NOAA-National Marine Fisheries Services, the Sierra Club, , the Napa County Resource Conservation District, Friends of the Napa River, the San Francisco Estuary Institute, Pepperwood Preserve, and other organizations. See Appendix B for a more detailed listing.
- Surface water users: There are more than 300 registered surface water diverters within the GSP area.

**Figure 3 Napa Valley Subbasin GSP Development Schedule**

*Updated Draft September 28, 2020*

GSP Section/Event	2020					2021										2022
	3rd Qtr		4th Qtr			1st Qtr		2nd Qtr			3rd Qtr		4th Qtr			Jan.
<b>Stakeholder Communication and Engagement Plan</b>																
<b>Draft Sections 1 and 2</b> NCGSA structure/authorities, Beneficial uses and users, Participation																
<b>Draft Section 3</b> Land/Water Mgmt., Monitoring and Management, Decision-Making																
<b>Draft Sections 4 and 5</b> Geologic setting, Hydrogeologic Conceptual Model, Potential Recharge Areas; Monitoring Network and Program																
<b>Draft Section 6</b> Current and Historical Groundwater and Surface Water Conditions, Data Gaps																
<b>Draft Section 7</b> Land Use/Population Trends; Historical, Current and Projected Water Supplies/Use; Total Water Use																
<b>Draft Section 8</b> Water Budget, Hydrologic Model, Sustainable Yield																
<b>Draft Section 9</b> Sustainability Goal, Sustainability Indicators, Undesirable Results, Minimum Thresholds, Measurable Objectives																
<b>Draft Section 10</b> Data Management, Reporting, Mapping, Modelling Standards																
<b>Draft Section 11</b> NCGSA Goals, Policies, Ordinances, Education, Projects and Management Actions																
<b>Draft Section 12</b> Summary of GSP Findings, Recommendations																
<b>Complete Draft GSP for Public Comment</b>																
<b>GSPAC Consider/Recommend Draft GSP to NCGSA</b>																
<b>Release of Final GSP for Public Comment</b>																
<b>NCGSA Consideration/Adoption of the Final GSP</b>																
<b>Submittal of GSP DWR SGMA Portal</b>																

- California Native American Tribes – There are no tribal governments in Napa County that manage lands. The NCGSA will conduct outreach to tribal organizations and tribal members within the County
- Disadvantaged communities, including but not limited to, those served by private domestic wells or small community water systems (see definition in Section 6).
- Entities listed in Water Code Section 10927 that are monitoring and reporting groundwater elevations in all or part of a groundwater basin managed by the NCGSA.

## **9. Evaluation and Assessment**

The NCGSA will use an adaptive approach to implement and revise this CEP in order to ensure that stakeholder engagement and communication approaches are effective. The intent is that the CEP and its activities will be evaluated periodically to assess how it is performing relative to the goal and objectives. This evaluation will include feedback from stakeholders regarding the effectiveness of outreach and engagement activities.

Outreach and engagement methods will be adjusted based on feedback received and the results of post-event evaluations. Implementation efforts and their effectiveness will be summarized and reported annually as part of required annual GSP reporting.

The following metrics can be used to measure the success of the NCGSA's stakeholder engagement efforts:

### **Quantitative Metrics:**

- Extent of participation in GSP-related events, with a focus on community members who have not been engaged in groundwater-related issues in the past
- Subscriptions to the NCGSA's electronic distribution list
- Traffic (number of visits) to the NCGSA's website
- Number of outreach events and outreach materials offered in Spanish
- Participation in groundwater-related data acquisition and monitoring, with a focus on community members who have not previously participated

### **Qualitative Metrics (measured based on post-event surveys):**

- Community members gained a greater understanding of groundwater-related issues and their importance
- Community members felt that their participation and/or input was valued and considered in the GSP development or implementation process



## **Appendix A**

### **Napa County Groundwater Sustainability Agency and Groundwater Sustainability Plan Advisory Committee Members**

#### **Groundwater Sustainability Agency Members:**

Brad Wagenknecht  
Ryan Gregory  
Diane Dillon  
Alfredo Pedroza  
Belia Ramos

#### **Groundwater Sustainability Plan Advisory Committee Members:**

Connor Bennett  
Michelle Benvenuto  
Garrett Buckland  
Michael Dooley  
Joy Eldredge  
Geoff Ellsworth  
John Ferons  
Dave Ficeli  
Eric Fitz  
Alan Galbraith  
David Graves  
Mike Hackett  
Jeri Hansen  
Lester Hardy  
Jim Lincoln  
Amber Manfree  
Beth Milliken  
Peter Nissen  
Derek Rayner  
Chris Sauer  
Patrick Tokar  
Suzanne Von Rosenberg  
Paul Warnock  
Johnnie White  
Robert Zlomke

## **Appendix B**

### **Initial List of Potentially Interested Parties to Engage**

*Note: This is an initial listing of potentially interested parties that will be targeted for engagement as part of the implementation of this CEP. This is not an exhaustive list and additional interested parties will be added as they are identified.*

#### **California Water Code Section 10723.3 Stakeholders**

Agricultural Users and Domestic Well Owners

Municipal Well Operators and Public Water System Operators

- County of Napa
- City of Napa
- City of St. Helena
- City of Calistoga
- Town of Yountville
- State of California

Local Land Use Planning Agencies

- County of Napa
- City of Napa
- City of St. Helena
- City of Calistoga
- Town of Yountville

Entities Representing the Interests of Environmental Groundwater Users <sup>4</sup>

- California Department of Fish and Wildlife
- U.S. Fish and Wildlife Service
- U.S. NOAA-National Marine Fisheries Services
- State Water Resources Control Board
- Regional Water Quality Control Board Region 2
- Sierra Club
- San Francisco Estuary Institute
- Pepperwood Preserve
- Friends of the Napa River
- Napa Vision 2050
- Institute for Conservation Advocacy Research & Education (ICARE)

Surface Water Users (if there is a connection between surface and groundwater)

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<sup>4</sup> This category includes agencies and organizations that work to support and/or protect groundwater-dependent ecosystems and species

Federal Government Agencies

- U.S. Fish and Wildlife Service
- U.S. NOAA-National Marine Fisheries Services

Native American Tribes

- Yocha Dehe Wintun Nation

Disadvantaged and Severely Disadvantaged Communities (as identified by DWR)

Other State and Local Agencies that Monitor and Manage Groundwater Usage

- Department of Water Resources
- State Water Resources Control Board
- Region Water Quality Control Board Region 2
- Napa County Resource Conservation District

**Additional Stakeholders**

Agricultural Organizations

- Napa Valley Grape Growers
- Winegrowers of Napa County
- Napa County Farm Bureau
- Napa Valley Vintners
- Growers/Vintners for Responsible Agriculture
- Napa Valley Farmworker Foundation

Organizations Serving Underrepresented Communities

- Suscol Intertribal Council
- Cope Family Center
- UpValley Family Center
- Boys & Girls Clubs
- Puertas Abiertas
- St. John's Catholic Church
- Latinos Unidos

Public Health Organizations

- Ole Health
- St. Helena Hospital

Business and Community Interests

- Napa Coalition for Change
- League of Women Voters

- Interfaith Councils
- Rotary Club
- Napa County Hispanic Chamber of Commerce
- Napa County Hispanic Network
- Local Chambers of Commerce
- 4H Club
- Fair Housing Napa Valley
- Rotary Club
- Local real estate agents and developers
- Well drilling contractors

Natural Resources Interests/Organizations

- Napa County Flood Control District
- Napa County Regional Park and Open Space District
- Refugia Project
- UC Davis stream evaluation project

News Media

- Napa Valley Register
- Yountville Sun
- St. Helena Star
- KVON Radio



# Napa County

## Board Agenda Letter

1195 THIRD STREET  
SUITE 310  
NAPA, CA 94559  
www.countyofnapa.org  
Main: (707) 253-4580

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Technical Advisory Group

**Agenda Date:** 5/11/2023

**File ID #:** 23-0836

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**TO:** Technical Advisory Group for the Napa County Groundwater Sustainability Agency

**FROM:** Brian Bordona - Interim Director of Planning, Building and Environmental Services

**REPORT BY:** Jamison Crosby, Natural Resources Conservation Manager

**SUBJECT:** Napa Valley Subbasin Groundwater Sustainability Plan Implementation: The First Five Years

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### **RECOMMENDATION**

The Technical Advisory Group members will receive: 1) an update on implementation activities since Groundwater Sustainability Plan (GSP) adoption, and 2) a summary of key elements of GSP implementation efforts leading to the GSP five-year update due to the Department of Water Resources January 31, 2027, the GSP's adaptive management process, and response actions occurring in response to groundwater conditions.

### **EXECUTIVE SUMMARY**

The Sustainable Groundwater Management Act (SGMA) establishes the requirements for groundwater sustainability agencies (GSAs) to achieve their basin sustainability goals over a long-term horizon. Monitoring associated with the GSP-specific networks, which in the Napa Valley Subbasin encompass all six sustainability indicators, and reporting progress towards achieving sustainability are integral to successful implementation of the Napa Valley Subbasin GSP. Following adoption of the GSP, the Napa County GSA (NCGSA) immediately approved actions to begin GSP implementation before the GSP was submitted to DWR on January 31, 2022.

The County and NCGSA are committed to sustainably managing groundwater resources by implementing an adaptive management approach supported by best available information. To better manage and respond to changing conditions, the NCGSA formed the Technical Advisory Group (TAG) to advise the NCGSA and aid in the implementation of the Napa Valley Subbasin GSP. The five-member committee was first convened on August 11, 2022. A major milestone was achieved when the California Department of Water Resources (DWR) approved the GSP on January 26, 2023. GSAs are required to evaluate their GSPs at least every five years; for the Napa Valley Subbasin, the due date is at least by January 31, 2027.

Ten TAG meetings have occurred since the formation of the TAG. The prior meetings have included many topics and updates related to GSP implementation efforts. The May 2023 TAG meeting includes an overview of the GSP for the first five years of GSP implementation, which incorporates an adaptive management process. As implementation proceeds, new data and information will be shared with the TAG who will consider how the new information informs continued implementation. The TAG will provide guidance on response actions

needed to achieve the sustainability goal.

The TAG will revisit the recent and significant change in the water use criterion applied by the County to new wells and discretionary projects in the Subbasin as a prelude to the July meeting when the TAG's input and guidance will be sought on whether, how, and under what conditions the criteria may be adjusted in the future.

#### Procedure

Staff introduces the item.

Questions and answers with the TAG.

Public comments.

#### **ENVIRONMENTAL IMPACT**

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

#### **BACKGROUND AND DISCUSSION**

Nine consecutive annual reports, including the Water Year 2021 and 2022 Annual Reports (reported on at the TAG's August 2022, March 2023, and other meetings), have provided updates on groundwater conditions in the Napa Valley Subbasin and elsewhere in Napa County. A major milestone was achieved when DWR approved the GSP on January 26, 2023. GSAs are required to evaluate their GSPs at least every five years; for the Napa Valley Subbasin, the due date is at least by January 31, 2027.

The technical team presented an update to the TAG on groundwater conditions during the March meeting. Climate change, including drought effects and hotter/drier conditions, have resulted in increased pumping in response to those conditions. The Subbasin was significantly affected by persistent drought conditions during Water Years 2020, 2021, and 2022; groundwater levels exceeded Minimum Thresholds, and Undesirable Results occurred for two sustainability indicators - interconnected surface water and reduction in groundwater storage. As described in the GSP, once Minimum Thresholds have been exceeded and/or Undesirable Results have occurred, the GSA should assess the causal factors resulting in the exceedance(s), including the extent to which the drought has contributed to these conditions. Response actions are called for to ensure that the Subbasin remains on track to achieve the sustainability goal. Critical analysis of the factors and careful consideration of the changed groundwater conditions are important to inform the steps to implement response actions and whether and to what extent Projects and Management Actions (PMAs) are implemented.

Groundwater pumping volumes in 1988 through 2022 indicate an increase in pumping in more recent years. The increase coincides with drought conditions and the increase in the National Oceanic and Atmospheric Administration (NOAA) evaporative drought demand index (the "thirstier atmosphere") discussed with the TAG at the March meeting. Notably, the average annual groundwater pumping in 1988 to 2014 was 14,890 acre-feet (ac-ft). This time period was pre-SGMA initiation, and the average volume pumped was less than the current estimate of sustainable yield of 15,000 ac-ft/year. The average annual groundwater pumping in 2015 to 2022 was 18,150 ac-ft, which is significantly greater than the sustainable yield.

Following the NCGSA's adoption of the GSP in January 2022, GSA staff and technical consultants initiated the development of several workplans regarding interconnected surface waters and groundwater dependent

ecosystems (GDEs), water conservation, stormwater resources, and groundwater pumping reduction. Altogether, these plans will include implementing advanced technologies for water conservation, pumping reduction, stormwater management and potential utilization of surplus stormflows for managed aquifer recharge, measures for tracking and reporting groundwater use in the Subbasin, and assessments of GDEs within the Subbasin. These workplans are being developed with input from stakeholders and the public.

