Will Cunha from Shandon-San Juan GSA says (02/12/2020 01:13PM):

I would like to commend the various boards, council, staff members and technical consultants for the efforts that have gone into the preparation of the draft GSP and for the transparent and collaborative manner in which the GSAs have engaged with stakeholders. We are in this together and look forward to a positive partnership with DWR and the State Water Board as we move forward to implement the GSP for the Paso Basin.



State of California – Natural Resources Agency DEPARTMENT OF FISH AND WILDLIFE Central Region 1234 East Shaw Avenue Fresno, California 93710 (559) 243-4005 www.wildlife.ca.gov

GAVIN NEWSOM, Governor CHARLTON H. BONHAM, Director



February 12, 2020

Via Electronic Mail and Online Submission

Craig Altare Supervising Engineering Geologist California Department of Water Resources 901 P Street, Room 213 Sacramento, CA 94236 Email: <u>Craig.Altare@water.ca.gov</u> Portal Submission: <u>https://sgma.water.ca.gov/portal/#gsp</u>

Paso Basin GSP John Diodati, Interim Director County of San Luis Obispo Public Works 976 Osos Street, Room 206 San Luis Obispo, CA 93408 Email: jdiodati@co.slo.ca.us

Subject: Comments on the Paso Robles Subbasin Final Groundwater Sustainability Plan

Dear Mr. Altare and Mr. Diodati:

The California Department of Fish and Wildlife (Department) Central Region is providing comments on the Paso Robles Subbasin Final Groundwater Sustainability Plan (GSP) prepared jointly by four Groundwater Sustainability Agencies (GSAs) – City of Paso Robles GSA, Paso Basin - County of San Luis Obispo GSA, San Miguel Community Services District GSA, and Shandon - San Juan GSA – pursuant to the Sustainable Groundwater Management Act (SGMA). As trustee agency for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species (Fish & Game Code §§ 711.7 and 1802).

Development and implementation of GSPs under SGMA represents a new era of California groundwater management. The Department has an interest in the sustainable management of groundwater, as many sensitive ecosystems and species depend on groundwater and interconnected surface waters, including ecosystems on Department-owned and -managed lands within SGMA-regulated basins. SGMA and its implementing regulations afford ecosystems and species specific statutory and

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regulatory consideration, including the following as pertinent to Groundwater Sustainability Plans:

- Groundwater Sustainability Plans must identify and consider impacts to groundwater dependent ecosystems (GDEs) [23 CCR § 354.16(g) and Water Code § 10727.4(I)];
- Groundwater Sustainability Agencies must consider all beneficial uses and users of groundwater, including environmental users of groundwater [Water Code § 10723.2 (e)]; and Groundwater Sustainability Plans must identify and consider potential effects on all beneficial uses and users of groundwater [23 CCR §§ 354.10(a), 354.26(b)(3), 354.28(b)(4), 354.34(b)(2), and 354.34(f)(3)];
- Groundwater Sustainability Plans must establish sustainable management criteria that avoid undesirable results within 20 years of the applicable statutory deadline, including depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water [23 CCR § 354.22 *et seq.* and Water Code §§ 10721(x)(6) and 10727.2(b)] and describe monitoring networks that can identify adverse impacts to beneficial uses of interconnected surface waters [23 CCR § 354.34(c)(6)(D)]; and
- Groundwater Sustainability Plans must account for groundwater extraction for all water use sectors including managed wetlands, managed recharge, and native vegetation [23 CCR §§ 351(al) and 354.18(b)(3)].

Furthermore, the Public Trust Doctrine imposes a related but distinct obligation to consider how groundwater management affects public trust resources, including navigable surface waters and fisheries. Groundwater hydrologically connected to navigable surface waters or surface waters supporting fisheries, and surface waters tributary to navigable surface waters or surface waters supporting fisheries, are also subject to the Public Trust Doctrine to the extent that groundwater extractions or diversions affect or may affect public trust uses (*Environmental Law Foundation v. State Water Resources Control Board* (2018), 26 Cal. App. 5th 844; *National Audubon Society v. Superior Court* (1983), 33 Cal. 3d 419). Accordingly, groundwater plans should consider potential impacts to and appropriate protections for interconnected surface waters and their tributaries, and interconnected surface waters that support fisheries, including the level of groundwater contribution to those waters.

In the context of SGMA statutes and regulations, and Public Trust Doctrine considerations, the Department values groundwater planning that carefully considers and protects environmental beneficial uses and users of groundwater including fish and wildlife and their habitats: groundwater dependent ecosystems and interconnected surface waters.

COMMENT OVERVIEW

The Department supports ecosystem preservation and enhancement in compliance with SGMA and its implementing regulations based on Department expertise and best available information and science. The Department recommends the GSP provide additional information and analysis that considers all environmental beneficial uses and users of groundwater and that better characterizes surface water-groundwater connectivity. The Department provides specific comments and recommendations below.

COMMENTS AND RECOMMENDATIONS

The Department comments are as follows:

- Comment #1 Plan Area. Section 3 Description of Plan Area, Subsection 3.3.3 State Jurisdictions (pages 3-4 to 3-5, Figure 3-2). The Department recommends the GSP list and describe the State lands within the Plan Area on page 3-4, including the Department's Big Sandy Wildlife Area comprising roughly 850 acres of grassland and cottonwood-willow-mulefat association within the bed of the Salinas River. Big Sandy Wildlife Area has no active groundwater supply wells.
- 2. Comment #2 Environmental Beneficial Users of Groundwater. Section 4 Hydrogeologic Conceptual Model, Subsection 4.5 Primary Users of Groundwater (page 4-28). The GSP briefly acknowledges environmental beneficial users of groundwater but does not describe or consider their reliance on groundwater.
 - a. Issue: Pursuant to 23 CCR § 354.10(a), GSPs are to include in the Notice and Communication Section a "description of the beneficial uses and users of groundwater in the basin." The mention of environmental users in the Primary Users of Groundwater section (page 4-28) is cursory with no description of these users (e.g., habitats and species) or how they rely on groundwater. The GSP suggests that Appendix G includes descriptions of beneficial uses and users (page xiv), but Appendix G only summarizes stakeholder survey results.

In defining the GSP's water use sectors, the plan considers native vegetation water use to include rural residential areas (page 3-11). The GSP suggests that rural residential usage is part of the regulatory definition of native vegetation water use. However, in the regulations the 'water use sector' definition refers to "categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation" [23 CCR § 351(al)]. By including rural residential areas in the native vegetation water use category, there could be an overestimation of

native vegetation water use, particularly in areas with heavy rural groundwater reliance, inaccurately characterizing native vegetation groundwater needs and complicating management actions.

- b. Recommendation: The Department recommends the GSP elaborate on potential environmental beneficial uses and users of groundwater by including a detailed description on how these users, such as GDEs and the species therein, may rely on groundwater and may be impacted by Sustainable Management Criteria pursuant to 23 CCR §§ 354.10(a), 354.26(b)(3), 354.28(b)(4), 354.34(b)(2), and 354.34(f)(3). The Critical Species LookBook (TNC 2019) is a resource that can be used to help identify threatened and endangered species in any basin subject to SGMA and to help understand species relationships to groundwater. The LookBook also offers narrative on species and habitat groundwater dependence that can be a model for describing environmental beneficial uses and users of groundwater in the GSP.
- Comment #3 Interconnected Surface Waters. Section 4 Hydrogeologic Conceptual Model, Section 5 Groundwater Conditions, and Section 6 Water Budget. Interconnected surface waters (ISW) are not identified or characterized in the GSP, and the narrative describing ISW is inconsistent.
 - *Issue:* Pursuant to 23 CCR § 354.16(f), a GSP shall identify "interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems" within the 'Groundwater Conditions' section. The GSP provides no analysis of surface water-groundwater interconnectivity to meet this requirement and the GSP's claims concerning ISW are inconsistent throughout the plan and offer little to no data to substantiate conclusions. The following are GSP excerpts discussing surface waters:
 - i. "Ephemeral surface water flows in the Subbasin over the last 40 years make it difficult to assess the interconnectivity of surface water and groundwater and to quantify the degree to which surface water depletion has occurred. There are no available data that establish whether or not the groundwater and surface water are connected through a continuous saturated zone in any aquifer. [...] Definitive data delineating any connections between surface water and groundwater or a lack of interconnected surface waters is a data gap that will be addressed during implementation of this GSP" (page 5-26); "There are data gaps in assessing the existence of interconnected surface water bodies in the Subbasin. The initial

data gap is the lack of wells that monitor the shallow groundwater table adjacent to streams and rivers" (page 7-25).

ii. "Natural groundwater discharge areas within the Plan area include springs and seeps, groundwater discharge to surface water bodies, and ET by phreatophytes. [...] Orange areas on Figure 4-17 represent streams in the model where simulated average groundwater discharge to the stream reach is at least 10 AFY. In contrast to mapped springs and seeps, which are derived from groundwater in the Paso Robles Formation, groundwater discharge to streams is derived from the Alluvium" (page 4-31).

 iii. "Significant streams that are mostly perennial in the Subbasin include the Nacimiento River, Salinas River, Estrella River, Huerhuero Creek, San Juan Creek, Dry Creek, and Shedd Canyo [...] These rivers and creeks lose water to the shallow aquifer during most of the year" (page 4-34).

"The estimated annual average total outflow from [surface waters] over the historical base period is about 360,400 AF. Of this 360,400 [acre-feet per year] AFY, approximately 26,900 AFY of the outflow is percolation from streams into the groundwater system. Of this 26,900 AFY of percolation, 7,300 AFY returns to streamflow as groundwater discharge" (Historical Surface Water Budget, page 6-7).

v. "There are no minimum thresholds or undesirable results established in this GSP for depletion of interconnected surface water that could be affected by the groundwater elevation minimum thresholds" (page 8-12).

These excerpts are conflicting. First, the GSP says data to define ISW are lacking and ISW data gaps exist (#2.a.i) but does not identify ISW as a data gap under Section 4.9 Data Gaps in the Hydrogeologic Conceptual Model (page 4-36). Second, the GSP explains that the Subbasin model outputs identify areas of groundwater discharge to streams (see Figure 4-17, page 4-32, #2.a.ii) but maintains that there are not available data to support ISW identification; this raises questions about the validity of a data-poor model. Third, the GSP characterizes significant perennial streams in the alluvial basin as losing water to the shallow aquifer during most of the year (#2.a.iii). Each of the identified perennial streams support riparian vegetation and potential GDEs (Klausmeyer et al. 2018), and these losing streams can be interconnected with groundwater (Barlow and

> Leake, 2012) (see Figure 4-18, page 4-33), thus understanding interconnectivity of these streams is critical to identifying GDEs (see Comment #4). Fourth, the GSP *historical* surface water budget estimates groundwater discharge contributes on average 7,300 AFY to streamflow (#2.a.iv), whereas Table 6-6 estimates that groundwater discharge contributes 4,300 AFY to *current* surface water inflows (page 6-16). The decrease in historical to current groundwater discharge to streamflow is significant and raises questions about how such significant changes in the ISW water budget can be estimated when there are "no available data that establish whether or not the groundwater and surface water are connected through a continuous saturated zone in any aquifer" (page 5-26). Finally, the GSP does not develop Sustainable Management Criteria (SMC) for ISW (#2.a.v), despite the likelihood of Alluvial Aquifer interconnectivity based on model outputs predicting groundwater discharge to streams.

- b. Recommendation: To reconcile the incomplete analysis of ISW and depletions attributable to groundwater pumping, the Department recommends the GSP define a clear and expeditious path to improving shallow groundwater and surface water monitoring, clearly identifying ISW, and estimating the quantity, timing, and location of streamflow depletions in the subbasin, per 23 CCR 354.28 (c)(6)(A) (see Comment #5). Additionally, the Department recommends developing SMC for depletions of ISW based on an improved understanding of ISW and with consideration for impacts to environmental beneficial uses and users of groundwater (see Comment #6).
- 4. Comment #4 Groundwater Dependent Ecosystems. Section 4 Hydrogeologic Conceptual Model, Subsection 4.7.2 Groundwater Discharge Areas Inside the Subbasin (pages 4-31 to 4-33, Figure 4-18, Appendix C). Identification of potential GDEs would benefit from additional investigation, including field verification.
 - a. Issue: The GSP relies on the Natural Communities Commonly Associated with Groundwater (NCCAG) Dataset and additional hydrogeologic analysis (see Appendix C Methodology for Identifying Potential Groundwater Dependent Ecosystems) to identify potential GDEs. The GSP states, "There has been no verification that the [GDE] locations shown on this map [Figure 4-18] constitute groundwater dependent ecosystems. Additional field reconnaissance is necessary to verify the existence of these potential GDEs" (page 4-31).
 - b. *Recommendation:* The Department concurs with the need to field-verify potential GDEs and recommends developing a specific plan and timeline

> for GDE verification. The Department also recommends review of additional references for further refining GDE identification. The Department recognizes that NCCAG (Klausmeyer et al. 2018) provided by California Department of Water Resources (CDWR) is a good starting reference for GDEs; however, the Department recommends the GSP include additional resources (including local knowledge) for evaluating GDE locations. The Department recommends consulting other references, including but not limited to the following tools and other resources: the California Department of Fish and Wildlife (CDFW) Vegetation Classification and Mapping Program (VegCAMP) (CDFW 2019A); the CDFW California Natural Diversity Database (CNDDB) (2019B); the California Native Plant Society (CNPS) Manual of California Vegetation (CNPS 2019A); the CNPS California Protected Areas Database (CNPS 2019B); the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (USFWS 2018); the USFWS online mapping tool for listed species critical habitat (USFWS 2019); the U.S. Forest Service CALVEG ecological grouping classification and assessment system (USFS 2019); and other publications by Klausmeyer et al. (2019), Rohde et al. (2018), and The Nature Conservancy (TNC) (2014, 2019).

- **5. Comment #5 Monitoring Networks.** Section 7 Monitoring Network (starting page 7-1). The number and distribution of shallow groundwater monitoring wells in the Plan Area and along the surface waters in the Plan Area are inadequate for analysis of shallow groundwater trends and groundwater-surface water interconnectivity.
 - a. Issue: The current monitoring network lacks a sufficient number and distribution of shallow groundwater monitoring wells to monitor impacts to environmental beneficial uses and users of groundwater and interconnected surface waters [23 CCR § 354.34(2)]. The monitoring network includes only one newly installed shallow groundwater monitoring well in the entire Alluvial Aquifer (Figure 7-2, pages 7-9, 8-8). A single well with no historical record is insufficient to characterize shallow groundwater and surface water-groundwater interactions within the Plan Area, Shallow groundwater data are critical to understanding groundwater management impacts on environmental beneficial uses and users of groundwater that are impacted disproportionately by shallow groundwater trends including fish and wildlife, GDEs, and potential interconnected surface water habitats. Thus, the current monitoring network is inadequate for mapping the shallow alluvial aquifer which is of primary importance for environmental beneficial users of groundwater. The GSP acknowledges this data gap on page 7-10 and again on page 7-25, but it does not specify

how the Alluvial Aquifer monitoring deficit will be addressed and prioritized during implementation.

- b. *Recommendation*: The Department recommends installing additional shallow groundwater monitoring wells near potential GDEs in the basin and along interconnected surface waters, potentially pairing multiple-completion wells with streamflow gages for an improved understanding of surface water-groundwater interconnectivity. The Department recommends providing the specific timing and location of shallow groundwater monitoring well installation for implementation accountability.
- 6. Comment #6 Sustainable Management Criteria. Section 8 Sustainable Management Criteria (SMC) (starting page 8-1). SMC consideration of effects on environmental beneficial uses and users of groundwater pursuant to 23 CCR § 354.26(b)(3) is inadequate, and SMC do not reflect a 'Critically Overdrafted' Basin status.
 - a. *Issue*:
 - i. There are no SMC set for the Alluvial Aguifer (page 8-8) and therefore no long-term accountability to ensure sustainability of the aguifer that supports GDEs and ISW. It is understood that the lack of SMC for this aquifer is due to the severely limited hydrologic record, which does not afford the development of a meaningful baseline, and the almost nonexistence of monitoring wells. The lack of baseline information and SMC coupled with insufficient monitoring may risk opportunistic over-pumping in the Alluvial Aquifer and associated negative impacts on GDEs and ISW. Proposed SMC may also risk adverse impacts to GDEs by tolerating sustained, on-going groundwater decline in the Paso Robles Aguifer (see Comment #6.a.ii). The GSP asserts that groundwater elevation Minimum Thresholds (MTs) will protect ecological land uses and users because "they are set to avoid long term declines in groundwater levels in a short amount of time" (page 8-14). However, considering GDEs are vulnerable to sustained decreases in groundwater elevation (Naumburg et al., 2005) which are permissible under the proposed MTs (see Comment #6.a.ii), and considering vertical hydraulic gradients between the Alluvial Aquifer and the Paso Robles Aquifer are among the listed Data Gaps (page 4-36), it is possible that GDEs will suffer significant undesirable impacts where shallow groundwater availability is lost under declining groundwater

> elevations. Rather than acknowledge this likelihood and design monitoring systems to identify and mitigate potential impacts, the GSP suggests that MTs are protective of ecological users of groundwater.

İİ. The Paso Robles Subbasin is designated as 'Critically Overdrafted.' meaning "continuation of present water management practices [in the basin] would probably result in significant adverse overdraftrelated environmental, social, or economic impacts" (CDWR "Critically Overdrafted") (CDWR 2019). The GSP establishes Measurable Objectives (MOs) for groundwater elevations as the average 2017 groundwater elevation (page 8-8). In most cases, these MOs represent near-historic groundwater lows, recorded after five sequential dry years witnessed a significant increase in groundwater pumping. By setting MOs at 2017 groundwater levels and establishing MTs – in several cases 100+ feet deeper than MOs – to avoid locally defined significant and unreasonable conditions (page 8-9), the GSP suggests that no undesirable results (URs) were present in 2017, and no URs will be suffered before any of the MTs are reached, even if groundwater levels continue to drop during the 20-year implementation horizon. However, the GSP also states, "Initial minimum thresholds were selected to allow sufficient time for the GSAs to develop a broader and publicly accessible dataset that will give clear guidance to establish a reasonable justification for any potential management actions that would be triggered by exceedances minimum thresholds" (page 8-9). This approach to developing MTs suggests that rather than defining MTs as a threshold past which locally-defined significant and unreasonable conditions may occur (as stated on page 8-9 and as required by existing regulations [23] CCR 351 (t)]), the MTs instead were chosen to allow time for policy development and may have been defined without a physical basis. Regardless of how they were selected, the MTs allow for sustained groundwater table decline, mirroring the historical trends that led to the subbasin's Critically Overdrafted status. Conceptually, there is a disconnect between the subbasin's 'Critically Overdrafted' designation and sustainable management criteria that allow for continued groundwater level decline.

b. *Recommendation:* The Department recommends the GSA reevaluate SMC with the following suggestions:

- i. Clarify how species and habitat groundwater needs were considered in the identification of SMC and identify specific potential adverse impacts on environmental beneficial users of groundwater and causal relationships with groundwater pumping (e.g., terrestrial GDE stress/loss, increased instream temperatures, etc.). Add a bullet to the list of locally defined significant and unreasonable conditions (page 8-7) addressing significant and unreasonable impacts to groundwater dependent habitat. Identify and implement appropriate monitoring approaches to track environmental beneficial users over time, design a monitoring program that is capable of capturing early signs of adverse impacts to GDEs and ISW, and develop appropriate mitigation plans to reverse negative observed impacts to GDEs (e.g., stressed phreatophyte vegetation). Develop SMC for depletions of ISW after reanalysis of ISW with additional data (see Comment #3).
- ii. Revise SMC to reflect a 'Critically Overdrafted' subbasin designation by seeking to improve current groundwater conditions rather than allow for continued aquifer depletions over the next two decades.

CONCLUSION

Although the Paso Robles Subbasin GSP acknowledged environmental beneficial users of groundwater, the GSP was insufficient addressing all required aspects of SGMA statutes and regulations for protecting environmental beneficial uses, users of groundwater, interconnected surface waters, and fish and wildlife habitats. The Department recommends CDWR seriously consider the above comments to protect fish and wildlife beneficial uses and interconnected surface waters. The Department further recommends that CDWR request that the responsible GSAs address the Department's concerns before approving the final plan. The Department's concerns are as follows:

- The assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones do not seem reasonable and/or not supported by the best available information and best available science [23 CCR § 355.4(b)(1)] (See Comments #3 and 6).
- 2. The GSP does not identify reasonable measures and schedules to eliminate data gaps [23 CCR § 355.4(b)(2)] (See Comments #3 and 5).
- 3. The sustainable management criteria and projects and management actions are not commensurate with the level of understanding of the basin setting, based on

> the level of uncertainty, as reflected in the GSP [23 CCR § 355.4(b)(3)] (See Comment #6).

- 4. The interests of the beneficial uses and users of groundwater in the basin, and the land uses and property interests potentially affected by the use of groundwater in the basin, have not been considered [23 CCR § 355.4(b)(4)] (See Comments #2, 4, and 6).
- 5. The GSP lacks a reasonable assessment of overdraft conditions and/or does not include reasonable means to mitigate overdraft, if present [23 CCR § 355.4(b)(6)] (See Comment #6).

The Department appreciates the opportunity to provide comments on the Paso Robles Subbasin Final GSP. If you have any further questions, please contact Dr. Andrew Gordus, Staff Toxicologist, at Andy.Gordus@wildlife.ca.gov or (559) 243-4014 x 239.

Sincerely.

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Julie A. Vance Regional Manager, Central Region

Enclosures (Literature Cited)

ec: California Department of Fish and Wildlife

Joshua Grover, Branch Chief Water Branch Joshua.Grover@wildlife.ca.gov

Robert Holmes, Environmental Program Manager Statewide Water Planning Program Robert.Holmes@wildlife.ca.gov

Briana Seapy, Statewide SGMA Coordinator Groundwater Program Briana.Seapy@wildlife.ca.gov

Annee Ferranti, Environmental Program Manager Central Region Annee.Ferranti@wildlife.ca.gov

Andy Gordus, Staff Toxicologist Central Region <u>Andy.Gordus@wildlife.ca.gov</u>

Annette Tenneboe, Senior Environmental Scientist Specialist Central Region <u>Annette Tenneboe@wildlife.ca.gov</u>

Bob Stafford, Environmental Program Manager Central Region Bob.Stafford@wildlife.ca.gov

California Department of Water Resources

Tom Berg, Paso Robles Area SGMA Point of Contact South Central Region Office <u>Thomas.Berg@water.ca.gov</u>

National Marine Fisheries Service

Rick Rogers, Fish Biologist West Coast Region Rick.Rogers@noaa.gov

State Water Resources Control Board

Natalie Stork, Chief Groundwater Management Program Natalie.Stork@waterboards.ca.gov

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I have read the plan and believe that the study probably adequately defines the extent of the problem and the technical definition of the region involved. However, I fundamentally disagree with the approach to the long term solution to the problem in that: it rewards the entities that are the source of the problem with permanent rights to continue; and bureaucratically it unconstitutionally and permanently takes and transfers the property rights of current low usage property owners to other private and public entities without recourse or compensation. I understand the strong desire to not destroy the local economy, but that does not justify morally or legally, the permanent confiscation of the deeded property rights of owners that have lived within the sustainability limits of the region.

I believe that any fair, equitable, and property rights legal plan would treat all owners of land with water rights equally based on total acreage, not by confiscation and transfer to others, either privately or publically owned. I would suggest, that from our current state of overuse of water, a 5 to 10 year transition. In that transition, the new resources would be brought in; each users consumption would be progressively reduced to their acreage -prorated portion of the total sustainability target, and owners not using their acreageprorated allotment could elect to allow it to increase the rate of refilling of the basin or sell the allotment to another user. This treats all owners equitably, doesn't confiscate rights, or destroy the value of unirrigated land while preserving the local economy. The public entities should also transition to living on their acreage allotments plus imported sources, they also must share the load of equality in access to water for all property owners. I would suggest that they quickly start to eliminate, two of the largest household potable water consuming items, lawns and toilets. A dual water system based on reclaimed water should be established to all units on their sewer systems that would supply all the toilets and maybe a select few of public lawns. I suggest that preserving the local economy, is a higher priority than retaining lawns. These last suggestions are not meant to attack the cities, the immediate reductions they do will help to provide the water to the farming that is directly and indirectly driving their jobs. This "saved" water will be available years ahead of the new piped in sources. I also suspect that Cal-Poly could be encouraged to significantly reduce the evaporation from current drip watering systems via composts and below surface injection to well below the current experience for both the farms and the cities.

Why am I so concerned? I have 3 parcels of about 60 Ac, with one house, NE of Paso Robles that have been in the family since the 1940's and for a significant time alfalfa was grown on 2/3 of it, until it was obvious that its income wasn't even a good hobby, much as many small farms growing for the wholesale market. This plan would forever destroy the potential for my descendants to ever grow retail sold crops on it equivalent to the neighbors around it and also destroy the value of it or for others to buy and utilize all because proposed plan. Instead of treating all property equally, the plan confiscates the water rights and gives them to adjacent owners. What may have seemed, though illegal, for a five acre lot is a disaster for a nearly 60 acre parcel, and still a violation of all legal norms via a bureaucratic process.

You must change the plan so that it treats all property owners equally to be fair and so that it will even pass a simple Constitutional test for property rights.

Don Morris

Mailing address: 267 Scarborough St, Thousand Oaks CA 91361

PH: (H) 805 495 9669



California Department of Water Resources 901 P Street, Room 213 Sacramento, CA 94236

Electronic Submitted Via SGMA Portal <u>https://sgma.water.ca.gov/portal#gsp</u>

RE: Paso Robles Basin Subbasin Final Groundwater Sustainability Plan

May 12, 2020

Sierra Club comments on 3-004.06 PASO ROBLES AREA

The Paso Robles basin Groundwater Sustainability Plan (Plan)) does not appear to be up to the task of preventing chronic lowering of groundwater levels, preventing degradation of groundwater quality and preventing reduction in groundwater storage. Failing these 3 sustainability indicators, additional depletion of interconnected surface waters will result.

Data Gaps

The Plan identifies numerous data gaps that will hinder the goals of the GSP but offers little guidance or mandatory prescriptions to remedy the data failures.

Actual sustainable yield will be determined once data show undesirable results have not occurred. Thus, the sustainable yield estimate will be revised in the future as new data become available from monitoring data that evaluate the presence or absence of undesirable results. (GSP 6-2)

During early implementation of the GSP, additional data will be collected to refine Subbasin understanding. These new data will be used to recalibrate the GSP model after the GSP is adopted. New hydrologic data and the calibrated model will be used to adaptively implement sustainability management actions, and possibly projects, to ensure that progress toward the sustainability goal is being achieved. (GSP 6-6)

The monitoring networks presented in this chapter are based on existing monitoring sites. It will be necessary to expand the existing monitoring networks and identify or install more monitoring sites to fully demonstrate sustainability.... (GSP 7-1)

Over the past two decades, the County and the City of Paso Robles have commissioned a series of basin studies to gather information on the state of the basin and options. Cumulatively the

studies show a continuous decline in groundwater storage coupled to and exacerbated by expansion of irrigated agriculture.

The County has collected extensive data, which are the bases for the studies. The most recent report, "Refinement of the Paso Robles Groundwater Basin Model and Results of Supplemental Water Supply Options Predictive Analysis" (December 2016 GEOSCIENCE Support Services), developed an enhanced computer modeling platform that was carefully peer reviewed. I attended/participated in peer review subcommittees.

It's beyond the time to take action rather than pretend there isn't enough data to immediately initiate mandatory steps to halt the decline of the basin. We have sufficient data to act now - refine later. The Plan is wholly insufficient in detailing steps for immediate mandatory actions.

Interconnected Surface Water

We are concerned about the dismissal of thresholds for undesirable results for interconnected surface waters and the conclusion that "Therefore, the reduction in groundwater storage minimum thresholds is unrelated to interconnected surface water at this time." (p 8-20) Each of the previous groundwater basin studies has studied the interrelated mutual nature of the recharge of the formation and the alluvium. From FUGRO WEST Paso Robles Groundwater Basin Water Balance Review and Update march 2010:

The alluvial aquifers are a significant source of recharge to the Paso Robles Formation, particularly along the western region of the Basin and Subbasin where the Salinas River alluvium is located. Although the shallow alluvium and the underlying Paso Robles Formation are distinctly different aquifers, the low permeable layer that separates them varies spatially in terms of thickness and permeability. Consequently, recharge of the Paso Robles Formation from alluvium underflow varies along the stretches of alluvial deposits in the Basin and Subbasin. In addition to the thickness and permeability of the sediments separating the alluvium from the Paso Robles Formation, the rate of recharge is also dependent on the hydraulic head gradient across these sediments (i.e., difference in groundwater levels between the alluvium and the Paso Robles Formation). Pumping in the Paso Robles Formation may result in significant drawdown of groundwater levels in this aquifer, thus increasing the hydraulic gradient and subsequently the recharge rate from the overlying alluvium.

The hydraulic head gradient between the aquifers in a particular area can be determined by measuring groundwater levels in wells screened in the alluvium and subtracting those from measured groundwater levels in nearby wells screened in the Paso Robles Formation. The actual amount of groundwater in storage in the Paso Robles Formation is significantly greater than that of the shallow alluvial aquifers. Groundwater in storage within the Paso Robles Formation in the Basin from 1981 to 1997 was estimated to be 30,534,000 AF on an average annual basis. The combined area of alluvium in the Basin (i.e., including the Salinas River, Estrella River, Huer Huero Creek, San Juan Creek, and other small creeks in the Basin) is 49,500 acres. Using the

spatial distribution of specific yield and groundwater levels during the water year of 1980 from the Basin groundwater flow model, the volume of groundwater in storage in the combined area of alluvium was estimated to be 681,974 AF. In particular, the Salinas River alluvium and its tributaries accounted for 447,480 AF of this storage volume while the Estrella River and its tributaries accounted for 234,494 AF of this total. The combined groundwater in storage for both the alluvial aquifers and the underlying Paso Robles Formation is on the order of 31,215,974 AF. Overall, groundwater in storage in the alluvial aquifers within the Basin accounts for only about 2.1 percent of the total groundwater in storage in the entire Basin. Groundwater in storage within the Paso Robles Formation in the Subbasin from 1981 to 1997 was estimated to be 513,600 AF on an average annual basis. Within the Subbasin, groundwater in storage in the Salinas River alluvium was estimated to be 134,274 AF. The combined groundwater in storage for both the Salinas River alluvium and the underlying Paso Robles Formation within the Subbasin is on the order of 647,874 AF. Overall, groundwater in storage in the alluvium within the Subbasin accounts for 21 percent of the total groundwater in storage in the Subbasin. In contrast to the Basin where the total groundwater in storage is predominantly in the Paso Robles Formation, the alluvium in the Subbasin accounts for a significant percentage of the total groundwater storage in the Subbasin. Although the total groundwater in storage in the alluvial aquifers is small relative to the Paso Robles Formation, the alluvial aquifers are a significant source of recharge to the underlying Paso Robles Formation. For example, streambed percolation in the Basin accounts for approximately 38 percent of the total annual recharge on an average annual basis. Moreover, in the Subbasin streambed percolation accounts for as much as 62 percent of the total annual recharge on average. (P 13-4 5.0 INTERACTION OF SHALLOW ALLUVIUM AND PASO ROBLES FORMATION)

The GEOSCIENCE 2016 model refined interactive modeling. "Refinement of the Paso Robles Groundwater Basin Model and Results of Supplemental Water Supply Options Predictive Analysis" (December 2016 GEOSCIENCE Support Services):

The original Basin Model combined MODFLOW recharge and streamflow packages to simulate streamflow recharge and discharge. This method essentially simulates surface and subsurface flow as a continuum, for the purpose of considering all exchanges of water between the land surface and the underlying groundwater. Until recently, this was a widely applied and accepted method. However, the method is unable to account for the time delay which occurs for water to flow (percolate) from the surface water body (streams, etc.) to the water table. As shown in the conceptual profile, an alluvial groundwater basin located in an arid region (such as the Paso Robles Groundwater Basin), the depth to the water table (or unsaturated zone) can be substantial (typically from tens to hundreds of feet).

Therefore, the inability to account for this time delay within the unsaturated zone may result in less accurate representation of changes in water resources of the areas where an exchange between surface water and groundwater occurs. In order to improve a

model's ability to simulate the interaction of surface water with groundwater, the USGS added a new MODFLOW Streamflow Routing (SFR) package₁₀. Use of the SFR package provides a more accurate simulation of the stream-aquifer interaction occurring within a groundwater basin.

Use of the SFR package provides a more accurate simulation of the stream-aquifer interaction occurring within a groundwater basin. (GEOSCIENCE Refinement of the Paso Robles Groundwater Basin Model and Results of Supplemental Water Supply Options Predictive Analysis 6-Dec-16 p 18-19)

In addition to these studies, the County commissioned "Paso Robles Groundwater Subbasin Water Banking Feasibility Study" 2008 to assess suitability of various alluvium for groundwater recharge.

Further, no mention was made of the County's current mapping project using the Aerial Electromagnetic Method to survey sand, rock and clay strata up to 1,500' deep in the basin. Overflights were concluded in November 2019. The report is expected mid-2020.

The Plan acknowledges importance of aquifer continuity in Section 4.9.1 Aquifer Continuity. "Aquifer continuity has a significant impact on how projects and management actions in one part of the Subbasin may influence sustainability in other parts of the Subbasin." Further, "Figure 4-12 shows a previous interpretation of a deep sand and gravel zone that is relatively continuous across the Subbasin. The continuity of this zone may prove to be important in how effective various projects and programs may promote sustainability. The extent and continuity of the Paso Robles Aquifer should be confirmed through existing or new well logs or other methods such as aerial geophysics." 4.9.3 comments on the importance of data on vertical gradients for assessing "vertical flows between the Alluvium and the Paso Robles Aquifer as well as vertical flows within the Paso Robles Aquifer."

Establishing thresholds for undesirable results for interconnected surface waters should be one of the highest priorities for the Plan. Failure to plan for robust ISW thresholds for undesirable results brings into question the viability of this GSP.

Groundwater Storage Deficit Projection

Figure 6-4 *Historic Annual Cumulative Change in Groundwater* illustrates a continuing overall disastrous trajectory in groundwater storage despite periods of wet years and illustrates the predominance of dry and average years over wet years, even before the recent five-year drought.

