

Petaluma Valley Groundwater Sustainability Agency  
Advisory Committee Meeting Packet  
September 20, 2023

# Petaluma Valley Groundwater Sustainability Agency Advisory Committee Meeting – Agenda

Wednesday, September 20, 2023 | 4:30 p.m. – 6:30 p.m.

Location: Petaluma Community Center, 320 N. McDowell Blvd. Petaluma

Contact: Sandi Potter, Petaluma Valley Groundwater Sustainability Agency (GSA) Administrator  
[administrator@petalumavalleygroundwater.org](mailto:administrator@petalumavalleygroundwater.org)

Time	Agenda Item	Materials
4:30	<p><b>Welcome and Call to Order – Roll Call and Introductions</b></p> <p><i>Rebecca Ng, Advisory Committee Chair</i> <i>Sandi Potter, GSA Administrator</i></p>	N/A
4:35	<p><b>General Public Comments</b></p> <p>This time is reserved for the public to address the Committee about matters NOT on the agenda and within the jurisdiction of the Committee.</p>	N/A
4:40 (5 min presentation; 5 min discussion)	<p><b>Agenda Review and Approval of Previous Meeting Summary</b></p> <p><i>Sandi Potter, Administrator</i></p> <ul style="list-style-type: none"> <li>• Review May 17 Meeting Summary</li> </ul> <p><i>Objective: Confirm agenda and approve May meeting summary</i></p>	<ul style="list-style-type: none"> <li>• Agenda</li> <li>• May 17, 2023 Meeting Summary</li> </ul>
4:50 (15 min presentation; 45 min discussion)	<p><b>Policy Options Study</b></p> <p><i>Marcus Trotta, Plan Manager &amp; Sandi Potter, Administrator</i></p> <ul style="list-style-type: none"> <li>• Overview of Potential Policy Options and Updates since May</li> </ul> <p><i>Objective: Receive AC feedback on design of policy options study, including the following questions:</i></p> <ul style="list-style-type: none"> <li>• <i>Do the phasing categories and groupings seem reasonable?</i></li> <li>• <i>Do you agree that options under Continue or Initiate Implementation be considered at the October GSA Board meeting?</i></li> <li>• <i>Do you have a recommended priority for the options grouped under Further Evaluate?</i></li> <li>• <i>Do the recommended next steps seem appropriate?</i></li> </ul>	<ul style="list-style-type: none"> <li>• Staff Report</li> <li>• AC Compiled Input</li> <li>• Presentation (separate)</li> </ul>
5:50 (10 min presentation; 10 min discussion)	<p><b>Standing Item: GSP Implementation Updates</b></p> <p><i>Marcus Trotta, Plan Manager</i></p> <ul style="list-style-type: none"> <li>• Voluntary Monitoring Program - Monitoring Subcommittee Update</li> <li>• ISW/GDE Data Gap Program</li> </ul>	<ul style="list-style-type: none"> <li>• Staff Report</li> <li>• 5-Year Implementation Schedule</li> </ul>

	<ul style="list-style-type: none"> <li>• GW Model Update Workplan</li> <li>• City of Petaluma ASR Feasibility Study Coordination</li> <li>• General Statewide SGMA Updates</li> </ul> <p><i>Objective: Provide AC with progress updates on GSP Implementation</i></p>	<ul style="list-style-type: none"> <li>• Draft Model Update Work Plan</li> <li>• Presentation (separate)</li> </ul>
6:10 (5 min presentation; 5 min discussion)	<p><b>Standing Item: GSA Operational Updates</b></p> <p><i>Sandi Potter, Administrator</i></p> <ul style="list-style-type: none"> <li>• RFQs for GSP Implementation Technical and Outreach Services</li> <li>• Grant Updates</li> </ul> <p><i>Objective: Provide progress updates on GSA administration and operations</i></p>	<ul style="list-style-type: none"> <li>• Presentation (separate)</li> </ul>
6:20	<p><b>Meeting Wrap Up</b></p> <ul style="list-style-type: none"> <li>• AC Chair Board summary</li> <li>• Summary of Action Items</li> </ul> <p><i>Next GSA Board Meeting: Thursday, October 26, 2023, 4:00pm - 6:00pm</i></p> <p><i>Next AC Meeting: Wednesday, February 28, 2024, 4:30pm - 6:30pm</i></p>	
6:30	<b>Meeting Adjourns</b>	

### Accessibility

If you need special assistance to participate in this meeting, please contact please contact GSA staff at 707-243-8555 or by email ([info@petalumavalleygroundwater.org](mailto:info@petalumavalleygroundwater.org)). Notification of at least 48 hours prior to the meeting will assist staff in assuring that reasonable arrangements can be made to provide accessibility of the meeting.

### Agenda Materials

Any documents provided at the meeting by staff will be available to the public. Any documents provided to the Advisory Committee during the meeting by the public will be available the next business day following the meeting. The agenda and agenda packet materials are available at the Petaluma Valley GSA website: [www.petalumavalleygroundwater.org](http://www.petalumavalleygroundwater.org).

### Public Comment

Members of the public may attend meetings of the Petaluma Valley GSA Advisory Committee and may comment before Advisory Committee consideration of individual agenda items, or during General Public Comment on any matter within the jurisdiction of the Advisory Committee. As needed, time limits may be placed on public comments to ensure the Advisory Committee is reasonably able to address all agenda items during the meeting.

# Petaluma Valley Groundwater Sustainability Agency Advisory Committee Meeting May 17, 2023 | Draft Summary

Contact: Sandi Potter, Petaluma Valley Groundwater Sustainability Agency (GSA) Administrator  
Email: [administrator@petalumavalleygroundwater.org](mailto:administrator@petalumavalleygroundwater.org)

Petaluma Valley GSA website: <http://petalumavalleygroundwater.org>

## Welcome and Call to Order

Heidi Bauer, Chair, opened the meeting at 4:37 p.m. and welcomed the participants which included two new Advisory Committee members. AC members and staff introduced themselves.

## General Public Comments

Mark Lewis – There were approximately eight wells in the City of Petaluma some years ago, (installed in the 70's). If we tapped into those wells, and given the recent wet period, what is the current groundwater status?

Trotta – We will address this in the upcoming presentation.

Monika Botta – I live in the basin. I own five acres with open space and a single residence. I already conserved water before the drought as I have always been concerned about water. At a recent meeting, we heard that a fee would be tabled for a year or two until it was decided how to charge for water. How did you come up with the number to charge me in December 2022? It says nothing on the tax bill about water. People don't even know about the charges, yet we are being charged.

Indigo Bannister offered to speak with Monika Botta and other attendees personally about the groundwater sustainability fee following the meeting. Members of public may relay recommendations for Outreach to Indigo Bannister during discussions.

## Agenda Review, Approval of Previous Meeting Summary

*Objective: Confirm agenda and approve February meeting summary*

Sandi Potter gave a short overview of the day's agenda. She thanked Heidi Bauer for her time served on the Petaluma Valley Advisory Committee, and as chair. As this was Heidi Bauer's last meeting, Potter asked if anyone was interested in the Chair or Vice-Chair position moving forward.

Heidi Bauer nominated Rebecca Ng as Chair, the nomination was seconded by Gary Mickelson. All in favor, none opposed.

Rebecca Ng nominated Lindsey Strain as Vice-Chair, the nomination was seconded by Peter Kiel. All in favor, none opposed.

Jordan Mahrt asked why the ad hoc committees had decided against consolidating the three GSAs at this time (mentioned in the previous meeting summary). Sandi Potter said she would discuss with Jordan Mahrt one-on-one to update him.

Sandi Potter then asked if there were any requested changes to the February meeting summary. No changes were called for, so it will be posted as written.

No public comment.

## Spring Monitoring Update

*Objective: Share initial data from Spring 2023 monitoring*

Mitch Buttress, Technical staff, provided an update on the current groundwater levels as measured from the voluntary and dedicated multi-level monitoring wells this spring in the Petaluma Valley basin. Levels are higher than in recent years and higher than typical spring levels. Total rainfall received in Sonoma Valley\* for Water Year 2022 (October 1 to present) is about 39 inches compared to 25 inches in Water Year 2022 and 10 inches in Water Year 2021. (\*City of Sonoma rain gauge data used due to under-reporting issues with Petaluma Airport gauge).

### Questions/Comments

Lindsey Strain – In one sentence, what is the status of the wells?

Buttress – Generally stable.

Bertsch – Slides 9 and 10. Groundwater levels are at or above the estimate of the base of the channel – what does that say in terms of output? Do we have that type of data for most of the creeks? And what does it say about the efficacy of recharge strategies in one creek versus another?

Buttress – They are almost always gaining situations. There is limited actual physical data.

Trotta – It is one of our main data gaps. There is potential for recharge to occur depending on the types of soils in between.

### Public Comment

Mark Lewis – What about saltwater intrusion? Has it increased? Decreased? Remain unchanged?

Buttress – The data we have seen haven't shown much saltwater intrusion. There is also a lack of data. We are hoping to expand the volunteer monitoring program in the south end of the basin.

Heid Bauer – Have we tapped into the City of Petaluma wells this year?

Trotta – They pumped more from their wells the past two summers during the drought. They don't plan on pumping as much this year as the last two years.

**Ryan Dunbar, City of Petaluma, will find out the information and respond to the group.**

Clayton Engstrom – Why are they putting in wells?

Trotta – They are interested to bolster their backup supply, diversify their well fields, and evaluate aquifer storage.

Becky Ng – All wells being installed are on the west side of the city, not on the east.

Sebastian Bertsch – There are known infrastructure challenges to transfer water from east to west Petaluma so it would be good to have a groundwater reserve on the west side.

## Voluntary Monitoring Program Planning

*Objective: Receive AC feedback on design of voluntary monitoring program, including the following questions:*

- *What should the GSA consider when designing the voluntary monitoring programs?*
- *What should outreach look like for the voluntary monitoring programs?*

Mitch Buttress presented an overview of the existing volunteer well monitoring programs and initial ideas for the design and expansion of voluntary monitoring program planning in the Petaluma Valley.

Buttress presented areas of data gaps for focusing volunteer well monitoring outreach efforts. With the GSA's limited funding and staff resources, it could make sense for the GSA to help organize and support community volunteer programs, provide outreach materials, and offer guidance on monitoring and data collection protocols for well owners to collect their own water-level measurements.

Permit Sonoma is setting up an online portal where well owners can input meter and water-level data. This portal could potentially be used for volunteer programs. Alternatively, the GSA could set up its own portal.