Additionally, as presented to the TAG in January 2023, an early and significant GSP implementation action occurred in June 2022 when the County Board of Supervisors adopted a reduced water use criterion. The action was taken to comply with the Governor's Executive Order (EO) (N-7-22) and in consideration of many other factors including: the Subbasin sustainability goal, the County's own drought emergency and recent court decisions including public trust considerations. Prior to June 2022, the water use criterion for land inside the Subbasin was 1 ac-ft/acre. The Board of Supervisors' action reduced the water use criterion to 0.3 ac-ft/acre and reinforced considerations of mutual well interference and interconnected surface water and groundwater, where the latter considerations were already included in the 2015 Water Availability Analysis (WAA). The 0.3 ac-ft/acre criterion was derived by dividing the estimated sustainable yield of 15,000 ac-ft/year by the total Subbasin area of 45,900 acres. The changes to the water use criterion were made while revisions are being made to the County's Groundwater Ordinance and the WAA to incorporate the Governor's EO, GSP implementation, recent court decisions and public trust considerations.

As of January 2023, Napa County Planning, Building and Environmental Services Department (PBES) requires new and replacement well permit applications throughout the County to meet new regulatory requirements. The reduced water use criterion is in effect and may be adjusted (either up or down) as revisions to the Groundwater Ordinance and the WAA are considered, applicable workplans are completed in 2023, and ongoing monitoring and analysis of the sustainable management criteria for all six sustainability indicators continue on an ongoing basis. An item will be brought before the TAG in July to get their input and guidance on whether, how, and under what conditions the criteria may be adjusted in the future.

## SUPPORTING DOCUMENTS

### A. Presentation-Napa Valley Subbasin Groundwater Sustainability Plan Implementation: The First Five Years



# Napa County Groundwater Sustainability Agency

## *GSP Implementation: The First Five Years*

May 11, 2023



**Luhdorff &  
Scalmanini**  
Consulting Engineers







# Outline

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GSP Implementation: First Five Years

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Adaptive Management

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GSP Implementation: Yearly View

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Sustainability Indicators & Metrics

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Response Actions & PMAs

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Other GSP Implementation Efforts

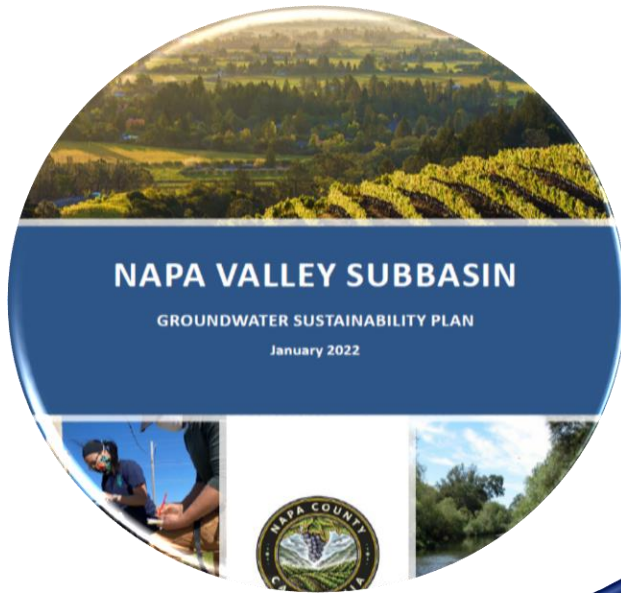
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Water Management Approaches

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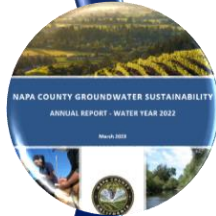
2022



**NAPA VALLEY SUBBASIN**  
GROUNDWATER SUSTAINABILITY PLAN  
January 2022



Monitoring & Well Recruitment



Annual Report WY 2021; TAG Formation & Meetings



Workplans' Outlines for Projects & Management Actions (PMAs)

# GSP Implementation: The First Five Years

**Achieve Sustainability Goal Before 2042**

2023

- Monitoring
- AR WY 2022
- Workplans' Development
- Meetings/ Outreach

**We Are Here**

2024

- Monitoring
- AR WY 2023
- Workplans' Implementation
- Model Update
- Meetings/ Outreach

2025

- Monitoring
- AR WY 2024
- Workplans/ Model Update
- PMAs
- Meetings/ Outreach

2026

- Monitoring
- AR WY 2025
- Model Scenarios/ Draft GSP Update
- PMAs
- Meetings / Outreach

2027

- **GSP Update to DWR**
- Monitoring
- AR WY 2026
- PMAs
- Meetings/ Outreach



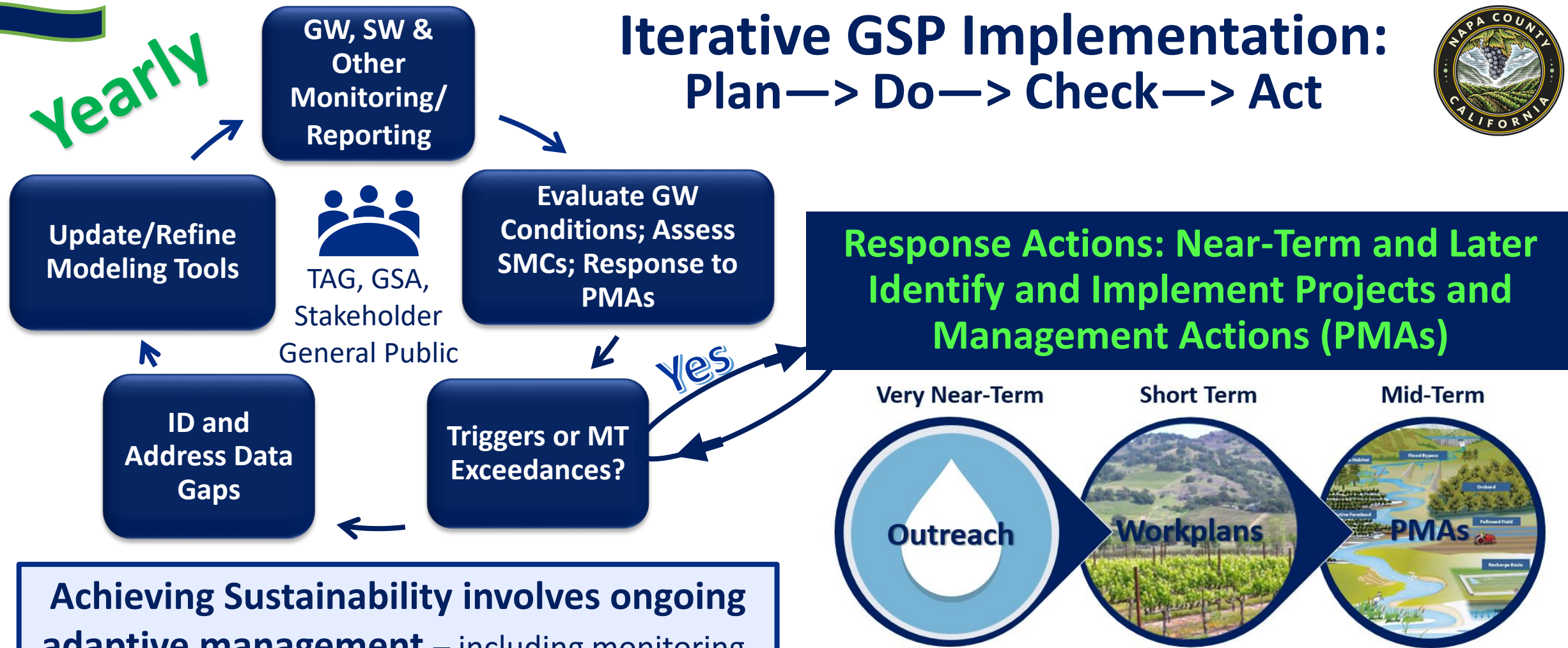


**To achieve the  
Napa Valley Subbasin  
Sustainability Goal,  
GSP Implementation is:**

- > *Interrelated*
- > *Iterative*
- > *Collaborative*
- > *Innovative*
- > *Communicative*
- > *Dynamic*



# Iterative GSP Implementation: Plan—> Do—> Check—> Act

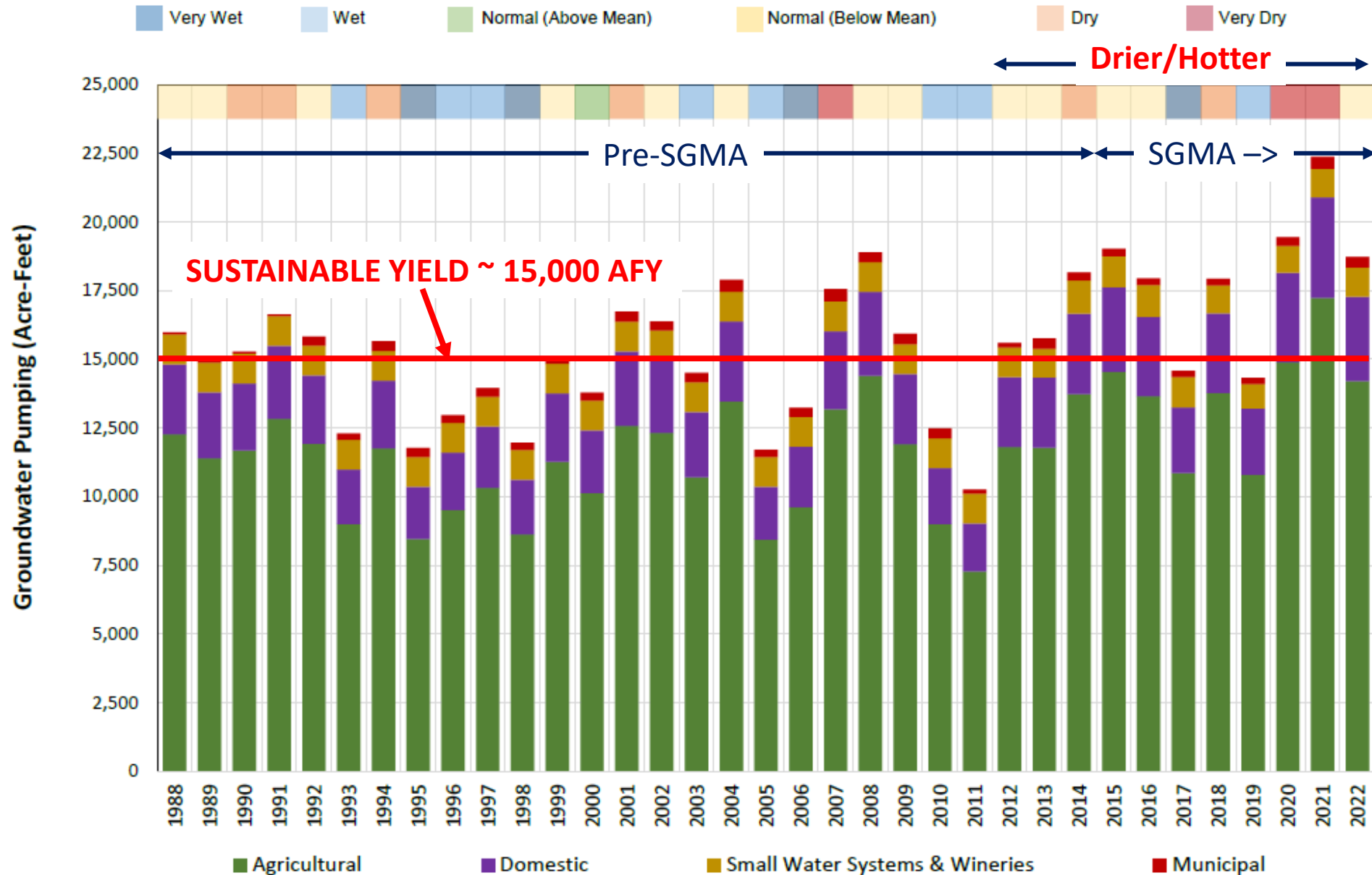


**Achieving Sustainability involves ongoing adaptive management** – including monitoring, consideration and refinement of GSP criteria, and implementation of prompt response actions and PMAs to address triggers, minimum threshold exceedances, or mitigate undesirable results.