The GSP selects the period 2012-2016 to determine the current water budget and comments:

The current water budget period corresponds to a drought period when the average annual precipitation averaged about 62% of the historical average annual precipitation and the average streamflow percolation was 10% of the historical average percolation.(6.4)

And concludes:

As a result, the current water budget period represents a more extreme condition in the Subbasin and is not appropriate for sustainability planning in the Subbasin.(6.4)

For the period 1981-2011(Figure 6-4), five years are identified as average (16%) and fourteen years are identified as below average (46%), indicating that 63% of the years were dry or average. This doesn't appear to support the claim that the water budget period from 2012-2016 "represents a more extreme condition".

The graphing in Figure 6-7 *Current (2012-2016) Annual and Cumulative Change in Groundwater Storage* shows very similar downward trajectory and loss of groundwater storage as Figure 6-4. It appears that the "extreme conditions" indicated from 2012-2016 are representative of previous 3 decades and may be normal conditions into the future and that an annual decrease in groundwater in storage of 13,700 AFY understates the problem. (6.5.3.3 Future Sustainable Yield)

Rural Residential Water Use

Of the 5,164 wells documented in the subbasin, most are domestic wells, and approximately 600 are irrigation wells (County of SLO Public Health Department, June 2019 GSP 3-13). There are approximately 12,000-15,000 rural residents over the Paso basin who depend solely on groundwater pumping for domestic needs. We believe the assumptions for future rural domestic pumping are inaccurate. We are concerned that any future costs for remediating and balancing the basin will be inaccurately and unfairly burdened on rural users if based on the assumptions in the GSP.

Table 6-5 reports the annual rural domestic pumping average 2500 AFT. Table 6-4 reports the total groundwater pumping average 72,400 AFY. 72,400/2500 = 3% water use for rural domestic pumping for years 1981-2011.

Table 6-9 shows total groundwater pumping for 2012-2016 averaging 85,800 AFY. Table 6-10 shows rural domestic pumping for the same period averaging 3,500AFY. 85,800/3,500 = 4% average rural domestic pumping for 2012-2016.

The GSP states that with a 2.3% growth rate in rural build out, rural residential pumping in 2025 will be 16,504 AFY.(GSP 3-34) 2.3% growth year based on the current 3,500 average AFY equals 4293 AFY rural domestic pumping in 2025 based on the current base average 3,500 AFY.

The County reports there are 4,564 domestic wells in the basin. If there is a 2.3% increase in new wells drilled, the basin will see an additional 1030 wells by 2025. At a rate of 2 AFY per well, 1030 new wells equals 2,060 additional AFY in rural domestic pumping. There is no data that would suggest that current users would greatly increase current pumping behavior and that domestic use would be 16,504AFY.

As we said at the outset, our concerns about the accuracy of data on rural domestic use pertain to issues of how the costs/benefits analyses of future management and possible projects might impact rural residents who are clearly minority users but have no alternatives for drinking water.

Management and Thresholds

It is unclear how sustainability will be achieved. For Example:

8.5.4.3 Effects on Beneficial Users and Land Use: The practical effect of this GSP for protecting against the reduction in groundwater storage undesirable result is that it encourages no net change in groundwater elevations and storage during average hydrologic conditions and over the long-term. Therefore, during average hydrologic conditions and over the long-term, beneficial uses and users will have access to the same amount of groundwater in storage that currently exists, and the beneficial users and users of groundwater are protected from undesirable results.

How is it possible to for users to have access to the same amount of groundwater in storage that currently exists when the data presented shows that the basin is in continual decline, the trajectory of which continues during "average hydrologic conditions"? We see nothing that indicates that wet years provided sufficient recovery to reverse the decline.

And in the same section:

Pumping at the long-term sustainable yield during dry years would likely temporarily lower groundwater elevations and reduces the amount of groundwater in storage. Such short-term impacts, due to drought, are anticipated in SGMA and management actions should contain sufficient flexibility to accommodate them by ensuring they are offset by increases in groundwater levels or storage during normal or wet periods. Prolonged reductions in the amount of groundwater in storage could lead to undesirable results affecting beneficial users and uses of groundwater. In particular, groundwater pumpers that rely on water from shallow wells may be temporarily impacted by temporary reductions in the amount of groundwater in storage drops and lower water levels in their wells.

Before adopting a starting point that allows for no reduction in pumping in average years, and lower groundwater levels in dry years, the Plan needs to have a plan to immediately remedy the currently declining water levels. Increasing storage during wet years is aspirational at best at this point in time, and the basin is distressed now.

Chapter 8 includes extensive discussion about water quality exceedance as the bases for determining detrimental impacts from pumping. Water quality testing to determine unreasonable impacts is to occur at 5-year intervals, starting 5 years after approval of the GSP. This is too little, too late. The testing intervals are much too long. If water quality is degrading annually as the result of the continual deficit of at least 13,400 AFY, water quality could be permanently degraded as the result of migration of very poor water quality from lower aquifers.

Systems of monitoring wells (data gaps) are recognized as woefully deficient and the plan to rectify the deficiencies are wishful at best. Specific immediate remedies such as installation of dedicated monitoring wells need to be identified and implemented ASAP.

De minimis users account for a minor percent of water use, however those rural residential users have no other source of water, and no access to low interest loans to drill deeper wells or invest in technologies that could improve water quality to rectify the continued degradation of water quality. Any review of the basins rural areas supports the observation that the rural residential user has modest financial means or lives on a fixed income.

Chapter 9 concludes the Plan with lists of conceptual projects to ameliorate some of the basin's problems. These projects do not offer the public much insight or hope that the basin will be sustainably managed anytime soon, or indeed ever. The projects require long term planning and financing to be fully implement and generally only of benefit to a very limited portion of the basin and are of limited benefit for solving a basin-wide problem of over-drafting, and declining water levels.

We request that the Department of Water Resources consider the comments we have made and those of other concerned organizations and agencies, and move to require monitoring, testing, and data collection elements that will result in immediate benefits to the basin.

Sincerely,

Sattan

Susan Harvey, Chair Conservation Committee

Santa Lucia Chapter of the Sierra Club 1411 Marsh Street, Suite 204 San Luis Obispo, CA 93401 805-543-8717 <u>Sierraclub8@gmail.com</u>

Correspondence: Santa Lucia Chapter of the Sierra Club P.O. Box 15755 San Luis Obispo, CA 93406



May 13, 2020

Via Electronic Mail and Online Submission

California Department of Water Resources 901 P Street, Room 213 Sacramento, CA 94236 Portal Submission: <u>https://sgma.water.ca.gov/portal/#gsp</u>

Paso Basin GSP John Diodati, Interim Director County of San Luis Obispo Public Works 976 Osos Street, Room 206 San Luis Obispo, CA 93408 Email: jdiodati@co.slo.ca.us

RE: Paso Robles Basin Groundwater Sustainability Plan

The recent overplanting of grapes in the Paso Robles Basin and the current COVID-19 closing of restaurants and subsequent decrease in wine sales, gives an immediate opportunity to make rapid and viable progress toward sustainability in the Paso Robles Groundwater Basin.

There are at least 3,000 acres of land, once planted to grapes, walnuts or alfalfa, which are now temporarily fallowed. As grape contracts expire in the next year or two, literally all of the old grapes will be removed. Thus, after harvest of 2021, I project the fallowed acres will be at least 6,000. It would be helpful if the County of SLO would enact legislation so that growers of permanent crops, such as walnut and vineyards, wouldn't need to worry about losing their irrigation rights, if they temporarily fallow.

The viable market for non-winery affiliated vineyards will almost all be for high quality grapes to increase the quality of California appellation wines. These can be produced by both commercial or high wire mechanical (HWM) farming practices, but in both cases require less water and nitrogen. For years at J. Lohr, we have used best management practices (BMPs) and our average water use is at least 0.25 AFY less the typical grape cultural practices. We held a seminar at our winery on July 10, 2019, attended by 45 owners and outside vineyard managers and our own vineyard managers and explained BMP's. In January of 2020, we met with almost all of our 25+ outside growers, tasted their wines with them and reviewed a "score card" with them. Now in May, we are leading discussions with almost all of these owners and their vineyard managers to again encourage their use of BMP's, especially optimum water use.

The Recycled Water Delivery project from the City of Paso Robles' updated wastewater treatment plant is well on its way. Although pathogens have been removed, the water at present is still too salty to blend with local well water for irrigation. In the Paso Robles Subbasin GSP dated November 13, 2019, page 9-19 under 9.5.2.2 Preferred Project 1: City Recycled Water Delivery the text describes this project. Following on page 9-20, "Additionally, a conceptual pipeline to the north of the main line will deliver recycled water to a larger geographical area." This is our project. Several substantial growers and I have incorporated Blended Water Pipeline LLC to partner with the City to blend the recycled water with fresh water from the Nacimiento

Pipeline Water (NPW) so that it is usable for agricultural irrigation. We have completed the design, have a number of potential users, and only await assurance that up to 2,250 AFY of NPW will be available for blending. Thus, this project would provide (with 2,250 AFY of City and 2,250 AFY of NPW water) 4,500 AFY.

The second 9.5.2.3 Preferred Project, San Miguel CSD Recycled Water Delivery, is well under way and has local uses. This is at least a 4 to 6 year time frame (page 9-27) for a project that yields 200 AFY.

In Summary:

	Fallow C 000	Saving in AFY
A	Fallow 6,000 acres @ 1.0 AFY/acre	6,000
B	BMP on 24,000 acres of the vineyards at .25 AFY	6,000
С	Blended water project with City of Paso Robles Recycled Water	4,500
D	San Miguel CSD Recycled Water Delivery	200
		16,700

Thus, the A, B, C & D actions are all already underway. There just needs to be stakeholders involved and coordinated effort with the 4 GSA's (SLO County, City of Paso Robles, San Miguel, Shandon San Juan) to formalize the process. We want to help in any way we can.

Jerome J. Lohr, President J. Lohr Vineyards, Inc. Dick McKinley from City of Paso Robles GSA says (05/14/2020 11:41AM):

Grewal Comment #1 is factually incorrect. In the Quiet Title action the City of Paso Robles and the other Defendants won a prescriptive right, which was later quantified. The self help rights of the Plaintiffs have yet to be established. Not all properties overlying the basin are part of the Quiet Title action, and the judge specifically that this was not an adjudication. Further, the quantification amounts from the Court only take effect when there is an overdraft declared by Judge Kirwan, at which time the Quantification and Self Help numbers would apply. Grewal Comment #5 - This is an erroneous characterization of the safe yield numbers. Mr. Grewal is confused because the sustainable yield numbers from the Quiet Title action are not in the same context or for the same area as those in the GSP. Grewal Comment #3 - The GSP does not and should not attempt to tell the City of Paso Robles how to operate our complex drinking water system. Further, there is no "court mandated adjudicated water allowance."

GAVIN NEWSOM, Governor

DEPARTMENT OF WATER RESOURCES DIVISION OF FLOOD MANAGEMENT PO Box 219000 Sacramento, CA 95821-9000



May 14, 2020

Via Electronic Mail and Online Submission

Craig Altare Supervising Engineering Geologist Sustainable Groundwater Management Office California Department of Water Resources 901 P Street, Room 213 Sacramento, California 94236 Email: Craig.Altare@water.ca.gov

Subject: Comments on Groundwater Sustainability Plans for Paso Robles Subbasin GSP # 3-004.06

Dear Mr. Altare:

The California Department of Water Resources Division of Flood Management (DWR-DFM) has recently provided the attached comments to John Dioditi GSP Plans Contact regarding the Groundwater Sustainability Plan (GSP) prepared for the Paso Robles Subbasin. DWR-DFM is transmitting those comments to your office for your consideration.

As you know, the Sustainable Groundwater Management Act (SGMA), requires state agencies to consider SGMA policies when carrying out their functions:

California Water Code §§10720.9. All relevant state agencies, including, but not limited to, the board, the regional water quality control boards, the department, and the Department of Fish and Wildlife, shall consider the policies of this part, and any groundwater sustainability plans adopted pursuant to this part, when revising or adopting policies, regulations, or criteria, or when issuing orders or determinations, where pertinent.

Subsequently, DWR-DFM has reviewed the GSPs for critically overdrafted groundwater basins submitted to your office in January 2020 to consider their potential effects on flood management and flood risk. DWR-DFM appreciates the opportunity to provide comments on GSPs and looks forward to further dialogue with Groundwater Sustainability Agencies and local floodplain managers to further explore groundwater – flood management linkages. If you have any questions please contact S. Greg Farley at <u>Stuart.Farley@water.ca.gov</u> or 916-764-7280.

Mr. Craig Altare May 14, 2020 Page 2

Sincerely,

Michael Mierzwa, P.E. State Floodplain Manager

Attachment: Paso Robles Subbasin comment letter

GAVIN NEWSOM, Governor

DEPARTMENT OF WATER RESOURCES DIVISION OF FLOOD MANAGEMENT PO Box 219000 Sacramento, CA 95821-9000



May 14, 2020

Mr. John Dioditi Department Administrator County of San Luis Obispo Public Works Department Paso Robles Groundwater Sustainability Agency 9760 Osos Street, Room 206 San Luis Obispo, California 93408

Dear Mr. Dioditi,

Thank you for your important work in developing the Paso Robles Basin Groundwater Sustainability Plan (GSP) as required by the Sustainable Groundwater Management Act of 2014 (SGMA). As you know, the California Department of Water Resources (DWR) has direct responsibilities in implementing SGMA, including evaluating GSPs and issuing plan assessments. These tasks are being carried out by DWR's Sustainable Groundwater Management Office, who will continue to work with you throughout the SGMA process. DWR has additional, separate responsibilities, similar to other stakeholders, to review GSPs and consider potential effects on and relationships to DWR's other important programs. To that end, DWR's Division of Flood Management (DWR-DFM) has reviewed your GSP and is providing comments regarding its potential effects related to flood risk.

DWR-DFM is dedicated to preventing loss of life and reducing property damage caused by floods by monitoring weather and river conditions, issuing forecasts, coordinating flood response, managing emergency information, participating in flood control projects, implementing FloodSAFE California and the Central Valley Flood Protection Plan, and inspecting and maintaining levees, bypasses, weirs, and other flood control structures. In addition to carrying out specific mandates for operating and maintaining the State Plan of Flood Control within the Central Valley, DWR-DFM aids and supports local flood management efforts across the state including cooperation with the Federal Emergency Management Agency (FEMA) and local communities in carrying out the requirements of FEMA's National Flood Insurance Program (NFIP).

DWR recognizes that there are important links between flood management and groundwater management. Significantly, land subsidence can result in loss of conveyance capacity in floodways, diminished levee effectiveness, damage to flood control structures and drainage structures, and increased land area subject to inundation. Activities which increase flood risk have the added effect of potentially increasing local and State liability, as well as the cost of flood insurance premiums offered to property owners by FEMA's NFIP.

Mr. John Dioditi May 14, 2020 Page 2

Based on DWR-DFM's review, your GSP reports that no, or only minor, subsidence has occurred historically within the plan's boundaries and has not resulted in significant known effects. Nonetheless, as you move forward with implementation of your GSP under SGMA, DWR-DFM recommends that you expand your consideration of Minimum Thresholds, Measurable Objectives, and Undesirable Results to include potential effects of subsidence on comprehensive flood risk.

DWR-DFM appreciates the opportunity to review the Paso Robles Basin GSP. If you have any questions or would like to explore how DWR-DFM might be of assistance to your GSA in implementation of your GSP, please contact Ricardo Pineda, P.E. at <u>Ricardo.Pineda@water.ca.gov</u> or at (916) 574-0632.

Sincerely,

Michael Mierzwa, P.E. State Floodplain Manager

Gregory T. Grewal Post Office Box 376 Creston, CA 93432 805-227-4095 805-674-1073 firemangrewal@gmail.com

May 14, 2020

Via Electronic Mail and Online Submission

Craig Altare Supervising Engineering Geologist California Department of Water Resources 901 P Street, Room 213 Sacramento, CA 94236 Email: <u>Craig.Altare@water.ca.gov</u> Portal Submission: <u>https://sgma.water.ca.gov/portal/#gsp</u>

Subject: Comments regarding the Paso Robles Subbasin Final Groundwater Sustainability Plan

Dear Mr. Altare:

I have been involved in water management concerning the Paso Robles basin for many years. I am also the representative on the San Luis Obispo County Water Resources Advisory Commission, representing District 5.

As you may be aware, the San Luis Obispo County Cooperative Committee was formed to develop a Ground Water Sustainability Plan (GSP) to comply with the Sustainable Ground Water Management Act of 2014. The Cooperative Committee, retained the services of Montgomery & Associates, to develop the plan, currently under review and subject to comment.

During the course of the plan development, I spoke many times regarding areas of concern, disagreement and specific items that were

omitted from consideration. During these meetings, my colleagues and I, presented documentation to the Committee, as well as to Montgomery & Assoc.

Comment #1:

In 2013 a Quiet Title action was initiated by the Plaintiffs; Steinbeck Vineyards, LLC, et al. verses the Defendants; County of San Luis Obispo, City of El Paso de Robles, San Miguel Community Services District and Templeton Community Services District. On June 7, 2019, the presiding Judge, Honorable Peter H. Kirwan issued a Court Order setting forth the specific prescriptive water right for each Defendant.

Issue#1: A copy of the Court Order of June 7, 2019, was provided to the Cooperative Committee and Montgomery & Assoc. as is would have a clear impact on water management in the Paso Robles Groundwater Basin. The Court Order has not been included in the GSP, nor has the Cooperative Committee or San Luis Obispo County Staff commented on the impact of this order. The Court order places significant restraints on prescriptive water rights, as follows:

City of El Paso de Robles	1,267.70 acre-feet
County of San Luis Obispo	310.
San Miguel CSD	177.03
Templeton CSD	308.9

Recommendation #1: The Court Order will have a significant impact on basin water management and it must be addressed. It would appear that this order may change the basin into an adjudicated basin. I am not qualified to make that determination, however, the matter should be referred to legal counsel to determine the adjudication issue, as well as to DWR to modify the management plan.

Comment #2:

Authority of Agencies, 2.3.1.4 Shandon- San Juan GSA

Issue #2: It does not appear that the Shandon San Juan Water District qualifies as a water district as they have not met the requirements of section 34153. In review of California Water Code section 34153, Petition: noncontiguous areas; it states " The holders of title to a majority in area of land which is capable of using water beneficially for irrigation, domestic, industrial or municipal purposes and which can be serviced from common sources of supply and by **the same system of works**, (34033WC) may petition for the formation of a district. To my knowledge their water district does not rely on a common source of supply nor do they have a "system of works". Further, Section 37903, is specific to San Luis Obispo County and it

states the following: If formed, the District shall not involve itself in activities normally and historically undertaken by the county, the San Luis Obispo County Flood Control and Water Conservation District... If Greg wanted this provision he should have supported the County led Basin wide District formation process, the only district to which it applies.

Recommendation #2: The DWR should review the Shandon San Juan Water District to determine if they meet the legal requirements to form a water district.

Comment #3:

3.4.1 Water Source Types

Issue #3: The GSP, page 3-9 states that in 2017 CSA-16, Shandon, used 99 acre feet of water from their allotted 100 acre feet. This is in conflict with the Paso Robles Subbasin First Annual Report (2017-2019) that indicates 42 acre feet was used in 2017. It should also be noted that the water usage in 2018 was 55 acre-feet and in 2019, only 43 acre-feet was used.

Recommendation #3: CSA-16, Shandon should utilize their full 100acre foot allotment before pumping ground water. In order to maintain sustainability in the basin, all entities, utilizing Nacimiento Pipeline water, should be mandated to use that water as the primary source before pumping groundwater; this includes the City of Paso Robles. In fact the City of Paso Robles should be mandated to utilize all other forms of supply, prior to pumping ground water. This includes Nacimento, Salinas River, treated wastewater and lastly their court mandated adjudicated water allowance.

Comment#4:

Chapter 4 Hydrogeologic Model

Issue#4: In examining this chapter the topography maps 4-1 and 4-2 are informative. Figure 4-1 is an overview of the basin and 4-2 reflects the elevations that show the lowest point just south of San Miguel. As the Salinas River flows north, as does the Estrella River, Huer Huero, San Juan Creek, Shed Canyon and Dry Creek, the area of convergence, the area south of San Miguel is advantageous for basin recharge. This would benefit a few SLO County citizens and Monterey County.

Recommendation #4: Recharge of the basin, slowing the flow of the rivers, is a low cost means of recharging the basin and should be explored. It is one of the preferred projects for grant monies.

Comment #5:

6.5.3.3 Future Sustainable Yield

Issue #5: This is a topic of considerable disagreement with Montgomery & Assoc. The GSP indicated that Montgomery & Assoc. estimated the sustainable yield at 61,100-acre feet/yr. In September 2018 Montgomery & Assoc. estimated the sustainable yield from 1981 to 2016 at 62,300- acre feet/yr.

This number is a drastic departure from other scientific studies that indicated perennial yields and safe yields in the 90,000-acre feet range. The studies began in 2002, Fugro West Study, 94,000 acre ft./yr., 2005 another Fugro study, 97,700 acre/ft./yr., 2015 Geoscience 90,215 and GSI Environmental that estimated the basin at a 92,000 acre ft./yr. It

should be noted that the GSI Environmental was used in the recent prescriptive court trial.

In public and written comment, Montgomery & Assoc. was asked how they came to this determination. The reduction was due to the 118 boundary being changed to eliminate Monterey County and the Atascadero Basin, that is separate from the Paso Robles Basin. It was pointed out to Montgomery & Assoc. that the Atascadero basin, estimated ground water use at 16,400 acre ft. /yr., had been deducted from the other studies previously completed. That only left the usage in Monterey County. That documentation, while requested, was never produced.

Recommendation #5: The DWR should reject Montgomery & Assoc. sustainable yield estimate of 61,100-acre ft./yr. There methodology is flawed. It is recommended that the safe yield be based on the most recent 2018 study, GSI Environmental in the amount of 92,000-acre ft./yr.

Comment #6:

Monitoring Networks 7-1

Issue #6: In order to determine ground water levels for proper management of the basin, it is necessary to have a robust monitoring network. To state the obvious, you cannot manage basin ground water unless you know the water levels throughout the basin. The current number of monitoring wells is not sufficient to properly manage the basin.

Recommendation #6: All public wells, State, County, City and CSD wells should be monitored. The network of monitored wells should report to a central GSA website, the well levels, in real time, and are available for public view, without restriction. Private wells could also be included, provided they agree to the same criteria. This would add a significant number of wells and would create transparency for the public with regard to water management. It is my understanding that DWR is promoting well monitoring and grant funds may be available.

Comment #7:

7.5 Land Subsidence

Issue #7: This is another area of disagreement with the Montgomery & Assoc.

In Montgomery & Assoc. presentation regarding subsidence in 2018, they indicated that subsidence was not a significant problem. In the GSP, 7.5, they indicated that data from 2015-2018 was adequate to identify areas of recent subsidence. 7.5.1 further states available data indicates there is currently no long-term subsidence occurring in the Subbasin that affects infrastructure.

The issue is that the USGS completed a survey of San Luis Obispo County utilizing InSAR, satellite imaging in 1997. That report, 23 yrs. ago, indicated that in a six month period, up to 2" of ground displacement was identified. With the vast expansion of agriculture and the lowering of ground water tables, it would be prudent to utilize this base line data and to compare the 1997 study with that of a current study. In fact in October 2018, one of my colleagues, Dennis Loucks, contacted USGS to determine if it was possible to have another Paso Robles Basin, USGS InSAR study. We received an immediate reply and as they were conducting a study in Monterey County, it was possible to complete another study on a cost-sharing basis. This information was forwarded to San Luis Obispo County, and regrettably no action has been taken, to our knowledge.

Recommendation #7:

It is recommended that the DWR require USGS InSAR subsidence mapping every five years in basins classified as high priority. This would be an important indicator in ground water management.

Conclusion:
My colleagues and I are hopeful that DWR will give consideration to our comments. There are many competing interest in the Paso Robles Basin and it is important that all interests be considered.

The majority of landowners on wells within the Paso Robles basin are overlying landowners in rural areas and most are de minimis water users. However, a significant number of large landowners over the Paso Robles basin are wine grape growers and vintners and are part of a 250 million dollar industry that continues to grow.

The submittal of the GSP has been developed with the participation of competing interests, some quite powerful, but many with limited resources and influence. Nevertheless, four principals should guide the review of the GSP, namely; 1. The quantity and quality of Paso Robles Basin ground water is ultimately finite and the basin cannot support unrestrained growth; 2. Damage to parts of the basin has been done which needs to be stopped and reversed; 3. The GSP must provide for the equitable use of water by all parties with water rights, and 4, The California State Constitution establishes the ultimate water rights and should not be abridged by the GSP.

Please advise if you have any questions or if you would like to discuss the above comments.

Respectfully submitted,

Greg Grewal

Cited documents:

Superior Court of California, Court order 6/7/2019 Case No:2014-1-CV-265039

California Water Code Section 34153, 34033

Paso Robles Subbasin First Annual Report (2017-2019)

Paso Robles Subbasin Groundwater Sustainability Plan

USGS, Use of InSAR to Identify Land-Surface Displacements Caused by Aquifer-System Compaction in the Paso Robles Area, San Luis Obospo County, California, March to August 1997



Estrella-El Pomar-Creston Water District P.O. Box 1499 Paso Robles, CA 93446 (805)-354-5158 Info@epcwd.org

May 12, 2020

Via Electronic Mail and Online Submission

Mr. Craig Altare Supervising Geologist California Department of Water Resources 901 P Street, Room 213 Sacramento, CA 94236 Email: <u>Craig.Altare@water.ca.gov</u> Portal Submission: https//sgma.water.ca.gov/portal/#gsp

Paso Basin GSP Mr. John Diodati, Interim Director County of San Luis Obispo Public Works 976 Osos Street, Room 206 San Luis Obispo, CA 93408 Email: jdiodati@co.slo.ca.us

Subject: Comment on the Paso Robles Subbasin Final Groundwater Sustainability Plan

Dear Mr. Altare and Mr. Diodati:

The Estrella-El Pomar-Creston Water District would like to submit the following Comment Letter for your review.

Sustainable Groundwater is an important for the health and welfare of the North County of San Luis Obispo. Estrella-El Pomar-Creston Water District is dedicated to support the important role that the Department of Water Resources plays in implementing the Sustainable Groundwater Management Act.

Estrella-El Pomar-Creston Water District Background

The Estrella-El Pomar-Creston Water District (EPCWD or "District") is a California Water District that was formed in late 2017. The District respectfully submits this comment letter regarding the Paso Robles Subbasin Groundwater Sustainability Plan (the "GSP" or "Plan").

The primary purpose of the District was to become a Groundwater Sustainability Agency (GSA) and the San Luis Obispo County LAFCO approved formation of the District with that understanding. Stakeholders in the Paso Robles Subbasin (the "Subbasin") agreed that one Groundwater Sustainability Plan would be created by the Subbasin's GSAs. EPCWD was not formed in time to meet the State's filing deadline for GSA status by July 1, 2017. However, it was widely understood that if EPCWD became a water district and met the County's formation deadline of December 31, 2017, the San Luis Obispo County Board of Supervisors would

withdraw from exercising its Sustainable Groundwater Manage Act (SGMA) authority over the lands included in the EPCWD service area. EPCWD is referenced in the original Memorandum of Agreement among various agencies and municipalities in the Subbasin pertaining to SGMA implementation (MOA), as well as in the current amended MOA. EPCWD met the required December 31, 2017 deadline and became a water district. Ultimately, the County Board of Supervisor reversed its previous determination regarding SGMA participation pertaining to lands within the EPCWD Service Area

Consequently, EPCWD is therefore not a GSA and its members have not had input in developing the GSP beyond attendance at Paso Robles Basin general meetings. The District welcomes this opportunity to inform the Department of Water Resources of its views on the GSP by way of this letter.

EPCWD is an active Water District meeting on a monthly basis. The District has funded a number of studies, retained a hydrogeologist and is represented on a number of local advisory committees. The District's members account for 38% of all groundwater extractions from the Subbasin. EPCWD represents the largest group of extractors by volume in the Subbasin (see the table below).

Agency Extraction	Percentage of
Estrella-El Pomar-Creston Water District	38%
Shandon/San Juan Water District & GSA	30%
County GSA, Ag extractors not including EPCWD	22%
City, CSD and County GSA Rural Residential	10%

As a significant stakeholder in the Paso Robles Subbasin, sustainable groundwater is critical to EPCWD. In our comments, we hope to offer suggestions, solutions and improvements to increase the likelihood of a sustainable Subbasin. EPCWD believes everyone benefits from having the best possible Plan.

Executive Overview

Agriculture in the Subbasin coupled with its symbiotic relationship with travel and tourism is by far the largest contributor to our local economy. Agriculture accounts for 90% of groundwater pumping in the Subbasin, and due to lack of alternative sources of water, is completely dependent on groundwater pumping. As such, the GSP is central to the health and wellbeing of our region for decades to come. The GSP document is necessary to present the broad range of management options that we will need to employ to bring our Subbasin to sustainability, including but not limited to more surface water storage, groundwater recharge projects, conservation, use of recycled water, capture and reuse of stormwater, better integrated regional projects, securing grant money on behalf of the GSAs to pay for projects, and the reduction of groundwater pumping. Alternative sources of water such as the County's allocation from the State Water Project for example, for which county residents have been assessed for but have not received benefit, must be prioritized in the GSP as sources of supplemental water to offset groundwater pumping.

General Comments on the GSP

The EPCWD is currently implementing or intends to implement the following actions. We feel that the GSAs should seriously consider these items as well for inclusion in the GSP as management actions that will benefit our Subbasin.

Funding Mechanism

A funding mechanism for implementation of the GSP is not clearly identified. The Plan must include a budget with clear accounting for implementation expenses and identifying the source of revenue to fund those expenses, including a list of the parties within the Subbasin who will bear financial responsibility for GSP implementation, along with a breakdown of their respective shares of responsibility.

Implement a Better Monitoring Network

Currently there is no detail in the GSP's plan to expand our monitoring network. Both EPCWD and Shandon/San Juan Water District have funds available to put into place a far more robust monitoring network capable of accounting for extractions. With the GSP as a living document, resulting data could be used to revise measurable objectives and minimum thresholds.

Clearly Identify Potential Opportunities to Offset Groundwater Pumping

It is widely known and agreed upon that in order to be sustainable, efforts to solve our groundwater overdraft will require a broad range of management options. Immediately after approval, our GSP must be expanded upon to identify and make plans to execute the following opportunities:

-Supplemental water from the State Water Project and Nacimiento Pipeline

- -Expand surface water storage capacity
- -Develop and construct groundwater recharge projects
- -Encourage water conservation and enhance education
- -Reduction of groundwater pumping
- -Use of recycled and/or blended water
- -Capture and re-use of stormwater
- -Better integration of regional projects to benefit the whole Subbasin
- -Plans to secure grant money on behalf of GSAs

Promote Voluntary Fallowing of Agricultural Land

Many farmers face a dilemma. In market downturns they would like to fallow fields to cut back on expenses. However, the current County offset ordinance prevents them from doing so as they would lose their pumping rights, preventing them from returning to farming when the market recovers. A reasonable fallowing program would reassure farmers of continuing pumping rights, while benefitting our Subbasin with reduction in pumping.

Identify Consequences to Local and Regional Economy

The potential economic effects of reduced groundwater pumping could be enormous. Following so closely on the heels of the economic strain put on our region following the shelter-at-home order resulting from COVID-19, we are concerned about the ability of our community to shoulder the weight of such a blow. It would be wise to explore the consequences of reduction in groundwater pumping on the economy of our area which relies heavily on tourism brought by the vineyard and winery industry.

Consider a Change in Board Membership

Expansion of Board Membership to Include Under-Represented Groups

In order to ensure representation all interests in the Subbasin, a change in management structure might be considered. Similar to those of our neighbors in Monterey and Cuyama, we suggest that in addition to a board member from each of the GSAs, that the MOA group also include representatives from agriculture, an at-large member with a business/economic focus, and an at-large member with a community/environment focus.

As we move into working as a team to implement our Groundwater Sustainability Plan in Paso Robles, the EPCWD and its members look forward to maintaining our intent to be meaningful partners in the journey to sustainability. Thank you for the opportunity to collaborate, comment and engage in protecting the health and wellness of the North San Luis Obispo County region.

Sincerely,

Dana M. Merrill, President Estrella-El Pomar-Creston Water District

May 15, 2020

Electronically submitted via SGMA Portal: https://sgma.water.ca.gov/portal#gsp

Re: Assessment of GSPs for Human Right to Water & Drinking Water Needs

To whom it may concern,

Small and rural low-income communities have long borne a disproportionate share of the burden from California's groundwater management challenges such as overdraft and contamination.¹ Given their small size, these communities are generally unable to adapt to changing groundwater conditions. Because groundwater is a shared resource, they are also unable to effectively address the root causes of these trends independently. The Sustainable Groundwater Management Act (SGMA), therefore, represents a landmark opportunity to address these disparities and advance the human right to safe and affordable water as affirmed in 2012 under AB 685 through collaborative, regional groundwater planning.

Prior research, however, indicates that these communities are generally not represented in Groundwater Sustainability Agencies (GSAs)² and faced significant hurdles to participating in the Groundwater Sustainability Plan (GSP) development process.³ Even where Disadvantaged Community (DAC) representatives are actively participating in SGMA implementation, the integration of rural drinking water interests and priorities has not always been forthcoming: The vast majority of community representatives interviewed in 2019 did not believe that SGMA would protect or advance drinking water needs. In fact, many saw SGMA as a potential threat, citing the possibility of deteriorating conditions while still facing increased costs.⁴

To further develop our understanding of this critical water management process and its relationship to the human right to water, our research team at the University of California Davis reviewed all 41 of the unique submitted GSPs posted for public comment as of April 2020. Our review assesses the degree to which specific elements of the plans address drinking water and DAC related considerations organized into eight categories: water quality, water access, drinking water as a beneficial use, participation

¹ Carolina L. Balazs et al., "Social Disparities in Nitrate-Contaminated Drinking Water in California's San Joaquin Valley," Environmental Health Perspectives 119, no. 9 (September 2011): 1272-78, https://doi.org/10.1289/ehp.1002878; Carolina L. Balazs et al., "Environmental Justice Implications of Arsenic Contamination in California's San Joaquin Valley: A Cross-Sectional, Cluster-Design Examining Exposure and Compliance in Community Drinking Water Systems," Environmental Health 11, no. 1 (2012): 84; Laura Feinstein et al., "Drought and Equity in California," *Pacific Institute*, 2017; Rose Francis and Laurel Firestone, "Implementing the Human Right to Water in California's Central Valley: Building a Democratic Voice Through Community Engagement in Water Policy Decision Making," *Willamette L. Rev.* 47 (2010): 495. ² Kristin B. Dobbin and Mark Lubell, "Collaborative Governance and Environmental Justice: Disadvantaged Community

Representation in California Sustainable Groundwater Management." Policy Studies Journal. 2019.