### Questions/Comments

Engstrom – Why did DWR abandon two wells?

Buttress – They are doing that all over the state. If DWR don't have access agreements from owners, the wells are removed from the system.

Jordan Mahrt – Have you thought of giving anything back to the volunteers (e.g., water quality samples)? It could incentivize them.

Bertsch – I would love to volunteer my well, what are the parameters, qualifiers?

Strain – What is defining the limitations on the number of wells in the voluntary system?

Buttress – The number of wells is limited because of staff resource constraints. Maybe we could provide training, and volunteers provide samples/public data in return.

Bertsch – Integration on California State Groundwater Elevation Monitoring (CASGEM) process – is that still happening?

Buttress – CASGEM monitoring wells in the Petaluma Valley basin have been moved to the SGMA portal. The data is still in the same place on the state website. The same wells are monitored, but they are under the SGMA umbrella now.

Strain – Expressing the reason we want to monitor the water, would help.

Mahrt – I read that David Noren was providing monitoring equipment.

Trotta – That is something in the DWR grant we applied for – grant funds could be used for purchasing measuring devices, etc.

Mahrt – I think access to property is a big problem, it would be good to have more remote data.

Gary Mickelson – We need to make sure disinfectant is used on measurement equipment between well testing.

### Public Comment

Mark Lewis – This discussion you had right now, are you just trying to ‘figure out’ volunteer monitoring?

Trotta – We are in initial planning stages.

Lewis – It doesn’t cost anything?

Trotta – There would be no cost to volunteers. This program is more focused on water level than water quality. There is also a voluntary monitoring program for water quality as we need to understand saltwater intrusion better.

Simone Weaver – I have a house in Petaluma and 37 acres of vineyards on Crane Canyon. Have you done any well monitoring on water near vineyards? My animals don’t even drink the water. I am hauling water. You are asking us to use our wells as guinea pigs.

Simone Weaver – I am being charged for water now, taxed on water. I am not volunteering for anyone to come on my property to check my well. I have lived there since the 80’s and have paid a lot over the years. I feel I am contributing to the recharge, I don’t believe in development, there should be a moratorium on development.

Gary Mickelson – Groundwater sustainability in the basin, is state mandated. If the state stepped in, it would cost ten times more.

Lindsey – The fee you are charged is not for your water use, it is for the benefit of our society to enable us to have groundwater for the next 50 years.

Simone Weaver – If that were true, then all the building in Petaluma and Santa Rosa, wouldn’t be going on. People won’t let you on their property, we don’t trust you. We won’t give you information to use against us.

Mark Lewis – I want to find out what is going with groundwater on my property. I have a well and need to monitor, I want to know what is happening with my water.

Simone Weaver – How much money is Marin County paying for water from Petaluma? They don’t pay anything for millions of gallons of water.

Potter – That is outside the jurisdiction of the GSA, so we don’t have the response right now.

### Policy Options Study Kickoff

*Objective: Receive AC feedback on design of policy options study, including the following questions:*

- *What policies are missing from the Policy Options Matrix that should be considered?*
- *Do you have concerns about any of the policies identified in the Policy Options Matrix?*
- *Does the initial implementation ranking in the Policy Options Matrix seem reasonable?*
- *What policies identified in the Policy Options Matrix do you think are the most important to implement first?*

Marcus Trotta gave an overview of the study including the process and scope of the study. The goal is to develop, prioritize, vet, and consider policies within the authorities of the GSA and local land use agencies that support and advance achieving the sustainability goal for the Subbasin.

There are a total of 16 policy options on the list grouped by primary benefits. This is a living list of options that will periodically be updated based on new information and GSA priorities.

### Initial implementation Ranking

- 1a – Able to advance (funding available / 2 options)

- 1b – Able to advance (pending funding availability / 3 options)
- 2 – Able to advance pending consultation with adopting agency (3 options)
- 3 – Develop more information, reconsider later (5 options)
- 4 – Reconsider based on future potential need or additional information (3 options)

Trotta asked for input from the Advisory Committee on preliminary policy option approaches and implementation ranking.

#### *Questions/Comments*

Engstrom – Why are people hauling water if not for drinking? Construction?

Trotta – We are trying to get a better handle on usage, there is no data unless water is specifically hauled for drinking water.

Engstrom – How many discretionary permits are you doing now?

Trotta – About six, or less, per year in Petaluma Valley.

Rebecca Ng – I would prioritize the groundwater education and engagement program (currently 1b).

Mahrt – Water hook-up is complicated and difficult; it requires close coordination between the city and county.

Mickelson – GSA to review well permits? What are the criteria for the GSA, and the timing?

Trotta – We are starting to learn that; we are required to do reviews for certain well permits. We have our first referral for review coming up now. Under the drought order, the GSA needs to establish the well won't impact the ability for the basin to achieve its sustainability goal.

Engstrom – How long does it take to review permit requests?

Trotta – Set up and procedure take time. Once the process is set up, it will be quicker.

Engstrom – It would be good to have a form/checklist, then you would have the information upfront.

Bannister – There is a form on the website now.

Bauer – Are GSAs doing this in other counties?

Potter – The Executive Order required that the GSA made the determination of well drilling during the drought, now the county has carried it over to the public trust area. We are hoping to streamline the process.

Trotta – The other possibility would be for the GSA to provide Permit Sonoma the types of questions we need answered.

Bertsch – One missing policy might be coordination with PRMD.

Send any additional input to Marcus within one week. The topic will be discussed again at our next meeting.

#### *Public comment*

Mark Lewis – How does hierarchy work in the county with development? Do you have a strong voice in the county or are you an advisory group?

Potter – We have a Board of Directors for the Petaluma Valley GSA made up of five elected officials. Two, David Rabbitt and Susan Gorin, are members of the Board of Supervisors. We work collaboratively with the other two GSAs and with Permit Sonoma and the county government. We are two separate agencies but there is a lot of overlap.



Simone Weaver –

- 1) Are you going to continue to sell Scott Nelson water so he can take water to his pot farm in Petaluma?
- 2) There are reports of filling water tanks on a vineyard and trucking it away. Supervisors David Rabbitt and Susan Gorin know about it but, nothing has been done.
- 3) Are you going to revisit well permits given to vineyards who said they were putting in residential wells but installed commercial wells?

Potter – The GSA doesn't issue well permits. This agency doesn't have a regulatory role on this issue. That is why we are trying to develop policies for the future to formalize relationships and have policies on water hauling, etc.

Weaver – We could help you, but you are villains to us, you want to monitor our wells, you want to tax us. I have been the best ambassador of environment that I can be, on my property. I have photos of neighboring water meters off the vineyards, 37 acres taking four million gallons, it is insane.

Potter – We appreciate the conservation and would like to work together. Thank you for coming to the meeting.

Weaver – Then stop taxing us. You don't pay for our equipment, electricity, etc.

John King – It is my understanding that Sonoma Water is obligated to almost triple its export to Marin County to 28 billion gallons. What year do you expect it to reach that target amount so they can build an additional 30,000 homes?

Trotta – I am not aware of tripling of exports to Marin County.

### Standing Item: GSA Operational Updates

*Objective: Provide progress updates on GSA administration and operations*

The Administrator report is in the packet and includes details of the below.

- FY 23-24 Calendar – 3 AC meetings, 4 Board meetings, dates are in the packet.
- FY 23-24 Budget & Fee – Board of Directors approved the preliminary budget at their March meeting. They did this without having to raise the \$40 fee currently subsidized by the county. Many fee corrections have been made that affected our budget.
- Integrated Climate Adaptation and Resiliency Program (ICARP) Grant Opportunity – New opportunity for grant funding that focuses on resiliency.
- Legislative Advocacy for small GSAs. Senator Maguire asked for \$5 million support.
- Well Ordinance Updates Approved – Tomorrow, the new well ordinance goes into effect.
- AC Chair – Covered at the beginning of the meeting.

### Questions/Comments

Engstrom – Do you have the Level 1 conservation measures?

Potter – They are on the county website; we can get them to you.

No public comment.

### Summary of Action Items / AC Chair “Board Summary”

Sandi Potter once again thanked Heidi Bauer for her service and Heidi Bauer thanked the team for serving.

Sandi Potter acknowledged the members of public for attending and noted they might not have been familiar with the Question/Comment process. She also added that she has been working in local and state agencies since 2001 and has attended hundreds of meetings. She expressed her disappointment for the lack of respect at this meeting.

### *Questions/Comments*

Mark Lewis – Are the transcripts available online?

Bauer – Meeting summaries are available online, but audio recordings are not. Please go to <https://petalumavalleygroundwater.org/meetings/>.

Heidi Bauer thanked everyone for participating and adjourned the meeting at 6:35 p.m.

The next Petaluma Valley Board meeting is Thursday, June 22 4:00-6:00pm and the next Advisory Committee meeting is Wednesday, September 27, 4:30-6:30pm.

### *Attendees*

#### *Advisory Committee Members - Attending*

Clayton Engstrom  
Gary Mickelson  
Heidi Bauer  
Jordan Mahrt  
Lindsey Strain – departed 5:55 pm  
Peter Kiel – departed 6:30 pm  
Rebecca (Becky) Ng – departed 6:30 pm  
Sarah Raker  
Sebastian Bertsch

#### *Advisory Committee Members - Absent*

Eugene Camozzi

#### *Staff / Presenters*

Sandi Potter, PV GSA Administrator  
Marcus Trotta, Plan Manager  
Mitch Buttress, Technical Staff  
Indigo Bannister, GSA Staff  
Simone Peters, GSA Staff (recording meeting summary)

#### *Other Attendees*

Ryan Dunbar, City of Petaluma  
Andy Rodgers, Administrator SRP - arrived 5:00pm  
Mark Lewis, member of public  
Monika Botta, member of public  
Simone Weaver, member of public  
John King, member of public  
3 other members of public

# Petaluma Valley Groundwater Sustainability Agency

TO: ADVISORY COMMITTEE  
FROM: Marcus Trotta, Plan Manager  
DATE: September 20, 2023  
SUBJECT: Policy and Program Options Study Update

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## Summary

One of the management actions included in the GSP is GSA Board consideration of potential policy options and programs to implement near-term or sometime in the future. This management action focuses on advancing programs and actions to help achieve and maintain sustainable groundwater conditions within the Basin. The GSA is studying and planning both demand side and supply side measures and this staff report presents an initial description of potential policies and programs the GSA could consider developing to supplement supply side projects which are being pursued concurrently, such as large-scale recharge or recycled water projects, to help achieve and maintain sustainability.