## Four Workplans:

- ✓ Stormwater Resource Plan
- Vineyard and Winery Water Conservation
- Groundwater Pumping Reduction – 10%, Subbasin wide, voluntary
- Interconnected Surface Water & GDEs

# Groundwater Pumping WY 1988-2022



**Groundwater Pumping**

Avg. 1988-2014 = 14,890 AFY  
(within Sustainable Yield)

Avg. 2015-2022 = 18,150 AFY  
(Exceeds Sustainable Yield)

Avg. 1988-2022 = 15,640 AFY  
(Slightly exceeds Sustainable Yield)

Note: Municipal pumping includes pumping for St Helena which occurs directly adjacent to Bulletin 118 Subbasin Boundary



# RMS Groundwater Levels: Response Action Required



- 1 RMS/ISW well (Yountville site) has 3 consecutive Fall MT exceedances
  - **UR has occurred for depletion of ISW; applies to any water year type**
- Avg. GW pumping over 7-year period exceeds Sustainable Yield
  - **UR occurred for Reduction in Groundwater Storage (WYs 2021 and 2022)**
- Subbasin must be sustainable at least by 2042
  - **Strive for resiliency long before**

Sustainability Indicator	WY 2021	WY 2022
	UR: Yes or No	UR: Yes or No
Chronic GW Lowering (CGWL)	No	No
Depletion of Interconnected Surface Water (ISW)	No	Yes
GW Quality Degradation	No	No
Reduction of GW Storage	Yes	Yes
Land Subsidence	No	No
Seawater Intrusion	No	Future evaluation

# Early Response Action as of January 2023



## WAA Tier 1: Previous (2015) Compared to Now (2022)

New County Regulations: Standards as of January 6, 2023 per CEQA, the County's WAA dated May 12, 2015, Napa Valley Subbasin GSP implementation, County's own drought emergency, Governor's Executive Order N-7-22, recent court decisions, and public trust considerations

Well Type	Groundwater Use	Inside Napa Valley Subbasin		Outside Napa Valley Subbasin	
		Previous	New Regulation	Previous	New Regulation
NEW WELL	Domestic - Individual User	NA	0.3 ac-ft/ac <sup>3,6</sup>	NA	NA <sup>1</sup>
	Commercial, Industrial, or Agricultural	1 ac-ft/ac <sup>2</sup>	0.3 ac-ft/ac <sup>3</sup>	Parcel Specific Recharge <sup>2</sup>	Parcel Specific Recharge <sup>4</sup>
	Public Water System	1 ac-ft/ac <sup>2</sup>	0.3 ac-ft/ac <sup>3</sup>	Parcel Specific Recharge <sup>2</sup>	Parcel Specific Recharge <sup>4</sup>
REPLACEMENT WELL	Domestic - Individual User	NA	0.3 ac-ft/ac <sup>3</sup>	NA	Parcel Specific Recharge <sup>1,4</sup>
	Commercial, Industrial, or Agricultural	NA	0.3 ac-ft/ac <sup>3</sup>	NA	Parcel Specific Recharge <sup>4</sup>
	Public Water System	NA	0.3 ac-ft/ac <sup>3</sup>	NA	Parcel Specific Recharge <sup>4</sup>
EXISTING WELL	New or Increased Water Use for Discretionary Project	1 ac-ft/ac	0.3 ac-ft/ac <sup>3</sup>	Parcel Specific Recharge	Parcel Specific Recharge <sup>4</sup>

<sup>1</sup> Assumes less than 2-acre-feet per year of groundwater for individual domestic users.

<sup>2</sup> Previous practice was to apply Tier 1 requirements to only Discretionary Project. No water use limits were imposed on a Ministerial Project.

<sup>3</sup> Existing GW use exceeds 0.3 ac-ft/ac, then No Net Increase in GW use is required (Subject to Change by the GSA).

<sup>4</sup> Existing GW use exceeds the Parcel Specific Recharge, then No Net Increase in GW use is required.

<sup>5</sup> Analysis is not required when the replacement well is located further away from neighboring well, natural spring or Significant Stream, and no increase in GW use.

<sup>6</sup> Requirement can be met by submitting a "Water Use Declaration" that reflects the allowed water usage.

# Response Actions: Near-Term and Later

## Very Near-Term



- GSA: Subbasin
- County: Stakeholders/Public
- Local: Cities/Communities
- Agricultural/Wineries

## Short-Term



- ✓ Stormwater Resource (4/23)
- Water Conservation (Summer 2023)
- Groundwater Pumping Reduction (Summer 2023)
- Interconnected Surface Water & GDEs (Fall 2023)

## Mid-Term



- ID Recharge Areas of Interest
- Explore Recharge Opportunities
- Implement Workplans
- GW Pumping Reduction Options



# Other GSP Implementation Efforts, 2022-2023



## DONE

- ✓ NCGSA Technical Advisory Group (Kick-Off August 2022)
- ✓ Annual Reports WY 2021 (April 2022) and WY 2022 (March 2023)
- ✓ MW Installation (4 Sites/8 MWs; May 2023)

## IN PROGRESS

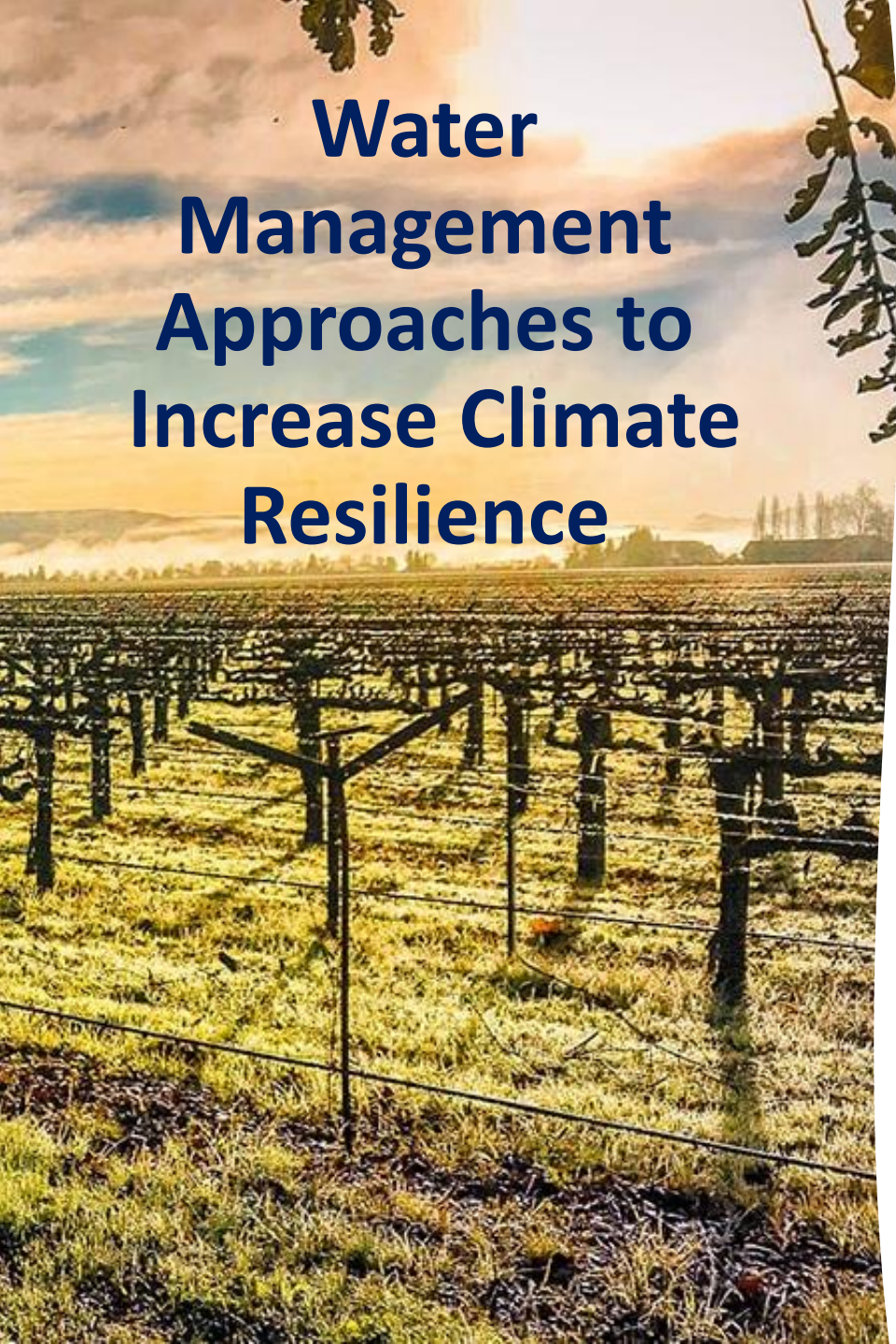
- Refining Water Use Data (ET: OpenET and Local Land-Based Sensors)
- Evaluate Potential Recharge Areas and Feasibility
- Other Potential MW Sites
- Coordination with Napa County Drought and Water Shortage Efforts (SB 552)

## ONGOING

- RCD and Stream Watch Monitoring
- Stakeholder Coordination and Outreach

*DWR Approved Napa Valley Subbasin GSP  
January 26, 2023*





# Water Management Approaches to Increase Climate Resilience

- **Climate change and hotter/drier conditions**
  - In recent years, 2 Wet/Very Wet and 8 Dry/Very Dry water years
  - Evaporative drought demand increases (“thirstier” atmosphere) observed in the Subbasin in 8 of 10 recent years
  - Pumping average pre-SGMA (1988-2014) 14,890 AFY (within sustainable yield estimate of 15,000 AFY); post-SGMA (2015-2022) 18,150 AFY (exceeds sustainable yield)
  - Subbasin responds to extremes (drier or wetter; recent back-to-back very dry years had pronounced effects not previously observed)
- **Water management approaches to increase climate resilience and mitigate weather pattern effects and uncertainties (examples)**
  - Capture and retain stormwater runoff “on farm”
  - BMPs to increase infiltration (cover crops, organic matter, compost, biochar, soil health practices)
  - BMPs to utilize stored stormwater for earlier season moisture needs (reduce pumping)
  - Utilize surplus winter river flows when available (obtain GSA water right permit and coordinate with growers)
  - Water conservation measures, even during wetter water years, reduce groundwater removed from storage

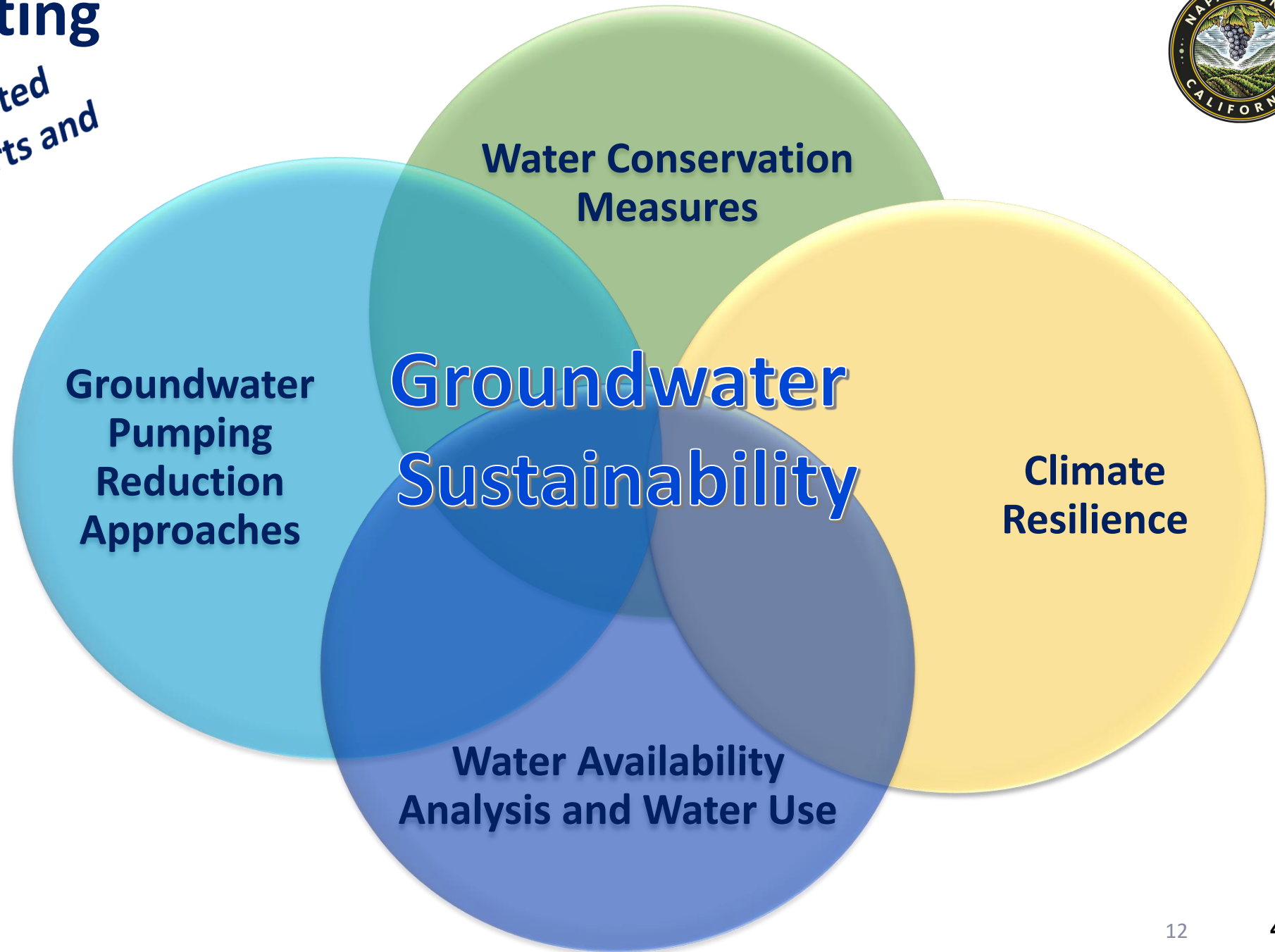
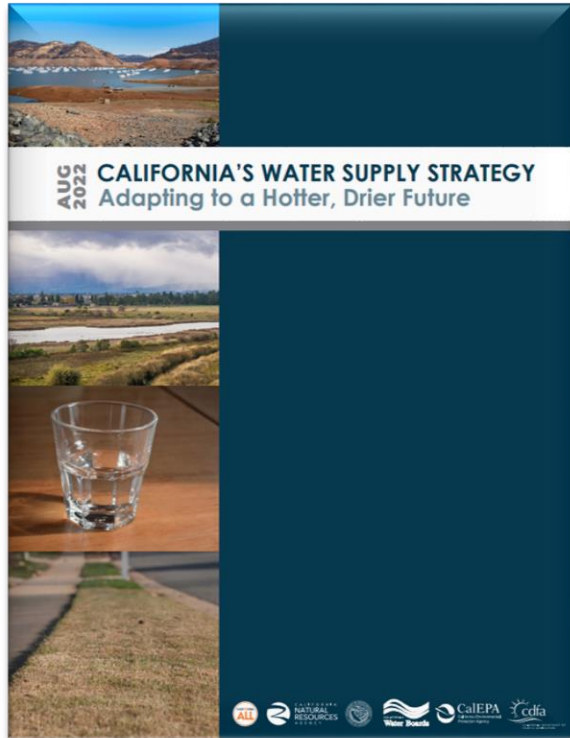