³ Kristin B. Dobbin, Jessica Mendoza, and Michael Kuo, "Community Perspectives on SGMA Implementation" (UC Davis, June 2019).

https://environmentalpolicy.ucdavis.edu/sites/g/files/dgvnsk6866/files/files/person/CommunityperspectivesonSGMA Final.pdf. ⁴ Dobbin, Mendoza, and Kuo.

and engagement, affordability, projects and management actions, mitigation, and governance. Importantly, we do not consider every aspect of the plans that are relevant to drinking water or DACs, nor do we assess the real or potential impact of each plan on drinking water users. Thus, additional assessments and analyses are needed to form a complete picture of how the submitted plans might impact the human right to water in the state, which the department has a responsibility to consider under AB 685. We provide these comments merely as a starting place for understanding the scope and focus of these plans as it relates to drinking water.

In addition to informing the Department and Groundwater Sustainability Agencies of our findings, in the coming weeks we will work to summarize our findings across the state to identify general trends across these first GSPs. Among our observations thus far is that many GSPs failed to identify the full extent of drinking water users in their area. In particular, community and public water systems not operated by public water or land use agencies were unacknowledged in many plans. The impact of population growth on projected water budgets is also not well accounted for in many cases. Further, we find that many plans provide limited to no discussion of the ways that drinking water stakeholders were involved in determining local sustainability goals and management criteria.

Appendix A of this document provides the full review results specific to this GSP. Appendix B provides a summary compilation of reference data that helps describe the minimum extent of drinking water stakeholders in the plan area organized by GSA. Appendix C provides more information about our methods and review process. Please direct any questions to Kristin Dobbin at <u>kbdobbin@ucdavis.edu</u>.

Sincerely,

KABR

Kristin Dobbin, PhD Candidate UC Davis Department of Environmental Science & Policy

Appendix A. Paso Robles Subbasin GSP assessment

GENERAL INFORMATION			
Descriptives			
GSP name:	Paso Robles Area		
GSP website link:	http://pasogcp.com/		
Groundwater basin/subasin name(s):	Paso Robles Area - Sali	nas Valley	
Groundwater basin number(s):	3-004.06		
Number of associated GSA(s):	4		
Names of associated GSA(s):	County of San Luis Obis GSA, City of Paso Roble	po GSA - Paso Robles Area, Shandon-San Juan GSA, Sar es GSA	ו Miguel CSD
	WATER QUALITY	(
Descriptives			Page numbers for reference
For how many of the following 7 constituents has the plan set Minimum Thresholds (MTs) and for which?: Nitrates, Arsenic, Uranium, DBCP, 1,2,3-TCP, Chromium-6, Perchlorate	1 - nitrates		8-25, 8-26, 8- 33
Questions	Yes/Somewhat/No	Summary/evidence	Page numbers for reference
Does the plan use MCLs for setting MTs for those constituents listed above? (NA if no MTs for the above 7 constituents set)	Somewhat	Minimum thresholds are generally set to the number of existing exceedances plus 10%. When the additional 10% reflects less than one exceedance, one additional exceedance is allowed.	8-25, 8-26, 8- 33
Does the plan discuss current water quality conditions in terms of drinking water needs/standards (eg PWS MCL violations, public health concerns for domestic wells etc.)?	Yes	"Groundwater in the basin is generally suitable for drinking water purposes. The Paso Robles Groundwater Basin Study, Phase I (Fugro 2002) reviewed water quality data from public supply wells to identify exceedances of drinking water standards. The drinking water standards Maximum Contaminant Levels (MCLs) and Secondary MCLs (SMCLs) are established by Federal and State agencies. MCLs are legally enforceable standards, while SMCLs are guidelines established for nonhazardous aesthetic considerations such as taste, odor, and color. The most common water quality standard exceedance in the Subbasin was exceedance of the SMCL for TDS, which exceeded the standard in 14 samples from the 74 samples. Nitrate also exceeded the MCL in four samples. One exceedance of mercury was found in the San Miguel area in a 1990 sample. There have been no recorded exceedances of mercury in any samples collected since that date." The rest of the section goes through the	5-26, 5-27,

Does the plan discuss the potential impacts of MTs on drinking water users (domestic wells and public water systems/cities)?	Yes	For urban land uses and users the plan says that "Reducing the amount of groundwater pumping may increase the cost of water for municipal users in the Subbasin because municipalities may need to find other, more expensive water sources." For domestic land uses and users the paln says that "existing domestic	8-10, 8-11
Does the plan explain how drinking water stakeholders were involved in defining URs, MOs or MTs for chronic lowering of groundwater levels?	Yes	To establish the chronic lowering of groundwater levels measurable objectives and minimum thresholds came from "Information about the public definition of significant and unreasonable conditions and preferred current and future groundwater elevations, gathered from the Sustainable Management Criteria survey and public outreach meetings." Significant and unreasonable conditions for groundwater levels include those that "impact the ability of existing domestic wells of average depth of produce adequate water for domestic purposes". "Initial measurable objectives were established based on historical groundwater level data; along with input and preferences on future groundwater levels from domestic groundwater users, agricultural interests, environmental interests, and other Subbasin stakeholders. The input and preferences were used to formulate a range of conceptual measurable objective scenarios."	8-7, 8-8
Does the plan discuss current water levels/depth to groundwater conditions in terms of drinking water needs/access?	No	No such discussion found	
	Yes/Somewhat/No	Summary/evidence	Page numbers for reference
v	VATER ACCESS		
Does the plan discuss the potential impacts of MTs for water quality on drinking water users (domestic wells and public water systems/cities)?	Yes	For urban land uses and users the plan says that "The degraded groundwater quality minimum thresholds generally benefit the urban water users in the Subbasin. Limiting the number of additional wells where constituents of concern could exceed primary or secondary MCLs ensures an adequate supply of groundwater for municipal use." For domestic land uses and users the plan says "The degraded groundwater quality minimum thresholds generally benefit the domestic water users in the Subbasin."	8-30. 8-31
Does the plan explain how drinking water stakeholders were involved in defining URs, MOs or MTs for degraded groundwater quality?	Yes	"Locally defined significant and unreasonable conditions were assessed based on federal and state mandated drinking water and groundwater quality regulations, the Sustainable Management Criteria survey, public meetings, and discussions with GSA staff."	8-24,
		distribution and concetrations of individual constituents including chlroide. TDS, nitrate, boron and gross alpha	

		groundwater users may generally benefit from this minimum threshold. Many domestic groundwater users are de-minimis users whose pumping may not be restricted by the projects and management actions adopted in this GSP. By restricting the amount of groundwater that is pumped from the Subbasin, the de- minimis users would be protected from overdraft that could impact their ability to pump groundwater."	
Does the plan include a technical analysis/discussion of potential for domestic wells to go dry given management decisions? (beyond simply noting the possibility which would be included in the above question)	Νο	The plan does not assess the potential for dry wells although they plan to do such an assessment soon. According to the GSP, early after GSP adoption and during efforts to expand the monitoring networks, additional analysis of the minimum thresholds for groundwater elevations will be conducted to ensure that they are protective of average domestic well operations in the Subbasin. Minimum thresholds in some areas of the Subbasin may be modified based on the results of this evaluation.	8-21,
<i>Is there an overview of the drinking water impacts experienced during the 2012-2016 drought?</i>	No	No such discussion found	
DRIN	KING WATER AS A BEN	EFICIAL USE	
Type of DW beneficial user	Properly identified as beneficial user? (Yes/somewhat/No)	Description provided in GSP (e.g. names, #, summary stats etc.) and comparison to reference data (tab 2)	Page numbers for reference
DACs/SDACs	Somewhat	Communications and engagement plan does identify San Miguel as a DAC and then the plan states that "There are disadvantaged communities in the Paso Robles Subbasin, particularly in the southern portion of the Subbasin, where there are severely disadvantaged communities." Creston's DAC status is not addressed.	Appendix M page 10 & 29
Public Water Systems (including cities)	Somewhat	There is a map of public supply well density but the plan does not provide a specific estimate of how many public supply wells exist in the subbasin although the plan has 41 public supply wells in their groundwater quality monitoring network. Our reference data shows 51 public supply wells in the subbasin belonging to 12 public water systems (9 of which are community water systems, see reference data in appendix B). The communications and engagement plan does list public water systems by name although several identified in our reference data are not listed and no discussion of where Public Supply Wells of public water systems are located in the basin are found.	3-16, 7-15
		"Of the 5,164 wells documented in the subbasin, most are domestic wells, and approximately 600 are irrigation wells." There is also a map of the density of domestic	
Domestic Wells	Yes	wells.	3-13, 3-14

	Yes/Somewhat/No	Summary/examples	Page numbers for reference
Does GSP account for increased municipal/domestic water demand due to future population growth/development?	Somewhat	 "Future non-agricultural water demands were estimated for the City of Paso Robles (City) and San Miguel Community Services District (SMCSD) based on the following available planning documents: Paso Robles 2015 Urban Water Management Plan (UWMP) (Todd Groundwater, 2016) San Miguel Community Services District Water & Wastewater Master Plan Update (Monsoon Consultants, 2017) Projections of the City's groundwater demand were obtained from the City's UWMP. A portion of the City's future groundwater demand will be offset by imported Nacimiento water. The projected water demand for SMCSD was assumed to be satisfied solely by groundwater. Projections for non-agricultural water demand for entities other than those listed above, such as residential wells and smaller commercial water users, were not available. Water demand for these users was assumed to remain constant into the future to be consistent with the overarching assumption that future growth will be groundwater neutral through the implementation of this GSP. Total non-agricultural groundwater demand in the Subbasin is projected to increase from about 8,500 AFY in 2020 to about 8,700 AFY in 2040." 	6-26
Does the sustainability goal mention the importance or protection of groundwater for domestic/municipal uses?	Somewhat	"The goal of this GSP is to sustainably manage the groundwater resources of the Paso Robles Subbasin for long-term community, financial, and environmental benefit of Subbasin users. This GSP outlines the approach to achieve a sustainable groundwater resource free of undesirable results within 20 years, while maintaining the unique cultural, community, and business aspects of the Subbasin. In adopting this GSP, it is the express goal of the GSAs to balance the needs of all groundwater users in the Subbasin, within the sustainable limits of the Subbasin's resources." This goal is very broad and does not specifically mention drinking water or domestic/municipal uses only broadly "community" hence the determination of somewhat.	8-5
Does the GSP provide a description of how drinking water users input was considered when defining the sustainability goal?	No	There is no discussion of how the sustainability goal was developed.	
Does GSP discuss and/or affirm the human right to water (AB 685)	No	There is no mention or affirmation of the human right to water	

PARTICIPATION AND ENGAGEMENT IN GSP DEVELOPMENT AND IMPLEMENTATION

General descriptives			Page numbers for reference
Draft GSP comment period start date	Maybe August 12, 2019	but unclear	
Draft GSP comment period end date	9/29/2019		720
Draft GSP comment period length (days)	Unclear		
Date that final GSP was adopted	12/17/2019		
Is there a Stakeholder Communication and Engagement Plan included in the GSP? (Y/N)	Υ		Appendix M pg. 672
General questions	Yes/Somewhat/No	Summary/examples	Page numbers for reference
Were significant and meaningful attempts at outreach and community involvement in GSP development made? (public workshops, community meetings, targeted outreach, various/creative communication methods, material development etc. Don't count full draft plan public comment period required by law but can consider prior comment periods on parts of preliminary drafts if applicable)	Yes	In addition to regular GSA and Cooperative Committee meetings, the GSA conducted two public surveys, held two public workshops, employed email and post mailers and maintained active website.	691, appendix M
<i>Is there evidence of the GSA(s) incorporating public comments into GSP?</i>	Somewhat	Overall the plan says that "Interested Parties' communication and outreach activities are essential in GSP development. Only through effective communication and outreach can Interested Parties' concerns, issues, and aspirations be consistently understood and considered in the GSAs' decision-making process." to that end "All comments received through the PasoGCP.com site were automatically recorded with the time and date of the comment as well as the name of the commenter and, if applicable based on the physical address provided, their GSA. The comments were forwarded to the GSAs and the commenter was notified that their comment had been received. The GSAs reviewed each comment received and incorporated the comments received by mail or other means were considered and incorporated in the same manner. The final GSP reflects the responses to comments incorporated by all four GSAs." Because they provide evidence of tracking comments and affirm a commitment to incorporate them a determination is made of somewhat although little to no evidence of responses to comments or the changes that occurred in response is presented.	page 696 (appendix M), Appendix N (page 719 of PDF)
Translation/interpretation efforts made? (notices, meetings, materials, GSP)	Somewhat	"The Cooperative Committee identified that there are potential Interested Parties who may be primarily Spanish-speaking. Because of this input, additional materials for communication about GSP development will	693 (appendix M)

		be created in Spanish. Items identified initially for Spanish-language communications include the following: Postcard in Spanish to advertise Paso GCP (see Appendix J); Web page on Paso GCP written in Spanish; Link on Paso GCP Spanish-language web page to request materials in Spanish." No discussion of translation at meetings provided.	
Is there a plan for inclusive public engagement during GSP implementation?	Somewhat	"The GSP calls for GSAs to routinely provide information to the public about GSP implementation and progress towards sustainability and the need to use groundwater efficiently. The GSP calls for a website to be maintained as a communication tool for posting data, reports and meeting information."	10-1,
DRINKING WATER AFFORDABILITY			
			Page numbers

General questions	Yes/Somewhat/No	Summary/examples (provide page numbers for reference)	Page numbers for reference
Is drinking water affordability discussed in the plan and/or are			
accommodations for affordability made (e.g.			
exemptions/reductions/rebates for fees or penalties for low-income			
users)?	No	No discussion or accommodations found	

PROJECTS AND MANAGEMENT ACTIONS

Questions	Yes/No	Summary/evidence	Page numbers for reference
Does the plan include projects/actions that specifically address drinking water needs? (generally reducing pumping or increasing supply not counted whereas targeted recharge to improve water quality while increasing supply or targeted recharge to protect domestic or otherwise vulnerable wells from dewatering would count)	Νο	None of the included or management actions appear to assert or promote targeted benefits related specifically to drinking-water	Section 9.5.2
Does the plan include projects/actions that directly benefit a DAC/SDAC? (same stipulations as above)	Yes	The plan includes an upgrade to the San Miguel wastewater treatment plant. San Miguel is a DAC.	9-23, 9-24,

MITIGATION

General questions	Yes/Somewhat/No	Summary/examples (provide page numbers for reference)	Page numbers for reference
Does the GSA propose any actions/projects to mitigate for impacts to drinking water wells caused by the actions (or lack of actions) of the GSA? Impacts may include dry wells, contamination plume etc. Programs may include mitigation funds, drinking water wells technical assistance, protection zones near DACs and SDACs and other options.	No	None found	
Does the plan go beyond aiming to prevent further degradation and strive to remediate groundwater conditions and advance the human right to water?	Somewhat	"Because improving groundwater quality is not a goal under SGMA, and protecting it is important to the beneficial users and uses of the resource, the measurable objectives were set to the number of exceedances	ES-9, 8-33, 8- 8

		present in 2017 (as identified in Tables 8-7 and 8-8)." Similarly, groundwater elevation measurable objectives are set to well's average for 2017. The MT table 8-4 "does not identify the number of supply wells that will exceed the level of concern, but rather identifies how many additional wells will be allowed to exceed the level of concern. Wells that already exceed this limit are not counted against the minimum thresholds. " For groundwater levels, however, MOs are set above MTs which were defined by current water conditions setting improvement as a goal.	
	GSP GOVERNANC	E	
	Summary/description		Page numbers for reference
Description of plan-wide governance/decision-making system for GSP development.	"Each of the GSAs appo Cooperative Committee development phase." Th "basis for continued coop period between adoption DWR." "The MOA sets for votes needed to implement the individual GSAs. In p must unanimously vote to the MOA provides that e Cooperative Committee' procedures for the coop San Miguel CSD. Herita Obispo got 61% of the v	ints a representative to a Cooperative Committee The coordinates activities among all the GSAs during the GSP e group of GSAs are coordinated by a MOA which is the peration in the management of the Subbasin during the n of the GSP by each GSA and approval of the GSP by orth each GSAs' weighted voting percentages and the ent certain actions or make certain recommendations to particular, the MOA states that the Cooperative Committee to recommend that the GSAs adopt the final GSP, though ach GSA may adopt the GSP for its jurisdiction without the s recommendation. "Notably the weighting the voting erative awarded only 3% of the vote of decision making to ge Ranch CSD got 1% of the vote. The County of San Luis ote.	2-2, 2-5, 2-4, appendix M page 7
Description of plan-wide advisory or stakeholder committee for GSP development.	None		
Representation questions	Y/N/NA	Summary/evidence	Page numbers for reference
Drinking water stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA		
DAC stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA		
	GSA GOVERNANC	E	
GSA name: City of Paso Robles GSA			
	Summary/description		Page numbers for reference or other source
Description of GSA governing board	"The City of Paso Robles Manager general law for	s is an incorporated city that operates under a Council- m of government. The City Council consists of five	2-2

	members elected at-larg year overlapping terms.		
Description of advisory/stakeholder committee	None		
	Y/N	Summary/evidence	Page numbers for reference or other source
Is this GSA a drinking-water provider, or if the GSA has multiple member agencies, is one or more a drinking-water representatives on the board?	Y	Paso Robles is a city with a public water system	
Does this GSA directly represent a DAC? Or if the GSA has multiple member agencies, is there one or more DAC representatives on the board?	NA		
Drinking water stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA		
DAC stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA		
	GSA GOVERNANC	E	
GSA name: County of San Luis Obispo GSA			
	Summary/description		Page numbers for reference or other source
Description of GSA governing board	"The County of San Luis Supervisors. Board men on all GSA-related matte	Obispo is governed by a five-member Board of nbers are elected to staggered four-year terms. Decisions ers require an affirmative vote of a majority of the Board."	2-2
Description of advisory/stakeholder committee	None		
	Y/N	Summary/evidence	Page numbers for reference or other source
Is this GSA a drinking-water provider, or if the GSA has multiple member agencies, is one or more a drinking-water representatives on the board?	Y	County operates the county service area community water system for the community of Shandon	
Does this GSA directly represent a DAC? Or if the GSA has multiple member agencies, is there one or more DAC representatives on the board?	N		
Drinking water stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA		
DAC stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA		

GSA GOVERNANCE						
GSA name: San Miguel Community services District GSA						
	Summary/description		Page numbers for reference or other source			
Description of GSA governing board	"San Miguel CSD is gove elected to four year term affirmative vote of a majo	2-2				
Description of advisory/stakeholder committee	None					
	Y/N	Summary/evidence	Page numbers for reference or other source			
Is this GSA a drinking-water provider, or if the GSA has multiple member agencies, is one or more a drinking-water representatives on the baord?	Y	San Miguel is a Community Services District providing drinking water to the unincorporated community of San Miguel				
Does this GSA directly represent a DAC? Or if the GSA has multiple member agencies, is there one or more DAC representatives on the board?	Y	San Miguel is a DAC				
Drinking water stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA					
DAC stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA					
GSA GOVERNANCE						
GSA name: Shandon-San Juan GSA						
	Summary/description		Page numbers for reference or other source			
Description of GSA governing board	"The Shandon-San Juan Directors elected to stag exclusive GSA for the po District, and therefore als all GSA-related matter re Board of Directors."	2-2, 2-3				
Description of advisory/stakeholder committee	None					
	Y/N	Summary/evidence	Page numbers for reference or other source			

Is this GSA a drinking-water provider, or if the GSA has multiple member agencies, is one or more a drinking-water representatives on the board?	N	
Does this GSA directly represent a DAC? Or if the GSA has multiple member agencies, is there one or more DAC representatives on the board?	NA	
Drinking water stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA	
DAC stakeholders represented on stakeholder/advisory committee? (NA for those without committee)	NA	

Appendix B. Baseline reference data for Paso Robles subbasin GSP

GSA Name	Number of cities	City names	Number of DAC places	DAC names	Number of Community Water Systems (CWSs)	CWS names	Number of Public Water Systems (PWSs)	PWS names	Estimated number of Public Supply Wells (Pauloo, 2018)	Estimated number of Domestic wells (Pauloo, 2018)
City of Paso Robles GSA	1	El Paso de Robles (Paso Robles) city	0	NA	1	PASO ROBLES WATER DEPARTMENT	1	PASO ROBLES WATER DEPARTMENT	24	58
San Miguel Community Services District GSA	0	NA	1	San Miguel CDP	1	SAN MIGUEL COMMUNITY SERVICES DISTRICT	1	SAN MIGUEL COMMUNITY SERVICES DISTRICT	3	9
County of San Luis Obispo GSA - Paso Robles Area	0	NA	1	Creston CDP	6	MUSTANG SPRINGS MUTUAL WATER, SLO CSA NO. 16 - SHANDON, SANTA YSABEL RANCH MWC, GREEN RIVER MUTUAL WATER CO., RANCHO SALINAS MBWC, SPANISH LAKES MUTUAL WATER CO	9	CAMP ROBERTS WELL 6A, MUSTANG SPRINGS MUTUAL WATER, CAMP ROBERTS - CALIFORNIA NATIONAL GUARD, SLO CSA NO. 16 - SHANDON, SANTA YSABEL RANCH MWC, GREEN RIVER MUTUAL WATER CO., RANCHO SALINAS MBWC, SPANISH LAKES MUTUAL WATER CO, PLEASANT VALLEY ELEMENTARY	24	9
Shandon-San Juan GSA	0	NA	0	NA	1	SLO CSA NO. 16 - SHANDON	1	SLO CSA NO. 16 - SHANDON	NA	15
Total	1	-	2	-	9	-	12	-	51	91

Data notes (for more information and data sources see Appendix C):

- 1. These analyses were limited to only critically overdrafted basins thus for GSPs submitted for non-critically overdrafted basins some reference data is missing. Missing data is indicated by "missing".
- 2. DAC, city or water systems that overlap by less than ten percent of their area with a respective GSA not included here.

- 3. The water boundary tool data is not comprehensive for every public water system in the state, the number of both Community Water Systems (CWSs) and Public Water Systems (PWSs) are therefore minimum numbers and may very well be missing other existing systems in the GSA area.
- 4. Rather than using the raw OSWCR data, a cleaned version of the database from Pauloo et al. (2020) is used. This cleaned dataset was then conservatively filtered to exclude domestic wells constructed during or before 1975 based on the possibility of such wells no longer being despite the fact that we do know that some such wells are still in use today. The count of domestic wells per GSA, therefore, should also be considered a conservative minimum estimate. Further, the OSWCR dataset only includes reported wells, unreported wells are likely found in many if not every GSA (Pauloo 2018).
- 5. Where more than one GSA is covered by a submitted GSP, the total sums of DAC, city, water systems and well counts provided at the bottom of Appendix B tables includes duplicates where there is overlap between GSPs or where DACs/cities/water systems boundaries span multiple GSAs.

Appendix C: Methods and supporting documentation for assessment of GSPs for Human Right to Water & Drinking Water Needs

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Acronyms:

- CDP Census Designated Place
- C&E Communication and Engagement
- CWS Community Water System
- DAC Disadvantaged Community (used inclusively to encompass DACs and Severely Disadvantaged Communities (SDACs))
- DWR Department of Water Resources
- GSA Groundwater Sustainability Agency
- GSP Groundwater Sustainability Plan
- MO Measurable Objective
- MT Minimum Threshold
- OSWCR Online System of Well Completion Reports
- PWS Public Water System
- SDWIS State Drinking Water Information System
- SGMA Sustainable Groundwater Management Act
- SMC Sustainable Management Criteria
- UR Undesirable Result

Assessment scope and limitations:

Our review of submitted Groundwater Sustainability Plans (GSPs) is intended to capture the degree to which each plan documents engagement with important drinking water and DAC considerations and stakeholders. Informed by the emergency regulations for GSPs adopted by the California Water Commission, the review structure focuses on specific GSP elements that relate to the tenants of state's Human Right to Water law (AB 685) (safe, clean, affordable and accessible drinking water) as well as to considerations of fair treatment and meaningful involvement under California Public Resources Code § 30107.3. Notably, given limited capacity and resources, our review of even these elements is necessarily incomplete. There are many drinking water and

DAC relevant considerations that are not included in this review, for example, the full and accurate incorporation of drinking water consumptive uses in water budget calculations. Thus, these assessments are merely a starting place for considering the relationship between SGMA implementation and current and future drinking water access.

In addition to its limited scope, three other considerations are also important to note about our review: First, beyond comparing the drinking water stakeholders identified in each GSP to publicly available data to estimate a baseline number of DACs/SDACs, incorporated cities, Community Water Systems, Public Water Systems, public supply wells and domestic groundwater wells, this review does not assess the accuracy of information included in a GSP. Second, the review can only consider what is documented in each GSP, thus reflects the plan's contents rather than the GSP development process directly. This is particularly true for stakeholder outreach and engagement. Third, while potentially correlated with discussion of drinking water considerations and stakeholders, this review does not assess the potential or magnitude of impacts to drinking water stakeholders under a GSP. Additional assessments and analyses are needed to understand the potential impacts of submitted GSPs on drinking water stakeholders and the human right to water in California.

GSP assessment methods:

All 41 unique Groundwater Sustainability Plans posted for public comment were downloaded from the SGMA portal on February 20, 2020. A copy of our GSP review matrix, developed based on the above objectives and piloted on draft plans, was made for each GSP. Each section of the review was then completed in accordance with the project review protocols (see GSP review protocols by element) by a research team member. Generally, each review element pertains to one or a few specific GSP sections/subsections such that a reviewer, after reading the executive summary of the plan, could jump to those sections (or the equivalent sections according to the GSP organization statement) to fill out the matrix. For select elements, keyword searches of the entire plan were used in addition to, or instead of, reviewing specific sections. In these keyword searches, standard stemming techniques ensured a comprehensive review.

Aberrations and uncertainties in implementing any of the protocols were noted in the shared review protocol document leading to updates of the protocols as needed. In some cases, especially where plans did not follow the DWR annotated GSP outline, information pertaining to a review criteria was found in sections/subsections other than those noted for review in the protocol, this information was included in the review so long as it was fully applicable to the review question. Information included in appendices was reviewed and considered where applicable and when indicated directly in the plan text (e.g. see Appendix X for additional details about basin water quality), however, appendices were not reviewed independently for relevant content outside of such mentions. Reference documents included within GSPs such as DWR Best Management Practice documents were excluded from consideration entirely. Once each section of the review was completed, the entire matrix was reviewed by the lead researcher for completeness and accordance with the established protocols. As a final quality assurance measure, upon completing all of the reviews, each element was reviewed comparatively across all 41 GSP assessments to ensure consistency in protocol application.

Appendix B reference data sources and methods:

The following data layers/sources were used to compile reference data organized by exclusive Groundwater Sustainability Agency (GSA):

- DAC Places 2016 (DWR DAC mapping tool: <u>https://gis.water.ca.gov/app/dacs/</u>, includes non-DAC CDPs/cities)
- Exclusive GSAs (DWR GSA map viewer: <u>https://sgma.water.ca.gov/webgis/index.jsp?appid=gasmaster&rz=true</u>)
- Critically overdrafted groundwater basins (DWR water management planning tool: <u>https://gis.water.ca.gov/app/boundaries/</u>)
- Public Water system boundaries (Tracking California Water Boundary Tool: <u>https://trackingcalifornia.org/water-systems/water-systems-landing</u>)
- Cleaned well completion reports for public supply wells (cleaned OSWCR data filtered by well type: Pauloo, R. et al. (2019), Domestic Well Vulnerability to Drought Duration and Unsustainable Groundwater Management in California's Central Valley, v2, UC Davis, Dataset, <u>https://doi.org/10.25338/B8Q31D</u>)
- Cleaned well completion reports for domestic supply wells (cleaned OSWCR data filtered by well type: Pauloo, R. et al. (2019), Domestic Well Vulnerability to Drought Duration and Unsustainable Groundwater Management in California's Central Valley, v2, UC Davis, Dataset, <u>https://doi.org/10.25338/B8Q31D</u>)

Using these layers, spatial intersections were completed using QGIS and summarized to create the following CSV data files: DAC Places inside exclusive GSAs; Cities inside exclusive GSAs; Public Water Systems inside exclusive GSAs; Community Water Systems inside exclusive GSAs; public supply wells in exclusive GSAs and domestic wells in exclusive GSAs. These analyses were limited to only critically overdrafted basins thus for GSPs submitted for non-critically overdrafted basins some reference data is missing. For polygon joins, we excluded all those intersections where less than 10% of the area of the DAC, city or water system boundary fell into the respective GSA.

Based on the data layers used in the analysis, three things are important to note about the reference data summary tables. First, not all public water systems have voluntarily submitted their boundaries to the state meaning that there are water systems, including active ones, missing from our analysis. The number of both Community Water Systems (CWSs) and Public Water Systems (PWSs) are therefore more akin to minimum numbers. Second, rather than including unprocessed OSWCR (Online System of Well Completion reports) data from the Department of Water Resources, a cleaned version of the database from Pauloo et al. (2020) is used. This cleaned dataset was then conservatively filtered to exclude domestic wells constructed during or before 1975 based on the possibility of such wells no longer being despite the fact that we do know that some such wells are still in use today. Thus the count of domestic wells per GSA should also be considered a conservative minimum estimate. Further, the OSWCR dataset only includes reported wells, unreported wells are likely found in many if not every GSA (Pauloo 2018). Finally, because the data is organized by GSA rather than GSP, where more than one GSA is covered by a submitted GSP, the total sums of DAC, city, water systems and well counts provided at the bottom of Appendix B tables includes duplicates where there is overlap between GSPs or where DACs/cities/water systems boundaries span multiple GSAs.

GSP review protocols by section:

- GENERAL INFORMATION
 - GSP name, groundwater basin/subbasin name and number both come from SGMA GSP portal
 - Websites found using the SGMA GSP portal and/or google
 - Number and names of associated GSAs from SGMA GSP portal
 - All GSAs covered by the plans are included in Appendix B reference data however only those GSAs listed as formally affiliated with the GSP were addressed in the governance sections.
- WATER QUALITY
 - For how many of the following seven constituents has the plan set Minimum Thresholds (MTs) and for which?: Nitrates, Arsenic, Uranium, DBCP, 1,2,3-TCP, Chromium-6, Perchlorate
 - GSP section: Sustainable Management Criteria, Minimum Thresholds (Reg. § 354.28) for degraded water quality indicator
 - Notes: MTs for Total Chromium not considered for Chromium-6
 - Does the plan use MCLs for setting MTs for those constituents listed above? (NA if no MTs for the above 7 constituents set)
 - GSP section: Sustainable Management Criteria, Minimum Thresholds (Reg. § 354.28) for degraded water quality indicator
 - Yes: For those MTs set for the above seven constituents, MTs are set at or below state MCLs.
 - Somewhat: Either state MCLs used for some but not all MTs set or MCLs used as MTs generally but exceedances allowed under

certain conditions (e.g. for those wells with recent exceedances)

- No: MTs are set at or above state MCLs
- NA where MTs are not set of any of the seven key drinking water constituents (Nitrates, Arsenic, Uranium, DBCP, 1,2,3-TCP, Chromium-6, Perchlorate)
- Notes:
 - For Chromium-6 the previous state MCL or screening standards were both considered as using MCLs as was listing the MT as the revised state MCL if/when adopted.
 - In many plans singular or even multiple exceedances of MT are not grounds for asserting undesirable results or triggering management actions. Thus the recorded MTs are not necessarily reflective of the designated threshold for undesirable results in a basin or minimum-acceptable conditions as described in the plans.
 - If a plan sets different MTs based on well type, drinking water well MTs were used for this section.
- Does the plan discuss current water quality conditions in terms of drinking water needs/standards (eg PWS MCL violations, public health concerns for domestic wells etc.)?
 - GSP section: Basin setting, Current and Historical Groundwater Conditions (Reg. § 354.16)
 - Yes: Discussion of groundwater quality includes reference to drinking water standards/public health, detailed discussion and/or mapping of contaminant levels, discussion of detections, discussion of MCL violations etc. included in plan.
 - Somewhat: Plan includes some discussion of constituents of concern including, at minimum, reference to public health/drinking water standards, but lacks detailed mapping or discussion of contaminant levels/distribution in the GSP area.
 - No: There is no discussion of groundwater quality as it relates to drinking water or public health standards. This includes plans with thorough mapping and description of groundwater quality issues if there is no reference to how these levels relate to or impact public health or compliance with drinking water standards.
- Does the plan explain how drinking water stakeholders were involved in defining URs, MOs or MTs for degraded groundwater quality?
 - GSP section: Sustainable Management Criteria, Measurable Objectives (Reg. § 354.30), Minimum Thresholds (Reg. § 354.28) and Undesirable Results (Reg. § 354.26) for degraded water quality

indicator

- Yes: There are specific details of the ways that stakeholders were involved that are explicitly inclusive of drinking water stakeholders (for example if they talk specifically about community or city residents, water system or city staff etc.) or could reasonably be assumed to be (like community meetings or public meetings). Enough detail needs to be provided that the reader can reasonably understand how these stakeholders shaped the process for two or more sustainable management criteria (URs, MTs, MOs).
- Somewhat: Plan vaguely talks about stakeholder input at a high level but without much details on the mechanisms or the plan talks about drinking-water inclusive stakeholder input only for one sustainable management criteria (e.g. URs).
- No: There is no mention or discussion of stakeholder input in setting SMC or there is only discussion of non-drinking water stakeholder involvement.
- Notes: Board of directors involvement without mention or discussion of broader public not considered as stakeholder involvement, involvement of an advisory committee is.
- Does the plan discuss the potential impacts of MTs for water quality on drinking water users (domestic wells and public water systems/cities)?
 - GSP section: Sustainable Management Criteria, Minimum Thresholds (Reg. § 354.28) and Undesirable Results (Reg. § 354.26) for degraded water quality indicator
 - Yes: There is specific discussion of potential impacts of the designated MTs for domestic wells and public water systems as applicable (e.g. increased costs for treatment, MCL violations, need for blending or replacement water, public health concerns)
 - Somewhat: There is either: 1) high level acknowledgement of potential impacts of MTs for drinking-water stakeholders but it lacks detail (e.g. domestic wells could be negatively impacted); 2) there is a discussion of potential impacts of the MTs but they are not specific to drinking-water stakeholders or consider only one type of applicable drinking water stakeholder omitting relevant others (don't discuss domestic wells or only discuss domestic wells); or 3) there is discussion of potential impacts of undesirable results for drinking water stakeholders but no discussion of how MTs specifically could impact drinking water users.
 - No: There is no discussion of potential impacts or discussion is limited to non-drinking water stakeholders for both MTs and URs.

