Appendix 1-A
Comments Received on Petaluma Valley Groundwater Sustainability Plan

PETALUMA VALLEY GROUNDWATER SUSTAINABILITY PLAN COMMENTS EXECUTIVE SUMMARY			
DATE RECEIVED	**NAME**	**COMMENTS**	**RESPONSE TO COMMENTS**
COMMENTS RECEIVED BEFORE OCTOBER 1, 2021			
9/7/2021	Robert Pennington	General comment - I recommend shortening this section where possible. A few suggestions of sections that could be shortened include: Discussion of pre-SGMA GMP; History related to basin boundary; geology section (paragraph two of HMC); water budget (perhaps methods, descriotions of climate scenarios and other details could be reserved for main body of report).	Section revised, as recommended.

PETALUMA VALLEY GROUNDWATER SUSTAINABILITY PLAN COMMENTS SECTION 1 INTRODUCTION			
DATE RECEIVED	**NAME**	**COMMENTS**	**RESPONSE TO COMMENTS**
COMMENTS RECEIVED OCTOBER 1-31, 2021			
10-31-2021	Coalition including: The Nature Conservancy, Audubon California, Local Govt Commission, Union of Concerned Scientists, Clean Water Action/Clean Water Fund (Coalition)	Stakeholder engagement during GSP development is insufficient. SGMA's requirement for public notice and engagement of stakeholders is not fully met by the description in the Community Engagement Plan (Appendix 1-E). The GSP states that the GSA Advisory Committee includes representatives from the tribal and environmental stakeholder community, and that the Advisory Committee will continue to meet during GSP implementation. However, we note the following deficiencies with the overall stakeholder engagement process: The GSP documents opportunities for public involvement and engagement through monthly informational emails, the GSA website, public forums, presentations to stakeholder groups within the subbasin, a rural community engagement program, and GSA Board, Advisory Committee and community meetings. There is no explicit identification of a DAC representative on the Advisory Committee or other outreach targeted to DACs and drinking water users. Other than representation on the Advisory Committee, outreach to tribes and environmental stakeholders is described in general terms. The role that the Advisory Committee plays during the GSP implementation process is unclear. **RECOMMENDATIONS: 1.** In the Community Engagement Plan, describe active and targeted outreach to engage DACs and domestic well owners throughout the GSP development and implementation phases. Refer to Attachment B for specific recommendations on how to actively engage stakeholders during all phases of the GSP process. 2. Provide more information on the role of the Advisory Committee during the GSP implementation process. 3. Utilize DWR's tribal engagement guidance to comprehensively address all tribes and tribal interests in the subbasin within the GSP.	Specific stakeholder engagement during various phases of GSP development and implementation is described in Sections 1.4.2. Language added describing specific outreach to drinking water users (rural residential well owners). Language added to Section 1.4 regarding outreach to tribes , environmental and other stakeholders, and in Section 1.4.2.4 regarding the ongoing role of the Advisory Committee. Langauge added to Section 1.4. The community engagement plan will be updated during the GSP implementation process. Language added. Comment noted. Language added regarding post-GSP tribal engagement.
COMMENTS RECEIVED BEFORE OCTOBER 1, 2021			

DATE RECEIVED	NAME	COMMENTS	RESPONSE TO COMMENTS
2/7/2021	Peter Kiel	No comment	Comment acknowledged
1/25/2021	Drew A Buechley	Seems fine and informative. Provided grammatcial, punctuation and style comments.	Comment acknowledged
1/24/2021	Rebecca C Ng	My comments are regarding typos or word choices not content.	Section revised, as recommended
1/21/2021	John Shribbs	Section 1. Good description of the the processes that are going into the formation of the GSA and how it meets state requirements. Terrible description of what is groundwater, what is a GSA, what does it actually do, why does anyone care, etc. Yes we are coming up with plan but no idea what that plan is all about. Introduction should start with what a GSA does and the current need for it, why is state requiring it, etc. Lots of verbiage about process, it is dominating the whole section. Another gripe I have is the many sections about community outreach in process using surveys and social media but very little has been done to date. I doubt most citizens in Petaluma even now what GSA stands for. I have to explain to to most of the people I talk to. The process parts all say what we are going to do but not if it actually happened. Long lists of good intentions. Sounds like it was written to meet state requirements rather than be something public could read to understand what the GSA is or does.	Comment acknowledged.
9/7/2021	Michael Healy	p. 1-4 I wasn't aware that portions of Marin County are included in our Basin. Also, Figure 1 doesn't seem to support that, unless the boundary minimally jumps over the meanders of San Antonio Creek.	Marin County is not included in Basin. Section revised to correct this.

PETALUMA VALLEY GROUNDWATER SUSTAINABILITY PLAN COMMENTS SECTION 2 PLAN AREA			
DATE RECEIVED	**NAME**	**COMMENTS**	**RESPONSES TO COMMENTS**
COMMENTS RECEIVED OCTOBER 1-31			
11/2/2021	Rick Savel	Groundwater basin overdraft cone of depression, the shifting of the southern basin boundary divide separating the Laguna Santa Rosa and Petaluma groundwater basins in the vicinity of the surface watershed divide boundaries, and hydraulic inter-connection “flow reversal” of sub-surface groundwater recharge. (CWD Cardwell,1951). Penngrove’s EIR lawsuit against the city of Rohnert Park found the city’s General Plan EIR inadequate as it had not properly evaluated groundwater drawdown impacts to water supply wells outside the city. The PES Environmental MODFLOW model analysis noted overdraft conditions and a cone of depression of depths up to 200 feet in the groundwater basin due to excessive pumping of the city’s 42 municipal water supply wells. Further analysis of groundwater basin conditions was conducted by the City of Rohnert Park: 2004 Water Supply Assessment and the 2005 Sonoma County Canon Manor West EIR. Both studies identified groundwater basin overdraft conditions and anomalies to the historically documented location (CWD Cardwell,1951) of the Laguna Santa Rosa and Petaluma sub-surface groundwater basin divide. The Canon Manor West EIR noted: “ Groundwater pumping patterns have changed over time in the study area with groundwater pumping increasing significantly in the 1970s and early 1980s. As a result of this pumping increase, groundwater levels declined over a significant portion of the basin and the groundwater divide between Copeland Creek and Lichau Creek shifted southward from its documented 1950 location in the Canon Manor area to its current location in the vicinity of East Railroad Ave. north of the main stem of Lichau Creek.” This shift in the groundwater basin divide induced hydraulic sub-surface inflow to the northern basin effectively capturing recharge occurring in the watershed drained by the northernmost tributaries of Lichau Creek. This change in flow direction represents capture by municipal wells to the north of groundwater recharge that historically flowed to the south.	As waterlevels continue to recover near the boundary of the Santa Rosa Plain Subbasin and the Petaluma Valley Basin, this issue raised by the comment becomes diminishingly important. Now that waterlevels near the boundary are nearly flat, there is likely no longer a 'flow reversal'.
10-31-2021	Coalition	RECOMMENDATIONS: Provide a map of DACs and more information about the population of each identified DAC. 1. Identify the sources of drinking water for DAC members, including an estimate of how many people rely on groundwater (e.g., domestic wells, state small water systems, and public water systems). 2. Include a domestic well density map for the subbasin. 3) Include a map showing domestic well locations and average well depth across the subbasin.	Figure 2-3 modified to show DACs . Language added regarding domestic well numbers. Current information regarding specific well types are inadequate to show domestic well density, locations and average well depths.
COMMENTS MADE BEFORE OCTOBER 1, 2021			
1/24/2021	Rebecca C Ng	1) The font styles and font sizes change in the document. Some areas are in the Table of Contents and bottom of page 12 and top of page 13. The Table of Contents is in a different font from the rest of the chapter.	Section revised, as recommended
		2) 2.8 of the Table of Contents, titled "Additional GSP Elements (Reg. 354.8(g))" should be organized better and differently. Should the City of Petaluma General Plan 2025 be moved to be with the City of Petaluma General Plan in 2.6?	TOC reorganized.
		3) On page 4 in Section 2.2 , Table 2-1 is referenced but Table 2-1 was not provided as part of Chapter 2.	Reference removed

DATE RECEIVED	NAME	COMMENTS	RESPONSES TO COMMENTS
		4) It is noted on page 7 in Public Water Supply Well Monitoring, that SWRCB monitors water systems that serve the public with 15 or more connections and data is available. for those. You might know that Sonoma County Environmental Health monitors State Small Water Systems with 4 - 14 connections and Transient and Nontransient noncommunity water systems. Environmental Health would probably share water quality information with the PVGWSA.	Comment acknowledged
		5) Spaces needed to separate words: Last sentence on page 7; first paragraph of Stormwater Management Planning, third sentence.	Section revised, as recommended
		6) First sentence of last paragraph on page 9, "integrates" should be integrate.	Section revised, as recommended
		7) Fourth paragraph of Water Conservation Program: ",,,new performance measures for CII water use". What is CII?	Acronym spelled out
		8) First sentence at top of page: spell out VOMWD.	Section revised, as recommended
		9) In the same paragraph discussing Sonoma-Marin Saving Water Partnership within the Subbasin, why is the city of Sonoma and VOMWD in the Petaluma Valley groundwater basin and the city of Petaluma is not?	Reference removed and corrected
		10)In section 2.7, Well and Project Permitting Policies and Procedures, the well permitting and Project permitting is repetitive. Can the project permitting section be re-written so it's not a repeat?	Section revised, as recommended
3/10/2021	John Shribbs	Abbreviations in figures aren't defined and are confusing	Figures revised
		Will there be a description of the figures?	Figures are described in text
		Generic references to studies and plans, but no analysis	Comment acknowledged
9/9/2021	Chelsea Thompson	The San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) implements water quality regulations in the watershed, including establishing Total Maximum Daily Loads for pathogens and sediment in Sonoma Creek, adopting General Waste Discharge Requirements (WDRs) for vineyard discharges, and for stormwater and wastewater discharges.... **Throughout paragraph, SFGBRWQB change to SFBRWQCB**	Section revised, as recommended
		Pg 2-2. Within the Basin, UWMPs are prepared by Sonoma Water (as a wholesaler; Sonoma Water 2016) and the City of Petaluma (as a water retailer; City of Petaluma 2016). The two UWMPswere adopted in 2016 and were updated in 2021. The UWMPs discuss and describe thefollowing:...**Update UWMP reference to adopted 2020 Plan?**	Section revised, as recommended
		Pg 2-9. The Sonoma-Marin Saving Water Partnership represents 10 water utilities in Sonoma and Marin counties that are signatories to the California Urban Water Conservation Council (CUWCC) and have joined to create a regional approach to water use efficiency. Within the Basin, these utilities include the City of Petaluma and Sonoma Water. Each of these member utilities have water conservation programs to assist their communities in reducing water use. Water conservation and water use efficiency program elements specific to the Sonoma-Marin Saving Water Partnership include the following: **Update CUWCC with California Water Efficiency Partnership (CalWEP)**	Section revised, as recommended

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9/7/2021	Robert Pennington	It would be useful to identify streams that are listed as critical habitat for threatened and endangered aquatic species.	Habitat dependent streams are identified in Section 3, in groundwater-dependent ecosystem discussion.
COMMENTS MADE ON PRIOR COMBINED SECTIONS 1 AND 2			
DATE RECEIVED	**NAME**	**COMMENTS**	**RESPONSES**
1/4/2019	Chelsea Thompson	In 2014, the State of California enacted the Sustainable Groundwater Management, including in the Petaluma Valley	Section revised, as recommended
		I don't believe there is an active USGS stream gauge on the Petaluma River. There was one at Copeland but it has been inactive since October 2016.	Section revised, as recommended
		There is no Figure 2-7b, there are two Figures labeled 2-7c.	Figure revised
		IRMWP, change to IRWMP	Section revised, as recommended
		Signatories to California Water Efficiency Partnership (CalWEP), no longer to CUWCC.	Section revised, as recommended