For the Advisory Committee's May meeting, GSA staff developed and provided a preliminary draft inventory, assessment and a working draft implementation ranking of possible policies the GSA Board could consider adopting or recommending to other agencies. The list of potential policy options is intended to be broad and adaptive - a "living" list which can periodically be updated based on new information, changing groundwater conditions, stakeholder input, or future GSA Board priorities.

This staff report recommends a phased and "condition" based approach to considering and developing policies and programs with potential options grouped into the following categories:

- Continue or Initiate Planning/Implementation
- Further Evaluate
- Place On-hold, Pending Future Need or New Information

The following sections provide (1) a summary of AC input and (2) a description of staff's recommended phasing and next steps for each option, including a summary of ongoing work to further evaluate the benefits, costs and impacts of certain options.

## Advisory Committee Input

The Advisory Committee discussed the possible policies and programs during the May 2023 meeting and provided additional input in writing to GSA staff to guide refinement and prioritization of the options prior to bringing to the GSA Board for initial discussion and input in October 2023. Advisory committee members were asked to provide responses to the following questions:

- *What policies are missing from the Policy Options Matrix that should be considered?*
- *Do you have concerns about any of the policies identified in the Policy Options Matrix?*
- *Does the initial implementation ranking in the Policy Options Matrix seem reasonable?*

- *What policies identified in the Policy Options Matrix do you think are the most important to implement first?*

A compilation of Advisory Committee member input and comments for all three Sonoma County GSAs was provided to AC members, along with a written update on August 15, 2023. Some of the key themes from the input received include:

- Requests for additional information regarding the cost and benefit (eg, estimated reduction in groundwater use) of the policies and programs.
- Recommendations for grouping or tying policies and programs to basin conditions, such as: geographic areas experiencing known or potential problems; estimated extraction in relation to sustainable yield; or occurrence of minimum threshold exceedances.
- Recommendations for including additional policies and programs, including supply-side (recycled water and recharge) projects, water quality programs for domestic well users, incentives for destruction of improperly abandoned wells, creating mitigation opportunities for needed projects, investigating “land repurposing” strategies.
- Caution in recommending policies or programs which may conflict with the policies or goals of other agencies.
- Caution in recommending policies or programs that could place GSA in position (or perceived position) as the “approving entity” for land use related permitting and preference for providing criteria or analysis to the permitting agency which the GSA would like considered during permitting process.
- Concern for increasing cost and timeline for permit reviews.
- Preference to defer to Permit Sonoma for more stringent or controversial policies and programs.
- Concern for potential to create inequities between different categories of groundwater users.
- Concern that voluntary measures will not be effective.
- Support for starting with “lower-hanging fruit” policies and programs, such as voluntary water-use-efficiency, voluntary metering, and groundwater user education and engagement.

This information will be incorporated into the further evaluation of the policies and programs, as summarized in descriptions of associated options described below.

### **Recommended Approach to Planning and Implementing Policy and Program Options**

This staff report recommends a phased and “condition” based approach to considering and developing policies and programs. Note that some of the options have been consolidated or renamed from the preliminary matrix of options to clarify and streamline the list of options where applicable. These revised potential options are grouped into the following categories:

#### Continue or Initiate Planning/Implementation

- Voluntary water-use efficiency (WUE) program (continue)
- Groundwater user education and engagement program (continue)
- Voluntary metering program (initiate)
- Encourage/incentivize recharge enhancement actions and projects (initiate)
- Consideration of GSP criteria for discretionary projects (initiate)

### Further Evaluate

- Encourage/incentivize use of available alternative water sources
- Align requirements of the amended well ordinance throughout the entirety of GSA's jurisdiction
- Well permitting review/well construction recommendations
- Mitigation opportunities for projects (new)

### Place On-hold, Pending Future Need or New Information

- Mandatory metering program for non-de minimis users
- Groundwater allocation framework
- Mandatory extraction limitations
- Groundwater trading program
- Drinking water well mitigation program
- Permitting and accounting of water hauling
- Land repurposing strategies (new)

Details for each of the policies and programs are described below.

### ***Continue or Initiate Implementation***

Staff recommends the below programs be initiated or continued. These include activities (1) specifically proposed for implementation within the GSP, (2) have an existing or likely funding source, and/or (3) are not likely to be controversial. It is anticipated that continuation and initiation of these activities will be considered for direction by the GSA Board at their October 2023 meeting.

Voluntary water-use efficiency (WUE) program – Develop and fund a voluntary program to deliver conservation tools and incentives to groundwater users and monitor results of WUE measures.

- *Goal:* Reduce groundwater extraction through voluntary measures
- *Objectives:* Address or mitigate groundwater level declines and foster the adoption of practices which promote groundwater sustainability actions by groundwater users
- *Benefits:* ~1,800 AF in reduced groundwater extraction estimated in GSP. Reduction in groundwater use can support the maintenance or increase of groundwater levels and maintain groundwater extraction within the sustainable yield.
- *Costs to implement:* ~\$100K for assessment and up to \$600K for pilot program.
- *Other considerations:* Concerns that voluntary measures will not be effective or quantifiable.
- *Recommended next steps:* Solicitation and scope development for consultant services to assess groundwater user demand characteristics, existing levels of water-use efficiency, and provide recommendations on preferred strategies for implementation, including measures to quantify benefits.

Groundwater user education and engagement program: - Develop program of general groundwater and water well education to share best practices for groundwater users and information on basin conditions.

- *Goal:* Broaden community awareness of groundwater to foster information sharing between GSA and groundwater users and encourage practices that improve monitoring

- and resiliency of groundwater resources.
- *Objectives:* Engage and share information with all groundwater users on the importance of proper well maintenance and groundwater monitoring. Promote and facilitate sharing of groundwater data with GSA that support filling of data gaps, such as groundwater-level, groundwater-use, and groundwater quality data.
- *Benefits:* Fill data gaps and improve protection and resiliency of groundwater resources.
- *Costs to implement:* Annual costs of \$30 to \$50K.
- *Other considerations:* Can be challenging to reach groundwater-users with messaging.
- *Recommended next steps:* Continue to develop program for general groundwater user education and engagement. Begin coordination with growers for integrating Farm Plans with GSP implementation. Advance ongoing voluntary groundwater level monitoring program.

Voluntary metering program - Develop and fund a voluntary program to provide flowmeters to interested groundwater-users, including installation assistance, training, and reporting.

- *Goal:* Obtain improved information on the distribution and volume of groundwater extraction and promote water-use efficiency efforts
- *Objectives:* Support assessment of potential impacts to beneficial users, improving water budget and sustainable yield calculations. Provide information to promote and evaluate conservation efforts.
- *Benefits:* Fill data gaps, promote efficiency and improve ability to evaluate conservation efforts.
- *Costs to implement:* ~\$200K to \$250K
- *Other considerations:* Concerns that voluntary nature of program will not produce representative data for groundwater use and will not capture larger users that may have largest conservation opportunities.
- *Recommended next steps:* Solicitation and scope development for consultant services to support development of voluntary metering program, including considerations for flowmeter guidelines/standards, data management and stakeholder coordination. Continued coordination with Permit Sonoma on recommended flowmeter guidelines and standards and evaluation of metered data required through revised well ordinance.

Encourage/incentivize recharge enhancement actions and projects: - Share best management practices for and develop incentives for actions that safely enhance groundwater recharge.

- *Goal:* Increase groundwater recharge throughout the Basin.
- *Objectives:* Increase knowledge and adoption of landowner practices that increase groundwater recharge.
- *Benefits:* Maintain or increase groundwater levels and support groundwater-dependent ecosystems through increased dispersed recharge of groundwater.
- *Costs to implement:* ~\$50K for program development.
- *Other considerations:* Need for metered data to quantify benefits for crediting of any recharge activities. Ensure best management practices are followed to avoid water quality or other potential impacts.
- *Recommended next steps:* Review other regulatory program requirements and best management practices for reducing runoff and encouraging infiltration. Develop or share

recommended practices for landowner actions that enhance groundwater recharge. Initiate evaluation of recharge crediting program and development of objective standards, including quantitative metrics, in collaboration with Permit Sonoma's Well Ordinance implementation and Farm Plan coordination.

Consideration of GSP criteria for discretionary projects – Develop GSP consideration criteria for Permit Sonoma Staff to consider during their review of discretionary development projects to evaluate potential impacts to groundwater resources and the GSAs sustainability goal.

- *Goal:* Limit negative impacts to groundwater conditions from future development
- *Objectives:* Ensure the GSP sustainability goal, including SMC, are considered during future land-use determinations. Ensure future development projects incorporate appropriate features that enhance recharge, support monitoring, and mitigate potential negative impacts.
- *Benefits:* Foster coordination with land-use agencies, protect groundwater resources.
- *Costs to implement:* ~\$10K to develop criteria.
- *Other considerations:* Concerns with potential to add delays to permitting timeframes. Concerns with placing GSA in position (or perceived position) as the “approving entity” for land use related permitting.
- *Recommended next steps:* Develop criteria for Permit Sonoma staff to consider or require during project review and require of applicants. Utilize existing approved budget for GSA staff support and coordination with Permit Sonoma as needed during review process.

#### **Further Evaluate**

Staff recommends the below policies and programs be more fully evaluated prior to being considered for planning or implementation. Further evaluation is ongoing and includes continued information compilation, evaluation of potential benefits and impacts, and coordination with other agencies and interested parties. Staff is seeking input at the September 2023 AC and October 2023 Board meetings on the recommended next steps for evaluating these policies and programs, such that they could be further evaluated and discussed at the February/March 2024 AC and GSA Board meetings.

Encourage/incentivize use of available alternative water sources - Encourage and incentivize existing groundwater-users to develop or hook-up to alternative water sources. Actions could include incentivizing groundwater users within municipal service areas to hook-up and utilize municipal systems where and when sufficient municipal capacity is available or providing incentives for rainwater harvesting. Recommend that municipal purveyors/County limit the permitting and construction of new water wells for parcels with an existing service connection to a municipal water purveyor.