- Note: Discussion of human health or public health was considered to be drinking-water specific.
- WATER ACCESS
 - Does the plan discuss current water levels/depth to groundwater conditions in terms of drinking water needs/access?
 - GSP section: Basin setting, Current and Historical Groundwater Conditions (Reg. § 354.16)
 - Yes: Groundwater levels are discussed or graphed in relation to domestic or public supply well depth.
 - Somewhat: Plan includes discussion of well depths and discussion of groundwater levels but not in relation to one another or discussion of the two together is minimal.
 - No: Drinking water well depths are not discussed.
 - Does the plan explain how drinking water stakeholders were involved in defining URs, MOs or MTs for chronic lowering of groundwater levels?
 - GSP sections: Sustainable Management Criteria, Measurable Objectives (Reg. § 354.30), Minimum Thresholds (Reg. § 354.28) and Undesirable Results (Reg. § 354.26) for declining groundwater levels indicator
 - Yes: There are specific details of the ways that stakeholders were involved that are explicitly inclusive of drinking water stakeholders (for example if they talk specifically about community or city residents, water system or city staff etc.) or could reasonably be assumed to be (like community meetings or public meetings). Enough detail needs to be provided that the reader can reasonably understand how these stakeholders shaped the process for two or more sustainable management criteria (URs, MTs, MOs).
 - Somewhat: Plan vaguely talks about stakeholder input at a high level but without much detail on the mechanisms or the plan talks about drinking-water inclusive stakeholder input only for one sustainable management criteria.
 - No: There is no mention of stakeholder input or there is only mention of involvement of non-drinking water stakeholder involvement.
 - Notes: Board of directors involvement without mention or discussion of broader public not considered as stakeholder involvement, involvement of an advisory committee is.
 - Does the plan discuss the potential impacts of MTs on drinking water users (domestic wells and public water systems/cities)?
 - GSP sections: Sustainable Management Criteria, Minimum

Thresholds (Reg. § 354.28) and Undesirable Results (Reg. § 354.26) for declining groundwater levels indicator

- Yes: There are specific and detailed discussion of potential impacts of the designated MTs explicitly about domestic wells and/or public water systems (eg well damage, dry wells, costs for replacement wells or water source)
- Somewhat: There is either: 1) high level acknowledgement of potential impacts of MTs for drinking-water stakeholders (e.g. wells could go dry); 2) there is a discussion of potential impacts of the MTs but they are not specific to drinking-water stakeholders or consider only one type of applicable drinking water stakeholder omitting others (don't discuss domestic wells or only discuss domestic wells); or 3) there is detailed discussion of potential impacts for drinking water stakeholders but only of undesirable results generally rather than the specific MTs set under the plan.
- No: There is no discussion of potential impacts or discussion is limited to non-drinking water stakeholders
- Does the plan include a technical analysis/discussion of potential for domestic wells to go dry given management decisions? (beyond simply noting the possibility which would be included in the above question)
 - GSP section: Sustainable Management Criteria, Minimum Thresholds (Reg. § 354.28) for declining groundwater levels indicator
 - Yes: Plan includes an analysis that considers well depth (domestic wells or all wells) in relation to the MTs set that results in descriptive statistics about dry/impacted wells under MT conditions.
 - Somewhat: Plan includes thorough analysis or discussion of the possibility of dry wells but stops short of providing analysis results or an analysis is included but is not comprehensive for the plan area.
 - No: No analysis or technical discussion of potential well failures included
- Is there an overview of the drinking water impacts experienced during the 2012-2016 drought?
 - Keywords/phrases searched: Dry wells, emergency, bottled water, drought, funding, recent drought. Relevant content also found while reviewing the current and historical basin conditions and other sections.
 - Yes: Details about the recent drought's impacts on drinking water impacts are included in the plan (eg reference to bottled water and

emergency interim solutions programs, description of water shortages, information about emergency drought restrictions)

- Somewhat: Drinking water impacts of the recent drought are referenced in passing but not elaborated on (eg small water systems were impacted by recent drought)
- No: There is no discussion of drought impacts directly related to drinking water. This includes, for example, discussion of declining groundwater levels that aren't related to well impacts.
- DRINKING WATER AS BENEFICIAL USE
 - Are DACS /SDACs adequately identified as a beneficial user?
 - GSP sections: Description of the Plan Area (Reg. § 354.8), Notice and Communication (Reg. § 354.10) and Communication and Engagement Plan (where applicable)
 - Yes: DACs/SDACs in the plan area are at minimum named and mapped (or locations described) and closely or perfectly mirror the reference data provided in Appendix B (minor deviations okay especially where references to 2017 data included)
 - Somewhat: Many but not all of the DACs/SDACs in the area are named and/or mapped per reference data provided in Tab 2. Or DACs are mapped at census block or tract level only and there are DACP places in the plan area.
 - No: None or few DACs/SDACs in the area are named or mapped.
 - NA: There are no DACs/SDACs in the GSP area according to our reference data (Appendix 2, 2016 DWR data used, intersections of less than ten percent of DAC area excluded for reference data).
 - Note:
 - For the purposes of this review, we did not distinguish between DACs and SDACs.
 - Where no reference data available for comparison, used online DAC mapping tool from DWR too look at plan area.
 - Are Public Water Systems (PWSs, including cities) adequately identified as a beneficial user?
 - GSP sections: Description of the Plan Area (Reg. § 354.8), Notice and Communication (Reg. § 354.10) and Communication and Engagement Plan (where applicable)
 - Yes: Plan includes at least two of the following: Number of public supply wells, list of public water systems and/or community water systems, locations of public supply wells and/or water systems, or descriptive information about public supply well depths.
 - Somewhat: Plan includes at least one of the following: Number of

public supply wells, number or list of public water systems, locations of public supply wells and/or water systems, or descriptive information about well depths. Alternatively, two or more types of information are provided but the number of public supply wells or public water systems is significantly below what is identified in the reference data.

- No: Plan either does not mention public water systems or they are mentioned without providing the above details.
- NA: There are no public water systems in the GSP area according to our reference data (Tab 2).
- Notes:
 - Our reference data employs the water boundary tool data which is not complete thus systems are expected to be identified in the plans that are not shown in our reference data in Appendix B.
 - Where no reference data available assumed their data was accurate and answer question based on level of information/detail provided.
- Are domestic wells adequately identified as a beneficial user?
 - GSP sections: Description of the Plan Area (Reg. § 354.8), Notice and Communication (Reg. § 354.10) and Communication and Engagement Plan (where applicable)
 - Yes: Plan includes at least two of the following: the total number of domestic wells, information about their locations (e.g. density map or discussion of their geographic distribution in the plan area) or descriptive information about domestic well depth.
 - Somewhat: Plan includes just one of the following: the total number of domestic wells, information about their locations (e.g. density map or discussion of their geographic distribution in the plan area) or descriptive information about domestic well depth. Alternatively, two or more types of information provided but the number of domestic wells identified is significantly below what is identified in the reference data.
 - No: Domestic wells are either not mentioned or their presence is acknowledged without providing details about number, locations or depth.
 - Notes:
 - Because OSWCR data only includes reported wells and because this data set was cleaned and then filtered to only those wells constructed after 1975 the reference data

estimate for domestic wells should be considered a minimum baseline.

- Where no reference data available assumed their data was accurate and answer question based on level of information/detail provided.
- Does GSP account for increased municipal/domestic water demand due to future population growth/development?
 - GSP section: Basin setting, Water Budget Information (Reg. § 354.18)
 - Yes: Projected water budget accounts for growth in both incorporated and unincorporated communities with clear information about how/why the given projections were made (eg Urban Water Management Plan projections). Ideally dispersed rural residential growth also incorporated but can still receive a yes designation without it. Also can receive a yes designation is rather than including growth a citation from a local land use planning agency is provided justifying the projected lack of growth.
 - Somewhat: Growth rates for cities and unincorporated communities are incorporated into the projected budget but no discussion/rationale for the included projections is provided or growth projections are included for only some but not all the cities and unincorporated communities in the area.
 - No: Residential growth is not incorporated into the projected water budget and no local land use planning agency source is provided to justify this omission.
 - NA where no community water systems present
- Does the sustainability goal mention the importance or protection of groundwater for domestic/municipal uses?
 - GSP section: Sustainable Management Criteria, Sustainability Goal (Reg. § 354.24)
 - Yes: Goal explicitly mentions the importance of, or protecting, groundwater for domestic/municipal uses, drinking water or public health.
 - Somewhat: Goal broadly discussed protection of beneficial uses/users, "community" or "residents" broadly
 - No: Goal neither mentions drinking water, public health nor the protection of beneficial uses/users, residents, or community.
- Does the GSP provide a description of how drinking water users input was considered when defining the sustainability goal?
 - GSP section: Sustainable Management Criteria, Sustainability Goal

(Reg. § 354.24)

- Yes: Plan includes discussion of the process whereby the sustainability goal was determined that is explicitly inclusive of drinking water stakeholders (for example if they talk specifically about community or city residents, water system or city staff etc.) or could reasonably be assumed to be (like community meetings or public meetings). Must include enough details that the reader can understand how stakeholder involvement directly contributed to shaping the goal.
- Somewhat: Plan references stakeholder involvement or input on the sustainability goal but no details are provided.
- No: Plan does not discuss how the sustainability goal was decided upon or only non-drinking water stakeholders are discussed as contributing to development.
- Does GSP discuss and/or affirm the human right to water (AB 685)
 - Keyword search of whole document: human right to water, right to water, AB 685
 - Yes: Plan affirms the human right to safe clean and affordable water and/or the right to water is discussed in the plan in relation to either its' development and/or impact/implementation
 - Somewhat: Human right to water if mentioned but not affirmed or related to the GSP directly.
 - No: No mention outside of any public comments or reference documents appended.
- PARTICIPATION AND ENGAGEMENT
 - The following considerations are recorded for reference. Information was gathered from the plan directly as well as the DWR SGMA portal (public hearing notices and resolutions etc.) and when needed, GSA websites.
 - Draft GSP comment period start date
 - Draft GSP comment period end date
 - Draft GSP comment period length (days)
 - Approximate. Used their count of days when provided in plan.
 - Date that final GSP was adopted
 - Is there a Stakeholder Communication and Engagement Plan included in the GSP? (Y/N)
 - This question is answered as yes where there is a stand alone communication and engagement document included in the plan or referenced in plan and publicly available beyond information required in communications section of the plan.

- Where the included C&E plan is for a whole sub-basin and not the GSP in question that is noted.
- Were significant and meaningful attempts at outreach and community involvement in GSP development made? (public workshops, community meetings, targeted outreach, various/creative communication methods, material development etc. Don't count full draft plan public comment period required by law but can consider prior comment periods on parts of preliminary drafts if applicable)
 - GSP sections: Plan Area and Basin Setting, Notice and Communication (Reg. § 354.10) and Communication and Engagement Plan (where applicable)
 - Yes: GSA(s) document several different methods for outreach and engagement that demonstrate breadth and depth of reach and tailoring to their specific setting. Discussion of efforts are detailed.
 - Somewhat: GSA(s) document a few outreach and engagement methods beyond the required public meetings/hearings and noticing. Discussions of efforts may also be vague or high level or demonstrate limited effort (stakeholder survey with few responses etc.). Somewhat is also used where significant efforts were made at subbasin level but little to no documentation of stakeholder engagement specific to the GSP at hand is provided.
 - No: There is no or very limited discussion of stakeholder outreach or engagement. Involvement mechanisms relied upon are primarily the minimum requirements for transparency including public board meetings, required public hearings under SGMA, noticing of meetings and hearings, and the required draft plan comment period.
 - Notes:
 - Stakeholder/advisory committees are not considered in this section because they are included in the governance sections.
 - While the required draft plan comment period is not considered, release of pre-drafts for iterative cycles of comment was counted as an outreach/engagement method.
 - Future tense references to planned stakeholder outreach and engagement (especially in C&E plan) not counted where no clear indication is made that these plans were realized.
- Is there evidence of the GSA(s) incorporating public comments into GSP?
 - GSP sections: Plan Area and Basin Setting, Notice and Communication (Reg. § 354.10) and Communication and

Engagement Plan (where applicable). Often found in appendices.

- Keywords searched: comments, comment period, draft, public comment
- Yes: There is documented evidence of GSA(s) receiving, responding to and incorporating comments such as an appendix of comments and responses or multiple examples in the plan of changes made in response to comments.
- Somewhat: There is reference to receiving and incorporating comments on the plan but there is no more than one or two clear examples of this occurring or only high-level discussion of comments being incorporated without specifics.
- No: There is no evidence of, or reference to, incorporating comments on the draft plan.
- Note: Plans that did not receive any public comments were assigned no assuming no specific examples were provided in the plan of incorporating comments from meetings or workshops into the plan.
- Translation/interpretation efforts made? (notices, meetings, materials, GSP)
 - GSP sections: Plan Area and Basin Setting, Notice and Communication (Reg. § 354.10) and Communication and Engagement Plan (where applicable)
 - Keywords searched: Translation, interpretation, Spanish, language, English, bilingual
 - Yes: There is more than one example effort at translation/interpretation documented (e.g. translation of materials, meeting interpretation provided, non-english language mailers or media)
 - Somewhat: There is one example of translation/interpretation documented (eg meetings or materials but not both), translation efforts are said to have taken plave but are not well described or translation efforts were made for subbasin wide coordinated outreach and engagement but no reference to any efforts at the GSP level are found (where different).
 - No: No reference to language access efforts documented.
 - Notes: Like all stakeholder outreach and engagement efforts, plans to provide translation in communications and engagement plans or other planning documents were not counted when exclusively provided in future tense with no indication they occured.
- Is there a plan for inclusive public engagement during GSP

implementation?

- GSP section: Plan Area and Basin Setting, Notice and Communication (Reg. § 354.10), Plan Implementation and Communication and Engagement Plan (where applicable)
- Yes: There is a discussion of plans for stakeholder outreach and engagement for plan implementation that includes specific mechanisms for involvement (workshops, advisory committee, communications) that go beyond public noticing and meetings.
- Somewhat: There are high-level references to the continuation of stakeholder outreach and engagement for GSP implementation but lacks specific details about what this will look like.
- No: There is no discussion of stakeholder engagement during implementation
- DRINKING WATER AFFORDABILITY
 - Is drinking water affordability discussed in the plan and/or are accommodations for affordability made (e.g. exemptions/reductions/rebates for fees or penalties for low-income users)?
 - GSP sections: Introduction, Agency Information (Reg. § 354.6), Implementation, Estimated Cost of Implementing the GSP and the GSA's Approach to Meet Costs
 - Keyword searches: affordability, low-income
 - Yes: Plan includes discussion of affordability for drinking water users specifically. This may include how the plan might impact affordability, incorporating affordability into assessment of funding options or plans to employ low-income rates or reduced fees/penalties.
 - Somewhat: Affordability is mentioned but not specifically related to the GSP or addressed/accommodated for. Discussion is vague or high-level.
 - No: No mention or discussion.
- PROJECTS AND MANAGEMENT ACTIONS
 - Does the plan include projects/actions that specifically address drinking water needs? (generally reducing pumping or increasing supply not counted whereas targeted recharge to improve water quality while increasing supply or targeted recharge to protect domestic or otherwise vulnerable wells from dewatering would count)
 - GSP section: Projects and Management Actions to Achieve Sustainability Goal (Reg. § 354.44)
 - Yes: One or more project or management actions have specific

drinking water benefits as discussed in plan. For example water quality benefits centered around Title 22 standards, targeted recharge near public water systems or domestic wells that is discussed as benefiting those drinking water users, water conservation programs etc. General recharge projects or efforts that support sustainability generally without having unique drinking water related benefits are not counted even when led by a drinkingwater provider.

- No: None of the included projects or management actions have specific drinking water benefits.
- Notes: Potential projects that are discussed as possibilities are excluded from consideration. Where a GSP projects/management action are prioritized or ranked, only top priority/tier/planned projects are considered in this assessment.
- Does the plan include projects/actions that directly benefit a DAC/SDAC? (same stipulations as above)
 - GSP section: Projects and Management Actions to Achieve Sustainability Goal (Reg. § 354.44)
 - Yes: One or more project or management actions have specific DAC benefits. For the purposes of this review DAC benefits means that the project is discussed or proclaimed as having direct benefits to one or more DAC/SDAC such as targeted recharge, well rehabilitation, water conservation programs, infrastructure improvements etc. General recharge projects or efforts that support sustainability generally without having unique DAC related benefits are not counted.
 - No: None of the included projects or management actions have specific DAC benefits.
 - NA: No DACs/SDACs in plan area according to our 2016 DWR reference data (see Appendix B).
 - Notes: Potential projects that are not committed to are excluded from consideration. Where a GSP projects/management action are prioritized or ranked, only top priority/tier/planned projects are considered in this assessment.
- MITIGATION
 - Does the GSA propose any actions/projects to mitigate for impacts to drinking water wells caused by the actions (or lack of actions) of the GSA? Impacts may include dry wells, contamination plume etc. Programs may include mitigation funds, drinking water wells technical assistance, protection zones near DACs and SDACs and other options.
- GSP sections: Projects and Management Actions to Achieve Sustainability Goal (Reg. § 354.44) also Sustainable Management Criteria, Minimum Thresholds (Reg. § 354.28) and Basin setting, Management Areas (as Applicable) (Reg. § 354.20).
- Yes: The plan includes discussion of one or more planned efforts to protect drinking water users outside of setting minimum thresholds.
- Somewhat: Plan includes discussion of potential mitigation efforts but they are not fully committed to.
- No: No such projects or management actions are planned or considered in the GSP.
- Does the plan go beyond aiming to prevent further degradation and strive to remediate groundwater conditions and advance the human right to water?
 - GSP sections: Sustainable Management Criteria, Measurable Objectives (Reg. § 354.30) for degraded groundwater quality and declining groundwater levels indicators
 - Yes: Both the MO for declining groundwater levels and the MO for degraded water quality are fully or mostly set above recent lows.
 - Somewhat: Either the MO for declining groundwater levels or the MO for degraded water quality are set above recent lows but not both.
 - No: Neither the MO for declining groundwater levels nor the MO for degraded water quality are set above recent lows
- GSP GOVERNANCE (this section is only applicable where there are multiple GSPs in a basin or subbasin, deleted for all other plans)
 - Descriptives
 - Description of plan-wide governance/decision-making system for GSP development if applicable
 - Description of plan-wide advisory or stakeholder committee for GSP development if applicable
 - Notes: Technical advisory committees were not counted as stakeholder or advisory committees. Committees by other names (eg groundwater planning commission, rural communities committee) were counted where their purpose was discussed as supporting involvement of stakeholders or beneficial uses/users inclusive of drinking water stakeholders.
 - Drinking water stakeholders represented on stakeholder/advisory committee? (NA for those without committee)
 - GSP sections: Introduction, Agency Information (Reg. § 354.6) and

Notice and Communication (Reg. § 354.10), Communications and Engagement Plan (where applicable). When committee is discussed but composition is not detailed in the plan, also consulted GSA website

- Keywords searched: stakeholder committee, advisory committee
- Yes: The stakeholder/advisory committee explicitly includes one or more drinking water stakeholder including domestic well owners, city residents, city staff/officials, public water system representatives
- No: The stakeholder/advisory committee does not include one or more drinking water stakeholders explicitly ("landowners" and "growers" were not assumed to be domestic well owners unless specified as such)
- NA: No GSP wide stakeholder or advisory committee mentioned in plan.
- Unclear: Plan nor website provides enough information to know the composition of the mentioned committee.
- Notes: Where drinking water stakeholders were non-voting members they were not counted as represented.
- DAC stakeholders represented on stakeholder/advisory committee? (NA for those without committee)
 - GSP sections: Introduction, Agency Information (Reg. § 354.6) and Notice and Communication (Reg. § 354.10), Communications and Engagement Plan (where applicable). When committee is discussed but composition is not detailed in the plan, also consulted GSA website
 - Keywords searched: stakeholder committee, advisory committee
 - Yes: The stakeholder/advisory committee explicitly includes one or more DAC stakeholder including residents, public water system representatives from a system serving a DAC/SDAC, city officials/staff where that city is a DAC, or community organizations or environmental justice organizations noted as being related to DACs.
 - No: The stakeholder/advisory committee does not include one or more DAC stakeholders explicitly.
 - NA: No GSP wide stakeholder or advisory committee mentioned in plan.
 - Unclear: Plan nor website provides enough information to know the composition of the committee
 - Notes: Where DAC stakeholders were non-voting members they

were not counted as represented.

- GSA GOVERNANCE (this section is repeated for each GSA listed as affiliated plan per the SGMA portal submitted GSP database)
 - Descriptives
 - Description of GSA governing board
 - Description of GSA advisory/stakeholder committee (NA if none)
 - Notes: Technical advisory committees were not counted as stakeholder or advisory committees. Committees by other names (e.g. groundwater planning commission, rural communities committee) were counted where their purpose was discussed as supporting involvement of stakeholders or beneficial uses/users inclusive of drinking water stakeholders.
 - Is this GSA a drinking-water provider, or if the GSA is an MOU/JPA or special act district, is one or more drinking-water representatives on the board?
 - GSP section: Introduction, Agency Information (Reg. § 354.6)
 - Yes: Either the GSA itself is a community/public water system or city, one or more member agencies represented on the GSA board is a community/public water system or city or there is one or more appointed seats on the governing board for domestic well or drinking water system representation.
 - No: None of the above criteria apply
 - Does this GSA directly represent a DAC? Or if the GSA is an MOU/JPA or special act district, is one or more DAC representatives on the board?
 - GSP section: Introduction, Agency Information (Reg. § 354.6)
 - Yes: Either the GSA itself represents a DAC/SDAC (city or community water system serving a DAC/SDAC), one or more member agencies on the GSA board represents a DAC/SDAC or there is an appointed seat for DAC/SDAC representation on the board. See notes below on what constitutes an agency that represents a DAC/SDAC.
 - No: None of the above criteria apply
 - Notes: Agencies representing a DAC/SDAC were considered to be agencies that primarily represent one or more DACs/SDACs meaning the DAC/SDAC make up more than half of the agency's service area/connections. Larger regional districts like Counties, irrigation districts, Investor Owned Utilities, storm water districts etc are not counted.
 - Are there specific drinking water stakeholders represented on

stakeholder/advisory committee? (NA for those without committee)

- GSP sections: Introduction, Agency Information (Reg. § 354.6) and Notice and Communication (Reg. § 354.10), Communications and Engagement Plan (where applicable). When committee is discussed but composition is not detailed in the plan, also consulted GSA website
- Keywords searched: stakeholder committee, advisory committee
- Yes: The stakeholder/advisory committee explicitly includes one or more drinking water stakeholder including domestic well owners, city residents, city staff/officials, public water system representatives.
- No: The stakeholder/advisory committee does not include one or more drinking water stakeholders explicitly ("landowners" and "growers" were not assumed to be domestic well owners unless specified as such)
- NA: No stakeholder or advisory committee mentioned in plan.
- Unclear: Plan nor website provides enough information to know the composition of the committee
- Notes: Where drinking water stakeholders were non-voting members they were not counted as represented.
- Are there specific DAC stakeholders represented on stakeholder/advisory committee? (NA for those without committee)
 - GSP sections: Introduction, Agency Information (Reg. § 354.6) and Notice and Communication (Reg. § 354.10), Communications and Engagement Plan (where applicable). When a committee is discussed but the composition is not detailed in the plan, we also consulted the GSA website.
 - Keywords searched: stakeholder committee, advisory committee
 - Yes: The stakeholder/advisory committee explicitly includes one or more DAC stakeholder including residents, public water system representatives from a system serving a DAC/SDAC, city officials/staff where that city is a DAC, or community organizations or environmental justice organizations noted as being related to DACs.
 - No: The stakeholder/advisory committee does not include one or more DAC stakeholders explicitly.
 - NA: No such committee mentioned in plan.
 - Unclear: Plan nor website provides enough information to know the composition of the committee.
 - Notes: Where DAC stakeholders were non-voting members they

were not counted as represented.

Research team:

- Kristin Dobbin, PhD candidate
- Darcy Bostic, MS candidate
- Michael Kuo, research assistant
- Jessica Mendoza, research assistant

References:

- Pauloo, R. A., Escriva-Bou, A., Dahlke, H., Fencl, A., Guillon, H., & Fogg, G. E. (2020). Domestic well vulnerability to drought duration and unsustainable groundwater management in California's Central Valley. Environmental Research Letters, 15(4), 044010.
- Pauloo, Richard et al. (2019), Domestic Well Vulnerability to Drought Duration and Unsustainable Groundwater Management in California's Central Valley, v2, UC Davis, Dataset, <u>https://doi.org/10.25338/B8Q31D</u>
- Pauloo, Rich (2018, April 30). An Exploratory Data Analysis of California's Well Completion Reports. Retrieved from <u>https://richpauloo.github.io/oswcr_1.html</u>

Patricia Wilmore from Paso Robles Wine Country Alliance says (05/15/2020 02:50PM):

The Paso Robles Wine Country Alliance (PRWCA) is a 501 c6 membership based organization with nearly 500 members. Included in our membership are 200+ wineries and over 130 vineyards in the Paso Robles American Viticulture Area (AVA). The majority of these vineyards overlie the Paso Robles Groundwater Basin and depend nearly exclusively on precipitation and groundwater supplies to grow their crops. These crops contribute, according to the County of San Luis Obispo's Agriculture Department's 2019 report, over \$230 Million to the local economy and account for over 3,000 jobs. All this is to emphasize that a reliable source of groundwater coupled with science based groundwater management is critically important to our members. Consequently, we participated in all the Paso Basin Cooperative Committee Meetings as interested members of the public, speaking on behalf of this major group of stakeholders. While the Paso Robles Groundwater Sustainability Plan as submitted to the DWR may "check all the boxes" and meet the base criteria for a GSP, the following will be very important moving forward: 1) Establish a robust monitoring network. The monitoring network clearly needs to be expanded in order to have adequate data to guide future decisions and actions. Many of our members have indicated that they are willing to participate; however, there is no detail in our current GSP on how we will expand this network. 2) Collaborate with our agriculture community to specifically identify and share Best Management Practices (BMPs). BMPs can result in significant reductions in groundwater extractions, improve farming operations and , in many cases, improve crop quality. Our local industry leaders have a keen interest in supporting, developing and fostering the use of BMPs. 3) Build on Chapter 9, "Projects and Management Actions," to identify specific projects that will offset groundwater pumping. These could include, for example, supplemental water from the State Water Project and/or Nacimiento Pipeline, groundwater recharge projects, surface water storage capacity improvements, and use of recycled and/or blended water. We have viable options and these should be seriously considered and examined. 4) Develop a clear funding mechanism for implementation of the GSP as well as a designated team to work on implementation. 5) Depend on substantial and designated involvement of the major users of groundwater over the Basin, our agriculture community, as implementation moves forward. The goal of the PRWCA, on behalf of its members, is to move the ball forward to sustainability, using all the tools at hand and working cooperatively with our partners at the County and with the other GSAs.



555 Capitol Mall, Suite 1290 Sacramento, California 95814 [916] 449-2850

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May 15, 2020

California Department of Water Resources Sustainable Groundwater Management Office

Submitted online via: https://sgma.water.ca.gov/portal/gsp/all

Re: Paso Robles Subbasin Groundwater Sustainability Plan (GSP)

Dear DWR Representative,

The Nature Conservancy (TNC) appreciates the opportunity to comment on the Paso Robles Subbasin Groundwater Sustainability Agency's (GSA's) Groundwater Sustainability Plan (GSP or Plan) prepared under the Sustainable Groundwater Management Act (SGMA).

Addressing Nature's Water Needs in GSPs

SGMA requires that all beneficial uses and users, including environmental users of groundwater be considered in the development and implementation of GSPs (Water Code § 10723.2, 23 CCR §355.4(b)(4)). The inclusion of natural communities in the management our state's groundwater resources is essential to protect and restore habitat and wildlife, and as such, is an important factor in distinguishing *sustainable* groundwater management from the status quo.

TNC Summary of GSP Review

TNC has carefully reviewed the Plan and we appreciate the work that has gone into its preparation. Based on our review, we found the Plan to be insufficient in addressing environmental beneficial uses and users.

The identification of environmental beneficial users, as well as their consideration when establishing the sustainability goal, undesirable results and minimum thresholds were insufficient (23 CCR §355.4(b)(4)) and lacked best available science (23 CCR §355.4(b)(1)). In the face of existing, severe overdraft, the GSP would allow groundwater management to largely ignore potential impacts to environmental beneficial users. This could result in irreparable harm to these beneficial users, undermining the intent of SGMA to achieve sustainability.

Many of the gaps can be addressed now, and we encourage the Department to require these corrections prior to approval. In some cases, it may be difficult to address within 180 days. In these cases, we strongly recommend that the Department, at a minimum, set clear expectations that these be corrected in the 2025 plan update and, to the degree that gaps are due to lack of data, that these data gaps be addressed in time to inform the 2025 update. Should the treatment of environmental beneficial users be indicative of the quality of the overall plan, then we recommend the Department deem the plan inadequate.

To assist in managing groundwater for the needs of natural communities, we provide a summary of our technical review below. Our specific comments are detailed in Attachment B and are in reference to numbered items in the checklist in Attachment A. Attachment C provides a list of the freshwater species located in the Subbasin. Attachment D describes six best practices to confirm a connection to groundwater for DWR's NC Dataset. Attachment E provides an overview of a tool (i.e., GDE Pulse) that assesses changes in GDE health using satellite, rainfall, and groundwater data.

Our Key Considerations

Engagement of Environmental Beneficial Users – Stakeholder engagement can best be measured by the degree to which stakeholders are able to influence the plan. TNC provided feedback to the draft GSP, which can be found as a comment attached to the SGMA portal website's GSP Initial Notifications section. We are disappointed to see the feedback that we provided on the draft GSP has been ignored in the final plan, as none of 41 comments were adequately addressed in the Final GSP. This indicates poor engagement of environmental beneficial users, which undermines the intent of SGMA to ensure that sustainability be defined locally with the participation of all users. Based on our experience the GSP did not "adequately respond to comments that raise credible technical or policy issues with the Plan" (23 CCR §355.4(b)(10)).

<u>TNC recommendation:</u> We strongly recommend that DWR require the GSA to prioritize stakeholder engagement through improvements to their stakeholder engagement plan, partnerships, more representative governance and funding decisions. Because the GSP does not adequately incorporate feedback from environmental beneficial users, we also recommend the GSP revisit all components of the plan where beneficial users must be considered, especially in calculating the water budget and determining undesirable results, minimum thresholds and measurable objectives.

Interconnected Surface Waters (ISWs) – The GSP incorrectly excluded potential and/or actual ISWs because the plan did not employ the best available science. The GSP therefore lacks an assessment of whether surface water depletions caused by groundwater use are having an adverse impact on environmental beneficial users of surface water (23 CCR §354.28(c)(6)). The assessment of potential ISWs is based on an incomplete groundwater level dataset that lacks sufficient characterization of shallow groundwater levels near streams, and appears to be based in part on the mistaken assumption that ephemeral streams cannot be ISWs. The regulations [23 CCR §351(o)] define interconnected surface waters (ISW) 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". "At any point" has both a spatial and temporal component. Even short durations of interconnections of groundwater and surface water can be crucial for surface water flow and supporting environmental users of groundwater and surface water is not completely days is recognized as a data gap in the GSP, but the GSP does not outline any specific actions to address this important data gap.

<u>TNC recommendation:</u> TNC recommends that consideration be given to existing data gaps by installing shallow monitoring wells, stream gauges, and nested/clustered wells along surface water features to improve ISW mapping, characterization and management. Furthermore, until a disconnection can be proven, TNC recommends that the GSP include all potential and confirmed ISWs. Where data gaps exist, we recommend that the GSP describe concrete actions, with a timeline and budget, to increase the number of monitoring wells in proximity to streams to fill data

gaps and properly identify the dynamics between groundwater and surface water. Please see our detailed feedback in Attachment B.

Groundwater Dependent Ecosystem (GDEs) – According to the Natural Communities Commonly Associated with Groundwater dataset (NC Dataset), 375 acres of potential GDEs occur in the GSA boundary. TNC developed the Groundwater Dependent Ecosystems under SGMA: Guidance for Preparing GSPs¹, which represents the best available science on how GDEs should be considered in plans. The guidance includes methods for how GSAs should confirm or eliminate GDEs, starting with the NC Dataset.

The plan does not to adequately identify, map and consider GDEs. We believe that this falls short of meeting plan evaluation criteria (1), (4) and (10), as defined in the 23 CCR §355.4(b). In addition, the Plan does not satisfy the requirement to identify GDEs (23 CCR §Section 354.16(g)) and consider beneficial users throughout the plan. Our review found that NC Dataset polygons were improperly removed from the GDE map based on the following:

• The analysis described in Appendix C of the GSP relies on groundwater levels at a single point in time (Spring 2017), which is *after* the January 1, 2015 SGMA benchmark date, and makes no further attempt to resolve questions of whether or not potential GDEs are groundwater connected or the degree to which they may be adversely affected by groundwater level declines. Furthermore, the GSP does not consider GDEs when defining undesirable results, minimum thresholds or measurable objectives. Finally, the groundwater monitoring data provided are insufficient to characterize the interaction between shallow groundwater and GDEs, the GSP does not establish monitoring networks capable of identifying potential undesirable results related to GDEs, and no specific plans are provided to address these data gaps.

<u>TNC recommendation</u>: The GSP utilizes groundwater levels that represent interannual and interseasonal variability along with additional information provided in Attachment D, which provides best practices for using the NC Dataset to identify and consider GDEs in the GSP. Specifically, please ensure that a Digital Elevation Model (DEM) is used when developing depth to groundwater contours, as further described in Best Practice #5 in Attachment D.