PETALUMA VALLEY GROUNDWATER SUSTAINABILITY PLAN COMMENTS SECTION 3 BASIN SETTING			
DATE RECEIVED	**NAME**	**COMMENTS**	**RESPONSES TO COMMENTS**
COMMENTS RECEIVED OCTOBER 1-31, 2021			
10/25/2021	Roy Smith	The basis for policies and actions in this GSP stem from a 50 year predictive model of 30 years of "normal" rainfall followed by 20 years of severe drought. Such a model is not supported by current Climate Change science, but rather opts for a highly optimistic near-term environment, and a future stress run without consideration of compounding factors. Future conditions are far more likely to be non-linear. That is, precipitation patterns will not reflect historic periods, but rather shift back and forth violently, just as we have seen with this year's severe drying followed by sudden flooding deluge (13" of rainfall total last year, and then10" in the last 48 hours). The basis for such volatility can be found in the increasing loss of temperature differential between the Arctic and temperate North American continent. As this differential diminishes, the dominant jet stream band breaks down to a greater and greater degree, leading to incipient high pressure off the California coast, heat domes, and monsoon precipitation events. It is possible to predict the breakdown of the jet stream by looking at modeling for the loss of Arctic sea ice, which is now expected by the end of this decade. This implies that an assumption of 30 years of "normal" wet years moving forward is wildly optimistic, and misleading as a basis for planning	See appendix 3-E for source of data used in projected model simulations. The climate projection used in the future simulations is model output from a global circulation model. The climate does reflect the current Climate Change science.
		Predictions for groundwater pumping rates for land owners during prolonged drought assume household "efficiencies" comparable to urban residents, and, if need be, mandated monitoring and restrictions on extraction. However, this fails to take into account the larger system impacts such a severe, prolonged drought would have on the residents of Sonoma County. When (not if) we enter a cycle of prolonged drought and heat, agriculture in the Central Valley will also be experiencing equal or greater stress. The precautionary principle must assume not just a local water availability issue, but a collapse in California's water-intensive agricultural sector. In response to diminished supply and increased cost for food, land owners in Sonoma County will be compelled to plant crops or fodder on scale. Intensive food production in our dry-summer climate is extremely water demanding, even with modern technology, and a shift to cropping would result in groundwater pumping far exceeding the models employed in this GSP. Attempts by local government agencies to limit pumping at the cost of a communities ability to feed themselves would lead to rampant social crisis.	Comment noted.

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10/29/2021	Sebastian Bertsch	Fig. 3-40: The budget is predicated on abnormally wet years at the start of the model. The budget should also be provided with a more realistic precipitation prediction. Table 3-2: The current water budget does not consider that there may be very dry years during the life of the GSP, such as we have experienced in the past. This water budget is dependent on an unrealistic hope for consistent high rainfall years.	The approach used in these GSPs is based on data and models vetted by the scientific community and applicable to CA. Therefore, the modeling analysis used the best available science that was available at the time the GSP was developed. The California 4th Climate Change Assessment is the current benchmark in climate change analysis for the state.The chosen model includes an extremely dry and hot period near the last 20-years of the simulation period. Adaptive management and updates to data and science in the future will allow to re-evaluate climate scenarios and effects of GSP implementation through the assessments every 5 years.
11/2/2021	Rick Savel	Below is an excerpt from a report (see SAVEL PV SRP_11022021 comment) I compiled and submitted to PRMD regarding Penngrove area Community Separator recommendations. #3) involves the shifting of the southern basin boundary divide separating the Laguna Santa Rosa and Petaluma groundwater basins in the vicinity of the surface watershed divide boundaries and hydraulic inter-connection “flow reversal” of sub-surface groundwater recharge. (CWD Cardwell,1951). My question is: **#1) will this unresolved "sub-surface" divide condition be taken into consideration when determining the basin boundaries for further analysis and evaluation of existing and future conditions and #2) as the EIR data and analysis pointed out, this involves drafting recharge from Lichau Creek which is identified as Steelhead bearing creek.** According to the State Fish & Game Lichau Creek Survey Report (See Savel_Attchmnt1_PetalumaR_LichauCr_Willowbrook), conducted summer 2007, completed March 2008, Lichau Creek should be managed as an anadromous, natural production stream. **What impact is this hydraulic inter- connection “flow reversal” of sub-surface groundwater recharge having on Lichau Creek recharge flows on Penngrove wells and fish habitat?**	Obtaining improved information on the subsurface nature and hydraulic communication accross Subbasin boundaries (including potential changes in the direction and magnitude of groundwater gradients) is identified as a primary data gap in Section 3.1.8. Planned studies and information gathering to address this data gap are described in Section 7.2.4 and include evaluation of geophysical data collected across boundaries, performance and analysis of aquifer tests, and evaluation of future groundwater-level monitoring data. It is noted, that subsequent to the conditions described by the commentor, groundwater levels within the southern portions of the Santa Rosa Plain Subbasin have recovered, reducing the potential for any future 'flow reversals' across the boundary.

DATE RECEIVED	NAME	COMMENTS	RESPONSES TO COMMENTS
10/12/2021	Deborah Eppstein	Thank you for all your work on these GSAs. Although I not am a water expert, I am a scientist. As a scientist, I am very concerned that the climate model chosen, predicting wetter weather for the next 20 years, does not reflect best current knowledge concerning hotter drier climate, with significantly more water loss to evaporation-transpiration. Even with a slightly wetter model, predictions are for precipitation to come in shorter, more intense periods during the winter, with much less during the former shoulder periods of spring and fall. Even if greater total precipitation, this pattern causes more runoff and less ground water recharge. Also climate predictions include more intervening years of severe drought which further cause ground water levels to lower, even if they are followed by wetter years. Using only a model that predicts more than average rainfall for the next 20 years is ignoring the science. At very least I recommend that you use a range of options, and prepare for the worst scenario. If updates are made every 5 years, we could be left high and dry (literally) in 5 years if we base our current planning on a wetter next 20 years, but that does not materialize. I have not down an exhaustive search, but for example, see article below by McEvoy et al (2020): Earths Future Vol 8, issue 11 Nov 2020; Projected Changes in Reference Evapotranspiration in California and Nevada: Implications for Drought and Wildland Fire Danger. Daniel J. McEvoy, David W. Pierce, Julie F. Kalansky, Daniel R. Cayan, John T. Abatzoglou. First published: 29 October 2020. https://doi.org/10.1029/2020EF001736 Also, what analysis is being done for all the unincorporated areas that are not within the three GSAs? Both agriculture and cannabis as well as homes use ground and surface water in these areas, and this usage may increase significantly if there is not a solid water availability analysis to guide future permitting. Even the state Department of Cannabis Control has asked the county (through Permit Sonoma) to perform analyses of cumulative impacts of water usage across the entire county, for all water uses, surface and groundwater. NOAA has also requested such. I hope you will commit to revise these GSA's before they need to be submitted, to include additional climate prediction models encompassing less precipitation, greater water loss due to evapotranspiration, and periodic years fo extended drought. This may be the new normal. Thank you for your consideration.	The concern that the chosen model "does not reflect best current knowledge" is unfounded (see appendix 3-E). The best current knowledge is actually derived, in part, from the chosen model. The chosen model (HadGEM2-ES RCP8.5) is one of the Climate Model Intercomparison Project version 5 (CMIP5) models that was used in the McEvoy et al (2020) listed by the commentor. As such the chosen model is well-founded and defensible. Secondly, the increased evaporative demand referenced by the comment is very well accounted for by the groundwater flow model. The groundwater model uses a sophisticated set of computations to account for the impact of increased temperatures on evaporative demand. Similarly the changed hydrologic patterns mentioned by the comment will be well accounted for by the model. Groundwater use outside of the Subassin area have been accounted for in the groundwater model. This includes current and projected ag, rural, and municipal groundwater users.
10/31/2021	Coalition	The GSP states (p. 3-49): "Initial mapping of interconnected surface water in the Basin was informed by conditions simulated using the hydrologic model developed by the USGS (further described in Section 3.3). The model was used to evaluate stream reaches that are simulated to be more interconnected to shallow groundwater. Results of this analysis indicate that much of the mainstem of the Petaluma River, along with much of Tolay Creek and the lower reaches of Lichau, Lynch, Washington, Adobe, Ellis, and Capri creeks are likely interconnected surface waters." However, no map of stream reaches in the basin is provided.	Fig. 3-20a added to show interconnected streams.

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		Section 3.3 (Water Budget) does present values of stream leakage to groundwater as estimated by the Petaluma Valley Integrated Groundwater Flow Model (PVIHM), although does not present further information on the groundwater model. This section says that more information on the model is presented in Appendix 3-A. However, Appendix 3-A is entitled 'Water Year Type Classification for Petaluma Valley, Santa Rosa Plain, and Sonoma Valley'. The actual appendix that describes the PVIHM appears to be missing from the Draft GSP.	Fixed; added Appendix 3-C.
		RECOMMENDATIONS: 1. Include the missing appendix that describes the PVIHM. Ensure that the appendix describes data incorporated into the model, including spatial location of monitoring wells and screening depths, stream gauge data, and description of the temporal (seasonal and interannual) variability of the data used to calibrate	Fixed; added Appendix 3-C.
		2. Provide a map showing all the stream reaches in the basin, with reaches clearly labeled as interconnected (gaining/losing) or disconnected. Consider any segments with data gaps as potential ISWs and clearly mark them as such on maps provided in the GSP	Fig. 3-20a has been added to illustrate interconnected surface water.
		3. Provide depth-to-groundwater contour maps using the best practices presented in Attachment D, to aid in the determination of ISWs. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a digital elevation model (DEM) to estimate depth to groundwater contours across the landscape. This will provide accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found.	Due to data gaps within the groundwater level monitoring network, output from PVIHM was used as the primary source of information for mapping ISW. The ISW mapping will be further refined with measured data collected during GSP implementation.
		4. Use seasonal data over multiple water year types to capture the variability in environmental conditions inherent in California's climate, when mapping ISWs. We recommend the 10-year pre-SGMA baseline period of 2005 to 2015.	As noted above, output from the PVIHM were used as the primary source of information for mapping ISW. Monthly output from the entire simulation period of 1969 through 2018, which encompasses seasonal data over multiple water types was used for this analysis. The ISW mapping will be further refined with measured data collected during GSP implementation.

DATE RECEIVED	NAME	COMMENTS	RESPONSES TO COMMENTS
		5. Reconcile ISW data gaps with specific measures (shallow monitoring wells, stream gauges, and nested/clustere wells) along surface water features in the Monitoring Network section of the GSP.	Data gap areas for Interconnected Surface Water monitoring are depicted on Figure 5-7a. A multi-level monitoring well is proposed in one of the three identified data gap areas. Additional stream-adjacent shallow monitoring well sites will be identified during GSP implementation.
		The identification of Groundwater Dependent ecosystems is incomplete. The GSP maps GDEs using the Sonoma County Veg Map, which we agree is the best available data for the subbasin. To identify where the potential GDEs are likely to have connection with groundwater, the rooting depths of common tree species were compared to available depth-to-groundwater data. The GSP states (p. 3-51): "The DTg mapping UTILIZED available contoured springtime datasets for the shallow aquifer system (from 2015 and 2016) and high-resolution LiDAR data. To address GDE Work Group member concerns that groundwater levels were generally at lower levels in 2015 and 2016 due to dry conditions, minor adjustments in some areas were made to incorporate the shallowest depth-to-water on record for each well based on review of all available data from 2005 to 2020." However, no further details on the available data from 2005 to 2020 was provided.	Maps generated to support the analysis of areas with depth to water shallower than 30 feet using all available data from 2005 to 2020, which were shared with the GDE practitioner work group, have been added to Appendix 4-C.
		The GSP states (p. 3-51): "Following guidance from TNC, potential vegetation GDEs were mapped for areas with DTW of 30 feet or less to incorporate the potential rooting depths of oak trees (TNC 2018)." If Valley Oaks exist in the subbasin, we recommend instead that an 80-foot depth-to-groundwater threshold be used when inferring whether Valley Oak polygons in the Veg Map derived potential GDE map are likely reliant on groundwater. This recommendation is based on a recent correction in TNC's rooting depth database,2 after finding a typo in the max rooting depth units for Valley Oak. This resulted in a specific change in the max rooting depth of Valley Oak from 24 feet to 24 meters (80 feet). For all other phreatophytes, we continue to recommend that a 30-foot depth-to-groundwater threshold be used when inferring whether all other vegetation polygons are likely reliant on groundwater.	The citation provided in comment refers to Valley Oaks inhabiting "fractured and jointed metamorphic rock". Vegetation inhabiting such geologic conditions are not relevant to the GSP as these conditions are not found within the boundary of the Subbasin. (Lewis DC Burgy RH (1964) The relationship between oak tree roots and groundwater in fractured rock as determined by tritium tracing. J. Geophys. Res. 69(12):2579-2588.) Rooting depths for vegetation GDEs are planned to be further assessed as part of the additional studies described in Section 7.2.4.1.
		RECOMMENDATIONS: 1. Discuss available shallow groundwater data. Use depth-to-groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) to determine the range of depth to groundwater around Veg Map derived potential GDE polygons. We recommend that a baseline period (10 years from 2005 to 2015) be established to characterize groundwater conditions over multiple water year types. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the Veg Map derived potential GDE map are supported by groundwater in an aquifer.	Comment noted. As described above, all available groundwater level data from 2005 to 2020 were used to evaluate areas with depth to water shallower than 30 feet (results added to Appendix 4-C). These areas will continue to be refined during GSP implementation as new monitoring locations are added.