# July Meeting



**TAG discussion of interrelated  
GSP implementation efforts and  
considerations**





# Thank You

**Vicki Kretsinger Grabert**

Luhdorff & Scalmanini, C. E.

[vkretsinger@lsce.com](mailto:vkretsinger@lsce.com)

(530) 661-0109



**Luhdorff &  
Scalmanini**  
Consulting Engineers

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## **Napa County Groundwater Sustainability Agency**

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David Morrison, ***Interim  
Executive Officer***

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Brian Bordona, ***Interim Director***

Planning, Building, and  
Environmental Services Department

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# Napa County

## Board Agenda Letter

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www.countyofnapa.org  
Main: (707) 253-4580

---

Technical Advisory Group

**Agenda Date:** 5/11/2023

**File ID #:** 23-0842

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**TO:** Technical Advisory Group for the Napa County Groundwater Sustainability Agency  
**FROM:** Brian Bordona - Interim Director of Planning, Building and Environmental Services  
**REPORT BY:** Jamison Crosby, Natural Resources Conservation Manager  
**SUBJECT:** Update on Evaluating ET across the Napa Valley Subbasin

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### **RECOMMENDATION**

The Technical Advisory Group (TAG) members will receive a status update on the evaluation of evapotranspiration (ET) data collection activities and preliminary data analysis. This will include an overview of previous discussions, current outreach activities, and presentation of collected data. This is an informational item to inform the TAG members of ongoing work occurring in relation to quantifying total consumptive use of water.

### **EXECUTIVE SUMMARY**

An initial presentation on ET data was provided at the October 2022 TAG meeting with a presentation from Tom Shapland (Tule Technologies). New technologies in remotely sensed ET estimates from OpenET was presented at the November 2022 TAG meeting by the technical team. Outreach activities to vineyard managers to collect measured ET data from Tule Technologies sensors have been actively pursued since that time. To date, data from 14 sensors have been volunteered by growers for use by the technical team. The data from these sensors are currently being used to evaluate OpenET algorithms in Napa County. The initial evaluation of ET showed a bias in OpenET to underestimate when compared to locally measured ET estimates.

#### **Procedure**

Staff introduces.

Questions and answers with the TAG.

Public comments.

### **ENVIRONMENTAL IMPACT**

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

**BACKGROUND AND DISCUSSION**

The use of remotely sensed ET estimates was originally developed for the Napa Valley Integrated Hydrologic Model (NVIHM). These estimates used data from 2014 to develop crop coefficients for black and white grapes in Napa Valley. These crop coefficients provided the foundation for applied water requirements, for both surface and groundwater, for irrigated acreages within the NVIHM. Refining the estimates of applied water is a priority during GSP implementation.

Field measurements of ET using surface renewal methods by Tule Technologies was presented at the October, 2022 TAG meeting. The measured data provide daily, field-scale measurements of ET. Based on conversations by the TAG, the use of local data was necessary to use for refining crop coefficients in Napa County. An overview of remotely sensed ET measurement technologies, OpenET, was presented at the November 2022 TAG meeting. OpenET is an online platform that uses the best available science and publicly available data to provide satellite-based ET estimates. OpenET has been used in multiple applications across the Western US as well as for multiple Groundwater Sustainability Agencies (GSA) within California.

Outreach to vineyard managers and other users of Tule Technologies sensors began in Spring 2023 and was led by the Napa County Resource Conservation District (RCD). To date, data from 14 sensors have been volunteered by growers from the region. A comparison of measured ET estimates with remotely sensed ET estimates is being conducted at the locations of these sensors. The initial evaluation of ET showed a bias in OpenET to underestimate when compared to locally measured ET estimates.

Data from multiple sources of ET will continue to be evaluated to provide refined estimates of total consumptive use.

**SUPPORTING DOCUMENTS**

A. Presentation - Update on Evaluating ET



# Napa County Groundwater Sustainability Agency

## Technical Advisory Group

*Update on Evaluating ET*

May 11, 2023



**Luhdorff &  
Scalmanini**  
Consulting Engineers





# Overview



1. Background and Recap of ET
2. CIMIS in Napa Valley
3. OpenET and Field-Based Sensor Update

This item is informational to provide an update on presentations from October and November 2022.



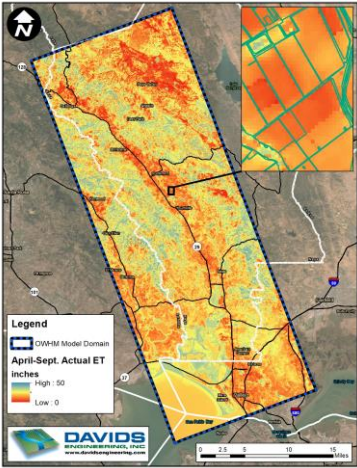


# Background and Recap of ET

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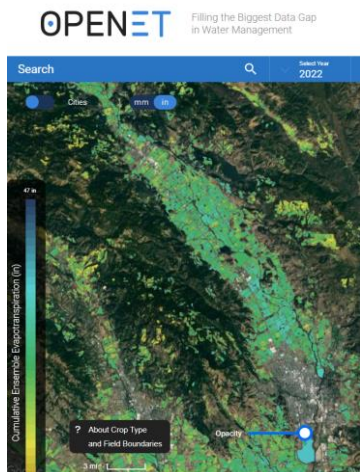


# Timeline of ET Development



GSP and NVIHM Development: Napa Valley crop coefficients were developed. These drove groundwater pumping within the NVIHM. Refining pumping estimates via better demand estimates was identified as a key area to improve the NVIHM.

October 2022: Tom Shapland provided an overview of EvapoTranspiration (ET), surface renewal measurements, and variability of Napa Vineyards.



Spring 2023: Began collecting field-level data for ET estimates in Napa Valley and investigating OpenET data.

# Definitions of ET



- Actual ET (ETa): Total water use of a crop
- Reference ET (ETo): Total water use of a well-watered lawn
  - Published through California Irrigation Management Information System (CIMIS)
- Crop Coefficient (Kc): Multiplier to go from ETo to ETa for a well watered crop
- Water Stress (Ks): Multiplier to go from ETo to ETa for a deficit irrigated crop

$$ETa = ETo * Kc * Ks$$

For modeling and water budget development work, Kc and Ks are calculated together for a single crop coefficient.

# Goals of ET Refinements



- Refine water budget methodology and estimates.
  1. Through remote sensing be able to capture changes over time.
  2. Have field-scale or sub-region scale crop coefficients.
- Quantify changes in consumptive use based on cultural practices to provide resources for all growers.
  - Trellis class, irrigation type, planting density, rootstock, varietal, etc.





# CIMIS in Napa Valley

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# Oakville CIMIS Station



## Surrounding Criteria:

- Avoid obstructions within 100 yards of the site.
- Avoid abrupt crop/vegetation changes within 50 yards.
- Avoid roads within 50 yards.
- Small rivers no closer than 100 yards, large rivers no closer than 200 yards, lakes no closer than 1,000 yards.




# Potential Other Napa CIMIS Station



- Napa County looking for additional areas for CIMIS stations to be installed across Napa County.
- Looking for County-owned properties, such as golf courses, to agree to house a CIMIS-station.
- Increasing CIMIS stations would:
  - Help refine water balance work.
  - Improve remotely sensed ET estimates.





# Field Measurement and OpenET

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# Outreach Activities



- Outreach for field-based ET measurements lead by RCD.
- Four participants have agreed to provide data with a total of 14 sensors.
- We will continue looking for volunteers across the County.
- Additional measurement types, including metered application, soil moisture, or sap flow measurements will help to refine total water use estimates.

NAPA VALLEY VINEYARDS: PROMOTING WATER CONSERVATION AND SUSTAINABILITY

## Data Request: ET Measurements



### Background

In accordance with the 2014 Sustainable Groundwater Management Act, the Napa County Groundwater Sustainability Agency (GSA) submitted the required Napa Valley Subbasin Groundwater Sustainability Plan (GSP) to the California Department of Water Resources (DWR) on January 31, 2022. The Napa County GSA began GSP implementation in January 2022. On January 26, 2023, DWR approved the GSP.

The Napa Valley Integrated Hydrologic Model (NVIHM) was developed during preparation of the GSP to quantify basin-wide water budget components and establish sustainable management criteria. The NVIHM is used to estimate total water use and pumping, including for agriculture, based on estimates of evapotranspiration (ET). The total amount of groundwater used is reported every year to DWR. Total ET estimates, including groundwater use and pumping estimates, are based on previous work that used remotely sensed data from 2014 to develop crop coefficients in the Napa Valley. There are now new tools that can help us refine those original estimates.

### Napa Agriculture

Napa Valley vineyards have been consistently using water conservation measures and continue to advance water and soil management practices.

To better understand how vineyards in Napa Valley have and will continue to refine water conservation approaches, we need a better method to measure total water use in the entire Napa Valley.

### Data

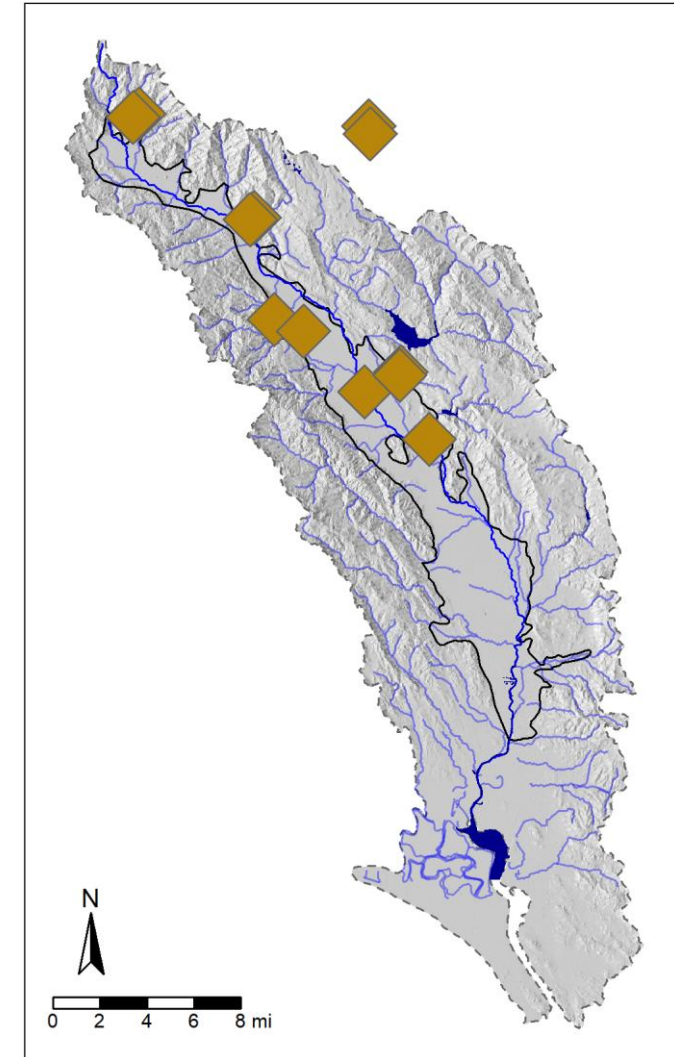
OpenET (<https://openetdata.org>) provides satellite-based estimates of total ET, including ET at a watershed scale. It was developed by a consortium including the Environmental Defense Fund, Google, NASA, Desert Research Institute, USGS, USDA, and more. This method uses various parameters such as surface temperature and reflectance to conduct an energy balance, which results in total ET. There are limitations to using remotely sensed data for any analysis, with a certain amount of error and uncertainty in the data.