Water Budget – We were disappointed to see that the water budget did not include the current, historical and projected demands of native vegetation and/or managed wetlands, as required under SGMA (23 CCR §354.18(a) and (b)(3)). The GSP only focused on a subset of water use sectors, such as urban and agricultural users of groundwater. This 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.

<u>TNC recommendation</u>: As required by SGMA, TNC recommends explicit inclusion of all water use sectors in the water budget.

Sustainable Management Criteria – We were disappointed to see that the Sustainable Management Criteria do not describe potential impacts on environmental users of groundwater and or confirm that minimum thresholds for interconnected surface waters avoid adverse impacts to environmental beneficial users of surface water, as required under SGMA (23 CCR §354.26(b)(3), 354.28(b)(4) and (c)(B)(6)). This is problematic because without identifying

¹ Available at: <u>https://groundwaterresourcehub.org/public/uploads/pdfs/GWR_Hub_GDE_Guidance_Doc_2-1-18.pdf</u>

potential impacts to GDEs and adverse impacts to beneficial users of surface waters, minimum thresholds may be set incorrectly.

<u>TNC recommendation</u>: As required by SGMA, the undesirable results should include a description of potential effects on environmental beneficial uses and users of groundwater (i.e., GDEs and instream habitats within ISWs). In addition, the GSP should confirm that minimum thresholds for ISWs avoid adverse impacts to environmental beneficial users of surface waters. Both of these recommendations apply especially to environmental beneficial users that are already protected under pre-existing state or federal law.

Monitoring Network – We were disappointed to see that the monitoring network is not designed to, as required by 23 CCR §354.34: (1) ensure adequate coverage of the sustainability indicators, (2) characterize the spatial and temporal exchanges between surface water and groundwater, nor (3) calibrate and apply the tools and methods necessary to calculate the depletions of surface water caused by groundwater extractions. The Monitoring Network, which emphasizes groundwater level monitoring in deeper production aquifers and largely omits the alluvial aquifer and areas near potential GDEs and ISWs, is not sufficient to establish a linkage between groundwater extraction and resulting potential impacts to GDEs and ISWs. As a result, the monitoring network does not adequately characterize GDEs and other environmental beneficial users of surface water and groundwater.

<u>TNC recommendation</u>: TNC recommends that the GSP (1) reconcile data gaps in the monitoring network by evaluating how the gathered data will be used to identify and map GDEs and ISWs; (2) characterize groundwater conditions within GDEs and ISWs (e.g., discuss how monitoring data will be used to estimate the quantity and timing of streamflow depletions); and (3) determine what ecological monitoring can be used to assess potential impacts to GDEs or ISWs due to groundwater conditions in the subbasin.

In closing, SGMA is based on two important ideas. First, California's goal is not just groundwater management, but *sustainable* groundwater management that considers the needs of all beneficial users. This goal can only be achieved when input from environmental beneficial users is reflected in the plan. Second, SGMA is a long-term commitment to continually improve sustainable groundwater management. The Department has a critical role in maintaining a high bar for plan approval and setting the expectation that each plan, and the resulting groundwater conditions, improve over time.

Best Regards,

Sandi Matsumoto Associate Director, California Water Program The Nature Conservancy



Attachment A

Environmental User Checklist

The Nature Conservancy is neither dispensing legal advice nor warranting any outcome that could result from the use of this checklist. Following this checklist does not guarantee approval of a GSP or compliance with SGMA, both of which will be determined by DWR and the State Water Resources Control Board.

GSP Plan Element*		GDE Inclusion in GSPs: Identification and Consideration Elements	Check Box		
Admin Info	2.1.5 Notice & Communication 23 CCR §354.10	Description of the types of environmental beneficial uses of groundwater that exist within GDEs and a description of how environmental stakeholders were engaged throughout the development of the GSP.	1		
ig ork	2.1.2 to 2.1.4	Description of jurisdictional boundaries, existing land use designations, water use management and monitoring programs; general plans and other land use plans relevant to GDEs and their relationship to the GSP.	2		
Plannin Framewo	Description of Plan Area 23 CCR §354.8	Description of instream flow requirements, threatened and endangered species habitat, critical habitat, and protected areas.	Check Box on 1 1g 2 ng 2 nd 3 ny 4 5 ith 6 7 8 ed 9 ch, 10 11		
		Summary of process for permitting new or replacement wells for the basin, and how the process incorporates any protection of GDEs	4		
	2.2.1	Basin Bottom Boundary: Is the bottom of the basin defined as at least as deep as the deepest groundwater extractions?	5		
	Hydrogeologic Conceptual Model	Principal aquifers and aquitards: Are shallow aquifers adequately described, so that interconnections with surface water and vertical groundwater gradients with other aquifers can be characterized?	Check Box 1 2 3 4 5 6 7 8 9 10 11		
tting	23 CCR §354.14	Basin cross sections: Do cross-sections illustrate the relationships between GDEs, surface waters and principal aquifers?	on 1 ng 2 nd 3 ny 4 5 ith 6 7 8 ed 9 :h, 10 11		
n Se	2.2.2	Interconnected surface waters:	8		
Basiı	Current & Historical Groundwater	Interconnected surface water maps for the basin with gaining and losing reaches defined (included as a figure in GSP & submitted as a shapefile on SGMA portal).	Check Box 1 2 3 4 5 6 7 8 9 10 11		
	Conditions 23 CCR §354.16	Estimates of current and historical surface water depletions for interconnected surface waters quantified and described by reach, season, and water year type.	10		
		Basin GDE map included (as figure in text & submitted as a shapefile on SGMA Portal).	Check Box		



		Bi (V	sin GDE map denotes which polygons were kept, removed, and added from NC Dataset /orksheet 1, can be attached in GSP section 6.0).	12	
		If NC Dataset <i>was</i> used: its re	e basin's GDE shapefile, which is submitted via the SGMA Portal, includes two new fields in attribute table denoting: 1) which polygons were kept/removed/added, and 2) the change ason (e.g., why polygons were removed).	13	
		G	DEs polygons are consolidated into larger units and named for easier identification roughout GSP.	14	
		If NC Dataset was not used:	escription of why NC dataset was not used, and how an alternative dataset and/or mapping proach used is best available information.	15	
		Description of GDEs included:		16	
		Historical and current groundwater	conditions and variability are described in each GDE unit.	17	
		Historical and current ecological co	nditions and variability are described in each GDE unit.	18	
		Each GDE unit has been characteriz	ed as having high, moderate, or low ecological value.	19	
		Inventory of species, habitats, and in GSP section 6.0).	protected lands for each GDE unit with ecological importance (Worksheet 2, can be attached	20	
	2.2.3 Water Budget 23 CCR §354.18	Groundwater inputs and outputs (e.g., evapotranspiration) of native vegetation and managed wetlands are included in the basin's historical and current water budget.			
		Potential impacts to groundwater conditions due to land use changes, climate change, and population growth to GDEs and aquatic ecosystems are considered in the projected water budget.			
	3.1	Environmental stakeholders/representatives were consulted.			
-	Sustainability Goal	Sustainability goal mentions GDEs or species and habitats that are of particular concern or interest.			
iteria	23 CCR §354.24	Sustainability goal mentions whether or species and habitats that are of	er the intention is to address pre-SGMA impacts, maintain or improve conditions within GDEs particular concern or interest.	25	
ement Cr	3.2 Measurable Objectives 23 CCR §354.30	Description of how GDEs were c achieve the sustainability goal a	re considered and whether the measurable objectives and interim milestones will help bal as it pertains to the environment.		
anag	3.3	Description of how GDEs and thresholds for relevant sustaina	environmental uses of surface water were considered when setting minimum bility indicators:	27	
Β	Minimum Thresholds	Will adverse impacts to GDEs and/o water) be avoided with the selected	r aquatic ecosystems dependent on interconnected surface waters (beneficial user of surface minimum thresholds?	28	
iinab	23 CCR §354.28	Are there any differences between the selected minimum threshold and state, federal, or local standards relevant to the species or habitats residing in GDEs or aquatic ecosystems dependent on interconnected surface waters?			
Susta	3.4	For GDEs, hydrological data are	compiled and synthesized for each GDE unit:	30	
•	Undesirable Results	If hydrological data are availabl	Hydrological datasets are plotted and provided for each GDE unit (Worksheet 3, can be attached in GSP Section 6.0).	31	
	23 CCR §354.26	within/nearby the GDE	Baseline period in the hydrologic data is defined.	32	



			GDE unit is classified as having high, moderate, or low susceptibility to changes in groundwater.	33	
			Cause-and-effect relationships between groundwater changes and GDEs are explored.	34	
		If hydrological data are not available	Data gaps/insufficiencies are described.	35	
		within/nearby the GDE	Plans to reconcile data gaps in the monitoring network are stated.	36	
		For GDEs, biological data are com	piled and synthesized for each GDE unit:	37	
		Biological datasets are plotted and pro of trends and variability.	ovided for each GDE unit, and when possible provide baseline conditions for assessment	38	
		Data gaps/insufficiencies are describe	d.	39	
		Plans to reconcile data gaps in the monitoring network are stated.			
		Description of potential effects on GDEs, land uses and property interests:			
	Cause-and-effect relationships between GDE and groundwater conditions are described.				
		Impacts to GDEs that are considered	to be "significant and unreasonable" are described.	43	
		Known hydrological thresholds or triggers (e.g., instream flow criteria, groundwater depths, water quality parameters) for significant impacts to relevant species or ecological communities are reported.			
		Land uses include and consider recrea	tional uses (e.g., fishing/hunting, hiking, boating).	45	
		Property interests include and conside wildlife refuges, parks, and natural pr	er privately and publicly protected conservation lands and opens spaces, including eserves.	46	
le ent	3.5	Description of whether hydrological da GDE unit.	ata are spatially and temporally sufficient to monitor groundwater conditions for each	47	
ainab geme iteria	Monitoring	Description of how hydrological data	gaps and insufficiencies will be reconciled in the monitoring network.	48	
Sust: Mana Cri	Network 23 CCR §354.34	Description of how impacts to GDEs monitored and which GDE monitoring relationships with groundwater condit	Description of how impacts to GDEs and environmental surface water users, as detected by biological responses, will be monitored and which GDE monitoring methods will be used in conjunction with hydrologic data to evaluate cause-and-effect relationships with groundwater conditions.		
8 8 9 9	4.0. Projects & Mgmt Actions to	Description of how GDEs will benefit f	rom relevant project or management actions.	50	
Projects Mgmt Action	Achieve Sustainability Goal 23 CCR §354.44	Description of how projects and mana mitigated or prevented.	agement actions will be evaluated to assess whether adverse impacts to the GDE will be	51	

* In reference to DWR's GSP annotated outline guidance document, available at: <u>https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/GD_GSP_Outline_Final_2016-12-23.pdf</u>

Attachment B

TNC Evaluation of the Paso Robles Subbasin Groundwater Sustainability Plan

The Paso Robles Subbasin Groundwater Sustainability Plan (GSP), dated January 31, 2020, was reviewed by TNC. Public comments received on the draft GSP were included as Appendix N to the GSP. The comments are stated to have been reviewed by the Paso Roble Subbasin Groundwater Sustainability Agencies (PRSGSA) and changes incorporated into the GSP text as deemed appropriate by them; however, no response to comments were provided. We reviewed the text of the Final GSP to determine if changes were made to the Final GSP text that addressed TNC's previously submitted comments. This attachment lists our original comments on the complete Public Draft GSP, as submitted to the PRSGSA during the public comment period, and states whether or not they were addressed in the Final GSP [as green text within brackets]. Comments are provided in the order of the checklist items included as Attachment A.

Checklist Item 1 - Notice & Communication (23 CCR §354.10)

[Chapter 11 Notice and Communications (including separate Communications and Engagement Plan, Appendix M)]

- [The PRSGSA did not address this comment. No GSP text changes were made.] Section 3.0 of the Communications and Engagement Plan (Page 6) lists aquatic ecosystems as a beneficial groundwater use. However, no details are given as to the types and locations of environmental uses and habitats supported, or the designated beneficial environmental uses of surface waters that may be affected by groundwater extraction in the subbasin. To identify environmental users, please refer to the following:
 - Natural Communities Commonly Associated with Groundwater dataset (NC Dataset) https://gis.water.ca.gov/app/NCDatasetViewer/
 - The list of freshwater species located in the Paso Robles Subbasin in **Attachment C** of this letter. Please take particular note of the species with protected status.
 - Lands that are protected as open space preserves, habitat reserves, wildlife refuges, etc. or other lands protected in perpetuity and supported by groundwater or ISWs should be identified and acknowledged.

<u>Checklist Items 2 to 4 - Description of general plans and other land use plans relevant to</u> <u>GDEs and their relationship to the GSP (23 CCR §354.8</u>

[Section 3.6 Existing Monitoring Programs (p. 3-17)]

• [The PRSGSA did not address this comment. No GSP text changes were made.] Per the GSP Regulations (23 CCR §354.34 (a) and (b)), monitoring must address trends in groundwater and <u>related surface conditions</u> (emphasis added). In order for this section to provide the appropriate context and help assure integration of GSP

implementation with other ongoing regulatory programs, this section should describe the following:

- Monitoring activities and responsibilities by State, Federal and local agencies and jurisdictions related to aquatic resources and GDEs that could be affected by groundwater withdrawals should be discussed.
- The Critical Habitat for Threatened and Endangered Species website maintained by the US Fish and Wildlife Service (https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e 265ad4fe09893cf75b8dbfb77) identifies lands with endangered and threatened species in the Basin, including species potentially associated with interconnected surface waters ISWs, including Steelhead (Onocorhynchus mykiss). Also please refer to the Critical Species Lookbook² to review and discuss the potential groundwater reliance of critical species in the basin.
 Please include a discussion regarding the management of critical habitat for these aquatic species and its relationship to the GSP.

[Section 3.8.6 Requirements for New Wells (p. 3-30)]

- [The PRSGSA did not address this comment. No GSP text changes were made.] Future well permitting must be coordinated with the GSP to assure achievement of the Plan's sustainability goals.
- [The PRSGSA did not address this comment. No GSP text changes were made.] The State Third Appellate District recently found that Counties have a responsibility to consider the potential impacts of groundwater withdrawals on public trust resources when permitting new wells near streams with public trust uses (ELF v. SWRCB and Siskiyou County, No. C083239). The need for well permitting programs to comply with this requirement should be stated.

[Section 3.10 Land Use Plans (p. 3-31)]

- [The PRSGSA did not address this comment. No GSP text changes were made.] This section should include a discussion of General Plan goals and policies related to the protection and management of GDEs and aquatic resources that could be affected by groundwater withdrawals. Please include a discussion of how implementation of the GSP may affect and be coordinated with General Plan policies and procedures regarding the protection of wetlands, riparian areas, oak woodlands, aquatic resources and other GDEs and ISWs.
- [The PRSGSA did not address this comment. No GSP text changes were made.] This section should identify Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) within the Subbasin and if they are associated with critical, GDE or ISW habitats. Please identify all relevant HCPs and NCCPs within the Subbasin and address how GSP implementation will coordinate with the goals of these HCPs or NCCPs.

² Available online at: <u>https://groundwaterresourcehub.org/sgma-tools/the-critical-species-lookbook/</u>

Checklist Items 5, 6, and 7 – Hydrogeologic Conceptual Model (23 CCR §354.14)

[Section 4.1 Subbasin Topography and Boundaries (p. 4-1)]

- [The PRSGSA did not address this comment. No GSP text changes were made.] Please provide additional information on what data was used to determine that "poor quality" groundwater in the Paso Robles Formation would exclude groundwater from being part of the subbasin.
- [The PRSGSA did not address this comment. No GSP text changes were made.] Defining the bottom of subbasin based on geochemical properties is a suitable approach for defining the base of freshwater, however, as noted on page 9 of DWR's Hydrogeologic Conceptual Model BMP

(https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_HCM_Final_2016-12-23.pdf) "the definable bottom of the basin should be at least as deep as the deepest groundwater extractions". **Thus, groundwater extraction well depth data should also be included in the determination of the basin bottom.** This will prevent the possibility of extractors with wells deeper than the basin boundary (defined by the base of freshwater) from claiming exemption of SGMA due to their well residing outside the vertical extent of the basin boundary.

[Section 4.7.2 Groundwater Discharge Areas Inside the Subbasin (p. 4-32)]

- We support the use of the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) to map groundwater dependent ecosystems in the Paso Robles Groundwater Basin (GSP Draft Figure 4-18). Since the NC Dataset is intended as a starting point, The Nature Conservancy has developed a Guidance Document to assist GSAs and their consultants in addressing GDEs in GSPs³. Also refer to **Attachment D** for best practices when using the NC dataset.
- [The PRSGSA did not address this comment. No GSP text changes were made.] The identification of GDEs within GSPs is a required GSP element of the Basin Setting Section under the description of Current & Historical Groundwater Conditions (23 CCR §354.16). Recognizing natural points of discharge (seeps & springs) as GDEs is consistent with the SGMA definition of GDEs;⁴ however, we recommend the identification of GDEs (GDE map Figure 4-18) for the Paso Robles basin be moved to Chapter 5: Groundwater Conditions, and elaborated upon with a description of current and historical groundwater conditions in the GDE areas. Chapter 5 is a more appropriate place for the identification of GDEs, since groundwater conditions (e.g., depth to groundwater, interconnected surface water maps, groundwater quality) are necessary local information and data from the GSP in assessing whether polygons in the NC dataset are connected to groundwater in a principal aquifer.
- [The PRSGSA did not address this comment. No GSP text changes were made.] Decisions to remove, keep, or add polygons from the NC dataset into a basin GDE

<u>https://groundwaterresourcehub.org/public/uploads/pdfs/GWR_Hub_GDE_Guidance_Doc_2-1-18.pdf</u> ⁴ Groundwater dependent ecosystem refer to ecological communities or species that depend on groundwater

³ GDEs under SGMA: Guidance for Preparing GSPs is available at:

map should be based on best available science in a manner that promotes transparency and accountability with stakeholders. Any polygons that are removed, added, or kept should be inventoried in the submitted shapefile to DWR, and mapped in the plan. **We recommend revising Figure 4-18 to reflect this recommended methodology.**

[Section 5.2 Change in Groundwater Storage (p. 5-20)]

 [The PRSGSA did not address this comment. No GSP text changes were made.] Figure 5-11 illustrates that groundwater storage losses occurred during dry years and recovered in wet years. Potential impacts on groundwater storage loss due to groundwater pumping is still very possible, especially since groundwater pumping data has been estimated from groundwater flow models populated with insufficient vertical groundwater gradient data, shallow monitoring data, and surface flow data. Groundwater storage in the Paso Robles formation has also been on a decline since 1980 due to groundwater pumping (Figure 5-12). Understanding groundwater storage fluctuations in the Alluvial Aquifer depends on how vertical groundwater gradients are impacted by pumping and groundwater storage changes in the Paso Robles Formation. Please address these data gaps in the monitoring network.

Checklist Items 8, 9, and 10 – Interconnected Surface Waters (ISW) (23 CCR §354.16)

[Section 5.5 Interconnected Surface Waters (p. 5-26)]

- [The PRSGSA did not address this comment. No GSP text changes were made.] Please note the following best practices when filling the data gap in delineating any connections between surface water and groundwater.
 - Specify what data are used to determine the elevation of the stream or river bottom.
 - The regulations [23 CCR §351(o)] define interconnected surface waters (ISW) as "surface water that is hydraulically connected <u>at any point</u> by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted". "<u>At any point</u>" has both a spatial and temporal component. Even short durations of interconnections of groundwater and surface water can be crucial for surface water flow and supporting environmental users of groundwater and surface water. ISWs can be either gaining or losing.
 - Due to limited shallow monitoring wells and stream gauges in the basin, mapping ISWs are best estimated by first determining which reaches are completely disconnected from groundwater. This approach would involve comparing simulated groundwater elevations with a land surface Digital Elevation Model that could identify which surface waters have groundwater consistently below surface water features, such that an unsaturated zone would separate surface water from groundwater. Groundwater elevations that are always deeper than 50 feet below the land surface can be identified as disconnected

surface waters. Also, please reconcile data gaps (shallow monitoring wells, stream gauges, and nested/clustered wells) along surface water features in the Monitoring Network section of the GSP to improve ISW mapping in future GSPs.

Checklist Items 11 to 20, Identifying, Mapping, and Describing GDEs (23 CCR §354.16)

[Appendix C: Methodology for Identifying Potential Groundwater Dependent Ecosystems] [The PRSGSA did not address this comment. No GSP text changes were made.]

- For clarification, iGDEs are mapped polygons in DWR's NC dataset.
- Please specify what field verification methods (e.g., isotope analysis, enhanced shallow groundwater monitoring) will be used to definitively determine whether potential GDEs are true GDEs.
- It is highly advised that multiple depth to groundwater measurements are used to verify whether an iGDE (or NC dataset polygon) is connected to groundwater, so that fluctuations in the groundwater regime can be adequately represented. The analysis described on p.7 to create Figure C-3 only relies on Spring 2017 depth data, which is also after the Jan 1, 2015 SGMA benchmark date. Also, according to the shallow monitoring well data gaps described in Chapter 5 and 7, there is insufficient data to confidently remove data for NC polygons that are >5km away from a shallow well. See Attachment D of this letter for six best practices when using groundwater data to verify the NC dataset.
- The NC dataset needs to be groundtruthed with aerial photography to screen for changes in land use that many not be reflected in the NC dataset (e.g., recent development, cultivated agricultural land, obvious human-made features).
- Grouping multiple GDE polygons into larger units by location (proximity to each other) and principal aquifer will help to characterize GDEs under Section 4.7.2 and would simplify the process of evaluating potential effects on GDEs due to groundwater conditions under GSP Chapter 8: Sustainable Management Criteria.
- Groundwater conditions within GDEs and the interaction between GDEs and groundwater should be briefly described within the portion of the Basin Setting Section (Section 4.7.2) where GDEs are being identified.
- Not all GDEs are created equal. Some GDEs may contain legally protected species or ecologically rich communities, whereas other GDEs may be highly degraded with little conservation value. Including a description of the types of species (protected status, native versus non-native), habitat, and environmental beneficial uses (Refer to Attachment C for a list of freshwater species found in the Paso Robles Subbasin, refer to Worksheet 2, p.74 of GDE Guidance Document, and see the Critical Species Lookbook⁵) can be helpful in assigning an ecological value to the GDEs. Identifying an ecological value of each GDE can help prioritize limited resources when considering GDEs as well as prioritizing legally protected species or habitat that may need special consideration when setting sustainable management criteria.

⁵ Available online at: <u>https://groundwaterresourcehub.org/sgma-tools/the-critical-species-lookbook/</u>

- Decisions to remove, keep, or add polygons from the NC dataset into a subbasin GDE map should be based on best available science in a manner that promotes transparency and accountability with stakeholders. Any polygons that are removed, added, or kept should be inventoried in the submitted shapefile to DWR, and mapped in the plan. We recommend revising Figure 4-18 (replicated as Figure C-7) and including it in Chapter 5 to reflect this change. Please provide the final acreage of subbasin GDE polygons.
- While depth to groundwater levels within 30 feet are generally accepted as being a proxy for confirming that polygons in the NC dataset are connected to groundwater, the variable needs of plant species and their dependence on seasonal and interannual groundwater level fluctuations should be considered when applying this criterion. Studies have found the roots of oaks can extend deeper than 70 feet to extract water from the capillary fringe immediately above the water table during the summer and fall, and that groundwater reserves provide a buffer to rapid changes in their hydroclimate, as long as groundwater reserves are not depleted by drought or human consumption.⁶ It is highly advised that seasonal and interannual fluctuations in the groundwater regime are taken into consideration. Utilizing groundwater data from one point in time or contoured with too few shallow monitoring wells can misrepresent groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. Based on a study we recently submitted to Frontiers in Environmental Science Journal, we've observed riparian forests along the Cosumnes River to experience a range in groundwater levels between 1.5 and 75 feet over seasonal and interannual timescales. Seasonal fluctuations in the regional water table can support perched groundwater near an intermittent river that seasonally runs dry due to large seasonal fluctuations in the regional water table. While perched groundwater itself cannot directly be managed due to its position in the vadose zone, the water table position within the regional aquifer (via pumping rate restrictions, restricted pumping at certain depths, restricted pumping around GDEs, well density rules) and its interactions with surface water (e.g., timing and duration) can be managed to prevent adverse impacts to ecosystems due to changes in groundwater quality and quantity under SGMA.

Checklist Items 21 and 22 - Water Budget (23 CCR §354.18)

[Chapter 6. Water Budget (p. 6-1)]

- [The PRSGSA did not address this comment. No GSP text changes were made.] Please clarify what assumptions and data were used to calculate Riparian Evapotranspiration.
- [The PRSGSA did not address this comment. No GSP text changes were made.] Why was evapotranspiration only calculated for riparian vegetation? In Chapter 3.4.2 of the Draft GSP (p. 3-11), native vegetation was identified as the largest

⁶ Miller and others. 2009. Groundwater Uptake by Woody Vegetation in a Semi-Arid Oak Savannah. Water Resources Research. Volume 46. November.

water use sector in the subbasin by land area. Please estimate evapotranspiration for all native vegetation in the subbasin for the water budget. Environmental beneficial users of groundwater, such as wetlands and phreatophyte (oak) woodlands are of particular importance and should be explicitly mentioned. Calculations should be provided to quantify the amount of ET in the GDEs both spatially and temporally, including water year type. Please identify any data gaps.

Checklist Items 23 to 46 – Sustainable Management Criteria

[Section 8.2 Sustainability Goal]

[The PRSGSA did not address this comment. No GSP text changes were made.] This section states that the groundwater resources in the Paso Robles Subbasin will be managed for the long-term community, financial and environmental benefit of Subbasin users. The discussion of how this goal will be achieved references cultural, community and business needs and related management actions and projects to obtain sustainability, but provides no explanation how environmental beneficial uses will be protected. Please describe how the sustainability of environmental groundwater and interconnected surface water uses will be protected, and what management actions and conceptual projects will address environmental beneficial uses and users of groundwater.

[Section 8.3 General Process for Establishing Sustainable Management Criteria] [The PRSGSA did not address this comment. No GSP text changes were made.]

- Stakeholder involvement is crucial when establishing sustainable management criteria. The role of the GSA is to represent and balance the needs of *all groundwater* beneficial uses and users in the basin, which has been expressed in the Sustainability goal in Section 8.1. According to p. 8-5, only rural residents, farmers, local cities and the county were surveyed to gather input on sustainable management criteria. Please specify what information or efforts have been used/made to protect the interests of environmental users and disadvantaged community members.
- SGMA requires that sustainable management criteria are consistent with other state, federal or local regulatory standards [23 CCR§354.28(b)(5)]. No reference is made to the review of supporting documents for General Plan Conservation or Land Use Elements, or to the review of environmental management studies and documents such as Biological Assessments, Biological Opinions, HCPs, NCCPs, or other studies regarding the current and historical conditions of the beneficial uses being evaluated. Please describe what process was used to identify other regulatory standards that need consideration when establishing minimum thresholds for sustainability criteria, especially those related to protected habitats, minimum flow requirements and habitat conservation plans. Please provide detail on how sustainable management criteria were developed for GDEs and streamflow habitat, and how the above supporting documents were considered.

[Section 8.4 Chronic Lowering of Groundwater Levels Sustainable Management Criteria]

- [The PRSGSA did not address this comment. No GSP text changes were made.]
 [8.4.2] The definition of 'significant and unreasonable' is a qualitative statement that is used to describe when undesirable results would occur in the basin, which is then related to how a minimum threshold can be quantified. Potential effects on all beneficial users of groundwater in the basin need to be taken into consideration. According to the California Constitution Article X, §2, water resources in California must be "put to beneficial use to the fullest extent of which they are capable". Please modify the local definition for 'significant and unreasonable' (provided on p. 8-7), so that it also specifies potential effects on environmental beneficial users of groundwater in the basin.
- [The PRSGSA did not address this comment. No GSP text changes were made.]
 [8.4.3] Under SGMA, Measurable Objectives are to be established to achieve the sustainability goal of the basin within 20 years of Plan implementation [23 CCR § 354.30 (a)]. Please modify the methodology for setting measurable objectives for groundwater levels so that it helps attain the sustainability goal defined on p. 8-4: "sustainably manage the groundwater resources of the Paso Robles Subbasin for long-term community, financial, and environmental benefit of Subbasin users. ... In adopting this GSP, it is the express goal of the GSAs to balance the needs of all groundwater users in the Subbasin, within the sustainable limits of the Subbasin's resources." (emphasis added)
 - Section 8.4.3.1 states that environmental interests were considered when establishing measurable objectives. Please provide a discussion regarding the environmental beneficial uses and users that were considered and how this was accomplished.
 - Section 8.4.3.2 and 8.4.3.3 present measurable objectives for specific wells completed in each principal aquifer, but provide no discussion how a determination was made that these groundwater levels are protective of environmental beneficial uses and users, including GDEs. Chronic lowering of groundwater levels can have a direct effect on environmental beneficial users and this effect should be considered when setting measurable objectives for this sustainability indicator and discussed in this section and supporting materials provided. Section 8.4.3.1 should describe how environmental beneficial uses and users, including GDEs were considered when establishing measurable objectives for chronic lowering of groundwater levels. Section 8.4.3.2 and 8.4.3.3 should describe how the identified measurable objectives will succeed in preventing significant and unreasonable harm to environmental beneficial uses of groundwater, including GDEs.
- [The PRSGSA did not address this comment. No GSP text changes were made.] [8.4.4] Chronic lowering of groundwater levels can have a direct effect on environmental beneficial users and this effect should be considered when setting minimum thresholds for this sustainability indicator and discussed in this section and supporting materials provided. A technically defensible approach is to use 10-year baseline period of groundwater elevation data (2005-2015) to establish how groundwater conditions during that time period affect different

beneficial water uses and users across the basin, including GDEs. **Please document** the consideration of the following when establishing minimum thresholds for chronic lowering of groundwater levels:

- The relationship between the minimum threshold for chronic lowering of groundwater levels and potential significant and unreasonable impacts to GDEs and ecological beneficial uses of surface water are not described.
 Please provide additional analysis to substantiate that the potential impacts of applying the proposed minimum thresholds will not cause significant and unreasonable impacts to GDEs and ecological beneficial uses of ISW, or identify this as a data gap.
- The potential effects of undesirable results on environmental beneficial users are not described and quantified. Please expand the section to describe the potential effects of undesirable results on all beneficial uses and users, including environmental uses and users.
- Are the proposed minimum thresholds consistent with other state, federal or local regulatory standards, including those applicable to interconnected surface waters, protected habitats and habitat conservation plans? [23 CCR§354.28(b)(5)]?
- Are there environmental beneficial groundwater users that need consideration, particularly those that are legally protected under the United States Endangered Species Act or California Endangered Species Act? (See Attachment C in the attached letter for a list of freshwater species located in the Paso Robles Subbasin)?

•[The PRSGSA did not address this comment. No GSP text changes were made.] The GDE Pulse web application developed by The Nature Conservancy (Attachment E) provides easy access to 35 years of satellite data to view trends of vegetation metrics, groundwater depth (where available), and precipitation data. This satellite imagery can be used to observe trends for NC dataset polygons within the Subbasin, and relate those trends to nearby groundwater level trends. Over the past 10 years (2009-2018), some NC dataset vegetation polygons have experienced adverse impacts to vegetation growth and moisture in the western portion of the Subbasin. An example is shown in the screen shot below. Please review these spatial patterns and, where possible, correlate them with water level trends when developing minimum thresholds. Any indications of adverse trends and any data gaps should be identified.



- [The PRSGSA did not address this comment. No GSP text changes were made.]
 [8.4.4.2] This section states that only one monitoring well was identified where minimum thresholds could be assessed in the Alluvial Aquifer. This is a significant data gap for a variety of beneficial uses and users, including GDEs and interconnected surface water. Please describe a plan in the Monitoring network chapter on how the GSA will install shallow monitoring wells in the alluvial aquifer if confidentially agreements prevent existing wells from being used as representative monitoring wells for the Chronic Lowering of Groundwater sustainability indicator in this important aquifer.
- [The PRSGSA did not address this comment. No GSP text changes were made.] [8.4.4.4 and 8.4.4.6] The description of how the groundwater elevation minimum thresholds affect interconnected surface waters and ecological land uses and users is inadequate for the following reasons:
 - The draft GSP has failed to describe current and historical groundwater conditions near GDE areas, the nature of the GDEs and their potential sensitivity to groundwater level declines, and the potential effect of groundwater level declines on GDEs. Thus, it is impossible to assess how the proposed minimum thresholds relate to historical groundwater conditions in the GDE and whether potential adverse effects could occur to the GDEs as a result of groundwater conditions. Please include a discussion of how minimum thresholds will affect the GDEs identified in Appendix C and identify any data gaps.
- [*The PRSGSA did not address this comment. No GSP text changes were made.*] [8.4.4.7] The identified GDEs have not been adequately described or characterized. Different GDE species will have different susceptibilities to groundwater level declines.

Please refer to the Critical Species Lookbook⁷ to review and discuss the potential groundwater reliance of critical species in the basin. Legally protected species located with GDEs have not been identified. Thus, it is impossible to evaluate whether federal, state, or local standards exist for groundwater elevations needed to protect these listed species. Please provide a discussion regarding how the selected minimum thresholds will affect compliance with federal, state and local standards related to protected habitats, protected species, and other requirements, such as biological opinions, habitat conservation plans and other applicable standards.

- [The PRSGSA did not address this comment. No GSP text changes were made.] [8.4.4.9] Irreversible harm to GDEs can occur within a relatively short period of time. This section summarizes interim milestones to prevent chronic lowering of groundwater levels to achieve the sustainability goal by at least 2040. Please discuss how significant and unreasonable harm to GDEs will be prevented in the interim.
- [The PRSGSA did not address this comment. No GSP text changes were made.] [8.4.5.1 and 8.4.5.3] The GSP proposes to allow violation of minimum thresholds at a certain percentage of locations prior to considering threshold violations as representative of an undesirable result. As stated above, damage to GDEs is often irreversible, leading to the permanent loss of a protected resource. A percentage violation trigger may therefore be inadequate to assure that the sustainability goals of the GSP are met. Please elaborate on how the exceedance criteria would be applied in a way that is protective of significant and unreasonable harm to GDEs. A procedure should be included for violation of minimum thresholds that includes early identification of potential GDE impacts and prioritization potentially impacted areas for investigation of impacts and appropriate response actions. This could be accomplished efficiently and cost-effectively through the use of remote sensing tools, such as GDE Pulse or other remote sensing approaches.