- *Goal:* Reduce groundwater extraction through voluntary measures
- *Objectives:* Promote and incentivize use of available and alternative water sources to reduce need for groundwater extraction.
- *Benefits:* Reduction in existing and future groundwater use can support the maintenance or increase of groundwater levels and maintain groundwater extraction within the sustainable yield.
- *Costs to implement:* Uncertain.
- *Other considerations/concerns:* Consider incentivizing well abandonments when connecting to alternative water sources. For alternative sources that include delivery of

municipal supplies, ensure that the municipal supply is not primarily sourced from groundwater wells within the Basin. Consider consistency with existing building permitting process, coordinating with LAFCO, and overlaps and differences between jurisdictions. Hook-up costs could be prohibitively expensive. Concerns that now hook-ups to municipal supplies could be viewed as “growth-inducing”.

- *Recommended next steps:* Continue performing preliminary fact finding on benefits, costs and potential interest with municipal purveyors and groundwater users.

Align requirements of the amended well ordinance throughout the entirety of GSA's jurisdiction-  
Require Level 2 Water Conservation Requirements of new well applications for "non-ministerial well classes" defined by Permit Sonoma.

- *Goal:* Align permitting requirements and promote groundwater conservation.
- *Objectives:* Provide consistent conservation requirements to well permit applicants throughout the GSA's jurisdiction and increase conservation of future groundwater supplies.
- *Benefits:* Consistency for well permit applicants within GSA jurisdiction and adoption of groundwater conservation practices.
- *Costs to implement:* Uncertain, likely less than ~\$20K.
- *Other considerations:* Potential additional costs to future well applicants
- *Recommended next steps:* Continue performing preliminary fact finding on potential benefits, including an inventory and estimate of potential groundwater use for historical well permits issued within the GSAs jurisdiction and within the PTRAs portions of the GSAs jurisdiction.

Well permitting review/well construction recommendations – GSA staff review of well permits that meet certain criteria, such as planned usage or location. Make well construction and permitting recommendations to Permit Sonoma to consider.

- *Goal:* Incorporate GSA sustainability goal considerations in future land use decisions
- *Objectives:* Ensure the GSP sustainability goal, including SMC, are considered during future well permitting review. Assess potential future impacts to sensitive beneficial users and recommend mitigation or monitoring conditions in areas of interest.
- *Benefits:* Promote avoidance of undesirable results and protection of sensitive groundwater users
- *Costs to implement:* Uncertain, likely less than \$20K.
- *Other considerations:* Concerns with regulatory overlap or duplication and potential additional permitting costs and timeframes.
- *Recommended next steps:* Place on hold pending (1) estimate of historical number of “non-exempt” well permit applications and associated groundwater demands (2) issuance of the forthcoming DWR report on well permitting findings and recommendations and (3) administrative draft well standards for the Statewide Model Well Ordinance.

Mitigation opportunities for projects

- *Goal:* Mitigate the potential impacts to groundwater conditions of future projects.
- *Objectives:* Develop guidance and criteria for mitigating potential impacts of future projects.



- *Benefits:* Address potential for undesirable results to occur from future projects. Protect sensitive beneficial users.
- *Costs to implement:* Uncertain
- *Other considerations:* Requires careful consideration to ensure that mitigation measures are commensurate with potential impacts. Uncertainty associated with potential impacts.
- *Recommended next steps:* Place on hold pending consultation with other agencies and additional information on examples from other areas.

***Place On-hold, Pending Future Need***

Staff recommends the below policies and programs be placed on hold pending future need and groundwater conditions. These include activities that (1) require additional information or findings from other activities prior to being more fully considered (2) are more controversial or have significant potential impacts on stakeholders and would require a clear and justified need to implement and/or (3) are significantly lacking available information needed to evaluate. While focused planning for these activities would be placed on hold, staff do recommend continued assessment and monitoring of statewide or other similar efforts being undertaken elsewhere. It is recommended that updates to their recommended status be prepared on a minimum bi-annual basis or as new information indicates more focused planning should be conducted.

Mandatory metering program for non-de minimis users – Require metering and reporting of groundwater extraction for all users extracting more than 2 AFY.

- *Goal:* Obtain improved information on the distribution and volume of groundwater extraction and promote water-use efficiency efforts
- *Objectives:* Support assessment of potential impacts to beneficial users, improving water budget and sustainable yield calculations. Provide information to promote and evaluate conservation efforts.
- *Benefits:* Fill data gaps, promote efficiency and improve ability to evaluate conservation
- *Costs to implement:* Uncertain
- *Other considerations:* No existing budget, potential reluctance of funding agencies to fund. Costs for meter infrastructure and ongoing meter maintenance and data reporting/compilation, need for any enforcement. Potential resistance from groundwater users.
- *Recommended next steps:* Place on hold, evaluate in the future as needed based on basin conditions and results of voluntary metering program.

Groundwater allocation framework- Develop a framework to allocate the average annual sustainable yield to groundwater users.

- *Goal:* Provide fair and equitable groundwater allocations to groundwater users.
- *Objectives:* Develop an allocation framework to fairly assign portions of the average annual sustainable yield to groundwater users that takes existing water rights into consideration. Provide certainty to groundwater users on groundwater availability and achieve sustainable yield.
- *Benefits:* Maintain groundwater extraction within sustainable yield and avoid undesirable results.

- *Costs to implement:* Uncertain
- *Other considerations?* Metering program would be needed to verify compliance. Potential for economic impact or financial hardship to groundwater users.
- *Recommended next steps:* Place on hold, evaluate in the future as-needed based on basin conditions and improved information on parcel-scale extraction.

Mandatory extraction limitations – Mandate limits on groundwater extraction to groundwater users.

- *Goal:* Reduce groundwater extraction
- *Objectives:* Mandate limits on groundwater extraction for potential situations where significant and unreasonable impacts to beneficial users (i.e., undesirable results) are occurring or are imminent and planned projects and management actions are not ready or are determined to be insufficient to reach and/or maintain sustainability.
- *Benefits:* Reduction in existing and future groundwater use can support the maintenance or increase of groundwater levels and maintain groundwater extraction within the sustainable yield.
- *Costs to implement:* Uncertain.
- *Other considerations:* Metering program would be needed to verify or enforce limitations. No existing budget, potential reluctance of funding agencies to fund. Potential for economic impact or financial hardship to groundwater users.
- *Recommended next steps:* Evaluate in the future as needed based on basin conditions, such as occurrence of undesirable results and results of voluntary WUE program.

Groundwater trading program – Develop a groundwater trading program or water market.

- *Goal:* Maintain groundwater extraction within sustainable yield
- *Objectives:* Establish rules and reporting mechanisms for groundwater users to share portions of their groundwater allocations.
- *Benefits:* Provide flexibility to groundwater users in maintaining extraction within sustainable yield and avoiding undesirable results.
- *Costs to implement:* Uncertain.
- *Other considerations:* Requires comprehensive monitoring and accounting framework.
- *Recommended next steps:* Place on hold, evaluate in the future as needed should a groundwater allocation framework be established.

Drinking water well mitigation program – Develop a program to mitigate potential impacts to shallow drinking water wells.

- *Goal:* Protect sensitive beneficial users from impacts associated with groundwater level declines
- *Objectives:* Establish criteria to evaluate and mitigate potential impacts to shallow drinking water wells associated with any future undesirable results.
- *Benefits:* Protect beneficial users most sensitive to groundwater level declines
- *Costs to implement:* Uncertain, likely high.
- *Other considerations:* Identification of areas where shallow drinking water wells may be at risk. Challenges with determining whether well impacts are caused by groundwater level declines or other well maintenance or well failure issues.

- *Recommended next steps:* Place on hold, evaluate in the future as needed based on basin conditions.

Permitting and accounting of water hauling – Require permitting, metering, and reporting for potable and non-potable water hauling sourced from groundwater wells within the GSA's jurisdiction.

- *Goal:* Obtain improved information on the distribution and volume of groundwater extraction
- *Objectives:* Provide improved information on amounts and locations of groundwater extraction and groundwater use, including groundwater that may be delivered outside of the basin/subbasin. Improve accuracy of groundwater sustainability fee assessments.
- *Benefits:* Fill data gaps
- *Costs to implement:* Uncertain.
- *Other considerations:* Very limited information on locations and potential volume of groundwater extraction for water hauling purposes. Could be very challenging to enforce.
- *Recommended next steps:* Place on hold pending additional information on potential volumes.

#### Land repurposing strategies

- *Goal:* Reduce groundwater extraction and maintain or increase recharge
- *Objectives:* Identifying opportunities and funding strategies/partnerships for programs working with landowners interested in “land repurposing” strategies that are being explored by the state to reduce water use and improve recharge opportunities
- *Benefits:* Reduction in existing and future groundwater use and increase in groundwater recharge can support the maintenance or increase of groundwater levels and maintain groundwater extraction within the sustainable yield.
- *Costs to implement:* Uncertain.
- *Other considerations:* Landowner interest in such a program is unknown. Would require clear guidelines on allowed usage and funding for maintenance of repurposed lands.
- *Recommended next steps:* Place on hold pending additional information on potential volumes.

#### **Attachments:**

1. AC Input for Sonoma County GSAs on Policy Options Matrix from May 2023 meetings

# Policy Options Study Kickoff

## Advisory Committee Comments – May/June 2023

### General Comments

#### SANTA ROSA PLAIN

##### Anderson

*My approach is different: Five stages – A) 6,000, B) 4,000, C) 2,000, D) 0000 and E) minus 2,000.*

- A) Is preferred. Current 6,000 AF cushion (18,000 AF use & 24,000 AF Sustained yield). Policies & Programs are watchful AND preventative. Monitoring AND recharge. Do both: Track demands and reward infiltration. Keep basin in good shape.*
- B) Be careful. Do more of what works to recharge.*
- C) Be concerned. Do more of what works to reduce.*
- D) Be worried. Double efforts on both fronts – hard push to reduce usage and expand recharge.*
- E) Be tough. Time for serious measures. First year – share allocation scheme. Adopt in 2nd year.*

*The point is the policies/programs evolve from and respond to current conditions. Take advantage of the good times to get and keep the basin ready to meet next year's demands.*

*When conditions change, be ready to take the measures necessary.*

*The options vary and are designed (are predetermined) to take measure in response to distance basin is from the Sustained Yield.*

*May need a year or two to emerge from Stage E. SGMA offers a 50-year view.*

- A) Education, Rainwater harvesting, recharge, tracking runoff, water use efficiency rebates, understanding fault lines / streams / contributing watersheds*
- B) Infiltration wells / ponds, ASR*
- C) Trading*
- D) Hauling*
- E) Allocation*