As part of ongoing precision agriculture and water conservation efforts in Napa Valley, ET is being monitored on a field-scale in many locations. Tule Technologies is the main provider of field-scale ET. These ground-based sensors are typically Surface Renewal sensors that help monitor total water use, aid in irrigation timing and management, and provide the ability to monitor deficit irrigation. The data from these local sensors can also help validate OpenET data.

# General Map of Sensor Locations



- Good distribution from Oakville and north.
- Some sensors fall outside of the Napa River Watershed, they will be used to evaluate accuracy.
- Varying years of coverage for each sensor.
- Total of ~13,000 field-days of ET measurements.



# Open ET Background



- Landsat imagery (30x30 meter pixel) data are used to look at NDVI, surface temperature, and other variables.
- CIMIS reference ET is used two ways:
  1. Data from CIMIS stations help refine variables measured by Landsat (i.e., solar radiation)
  2. Daily spatial CIMIS is used to extrapolate between satellite overpasses.

Model acronym	Model name
ALEXI/ DisALEXI	Atmosphere-Land <b>Exchange Inverse/</b> <b>Disaggregation of the</b> <b>Atmosphere-Land</b> <b>Exchange Inverse</b> (ver. 0.0.27)
eeMETRIC	<b>Mapping</b> <b>Evapotranspiration at</b> <b>High Resolution with</b> <b>Internalized Calibration</b> (ver. 0.20.15)
geeSEBAL	<b>Surface Energy Balance</b> <b>Algorithm for Land</b> <b>using Google Earth</b> <b>Engine</b> (ver. 0.2.1)
PT-JPL	<b>Priestley-Taylor Jet</b> <b>Propulsion Laboratory</b> (ver. 0.2.1)
SIMS	<b>Satellite Irrigation</b> <b>Management Support</b> (ver. 0.0.20)
SSEBop	<b>Operational Simplified</b> <b>Surface Energy Balance</b> (ver 0.1.5)



# Reference ET

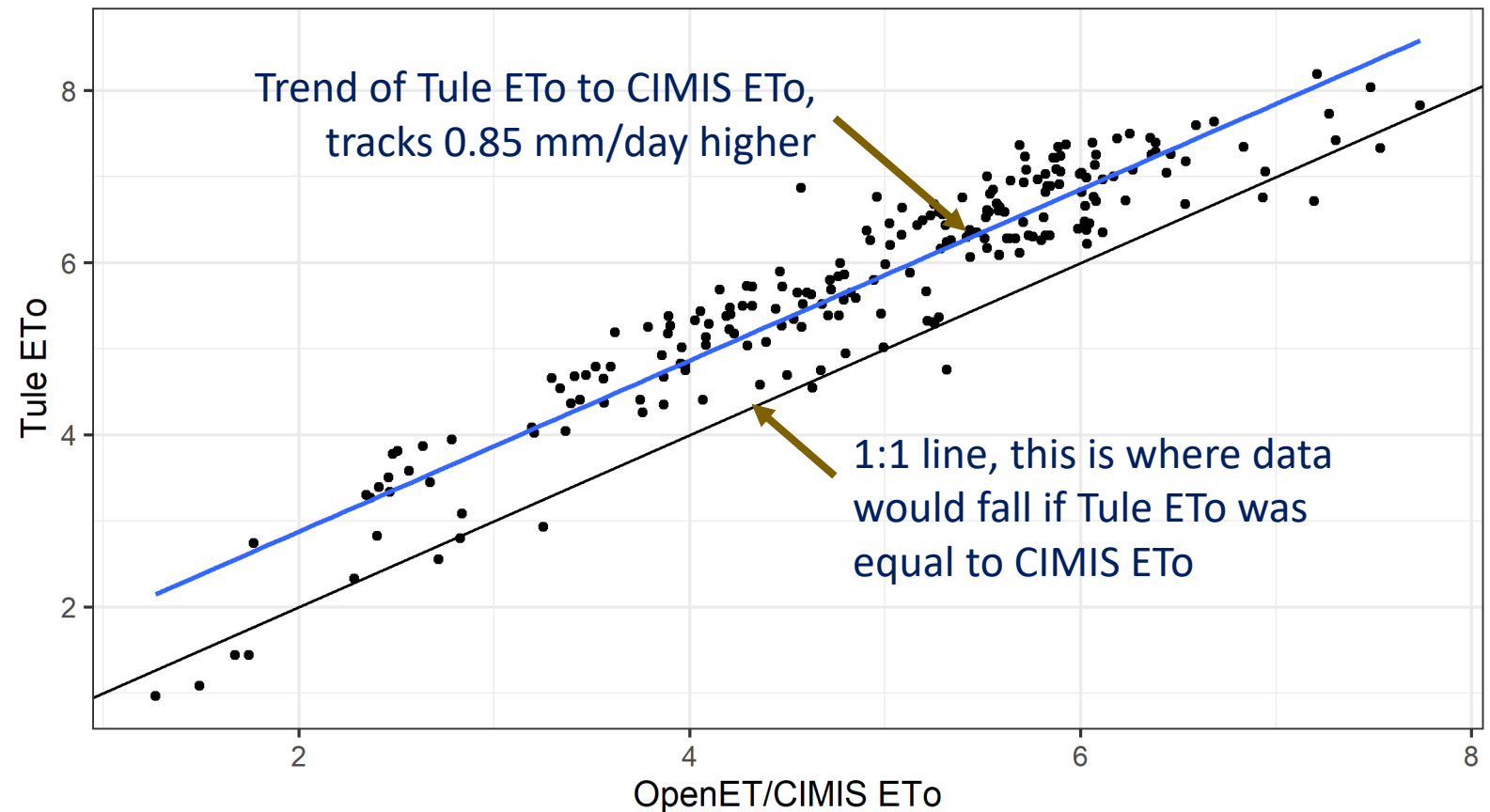


Tule calculates a proprietary reference ET specific to the field of measurement while OpenET uses spatial-CIMIS.

In general, the Tule ETo is higher than the CIMIS ETo.

## Reference ET Comparison WY 2021

Single Vineyard



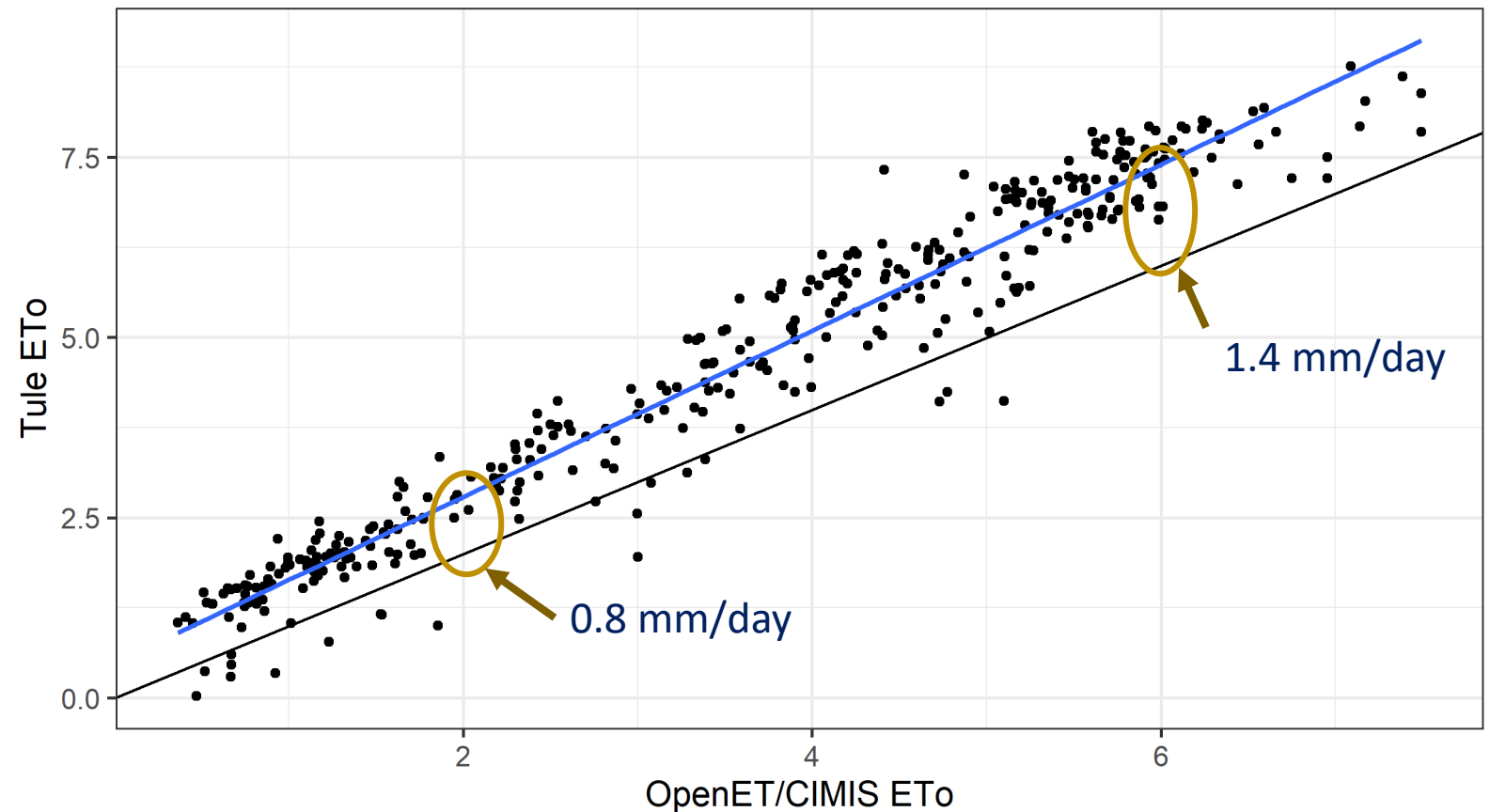
# Reference ET – continued



In general, if CIMIS is currently underestimating ETo in Napa, that would impact total pumping and water use estimates from the NVIHM.