[Section 8.9 Depletion of Interconnected Surface Water Sustainable Management Criteria] [Note that this section is labeled 8.8 in the table of contents.]

[The PRSGSA did not address this comment. No GSP text changes were made.] The GSP fails to establish measurable objectives or minimum thresholds for this sustainability indicator, citing it as a data gap. The existence of riparian GDEs along the streams in the basin has been identified in Appendix C, and their connection to groundwater is assumed. Their occurrence in the riparian zone means that these GDEs should be considered a beneficial user of groundwater that could be affected by chronic groundwater level decline as discussed above, as well as beneficial users of surface water that could be depleted by groundwater extraction. A more robust discussion of the known facts regarding these surface-groundwater interactions in the riparian zone should be provided. In addition, more detailed discussion regarding specific data gaps should be included. In our opinion, these changes are required in order for the GSP to be found adequate.

⁷ Available online at: <u>https://groundwaterresourcehub.org/sgma-tools/the-critical-species-lookbook/</u>

- [The PRSGSA did not address this comment. No GSP text changes were made.] [8.9.1] While there are certainly data gaps and a need for additional shallow monitoring wells in the Alluvial aquifer to map ISWs, there is also a need to enhancing monitoring of stream flow and vertical groundwater gradients. After filling the data gaps for ISWs and further analysis, **specific plans and schedules should be provided for the establishment of minimum thresholds for ISWs.**
- [The PRSGSA did not address this comment. No GSP text changes were made.] [8.9.2] There is a need to evaluate and discuss potential effects on beneficial uses of surface and groundwater. In addition, the applicable state, federal and local standards for the protection of aquatic, riparian and other protected habitats should be discussed. This is necessary, at a minimum, so that the nature of the data gaps can be understood. Please refer to Attachment C for a list of freshwater species in Paso Robles Subbasin that may be exist within ISWs. We recommend that after identifying which freshwater species exist in your basin, especially federal and state listed species, that you contact staff at the Department of Fish and Wildlife (DFW), United States Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Services (NMFS) to obtain their input on the groundwater and surface water needs of the organisms on the freshwater species list. Because effects to plants and animals are difficult and sometimes impossible to reverse, we recommend erring on the side of caution to preserve sufficient groundwater conditions to sustain GDEs and ISWs. Please refer to the Critical Species Lookbook⁸ to review and discuss the potential groundwater reliance of critical species in the basin.

Checklist Items 47, 48 and 49 – Monitoring Network (23 CCR §354.34)

[Section 7.2.1 Groundwater Level Monitoring Network Data Gaps (p. 7-10)] [The PRSGSA did not address this comment. No GSP text changes were made.]

The last row of Table 7-3 states that "Data must be able to characterize conditions and monitor adverse impacts to beneficial uses and users identified within the basin". Aside from GDEs mapped in the basin (Figure 4-18), environmental surface water users have not been identified in the GSP thus far. SGMA requires that potential effects on GDEs and environmental surface water users be described when defining undesirable results. In addition to identifying GDEs in the basin, The Nature Conservancy recommends identifying beneficial users of surface water, which include environmental users. This is a critical step, as it is impossible to define "significant and unreasonable adverse impacts" without knowing what is being impacted, nor is possible to monitor ISWs in a way that can "identify adverse impacts on beneficial uses of surface water" [23 CCR §354.34(c)(6)(D)]. For your convenience, we've provided a list of freshwater species within the boundary of the Paso Robles basin in **Attachment C.** Our hope is that this information will help your GSA better evaluate and monitor the impacts of groundwater management on environmental beneficial users of surface water. We recommend that after identifying which freshwater species exist in your basin, especially federal and state listed species, that you

⁸ Available online at: <u>https://groundwaterresourcehub.org/sgma-tools/the-critical-species-lookbook/</u>

contact staff at the Department of Fish and Wildlife (DFW), United States Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Services (NMFS) to obtain their input on the groundwater and surface water needs of the organisms on the freshwater species list, and how best to monitor them. Because effects to plants and animals are difficult and sometimes impossible to reverse, we recommend erring on the side of caution to preserve sufficient groundwater conditions to sustain GDEs and ISWs. **Please identify appropriate biological indicators that can be used to monitor potential impacts to environmental beneficial users as a current data gap and make plans to reconcile these in Chapter 10 (Plan Implementation).**

[Section 7.6.1 Interconnected Surface Water Monitoring Data Gaps (p. 7-25)] [The PRSGSA did not address this comment. No GSP text changes were made.]

- In addition to the need for additional shallow monitoring wells in the Alluvial aquifer to map ISWs, there is also a need to enhancing monitoring of stream flow and vertical groundwater gradients by installing more stream gauges and clustered/nested wells near streams, rivers or wetlands. Ideally, co-locating stream gauges with clustered wells that can monitor groundwater levels in both the Alluvial and Paso Robles Formation aquifers would enhance understanding about where ISWs exist in the basin and whether pumping is causing depletions of surface water or impacts on beneficial users of surface water and groundwater.
- There is a need to integrate biological indicators that can monitor adverse impacts to beneficial uses of surface water and groundwater within ISWs.
- Please provide sufficient detail for the investigation and monitoring program including stream gauges, screened intervals and aquifers of the shallow wells and frequency of monitoring, in order to describe monitoring of both the extent of ISWs and the quantity of surface water depletions from ISWs.

[Chapter 10 Groundwater Sustainability Plan Implementation]

• [Minor changes were made to the GSP text but do not adequately address this comment.] Please describe the expansion of the monitoring program and specify what types of monitoring will be done to identify impacts to GDEs. Be specific in describing wells and screened intervals that represent the water levels of both the Alluvial Aquifer and Paso Robles Formation Aquifer.

<u>Checklist Items 50 and 51 – Projects and Management Actions to Achieve Sustainability</u> <u>Goal (23 CCR §354.44)</u>

[Chapter 9 Management Actions and Projects]

[The PRSGSA did not address this comment. No GSP text changes were made.] As stated in GSP Section 5.5, a data gap exists around interconnected surface waters (ISWs) in the Paso Robles Subbasin. Please recognize the data gap in this Chapter and the possibility that if ISWs are present in the Subbasin, there is a need to establish sustainable management criteria for ISWs in the basin and include ISWs as a specific sustainability indicator to be addressed by management actions and projects as described herein. For the management actions and projects already identified, state how GDEs and ISWs will be benefited or protected. If GDEs and ISWs will not be adequately protected

by those listed, please include and describe additional management actions and projects.

- An important data gap already recognized is the lack of publicly available groundwater elevation data in the Alluvial Aquifer. As discussed in TNC's comments on Section 8.3 above, a scientifically robust methodology must be proposed for establishing the initial minimum thresholds for the Alluvial Aquifer. In light of the data gap regarding Alluvial Aquifer groundwater data, please be more specific in stating how GDEs and ISWs would benefit from management actions and projects, and how actions and projects will be evaluated to assess whether adverse impacts to GDEs will be mitigated or prevented:
 - Promote Stormwater Capture (Page 9-10): Please describe how recharge from unallocated storm flows will be evaluated to assess benefits to GDEs and ISWs.
 - Mandatory Pumping Reductions (Page 9-13): Please discuss the data gap for wells screened in the alluvial aquifer and the data gap for vertical gradient between the alluvial aquifer and Paso Robles Formation, since most wells are screened in the Paso Robles aquifer. When these data gaps are resolved, it will become clearer how mandatory pumping reductions could also benefit GDEs and ISWs.
 - Conceptual Projects (Pages 9-18 to 9-44): Most of the conceptual projects involve in-lieu recharge for the direct use of recycled wastewater. Thus, the recycled water would replace pumped groundwater. Since these conceptual projects are location-specific, please highlight the benefits of these conceptual projects on specific mapped GDEs and ISWs.
- For more case studies on how to incorporate environmental benefits into groundwater projects, please visit our website: <u>https://groundwaterresourcehub.org/case-studies/recharge-case-studies/</u>

Attachment C

Freshwater Species Located in the Paso Robles Subbasin

To assist in identifying the beneficial users of surface water necessary to assess the undesirable result "depletion of interconnected surface waters", Attachment C provides a list of freshwater species located in the Paso Robles Subbasin. То produce the freshwater species list, we ArcGIS features within the used to select California Freshwater Species Database version 2.0.9 within the Paso Robles groundwater This database contains information on ~ 4.000 vertebrates, basin boundary. macroinvertebrates and vascular plants that depend on fresh water for at least one stage of their life cycle. The methods used to compile the California Freshwater Species Database can be found in Howard et al. 2015⁹. The spatial database contains locality observations and/or distribution information from ~400 data sources. The database is housed in the California Department of Fish and Wildlife's BIOS¹⁰ as well as on The Nature Conservancy's science website¹¹.

		Legally Protected Status				
Scientific Name		Federal	State	Other		
BIRD						
Actitis macularius	Spotted Sandpiper					
Aechmophorus clarkii	Clark's Grebe					
Aechmophorus occidentalis	Western Grebe					
Agelaius tricolor	Tricolored Blackbird	Bird of Conservation Concern	SSC	BSSC - First priority		
Aix sponsa	Wood Duck					
Anas americana	American Wigeon					
Anas clypeata	Northern Shoveler					
Anas crecca	Green-winged Teal					
Anas cyanoptera	Cinnamon Teal					
Anas platyrhynchos	Mallard					
Anas strepera	Gadwall					
Anser albifrons	Greater White-fronted Goose					
Ardea alba	Great Egret					
Ardea herodias	Great Blue Heron					
Aythya affinis	Lesser Scaup					
Aythya collaris	Ring-necked Duck					
Aythya valisineria	Canvasback		SSC			
Bucephala albeola	Bufflehead					
Bucephala clangula	Common Goldeneye					
Butorides virescens	Green Heron					

⁹ Howard, J.K. et al. 2015. Patterns of Freshwater Species Richness, Endemism, and Vulnerability in California. PLoSONE, 11(7). Available at: <u>https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0130710</u>

¹⁰ California Department of Fish and Wildlife BIOS: <u>https://www.wildlife.ca.gov/data/BIOS</u>

¹¹ Science for Conservation: <u>https://www.scienceforconservation.org/products/california-freshwater-species-</u> <u>database</u>

Scientific Nome	Common Nama	Legal	ly Protected Status		
Scientific Name		Federal	State	Other	
Calidris mauri	Western Sandpiper				
Chen caerulescens	Snow Goose				
Chen rossii	Ross's Goose				
Chroicocephalus	Bonanarte's Gull				
philadelphia	Bonaparte 3 Gun				
Cistothorus palustris palustris	Marsh Wren				
Egretta thula	Snowy Egret				
Fulica americana	American Coot				
Gallinago delicata	Wilson's Snipe				
Gallinula chloropus	Common Moorhen				
Geothlypis trichas trichas	Common Yellowthroat				
Haliaeetus leucocephalus	Bald Eagle	Bird of Conservation Concern	Endangered		
Icteria virens	Yellow-breasted Chat		SSC	BSSC - Third priority	
Lophodytes cucullatus	Hooded Merganser				
Megaceryle alcyon	Belted Kingfisher				
Mergus merganser	Common Merganser				
Mergus serrator	Red-breasted Merganser				
Numenius americanus	Long-billed Curlew				
Nycticorax nycticorax	Black-crowned Night- Heron				
Oxyura jamaicensis	Ruddy Duck				
Pandion haliaetus	Osprey		Watch list		
Pelecanus erythrorhynchos	American White Pelican		SSC	BSSC - First priority	
Phalacrocorax auritus	Double-crested Cormorant				
Podiceps nigricollis	Eared Grebe				
Podilymbus podiceps	Pied-billed Grebe				
Porzana carolina	Sora				
Rallus limicola	Virginia Rail				
Recurvirostra americana	American Avocet				
Riparia riparia	Bank Swallow		Threatened		
Setophaga petechia	Yellow Warbler			BSSC - Second priority	
Tachycineta bicolor	Tree Swallow				
Tringa melanoleuca	Greater Yellowlegs				
Tringa solitaria	Solitary Sandpiper				
Vireo bellii	Bell's Vireo				

Scientific Name	Common Nama	Legal	ly Protected Status				
Scientific Name	Common Name	Federal	State	Other			
Vireo bellii pusillus	Least Bell's Vireo	Endangered	Endangered				
Xanthocenhalus	Yellow-headed			BSSC -			
xanthocephalus	Blackbird		SSC	Third			
xuntilocephalas	Blackbilla			priority			
CRUSTACEAN							
Branchinecta lynchi	Vernal Pool Fairy Shrimp	Threatened	SSC	IUCN - Vulnerable			
Cyprididae fam.	Cyprididae fam.						
Hyalella spp.	Hyalella spp.						
Pacifastacus spp.	Pacifastacus spp.						
	FISH	4					
Oncorhynchus mykiss - SCCC	South Central California coast steelhead	Threatened	SSC	Vulnerable - Moyle 2013			
Catostomus occidentalis mnioltiltus	Monterey sucker			Least Concern - Moyle 2013			
Catostomus occidentalis occidentalis	Sacramento sucker			Least Concern - Moyle 2013			
Cottus gulosus	Riffle sculpin		SSC	Near- Threatened - Moyle 2013			
Entosphenus tridentata ssp. 1	Pacific lamprey		SSC	Near- Threatened - Moyle 2013			
Lavinia exilicauda exilicauda	Sacramento hitch		SSC	Near- Threatened - Moyle 2013			
Lavinia exilicauda harengeus	Monterey hitch		SSC	Vulnerable - Moyle 2013			
Oncorhynchus mykiss irideus	Coastal rainbow trout			Least Concern - Moyle 2013			
Orthodon microlepidotus	Sacramento blackfish			Least Concern - Moyle 2013			
Ptychocheilus grandis	Sacramento pikeminnow			Least Concern - Moyle 2013			
Oncorhynchus mykiss - SCCC	South Central California coast steelhead	Threatened	SSC	Vulnerable - Moyle 2013			
	HERP						

Scientific Name		Legally Protected Status		
Scientific Name	Common Name	Federal	State	Other
Actinemys marmorata marmorata	Western Pond Turtle		SSC	ARSSC
Ambystoma californiense californiense	California Tiger Salamander	Threatened	Threatened	ARSSC
Anaxyrus boreas boreas	Boreal Toad			
Anaxyrus boreas halophilus	California Toad			ARSSC
Anaxyrus californicus	Arroyo Toad	Endangered	SSC	ARSSC
Pseudacris cadaverina	California Treefrog			ARSSC
Pseudacris hypochondriaca	Baja California Treefrog			
Pseudacris regilla	Northern Pacific Chorus Frog			
Rana boylii	Foothill Yellow-legged Frog	Under Review in the Candidate or Petition Process	SSC	ARSSC
Rana draytonii	California Red-legged Frog	Threatened	SSC	ARSSC
Spea hammondii	Western Spadefoot	Under Review in the Candidate or Petition Process	SSC	ARSSC
Taricha torosa	Coast Range Newt		SSC	ARSSC
Thamnophis hammondii hammondii	Two-striped Gartersnake		SSC	ARSSC
Thamnophis sirtalis infernalis	California Red-sided Gartersnake			Not on any status lists
Thamnophis sirtalis sirtalis	Common Gartersnake			
	INSECT & OTH	ER INVERT		
Acentrella spp.	Acentrella spp.			
Agabus spp.	Agabus spp.			
Ambrysus mormon	Creeping water bug			Not on any status lists
Antocha spp.	Antocha spp.			
Argia emma	Emma's Dancer			
Argia lugens	Sooty Dancer			
Argia spp.	Argia spp.			
Argia vivida	Vivid Dancer			
Baetidae fam.	Baetidae fam.			
Baetis spp.	Baetis spp.			

Colontific Nome		Legal	egally Protected Status	
Scientific Name		Federal	State	Other
Berosus	Water scavenger			Not on any
punctatissimus	beetles			status lists
Berosus spp.	Berosus spp.			
Callibaetis spp.	Callibaetis spp.			
Centroptilum spp.	Centroptilum spp.			
Chaetarthria hicolor	Water Scavenger			Not on any
	Beetles			status lists
Chaetarthria ochra	Water Scavenger Beetles			Not on any status lists
Cheumatopsyche spp.	Cheumatopsyche spp.			
Chironomidae fam.	Chironomidae fam.			
Chironomus spp.	Chironomus spp.			
Cladotanytarsus spp.	Cladotanytarsus spp.			
Coenagrionidae fam.	Coenagrionidae fam.			
Corisella spp.	Corisella spp.			
Corixidae fam.	Corixidae fam.			
Cricotopus spp.	Cricotopus spp.			
Dicrotendines spp.	Dicrotendines spp.			
Dytiscidae fam.	Dytiscidae fam.			
Enallagma civile	Familiar Bluet			
Enallagma	Common blue			Not on any
cyathigerum	damselfly			status lists
Enochruc caripatuc	Water Scavenger			Not on any
	Beetles			status lists
Enochrus cristatus	Water Scavenger			Not on any
	Beetles			status lists
Enochrus piceus	Water Scavenger			Not on any
· · · · · · · · · · · · · · · · · · ·	Beetles			Status lists
Enochrus pygmaeus	Water Scavenger			Not on any
Enochrus spp	Enochrus spp			
Enhomorolla spp.	Enbomorolla con			
Ephemerellidae fam	Ephemerellidae fam			
Ephemerellidae fam.	Epheniereindae fam.			
Eukiofforialla con	Eukiofforialla con			
Eallcoop quillori	A Mayfly			
Grantocoriya con	A Mayily			
Holichus spp.	Holichus spp.			
Helicius spp.	Helicanovaha ann			
Helicopsyche spp.	American Dubyenet			
Hydrochus spp.	Hydrochus spp.			
Hydrophilidae fam.	Hydrophilidae fam.			
Hydroporus spp.	Hydroporus spp.			
Hydropsyche spp.	Hydropsyche spp.			
Hydropsychidae fam.	Hydropsychidae fam.			
Hydroptila spp.	Hydroptila spp.			

		Lega	Legally Protected Status		tatus
Scientific Name		Federal	State	Other	
Hydryphantidae fam.	Hydryphantidae fam.				
Ischnura spp.	Ischnura spp.				
Laccobius ellipticus	Water scavenger beetles			Not on any status lists	
Laccobius spp.	Laccobius spp.				
Laccophilus maculosus	Dingy Diver			Not on any status lists	
Lepidostoma spp.	Lepidostoma spp.				
Leptoceridae fam.	Leptoceridae fam.				
Libellula saturata	Flame Skimmer				
Limnophyes spp.	Limnophyes spp.				
Liodessus obscurellus	Predacious Diving Beetle			Not on any status lists	
Macromia magnifica	Western River Cruiser				
Malenka spp.	Malenka spp.				
Microcylloepus spp.	Microcylloepus spp.				
Microtendipes spp.	Microtendipes spp.				
Nectopsyche spp.	Nectopsyche spp.				
Ochthebius spp.	Ochthebius spp.				
Ophiogomphus bison	Bison Snaketail				
Optioservus spp.	Optioservus spp.				
Oreodytes spp.	Oreodytes spp.				
Paracloeodes minutus	A Small Minnow Mayfly				
Paracymus spp.	Paracymus spp.				
Paratanytarsus spp.	Paratanytarsus spp.				
Peltodytes spp.	Peltodytes spp.				
Phaenopsectra spp.	Phaenopsectra spp.				
Plathemis lydia	Common Whitetail				
Postelichus spp.	Postelichus spp.				
Procladius spp.	Procladius spp.				
Pseudochironomus	Pseudochironomus				
spp.	spp.				
Psychodidae fam.	Psychodidae fam.				
Rheotanytarsus spp.	Rheotanytarsus spp.				
Rhyacophila spp.	Rhyacophila spp.				
Sigara mckinstryi	A Water Boatman			status lists	
Sigara spp.	Sigara spp.				
Simuliidae fam.	Simuliidae fam.				
Simulium spp.	Simulium spp.				
Sperchon spp.	Sperchon spp.				
Sperchontidae fam.	Sperchontidae fam.				
Stictotarsus spp.	Stictotarsus spp.				
Sweltsa spp.	Sweltsa spp.				
Tanytarsus spp.	Tanytarsus spp.				

Colontific Nome	Common Nome	Legall	Ily Protected Status	
Scientific Name		Federal	State	Other
Tipulidae fam.	Tipulidae fam.			
Tramea lacerata	Black Saddlebags			
Tricorythodes spp.	Tricorythodes spp.			
Wormaldia spp.	Wormaldia spp.			
	MAMM	AL		·
Castor canadonsis	Amorican Boayor			Not on any
				status lists
	MOLLU	ISK		
Gyraulus spp.	Gyraulus spp.			
Lymnaea spp.	Lymnaea spp.			
Menetus opercularis	Button Sprite			CS
Physa spp.	Physa spp.			
Pisidium spp.	Pisidium spp.			
Planorbidae fam.	Planorbidae fam.			
	PLAN	Т	-	
Alnus rhombifolia	White Alder			
Ammannia coccinea	Scarlet Ammannia			
Anemopsis californica	Yerba Mansa			
Azolla filiculoides	Mosquito Fern			
Baccharis salicina	Willow Baccharis			Not on any status lists
Bolboschoenus	Caltmarch Bulruch			Not on any
maritimus paludosus				status lists
Callitriche heterophylla bolanderi	Large Water-starwort			
Callitriche marginata	Winged Water- starwort			
Castilleja minor minor	Alkali Indian- paintbrush			
Castilleja minor spiralis	Large-flower Annual Indian-paintbrush			
Cotula coronopifolia	Brass Buttons			
Crassula aquatica	Water Pygmyweed			
Crypsis vaginiflora	African Prickle Grass			
Cyperus erythrorhizos	Red-root Flatsedge			
Eleocharis	Creeping Spikerush			
Eleocharis parishii	Parish's Spikerush			
Epilobium campestre	Smooth Boisduvalia			Not on any status lists
Epilobium	Cleistogamous Spike-			
Eryngium	Spiny Sepaled		666	CRPR -
spinosepalum	Coyote-thistle		550	1B.2
Eryngium vaseyi vaseyi	Vasey's Coyote-thistle			Not on any status lists
Euthamia occidentalis	Western Fragrant Goldenrod			

Scientific Name	Common Name	Legally Protected Status		
Scientific Name		Federal	State	Other
Helenium puberulum	Rosilla			
Hydrocotyle verticillata	Whorled Marsh-			
verticillata	pennywort			
Juncus dubius	Mariposa Rush			
Juncus effusus effusus	Common Bog Rush			
Juncus luciensis	Santa Lucia Dwarf Rush		SSC	CRPR - 1B.2
Juncus macrophyllus	Longleaf Rush			
Juncus xiphioides	Iris-leaf Rush			
Limosella aquatica	Northern Mudwort			
Marsilea vestita vestita	Hairy Waterclover			Not on any status lists
Mimulus guttatus	Common Large Monkeyflower			
Mimulus latidens	Broad-tooth Monkeyflower			
Mimetanthe pilosa	Snouted Monkey Flower			Not on any status lists
Montia fontana fontana	Fountain Miner's- lettuce			
Navarretia prostrata	Prostrate Navarretia		SSC	CRPR - 1B.1
Paspalum distichum	Joint Paspalum			
Persicaria lapathifolia	Common Knotweed			Not on any status lists
Persicaria maculosa	Spotted Ladysthumb			Not on any status lists
Phacelia distans	Common Phacelia			
Pilularia americana	Pillwort			
Plagiobothrys acanthocarpus	Adobe Popcorn-flower			
Plantago elongata elongata	Slender Plantain			
Platanus racemosa	California Sycamore			
Psilocarphus brevissimus brevissimus	Dwarf Woolly-heads			
Ranunculus aquatilis diffusus	Whitewater Crowfoot			Not on any status lists
Rorippa curvisiliqua curvisiliqua	Curve-pod Yellowcress			
Rumex conglomeratus	Green Dock			
Rumex salicifolius salicifolius	Willow Dock			
Salix exigua exigua	Narrowleaf Willow			
Salix laevigata	Polished Willow			
Salix lasiolepis lasiolepis	Arroyo Willow			

Scientific Name	Common Name	Legally Protected Status			
Scientific Name	Common Name	Federal	al State Othe		
Schoenoplectus americanus	Three-square Bulrush				
Schoenoplectus pungens longispicatus	Three-square Bulrush				
Schoenoplectus pungens pungens	Common Threesquare				
Schoenoplectus saximontanus	Rocky Mountain Bulrush				
Typha domingensis	Southern Cattail				
Typha latifolia	Broadleaf Cattail				
Veronica anagallis- aquatica	Water Speedwell				
Veronica catenata	Chain Speedwell			Not on any status lists	
Notes: ARSSC = At-Risk Species of Special Concern BSSC = Bird Species of Special Concern CRPR = California Rare Plant Rank CS = Currently Stable SSC = Species of Special Concern					
Attachment D



July 2019



IDENTIFYING GDEs UNDER SGMA Best Practices for using the NC Dataset

The Sustainable Groundwater Management Act (SGMA) requires that groundwater dependent ecosystems (GDEs) be identified in Groundwater Sustainability Plans (GSPs). As a starting point, the Department of Water Resources (DWR) is providing the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) online¹² to help Groundwater Sustainability Agencies (GSAs), consultants, and stakeholders identify GDEs within individual groundwater basins. To apply information from the NC Dataset to local areas, GSAs should combine it with the best available science on local hydrology, geology, and groundwater levels to verify whether polygons in the NC dataset are likely supported by groundwater in an aquifer (Figure 1)¹³. This document highlights six best practices for using local groundwater data to confirm whether mapped features in the NC dataset are supported by groundwater.

¹² NC Dataset Online Viewer: <u>https://gis.water.ca.gov/app/NCDatasetViewer/</u>

¹³ California Department of Water Resources (DWR). 2018. Summary of the "Natural Communities Commonly Associated with Groundwater" Dataset and Online Web Viewer. Available at: <u>https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Statewide-Reports/Natural-Communities-Dataset-Summary-Document.pdf</u>



The NC Dataset

identifies

vegetation and wetland features that are good indicators of a GDE. The dataset is comprised of 48 publicly available state and federal datasets that map vegetation, wetlands, springs, and seeps commonly associated with groundwater in California¹⁴. It was developed through a collaboration between DWR, the Department of Fish and Wildlife, and The Nature Conservancy (TNC). TNC has also provided detailed guidance on identifying GDEs from the NC dataset¹⁵ on the Groundwater Resource Hub¹⁶, a website dedicated to GDEs.

BEST PRACTICE #1. Establishing a Connection to Groundwater

Groundwater basins can be comprised of one continuous aquifer (Figure 2a) or multiple aquifers stacked on top of each other (Figure 2b). In unconfined aquifers (Figure 2a), using the depth-to-groundwater and the rooting depth of the vegetation is a reasonable method to infer groundwater dependence for GDEs. If groundwater is well below the rooting (and capillary) zone of the plants and any wetland features, the ecosystem is considered disconnected and groundwater management is not likely to affect the ecosystem (Figure 2d). However, it is important to consider local conditions (e.g., soil type, groundwater flow gradients, and aquifer parameters) and to review groundwater depth data from multiple seasons and water year types (wet and dry) because intermittent periods of high groundwater levels can replenish perched clay lenses that serve as the water source for GDEs (Figure 2c). Maintaining these natural groundwater fluctuations are important to sustaining GDE health.

Basins with a stacked series of aquifers (Figure 2b) may have varying levels of pumping across aquifers in the basin, depending on the production capacity or water quality associated with each aquifer. If pumping is concentrated in deeper aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, such as perched aquifers, that support springs, surface water, domestic wells, and GDEs (Figure 2). This is because vertical groundwater gradients across aquifers may result in pumping from deeper aquifers to cause adverse impacts onto beneficial users reliant on shallow aquifers or interconnected surface water. The goal of SGMA is to sustainably manage groundwater resources for current and future social, economic, and environmental benefits. While groundwater pumping may not be currently occurring in a shallower aquifer, use of this water may

¹⁴ For more details on the mapping methods, refer to: Klausmeyer, K., J. Howard, T. Keeler-Wolf, K. Davis-Fadtke, R. Hull, A. Lyons. 2018. Mapping Indicators of Groundwater Dependent Ecosystems in California: Methods Report. San Francisco, California. Available at: <u>https://groundwaterresourcehub.org/public/uploads/pdfs/iGDE_data_paper_20180423.pdf</u>

¹⁵ "Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans" is available at: <u>https://groundwaterresourcehub.org/gde-tools/gsp-guidance-document/</u> ¹⁶ The Groundwater Resource Hub: www.GroundwaterResourceHub.org

become more appealing and economically viable in future years as pumping restrictions are placed on the deeper production aquifers in the basin to meet the sustainable yield and criteria. Thus, identifying GDEs in the basin should done irrespective to the amount of current pumping occurring in a particular aquifer, so that future impacts on GDEs due to new production can be avoided. A good rule of thumb to follow is: *if groundwater can be pumped from a well - it's an aquifer*.



Figure 2. Confirming whether an ecosystem is connected to groundwater. Top: (a) Under the ecosystem is an unconfined aquifer with depth-to-groundwater fluctuating seasonally and interannually within 30 feet from land surface. (b) Depth-to-groundwater in the shallow aquifer is connected to overlying ecosystem. Pumping predominately occurs in the confined aquifer, but pumping is possible in the shallow aquifer. Bottom: (c) Depth-to-groundwater fluctuations are seasonally and interannually large, however, clay layers in the near surface prolong the ecosystem's connection to groundwater. (d) Groundwater is disconnected from surface water, and any water in the vadose (unsaturated) zone is due to direct recharge from precipitation and indirect recharge under the surface water feature. These areas are not connected to groundwater and typically support species that do not require access to groundwater to survive.

BEST PRACTICE #2. Characterize Seasonal and Interannual Groundwater Conditions

SGMA requires GSAs to describe current and historical groundwater conditions when identifying GDEs [23 CCR §354.16(g)]. Relying solely on the SGMA benchmark date (January 1, 2015) or any other single point in time to characterize groundwater conditions (e.g., depth-to-groundwater) is inadequate because managing groundwater conditions with data from one time point fails to capture the seasonal and interannual variability typical of California's climate. DWR's Best Management Practices document on water budgets¹⁷ recommends using 10 years of water supply and water budget information to describe how historical conditions have impacted the operation of the basin within sustainable yield, implying that a baseline¹⁸ could be determined based on data between 2005 and 2015. Using this or a similar time period, depending on data availability, is recommended for determining the depth-to-groundwater.

GDEs depend on groundwater levels being close enough to the land surface to interconnect with surface water systems or plant rooting networks. The most practical approach¹⁹ for a GSA to assess whether polygons in the NC dataset are connected to groundwater is to rely on groundwater elevation data. As detailed in TNC's GDE guidance document⁴, one of the key factors to consider when mapping GDEs is to contour depth-to-groundwater in the aquifer that is supporting the ecosystem (see Best Practice #5).

Groundwater levels fluctuate over time and space due to California's Mediterranean climate (dry summers and wet winters), climate change (flood and drought years), and subsurface heterogeneity in the subsurface (Figure 3). Many of California's GDEs have adapted to dealing with intermittent periods of water stress, however if these groundwater conditions are prolonged, adverse impacts to GDEs can result. While depth-to-groundwater levels within 30 feet⁴ of the land surface are generally accepted as being a proxy for confirming that polygons in the NC dataset are supported by groundwater, it is highly advised that fluctuations in the groundwater regime be characterized to understand the seasonal and interannual groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. Time series data on groundwater elevations and depths are available on the SGMA Data Viewer²⁰. However, if insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons in the GSP <u>until</u> data gaps are reconciled in the monitoring network (see Best Practice #6).



Figure 3. Example seasonality and interannual variability in depth-to-groundwater over time. Selecting one point in time, such as Spring 2018, to characterize groundwater conditions in GDEs fails to capture what groundwater conditions are necessary maintain the to ecosystem status into the future so adverse impacts are avoided.

¹⁷ DWR. 2016. Water Budget Best Management Practice. Available at:

https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP Water Budget Final 2016-12-23.pdf

¹⁸ Baseline is defined under the GSP regulations as "historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin." [23 CCR §351(e)]

¹⁹ Groundwater reliance can also be confirmed via stable isotope analysis and geophysical surveys. For more information see The GDE Assessment Toolbox (Appendix IV, GDE Guidance Document for GSPs⁴).

²⁰ SGMA Data Viewer: <u>https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer</u>

BEST PRACTICE #3. Ecosystems Often Rely on Both Groundwater and Surface Water

GDEs are plants and animals that rely on groundwater for all or some of its water needs, and thus can be supported by multiple water sources. The presence of non-groundwater sources (e.g., surface water, soil moisture in the vadose zone, applied water, treated wastewater effluent, urban stormwater, irrigated return flow) within and around a GDE does not preclude the possibility that it is supported by groundwater, too. SGMA defines GDEs as "ecological communities and species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" [23 CCR §351(m)]. Hence, depth-to-groundwater data should be used to identify whether NC polygons are supported by groundwater and should be considered GDEs. In addition, SGMA requires that significant and undesirable adverse impacts to beneficial users of surface water be avoided. Beneficial users of surface water include environmental users such as plants or animals²¹, which therefore must be considered when developing minimum thresholds for depletions of interconnected surface water.

GSAs are only responsible for impacts to GDEs resulting from groundwater conditions in the basin, so if adverse impacts to GDEs result from the diversion of applied water, treated wastewater, or irrigation return flow away from the GDE, then those impacts will be evaluated by other permitting requirements (e.g., CEQA) and may not be the responsibility of the GSA. However, if adverse impacts occur to the GDE due to changing groundwater conditions resulting from pumping or groundwater management activities, then the GSA would be responsible (Figure 4).



Figure 4. Ecosystems often depend on multiple sources of water. Top: (Left) Surface water and groundwater are interconnected, meaning that the GDE is supported by both groundwater and surface water. **(Right)** Ecosystems that are only reliant on non-groundwater sources are not groundwater-dependent. **Bottom: (Left)** An ecosystem that was once dependent on an interconnected surface water, but loses access to groundwater solely due to surface water diversions may not be the GSA's responsibility. **(Right)** Groundwater dependent ecosystems once dependent on an interconnected surface water system, but loses that access due to groundwater pumping is the GSA's responsibility.