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		2. Refer to Attachment B for more information on TNC's plant rooting depth database. Deeper thresholds are necessary for plants that have reported maximum root depths that exceed the averaged 30-ft threshold, such as Valley Oak (Quercus lobata). We recommend that the reported max rooting depth for these deeper-rooted plants be used if these species are present in the subbasin. For example, a depth-to-groundwater threshold of 80 feet should be used instead of the 30-ft threshold, when verifying whether Valley Oak polygons are connected to groundwater.	The citation provided in comment refers to Valley Oaks inhabiting "fractured and jointed metamorphic rock". Vegetation inhabiting such geologic conditions are not relevant to the GSP as these conditions are not found within the boundary of the Subbasin. (Lewis DC Burgy RH (1964) The relationship between oak tree roots and groundwater in fractured rock as determined by tritium tracing. J. Geophys. Res. 69(12):2579-2588.) Rooting depths for vegetation GDEs are planned to be further assessed as part of the additional studies described in Section 7.2.4.1.
		3. Further discuss data gaps for GDEs, including specific plans and locations for additional shallow monitoring wells.	A new figure (Figure 5-8) has been developed showing the proposed shallow aquifer system and interconnected surface water monitoring networks and initial data gap areas overlain with GDEs, which includes interconnected surface water. See section 7 for information on how GSP will address data gaps in the GDE's.
		Native vegetation and Managed Wetlands: Native vegetation and managed wetlands are required to be included in the water budget. The integration of native vegetation into the water budget is insufficient. The water budget includes a separate item for evapotranspiration, but combines crop, native vegetation, and riparian Evapotranspiration into one term. The omission of explicit water demands for native vegetation is problematic because key environmental uses of groundwater are not being accounted for as water supply decisions are made using this budget, nor will they likely be considered in project and management actions. Managed wetlands are not mentioned in the GSP, so it is not known whether or not they are present in the subbasin.	The water budget components of native vegetation and managed wetlands will be assessed in future implementation. The presence of wetlands are shown on Figure 2-3 and described in Section 2.
		RECOMMENDATIONS: 1. Quantify and present all water use sector demands in the historical, current, and projected water budgets with individual line items for each water use sector, including native vegetation. 2. State whether or not there are managed wetlands in the subbasin. If there are, ensure that their groundwater demands are included as separate line items in the historical, current, and projected water budgets.	The native vegetation component of the water budget will be incorporated in future updates to the GSP. It is assumed that managed wetlands shown on Figure 2-3 within the Subbasin do not rely on groundwater. However, this is an area of uncertainty that will be evaluated during GSP implementation.
		RECOMMENDATIONS (Water model and climate change):	

DATE RECEIVED	NAME	COMMENTS	RESPONSES TO COMMENTS
		1. Consider other GCM projections to account for uncertainty beyond median statistics. 2. Integrate climate change, including extreme climate scenarios, into all elements of the projected water budget to form the basis for development of sustainable management criteria and projects and management actions. 3. Incorporate climate change into surface water flow inputs, including imported water, for the projected water budget. 4. Incorporate climate change scenarios into projects and management actions.	The median statistics were generally used to compare various GCM's and their appropriateness for the Sonoma County GSP's. The downscaled, transient GCM output for the Santa Rosa Plain Subbasin was used for the projected simulation model, not the median statistic. The chosen model includes an extremely dry and hot period near the last 20-years of the simulation period. The chosen model includes an extremely dry and hot period near the last 20-years of the simulation period. This was performed for the GSP. See appendix 3-E, section 3.5, which shows that the Russian River is capable of meeting demands for all climate scenarios. This was performed for the GSP.
COMMENTS RECEIVED BEFORE OCTOBER 1, 2021			
9/7/2021	Michael Healy	The December 22, 2020 memo from Pete Parkinson discussing "Rural Residential Housing Unit Projections" is outdated, in that it does not include the County's (very high) draft RHNA allocations for the unincorporated area. I realize the County has appealed, seeking to reduce that allocation by half. The appeal is unlikely to succeed, but even half of the draft allocation would mean a lot more units than what is discussed in Pete's memo.	Comment acknowledged. Due to the current uncertainity, the housing numbers will be revised in the five-year update, or sooner if data and funding are available.
9/7/2021	Robert Pennington	"Interconnected surface waters are defined in the GSP Regulations as "surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted." ~~A stream segment is interconnected where (and when) the groundwater water table elevation equals or exceeds the streambed elevation."~~ See strike out above. This statement is inconsistent with the preceding definition interconnected surface water, and inconsistent with text lower down in the same paragraph. If groundwater levels must be at or above the stream, then interconnected-losing streams would not be considered interconnected.	Section revised, as recommended.

PETALUMA VALLEY GROUNDWATER SUSTAINABILITY PLAN COMMENTS SECTION 4 SUSTAINABLE MANAGEMENT CRITERIA			
DATE RECEIVED	**NAME**	**COMMENTS**	**RESPONSES TO COMMENTS**
10/31/2021	Community Alliance with Family Farmers	Sustainable Management Criteria. We are concerned that the metric for wells with historical declines then recovery uses 2010-2019, which include drought years when a number of local wells went dry and other significant impacts occurred. Setting these relatively low water levels as a base standard could allow for far greater impacts during future droughts. Regarding Depletion of Interconnected Surface Water – Setting a minimum threshold at 40 percent of representative monitoring point wells during drought years would allow for significant impact to riparian habitat including vegetation, aquatic species and all related ecosystems. Sustainable agriculture depends on healthy, diverse surrounding ecosystems that support populations of beneficial birds, insects and other creatures, and could have a significant impact on the potential loss of recharge opportunities.	Comment not applicable to this basin. Comment not applicable to this basin.
10-31-2021	Coalition	The consideration of beneficial uses and users when establishing sustainable management criteria (SMC) is insufficient. The consideration of potential impacts on all beneficial users of groundwater in the basin are required when defining undesirable results and establishing minimum thresholds. **RECOMMENDATIONS:** 1. Chronic Lowering of Groundwater Level. Describe direct and indirect impacts on DACs, drinking water users and tribes when describing undesirable results and defining minimum thresholds for chronic lowering of groundwater levels.	DACs in the GSP are grouped into beneficial user types based on their source of water supply, which is primarily municipal water or water from private domestic wells. The effects of minimum thresholds and undesirable results for chronic lowering of groundwater levels on all beneficial users, including DACs, drinking water users and tribes, are described in Sections 4.5.2.4 and 4.5.4.3, respectively. Additional language has been added to Section 4.5.4.3 to clarify that these specific beneficial users are considered. The methodology for establishing minimum thresholds for chronic lowering of groundwater levels incorporates the statistical evaluation of known completion information for water supply wells located within the vicinity of each potential RMP, to avoid potential impacts on existing well users, including DACs, drinking water users and tribes.

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		2. Degraded Water Quality. Describe direct and indirect impacts on DACs, drinking water users and tribes when defining undesirable results for degraded water quality. For specific guidance on how to consider these users, refer to "Guide to Protecting Water Quality Under the Sustainable Groundwater Management Act."	DACs in the GSP are grouped into beneficial user types based on their source of water supply, which is primarily municipal water or water from private domestic wells. The effects of minimum thresholds and undesirable results for degraded water quality on all beneficial users, including DACs, drinking water users and tribes, are described in Sections 4.8.2.7 an 4.8.4.3, respectively. As described in Section 4.8.2.7, the minimum thresholds are designed to avoid negative effects to groundwater quality associated with implementation of the GSP. Avoiding degradation of groundwater quality from the identified COCs helps maintain drinking water quality providing benefits for domestic well users. Additional language has been added to Section 4.8.4.3 to clarify that these specific beneficial users are considered.
		3. Evaluate the cumulative or indirect impacts of proposed minimum thresholds for degraded water quality on DACs, drinking water users and tribes.	As described in Section 4.8.2.7, the minimum thresholds are designed to avoid negative effects to groundwater quality associated with implementation of the GSP. Avoiding degradation of groundwater quality from the identified COCs helps maintain drinking water quality providing benefits to DACs, drinking water users and tribes. As described in Section 4.8.1, the GSP identified COCs based on three criteria: 1. They have an established level of concern such as an MCL or secondary maximum contaminant level (SMCL), or a level that reduces crop production 2. They have been found in the Subbasin at levels above the level of concern and are routinely analyzed and reported through existing regulatory monitoring programs 3. The occurrence of the COC is extensive throughout the Subbasin
		4. Set minimum thresholds and measurable objectives for all water quality constituents within the subbasin that are impacted by groundwater use and/or management. Ensure they align with drinking water standards	New or additional water quality constituents may be identified as potential COCs applicable to the GSP implementation activities through the planned routine consultation and information sharing with other regulatory agencies described in Section 7.2.2. The GSA would then consider adding potential COCs and assigning SMC during the 5-year GSP updates.
		Groundwater Dependent Ecosystems and Interconnected Surface Waters **RECOMMENDATIONS:**	

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		When defining undesirable results for chronic lowering of groundwater levels, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to GDEs. Undesirable results to environmental users occur when 'significant and unreasonable' effects on beneficial users are caused by one of the sustainability indicators (i.e., chronic lowering of groundwater levels, degraded water quality, or depletion of interconnected surface water). Thus, potential impacts on environmental beneficial uses and users need to be considered when defining undesirable results in the subbasin. Defining undesirable results is the crucial first step before the minimum thresholds can be determined.	As described in Sections 4.10.2.1 numerous and significant information and data gaps limit the GSA's ability to characterize the potential effects of groundwater conditions on biological response impacts to GDEs. Section 7.2.4 describes plans to fill these data and information gaps during the initial years fo GSP implementation, which would be used to consider future refinements of the SMC for chronic lowering of groundwater levels.
		When defining undesirable results for depletion of interconnected surface water, include a description of potential impacts on instream habitats within ISWs when minimum thresholds in the subbasin are reached.15 The GSP should confirm that minimum thresholds for ISWs avoid adverse impacts to environmental beneficial users of interconnected surface waters as these environmental users could be left unprotected by the GSP. These recommendations apply especially to environmental beneficial users that are already protected under pre-existing state or federal law.	As described in Sections 4.10.2.1 numerous and significant information and data gaps limit the GSA's ability to characterize the potential effects of groundwater conditions on biological response impacts to GDEs. Section 7.2.4 describes plans to fill these data and information gaps during the initial years fo GSP implementation, which would be used to consider future refinements of the SMC for chronic lowering of groundwater levels.
		When establishing SMC for the subbasin, consider that the SGMA statute [Water Code §10727.4(l)] specifically calls out that GSPs shall include "impacts on groundwater dependent ecosystems".	GDEs are identified as beneficial users within the GSP and potential impacts on GDEs are specifically addressed with other ecological land uses and users in Section 4 for each sustainability indicator.