## Reference ET Comparison WY 2021

Vineyard B



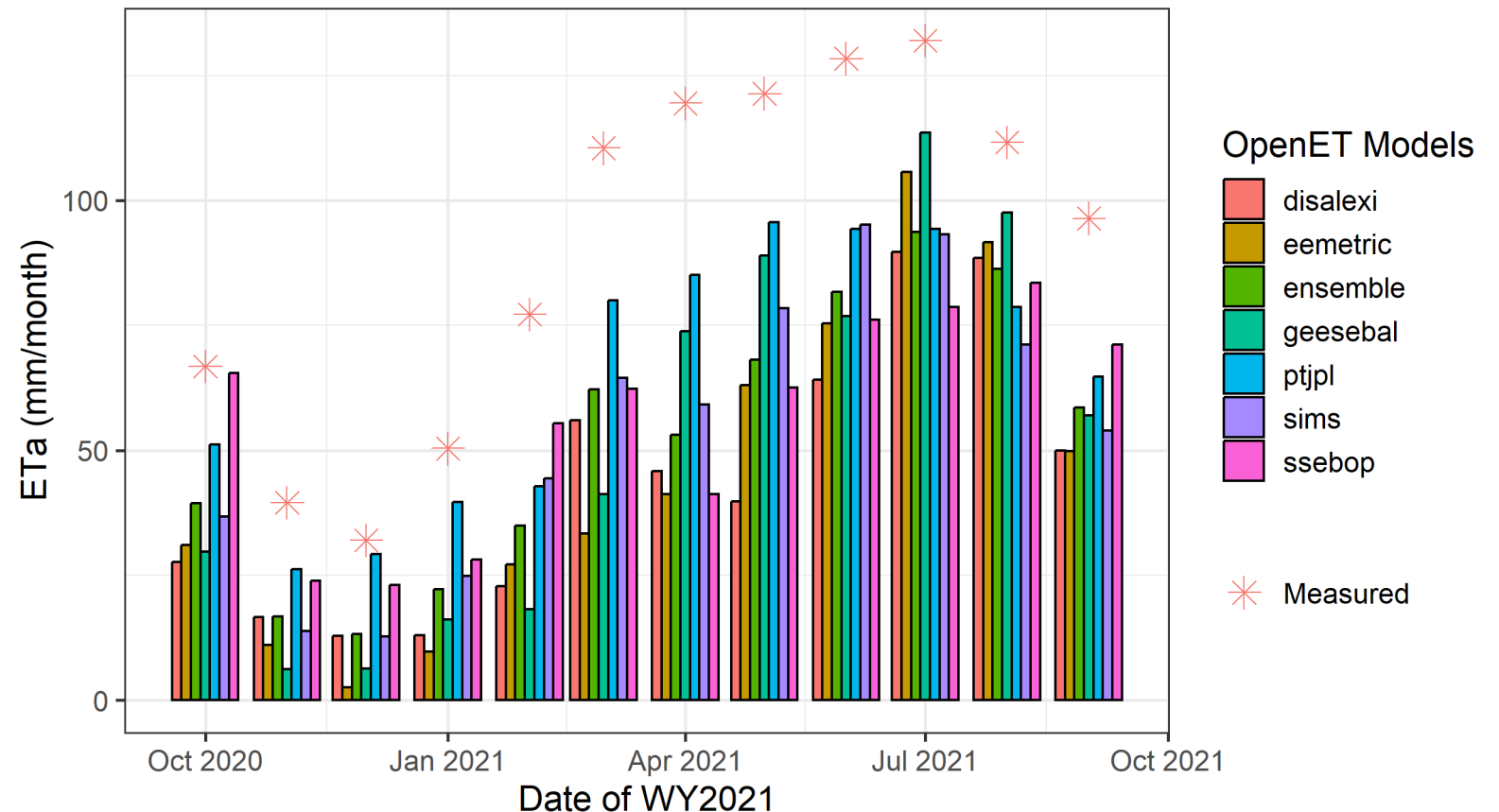
# OpenET and Measured Data – Monthly



When compared to monthly measured data, OpenET shows a bias to underestimate the total ETa.

Systemic differences may be attributable to lower CIMIS ETo data.

OpenET Models for a Single Vineyard in WY 2021  
Monthly ETa



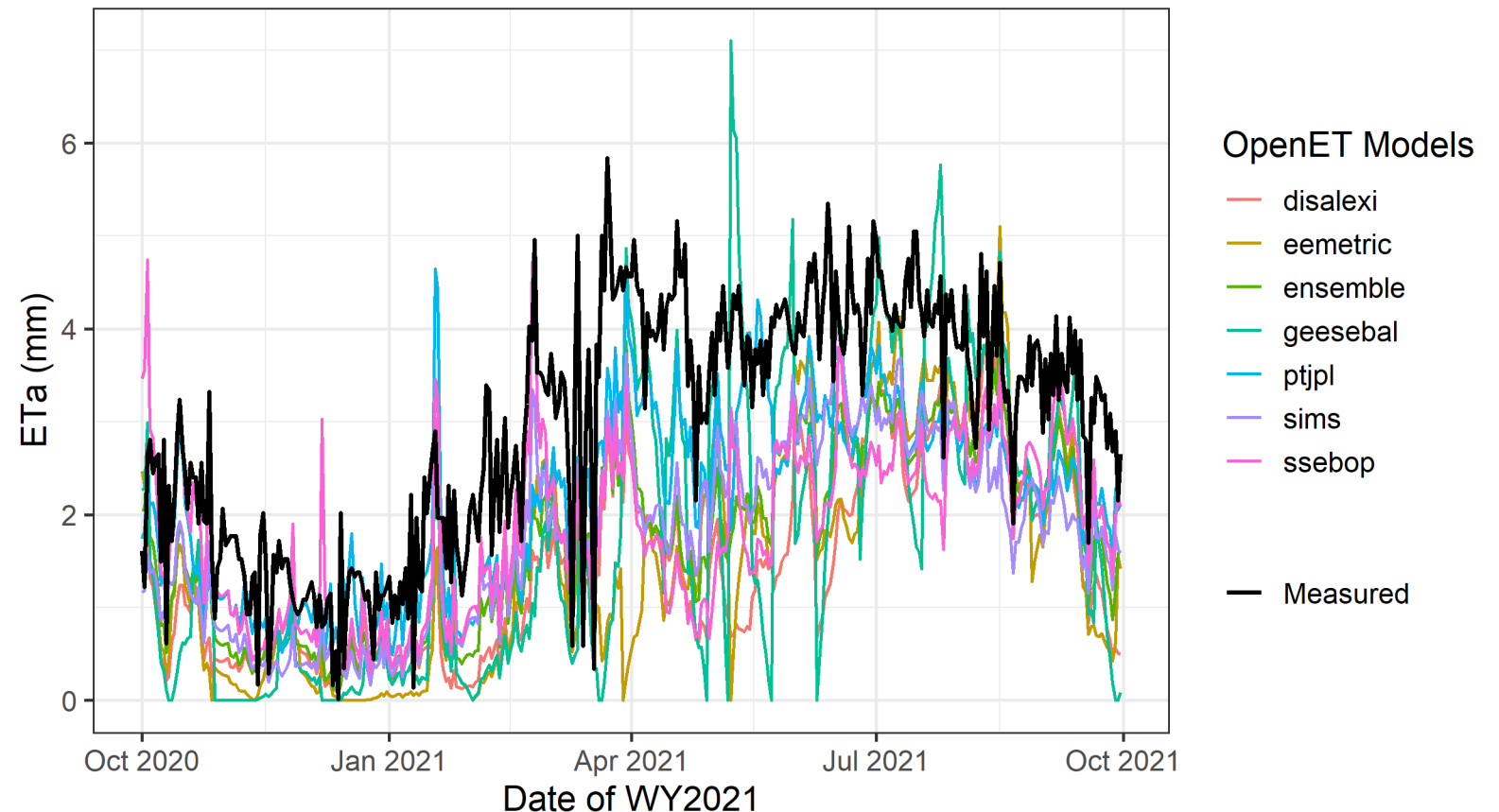
# OpenET and Measured Data



Daily data from Tule (measured) and OpenET sources show no single model captures similar variability as the measured data.

OpenET Models for a Single Vineyard in WY 2021

Daily ETa



# OpenET and Measured Data – August 2021

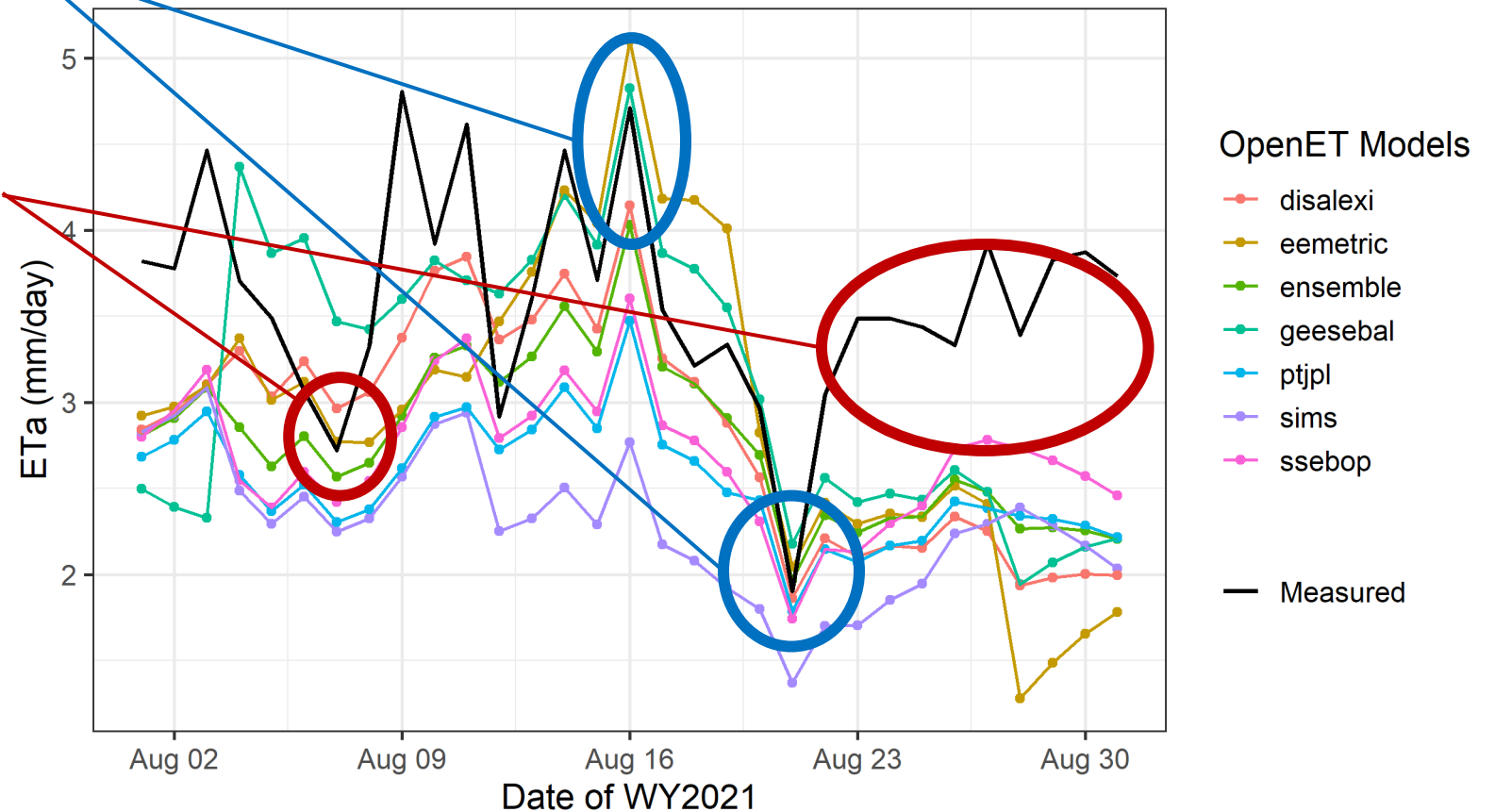


Well Captured

Poorly Captured

## OpenET Models for a Single Vineyard in WY 2021

Daily ETa for August



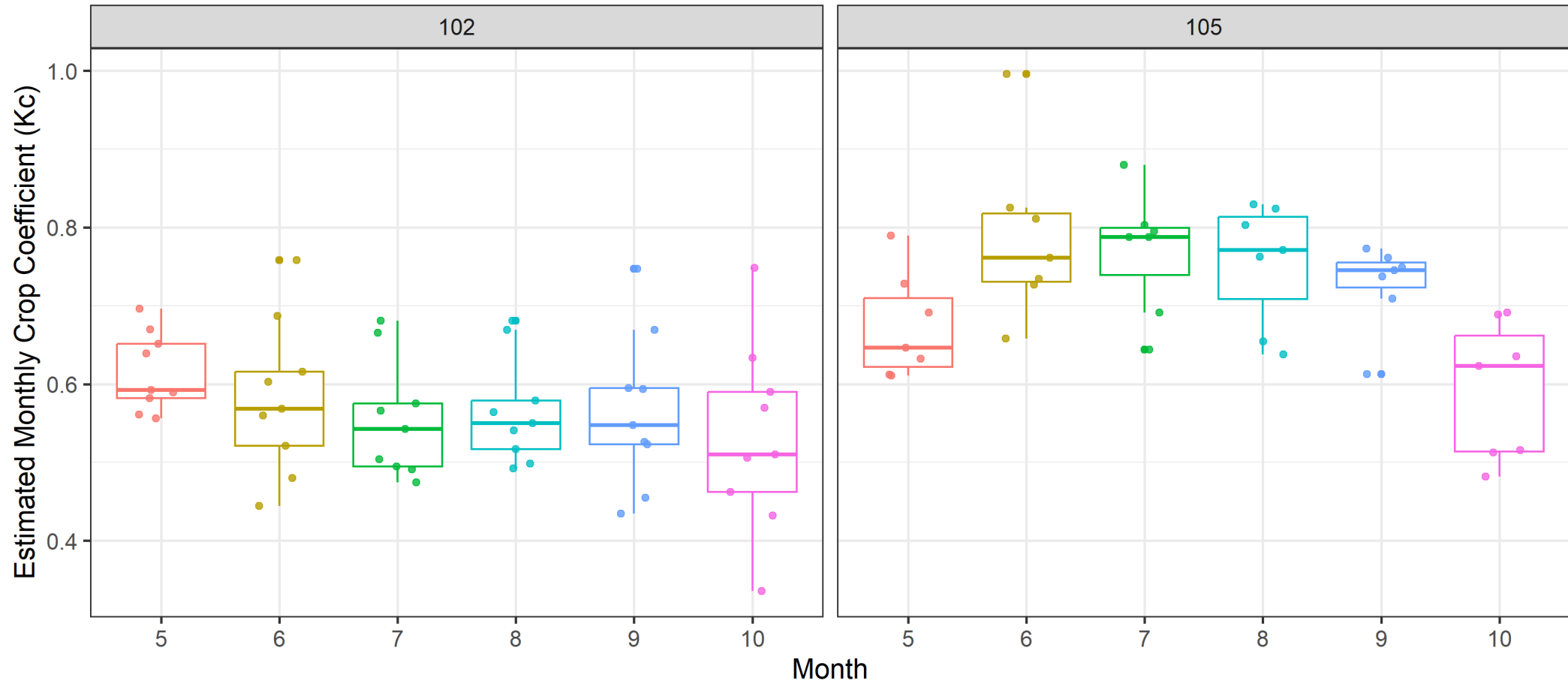


# Comparison of Locally Derived Kc Data



## Monthly Kc Variability of Two Vineyards in Napa Valley

May through October



# Range of Kc



## Questions to investigate:

- What factors influence changes in Kc from year-to-year?
  - Physical: Higher groundwater, climate not captured in the ETo
  - Cultural: Systems upgrade, multi-year cycle in soil amendments
- What factors, and to what extent do those factors, change Kc between fields?
  - Trellis class, irrigation type, planting density, rootstock, varietal, etc.