²¹ For a list of environmental beneficial users of surface water by basin, visit: <u>https://qroundwaterresourcehub.org/qde-tools/environmental-surface-water-beneficiaries/</u>

BEST PRACTICE #4. Select Representative Groundwater Wells

Identifying GDEs in a basin requires that groundwater conditions are characterized to confirm whether polygons in the NC dataset are supported by the underlying aquifer. To do this, proximate groundwater wells should be identified to characterize groundwater conditions (Figure 5). When selecting representative wells, it is particularly important to consider the subsurface heterogeneity around NC polygons, especially near surface water features where groundwater and surface water interactions occur around heterogeneous stratigraphic units or aquitards formed by fluvial deposits. The following selection criteria can help ensure groundwater levels are representative of conditions within the GDE area:

- Choose wells that are within 5 kilometers (3.1 miles) of each NC Dataset polygons because they are more likely to reflect the local conditions relevant to the ecosystem. If there are no wells within 5km of the center of a NC dataset polygon, then there is insufficient information to remove the polygon based on groundwater depth. Instead, it should be retained as a potential GDE until there are sufficient data to determine whether or not the NC Dataset polygon is supported by groundwater.
- Choose wells that are screened within the surficial unconfined aquifer and capable of measuring the true water table.
- Avoid relying on wells that have insufficient information on the screened well depth interval for excluding GDEs because they could be providing data on the wrong aquifer. This type of well data should not be used to remove any NC polygons.



Figure 5. Selecting representative wells to characterize groundwater conditions near GDEs.

BEST PRACTICE #5. Contouring Groundwater Elevations

The common practice to contour depth-to-groundwater over a large area by interpolating measurements at monitoring wells is unsuitable for assessing whether an ecosystem is supported by groundwater. This practice causes errors when the land surface contains features like stream and wetland depressions because it assumes the land surface is constant across the landscape and depth-to-groundwater is constant below these low-lying areas (Figure 6a). A more accurate approach is to interpolate **groundwater elevations** at monitoring wells to get groundwater elevation contours across the landscape. This layer can then be subtracted from land surface elevations from a Digital Elevation Model (DEM)²² to estimate depth-to-groundwater contours across the landscape (Figure b; Figure 7). This will provide a much more accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found.



Figure 6. Contouring depth-to-groundwater around surface water features and GDEs. (a) Groundwater level interpolation using depth-to-groundwater data from monitoring wells. **(b)** Groundwater level interpolation using groundwater elevation data from monitoring wells and DEM data.



Figure 7. Depth-to-groundwater contours in Northern California. (Left) Contours were interpolated using depth-to-groundwater measurements determined at each well. **(Right)** Contours were determined by interpolating groundwater elevation measurements at each well and superimposing ground surface elevation from DEM spatial data to generate depth-to-groundwater contours. The image on the right shows a more accurate depth-to-groundwater estimate because it takes the local topography and elevation changes into account.

²² USGS Digital Elevation Model data products are described at: <u>https://www.usqs.qov/core-science-</u> <u>systems/ngp/3dep/about-3dep-products-services</u> and can be downloaded at: <u>https://iewer.nationalmap.gov/basic/</u>

BEST PRACTICE #6. Best Available Science

Adaptive management is embedded within SGMA and provides a process to work toward sustainability over time by beginning with the best available information to make initial decisions, monitoring the results of those decisions, and using the data collected through monitoring programs to revise decisions in the future. In many situations, the hydrologic connection of NC dataset polygons will not initially be clearly understood if site-specific groundwater monitoring data are not available. If sufficient data are not available in time for the 2020/2022 plan, **The Nature Conservancy strongly advises that questionable polygons from the NC dataset be included in the GSP <u>until</u> data gaps are reconciled in the monitoring network. Erring on the side of caution will help minimize inadvertent impacts to GDEs as a result of groundwater use and management actions during SGMA implementation.**

KEY DEFINITIONS

Groundwater basin is an aquifer or stacked series of aquifers with reasonably welldefined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom. 23 CCR §341(g)(1)

Groundwater dependent ecosystem (GDE) are ecological communities or species that depend on <u>groundwater emerging from aquifers</u> or on groundwater occurring <u>near</u> <u>the ground surface.</u> 23 CCR §351(m)

Interconnected surface water (ISW) 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. 23 CCR §351(o)

Principal aquifers are aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to <u>wells</u>, <u>springs</u>, <u>or surface water</u> <u>systems</u>. 23 CCR §351(aa)

ABOUT US

The Nature Conservancy is a science-based nonprofit organization whose mission is *to conserve the lands and waters on which all life depends*. To support successful SGMA implementation that meets the future needs of people, the economy, and the environment, TNC has developed tools and resources (<u>www.groundwaterresourcehub.org</u>) intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

Attachment E

GDE Pulse

A new, free online tool that allows Groundwater Sustainability Agencies to assess changes in groundwater dependent ecosystem (GDE) health using satellite, rainfall, and groundwater data.



Remote sensing data from satellites has been used to monitor the health of vegetation all over the planet. GDE pulse has compiled 35 years of satellite imagery from NASA's Landsat mission for every polygon in the Natural Communities Commonly Associated with Groundwater Dataset²³. The following datasets are included:

Normalized Difference Vegetation Index (NDVI) is a satellite-derived index that represents the greenness of vegetation. Healthy green vegetation tends to have a higher NDVI, while dead leaves have a lower NDVI. We calculated the average NDVI during the driest part of the year (July - Sept) to estimate vegetation health when the plants are most likely dependent on groundwater.

Normalized Difference Moisture Index (NDMI) is a satellite-derived index that represents water content in vegetation. NDMI is derived from the Near-Infrared (NIR) and Short-Wave Infrared (SWIR) channels. Vegetation with adequate access to water tends to have higher NDMI, while vegetation that is water stressed tends to have lower NDMI. We calculated the average NDVI during the driest part of the year (July–September) to estimate vegetation health when the plants are most likely dependent on groundwater.

Annual Precipitation is the total precipitation for the water year (October 1st – September 30th) from the PRISM dataset²⁴. The amount of local precipitation can affect vegetation with more precipitation generally leading to higher NDVI and NDMI.

Depth to Groundwater measurements provide an indication of the groundwater levels and changes over time for the surrounding area. We used groundwater well measurements from nearby (<1km) wells to estimate the depth to groundwater below the GDE based on the average elevation of the GDE (using a digital elevation model) minus the measured groundwater surface elevation.

²³ The Natural Communities Commonly Associated with Groundwater Dataset is hosted on the California Department of Water Resources' website: <u>https://gis.water.ca.gov/app/NCDatasetViewer/#</u>

²⁴ The PRISM dataset is hosted on Oregon State University's website: <u>http://www.prism.oregonstate.edu/</u>

TNC as a Representative for Environmental Beneficial Users

The state of California contains more species of plants and animals than the rest of the United States and Canada combined²⁵. For over 200 years, California's natural ecosystems have been converted to agricultural and urban landscapes. This modification of land and water has resulted in approximately 95% reduction in the historical extent of California's aquatic and wetland habitats²⁶. Subsequently, more than 90% of all native freshwater species endemic to California are vulnerable to extinction²⁷ within the next 100 years. To prevent this, water managers at every scale have a responsibility to manage groundwater sustainably, meeting the needs of people and the environment. TNC is working to help by providing the science, tools and solutions needed to halt the decline of our freshwater biodiversity.

Important Plan Evaluation Provisions

Per the Emergency Regulations Section 355.4(b), the Department shall evaluate plans for compliance considering ten factors, including the following, which are of particular interest to TNC:

(1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are reasonable and supported by the best available information and best available science.

(2) Whether the Plan identifies reasonable measures and schedules to eliminate data gaps.

(4) Whether the interests of the beneficial uses and users of groundwater in the basin, and the land uses and property interests potentially affected by the use of groundwater in the basin, have been considered.

(10) Whether the Agency has adequately responded to comments that raise credible technical or policy issues with the Plan.

²⁵ <u>https://www.ncbi.nlm.nih.gov/pubmed/12753220</u>

²⁶ Warner & Hendrix 1984; Moyle & Williams 1990; Moyle & Leidy 1992; Seavy et al. 2009

²⁷ Moyle et al. 2011; Moyle et al. 2013; Howard et al. 2015



CLEAN WATER ACTION | CLEAN WATER FUND

May 15, 2020

Craig Altare Chief, Groundwater Sustainability Plan Review Section Department of Water Resources Sacramento, CA Submitted via SGMA GSP Portal

Re: Comments on Groundwater Sustainability Plan for Salinas Valley Paso Robles Subbasin (3-004.06)

Dear Mr. Altare,

On behalf of the above-listed organizations, we would like to offer the attached comments on the Groundwater Sustainability Plan (GSP) for the Salinas Valley Paso Robles Subbasin. Our organizations are deeply engaged in and committed to the successful implementation of the Sustainable Groundwater Management Act (SGMA) because we understand that groundwater is a critical piece of a resilient California water portfolio, particularly in light of our changing climate. Our review focuses on how well drinking water, climate change, stakeholder involvement, managed wetlands and groundwater dependent ecosystems were addressed in the GSP. Collectively, these issues are true indicators of sustainability. Because California's water and economy are interconnected, the sustainable management of each basin is of interest to both local communities and the state as a whole.

We appreciate the efforts of the Groundwater Sustainability Agencies (GSAs) to prepare this GSP. We recognize that GSPs are complicated and resource intensive to develop. Given that SGMA is based on local control and adaptive management, we offer our comments in an effort to ensure that local control is inclusive and that adaptive management prioritizes improvements in areas of concern to disadvantaged communities and environmental beneficial users.

Our organizations submitted in-depth comments on the draft version of this GSP, which were posted as a comment to the SGMA GSP Initial Notification portal. Those comments focused on issues pertaining to environmental beneficial users of groundwater and disadvantaged communities (California Code of Regulations [CCR] 23 § 355.4(b)(4) and California Water Code [CWC] § 10723.2), as well as the integration of climate projections into the water budget [CWC § 10720.7(1)(1)]. We hoped our input would support revision of the draft GSP prior to submittal to the California Department of Water

Resources (DWR or Department) [CWC § 10720.7(1)(1)]. Our review did not assess the quality of the data provided in the GSP, but analyzed whether data was provided, what data sources were cited, how information about these beneficial users of groundwater was used to develop the plan, and whether or not the GSP included plans to reconcile existing data gaps.

The results of our review of the draft plan can be found in Appendix A. A column has been added to the review to identify whether issues we identified in the draft plan have been addressed in the final plan, and narrative has been added at the end of each section identifying where those changes are insufficient.

For our analysis of the final plan, our organizations identified five components that we consider critical in GSPs and evaluated whether the plan adequately considers drinking water, climate change, stakeholder involvement, managed wetlands and groundwater dependent ecosystems in these GSP categories. Those five categories are:

- Identification and Consideration of Beneficial Users
- Water Budget
- Notice and Communication
- Monitoring Network
- Projects and Management Actions

Based on our evaluation, we found this plan to be incomplete, meaning that we found gaps in how drinking water, climate change, stakeholder involvement, managed wetlands and groundwater dependent ecosystems were addressed in one or more of the five plan components. **Based on this, we recommend the GSAs be given up to 180 days to address the missing components.**

A summary of our evaluation can be found below and our detailed analysis appears in Appendix A.

Priority Plan Categories

Identification and Consideration of Beneficial Users.

Both SGMA statute and regulation recognize the importance of identifying <u>all</u> beneficial users of groundwater and considering their interests in the development of the plan [CCR 23 § 355.4(b)(3)], specifically in development of undesirable results [CCR 23 § 354.26(b)(3)] and minimum thresholds [CCR 23 § 354.28(b)(4)]. For our review, we specifically looked at how disadvantaged communities [CWC § 10723.2(i)] and environmental users of groundwater [CWC § 10723.2(e)] were identified and considered.

While the plan identified potential drinking water users of groundwater, the identification of groundwater dependent ecosystems is incomplete and inconsistent with best practices. It is also unclear whether or how the interests of disadvantaged communities and environmental users were considered in the development of undesirable results, measurable objectives, and minimum thresholds. Accordingly, the GSP lacks an analysis of the direct impacts of undesirable results, measurable objectives, and minimum thresholds on disadvantaged communities. To protect vulnerable drinking water, we recommend the GSP identify and evaluate the cumulative and indirect impacts of minimum thresholds protect "most" domestic wells and commits to additional analysis of minimum thresholds to ensure that they are "protective of 'average' domestic well operations." However, the GSP does not identify the number and

locations of domestic wells potentially impacted by the selected criteria.

Because SGMA requires the identification and consideration of beneficial users in the establishment of undesirable results and minimum thresholds, we recommend the plan be required to correct these omissions within 180 days.

We recommend the GSAs continue efforts to identify and engage beneficial users representing disadvantaged communities and the environment and to incorporate the interests of these users into the calculation and update of sustainable management criteria. We provide two specific examples:

- By the time of the 5-year update, the plan must demonstrate whether "groundwater extractions result in significant depletions of interconnected surface waters" (CWC § 10735.2.(a)(5)(B)(ii)). To define significant depletions, beneficial users of surface water should be identified and considered in development of and reporting on sustainable management criteria.
- 2. In order to ensure best available information about impacts to beneficial users reliant on shallow groundwater, we recommend the GSAs improve local information about the location and condition of both active and abandoned groundwater wells. The Department's well drilling report database has provided an initial and important data source for development of GSPs, but local investigations would improve accuracy regarding well location, condition and water quality. We are also concerned that because well abandonment data is largely unavailable, there is potential for migration of surface contaminants to groundwater from improperly closed wells. We recommend the GSAs coordinate with other local agencies to identify inactive and abandoned wells to ensure that they have been properly retired.

Water Budget

SGMA regulations require that climate change projections be fully incorporated into the water budget (CCR 23 § 354.18). This integration is important to inform the calculation of future water budgets and allows an appropriate level of uncertainty to be incorporated into development of sustainable management criteria. SGMA regulations also require that native vegetation and managed wetlands, where present, be represented in the water budget as a distinct water use sector [CCR 23 § 354.18 and CCR 23 § 351 (al)].

The GSP does not fully incorporate climate projections into its projected water budget. For example, the GSP does not consider both the dry and wet scenarios, as recommended in the Department's climate guidance document and includes only 2030 climate conditions. The plan does not include water demands for native vegetation in the water budget, as required by regulations. This 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. The water budget also does not include future water demands for drinking water users, including residential users from consideration of future conditions. The GSP should incorporate and make reasonable demand projection assumptions relative to historic water demand and future growth projections for these drinking water users, including DACs. Because the Department has provided detailed guidance to assist GSAs in developing the water budget, we recommend this plan be required to address these gaps,

including recalculating the sustainable management criteria with updated water budget information, within 180 days.

In the spirit of continual improvement, we recommend that climate change projections be updated in the 2025 plan, including multiple climate scenarios (i.e. 2030, 2070, wet, and dry) to improve the accuracy of the projected water budget. This should also be utilized to update and improve the sustainable management criteria and ensure projects and management actions are properly designed. Estimates of the water budget components for native vegetation and managed wetlands, where present, (e.g., evapotranspiration) should be refined where necessary to continue to improve the accuracy of the water budget.

Notice and Communication

SGMA statute and regulations provide specific requirements for public notice and engagement (CCR 23 § 354.18), including a requirement that the GSP identify how it "encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin." This requirement reflects the recognition of the Legislature that public understanding and support for SGMA is necessary to its success.

A specific requirement of the regulations is that comments to the Agency and any responses to those comments be included in the Plan (CCR 23 § 354.10 (c)). We note that, while the GSA included our comments on the draft Plan in the final Plan, it did not provide a public response to any of the comment letters submitted and published as Appendix N, nor did it modify Plan contents based on our comments.

We find the plan to be lacking in aspects of stakeholder engagement and outreach to disadvantaged communities and environmental beneficial users. Specifically, the plan does not identify how the public will be informed about progress in implementing the plan. We recommend that the GSP be required to address public comments and outline stakeholder engagement plans for the implementation period within 180 days.

Looking ahead, we recommend that the annual reports provide specifics about implementation of the Stakeholder and Community Engagement Plan (SCEP), particularly how the public is kept informed of plan implementation. Additionally, the SCEP should be reviewed and revised, as needed, as part of the 5-year plan update.

Monitoring Network

SGMA regulations (Subarticle 4) identify the need for an adequate monitoring network. Specifically, the monitoring network is intended to "promote the collection of data of sufficient quality, frequency and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions that occur through implementation of the Plan" [CCR 23 § 354.32]. The regulations specifically require that "The monitoring network objectives shall be implemented to … Monitor impacts to the beneficial uses or users of groundwater" [CCR 23 § 354.34(b)(2)]. Moreover, the regulations require GSPs to identify data gaps where the network "does not contain a sufficient number of monitoring sites, does not monitor sites at a sufficient frequency, or utilizes monitoring sites that are unreliable, including those that do not satisfy minimum standards of the monitoring network adopted by the Agency" [CCR 23 § 354.38(b)].

Our review investigated whether the monitoring network was properly designed to monitor impacts of plan implementation on disadvantaged communities and environmental users of groundwater, and, if not, whether the plan identifies gaps in the monitoring network and includes plans to address those gaps in the first five years of plan implementation [CCR 23 § 354.38(d)].

We recommend the monitoring network plan in the GSP be improved, as it is currently insufficient to evaluate whether impacts on groundwater-dependent ecosystems and communities reliant upon shallow wells will be sufficiently monitored. Specifically the plan does not include a map overlaying the monitoring wells with the occurrence of disadvantaged communities and groundwater dependent ecosystems to demonstrate that potentially impacted areas are being monitored. This lack of information should be identified as a data gap to be filled as part of the expansion of the monitoring network. In addition, the monitoring network emphasizes groundwater level monitoring in deeper aquifer zones and largely omits the alluvial aquifer and areas near potential groundwater dependent ecosystems and interconnected surface waters, and consequently is not sufficient to establish a linkage between groundwater extraction and resulting potential impacts to environmental beneficial users. The GSP monitoring network plan should include additional monitoring wells and stream gages near potential interconnected surface waters and groundwater dependent ecosystems to further evaluate, monitor, manage and protect areas with interconnected surface waters and groundwater dependent ecosystems. We recommend that the monitoring network plan be improved to address these issues within 180 days to ensure that it will adequately monitor the impacts of groundwater management on these beneficial users.

Looking ahead, we recommend that the annual reports and five-year plan update detail progress in making the required improvements, in particular the installation of monitoring wells that can measure water quality and groundwater decline impacts on groundwater-dependent ecosystems and residents dependent upon shallow groundwater.

Project and Management Actions

SGMA statute requires GSPs to provide a description of how the plan helps meet each objective and how each objective is intended to achieve the sustainability goal for long-term beneficial uses of groundwater [CWC § 10720.7(b)]. Subarticle 5 of SGMA regulations require description of projects and management actions, including quantification of demand reduction or other methods for the mitigation of overdraft, the need for public notice about project implementation, and mitigation of overdraft conditions. We also note the Department's responsibility to "consider the state policy regarding the human right to water" when implementing the regulations [CCR 23 § 354.26(b)(3)].

Water quality degradation or benefits can result from changes in the location and rate of groundwater pumping that can impact the spread of contamination plumes. Groundwater recharge projects can change groundwater chemistry and mobilize constituents, increasing levels of heavy metals, including radioactive constituents; areas with significant levels of nitrate in the vadose zone could generate dangerous spikes in nitrate levels in adjacent drinking water sources. On the other hand, projects can be designed to limit the potential for contamination and provide water quality benefits to drinking water

sources. Unfortunately, because the project and management actions identified in the GSP lack an analysis of potential water quality impacts, it is not possible to understand whether any of these potential harms or benefits may occur. We recommend that information about potential water quality impacts of projects expected to be implemented in the first five years of plan implementation be provided within 180 days.

The basin has been determined by the Department to be in a condition of critical overdraft and our organizations are therefore interested in whether the identified projects and management actions are, taken at face value, sufficient to address overdraft [CCR 23 § 355.4(b)(5)], particularly for groundwater-dependent ecosystems and water supplies of communities and residents served by small water systems and domestic wells.

To do this, we reviewed the projects identified in the GSP, including the estimated yield and funding source for each project. We did not review the feasibility of the projects or question the yield assumptions. If funding sources were not yet identified, we assumed that the project was unlikely to occur in the first five years of plan implementation; if funding was secured or a funding source identified, we assumed that the project would be implemented by 2025.

Based on these assumptions, we found that this plan, if implemented as noted, would not address any portion of the identified overdraft of the basin by year 5. This plan should at minimum contain projects, funding sources and an implementation schedule to begin to address overdraft in the first five years of implementation. Our review and results can be found in Appendix B.

We are concerned that continued overdraft will disproportionately impact beneficial users of water that are already suffering – namely environmental users and disadvantaged communities. We urge more aggressive actions to avoid serious impacts to these users, including considering demand reduction measures, and developing a plan to address disadvantaged residents whose water supply could be impacted by falling water levels through actions such as a domestic well mitigation program.

Looking ahead, we recommend that the project status report required in the annual reports provide an update of project yield, if available. In the 2025 plan update, we look forward to reviewing the status of all identified projects and the addition of new projects, as needed, to ensure that the plan remains on track to reach sustainability. We are particularly interested to see an analysis of the impacts of implemented projects and management actions on disadvantaged communities and water quality.

Conclusion

The success of SGMA - the sustainable management of groundwater for current and future social, economic, and environmental benefits - depends on the inclusion of all beneficial users in the development and implementation of GSPs. The degree to which disadvantaged communities and environmental beneficial users are included in GSPs is a critical indicator of whether a plan is indeed on the path to sustainability. Sustainably managing our groundwater resources is critical to the long term resilience of California's communities and economy.

We appreciate the opportunity to comment and are available to respond to any questions you might have.

Sincerely,

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Jennifer Clary Water Program Manager Clean Water Action/Clean Water Fund

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Samantha Arthur Working Lands Program Director Audubon California

Sandi Matsumoto Associate Director, California Water Program The Nature Conservancy

Danielle). Dolan

Danielle V. Dolan Water Program Director Local Government Commission

Debi Ores Senior Attorney Community Water Center

pept

J. Pablo Ortiz-Partida, Ph.D. Western States Climate and Water Scientist Union of Concerned Scientists

Groundwater Basin/Subbasin:	Paso Robles Subbasin (DWR No. 3-004.06
GSA:	Paso Robles GSAs
Draft GSP Date:	August 2019 Public Review Draft
Adopted GSP Date:	January 31, 2020

Comments were submitted to the Paso Robles GSAs during the public draft comment period. Except where indicated by an asterisk (*), excerpted language below reflects the public draft GSP. The rightmost column reflects a review of the final GSP as submitted to DWR. A "yes" response in either column indicates that the plan includes language on that topic, but does not mean that our organizations concluded that the draft or final GSP addressed the criterion adequately. The summary/comment box at the end of each section provides greater detail on needed improvements to the current draft; highlighted comments represent comments on the public draft GSP that were not fully addressed in the final GSP.

1. Identification of Beneficial Users

Were key beneficial users identified and engaged?

Selected relevant requirements and guidance:

GSP Element 2.1.5, "Notice & Communication" (§354.10):

(a) A description of the beneficial uses and users of groundwater in the basin, including the land uses and property interests potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties.

GSP Element 2.2.2, "Groundwater Conditions" (§354.16):

(d) Groundwater quality issues that may affect the supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes.

(f) Identification of interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems, utilizing data available from the Department, as specified in Section 353.2, or the best available information.

(g) Identification of groundwater dependent ecosystems within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information. GSP Element 3.3, "Minimum Thresholds" (§354.28):

(4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.

		Review of Draft GSP						
	Υ	N	Ν		Location			
	е		1		(Section,	Addressed		
Review Criteria	s	0	Α	Relevant Info per Draft GSP	Page ¹)	in GSP		
 Do beneficial users (BUs) a. Disadvantaged Communities identified within the GSP (DACs) area include: 	x			"While an initial list of Interested parties was identified for the Paso Robles Subbasin at the time of GSA formation, additional Interested Parties specific to San Miguel CSD include the following: Disadvantaged communities, including but not limited to, those served by private domestic wells or small community water systems or ratepayers and domestic well owners – the Community of San Miguel, which lies within the District's GSA, is designated as a Disadvantaged Community (DAC)" "There are disadvantaged communities in the Paso Robles Subbasin,	App. M, Page 354, 370, 373	Yes		

¹ Page numbers refer to the page of the PDF.

					particularly in the southern portion of the Subbasin, where there are severely disadvantaged communities."		
		b. Tribes	x		"California Native American tribes: Chumash; Salinan"	App. M, Page 373	Yes
		 c. Small community public wate systems (<3,300 connections) 	r x		"Disadvantaged communities, including but not limited to, those served by private domestic wells or small community water systems or ratepayers and domestic well owners"	App. M <i>,</i> Page 354	Yes
2.	What data were used to	a. DWR <u>DAC Mapping Tool</u> ²		Х	No information on data sources is provided.		No
	identify presence or absence	i. Census Places		Х			No
	of DACs?	ii. Census Block Groups		Х			No
		iii. Census Tracts		Х			No
		b. Other data source		X			No
3.	Groundwater Conditions section includes discussion of:	a. Drinking Water Quality	x		5.6.1 Groundwater Quality Suitability for Drinking Water "Groundwater in the basin is generally suitable for drinking water purposes. The Paso Robles Groundwater Basin Study, Phase I (Fugro 2002) reviewed water quality data from public supply wells to identify exceedances of drinking water standards. The drinking water standards Maximum Contaminant Levels (MCLs) and Secondary MCLs (SMCLs) are established by Federal and State agencies. MCLs are legally enforceable standards, while SMCLs are guidelines established for nonhazardous aesthetic considerations such as taste, odor, and color. The most common water quality standard exceedance in the Subbasin was exceedance of the SMCL for TDS, which exceeded the standard in 14 samples from the 74 samples. Nitrate also exceeded the MCL in four samples. One exceedance of mercury was found in the San Miguel area in a 1990 sample. There have been no recorded exceedances of mercury in any samples collected since that date."	Section 5.6.1, Page 139	Yes
		b. California Maximum Contaminant Levels (CA MCLs ³ (or Public Health Goals where MCL does not exist, e., Chromium VI)) 3. X		 "TDS is a constituent of concern in groundwater because it has been detected at concentrations greater than its SMCL of 500 milligrams per liter (mg/L). Table 5-2 shows the range and average TDS concentrations by subarea as reported in the SNMP (RMC, 2015)." "Chloride is a constituent of concern in groundwater because it has been detected at concentrations greater than its SMCL of 250 mg/L." "Sulfate is a constituent of concern in groundwater because it has been observed at concentrations above its SMCL of 250 mg/L. Table 5-4 shows the range and average sulfate concentrations by subarea as reported in the SNMP (RMC, 2015). This table shows the average sulfate concentrations are greater than the SMCL of 250 mg/L in many areas of the Subbasin." "Nitrate is a constituent of concern in groundwater because concentrations have been detected greater than its MCL of 10 mg/L (measured as nitrogen). Nitrate concentrations in excess of the MCLs can result in health impacts." 	Section 5.6, Page 139- 151	Yes

² DWR DAC Mapping Tool: <u>https://gis.water.ca.gov/app/dacs/</u> ³ CA MCLs: <u>https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLsandPHGs.html</u>

					"Gross alpha radiation is a constituent of concern because it has been detected at concentrations greater than the MCL of 15 picocuries per liter (pCi/L)."		
4.	What local, state, and federal standards or plans were used to assess drinking water BUs in the	 ^{a.} Office of Environmental Health Hazard Assessment Public Health Goal (OEHHA PHGs)⁴ 		x			No
	development of Minimum Thresholds (MTs)?	^{b.} CA MCLs ³	x		"The purpose of the minimum thresholds for constituents of concern with a primary or secondary MCL is to avoid furthering the migration of these constituents towards municipal or other drinking water wells. Therefore, the definition of supply wells for constituents of concern that have a primary or secondary MCL are public supply wells." "Table 8-4. Groundwater Quality Minimum Thresholds Bases"	Section 8.6.2, Page 257-259	Yes
		 Water Quality Objectives (WQOs) in Regional Water Quality Control Plans 		x			No
		 d. Sustainable Communities Strategies/ Regional Transportation Plans⁵ 		x			No
		e. County and/or City General Plans, Zoning Codes and Ordinances ⁶		x			No
5.	Does the GSP identify how en environmental stakeholders w development of the GSP?	vironmental BUs and vere engaged throughout the		x	Section 3.0 of the Communications and Engagement Plan (Page 6) lists aquatic ecosystems as a beneficial groundwater use. However, no details are given as to the types and locations of environmental uses and habitats supported, or the designated beneficial environmental uses of surface waters that may be affected by groundwater extraction in the subbasin.	CEP Section 3	No
					The last row of Table 7-3 states that "Data must be able to characterize conditions and monitor adverse impacts to beneficial uses and users identified within the basin". Aside from the "potential GDEs" mapped in the basin (Figure 4-18), environmental surface water users have not been identified in the GSP thus far.	Table 7-3	

Summary/Comments on Public Draft GSP

Appendix M identifies that there are disadvantaged communities in the subbasin, but does not provide a detailed description of how the DACs were identified, the names of the communities, or any further details of the population in the communities or how they use groundwater. Appendix C of Appendix M includes a map of the DACs and SDACs, but does not label the names of the communities. Without this information, it is not clear how the GSP can consider the needs of these beneficial users. In fact, the GSP does not mention "DACs" or "disadvantaged communities" outside of Appendix M.

⁴ OEHHA PHGs: <u>https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLsandPHGs.html</u>

⁵ CARB: <u>https://ww2.arb.ca.gov/resources/documents/scs-evaluation-resources</u>

⁶ OPR General Plan Guidelines: <u>http://www.opr.ca.gov/planning/general-plan/</u>

Appendix A

Review of GSP

Based on our review of the draft GSP, it does not appear that that PHGs or Regional Water Quality Control Plan DQOs, were considered in the assessment of drinking water users.

The GSP does not provide details about the types and locations of environmental uses and habitats supported, or the designated beneficial environmental uses of surface waters that will be affected by the extraction of groundwater. In addition to the Natural Communities Commonly Associated with Groundwater dataset, to better identify environmental users, the GSP should refer to the following:

- The list of freshwater species located in the Paso Robles Subbasin available here: <u>https://groundwaterresourcehub.org/sgma-tools/environmental-surface-water-beneficiaries/</u>. Please take particular note of the species with protected status.
- Lands that are protected as open space preserves, habitat reserves, wildlife refuges, etc. or other lands protected in perpetuity and supported by groundwater or ISWs should be identified and acknowledged.

The last row of Table 7-3 states that "Data must be able to characterize conditions and monitor adverse impacts to beneficial uses and users identified within the basin". "Potential Groundwater-Dependent Ecosystems" have been mapped in the basin (Figure 4-18), but as Section 4.7.2 notes, there has been no verification or assessment of these areas, and as we note elsewhere, we believe this assessment to be incomplete. In addition, SGMA requires that potential effects on GDEs and environmental surface water users be described when defining undesirable results. In addition to better identifying GDEs in the basin, we recommend identifying beneficial users of surface water, which include environmental users. This is a critical step, as it is impossible to define "significant and unreasonable adverse impacts" without knowing what is being impacted, nor is possible to monitor ISWs in a way that can "identify adverse impacts on beneficial uses of surface water" [23 CCR §354.34(c)(6)(D)]. A list of freshwater species within the boundary of the Paso Robles basin is provided here: https://groundwaterresourcehub.org/sgma-tools/environmental-surface-water-beneficiaries/. This information will help better evaluate and monitor the impacts of groundwater management on environmental beneficial users of surface water. It is recommended that after identifying which freshwater species exist in the basin, especially federal and state listed species, that staff at the Department of Fish and Wildlife (DFW), United States Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Services (NMFS) be contacted to obtain their input on the groundwater and surface water needs of the organisms on the freshwater species list, and how best to monitor them. Because effects to plants and animals are difficult and sometimes impossible to reverse, we recommend erring on the side of caution to preserve sufficient groundwater conditions to sustain GDEs and ISWs. The GSP should identify appropriate biological indicators that can

Summary/Comments on Adopted GSP

Highlighted comments above were not fully addressed in the adopted GSP.

The adopted GSP states that additional investigations will be necessary to identify GDEs and ISWs, and thus to meet the requirements of 23 CCR §354.16(f) and 23 CCR §354.16(g).

Based on our review, the GSA has not adequately responded to the comments we provided on the public draft GSP, and therefore has not adequately responded to comments that raised technical or policy issues with the GSP, 23 CCR § 355.4(b)(10).

2. <u>Communications Plan</u>

How were key beneficial users engaged and how was their input incorporated into the GSP process and decisions?

Selected relevant requirements and guidance:

GSP Element 2.1.5, "Notice & Communication" (§354.10):

Each Plan shall include a summary of information relating to notification and communication by the Agency with other agencies and interested parties including the following:

(c) Comments regarding the Plan received by the Agency and a summary of any responses by the Agency.

(d) A communication section of the Plan that includes the following:

(1) An explanation of the Agency's decision-making process.

(2) Identification of opportunities for public engagement and a discussion of how public input and response will be used.

(3) A description of how the Agency encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin.

(4) The method the Agency shall follow to inform the public about progress implementing the Plan, including the status of projects and actions.