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10/28/2021	California Dept of Fish and Wildlife	Sustainable Management Criteria (SMC) for Depletion of Interconnected Surface Waters (ISWs) Comment: The GSA has established the following Minimum Threshold (MT) for the SMC for Depletion of ISWs sustainability criteria: "Maintain estimated streamflow depletions below historical maximum amounts. Metric: Shallow groundwater elevations are used as a proxy for stream depletion. The MT is the equivalent groundwater level, representing the 3 years (2014-2016) during which the most surface water depletion due to groundwater pumping was estimated between 2004- 2018." Minimum Thresholds should ensure regional groundwater extractions do not lead to significant and adverse impacts on fish or wildlife resources by meeting plant and animal species temporal/spatial water needs including water availability especially for Threatened and Endangered species and Species of Special Concern. They should be designed to account for climatic/water year type variability. Where specific data are lacking, MTs should be conservative with respect to preserving fish and wildlife beneficial users of groundwater from undesirable results. Furthermore, the GSP states "undesirable result occurs if MTs are exceeded at 40 percent of RMP wells during drought years and 10 percent of RMP wells during non-drought years". It is unclear how these percentages relate to ecological impacts. The GSP should identify monitoring metrics for GDEs that will enable the GSA to characterize GDE vulnerability to groundwater depletion and associated undesirable results, and to undertake management intervention accordingly. The Department understands the need to use "placeholder" Sustainable Management Criteria and Minimum Thresholds due to the current lack of groundwater and stream discharge data throughout the planning area. However, numerous times during the Work Group meetings resource agency representatives commented that using a threshold that maintains estimated streamflow depletions at historically low levels is not appropriate for protecting ESA-listed salmonids. Setting Minimum Thresholds and measurable objectives using data from years with historically low rainfall (i.e., 2014- 2016) would likely create historically high streamflow depletion rates and potentially negatively impact GDEs and their critical habitat.	RESPONSE: Thank you for the recommendation. As outlined in Section 4.10.4.2, groundwater pumping is one of several factors that can contribute to depletion of interconnected surface water (ISW), including factors outside of GSA jurisdiction, like surface water diversions, lack of precipitation, and evapotranspiration by riparian vegetation. Because depletion of ISW by groundwater pumping cannot be measured directly, determining the proportion of depletion due to pumping is challenging. Recognizing the significant information and data limitations, as well as the importance of ISW to beneficial users in the basin, the depletion of ISW by pumping SMC is set using an adaptive approach. The current Minimum Thresholds for each RMP were chosen to be slightly below 2019 and 2020 groundwater levels. Lacking additional historical measurements at these RMPs, these MT choices were informed by observations from adjacent basins (Santa Rosa Plain and Sonoma Valley), which show that the years in the recent historical period with the greatest depletion (2014–2016) had shallow dry-season low groundwater levels typically slightly lower than 2019 and 2020 values. Given the limited period of record of data collection at RMP locations, an adaptive approach is outlined in Appendix 4-C in which future modifications to SMCs for this sustainability indicator will be incorporated as more data become available and as model simulations of surface water depletion are improved. While the Petaluma Valley Hydrologic Model (PVHM) offers a robust platform to accurately simulate most hydrologic processes in the basin, at present, it is not sufficiently calibrated to simulate surface water depletion from pumping with the degree of accuracy required to use the results here. It is anticipated that future updates to the model and additional data collection at each RMP will make these analyses possible at or before the 5-year update. Appendix 4-B outlines the adaptive approach for incorporating future model results and additional groundwater level observations to determine SMCs for depletion of ISW.

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		· How Minimum Threshold prevents undesirable results;	~~observations to determine SMCs for depletion of ISW.~~ In general, this adaptive approach will mirror the approach given in the Santa Rosa Plain and Sonoma Valley GSPs. In these basins, model results demonstrate correlation between simulated shallow groundwater levels and simulated depletion of ISW by groundwater pumping. Thus, shallow groundwater levels Minimum Thresholds were chosen to approximate the average amount of depletion during the 3 years with the highest levels of simulated streamflow depletion between 2004 and 2018. Mathematically, this 3-year average value over the 15-year evaluation period roughly corresponds with the 10th percentile of historical streamflow depletion at that location, by year, during 2004–2018. Undesirable results would occur if MT exceedances occurred at two RMP wells during dry years or one RMP during normal or wet years. As described in Section 4.10.4.1, these percentages were selected based on input from the Interconnected Surface Water Practitioners Work Group. Recognizing that sources of depletion are varied, and likely include lack of precipitation during drought years, placing the different weights on drought and non-drought years helps address concerns expressed by some Work Group and Advisory Committee members by ensuring that during normal/wet years the higher levels of estimated streamflow depletion from 2014-2016 are avoided (Appendix 4-C).
		· The effect the Minimum Threshold will have on environmental beneficial uses and users of groundwater, and what impact it will have on fish and wildlife · How the Minimum Threshold accounts for climatic/water year type variability	**RESPONSE:** Thank you for the recommendation. As stated in **Section 4.10**, it is recognized that low summer baseflow in certain years can impact aquatic species, but until the amount of summer baseflow needed for these species is quantified (e.g., via instream flow targets), the specific impacts of the MT on beneficial uses and users of groundwater remain difficult to quantify. The current approach leverages historical data to avoid conditions lower than historical surface water depletion amounts. RESPONSE: Thank you for the recommendation. Undesirable results would occur if

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			MT exceedances occurred at two RMP wells during dry years or one RMP during normal or wet years. As described in **Section 4.10.4.1**, these percentages were selected based on input from the Interconnected Surface Water Practitioners Work Group. Recognizing that sources of depletion are varied, and likely include lack of precipitation during drought years, placing the different weights on drought and non-drought years helps address concerns expressed by some Work Group and Advisory Committee members by ensuring that during normal/wet years the higher levels of estimated streamflow depletion from 2014-2016 are avoided (**Appendix 4-C**).
		Groundwater Elevations as a Proxy for Depletion of Interconnected Surface Water Minimum Thresholds The GSP fails to identify a significant correlation between ground water elevations and interconnected surface water depletions. The GSP identifies that the GSA will use groundwater elevation as a proxy for the depletion of interconnected surface water. In order for the GSA to use groundwater elevations as a proxy for depletion of interconnected surface water, the GSP should identify a significant correlation between groundwater elevations and interconnected surface water depletions as required by Title 23 CCR section 354.36(b)(1).The GSP currently attempts to correlate groundwater elevations with streamflow by modeling results; however, a specific rate or volume of surface water depletions caused by groundwater should be developed to correlate groundwater levels with streamflow depletions. If a significant correlation is not determined, groundwater elevations used as a proxy for surface water depletions may misinform groundwater management activities and poorly predict instream habitat conditions for fish and wildlife species. The current proposed approach to maintain shallow groundwater gradients at current/historic levels may serve as an interim management approach but should be revisited to address the relationship between surface water - groundwater connectivity.	

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		RECOMMENDATION: The GSP should either: 1) specify how groundwater elevations are significantly correlated to surface water depletions; or 2) specify monitoring actions that will be taken to identify the location, quantity, and timing of surface water depletions caused by groundwater use, per Title 23 CCR Section 354.28(c)(6)(A), to better inform minimum thresholds for depletions of interconnected surface water. The monitoring plan should specify dates for completion of each monitoring task and should include a commitment to periodically re-evaluate groundwater usage based on the data collected.	**RESPONSE:** Thank you for the recommendation. The Petaluma Valley Integrated Hydrologic Model, Version 1 (PVIHM) is a sophisticated MODFLOW OWHM[1] model used to simulate inflows, outflows, exchanges, and stores of water in the surface-water and groundwater system. It was developed by the USGS for the purposes of developing accurate water budgets for SGMA. The model leverages the best available data and science to accurately simulate key hydrologic processes. While the PVHM offers a robust platform to accurately simulate most hydrologic processes in the basin, at present, it is not sufficiently calibrated to simulate surface water depletion from pumping with the degree of accuracy required to use the results here. Where data are limited, the uncertainty of simulated hydrologic processes increases. The GSP notes that—like for nearly all GSAs—data are particularly limited for characterizing groundwater/surface-water interactions and surface water depletion due to pumping, resulting in greater uncertainty of these simulated processes. Appendix 4-D emphasizes that "[q]uantifying surface water depletion due to pumping is a challenge because (1) it cannot be measured directly and (2) the influence of surface water depletion by pumping is often obscured by other factors, such as precipitation and runoff, diversions, evapotranspiration, and natural groundwater/surface-water interactions." The adaptive management strategy given in Section 4.10 outlines how additional data collection will guide model improvements to better represent groundwater/surface-water interactions and depletion of ISW by groundwater pumping. Additionally, Section 7.2, Section 5, and Appendix 7-A outline specific steps to implement additional studies and data gathering and improve model simulation of these processes during the implementation phase. As noted in Section 4.10 and Appendix 4-D, these improvements may inform the determination of appropriate revised SMCs for depletion of interconnected surface water.

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			[1] Boyce, S.E., Hanson, R.T., Ferguson, I., Schmid, W., Henson, W., Reimann, T., Mehl, S.M., and Earll, M.M., 2020, One-Water Hydrologic Flow Model: A MODFLOW based conjunctive-use simulation software: U.S. Geological Survey Techniques and Methods 6-A60, 435 p., https://doi.org/10.3133/tm6a60Sonoma County Water Agency, 2020. Sonoma Valley Integrated Groundwater Flow Model, http://sonomavalleygroundwater.org/
10/30/2021	Milo Baker Chapter of the California Native Plant Society	These comments were created after reviewing Section 4 of the Draft Groundwater Sustainability Plan (DGSP) for the Santa Rosa Plain Ground Water Subbasin; however, these comments are general enough that they can be applied to all three subbasins in Sonoma County.	
		The DGSP identifies various tools for evalua:ng the groundwater, from remote sensing to stream gauges and weather monitoring instrumentation, but this is monitoring, and the report does not discuss how they will apply this information. We are concerned that this is relying too much on deeper ground water resources and ignoring the shallower resources that are sustaining our native plants and vegetation communities. An additional cross check could be to use tree health, not only along riparian corridors but also in the plains. For example, valley oaks and their regeneration could be used for monitoring sub- surface waters levels. It has been documented that the best growth is attained when water tables are about 33 feet (10 m) below the surface and the trees are inundated every 5 years (Howard 1992). Ofen associated with seaonal wetlands, this species could be used to show the health of near surface water storage.	Section 5 of the GSP includes detailed monitoring plans, with information about monitoring the shallow aquifer. Comment noted on monitoring using tree health. Section 7.2.4.1 of the GSP describes the use of available remote sensing tools and datasets, such as the GDE Pulse tool developed by the Nature Conservancy will be assessed for tracking and comparing vegetation health with groundwater conditions.
		One of the sustainability indicators of the DGSP (Table 4-1) is depletion of interconnected surface water, but the emphasis on streamflows ignores the seasonal wetlands and seeps that are also direct indicators and can be evaluated and mapped on Google Earth based on size. We are concerned that depletion of water levels below 40 feet will likely change the native vegetation within the Santa Rosa basin, especially wetland endemics that are some of the more rare and endangered plants in the County.	Seasonal wetlands and seeps that are considered groundwater-dependent are also included within the freshwater marsh/aquatic classification that is incorporated within the GDE map (Figure 3-19). As described in Sections 4.10.2.1 numerous and significant information and data gaps limit the GSA's ability to characterize the potential effects of groundwater conditions on biological response impacts to GDEs. Section 7.2.4 describes plans to fill these data and information gaps during the initial years fo GSP implementation, which would be used to consider future refinements of the SMC for chronic lowering of groundwater levels.