# Summary



- We have received measured ET data from 14 fields and begun preliminary data analysis.
- Identified potential bias introduced by CIMIS ETo calculations. We are working with DWR to understand and improve the network.
- Began quantifying the range of inter-field variability during a growing seasons.
- Began quantifying the range of intra-field variability over multiple growing seasons.
- Actively pursuing additional data and partners to better capture total consumptive use.





# Thank You

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# Napa County

## Board Agenda Letter

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Technical Advisory Group

**Agenda Date:** 5/11/2023

**File ID #:** 23-0841

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**TO:** Technical Advisory Group for the Napa County Groundwater Sustainability Agency  
**FROM:** Brian Bordona - Interim Director of Planning, Building and Environmental Services  
**REPORT BY:** Jamison Crosby, Natural Resources Conservation Manager  
**SUBJECT:** Groundwater Pumping Reduction Workplan - Update

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### **RECOMMENDATION**

The Technical Advisory Group (TAG) will receive an update on progress developing potential water conservation actions for the Groundwater Pumping Reduction Workplan (GPR Workplan). This will include an overview of the GPR Workplan, the draft results of the water conservation practices summary matrix, a discussion of development of an implementation plan and next steps. Several framing questions are included to receive feedback and direction from the TAG.

### **EXECUTIVE SUMMARY**

Staff and the technical team are continuing work on the GPR Workplan. An initial presentation was given at the February TAG and updates were provided at the March and April TAG meetings. TAG feedback at each prior meeting has been incorporated into the draft analysis being completed for the Workplan. It is anticipated that work will continue over the next several months. This is the fourth of several updates to the TAG. Information based on feedback and preliminary analysis completed by the technical team is being presented at this meeting, and this will be updated as the technical team completes its work and continues to receive feedback from the TAG.

### **Procedure**

Staff introduces.

Questions and answers with the TAG.

Public comments.

### **ENVIRONMENTAL IMPACT**

ENVIRONMENTAL DETERMINATION: The proposed action is not a project as defined by 14 California Code of Regulations 15378 (State CEQA Guidelines) and therefore CEQA is not applicable.

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**BACKGROUND AND DISCUSSION**

Napa County GSA Staff and the technical team are continuing to work on the GPR Workplan. It is anticipated that work will proceed over the next several months. This is the fourth update to the TAG. Information and updates since the last TAG meeting are being presented (see Supporting Document A), and this will be updated as the technical team completes its work and receives feedback from the TAG.

The Groundwater Pumping Reduction Workplan (GPR Workplan, see draft outline, Supporting Document B) is being prepared to provide a roadmap for implementing measures to reduce groundwater pumping in the Napa Valley Subbasin. This Workplan is a companion document to the Napa County Vineyard and Winery Water Conservation Workplan. The GPR Workplan will describe the voluntary measures to conserve water, including reducing groundwater pumping. The GPR Workplan will include processes for improving the understanding of groundwater use in the Subbasin and evaluating the effectiveness of measures implemented to reduce groundwater pumping in relation to observed benefits to groundwater conditions and sustainability. The GPR Workplan will also include adaptive management and a process to invoke mandatory measures if voluntary measures are insufficient to achieve groundwater sustainability.

The GPR Workplan is based on a guiding framework that was developed with TAG input and includes the following: it should focus on voluntary actions that achieve groundwater benefits for the Subbasin, assess the costs and benefits of alternative actions and focus on those that are most cost-effective, leverage existing programs and opportunities to generate value to participants, and include an adaptive management process to adjust the program as data and sustainability indicators evolve.

Voluntary water conservation actions should provide a benefit to the Subbasin and to individuals that adopt them. The TAG has reviewed certification programs (Feb 2023), benchmarking programs (Apr 2023), and broader best practices for incentivizing adoption of water savings technologies and practices, including behavioral nudges and educational workshops and programming (Feb, Mar, Apr 2023). The project team has and is continuing to conduct outreach to support analysis of existing and potential water conservation practices. This includes outreach to certification programs as well as other industry organizations and experts.

Certification programs are one way to realize value from voluntary actions. Existing certifications for winegrapes have been reviewed to identify the potential for certifying specific water management practices, and what value these types of labels may generate. A preliminary update was presented at the March 2023 TAG meeting. Certification programs that have been reviewed include the California Sustainable Winegrowing Alliance, Napa Green, SIP Certified, Fish Friendly Farming, and Napa RCD LandSmart. The motivation for utilizing different certification programs ranges from regulatory compliance to intrinsic value for practices that producers are already utilizing. Many program participants increase adoption of newer technologies for certifications and as part of best management practices. It appears there are opportunities to expand certification of specific practices (and/or emphasize adoption of current, certified practices) that would support groundwater sustainability in the Subbasin.

“Benchmarking” is an approach to encourage changes in practices by showing how an individual compares to an (anonymous) group of their peers. Benchmarking programs have proven to be successful in utilities, both for energy and residential water use. Benchmarking provides a framework to track and evaluate performance, identify room for improvement, and save both resource use and related costs. At the April 2023 TAG meeting, the U.S. Environmental Protection Agency’s Energy Star program was presented as a case study for a benchmarking program. The case study provided an opportunity to explore how a benchmarking program for water use in vineyards and wineries (and potentially other sectors) may similarly be developed in Napa to help



reduce groundwater pumping and maintain sustainability under the GSP. A key issue identified by the TAG is the variability in water use across different growers, crops, and microclimates. A benchmarking program in which a grower could track across their own portfolio over space and time may overcome some of these challenges.

### **FRAMING QUESTIONS FOR TAG DELIBERATIONS**

The following framing questions have been prepared for the TAG in consideration of groundwater pumping reductions to achieve overarching GSP objectives for the Napa Valley Subbasin:

The GPR Workplan will include a detailed summary of each water conservation practice (see Supporting Documents). This summary will include costs and benefits for existing and potential practices, including vineyard-specific adoption costs and potential water savings that benefit the Subbasin. To organize and summarize findings in a concise format, a matrix concept was developed whereby practices would be ranked by criteria including costs, private benefits, water savings benefits, implementation timeline, overall feasibility, and other required studies. The concept was presented to the TAG in March for feedback and discussion, and the draft findings are being presented at this meeting. Included is a proposal to focus on the practices that show the potential for the highest impact.


**Question:** Are the matrix findings consistent with your experience? Do the proposed practices seem like the right ones to prioritize?

The GPR Workplan will also include an implementation plan, which the technical team will begin to outline in May and June and will present to the TAG in July. The implementation will cover voluntary practices, education, and benchmarking, assessing the effectiveness of the voluntary program, and an adaptive management process with potential mandatory measures if the voluntary program is ineffective. The implementation plan will also define when and how different actions could be triggered as the subbasin is adaptively managed over time. This meeting provides an overview of some of the components of implementation: namely, incentives for participation, funding, education/outreach, defining metrics for success, and developing the adaptive management process if voluntary efforts are unsuccessful.

**Question:** What approaches should be considered for the Implementation Plan? How should options identified in the GPR Workplan (e.g., water conservation, certification, benchmarking) be selected for implementation? Should other factors in addition to groundwater metrics trigger certain implementation actions?

### **SUPPORTING DOCUMENTS**

- A. ERA Economics PowerPoint Presentation: Napa Valley Subbasin, Groundwater Pumping Reduction Workplan, May 2023
- B. Groundwater Pumping Reduction Workplan, Draft Outline, February 6, 2023



# Napa Valley Subbasin Groundwater Pumping Reduction Workplan

Napa County GSA TAG Meeting

# Overview

1. Groundwater Pumping Reduction Workplan
2. Water Practices Matrix
  1. Approach and Key Assumptions
  2. Draft Results
3. Next Steps



# GROUNDWATER PUMPING REDUCTION WORKPLAN



# Groundwater Pumping Reduction

- Guiding Framework:
  - Focus on voluntary actions that achieve groundwater benefits for the Subbasin
  - Assess the costs and benefits of alternative actions and focus on those that are most cost-effective
  - Leverage existing programs and opportunities to generate value from a suite of voluntary actions
  - Include adaptive management to adjust the program as data and sustainability indicators evolve

# Groundwater Pumping Reduction Workplan



## Voluntary Approaches to Reduce Pumping

Field-level measurement  
Best management practices  
Education  
Benchmarking  
On-farm practices  
Other practices  
Adaptive management



## Subbasin Use Benchmarking and Tracking

Remote sensing, metering  
Well permitting  
Groundwater trends



## Communications and Engagement

Outreach and engagement  
Technical Advisory Group  
Education and resources



## Steps for Implementation

Assess effectiveness  
Implement adaptive measurement and potential mandatory measures, pending effectiveness of voluntary efforts



# WATER PRACTICES MATRIX

# Background

- Analyzing voluntary practices and technologies to achieve water savings for vineyards and wineries
  - Costs of adoption
  - Scaling potential (% who have not adopted)
  - Water savings potential (% reduction from baseline)
  - Water savings potential (total acre-feet per year)
  - Implementation timeline
  - Overall feasibility



# Background: Vineyard Pumping

- According to the GSP:
  - 13,000 AFY (average historic pumping for agriculture) on around 23,000 acres
  - Applied water is approximately 6 – 7 inches/acre
- UC Crop Extension estimates an applied water requirement for Napa vineyards of:
  - 5 – 6 inches/acre (varies based on variety, soil type, slope, etc.)
- Represents about 10 – 15% less than current approximate use
  - Key Point: voluntary actions could have the potential to achieve the GSP pumping reduction target if they can be incentivized and implemented effectively

# Background: Winery & Landscaping

- Winery and landscaping water use is another opportunity to conserve water
- Potentially limited opportunities to improve winery water use, but larger opportunities for winery re-use on landscaping
  - Water quality considerations
  - Winery operations
  - Capital costs
  - Other site-specific considerations

# Approach and Key Assumptions

- Data were collected from the following sources:
  - Published studies
  - Industry resources
  - Interviews of industry experts
  - Synthesis and analysis of data to calculate present value of life-cycle costs
- We are documenting and data gaps and assumptions for future efforts

# Water Practices Matrix – DRAFT

Practice	Estimated Annualized Cost* per AF Conserved	Estimated Potential Total Water Savings	Implementation Timeline	Overall Feasibility (Preliminary)
Unit:	\$/AF	AFY	Years	Ranking
<b>On-Farm Practices (Established)</b>				
Water Measurement	\$40 - \$50	200 – 400	1 year	Low
Distribution Uniformity	\$30 - \$50	500 – 1,500	1 year	High
Irrigation System Efficiency	\$75 - \$100	500 – 1,000	1 year	Medium
Soil Moisture Monitoring				
High Tech / Low Labor	\$5 - \$10	1,000 – 2,000	1 year	High
Medium Tech / Medium Labor	\$10 - \$20		1 year	High
Low Tech / High Labor	\$15 - \$30		1 year	High
Soil Management	\$400 - \$450	250 – 400	1 year	Low
Conjunctive Management	In Progress	In Progress	1 year	In Progress
<b>On-Farm Practices (New Plantings)</b>				
Canopy Management	\$175- \$250	150 – 400	5+ years	Low
Row Orientation	In Progress	1,000 – 2,000	5+ years	High
Rootstock Selection	In Progress	In Progress	5+ years	In Progress
<b>Regional Water Management Practices</b>				
Recycled Water	\$600 - \$750	In Progress	5+ years	Medium
<b>Other Water Management Practices</b>				
Processing Water Treatment and Reuse	\$1,000 - \$1,500	In Progress	5+ years	Medium
Waterless Barrel Sanitation	\$1,900 - \$2,800	In Progress	1 year	Low
Benchmarking	\$2 - \$10	In Progress	1 year	High

\* Includes preliminary capital and O&M costs; costs are currently being refined



# Note on Interaction Between Practices

- The water savings potential is typically expressed as an “up to” value for that practice alone
- Adoption of multiple practices does not necessarily yield additive water savings
  - For example, improved applied water measurement would not generate additional savings if soil moisture monitoring is being implemented
- Still, the preliminary data suggest there is significant potential for water savings

# Priorities for Voluntary Practices

- We propose focusing on those practices with the highest impact potential and lowest cost:
  - Established Plantings:
    - Distribution Uniformity
    - Soil Moisture Monitoring
  - New Plantings (tailored to vineyard operations):
    - Row Orientation
    - Rootstock Selection
  - Other Water Management Practices:
    - Benchmarking



Are the preliminary matrix findings consistent with your experience? Do the practices listed on the previous slide seem like the right ones to prioritize?