#### SONOMA VALLEY

##### Cornwall

- I can't compare these options very well in the absence of (coarse, relative) estimates of potential effect in terms of ac-ft/year benefit. For example, how substantial is the water used by potential new wells inside municipal service areas? If it's small, then no point pursuing this.*
- Please consider including in the matrix (or in the write-up supporting the matrix) all policy options that were recommended by the SVGMP, even if you explain why they are not worth pursuing. This demonstrates respect for those years of work, and continuity.*
- In general, I favor leaning on Permit Sonoma wherever possible. They already have a regulatory hammer that everyone is familiar with. Let them continue to be the bad guy as much as possible but make their operations more informed and effective by working with them.*

## What policies are missing from the Policy Options Matrix that should be considered?

### PETALUMA VALLEY

#### Strain

- *I'm not sure this is a policy, but focusing on general water user education seems to be important and necessary.*

### SANTA ROSA PLAIN

#### Deicke

- *Well abandonments when connecting to muni (incentives, grants).*

#### Haydon

- *Increase use of Recycled Water and reuse for GW recharge or other uses like irrigation.*
- *Increase Storm Water Capture and reuse for GW recharge or other uses like irrigation.*

#### Martin

- *This would be a later phase idea only to be addressed after low hanging fruit is completed:*
  - *I'd like to explore the possibility of creating mitigation opportunities where there may be projects that must go through that will impact the basin. If there is a possibility of the project proponent contributing financially or otherwise to a "greater good" project where the basin is not meeting objectives or there remain obstacles for implementation.*
- *Identifying opportunities funding strategies/partnerships for programs working with landowners interested in "land repurposing" strategies that are being explored by the state to reduce water use and improve recharge opportunities.*
- *Not giving this a recommendation, but this may be something to explore beyond the permitting of water haulers: Expanding to larger policies and parameters around exporting of groundwater and hauling water outside of basin. There may be projects in the future that will need to do this and finding something that is just and doesn't harm adjacent basins will be critical. (would still be Permit Sonoma project). Not sure of the magnitude or possibility of this even occurring (export).*

#### O'Connor

- *Include a placeholder policy option acknowledging that technical options could be revealed through ongoing data collection and groundwater model improvements.*

### SONOMA VALLEY

#### Allebach

- *SV GSA make de-minimis .5 AFY instead of 2 AFY.*
- *Assess existing well impacts on Public Trust and the ISW SMC.*
- *Create formal depletion area maps with defined boundaries to proscribe these problem areas for other policy and PMA actions.*
- *Tune into County General Plan Land Use Element and Water Resources Element processes to see where GSP interest may intersect; find out what staff to connect with to stay plugged in.*
- *A friendly adjudicated basin where major GW stakeholders take GSP into their own hands and arrive at certainty of GW allocation on a faster time scale.*

- *Establish a deal-making table where major GW stakeholders can try and hammer out fair use policy and fees.*

#### Bundschu

- *There is a missing policy option which needs addressing to have an accurate water budget; that is, what is the figure to be used in the budget's line item for AF required by our Basin's environment? All other entities are accounted for.*
- *Recycled water policies.*
- *A lack of mention in any policy presented so far- there is fresh unused water available in the basin flowing into SF bay from both Sonoma Creek and Arroyo Secco. Thousands of AF annually. Consider by 2030 we determine none of our Sustainability projects have yet reached our goals. Then what?*

#### Carr

- *The priority for policy development and implementation should be the recovery of deep aquifer declines in the two problem areas. While this option will take time to carry out, it needs to be initiated and sustained from the outset. Other (easier) options can be carried out in parallel, but those options, even if funded and popular, should not be allowed to detract from this priority.*
- *While its tempting to prioritize the funded and easy stuff, we need to do what we can to avoid worsening conditions in the deep aquifer. Most importantly, we should avoid the tendency to wait for more complete and accurate data before initiating the necessary work based upon our current understanding of the boundaries and other conditions.*

#### Cornwall

- *Suggest a new "program" (not a policy): plain-language reporting to local newspapers every summer on findings from wells that Permit Sonoma has monitoring data from. Like with the recent report.*

#### King

- *Community awareness about groundwater. Metrics and basin performance can be summarized on GSA home page. Perhaps other stakeholders have a role in helping to raise awareness?*

#### Lieber

- *This is a very well-thought-out document and for the most part I fully agree with it. I thin #2 under Benefit 4 should be changed from M to H under potential stakeholder support as from what I heard at the meeting; this might be a big source of water loss. Secondly, under Benefit 5 this should probably be a higher priority as this seems to be a health and safety issue.*

## Do you have concerns about any of the policies identified in the Policy Options Matrix?

### PETALUMA VALLEY

#### Engstrom

- *Well review timeframe and delays.*

#### Ng

- *Mandatory extraction limits will be difficult to enforce.*
- *Mandatory metering for non-de-minimis users – let Permit Sonoma do that with the use permits and share their information.*
- *Permitting and accounting of water hauling needs to be done but it seems difficult.*

#### Strain

- *I think crediting for recharge can only occur if that property owner has meter on their wells. No point in giving them benefits that may be entirely outweighed by their current water use*

### SANTA ROSA PLAIN

#### Deicke

- *Water quality of domestic well evaluation should be high*

#### Haydon

- *Voluntary water-use efficiency: add Sonoma Water as Partner*
- *Voluntary hook-ups: Add to description, muni systems not using GW, or else we are still using GW.*
- *Limitations on new private well: In description, my question is, Do the Purveyors have the authority the limit well construction? Or do we mean limit Purveyors from installing additional wells?*
- *GSA review of discretionary projects: the GSA is not a Permitting Agency, so we can provide comments only, to be applied by permitting agency,*
- *GSA review of well permits: I recommend we leave this to Permit Sonoma and coordinate with that agency to assure the GSA interests are considered.*
- *Well construction and Permitting recommendations: I recommend Ranking this as a 2. Could do this Immediately after creating type and scope of recommendations. And is Short to Mid Term.*
- *Develop groundwater allocation framework; I recommend Ranking this as 4. Does Not appear to be critical in this basin now.*

#### Martin

- *My municipality is going to have a hard time supporting anything that dictates groundwater users are required to hookup to services within their jurisdiction. Not saying it can't be done – but there are sensitivities about consistency with existing building permitting process, coordinating with LAFCO, and overlaps and differences between jurisdictions.*
  - *Also concerns about ensuring that existing connection fees/demand are paid in full – this could be prohibitively expensive compared to drilling a well.*

- *Would need parameters for when this would be feasible (how far is a reasonable distance required to extend services?)*
- *Worry that some of these policies may create inequity and harm long-term surface water availability to apply a band aid to expanding groundwater use as was projected in the plan. Urban suppliers already pay for surface water, why should they be required to transitioning existing groundwater users to meet the growth demands of rural areas?*
  - *Should the surface water contractors and suppliers be expected to expand their service areas so that rural/ag groundwater use can be expanded elsewhere?*

O'Connor

- *Is there a potential benefit to developing policy options from the perspective of solving hypothetical problems as specific "violations of SMC, including geographic locations? Would that possibly produce some other policy options?*

**SONOMA VALLEY**

Allebach

- *See each policy item below for comments. I am concerned that voluntary measures will not work and not have a large enough effect; I realize the GSA has to give voluntary measures a chance, but let's not waste time if we see they are not working. No more than a year. Supply may not go up, demand management is the stick if supply and voluntary conservation options don't work.*
- *Municipal water letting in adjacent out-of-service area wells is a great idea, however municipal parochialism is likely to foil this idea. How can we incentive this? Give municipal water purveyors a decent break on their ASR aqueduct water prices? We can all edge towards One Water.*
- *I'm also concerned that in the dual nature of GW, private property rights will trump common pool resource rights, and that the GSA may play more to the property rights side. Like the way this agenda item was written, staff should not be scared to lay out a common pool-resource-centered road map that covers sustainable yield for all beneficial GW users. This segues into the real need for universal, basin, non-de-minimis metering to provide true accountability. I'm concerned true accountability will put off as long as possible.*
- *For policy options, a deal-making table should be set up where the principal stakeholders can figure out how to allocate GW and still meet sustainable yield.*
- *For protecting shallow well owners, how will the GSA know if there are issues? There have been shallow well issues in the 8th East/ Napa St East area. Seems like GSA well spacing authority may need to be sued for any new wells.*
- *The least effective, least painful policies will maybe have the highest public support. Seems like the more an option costs, the more I like it bc investment means seriousness and I want to be effective and get GW sustainability done. Bottom line, if voluntary measures don't work and projects/ funds take too much time and supply is not increased, then mandatory measures will be needed. Kudos to staff for pretty much saying this.*

Cornwall

- *"Voluntary WUE program": where is the evidence that this would work in the absence of incentives? Or is the proposal to use incentives?*
- *"Voluntary hookups to municipal water service" New hookups have historically been fiercely*



*resisted by environmental or anti-growth interests because it's seen as promoting growth/sprawl (as in the movie Chinatown). I bet that same reaction would occur with this proposal. So, politically it would be good to consider freezing the existing development intensity of the parcel (or something like that), simultaneous with hooking up the parcel. Or you'd have to do some messaging to show how the program does not increase development potential, does not change underlying zoning, is not happening at the edges of developed areas, or similar.*

- *“GSA review of discretionary projects” and “GSA review of well permits” could maybe be combined. A middle ground on this might be the GSA providing a standard set of questions that have to be answered by project proponents, that Permit Sonoma and/or BZA asks. Or a decision tree. Maybe combine these with revising or eliminating Permit Sonoma’s groundwater availability areas.*
- *“Limit new wells inside municipal service areas”:* *Maybe, in locations with groundwater decline, there’s a public benefit legal argument to justify the infringement on property rights.*
- *“Align requirements”—yes!!*
- *“Develop drinking water well mitigation program”:* *suggest renaming to “protect vulnerable drinking water wells” and adding a means-testing component so that public funds are spent on people who need that help.*
- *Combine “voluntary conservation” and “well owner education” programs. Maybe say explicitly that these programs are low cost, and likely have only a small short-term effect, but could create social acceptability for more intense or mandatory programs or policies later. I’m not clear how this is different from “voluntary WUE program”.*

King

- *A flow meter program should consider the local supply-chain of pump and irrigation companies. A standardized flow meter is likely not feasible.*

Lieber

- *I think this is a good document and plan.*

## Does the initial implementation ranking in the Policy Options Matrix seem reasonable?

### PETALUMA VALLEY

Ng

- Yes

Strain

- *Yes, most policies build on each other in a sustainable way and are well-rounded in their approach to water community management.*

### SANTA ROSA PLAIN

Deicke

- *Volunteering metering program should be prioritized highest of ???*

Haydon

- *I agree with Ranking as presented, with the exceptions noted above.*

Martin

- *Yes, priority should be on establishing voluntary measures, filling data gaps, and establishing conservation and water use management programs. The rankings are appropriate.*
- *The only one I would potentially elevate is developing a framework for crediting recharge projects. I feel like in our outreach and comments received from the ag community during development of the GSP this was communicated to the GSA often.*

### SONOMA VALLEY

Allebach

- *Mostly, see each policy item below for specific comments.*

King

- Yes.