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		The DGSP identifies surface and groundwater budgets and estimates groundwater overdraft but how can that be known if you don't have a baseline. There are two periods identified, historical (1976-2018) and current (2012 – 2018). According to ca.water.usgs.gov drought years in the "historical period" occurred between 1976-1977 (2 year of drought), 1987-1992 (6 years), 2001-2002 (2 year), 2007-2009 (3 years), with normal or above normal rainfall in between years. In the "current year" drought years occurred between 2012-2016 (5 years) with only barely normal rainfall. Since 2000, the longest duration of drought in California lasted 376 weeks (December 27, 2011 – March 5, 2019) (7 years) (ca.water.usgs.gov) and that has been classified as a severe to extreme drought (ncdc.noaa.gov). NOAA also states that the 1980s and 1990s were characterized by unusual wetness with short periods of droughts of extensive droughts, while the first two decades of the 2000s saw extensive drought and extensive wetness. What will the baseline be after a 3-year extreme drought (2019-2021) that is classified as intense with higher evapotranspiration rates (due to higher air temperatures)?	The impact of climate (including the current drought) on groundwater conditions will be monitored and evaluated during GSP implementation. Data and information obtained through this monitoring will be incorporated into future 5-year updates to the GSP.
10/29/2021	Sebastian Bertsch	GSP regulations require ""The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." The GSP does not meet this standard. The GSP merely proposes an "initial SMC focused on not exceeding historical levels of depletion based on available data and modeling tools". There is no evidence provided that surface water depletion will be prevented by allowing continue historic levels of depletion. If there is no evidence that historical groundwater levels sufficient to protect surface water depletion, then they cannot be used as a standard. It is well known that many creeks and springs do not flow as they historically did. The assumption therefore, barring further evidence, is that groundwater extractions are currently depleting surface flow.	As described in Appendix 4-B, information in the historical record linking surface water depletion and any related impacts to beneficial users directly to groundwater usage under the jurisdiction of the GSAs is very limited. For this reason, for this reason additional data collection focused on improving the understanding of surface water depletion is prioritized in the implementation plan. As additional information and data is collected during GSP implementation and potential impacts to benefical users, including GDEs, the measurable objectives will be further evaluated and refined as needed.

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		"Significant and unreasonable water quality conditions occur if an increase in the concentration of COCs in groundwater leads to adverse impacts on beneficial users or uses of groundwater, due to either: • Direct actions by Petaluma Valley GSP projects or management activities" As worded, this means depleted water quality is only a concern if it is the result of GSP projects. This seems to allow water contamination from any other source, such as agriculture which is historically a polluter of the aquifer. "Maintain above historical low elevations while accounting for droughts/climate variability" This is a disappointingly low standard to set. This will allow groundwater conditions to worsen to the worst possible historical record, while also providing a loop-hole that during droughts levels can be further depleted. This also makes climate change impacts a "get out of jail free" card, allowing further depletion.	As described in Section 4.8.2.7, the minimum thresholds are designed to avoid negative effects to groundwater quality associated with implementation of the GSP. Degraded water quality is the subject of robust federal, state, and local regulatory regimes carried out by a number of different entities and is not regulated by SGMA. For example, discharges and contamination from land uses, including agriculture is regulated by the NCRWQCB. The GSA is not responsible for natural changes in groundwater quality or groundwater degradation caused by others. In addition to the drought factor, a well impact depth is also calculated for each RMP and used to set the minimum threshold where potential impacts may occur to nearby water wells if groundwater levels reach historical lows. Additionaly, the implementation plan includes the development of improved information on well depths and locations and GDEs to better inform potential impacts to beneficial users related to the minimum thresholds. This information and data collected during GSP implementation will help determine whether future modifications to the minimum thresholds are needed.
COMMENTS RECEIVED BEFORE OCTOBER 1, 2021			
8/27/2021	National Marine Fisheries Service	Comment re: Minimum Thresholds: To develop sustainable management criteria for the depletion of interconnected surface water, the GSAs of the Sonoma County subbasins convened a “Sonoma Sustainable Management Criteria for Depletion of Interconnected Surface Water Practitioner Work Group”, which met several times in early 2021. NMFS was a participant in this group, and generally agrees with the sequential approach being proposed within the Sonoma County subbasins for developing sustainable management criteria addressing streamflow depletion caused by groundwater pumping. Essentially, the approach is to develop and use interim criteria until more appropriate and precise criteria, informed by studies relating groundwater levels, streamflow depletion rates, and instream habitat effects, can be developed.	Comment noted

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		We understand the need to use "placeholder" sustainable management criteria due to the current lack of groundwater and stream discharge data throughout the County. Gathering this data during the first few years of GSP implementation and updating the sustainable management criteria accordingly is a sound plan. However, as raised numerous times during the Work Group meetings, we do not feel an interim minimum threshold that maintains estimated streamflow depletions at historical maximum amounts, as is currently proposed for the Santa Rosa Plain and Sonoma Valley subbasins, is appropriately protective when dealing with ESA-listed salmonids. Basic hydraulic principles dictate that groundwater flow is proportional to the difference between groundwater elevations at different locations along a flow path. Using this basic principle, groundwater flow to a stream, or conversely seepage from a stream to the underlying aquifer, is proportional to the difference between water elevation in the stream and groundwater elevations at locations away from the stream.	Minimum thresholds represent the groundwater elevation below which significant and unreasonable depletions of streamflow occur and represents a condition the GSA seeks to avoid, not "maintain". The objective of SGMA is not to maintain levels at minimum thresholds but rather to be at the more aspirational measurable objectives by 2042, or even higher. Maintaining levels at minimum thresholds could certainly cause undesirable results and that is not the intention of SGMA nor this GSP.
		Minimum thresholds and measurable objectives consistent with the lowest groundwater elevations on record would likely create historically high streamflow depletion rates that, when combined with low surface flow input, would be very likely to adversely affect ESA-listed salmonids and their critical habitat. Analysis within the draft Sonoma Valley subbasin Sustainable Management Criteria chapter confirms the significant impact to instream flow volume that would likely occur under the proposed minimum criteria – simulated instream flow within Sonoma Creek during 2014, 2015, and 2016 was diminished by approximately 90 percent due to groundwater pumping (Figure 23).	Measurable objectives have been established to represent the average dry-season groundwater levels between 2004 and 2020 and are not "consistent with the lowest groundwater elevation on record".
		Recommendation: NMFS is committed to working with GSAs, CDFW, and other stakeholders in determining what streamflow depletion level avoids significant and unreasonable impacts to beneficial uses of surface water, as those beneficial uses relate to ESA-listed salmon and steelhead survival and recovery. However, while data is collected to inform that analysis, we suggest the GSA follow guidance by the California Department of Fish and Wildlife that recommends conservative sustainability management criteria be established to ensure groundwater dependent ecosystem protection (CDFW 2019).	Comment noted

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		Comments re: Measurable Objective: The stated measurable objective (i.e., “maintain groundwater levels within historical observed ranges”) is likewise inappropriate when considering streamflow depletion impacts on ESA-listed salmon and steelhead. According to DWR (2017), “measurable objectives are quantitative goals that reflect the basin’s desired groundwater conditions and allow the GSA to achieve the sustainability goal within 20 years.” Within groundwater subbasins where past streamflow depletion likely impacted ESA-listed salmonids and their habitat (e.g., near 90 percent depletion during 2014-16), maintaining groundwater levels within historical ranges is unlikely to result in sustainable groundwater management (i.e., avoiding all undesirable results) as required by SGMA regulation. Recommendation: We recommend the GSA craft measurable objectives that avoid potential streamflow depletion impacts on beneficial uses of surface water.	Measurable objectives have been established to represent the average dry-season groundwater levels between 2004 and 2020 and are not "consistent with the lowest groundwater elevation on record". In addition to the description of measurable objectives the commentor provides, DWR (2017) also states that measurable objectives shall "...take into consideration components such as historical water budgets, seasonal and long-term trends, and periods of drought, and be commensurate with levels of uncertainty". As additional information and data is collected during GSP implementation and potential impacts to benefical users, including ESA-listed salmon and steelhead, the measurable objectives will be further evaluated and refined as needed. Comment noted
8/9/2021	John Shribbs	Section 4.5.2.1. "As indicated in Table 4-5-1, minimum thresholds for three of the 12 RMPs represent the calculate d well impact depths (i.e., at these locations the well impact depth is shallower than the historical low with the drought factor and is considered more protective of beneficial users). At the nine remaining RMPs the minimum thresholds based on the historical lows minus the drought factor were determined to be above (i.e., protective of) the calculated well impact depths." This is a paragraph below the table 4.5.1. Data is referenced but do not know which datapoints. Do you really expect reader know which datapoints? Which are in the set of 12 and which are in the set of 9? You need to put in an example. Too many variables in equation to understand the process or calculation	Comment addressed. Clarifying text, along with illustrative diagrams have been added to Section 4.5.2.1.
		Section 4.5.2.4. AG users section: Do we really know all the crops and farmers in the "Baylands" area and how they are using water? Reference is made to Fig 2-5 of the Plan Area but could not find immediately. Needs to be separate map inside the paragraph for easy reference.	Comment acknowledged. While we don't know every farmer, land use, vegetation and well location data provide a reliable picture of the basin. Figure 2-5 will be readily accessible in the final GSP.
		Section 4.5 to 4.7:Lots of repetitive ideas seems redundant. Yes there are impacts and if one factor goes bad, yes others can go bad too. but this whole section is burdensome. When is there no impact? Really amorphous on measuring impacts described. Lots of possibilities without definition. So what if there is an impact? What is GSA going to do about it? Do more studies? When does action kick in?	Comment acknowledged. Actions are listed in Section 6.
		Section 4.8: N and As and TDS mentioned and monitored. I have heard Hg is a concern in the Bay area. Will we test for Hg?	Mercury is naturally occuring constituent that can be found in surface water throughout the North Bay, and is tested in public supply wells by water quality regulators.

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		Section 4.10: "Key themes and outcomes from work group members that assisted in developing the SMC for interconnected surface water are documented in Appendix 4-10-1. As described in Appendix 4-10 -1, the SMC for depletion of interconnected surface water is unique in that information in the historical record linking surface water depletion directly to groundwater usage under the jurisdiction of the GSAs is very limited. Variable levels of correlation between simulated streamflow depletion and groundwater levels, a lack of existing instream flow targets, and limited data for assessing the presence of any historically significant and unreasonable conditions complicate the development of this SMC. 2)An additional complication is that depletions of surface water can be caused by diversions under surface water rights (e.g., direct surface water diversions or wells pumping under appropriative or riparian rights) that are outside the jurisdiction of SGMA and the GSAs . Therefore, the cause of the depletion must be evaluated to assess if such depletions are caused by diversions under the jurisdiction of the GSA. Empirical data are not currently available"	
		Reference to appendix 4-10-1 not clear on what is documented. Lots of backpedaling here. Need to reference actual surface waters that could be impacted or do impact on groundwater. How many ag ponds and creeks are involved? The marshlands are part of surface water. Will marsh or creek habitats be affected if gw is depleted?	Appendix 4-B (previously referred to as 4-10-1) provides a methodology and process that will be used to better determine impacted surface water as more data becomes available. Marshes are considered in the mapping of groundwater dependent ecosystems.
		Overall: I get lost in the generalities and repetitiveness. Better to state those things outside the repetitive pattern or highlight them in some way.	Comment acknowledged.
8/8/2021	Rebecca Ng	Section 4 put everything together. It was good to see how everything was connected. I have no comments on anything except I could not find Figure 4-7-1.	Comment acknowledged. Figure added.
		I understood everything except one sentence and nee someone to explain to me. Page 35, the third bullet: Degraded water quality. The seawater intrusion minimum thresholds may have a beneficial impact on groundwater quality by preventing increases in chloride concentrations at supply wells.	Replied via email.
8/9/2021	Heidi Bauer	The only comment/question I have is on the Table on Page 13 – shouldn't an undesirable result from depletion of interconnected surface waters also include negative impacts to GDE's?	The significant and undreasonable statement in this table adresses the potential for adverse impacts to GDEs.