# STEPS FOR IMPLEMENTATION



# Steps for Implementation

- The GPR Workplan will include an implementation plan covering:
  - Voluntary practices, education, and benchmarking
  - Assessing effectiveness
  - Adaptive management, with potential mandatory measures if ineffective
- A next and important step is to develop the “how” of the implementation plan.
  - Incentives for participation (certification, cost-share, rate structure, other)
  - Funding (GSA, County, grant)
  - Educational programming
  - Other program considerations (e.g., benchmarking)
  - Defining metrics for success, and processes in the event they aren’t met



What approaches should be considered for the Implementation Plan?

How should options identified in the GPR Workplan (e.g., water conservation, certification, benchmarking) be selected for implementation?

Should other factors in addition to groundwater metrics trigger certain implementation actions?



# SUMMARY AND NEXT STEPS

# Looking Forward to Next Steps

## June 2023

- Refine voluntary water practices matrix
  - Finalize cost calculations and follow up with industry experts
- Conceptualize implementation plan with broader team
  - Voluntary approaches
  - Benchmarking
  - Education and engagement
  - Adaptive management framework

## July 2023

- Finalize the suite of options to include in the GPR Workplan
  - Voluntary and potential mandatory actions
  - Receive and incorporate TAG feedback
  - Finalize implementation plan



## Draft Groundwater Pumping Reduction Workplan

A Workplan for Implementing Measures to Reduce Groundwater Pumping in the Napa Valley Subbasin

*Two key approaches can be used to reduce groundwater pumping: reduce groundwater use via voluntary or mandatory measures. The Groundwater Pumping Reduction Workplan (GPR Workplan) is being prepared to provide options and a roadmap for implementing measures to reduce groundwater pumping to meet water demands in the Napa Valley Subbasin. This Workplan is a companion document to the related document, the Napa County Vineyard and Winery Water Conservation Workplan (VWWC Workplan). The VWWC Workplan will describe the understanding of water use, including groundwater, and the various conservation measures that are already or could be implemented to save water. The VWWC Workplan will also serve to motivate future innovative water conservation approaches to help buffer drought year affects and advance watershed resiliency. The GPR Workplan will describe the range of voluntary measures that can be used to conserve water, including reducing groundwater pumping. It will also describe requirements for reduced groundwater use that stem from the County's new well permitting standards (as of January 6, 2023). The GPR Workplan will be action-oriented, including monitoring, tracking, and refining the understanding of groundwater use and the effect of that use on groundwater conditions and sustainability. The GPR Workplan will also include adaptive management and a process to define the monitoring and other data that will be used to define and implement mandatory measures if voluntary measures are insufficient to achieve groundwater sustainability.*

### 1. Introduction

- a. Workplan Purpose
  - i. Summary of guiding framework, including emphasizing voluntary actions and identifying cost-effective solutions to be included in the Workplan
- b. Groundwater Pumping Reduction Goals
  - i. Achieving groundwater sustainability in the Napa Valley Subbasin (summary of requirements to achieve sustainability)
  - ii. Mitigating short and long-term drought effects on groundwater resources
  - iii. Implement Groundwater Sustainability Plan Advisory Committee (GSPAC) goal to reduce pumping in the Subbasin (at a Subbasin scale rather than parcel scale) by 10 percent (Groundwater Sustainability Plan [GSP] Section 11)

### 2. Background

- a. Napa County Groundwater Ordinance and Well Permit Requirements
  - i. Summary of information in Groundwater Sustainability Plan (GSP) pertaining to Napa County Groundwater Ordinance and Water Availability Analysis (WAA)
  - ii. Summary of new and existing Napa County well permitting standards (as of January 6, 2023)
    - 1. New regulations pertaining to domestic wells in Subbasin (groundwater use)
    - 2. New regulations to existing or replacement wells in Subbasin (groundwater use)

3. Existing requirements (e.g., mutual well interference and proximity to streams)
  - b. SB 552 Drought Resilience Planning
    - i. Overview
    - ii. Interrelationship between SB 552 and GSP/Groundwater Pumping Reduction Workplan goals
  - c. Existing Water Management Practices
    - i. Overview
    - ii. Summary of current investments in efficient water management practices commonly implemented in the Napa Valley Subbasin, and summary of extent of adoption (subject to available data)
    - iii. Summary of costs and benefits of existing practices
  - d. Overview of Groundwater Pumping Reduction Approaches and Terms
    - i. Brief summaries of potential methods to achieve reductions in groundwater use (groundwater users can use one or more methods as appropriate)
    - ii. Terms applicable to this Workplan
  - e. Groundwater Pumping Profile
    - i. Historical groundwater use (summary of information in GSP and most recent Water Year Annual Report for the Subbasin)
      1. Non-native vegetation groundwater use
      2. Native vegetation groundwater use
    - ii. Groundwater demand forecast
      1. Anticipated water demand for future time periods
      2. Adjustments to demand based on known and measurable factors
      3. Discussion of uncertainties, including climate factors
    - iii. Existing groundwater conservation practices
      1. Summary of/cross reference to Napa County Vineyard and Winery Water Conservation Workplan
      2. Summary of urban/other conservation measures
- ### 3. Voluntary Approaches to Reduce Groundwater Pumping
- a. Measurement Devices to Track Water Use at Subbasin and Parcel Scales
    - i. Remote sensing
      1. Napa County Groundwater Sustainability Agency (NCGSA) obtains/analyzes OpenET data in collaboration with grower-volunteered locations for additional land-based sensor data and other data; analysis at Subbasin scale)
    - ii. Land-based sensor data
      1. Vineyard operators/managers (parcel or multi-parcel scale)
      2. Wineries (landscape groundwater use)
      3. Rural residential (large rural acreage)

- iii. Soil moisture profiles
  - 1. Vineyard operators/managers (dry farmed parcel(s))
- iv. Pumping meters
  - 1. Vineyard operators/managers (parcel or multi-parcel scale)
  - 2. Wineries
  - 3. Rural residential (large rural acreage)
- v. Other
- b. Best Management Practices (BMPs): Water Conservation
  - i. Vineyard BMPs
    - 1. Summary of/cross reference to Napa County Vineyard and Winery Water Conservation Workplan
  - ii. Winery BMPs
    - 1. Summary of/cross reference to Napa County Vineyard and Winery Water Conservation Workplan
  - iii. Urban BMPs
    - 1. Cross reference to existing reference material including SB 552 materials
- c. Training and Education
  - i. Vineyard water management and conservation
    - 1. Training/education programs (Napa County Resource Conservation District (RCD), Napa Valley Grapegrowers, Napa County Farm Bureau, Third-Party organizations, etc.)
  - ii. Winery water management and conservation
    - 1. Training/education programs (Winegrowers of Napa County, Napa County Farm Bureau, Third-Party organizations, etc.)
  - iii. Urban water management and conservation
    - 1. Training/education programs (Napa County, Third-Party organizations, statewide agencies, etc.)
- d. Data-Driven Irrigation Performance and Benchmarking
  - i. Program objectives and design
  - ii. Develop data (see Section 3(a)) to support benchmarking of water use that would allow individual groundwater users to compare their use to similar users
    - a. Anonymous data to protect confidentiality
  - iii. Develop linkages to monitoring programs and certifications/water management practices and method for quantifying savings
  - iii. Case Studies: volunteers (spatial distribution); prior participants in Napa County RCD irrigation evaluation program and irrigation distribution uniformity assessment
  - iv. Program implementation, initial results, and recommendations
- e. Adaptive Management
  - i. Identify the monitoring and other data that will be used to define cause and effect relationships that underlie decisions needed to ensure groundwater sustainability in

the Subbasin.

- ii. Implement periodic review process to coordinate assessment of the effectiveness of voluntary groundwater pumping reductions with the status of groundwater conditions and Subbasin sustainability at the Subbasin not parcel scale (periodic review could include annual and five-year reviews in coordination with GSP required reporting)
  - iii. Coordinate groundwater pumping reduction assessment metrics with sustainable management criteria and triggers that lead to response actions (e.g., coordinate with GSP Table 11-3 Criteria and Triggers: Six Sustainability Indicators)
  - iv. Process for determining whether voluntary measures suffice or mandatory measures are required; this includes the information, steps, and monitoring needed to inform, define, and implement mandatory measures should such measures be required
- f. Certification Programs
- i. Identify existing vineyard, and potentially winery, certification programs that will focus on water management practices for certifications
  - ii. Inventory existing programs and extent of adoption of those programs
  - iii. Establish a list of existing certifiers and potential for adoptions in the Napa Valley Subbasin
  - iv. Value/benefits of certification programs
  - v. Link to water management benefits and costs of each

#### 4. Subbasin Groundwater Use and Tracking

- a. Remote Sensing
  - i. Periodic data collection OpenET
  - ii. Potential incentives for volunteered sites to include other complementary data
  - iii. Periodic analysis of water demands at specified Subbasin locations (indicator areas)
  - iv. Annual analysis of water demands at Subbasin scale and comparative analysis of trends at specified locations (indicator areas)
  - v. Summarize results in GSP Water Year Annual Report
- b. Groundwater Metering
  - i. Program objectives, design
  - ii. Potential incentives (including through Third-Party Certification Programs)
  - iii. Periodic data collection (volunteered metering at various Subbasin locations)
  - iv. Periodic analysis of groundwater use at volunteered Subbasin locations
  - v. Summarize results in GSP Water Year Annual Report
- c. Tracking New County Well Permits
  - i. Ministerial (locations and other key criteria (key criteria: groundwater use allocation, mutual well interference, and stream proximity))
  - ii. Discretionary (locations and other key criteria, as noted above)

- d. Groundwater Level Trends at RMS and Supplemental Wells
  - i. Compare groundwater level trends relative to OpenET trends
  - ii. Compare trends in areas with volunteered sites
  - iii. Compare trends in areas with new well permits
  - iv. Assess trends in response to conservation/water savings approaches (including areas where Third-Party Certification programs have been implemented)

## 5. Cost-Effectiveness Analysis

- a. For potential water management practices, prepare a reconnaissance-level analysis of the costs of implementing such practices in addition to the potential water savings/benefits and monetary benefits of such practices
- b. Summarize cost-effectiveness of each potential water management practice, rank accordingly, and document/describe results
- c. Narrative summary of potential water management practices adoption

## 6. Communication and Engagement

- a. Outreach approach, including identification of stakeholders and variations in applicable outreach methods
- b. Napa County GSA Technical Advisory Group engagement
- c. Stakeholder engagement
- d. Education and resources

## 7. Steps for Implementation

- a. Coordinate GPR Workplan development with SB 552 Drought Resilience Planning and development of Napa County Drought Resilience Plan
- b. Calculate and report cost-effectiveness of all potential measures identified for implementation, and screen/rank potential measures accordingly
- c. Steps and schedule considerations for assessing effectiveness of voluntary groundwater pumping reduction measures for vineyards, wineries, urban, rural residential, and other
- d. Steps and schedule considerations for assessing effectiveness of new County well permitting standards
- e. Steps and schedule to implement adaptive management and potential mandatory measures in problem areas and/or Subbasin wide, pending effectiveness of voluntary measures

## 8. References

- a. Department of Water Resources and State Water Resources Control Board. 2022. Primer of Senate Bill 552: Drought Planning for Small Water Suppliers and Rural Communities ([Drought Planning for Small Water Suppliers and Rural Communities \(SB 552\) \(ca.gov\)](#))
- b. Luhdorff & Scalmanini, Consulting Engineers. 2022. Napa Valley Subbasin Groundwater Sustainability Plan. Prepared for Napa County Groundwater Sustainability Agency
- a. Napa County. 2015. Water Availability Analysis (WAA)