Lieber

- *Other than the item in Benefit 5, I think the ranking is very appropriate.*

## What policies identified in the Policy Options Matrix do you think are the most important to implement first?

### PETALUMA VALLEY

#### Engstrom

- *Recharge possibilities would be very important*

#### Ng

- *Voluntary water-use efficiency*
- *Voluntary metering program*
- *Groundwater user education and engagement program*

#### Strain

- *Voluntary metering program*
- *Mandatory metering for non-de-minimis users – maybe start at a higher threshold (5 AFY?)*
- *Groundwater user education – while our efforts are great, they are not 100% effective. Some members of the public are still confused why we are doing this!*

### SANTA ROSA PLAIN

#### Deicke

- *Voluntary metering, groundwater trading program, hook-ups to muni, education/outreach*

#### Martin

- *1a and 1b are “no brainers”.*

### SONOMA VALLEY

#### Allebach

- **4 WUE #14 overall**

*Thumbs down: rank 0; I don't like it, not effective, don't spend much time and \$ on this because payoff will be low. This may work better for some rural residential (RR) users but not for ag.*

*Voluntary measures w/out being able to see what others are doing makes little incentive to avoid free riding, there's no penalty; those who conserve get the sucker's payoff while unknown users free ride with BAU GW use. Most people won't sacrifice if they see others are not, basic Game Theory. Individual/household sacrifice only works in a community where all are known and publicly accountable.*

- **3 Voluntary hook-up to municipal water #5 overall (if GSA can get the City and VOMWD to stand down.)** *Thumbs down: I like this option a lot but see it as infeasible. I agree with staff's rank of 2; I see this also as a rank 3; too many existing draconian out-of-service area requirements and costs; will meet strong resistance from City and VOMWD. This would be good if City and VOMWD could be reasonable and generous basin team players, but we need to have a sense of a basin team first, not a collection of competing interests that is not at a deal-making table. Stakeholders could make deals like this policy option but there is no context to do it.*

Getting an out-of-service area hook-up is now seriously hard and cumbersome. "When sufficient capacity is available" is already about never because City and VOMWD have circled their wagons to protect existing users.

VOMWD wants a LAFCO sphere study and \$20,000 to hook-up one guy with a problem shallow well, not a good sign. The property I live on is surrounded by City water, but the City has every reason in the world why not to hook it up and my landlord had to pay \$60,000 for a new well with arsenic and we can't drink the well water.

- **2 Limit new private wells in municipal service areas #7 overall**  
*Thumbs up: agree with staff's rank 2; municipal residents should not be able to double down on two water sources while shallow well owners adjacent to service areas can't even get on municipal water. This is worth the risk infringing on property rights bc there are common pool resource rights too, people who double down on two water sources are infringing on the common pool. The GSA needs some spine to stand up for the common pool resource side of GW.*
- **1 Mandatory extraction limits #2 overall**  
*Double thumbs up: Disagree with staff rank of 4, I would rank as 3. This is what needs to happen in depletion areas especially. Users may be happier knowing what they can use rather than an endless technical process where GW use deal making, and fee scales are not on the table.*

#### Fill Data Gaps

- **2 Voluntary metering (for all wells) #16 overall**  
*Thumbs down: Disagree with staff rank of 1b, to me this is 0 or a 3, shift gears to prep for incipient mandatory metering. Same critique as WUE, it won't work, low pay off. In Game Theory, this is the Tragedy of the Commons option; why should I meter and be open to inspection or save water when others are not and use my water savings for their own benefit on turf, pools, golf, extra vineyard irrigation? This is the sucker's payoff. Time for this option would be better spent prepping for mandatory metering of all non-de-minimis wells.*

*This option could be of benefit if reframed to target RR/ de-minimis wells; however, wealthy RR users have no incentive to cut back up to their 2 AFY.*

- **1 Mandatory metering for non-de-minimis wells #1 overall**  
*Thumbs up: Agree with staff rank of 3. Without mandatory metering and a fair RMP network, there will only be a race to the bottom. Without all ag wells (the large bulk of basin GW use at 65%) being metered, there will be no accountability to the whole basin sustainability. If voluntary clearly won't work for the biggest users, at least shorten the time frame before mandatory will be on the table. If we can see the GSA Board will not take hard steps to hold ag more accountable, staff must lead the way by setting the management regime table for them.*

#### Policy Alignment and Agency Coordination

- **1 GSA review of discretionary projects #6 overall**  
*Thumbs up: Agree with staff rank of 1a. This can't just be staff review; send discretionary projects to the AC for an opinion; discretionary projects are likely going to be higher in AFY, the GSA should have oversight and the opportunity for a veto. Not taking legit oversight powers granted by the State*

abdicates the GSA's experienced voice. Charge the applicant for staff time, AC review, and GSA Board decision.

- **3 Align amended SoCo well ordinance with entire GSA jurisdiction #9 overall**  
*Thumbs up: Agree with staff rank of 1a. Consider pushing for de-minimis being .5 AFY. GSA can take a stand, can't get to sustainability with BAU GW use precepts; conservation means cutting back, not figuring out how to keep BAU supply in a future where CA BAU GW use is clearly not on the table. (Lake Sonoma was the lowest it has been, Sonoma Water lucked out with a wet year.) I would also look at taking up more well ordinance recommendations in the amended well ordinance letter sent to the BOS by Rue Furch and Co, for example address that the bulk of GW/ ISW impact is coming from existing wells, and this is where GSAs need to step in. New wells' impacts on PT resources will be a pittance compared to existing wells.*
- **4 GW user education and engagement program #13 overall**  
*Thumbs up: Agree with staff rank of 1b*
- **2 GSA review of well permits #8 overall**  
*Thumbs up: Disagree with staff rank of 3, I rank 2. This is important because GSA people know Sonoma basin, some oversight on Permit Sonoma is called for.*

#### Improve GW Resource Management

- **2 Permitting and accounting for water hauling #10 overall**  
*Thumbs up: Agree with staff rank of 2. Do it ASAP, this is an easy one.*
- **3 Well construction and permitting recommendations #12 overall**  
*Thumbs up: Staff's rank of 3 is OK. This could be ranked as 2, as ongoing monitoring and adjustments to Sonoma County well ordinance are probably called for. To the extent that the new PT well ordinance can be seen as weak tea by environmental beneficial use, avenues should be left open for GSA recommended adjustments.*
- **5 Crediting for recharge enhancement projects #15 overall**  
*Thumbs down: Agree with staff rank of 3. Exactly what SMC will benefit needs to be clarified. This seems like it would not apply to RR wells. Need metering of ag wells to do this, otherwise how to account? Most certainly need objective standards and quantitative metrics. Credit for surface recharge can't be given for deep depletion. If surface aquifer is already sustainable as is and we are in a wet year, why buy the cow when it's already in the barn? Credit should only be for ISW and deep depletion areas, but local recharge projects will not be able to deliver water to the deep system. This should maybe mainly be aimed at the ISW SMC and the surface aquifer system. May need to have this be more applicable in dry years when recharge will make more of a difference.*
- **1 GW allocation framework #3 overall**  
*Double thumbs up: Agree with staff rank of 3. However, this needs to get on the table and deals need to be made. Don't wait for future litigations; smart, pragmatic actors should be able to divvy up a common pie and make a deal. Certainty counts for a lot; the current management regime is full of uncertainty and actors have not really been put up against having to make a*

*deal. Engage the consensus institute group that has been in from the start, staff set the table for making a deal on ag sustainable use.*

- **4 Develop GW trading program #11 overall**  
*Thumbs up: Agree with staff rank of 4. This will need comprehensive monitoring, metering, and thorough accounting.*

Protect beneficial users

- **1 Protect shallow well owners drinking water rights #4 overall**  
*Double thumbs up: I agree with staff rank of 3 and provisionally will say this needs some urgency, don't just put off to a later date, make it a date certain. Shallow well owners can't be hung out to dry by larger users with deep pockets that are, through well competition, drawing down a common resource.*

King

1. *Community awareness.*
2. *Voluntary flow reporting.*

Lieber

- *I believe getting as much metering in place is important so we can reduce assumptions and replace them with actual data. Getting a grant to provide meters should help with this.*
- *The other priority should be reducing waste of water, especially in ag and landscaping applications as these are where most of the water is going. It might be beneficial to look at areas of the world that have severe water scarcities and how they are improving their use of water in these areas. Israel comes to mind.*

# Petaluma Valley Groundwater Sustainability Agency

TO: GSA Advisory Committee  
FROM: Marcus Trotta, Plan Manager  
DATE: September 20, 2023  
SUBJECT: Groundwater Sustainability Plan Implementation Update

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**Summary:** The Groundwater Sustainability Plan (GSP) was submitted on January 29, 2022 by the Petaluma Valley Groundwater Sustainability Agency (GSA) and implementation activities began upon submission of the GSP. On January 26, 2023, DWR issued its approval of the GSP for the Basin. This update provides a summary of in-progress and near-term planned activities for the following implementation components: addressing data gaps for interconnected surface water, GDEs, and groundwater levels, seawater intrusion and initial planning for projects and management actions.

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## Background

Section 7 of the Petaluma Valley GSP provides the implementation plan which describes the scope and schedule for activities needed to comply with the Sustainable Groundwater Management Act (SGMA) and achieve sustainability by 2042. A Five-Year schedule for the primary tasks and activities associated with implementing the GSP has been developed and included as an attachment.

## Summary of In-Progress and Near-Term Planned Implementation Activities (with existing GSA funding)

The attached 5-Year GSP Schedule identifies the completed, in-progress and planned activities related to GSP implementation. While awaiting DWRs final recommendations on SGMA Implementation Grant funding awards (anticipated to occur in Fall 2023), GSA staff has been working on the following GSP implementation components with the limited available budgeted funds: addressing data gaps for interconnected surface water and GDEs, addressing data gaps for groundwater levels and seawater intrusion and initial planning for projects and management actions.