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9/7/2021	Robert Pennir	MTs and MOs reference “historical” or “recent”. It appears that “historical” for the MOs and MTs is not being used consistently with the model periods from the Basin Setting section. It also appears that different data ranges are used for RMPs with different trends. It could be confusing 20 or 50 years to know what date ranges should be compared against. This could be particularly problematic for RMP with “No Trend” or no data within the “historic” range, it may be useful to develop alternative MOs and MTs for these. I suggest creating a table that specifies the date ranges or definitions of “recent” and “historic” for RMPs with various trends.	Added to glossary

PETALUMA VALLEY GROUNDWATER SUSTAINABILITY PLAN COMMENTS SECTION 5 MONITORING PLAN			
DATE RECEIVED	**NAME**	**COMMENTS**	**RESPONSE TO COMMENTS**
10/28/2021	California Dept of Fish & Wildlife	The planned monitoring to address data gaps is insufficient for understanding interconnected surface waters in the basin. Section 5.4.2 of the GSP discussed data gap areas needed to better understand ISWs. These data gap areas include the lower reaches of the Willow Brook/Lichau Creek system, the lower reaches of Adobe Creek, and Tolay Creek in the southeastern portion of the Basin. The GSP does mention plans for a multi-level groundwater monitoring well adjacent to the Willow Brook at Penngrove Park stream gage to be installed in 2022 which will help address the northernmost data gap area. The three existing Representative Monitoring Point wells for Depletion of Interconnected Surface Waters are not well distributed geographically throughout the GSP area. RECOMMENDATION: The GSP should include plans for additional wells to address the other areas where data gaps are known to exist. According to the 2015 report titled Petaluma Watershed Steelhead Monitoring Report 2014/2015 Spawning Surveys "[I]nformation suggests that steelhead occur in Adobe, Lichau, Lynch, Willow Brook, and San Antonio creeks. Of these listed tributaries, Adobe, Lynch, and Lichau Creeks have had the highest number of recent steelhead observations" (Robbins, Bobier, and Hubacker, 2015). Based on this information, the GSA should consider adding wells in Adobe, Lichau and/or Lynch Creeks.	Thank you for the recommendation. The GSA recognizes the importance of ISW monitoring. As outlined in **Section 5-2**, Sonoma Water monitors 16 stream gages on the Petaluma River and its tributaries, as well as 3 dedicated, high-frequency, stream-adjacent monitoring. **Section 7.2.4.2** outlines future refinements for the ISW monitoring network. Specific locations for additional ISW monitoring locations will be identified following future ISW and GDE studies and information gathering.
COMMENTS RECEIVED BEFORE OCTOBER 1, 2021			
9/7/2021	Rebecca Ng	I have a question about multi-level monitoring wells that is intended for installation for groundwater monitoring and seawater intrusion. My assumption is that multi-level wells will be screened in different aquifers. Is that correct? I also assume it is less expensive to construct multi-level wells rather than multiple wells. Would the multi-level wells present potential cross contamination between aquifers? It was also stated somewhere in the document that wells should not screened in different aquifers. Please explain.	(Replied to question via email.) The assumption is correct – the multi-level wells will consist of a single borehole with multiple PVC casings and well screens. The borehole annular space between each aquifer zone and well screen interval will be sealed with bentonite clay to limit the potential for cross communication between aquifer zones.

DATE RECEIVED	NAME	COMMENTS	RESPONSE TO COMMENTS
8/27/2021	John Shribbs	Somewhere I missed the explanation of the difference between the "watershed" and the "contributing watershed" which excludes San Antonio Creek and area west of the lower river. Where do I find this explanation? Also some of the upper area of the east side seem to be excluded since does not seem exact match with watershed map //sonomarcd.org/district-watersheds/petaluma-river/	The “contributing watershed” area was defined to be a portion of the larger watershed, which does exclude those areas you note. The reason for this is that for the GSP, “contributing watershed” is intended to represent watershed areas with the potential to contribute groundwater inflows to the Bulletin 118 Groundwater Basin (the jurisdictional area of GSA and area subject to SGMA). The San Antonio Creek watershed is located entirely within fractured rocks of the Franciscan Fm (which transmit very little flow into the basin). Surface water flow and ET processes in the San Antonio Creek watershed area are, however, accounted for in the groundwater model used to develop the water budget. We will look into the potential discrepancies you point out on the east side.
		Will there be a Section 8 on the impact on ecosystems or is that a separate report? I thought that was going to be large stand alone section or report.	SGMA requires the GSP to consider and develop sustainable management criteria for the connection between groundwater and interconnected surface water, specifically regarding the impacts that depletion of groundwater could have on beneficial users and uses of surface water. As part of this analysis, a practitioners working group assisted in identifying the aquatic species and habitats that could be adversely affected by lowered groundwater levels in principal aquifers and interconnected surface water depletion. This is discussed in Section 3.2.6. The SMC for interconnected surface water is discussed in Section 4.10, and the methodology for developing the SMC is described in much more detail in Section 4 appendices. Finally, Section 5 describes how the SMC for interconnected surface water will be monitored and how the monitoring will be enhanced over time. Section 8 will be a compilation of appendices.

DATE RECEIVED	NAME	COMMENTS	RESPONSE TO COMMENTS
		Fig 5.5: Seems like dots on map are for surface water. Are some well water? Do we not have to separate water quality from well water vs. surface water? Surface water quality could be coming from other sources than groundwater. Need to tighten up process of investigation if X wells or Y surface water start to so lower water quality. May need to repeat what we mean by "water quality" since there are so many parameters resulting in low quality. E.g. if N shows up in wells vs. surface water, will investigation take a different course of action?	The points on Figure 5-5 are public supply wells that are included in existing water quality monitoring programs as described in Subsection 5.3.2. The GSA will be monitoring groundwater, not surface water for this sustainability indicator.
		5.2.4. SWI-- I counted 9 wells but three together should count only as one. All are public wells. Are they all in operation and being sampled at least monthly, or how often?	Subsection 5.2.5 states that "The GSA is in the process of contacting well operators to facilitate semiannual sampling for chloride and the collection of groundwater-level measurements at the nine existing public supply wells"
		5.3.2 the map shows a symetric grid of "pts.". Are these wells? Why the grid cluster? Why are these wells or points not spread throughout the basin like other monitoring wells? If we have these grid spaced wells monitoring, why not use them for other factors if they are good enough for water quality?	The data points clustered in the City of Petaluma on Figure 5-5 are the City's supply wells, which are included in the water quality monitoring network because they are part of existing water quality monitoring programs.
		App 5-b (example hydrographs) Not sure why these graphs included. Where is the explanation for these graphs? Hard to fathom what they mean just by looking at them. Usually there is enough added caption text to explain what we are looking at and why we should look at them, take away concept.	Comment noted. The purpose of the hydrographs is explained in Section 5.3.1.1.
		Overall this section looks good.	

PETALUMA VALLEY GROUNDWATER SUSTAINABILITY PLAN COMMENTS SECTION 6 PROJECTS AND MANAGEMENT ACTIONS			
DATE RECEIVED	**NAME**	**COMMENTS**	**RESPONSE TO COMMENTS**
10/25/2021	Roy Smith	The core focus should be on capture and recharge, as articulated in section 6.2.4. High-energy weather patterns may result in "normal" annual rates (30+inches) of measured precipitation, but very low levels of "functional" rainfall. "Functional" precipitation is that which is reasonably absorbed into soils and aquifers. This last storm of October 24th/25th had a great deal of measured rainfall, but a very low level of absorbed rainfall (the vast majority flowing to the Bay within a few hours). Methods such as stream flow diversion or Aquifer Storage and Recovery are ingenious, but are either disruptive or demand high energy inputs. ASR may work technically, but to take river water and filter, pump-down, pump-up, and filter again is a strategy based on massive amounts of low-cost energy; this is not the future we can expect by 2042	In regards to comments about ASR and energy use - Sonoma Water currently provides its wholesale water entirely with carbon-free energy. Such considerations will be important in the future, but continuing to provide carbon-free water will likely remain possible.
10-31-2021	Coalition	The consideration of beneficial users when developing projects and management actions is insufficient, due to the failure to completely identify benefits or impacts of identified projects and management actions, including water quality impacts, to key beneficial users of groundwater such as GDEs, aquatic habitats, surface water users, DACs, and drinking water users. Therefore, potential project and management actions may not protect these beneficial users. Groundwater sustainability under SGMA is defined not just by sustainable yield, but by the avoidance of undesirable results for all beneficial users.	Comment noted. A major focus of the initial five years of implementation will be to gather information and data in many key areas to improve the understanding of potential impacts associated with groundwater conditions to sensitive beneficial users, primarily shallower domestic well users (including DACs) and GDEs. This information and data will inform consideration of future refinements to SMC and appropriate response actions (projects and management actions) protective of these sensitive beneficial users.
		The management actions described in Section 6.4.3 (Assessment of Potential Policy Options for GSA Consideration) and Section 6.4.1 (Coordination of Farm Plans with GSP Implementation) describe improvement to water quality through sediment runoff mitigation and water quality sampling. The GSP specifically describes projects with benefits to GDEs, including the Stormwater Capture and Recharge Project described in Section 6.2.2. However, the plan fails to identify or describe projects or management action with explicit benefits to DACs or drinking water users, including a domestic well mitigation program. **RECOMMENDATIONS:**	Projects and management actions with explicit benefits to DACs and drinking water users include any of the projects that are anticipated to raise groundwater levels. These primarily include water-use efficiency and alternate water source projects and aquifer storage and recovery.

DATE RECEIVED	NAME	COMMENTS	RESPONSE TO COMMENTS
		1. For DACs and domestic well owners, include a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation. Refer to Attachment B for specific recommendations on how to implement a drinking water well mitigation program.	While a drinking water well impact mitigation program is not considered to be needed in the near-term based on current conditions, consideration of a well impact mitigation program has been added to the list of potential policy options for the GSA to consider in Section 6.4.3 of the GSP.
		2. For DACs and domestic well owners, include a discussion of whether potential impacts to water quality from projects and management actions could occur and how the GSA plans to mitigate such impacts.	The following language was added to the description of projects that could potentially impact water quality: "Future GSP implementation projects or actions that require their own site-specific monitoring network would take into consideration any localized COCs and regulatory requirements to avoid potential impacts to beneficial users, including domestic well users and DACs."
		3. Recharge ponds, reservoirs, and facilities for managed stormwater recharge can be designed as multiple-benefit projects to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. For guidance on how to integrate multi-benefit recharge projects into your GSP, refer to the "Multi-Benefit Recharge Project Methodology Guidance Document".	Comment noted.
		4. Develop management actions that incorporate climate and water delivery uncertainties to address future water demand and prevent future undesirable results.	All projects and management actions have been simulated with the projected conditions model which includes climate change assumptions. See Section 6 and Appendix 6-A.
10/28/2021	California Dept of Fish & Wildlife	Comment: Management actions should include specifics on how and on what timeline adverse impacts will be reversed, if observed. The GSP should specify adaptive management strategies to account for 'lag' impacts wherein groundwater responses to changes in management regimes are delayed due to aquifer characteristics. Projects and management actions should seek to maximize multiple-benefit solutions, including habitat improvements.	Comment noted. Adaptive management strategies are being developed through the assessment of potential policy options, including demand management measures, that could be utilized to address potential "lag" in projects and management action implementation and results.

DATE RECEIVED	NAME	COMMENTS	RESPONSE TO COMMENTS
		Recommendation: The Department encourages the GSA to consider implementing recharge projects that facilitate floodplain inundation. These projects offer multiple benefits including downstream flood attenuation, groundwater recharge, and ecosystem restoration. Managed floodplain inundation can recharge floodplain aquifers, which in turn slowly release stored water back to the stream during summer months. These projects also reconnect the stream channel with floodplain habitat, which can benefit juvenile salmonids by creating off-channel habitat characterized by slow water velocities, ample cover in the form of submerged vegetation, and high food availability. Additionally, these types of multi-benefit projects likely have more diverse grant funding opportunities that can lower their cost as compared to traditional off-channel recharge projects.	Stormwater capture and recharge projects will be assessed and site-specific investigations conducted. Managed floodplain inundation was added as a possible multibenefit project.
10/31/2021	Community Alliance with Family Farmers	Clear guidance for implementing sustainable groundwater management in land use policy, including prioritization of water for local food production. Land use is inextricably tied to groundwater use and its sustainable management. The Plan needs to address not just water use of current activities and sectors, but of the expansion of water use and water-intensive activities, such as housing development, winery development and expansion, land conversion to new vineyards, and cannabis projects. Land use should be tied to meaningful measurements and projections of long-term water availability and be considered cumulatively, for the protection of all beneficial uses. Specifically, the plan should include Accounting and permitting of water hauling guidelines for the allowance of water hauling for food production, in particular ranches, should be developed. Permitting should be streamlined and cost-effective for defined emergency drought use.	Comment noted. Appendix 3-D describes the projections of future water demands associated with future growth and land use changes that have been incorporated into the GSP. These projections will be revisted during 5-year GSP updates. Consideration of permitting guidelines for water hauling is a policy options that has been included in the initial list of policy options that will be considered and prioritized by the GSA Board within the initial years of GSP implementation.
		Regarding policy options, all policy options listed in the Santa Rosa Plain GSP ES.6.1 should be prioritized and expedited. Collaboration between the GSA Boards, local land use agencies, GSA member agencies, other Sonoma County GSAs, land use authorities and stakeholders is critical to achieving desired goals so must begin promptly. Several of these policies should be strengthened:	Comment noted.
		· Mandatory water conservation plans for all sites which use groundwater as well as new development must be required. A good example is recent legislation in Nevada which prohibits decorative turf. Plans should include mandatory conservation within jurisdictions. Plans also must create water conservation requirements for new development, as well as education for existing well owners, which has historically resulted in significant water savings.	Comment noted. Specifics regarding conservation plans for new development will be developed as part of the management action for assessing potential policy options.
		· Every county Use Permit must require monitoring of wells associated with the project at least bi- annually (spring and fall) with annual reporting that is compiled to produce trend lines for groundwater levels. Permit Sonoma has data for projects that required monitoring so that data must be “mined” to determine impacts. There should also be required assessment of cumulative impacts of well uses when a new well is permitted.	Comment noted. Data provided to Permit Sonoma has been incorporated into the GSP and will continue to be included in monitoring conditions during GSP implementation.

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		· Well permits must be required to show explicit proof of sustained availability and to demonstrate NO cumulative impacts	Specifics regarding well permitting recomendations will be developed as part of the management action for assessing potential policy options. As the GSA does not have authority over well permitting, any policy options related to well permitting would be recommendations to the County, which has authorities regarding well permitting.
		· Well construction and permitting must have requirements, not just recommendations, that comply with GSA goals.	As the GSA does not have authority over well permitting, any policy options related to well permitting would be recommendations to the County, which has authorities regarding well permitting.
		· Accounting and permitting of water hauling guidelines for the allowance of water hauling for food production, in particular ranches, should be developed. Permitting should be streamlined and cost-effective for defined emergency drought use.	Specifics regarding water hauling recomendations will be developed as part of the management action for assessing potential policy options in coordination with the County and state regulators.
		Sonoma County's Chapter of CAFF requests to be included in these upcoming GSP activities: stakeholder input on the fee schedule to be levied on agricultural users; Farm Plan assessments; and any additional agricultural stakeholder meetings. Although agricultural stakeholder meetings have previously been held in the planning process, CAFF-- which represents the many small farms and ranches which supply our farmers markets, grocery stores, CSA boxes and some restaurants-- was noted in the focused working group.	Comment noted. CAFF representatives will be contacted to participate in the listed GSP activities.
COMMENTS RECEIVED PRIOR TO OCTOBER 1, 2021			
9/8/2021	Andy Rodgers	The draft section represents what the advisory committee has been talking about. The section is well organized and clearly written. The only addition that occurred to me after reading is to consider the GSA providing some basic well maintenance, management, and best practices education. This could be valuable to have the GSA host and promote on-going workshops with experts and local drillers/pump companies to empower well owners to understand well construction, pump and storage practices, and water quality considerations and treatment options. Also could have Permit Sonoma discuss well and abandonment permitting overview etc.	Added language to Section 7 that indicates this would be included in outreach materials to stakeholders.
8/31/2021	Rebecca Ng	Missing acronyms for Sect 6 & 7: ECWRF, IRWM, LID, MGD, NBWRA, NBWRP, NCRWQCB (add North Coast)	Added to references

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		6.2.2.4 .also other pages in the section: acronyms are not being identified when the term is first used. Some of the acronyms are not included in the list of acronyms and abbreviations. (See above) Some acronyms in section 6.2.2.4: DWR IRWM grant funding; NBWRP; NBWRA; MGD. Also LID used on page 6.3. The section needs editting.	Acronyms are used after first reference in GSP (not each section). Master reference list included in Section 8.
9/9/2021	Chelsea Thompson	Existing wastewater treatment and recycled water production occur at the SVCSD WWTP in compliance with Order No. R2-2016-0014 (NPDES Permit No. CA0037810) issued by the San Francisco Bay RWQCB. It is anticipated that future expansion of recycled water deliveries would also occur under this or future revised or amended orders. **Has SVCSD been spelled out in document?**	Corrected references.
		6.2.2.4 Estimated Costs and Funding Plan The City is a member of North Bay Water Reuse Authority (NBWRA), a regional water recycling and management initiative which covers areas north of the San Francisco Bay. The NBWRP is comprised of member agency recycled water projects, including City of Petaluma projects. Through NBWRA, the City continuously pursues funding opportunities for its projects included in NBWRP Phase 2. The planned expansion of the recycled water system is separated into three parts.	
		NBWRP to NBWRA	Corrected
		6-10 first paragraph - weather conditions (i.e., the summer and fall seasons) or emergency situations. The Groundwater Banking Feasibility Study (GEI, 2013) provided an evaluation of the regional needs and benefits, source water availability and quality, regional hydrogeologic conditions, and alternatives for groundwater banking. Prior to implementing long-term ASR programs, pilot studies are recommended to verify location specific feasibility, including aquifer capacity for recharge and recovery operations and geochemical compatibility. Pilot testing involves injecting potable drinking water into the Basin's aquifers and recovering it to assess injection and recovery capacities and monitor potential water quality impacts to native groundwater resources. Information generated by pilot test evaluations will help inform the degree to which ASR is a feasible strategy to improve the reliability water supply, along with helping to evaluate whether or not an ASR project can be developed and operated in a manner that will achieve both supply reliability and groundwater sustainability benefits. In 2018 a successful pilot study project was completed in the nearby Sonoma Valley Subbasin which provides information that can inform future ASR planning within the Basin (GEI, 2020). **Reliability (of) water supply**	Corrected

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		The State Water Resources Control Board (SWRCB) has recognized **that it in the best** interest of the state to develop a comprehensive regulatory approach for ASR projects, and has adopted general waste discharge requirements for ASR projects that inject drinking water into groundwater (Order No. 2012-0010-DWQ or ASR General Order). The ASR General Order provides a consistent statewide regulatory framework for authorizing both pilot ASR testing and permanent ASR projects. Pilot tests and any future permanent ASR facility will be permitted under the ASR General Order. Oversight of these regulations is done through the Regional Water Quality Control Boards (RWQCBs) and will require project proponents to comply with the monitoring and reporting requirements of the ASR General Order. Any additional permits required for the construction and operation of an ASR facility will be obtained by the lead agency for each ASR project as needed. **CORRECT 'THAT IT (IS) IN THE BEST** 6.2.2.3 Public Noticing, Permitting and Regulatory Process: Public notice for aspects of the recycled water projects will be carried out by the lead agency, which is anticipated to be the City of Petaluma. For recycled water projects where the GSA is not the lead agency, the GSA will provide support for outreach activities to nearby well owners and the local community. As noted above, compliance with the California Environmental PVGSP Section 6 PMAs 6- 6 v08252021 Quality Act (CEQA) is incorporated into the existing EIR for the Phase 2 North Bay Water Reuse Project. Any additional recycled water projects would be included in future CEQA analysis, as[1]needed. Existing wastewater treatment and recycled water production occur at the SVCSD WWTP in compliance with Order No. R2-2016-0014 (NPDES Permit No. CA0037810) issued by the San Francisco Bay RWQCB. It is anticipated that future expansion of recycled water deliveries would also occur under this or future revised or amended orders. **UPDATE WITH: Ellis Creek Water Recycling Facility (ECWRF) and Order R2-2021-0008 (NPDES Permit No. CA0037810)**	Corrected Corrected
9/9/2021	Chelsea Thompson	6.2.2.5 Legal Authority: As described above, the **SVCSD** has the legal authority to treat wastewater and deliver recycled water for irrigation uses.	Corrected
9/21/2021	Jason Farnsworth (City of Petaluma)	6.2.2. Recycled water expansion: As with all regulatory submittals I strongly recommend the City have this document reviewed by Legal for a regulatory and committal benchmark analysis. As a rule it is good to understand where the document falls on the regulatory spectrum of compliance. Is the City over committing, under committing or does the City have an adequate level of commitment?	Comment noted.

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		Recycled water is wastewater that enters into the wastewater collection system from within the service area of the City of Petaluma and is treated to tertiary standards at the Ellis Creek Water Recycling Facility (ECWRF). Recycled water has been and will continue to be an important source of irrigation water to offset the use of local groundwater and potable water supplies in the Petaluma Valley. Recycled water can be used in applications where potable water is often used (such as the irrigation of public parks and golf courses and for agriculture). In addition to allowing for potable water offsets, recycled water use may potentially facilitate "in lieu groundwater recharge." For example, if a farm has historically used pumped well water for pasture or crop irrigation begins using recycled water instead, the groundwater aquifer beneath may potentially "recover" through reduced pumping and natural recharge. Recycled water is a sustainable water source and allows potable supplies to be reserved for the best and highest use. Additionally, utilizing recycled water for irrigation also means a decrease in discharge of treated wastewater to local water bodies such as the Petaluma River.	Made proposed edits
		The ECWRF opened in July 2009 and provides advanced secondary treatment, anaerobic digestion, and tertiary treatment of wastewater. The treatment facility treats domestic, commercial, and industrial wastewater generated in the City and in unincorporated Penngrove area. The facility treats on average 4.2 million gallons of wastewater each day and 1.5-1.8 billion gallons annually although not all influent wastewater is treated to tertiary standards. During the winter months ECWRF is permitted to discharge treated wastewater into the Petaluma River.	Made proposed edits
		Tertiary-treated recycled water, distributed through a system of pump stations and pipelines, provides irrigation for agriculture, golf courses, school yards, parks and other landscaped areas. Urban use of recycled water saves potable water and supplements the City's potable water supply.	Made proposed edits
		Agricultural use of recycled water reduces the amount of groundwater pumping for local farming, including dairy pastures and vineyards.	Made proposed edits
		Recent production and deliveries of recycled water from the ECWRF are approximately 650 AFY within the City's service area and 1,115 AFY outside of the City's service area (primarily to agricultural customers). The City continues to plan for an expansion of the urban recycled water system aimed at delivering recycled water to more parks and schools throughout the service area. The City also continues to plan for an expansion to deliver recycled water to more agricultural customers further extending City's service area. (Remove West Yost ref)	Made proposed edits
		6.2.2.1: "Objectives for expanding recycled water deliveries are to help achieve measurable objectives". I am not sure what this means. What is/are the objectives. In addition to the unstated objectives we add an awkward comment related to chronic lowering of groundwater levels. Is this confirmed via a study or are we generalizing? We should be explicit here and cite and sources. This appears to be template language and not Petaluma's related objectives	Measurable objectives are detailed in Section 4 (Sustainable Management Criteria)
		"As described above, recycled water projects require permitting, environmental analysis and engineering design." Where is this described above?	Revised text.