### Addressing Data Gaps for Groundwater Levels and Seawater Intrusion

- *Voluntary Groundwater Level Monitoring Program (VGLMP):* The GSA staff has formed a groundwater monitoring subcommittee comprised of representatives from three GSA Advisory Committees within Sonoma County, along with staff from Permit Sonoma, Sonoma and Gold Ridge RCDs, Sebastopol Water Information Group, and the Sonoma Ecology Center, to further prioritize data gap areas, discuss data collection, reporting, management and quality control, and assist in developing an outreach program. The initial meeting was held on September 5, 2023 included discussion and review of the goals and objectives, data gap areas, monitoring approaches, data reporting and management, data sharing and display, monitoring protocols, and outreach approaches. The overall planned timeline is to initiate an outreach campaign in February 2024 and develop protocols and procedures to implement and begin data collection April 2024

- *Seawater Intrusion Monitoring Network*: GSA staff and subconsultant Montgomery & Associates (M&A), initiated developing a draft approach and work plan addressing data gaps related to characterizing and monitoring the potential for seawater intrusion within the Subbasin.

#### Addressing Data Gaps for ISW/GDEs

- GSA staff and subconsultant M&A have developed an initial draft memorandum for improving the characterization and monitoring of ISW and GDEs within the Subbasin. The memorandum summarizes the existing approach from the GSP, review of previous comments submitted to the GSA related to ISW and GDEs, review of DWR's recommended corrective actions, review of work completed or proposed related to characterizing ISW and GDEs by other GSAs in similar basins, review of adaptive management portion of the recently adopted Sonoma County Well Ordinance, and initial recommendations for studies and collection of new data. The draft memorandum will be circulated to AC members this fall and shared with interested members of the ISW and GDE practitioner work groups to help prioritize and scope activities to address the ISW and GDE data gaps identified in the GSP.

#### Model Update Workplan

- GSA staff and subconsultant M&A have developed a work plan to review and plan out tasks for the necessary model improvements that are relevant to GSP implementation and development of the 5-Year GSP Update.

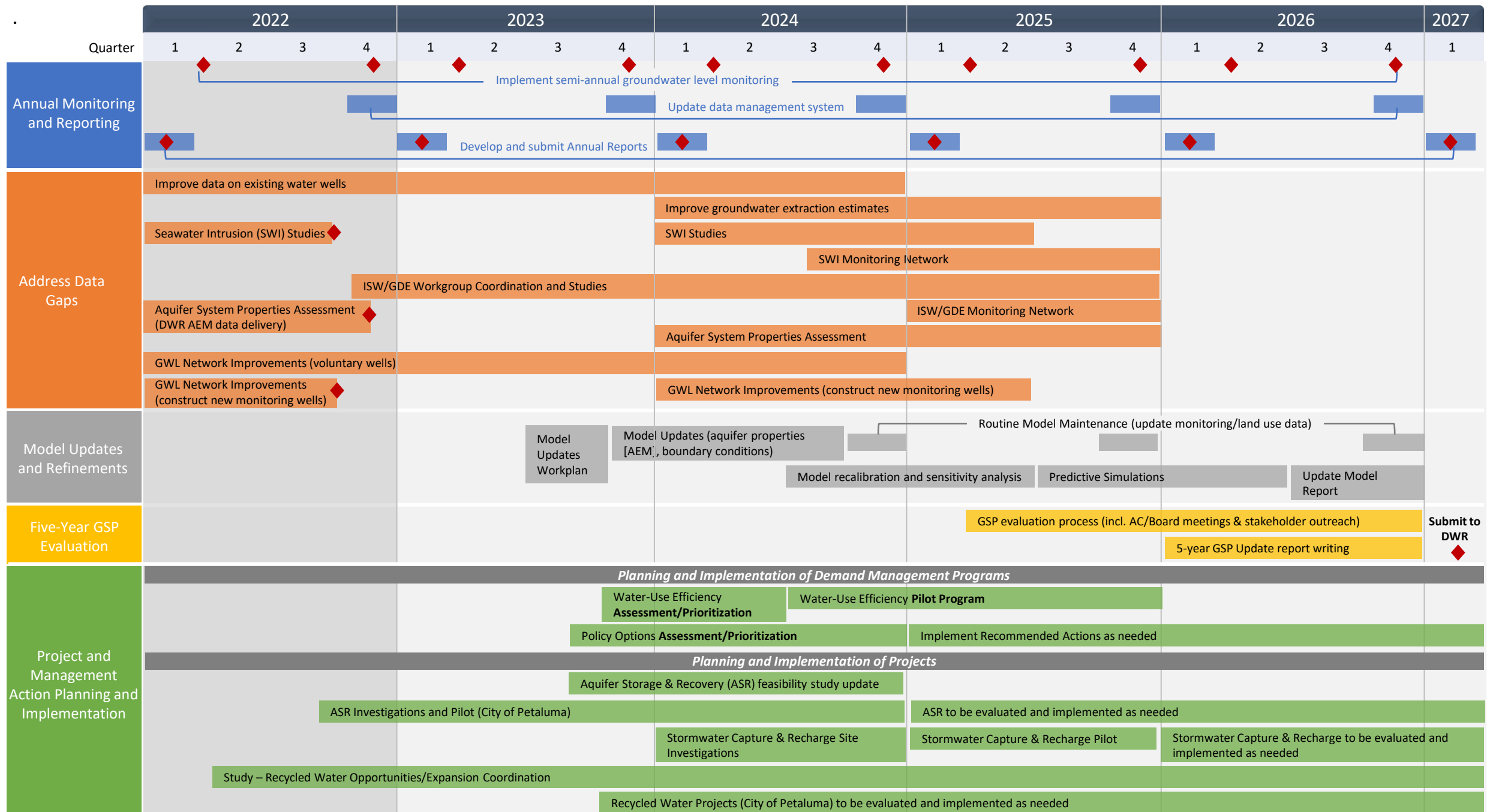
#### Aquifer Storage and Recovery (ASR) Planning

- *Aquifer storage and recovery (ASR)*: In March 2022, the City of Petaluma was awarded \$2.9 million in funding for its Adobe Road Recycled Water Pipeline Project and \$450,000 for ASR planning. Both recycled water expansion and ASR are identified as key projects for planning and future implementation in the GSP to help maintain sustainable conditions within the Basin. GSA staff has participated in meetings with City of Petaluma staff and their consultant in reviewing the technical scope of work for the ASR planning, which includes performance of an ASR pilot study using one of the City's unused production wells to evaluate the feasibility of ASR within the Basin. GSA staff also participated in an initial project introduction meeting with staff of the Regional Water Quality Control Board, which is the regulatory agency responsible for overseeing the water quality aspects of the planned ASR pilot study.

#### List of Attachments

1. Petaluma Valley GSP 5-Year Implementation Schedule
2. Draft Model Update Workplan







# Sonoma Basins: Model Update Workplan - Final Draft



## DRAFT WORK PLAN

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**DATE:** September 6, 2023

**TO:** Marcus Trotta and Andy Rich, Sonoma Water

**FROM:** Lisa Porta, P.E.

**PROJECT:** Modeling and Technical Services Support for Sonoma County Groundwater Sustainability Agencies

**SUBJECT:** Model Update Work Plan for all 3 Basins

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*Note: this document is primarily meant to guide/organize the modeling team and make Advisory Committees aware of overall goals/components/schedule, etc. – it will be a living document that we adapt as we go.*

## INTRODUCTION

The Groundwater Sustainability Plans (GSPs) for the 3 basins within Sonoma County relied on groundwater modeling to support development of historical, current, and projected water budgets and to evaluate projected benefits from implementing Projects and Management Actions (PMA) scenarios. The accuracy of the models is dependent on the data available used to inform their development. As new data become available, assessments will be made to determine if changes to the models may be necessary.

The purpose of this work plan is to review and plan out tasks for the necessary model improvements that are relevant to GSP implementation as described in Appendix 7-A of each GSP. The following 3 primary model improvements are needed to support successful GSP implementation:

1. Model updates: as new data become available, assessments will be made to determine if changes to the model may be necessary. Changes to the model could be small, such as adjusting a parameter that controls runoff, or it may be systemic, such as changing location of a boundary, a fault, or hydraulic properties of a local area.
2. Routine model maintenance activities include updating the model with recent land use, pumping, and climate data, updating the timespan, and recalibrating the model, if necessary.

3. Model predictive simulations reflect new information on alternative future climate scenarios and PMA planning and implementation.

All model improvements incorporated during GSP implementation will build on additional data collection and interpretation activities described in GSP Section 7. As described in GSP Appendix 7-A, these additional data will be used to verify model inputs (Section 2.2), compare against model outputs (Section 2.3), and guide improvements to model structure (Section 3). This work plan builds off the model improvements summary described in GSP Appendix 7-A for each basin for the first 5 years of GSP implementation, including updating input data, improving the model structure, and refining the representation of projected PMAs for the 5-year GSP assessment, due in January 2027.

## **GSP MODELING GOALS**

Groundwater modeling has an important role in GSP implementation and particularly for periodic 5-year GSP evaluation and reviews. Several goals for updating and using the Sonoma County basin models are listed below.

1. Set up a version control system of collaborative file sharing environment for team to work on the model updates throughout GSP implementation to support tracking of activities to reach sustainability.
2. Review new datasets available (such as AEM data and seepage runs), evaluate applicability, and develop a process for model updates; review Data Gaps Plan and identify approach and timeline for adding new data into model improvements.
3. Review DWR's GSP evaluation and recommended corrective actions to inform model improvements.
4. Review and collaborate with United States Geological Survey (USGS) on their most recent model updates for the Santa Rosa Plain Subbasin.
5. Complete priority tasks identified in Appendix 7-A: update data inputs to models and improve model structure.
6. Identify any other tasks that may need to be completed for the 5-year GSP Assessment, such as a revised climate change evaluation.
7. Review and revise model calibration as needed and perform sensitivity analysis.
8. Use revised model to incorporate PMAs and inform anticipated progress to reach sustainability goals.
9. Document model updates and refinements in a technical memorandum to be attached to each Basin GSP Assessment.

Throughout the model updates tasks, the Advisory Committee will be kept informed on progress and will be invited to provide feedback, particularly during the planning and review of scenarios for 5-year GSP Assessment updates.