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		6.2.2.2: "Potential benefits from implementation of recycled water projects is anticipated to include a reduction in groundwater pumping and localized increases in groundwater levels. Benefits from recycled water projects would primarily be evaluated using changes in measured groundwater levels and improvements to groundwater storage changes." This section infers a monitoring program exists? Does one and if so why are we no citing it?	Monitoring program described in Section 5 (Monitoring Network)
		6.2.2.3: "Public notice for aspects of the recycled water projects will be carried out by the lead agency, which is anticipated to be the City of Petaluma." Should we be explicit was the public noticing requirements are in addition to who is responsible for carrying them out.	Revised text.
		"Existing wastewater treatment and recycled water production occur at the SVCSD WWTP in compliance with Order No. R2-2016-0014 (NPDES Permit No. CA0037810) issued by the San Francisco Bay RWQCB . It is anticipated that future expansion of recycled water deliveries would also occur under this or future revised or amended orders." Please confirm this agency, My memory recalls the State Water Board as the issuing agency. This paragraph appears out of context. Above we are discussing the City of Petaluma's system however here it appears to be a different agency without and real ties to the above information. Who and what is SVCDS please spell out the related agency prior to using the abbreviated name. If this agency is appropriate here they should also be added to the above discussion. Additionally Petaluma should be discussed here.	Corrected references.
		The City is a member of North Bay Water Reuse Authority (NBWRA), a regional water recycling and management initiative which covers areas north of the San Francisco Bay. The NBWRP is comprised of member agency recycled water projects, including City of Petaluma projects. Through NBWRA, the City continues to pursue funding opportunities for projects included in NBWRP Phase 2. Additionally, the City will update the 2004 Recycled Water Master Plan in the near term to allow for Council priorities and program growth alignment. The planned expansion of the recycled water system is separated into three parts. • Tertiary Treatment Expansion (TTE) – This project will increase ECWRF tertiary treatment capacity by 2.12 MGD, providing a yield of 712 AFY. Existing capacity is 4.68 MGD for Title 22 disinfected tertiary. The TTE project will allow the City to meet increasing demands of both urban and agricultural irrigation sectors. The TTE project is currently under design, and recently received $3.6 million in DWR IRWM grant funding through NBWRP Phase 2. Overall project costs are projected to be $12,080,00. • Agricultural Pipeline Expansion (AGP) – Expanded agricultural distribution pipeline system to provide 1,343 AFY of recycled water for irrigation. AGP costs are projected to be $10,200,000 and are anticipated to be funded through a combination of grant funding, public funding, and a cost share from project beneficiaries • Urban Pipeline Expansion (UPE) – Expanded urban distribution pipeline system to provide 173 AFY of potable water offsets for primarily institutional irrigation. UPE Ccosts are projected to be $14,000,000 and are anticipated to be funded through a combination of grant funding, public funding, and cost share from project beneficiaries.	

DATE RECEIVED	NAME	COMMENTS	RESPONSE TO COMMENTS
		"A total of $25,000 is included in the GSA's initial five-year budget provided in Section 7.2 for the GSA to coordinate with the City of Petaluma to assess additional recycled water opportunities. It is anticipated that the assessment will include :• Evaluation of existing and future availability, delivery commitments and constraints • Assessment of options for optimization of existing and projected future available supplies • Preliminary cost/benefit analysis for future prioritizing options • Recycled water masterplan development • Feasibility studies for potential recycled water storage locations " Is this an annual budget allocation or a total over the five-year term? What about the above mentioned Agency SVCSD? Are they include here as well? 6.2.2.5: This seems incomplete or not applicable based on the above. The Section is related to Petaluma's program why then would SVCSD have legal authority over Petaluma's system. If SVCSD is appropriate here this section should also include Petaluma's info. This section should be explicit and cite what authority is provided and how it is derived.	This section was revised per discussions with the City. Made edits to eliminate incorrect reference.
9/7/2021	Robert Pennington	Additional seasonal use of Russian River Water in place of groundwater use could be cost effective. I recommend a future assessment (similar to the proposed evaluation of recycled water) be specified	Such a scenario was not examined because basin does not expereince Undesirable Results.

PETALUMA VALLEY GSP SECTION 7 -- IMPLEMENTATION PLAN			
DATE RECEIVED	**NAME**	**COMMENTS**	**RESPONSE TO COMMENTS**
10/25/2021	Roy Smith	Recommended actions: The greatest scale of recharge at the lowest cost can be gained by engaging all land owners with parcels of 1+ acres. Simple and durable land alterations can be employed to slow and sink available precipitation. However, land owners are not currently incentivized in this direction as the cost of implementation is born directly by them individually, but the benefit is conveyed to the public at large through the "commons". It may be best to pursue County-wide groundwater recharge through education, credit schemes, easily replicable designs, and funding or grant schemes coordinated through other local, State, and Federal agencies.	Comment noted.
10/29/2021	Sebastian Bertsch	It is worrisome that no guidance from the Advisory Board or the public comment sessions is mentioned here. There was very clear community input calling for distinctions in fee structures that match the intent of SGMA to distinguish between domestic de-minimis water users and commercial/agricultural users of water, and place a greater burden of monitoring and fund sourcing on the latter.	Comment acknowledged. The fee study that is currently underway will include consideration of the intial fee study and will also address issues regarding fair-share distribution of the fee.
10/31/2021	Community Alliance with Family Farmers	We believe the following components should be included in every Groundwater Sustainability Plan (GSP):	
		Clear guidance for implementing sustainable groundwater management in land use policy, including prioritization of water for local food production. Land use is inextricably tied to groundwater use and its sustainable management. The Plan needs to address not just water use of current activities and sectors, but of the expansion of water use and water-intensive activities, such as housing development, winery development and expansion, land conversion to new vineyards, and cannabis projects. Land use should be tied to meaningful measurements and projections of long-term water availability and be considered cumulatively, for the protection of all beneficial uses. Specifically, the Plan should include:	
		1. Coordination of water management and land use planning. In line with the objective of "close coordination and collaboration with other entities and regulatory agencies that have a stake or role in groundwater management in the Subbasin," the GSP should provide clear mandates and guidelines to be incorporated by Permit Sonoma into Use Permits, and by other jurisdictions into their land use policies and permits. Permitting must not be in conflict with the GSP and should support achieving sustainability goals.	Additional text had been added to Section 7.2.2 regarding coordination with land use agencies. Recommendations on policy options will addressed through the policy options management action.

DATE RECEIVED	NAME	COMMENTS	RESPONSE TO COMMENTS
		2. Prioritization of water for food farming (fruit, vegetables, herbs, and livestock). As supply chain disruptions continue due to climate change and other impacts, we will increasingly rely on local food production, especially during emergencies. Given that local food security is likely to become an even more significant issue over the 50-year planning horizon, the Plan must distinguish agricultural water use by food vs. non-food crops. It may be argued that wine grapes are essential to our economy, but they can be dry farmed—whereas most fruits and vegetables, and all livestock, require water. According to annual Crop Reports there has been a glut of wine grapes on the market since 2018, yet more vineyards continue to be developed across the county. CAFF has been involved with providing resources and training on irrigation efficiency and assisting with vineyard transition to dry farming.	Comment noted.
		3. Preparation for large-scale, emergency groundwater reliance/ usage. Staff have explained that "long-term sustainability" and "adaptive management" are central to groundwater sustainability planning, and that short-term shortages and drought are not intended to be included in this phase. Assuming that groundwater levels begin to significantly decline, it will be possible to create and implement necessary management actions in the future. We find this approach to be highly irresponsible and inadequate. Plans should contain proactive preparation for worst-case scenario groundwater extraction, such as if sudden or drastic shortages and/or disruptions to surface water supplies were to occur. Local agencies and municipalities should use this information to create or update contingency plans, which should also include equitable prioritization of uses. "Worst case scenario" planning provides necessary time to change course in advance of irreversible decline or degradation. We are concerned that the climate model showing "normal" and wetter than normal conditions for 2025-2050 could lead to severe water shortages - the opposite of sustainability.	Comment noted. Many of the implementation activities and planned projects and actions will build resiliency for groundwater users within the Subbasin.
		Sonoma County's Chapter of CAFF requests to be included in these upcoming GSP activities: stakeholder input on the fee schedule to be levied on agricultural users; Farm Plan assessments; and any additional agricultural stakeholder meetings. Although agricultural stakeholder meetings have previously been held in the planning process, CAFF-- which represents the many small farms and ranches which supply our farmers markets, grocery stores, CSA boxes and some restaurants-- was not included in the focused working group.	Comment noted. CAFF representatives will be contacted to participate in the listed GSP activities.
10/28/2021	California Dept of Fish & Wildlife	Comment: Management actions should include specifics on how and on what timeline adverse impacts will be reversed, if observed. The GSP should specify adaptive management strategies to account for 'lag' impacts wherein groundwater responses to changes in management regimes are delayed due to aquifer characteristics. Projects and management actions should seek to maximize multiple-benefit solutions, including habitat improvements.	

DATE RECEIVED	NAME	COMMENTS	RESPONSE TO COMMENTS
		Recommendation: The Department encourages the GSA to consider implementing recharge projects that facilitate floodplain inundation. These projects offer multiple benefits including downstream flood attenuation, groundwater recharge, and ecosystem restoration. Managed floodplain inundation can recharge floodplain aquifers, which in turn slowly release stored water back to the stream during summer months. These projects also reconnect the stream channel with floodplain habitat, which can benefit juvenile salmonids by creating off-channel habitat characterized by slow water velocities, ample cover in the form of submerged vegetation, and high food availability. Additionally, these types of multi-benefit projects likely have more diverse grant funding opportunities that can lower their cost as compared to traditional off-channel recharge projects.	Thank you for the recommendation. The GSA recognizes the importance of implementing recharge projects, and has outlined Projects and Management Actions to facilitate stormwater capture and recharge (**Section 6.2.4**).
COMMENTS RECEIVED BEFORE OCTOBER 1, 2021			
9/10/2021	Eugene Cammozi	7.2.8 (Estimate of 5-year implementation costs) I feel the budget is excessive for the Petaluma Basin. There are only about 14 to16 monitoring wells to keep of, especially for a basin that has been in balance for the last 50 years, and is estimated to be so in the future. I feel the Board of Supervisors needs to look into this and ask some serious questions. In addition, it is unclear who will be paying for the budget, but my hope is that the cost is planned to be spilt three ways: among city, rural residential, and commercial agriculture.	Comment noted. The budget is a high-level assessment which will be refined as more information is available and as part of the fee study.
8/31/2021	Rebecca Ng	7.2.3: There is a reference to Section 7.1.4. There is no Section 7.1.4. 7.2.4.2: Interconnected Surface water subsection, 3rd bullet needs editing as it is incomplete. 7.3.2: It is stated that in August 2022, a consultant was engaged to conduct a fee study yet it is stated somewhere else that the fee will be in place by June 30, 2022.	Corrected.
9/7/2021	Robert Pennington	I do not see discussion of the GSA reviewing and responding to: General plan amendments; other local policies related to groudnwater resources; other public and private projects subject to CEQA. Review and response to GP amendments is required per 65352.5(d). The report on anticipated effect could take a fair bit of GSA staff time, and it may be worth noting as a future task or administrative task.If the GSA wants to take an active role in reviewing private projects and requesting specific conditions of approval or mitigation measures, this would also take staff time and resources. Per the current CEQA checklist includes the following “Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?” Lead agencies will look to the GSA staff to help answer this question, and determine suitable mitigation measures. Mitigation fees could also be a source of funding for GSA supported projects.	Added information on policy options, including those mentioned in Sections 6 and 7