## **SUMMARY OF BASIN MODELS**

### **Santa Rosa Plain Subbasin**

The Santa Rosa Plain Hydrologic Model (SRPHM) is a thoroughly developed, documented, and tested tool based on GSFLOW. The SRPHM was originally developed by the USGS and revised by Sonoma Water for purposes of developing more accurate water budgets in the Subbasin. Recommended model improvements that are relevant to GSP implementation will be addressed during the first 5 years of GSP implementation.

### **Sonoma Valley Subbasin**

The Sonoma Valley Integrated Groundwater Flow Model, Version 1 (SVIGFM V1) is based on MODFLOW-OWHM, version 1, and was developed by Sonoma Water. Recommended model improvements that are relevant to GSP implementation will be addressed during the first 5 years of GSP implementation.

### **Petaluma Valley Basin**

The Petaluma Valley Integrated Hydrologic Model, Version 1 (PVIHM) is based on MODFLOW-OWHM, version 2, and was developed by the USGS with input and revisions performed by the Sonoma Water modeling team. Recommended model improvements that are relevant to GSP implementation will be addressed during the first 5 years of GSP implementation.

## **COLLABORATIVE FILE SHARING ENVIRONMENT**

During GSP development from 2019 to 2021, we discovered the need to create a modeling file sharing and version control system for team members in various organizations and/or working remotely to efficiently track changes made to model files. The scripts used to manipulate the data, process output, and run the model should be included in a file sharing environment to facilitate replicability and efficiency for future use.

One popular option is to use GitHub (or GitLab) for model file sharing. One Drive can also be used to store model improvements and version control files.

## **PRE-MODEL UPDATE TASKS**

### **Task A-1: Review New Datasets for Applicability in Updating the Model**

Since the models were developed for the GSPs submitted in 2022, several statewide and local datasets have been published. The team will review these datasets to decide if they should be incorporated into the model updates. New datasets to evaluate include the following:

- DWR’s airborne electromagnetic (AEM) survey data
- Updated well log database
- Multi-completion and shallow monitoring well data
- Sonoma Water seepage runs
- Groundwater level data from existing wells
- Streamflow data from new gages

In addition to these datasets, the technical team is also working on filling data gaps with the installation of new monitoring wells and stream gages that can be used to further refine the models. This information will be reviewed to plan for model updates.

### **Task A-2: Review DWR’s GSP Evaluation and Recommended Corrective Actions**

On January 26, 2023, DWR released their evaluation and approval determination of the 3 Sonoma County GSPs. A few recommended corrective actions were included in the respective determinations to help further improve the GSPs, that should be considered and incorporated into the 5-year GSP evaluations by the GSAs. Some of these actions may inform model improvements and will be considered for model updates such as interconnected surface water representation.

DWR is working on a number of new technical guidance documents, including one for interconnected surface water SMC, that will be reviewed for any necessary modifications to the models.

### **Task A-3: Review USGS Updates to Models since GSP Development**

#### **SRPHM**

The USGS has used the Sonoma Water GSP model version of SRPHM as the baseline for further updates to the surface water representation in the model. They have added information on surface water rights on Mark West Creek (MODSIM) and related agricultural diversions (Ag Package) in this area. Based on this new information and related changes to the simulated outputs, the USGS re-calibrated the model to better match observations of the new datasets.

The updated model is anticipated to be made available by the end of 2023. This model will be reviewed, to assess if similar updates should be conducted for the rest of the model domain, and used as the new baseline for further GSP model updates.

### **SVIGFM**

This model is maintained by Sonoma Water and is currently up to date as of GSP development and will be revised for the GSP Periodic Evaluation as per the tasks below.

### **PVIHM**

This model, which has not been revised since GSP development, will be revised for the GSP Periodic Evaluation according to the tasks below. The USGS recently published a detailed data and modeling report<sup>1</sup> to accompany this model and it will be reviewed as part of model updates as well.

## **PRIORITY TASKS IDENTIFIED IN APPENDIX 7-A**

Each GSP included a similar Model Maintenance and Improvements Appendix that listed tasks anticipated to be completed during the first 5 years of GSP implementation and that will inform the first GSP evaluations.

### **Task B-1: Model Input Data Updates**

This task will refine model input data by:

1. Verifying and revising model inputs by further assessing data used in the model against more recently available data.
2. Verifying current model outputs with existing data to assess overall model representation and validation based on more recently available data.

More details for these tasks, by Basin and model-specific, are provided in each respective Appendix 7-A.

### **Task B-2: Improvements to Model Structure**

This task will improve model structure and enhance boundary conditions. A summary of relevant tasks for each model is provided below, with more details presented in each respective Appendix 7-A.

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<sup>1</sup> <https://pubs.usgs.gov/publication/sir20225009>



### **SRPHM**

1. Verify model structure improvements and identify updates needed to the Agricultural Water Use (AG) package inputs.
2. Incorporate updates to model code of AG package.
3. Review how agricultural irrigation practices are implemented in the model.
4. Develop explicit representation of riparian consumptive use.
5. Review and update, as needed, the representation of model boundary conditions, including inflows and outflows. In particular, review and consider any appropriate and necessary modifications to boundary conditions along the Petaluma Valley basin, Healdsburg Area, and Wilson Grove Formation Highlands Groundwater Basin (Wilson Grove Basin).
6. Identify any other structural input updates based on new available data, such as integrating airborne electromagnetic (AEM) data or other field data.

### **SVIGFM**

1. Update model code to MODFLOW-OWHM, version 2 (OWHM2; Boyce and others, 2020).
2. Consider integrating tributary subcatchments into MODFLOW domain (i.e., simulate both the basin and the mountain block).
3. Review and update, as needed, the representation of model boundary conditions, including inflows and outflows.
4. Identify any other structural input updates based on new available data, such as integrating airborne electromagnetic (AEM) data or other field data.

### **PVIHM**

1. Evaluate model sensitivity to consider surface water losses to groundwater and other losses in the watershed surrounding the Basin, and overall model conceptualization in the surrounding watershed areas.
2. Evaluate sensitivity of simulated GW-SW exchange and aquifer heads to hydraulic conductivity distribution along streams in model layer 1.
3. Revise stream diversions, simulated as semi-routed deliveries, to more closely match surface water delivery volumes simulated as non-routed deliveries, and incorporate storage if feasible.
4. Review and update, as needed, the representation of model boundary conditions, including inflows and outflows.
5. Identify any other structural input updates based on new available data, such as integrating airborne electromagnetic (AEM) data or other field data.

## **FIVE-YEAR GSP ASSESSMENT MODEL UPDATES**

The model will be further revised and used for projected simulations to support the 5-year GSP Periodic Evaluation and Assessment, due by January 2027. A succession of tasks will be completed as detailed below.

### **Task C-1: Update Simulation Period**

The SRPHM simulation period is from 1976 through 2018; the SVIGFM simulation period is from 1969 through 2018; the PVIHM simulation period is from 1959 through 2018. For the 5-year GSP assessment due in January 2027, the simulation period for each model will be extended through Water Year (WY) 2025 (September 30, 2025). Therefore, this task cannot start in earnest prior to approximately mid-2025.

As part of extending the simulation period, the following data inputs will be updated and incorporated in the models:

- Update land use with available spatial dataset(s), both inside and outside of the Subbasin, if available.
- Update agricultural irrigation pumping based on new information and land use changes.
- Update rural domestic pumping based on updated parcel database and/or updated rural domestic pumpage estimates, if available; update septic return flows.
- Update municipal and industrial pumping rates, add new wells if necessary.
- Review streamflow diversion locations and rates.
- Update recycled water deliveries and distribute to receiving model cells.
- Update precipitation and reference evapotranspiration.

#### Updates for SVIGFM only:

- Runoff and mountain-front recharge from tributary subcatchments

#### Updates for PVIHM only:

- Freshwater equivalent head in San Pablo Bay and the tidally-influenced reach of the Petaluma River
- Groundwater levels at boundaries between the Basin and Santa Rosa Plain Subbasin, and between the Basin and the Wilson Grove Formation Highlands

## **Task C-2: Assess Model Calibration**

If necessary, recalibration will occur after completing the model update and improvement tasks described above. Model recalibration would entail adjusting model hydraulic properties and other model parameters to improve the goodness-of-fit between hydrologic and hydrogeologic datasets, and their model-simulated equivalents. At a minimum, datasets to be used during model calibration would include the following:

- Groundwater level hydrographs at groundwater-level and interconnected surface water wells, including all new wells
- Streamflow hydrographs from existing and any new stream gages
- Individual low-flow discharge measurements and groundwater-surface water exchange rates collected during seepage runs (for SRPHM and SVIGFM)

A sensitivity analysis may also be deemed necessary on stream parameters to better estimate streambed conductance and improve the correlation between water levels and stream state.

An assessment of model calibration adequacy relative to key sustainability indicators will also be performed.

After completing model recalibration, revised simulated current water budgets will be prepared through the extended simulation period (Task 1 above).

## **Task C-3: Update Future Projected Conditions**

The latest available projected climate science and data will be reviewed and considered for incorporation into the scenarios for the Water Year 2026 through 2072 projected period.

Note: DWR has indicated that they plan to provide updated climate change evaluation guidance. This will be reviewed and assessed for applicability to the Sonoma County GSPs.

## **Task C-4: Simulate Completed and Planned Projects and Management Actions**

A number of PMAs were evaluated using the SRPHM, SVIGFM, and PVIHM (GSP Appendix 6-A). These included implementation of water-use efficiency and other demand reduction projects, expansion of recycled water deliveries to agricultural areas, construction and operation of ASR wells, and construction and operation of stormwater recharge facilities. Specific project details, such as assumptions for water-use efficiency programs, ASR and stormwater recharge volumes and schedules, and infrastructure locations, will be reviewed based on progress made on conceptual project design and initial implementation of management actions and incorporated into the models.

## **Task C-5: Process Predictive Simulation Results for GSP Assessment**

Predictive simulation results based on the updated and recalibrated model, with refined representation of PMAs, will be processed to provide the following:

- Projected water budgets
- Projected groundwater levels relative to Sustainable Management Criteria for RMP wells
- Projected flows between aquifer and interconnected surface water

## **MODEL UPDATE DOCUMENTATION**

Similarly to the 2022 GSP, a complete model update technical memorandum will be developed for each Basin to document major model changes and results to be added to the 5-year GSP Periodic Evaluation and Assessment.