DWR Guidance Document for GSP Stakeholder Communication and Engagement⁷

			Review of Draft GSP								
						Location					
		е		1		(Section,	Addressed				
	Review Criteria	s	0	Α	Relevant Info per Draft GSP	Page)	in GSP				
	 Is a Stakeholder Communication and Engagement Plan (SCEP) included? 	x			Communication and Engagement Plan, dated July 2018	App. M, Page 342-388	Yes				
	2. Does the SCEP or GSP identify that ongoing engagement will be conducted during GSP implementation?	x			"Figure 9-1 shows a flowchart of the conceptual GSP implementation approach. Public meetings and hearings will be held during the process of determining when and where in the Subbasin management actions are needed. A proportional and equitable approach to funding implementation of the GSP and any optional actions will be developed in accordance with all State laws and applicable public process requirements. During these meetings and hearings, input from the public, interested stakeholders, and groundwater pumpers will be considered and incorporated into the decision-making process." "Moreover, the C&E Plan process will be ongoing, starting with GSP development and continuing through implementation of the approved GSP for the Paso Robles Subbasin."	Section 9.2, Page 278 App. M, Page 366	Yes				
	3. Does the SCEP or GSP specifically identify how DAC beneficial users were engaged in the planning process?		x		"The Cooperative Committee identified that there are potential Interested Parties who may be primarily Spanish-speaking. Because of this input, additional materials for communication about GSP development will be created in Spanish. Items identified initially for Spanish-language communications include the following: Postcard in Spanish to advertise	App. M, Page 363, 376	No				

⁷ DWR Guidance Document for GSP Stakeholder Communication and Engagement

https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files /Guidance-Document-for-Groundwater-Sustainability-Plan---Stakeholder-Communication-and-Engagement.pdf

		Paso GCP (see Appendix J); Web page on Paso GCP written in Spanish; Link on Paso GCP Spanish-language web page to request materials in Spanish" "Developing specific outreach postcards for communities identified by Interested Parties, including both Disadvantaged Communities and Rural communities which may not have received electronic information." DACs are also identified in the Interested Parties List.		
4. Does the SCEP or GSP explicitly describe how stakeholder input was incorporated into the GSP process and decisions?	x	 "The general process for establishing Sustainable Management Criteria included: Holding a series of public outreach meetings that outlined the GSP development process and introduced stakeholders to Sustainable Management Criteria. Surveying the public and gathering input on minimum thresholds and measurable objectives. The survey questions were designed to get public input on all five sustainability indicators applicable to the Subbasin. A summary of the survey results is included in Appendix G. Analyzing survey results to assess preferences and trends relevant to Sustainable Management Criteria. Survey results and public comments from outreach meetings were analyzed to assess if different areas in the Subbasin had different preferences for minimum thresholds and measurable objectives. Combining survey results, outreach efforts, and hydrogeologic data to set initial conceptual minimum thresholds and measurable objectives. Conducting public meetings to present initial conceptual minimum thresholds and measurable objectives and receive additional public input. Three meetings on Sustainable Management Criteria were held in the Subbasin. Reviewing public input on preliminary Sustainable Management Criteria with GSAs." 	App. M, Page 351-352, 360 Section 8.2, Page 239 Section 9.2, Page 278	Yes

Summary/Comments on Public Draft GSP

The GSP describes the methods used to disseminate information, but does not describe the actual engagement of DAC members. The GSP states that stakeholder input was incorporated; however, detailed information about stakeholder input and responses from the GSA to address the stakeholder input are not presented. The SCEP does not identify a formal, ongoing process for soliciting stakeholder input, such as an advisory committee or outreach targeted towards specific beneficial users.

Summary/Comments on Adopted GSP

Highlighted comments above were not fully addressed in the adopted GSP.

The GSP does not appear to have been updated in response to the above comments submitted on the public draft regarding engagement of DACs and addressing stakeholder input. The GSP includes a comment log, and copies of comments provided on the Public Draft GSP, but it does not clearly explain how the GSP was revised in response to comments. The SCEP does not clearly identify planned communication and outreach activities during the implementation phase.

Based on our review, the GSA has not adequately responded to the comments we provided on the public draft GSP, and therefore has not adequately responded to comments that raised technical or policy issues with the GSP, 23 CCR § 355.4(b)(10).

3. Maps Related to Key Beneficial Uses

Were best available data sources used for information related to key beneficial users?

Selected relevant requirements and guidance:
GSP Element 2.1.4 "Additional GSP Elements" (§354.8):
Each Plan shall include a description of the geographic areas covered, including the following information:
(a) One or more maps of the basin that depict the following, as applicable:
(5) The density of wells per square mile, by dasymetric or similar mapping techniques, showing the general distribution of agricultural, industrial, and domestic water supply wells in the basin, including de minimis extractors, and the location and extent of communities dependent upon groundwater, utilizing data provided by the Department, as specified in Section 353.2, or the best available information.
GSP Element 3.5 Monitoring Network (§354.34)
(b) Each Plan shall include a description of the monitoring network objectives for the basin, including an explanation of how the network will be developed and implemented to monitor
groundwater and related surface conditions, and the interconnection of surface water and groundwater, with sufficient temporal frequency and spatial density to evaluate the affects and effectiveness of Plan implementation. The monitoring network objectives shall be implemented to accomplish the following:
(c) Each monitoring network shall be designed to accomplish the following for each sustainability indicator:
(1) Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features by the following methods:
(A) A sufficient density of monitoring wells to collect representative measurements through depth-discrete perforated intervals to characterize the groundwater table or potentiometric surface for each principal aquifer.
(4) Degraded Water Quality. Collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.
(6) Depletions of Interconnected Surface Water. Monitor surface water and groundwater, where interconnected surface water conditions exist, to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions. The monitoring network shall be able to characterize the following:
(A) Flow conditions including surface water discharge, surface water head, and baseflow contribution.
(B) Identifying the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.
(C) Temporal change in conditions due to variations in stream discharge and regional groundwater extraction.
(D) Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.
(f) The Agency shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based
upon the following factors:
(3) Impacts to beneficial uses and users of groundwater and land uses and property interests affected by groundwater production, and adjacent basins that could affect the ability of that basin to meet the sustainability goal.

				Review of Draft GSP							
					N		Location	A d due see d			
		Deview Criteria	e	ο	/	Delevent lufe new Dueft CCD	(Section,	Addressed			
		Review Criteria	S		Α	Relevant into per Dratt GSP	Page)	IN GSP			
1.	Does the GSP	a. Well Density	x			Maps provided.	Section 3.5,	Yes			
	Include Maps						Page 54-56				
	Related to Drinking Water Users?	 Domestic and Public Supply Well Locations & Depths 		x		No map provided, other than density maps.		No			

		i. Based on DWR <u>Well Completion</u> Report Map Application ⁸ ?	x		"Well types, well depth, and well distribution data were downloaded from DWR's well completion report map application. (DWR, 2018)."	Section 3.5, Page 43	Yes
		ii. Based on Other Source(s)?	x		 "The number of wells in each database are listed below. These numbers are updated as of June 12, 2019 and contain duplicates (i.e. each well was included in the count for every source the well was found): Online System for Well Completion Reports (OSWCR): 5,854 wells SGMA Data Viewer: 20 wells SLO County Public Data: 41wells SLO County Public Health Department Data Request: 207 wells City of Paso Robles: 1 well CASGEM: 9 wells Finally, the County of SLO Public Health Department has a well inventory database of wells permitted between 1965 and the present. The database is based on the best available historical data compiled from the Environmental Health Services well construction permit application process. Of the 5,164 wells documented in the subbasin, most are domestic wells, and approximately 600 are irrigation wells (County of SLO Public Health Department, June 2019)." 	Section 3.5, Page 53	Yes
2.	Does the GSP include maps related to Groundwater Dependent Ecosystem (GDE) locations?	a. Map of GDE Locations		x	 "Figure 4-18 shows the distribution of potential groundwater-dependent ecosystems (GDEs) and Natural Communities Commonly Associated with Groundwater (NCCAG) within the Plan areaFigure 4-18 shows only potential GDEs. There has been no verification that the locations shown on this map constitute groundwater dependent ecosystems. Additional field reconnaissance is necessary to verify the existence of these potential GDEs." Figure 4-18 in the GSP shows potential GDEs, but needs to reflect the true condition of the basin by incorporating more data instead of relying on the DWR'S NC database alone. 	Section 7.7.2 Figure 4-18, Page 110	Yes
		b. Map of Interconnected Surface Waters (ISWs)		x	The identification and mapping of ISWs in the GSP is incomplete.	Appendix C	No
		 Does it identify which reaches are gaining and which are losing? 		х	"Ephemeral surface water flows in the Subbasin over the last 40 years make it difficult to assess the interconnectivity of surface water and	Section 5.5, page 139	No
		 Depletions to ISWs are quantified by stream segments. 		x	has occurred. There are no available data that establish whether or not the groundwater and surface water are connected through a continuous		No
		iii. Depletions to ISWs are quantified seasonally.		x	saturated zone in any aquifer. Water elevation contour maps of the Paso Robles Formation wells may suggest that a continuous saturated zone between the surface water and the Paso Robles Formation aquifer does not exist. The potential for interconnected surface water with the alluvial aquifer will be assessed as data are developed and analyzed. Definitive data delineating any connections between surface water and groundwater or a lack of interconnected surface waters is a data gap that will be addressed during implementation of this GSP."		No

⁸ DWR Well Completion Report Map Application: <u>https://www.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37</u>

3.	Does the GSP include maps of monitoring	a. I	Existing Monit	orin	g Wells	x			Maps provided.	Section 3.6, Page 58, 60 Section 5.1, Page 116	Yes
	networks?	b. 	Existing Monitoring Well Data sources:	i.	California Statewide Groundwater Elevation Monitoring (CASGEM)	x			"Additional groundwater elevation data for wells were obtained from other available data sources, including the CASGEM database, USGS, and other regulatory compliance programs."	Section 5.1, Page 114	Yes
				ii.	Water Board Regulated monitoring sites		x				Yes
			iii.	iii.	Department of Pesticide Regulation (DPR) monitoring wells	x	x	ĸ			No
		с. 9	 c. SGMA-Compliance I i. SGMA Monitorin includes identified 		Monitoring Network	x			Maps provided.	Section 7.2, Page 215, 227	Yes
		i			nitoring Network map dentified DACs?		х				No
		ii	. SGMA Mon includes ide	itori entif	ng Network map ied GDEs?		X				No

Summary/Comments on Public Draft GSP

The GSP should include detailed information about the location and depths of domestic wells. Providing maps of the monitoring network overlaid with location of DACs, domestic wells, community water systems, GDEs, and any other sensitive beneficial users will allow the reader to evaluate the adequacy of the network to monitor conditions near these beneficial users.

The GSP should verify the potential GDEs identified by DWR, prioritize each GDE by its ecological value so that limited resources can be allocated properly, and study the fluctuation of the groundwater to verify the interconnectedness of a GDE to groundwater. It should also specify what data are used to determine the elevation of the stream or river bottom and improve the mapping of ISWs by reconciling data gaps.

The identification of GDEs per Figure 4-18 is incomplete. In particular, the GSP should consider and address the following:

• Please specify what field verification methods (e.g., isotope analysis, enhanced shallow groundwater monitoring) will be used to definitively determine whether potential GDEs are true GDEs.

It is highly advised that multiple depth to groundwater measurements are used to verify whether an iGDE (or NC dataset polygon) is connected to groundwater, so that fluctuations in the groundwater regime can be adequately represented. The analysis described on p.7 to create Figure C-3 only relies on Spring 2017 depth data, which is also after the Jan 1, 2015 SGMA benchmark date. Also, according to the shallow monitoring well data gaps described in Chapter 5 and 7, there is insufficient data to confidently remove data for NC polygons that are >5km away from a shallow well. See Attachment D of this letter for six best practices when using groundwater data to verify the NC dataset.

• The NC dataset needs to be ground-truthed with aerial photography to screen for changes in land use that many not be reflected in the NC dataset (e.g., recent development,
cultivated agricultural land, obvious human-made features).
• Grouping multiple GDE polygons into larger units by location (proximity to each other) and principal aquifer will help to characterize GDEs under Section 4.7.2 and would
simplify the process of evaluating potential effects on GDEs due to groundwater conditions under GSP Chapter 8: Sustainable Management Criteria.
• Groundwater conditions within GDEs and the interaction between GDEs and groundwater should be briefly described within the portion of the Basin Setting Section (Section
4.7.2) where GDEs are being identified.
• Not all GDEs are created equal. Some GDEs may contain legally protected species or ecologically rich communities, whereas other GDEs may be highly degraded with little
conservation value. Including a description of the types of species (protected status, native versus non-native), habitat, and environmental beneficial uses (Refer to
https://groundwaterresourcehub.org/sgma-tools/environmental-surface-water-beneficiaries/ for a list of freshwater species found in the Paso Robles Subbasin, refer to
Worksheet 2, p.74 of GDE Guidance Document, and see the Critical Species Lookbook available at:
https://groundwaterresourcehub.org/sgma-tools/the-critical-species-lookbook/ can be helpful in assigning an ecological value to the GDEs. Identifying an ecological value of
each GDE can help prioritize limited resources when considering GDEs as well as prioritizing legally protected species or habitat that may need special consideration when
setting sustainable management criteria.
• Decisions to remove, keep, or add polygons from the NC dataset into a subbasin GDE map should be based on best available science in a manner that promotes transparency
and accountability with stakeholders. Any polygons that are removed, added, or kept should be inventoried in the submitted shapefile to DWR, and mapped in the plan. We
recommend revising Figure 4-18 (replicated as Figure C-7) and including it in Chapter 5 to reflect this change. Please provide the final acreage of subbasin GDE polygons.
• While depth to groundwater levels within 30 feet are generally accepted as being a proxy for confirming that polygons in the NC dataset are connected to groundwater, the
variable needs of plant species and their dependence on seasonal and inter-annual groundwater level fluctuations should be considered when applying this criterion. Studies
have found the roots of oaks can extend deeper than 70 feet to extract water from the capillary fringe immediately above the water table during the summer and fall, and
that groundwater reserves provide a buffer to rapid changes in their hydroclimate, as long as groundwater reserves are not depleted by drought or human consumption. It is
highly advised that seasonal and interannual fluctuations in the groundwater regime are taken into consideration. Utilizing groundwater data from one point in time or
contoured with too few shallow monitoring wells can misrepresent groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. Based on
a study The Nature Conservancy recently submitted to Frontiers in Environmental Science Journal, we've observed riparian forests along the Cosumnes River to experience a
range in groundwater levels between 1.5 and 75 feet over seasonal and interannual timescales. Seasonal fluctuations in the regional water table can support perched
groundwater near an intermittent river that seasonally runs dry due to large seasonal fluctuations in the regional water table. While perched groundwater itself cannot
directly be managed due to its position in the vadose zone, the water table position within the regional aquifer (via pumping rate restrictions, restricted pumping at certain
depths, restricted pumping around GDEs, well density rules) and its interactions with surface water (e.g., timing and duration) can be managed to prevent adverse impacts to
ecosystems due to changes in groundwater quality and quantity under SGMA.
Please note the following best practices when filling the data gap in delineating any connections between surface water and groundwater (ISWs).
• Specify what data are used to determine the elevation of the stream or river bottom.
• The regulations [23 CCR §351(o)] define interconnected surface waters (ISW) as "surface water that is hydraulically connected at any point by a continuous saturated zone to

• The regulations [23 CCR §351(o)] define interconnected surface waters (ISW) 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". "At any point" has both a spatial and temporal component. Even short durations of interconnections of groundwater and surface water can be crucial for surface water flow and supporting environmental users of groundwater and surface water. ISWs can be either gaining or losing.

Due to limited shallow monitoring wells and stream gauges in the basin, mapping ISWs are best estimated by first determining which reaches are completely disconnected from groundwater. This approach would involve comparing simulated groundwater elevations with a land surface Digital Elevation Model that could identify which surface waters have groundwater consistently below surface water features, such that an unsaturated zone would separate surface water from groundwater. Groundwater elevations that are always deeper than 50 feet below the land surface can be identified as disconnected surface waters. Also, please reconcile data gaps (shallow monitoring wells, stream gauges, and nested/clustered wells) along surface water features in the Monitoring Network section of the GSP to improve ISW mapping in future GSPs.

Summary/Comments on Adopted GSP

Highlighted comments above were not fully addressed in the adopted GSP.

The GSP does not appear to have been updated in response to comments submitted on the public draft regarding inclusion of depths of domestic wells, or providing maps of the monitoring network overlaid with locations of DACs, GDEs, and any other sensitive beneficial users. This information is important for the public and DWR to be able to evaluate the sufficiency of the proposed monitoring network to monitor impacts to the beneficial uses or users of groundwater per 23 CCR §354.34(b)(2).

Potential GDEs are shown in Figure 4-18. However, as commented above, the identification of GDEs is incomplete. The GSP states: "Additional field reconnaissance is necessary to verify the existence of these potential GDEs."

The GSP includes Water Board regulated sites with data from existing monitoring wells. "There are multiple sites that are monitoring groundwater quality as part of investigation or compliance monitoring programs through the Central Coast Regional Water Quality Control Board." (Section 3.6.2)

Because the GDEs are not confirmed, and because the GSP does not propose either sustainability criteria or a monitoring network for the GDEs, the GSP does not meet the requirements of 23 CCR §354.34.

Based on our review, the GSA has not adequately responded to the comments we provided on the public draft GSP, and therefore has not adequately responded to comments that raised technical or policy issues with the GSP, 23 CCR § 355.4(b)(10).

4. Water Budgets

How were climate change projections incorporated into projected/future water budget and how were key beneficial users addressed?

Selected relevant requirements and guidance:

GSP Element 2.2.3 "Water Budget Information" (Reg. § 354.18)

Each Plan shall include a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored. Water budget information shall be reported in tabular and graphical form.

Projected water budgets shall be used to estimate future baseline conditions of supply, **demand**, and aquifer response to Plan implementation, and to identify the uncertainties of these projected water budget components. The projected water budget shall utilize the following methodologies and assumptions to estimate future baseline conditions concerning hydrology, water demand and surface water supply availability or reliability over the planning and implementation horizon:

(b) The water budget shall quantify the following, either through direct measurements or estimates based on data:

(5) If overdraft conditions occur, as defined in Bulletin 118, the water budget shall include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions.

(6) The water year type associated with the annual supply, demand, and change in groundwater stored.

(c) Each Plan shall quantify the current, historical, and projected water budget for the basin as follows:

(1) Current water budget information shall quantify current inflows and outflows for the basin using the most recent hydrology, water supply, water demand, and land use information.

DWR Water Budget BMP⁹

DWR Guidance for Climate Change Data Use During GSP Development and Resource Guide¹⁰

			Review of Draft GSP						
	Review Criteria	Y e s	N o	N / A	Relevant Info per Draft GSP	Location (Section, Page)	Addressed in GSP		
1.	Are climate change projections explicitly incorporated in future/ projected water budget scenario(s)?	x			"The approach for addressing future climate change developed by DWR was used in the future water budget modeling for the Subbasin."	Section 6.5.1.4, Page 178	Yes		
2.	Is there a description of the methodology used to include climate change?	x			"The SGMA Regulations require incorporating future climate estimates into the future water budget. To meet this requirement, DWR developed an approach for incorporating reasonably expected, spatially gridded changes to monthly precipitation and reference ETo (DWR, 2018). The approach for addressing future climate change developed by DWR was used in the future water budget modeling for the Subbasin. The changes are presented as separate monthly change factors for both precipitation and ETo, and are intended to be applied to historical time series within the climatological	Section 6.5.1.4, Page 178-180	Yes		

⁹ DWR BMP for the Sustainable Management of Groundwater Water Budget:

https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files//BMP-4-Water-Budget.pdf

¹⁰DWR Guidance Document for the Sustainable Management of Groundwater Guidance for Climate Change Data Use During GSP Development:

https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files//Climate-Change-Guidance_Final.pdf

						base period through 2011. Specifically, precipitation and ETo change factors were applied to historical climate data for the period 1981 to 2011 for modeling the future water budget. DWR provides several sets of change factors representing potential climate conditions in 2030 and 2070. DWR recommends using the 2030 change factors to evaluate conditions over the GSP implementation period (DWR, 2018). Consistent with DWR recommendations, datasets of monthly 2030 change factors for the Paso Robles area were applied to precipitation and ETo data from the historical base period to develop monthly time series of precipitation and ETo, which were then used to simulate future hydrology conditions."		
3.	What is used as the basis for climate change assumptions?	a. <u>DWR-Prov</u> Data and (ided Climate Change ¹¹ Guidance	x		"The approach for addressing future climate change developed by DWR was used in the future water budget modeling for the Subbasin."	Section 6.5.1.4, Page 178	Yes
		b. Other			Х			No
4.	Does the GSP use multiple c	limate scenario	os?		Х			No
5.	Does the GSP quantitatively projections?	incorporate cli	mate change	x		"Consistent with DWR recommendations, datasets of monthly 2030 change factors for the Paso Robles area were applied to precipitation and ETo data from the historical base period to develop monthly time series of precipitation and ETo, which were then used to simulate future hydrology conditions." "In this case, the future sustainable yield for the Subbasin period is estimated to be approximately 61,100 AFY. The estimated future sustainable yield is similar to the estimated sustainable yield for the historic base period. This similarity indicates that potential future changes in climate are not projected to have a substantial impact on the amount of groundwater that can be sustainably used compared to historical conditions."	Section 6.5.1.4, Page 178-182	Yes
6.	Does the GSP explicitly a. Inflow account for climate change in the following elements of the future/projected water budget?	a. Inflows:	i. Precipitation	x		"Specifically, precipitation and ETo change factors were applied to historical climate data for the period 1981 to 2011 for modeling the future water budget."	Section 6.5.1.4, Page 178	Yes
			ii. Surface Water	x		6.5.2.2 Modifications to the Watershed Model	Section 6.5.2.2, Page 179	Yes
			iii. Imported Water	x		6.5.2.2 Modifications to the Watershed Model	Section 6.5.2.2, Page 179	Yes
	iv. Subsurface Inflow					6.5.2.3 Modifications to the Groundwater Model	Section 6.5.2.3,	Yes

¹¹_DWR Guidance Document for the Sustainable Management of Groundwater Guidance for Climate Change Data Use During GSP Development:

https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files//Climate-Change-Guidance_Final.pdf

DWR Resource Guide DWR-Provided Climate Change Data and Guidance for Use During GSP Development:

https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files /Resource-Guide-Climate-Change-Guidance_v8.pdf

								Page 179		
		b.	Outflows:	i.	Evapotranspiratio n	х		"Specifically, precipitation and ETo change factors were applied to historical climate data for the period 1981 to 2011 for modeling the future water budget."	Section 6.5.1.4, Page 178	Yes
				ii.	Surface Water Outflows (incl. Exports)	х		6.5.2.2 Modifications to the Watershed Model	Section 6.5.2.2, Page 179	Yes
				iii.	Groundwater Outflows (incl. Exports)	x		6.5.2.3 Modifications to the Groundwater Model	Section 6.5.2.3, Page 179	Yes
7.	Are demands by these sectors (drinking water users) explicitly included in the future/projected water budget?	a. Domes connect d b. State Si connect c. Small c (<3,300 d. Mediur water si connect	Domestic connectio	Well users (<5 ns)			x	Future non-agricultural water demands were estimated for the City of aso Robles (City) and San Miguel Community Services District (SMCSD)"Section 6.5.1.1	Section 6.5.1.1,	No
			State Sma connectio	Ill Water systems (5-14 ons)			х	Projections for non-agricultural water demand for entities other than Page ose listed above, such as residential wells and smaller commercial water server not available "	Page 177	No
			Small com (<3,300 cc	community water systems)0 connections)			х			No
			Medium a water syst connectio	ind L ems ns)	arge community (> 3,300	x				Yes
		e.	Non-comr	nuni	ty water systems		Х			No
8. Are water uses for native vegetation and/or wetlands explicitly included in the current and historical water budgets?					tlands explicitly gets?		x	The GSP is not clear as to what assumptions and data were used to calculate Riparian Evapotranspiration.	Chapter 6. Water Budget (p.	No
9. Are water uses for native vegetation and/or wetlands explicitly included in the projected/future water budget?					tlands explicitly		x	The GSP is not clear as to why evapotranspiration was only calculated for riparian vegetation.	6-1)	No

Summary/Comments on Public Draft GSP

Given the uncertainties of climate change, it is appropriate to analyze the impacts of climate change for a range of scenarios (e.g., a mild effects scenario and a high (worst case) effects scenario).

The water budget does not include future water demands for drinking water users, including residential wells and small community water systems, and by doing so has omitted key drinking water beneficial users from consideration of future conditions. The GSP should incorporate and make reasonable demand projection assumptions relative to historic water demand and future growth projections for these drinking water users, including DACs.

Neither the current and historical water budget nor future water budget include water uses for native vegetation or wetlands (including riparian vegetation only will underestimate the water use for native vegetation).

The GSP should clarify what assumptions and data were used to calculate Riparian Evapotranspiration.

The GSP is not clear as to why evapotranspiration was only calculated for riparian vegetation. In Chapter 3.4.2 of the Draft GSP (p. 3-11), native vegetation was identified as the largest water use sector in the subbasin by land area. The GSP should estimate evapotranspiration for all native vegetation in the subbasin for the water budget. Environmental beneficial users of groundwater, such as wetlands and phreatophyte (oak) woodlands are of particular importance and should be explicitly mentioned. Calculations should be

provided to quantify the amount of ET in the GDEs both spatially and temporally, including water year type. Any data gaps should be identified.

Summary/Comments on Adopted GSP

Highlighted comments above were not fully addressed in the adopted GSP.

The GSP does not appear to have been updated in response to the comments submitted on the public draft regarding:

- Including multiple scenarios of climate change,
- Including future water demands for different drinking water users, or
- Including water demands for native vegetation (Section 6.4.2.2 refers only to riparian vegetation) or wetlands, and clarifying the assumptions and data used.

Incorporating these above demands in the water budget is required by 23 CCR §354.18(b)(3), 23 CCR §354.18(c)(3) and 23 CCR §354.18(e).

Based on our review, the GSA has not adequately responded to the comments we provided on the public draft GSP, and therefore has not adequately responded to comments that raised technical or policy issues with the GSP, 23 CCR § 355.4(b)(10).

5. Management Areas and Monitoring Network

How were key beneficial users considered in the selection and monitoring of Management Areas and was the monitoring network designed appropriately to identify impacts on DACs and GDEs?

Selected relevant requirements and guidance:

GSP Element 3.3, "Management Areas" (§354.20):

(b) A basin that includes one or more management areas shall describe the following in the Plan:

(2) The minimum thresholds and measurable objectives established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.

(3) The level of monitoring and analysis appropriate for each management area.

(4) An explanation of how the management area can operate under different minimum thresholds and measurable objectives without causing undesirable results outside the management area, if applicable.

(c) If a Plan includes one or more management areas, the Plan shall include descriptions, maps, and other information required by this Subarticle sufficient to describe conditions in those areas.

CWC Guide to Protecting Drinking Water Quality under the SGMA¹² TNC's Groundwater Dependent Ecosystems under the SGMA, Guidance for Preparing GSPs¹³

			Review of Draft GSP								
	Review Criteria	Y e s	N o	N / A	Relevant Info per Draft GSP	Location (Section, Page)	Addressed in GSP				
1.	Does the GSP define one or more Management Area?		x		"Management areas have not been established in the Subbasin."	Section 8.9, Page 274	No				
2.	Were the management areas defined specifically to manage GDEs?			х			N/A				
3.	Were the management areas defined specifically to manage DACs?			х			N/A				
	 a. If yes, are the Measurable Objectives (MOs) and MTs for GDE/DAC management areas more restrictive than for the basin as a whole? 			x			N/A				
	b. If yes, are the proposed management actions for GDE/DAC management areas more restrictive/ aggressive than for the basin as a whole?			x			N/A				
4.	Does the GSP include maps or descriptions indicating what DACs are located in each Management Area(s)?			х			N/A				
5.	Does the GSP include maps or descriptions indicating what GDEs are located in each Management Area(s)?			х			N/A				

¹² CWC Guide to Protecting Drinking Water Quality under the SGMA:

https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Ouality_Under_the_Sustainable_Groundwater Management_Act.pdf?1559328858

¹³ TNC's Groundwater Dependent Ecosystems under the SGMA, Guidance for Preparing GSPs: <u>https://www.scienceforconservation.org/assets/downloads/GDEsUnderSGMA.pdf</u>

6.	Does the plan identify gaps in the monitoring network for DACs and/or GDEs?)	([8.3.4.2] This section states that only one monitoring well was identified where minimum thresholds could be assessed in the Alluvial Aquifer. This	Section 8.3.4.2	No
	a. If yes, are plans included to address the identified deficiencies?			is a significant data gap for a variety of beneficial uses and users, including GDEs and interconnected surface water.		
		x		3.3.4.7] The identified GDEs have not been adequately described or haracterized. Different GDE species will have different susceptibilities to roundwater level declines. Legally protected species located with GDEs ave not been identified.	Section 8.3.4.7	
			ſ	The GSP does not fully evaluate and discuss potential effects on beneficial uses of surface and groundwater. In addition, the applicable state, federal and local standards for the protection of aquatic, riparian and other protected habitats are not discussed. This is necessary, at a minimum, so that the nature of the data gaps can be understood.	Section 8.8.2	No
				In addition to the need for additional shallow monitoring wells in the Alluvial aquifer to map ISWs, there is also a need to enhancing monitoring of stream flow and vertical groundwater gradients by installing more stream gauges and clustered/nested wells near streams, rivers or wetlands.	Section 7.6.1	

Summary/Comments on Public Draft GSP

If management areas are defined in the future, care should be taken so that they and the associated monitoring network are designed to adequately assess and protect against impacts to all beneficial users, including GDEs and DACs.

The GSP should describe a plan in the Monitoring network chapter on how the GSA will install shallow monitoring wells in the alluvial aquifer if confidential agreements prevent existing wells from being used as representative monitoring wells for the Chronic Lowering of Groundwater sustainability indicator in this important aquifer.

The identified GDEs have not been adequately described or characterized. Different GDE species will have different susceptibilities to groundwater level declines. Refer to the Critical Species Lookbook (https://groundwaterresourcehub.org/sgma-tools/the-critical-species-lookbook/) to review and discuss the potential groundwater reliance of critical species in the basin. Given that legally protected species located with GDEs have not been identified in the GSP, it is impossible to evaluate whether federal, state, or local standards exist for groundwater elevations needed to protect these listed species.

While there are certainly data gaps and a need for additional shallow monitoring wells in the Alluvial aquifer to map ISWs (Section 8.8.1), there is also a need to enhance monitoring of stream flow and vertical groundwater gradients. After filling the data gaps for ISWs and further analysis, specific plans and schedules should be provided for the establishment of minimum thresholds for ISWs.

The GSP does not fully evaluate and discuss potential effects on beneficial uses of surface and groundwater. In addition, the applicable state, federal and local standards for the protection of aquatic, riparian and other protected habitats are not discussed. This is necessary, at a minimum, so that the nature of the data gaps can be understood. Refer to <u>https://groundwaterresourcehub.org/sgma-tools/environmental-surface-water-beneficiaries/</u> for a list of freshwater species in Paso Robles Subbasin that may be exist within ISWs. It is recommended that after identifying which freshwater species exist in the basin, especially federal and state listed species, that staff at the Department of Fish and Wildlife (DFW), United States Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Services (NMFS) be contacted to obtain their input on the groundwater and surface water needs of the organisms on the freshwater species list. Because effects to plants and animals are difficult and sometimes impossible to reverse, we recommend erring on the side of caution to preserve sufficient groundwater conditions to sustain GDEs and ISWs. Please refer to the Critical Species Lookbook (see link above) to review and

discuss the potential groundwater reliance of critical species in the basin.

In addition to the need for additional shallow monitoring wells in the Alluvial aquifer to map ISWs, there is also a need to enhance monitoring of stream flow and vertical groundwater gradients by installing more stream gauges and clustered/nested wells near streams, rivers or wetlands. Ideally, co-locating stream gauges with clustered wells that can monitor groundwater levels in both the Alluvial and Paso Robles Formation aquifers would enhance understanding about where ISWs exist in the basin and whether pumping is causing depletions of surface water or impacts on beneficial users of surface water and groundwater.

Summary/Comments on Adopted GSP

Highlighted comments above were not fully addressed in the adopted GSP.

Although comments on this topic were submitted on the public draft, the GSP does not appear to have been updated to adequately characterize GDEs, to develop plans to enhance monitoring of stream flow and vertical groundwater gradients, or to fully evaluate and discuss potential effects on environmental beneficial uses of surface and groundwater. The GSP does not clearly demonstrate that the proposed monitoring networks will be adequate to monitor impacts to these beneficial uses (23 CCR §354.34(b)(2)).

Based on our review, the GSA has not adequately responded to the comments we provided on the public draft GSP, and therefore has not adequately responded to comments that raised technical or policy issues with the GSP, 23 CCR § 355.4(b)(10).

6. Measurable Objectives and Undesirable Results

How were DAC and GDE beneficial uses and users considered in the establishment of Sustainable Management Criteria?

Selected relevant requirements and guidance:

GSP Element 3.4 "Undesirable Results" (§ 354.26):

(b) The description of undesirable results shall include the following:

(3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results

GSP Element 3.2 "Measurable Objectives" (§ 354.30)

(a) Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin within 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

		Review of Draft GSP							
	Y	N	Ν		Location				
	е	0	/		(Section,	Addressed			
Review Criteria	S	•	Α	Relevant Info per Draft GSP	Page)	in GSP			
 Are DAC impacts considered in the development of Undesirable Results (URs), MOs, and MTs for groundwater levels and groundwater quality? 		x		DACs are not explicitly addressed, but impacts on domestic wells are considered. WL: "Significant and unreasonable groundwater levels in the Subbasin are those that: • Impact the ability of existing domestic wells of average depth to produce adequate water for domestic purposes. • Cause significant financial burden to those who rely on the groundwater basin • Interfere with other SGMA sustainability indicators" "Early after GSP adoption and during efforts to expand the monitoring networks, additional analysis of the minimum thresholds for groundwater elevations will be conducted to ensure that they are protective of average domestic well operations in the Subbasin. Minimum thresholds in some areas of the Subbasin may be modified based on the results of this evaluation." "Domestic land uses and users. The groundwater elevation minimum thresholds protect most domestic wells. Therefore, the minimum thresholds will likely have an overall beneficial effect on existing domestic land uses by protecting the ability to pump from domestic wells. However, limited water in some of the shallowest domestic wells may require owners to drill deeper wells. Additionally, the groundwater elevation minimum thresholds may limit the increase of non-de minimis groundwater use in order to limit future declines in groundwater levels caused by more non de minimis domestic pumping. Policies allowing offsets of existing use to allow new construction or bringing in new sources of water can mitigate against this effect."	Section 8.3.2, Page 241 Section 8.3.4.3, Page 244 Section 8.3.4.6, Page 247 Section 8.6.2.6, Page 335	Νο			
			WQ: "Domestic land uses and users. The degraded groundwater quality minimum thresholds generally benefit the domestic water users in the Subbasin."						
----	--	---	--	-----------------------------------	----				
2.	Does the GSP explicitly discuss how stakeholder input from DAC community members was considered in the development of URs, MOs, and MTs?	x	 Input from DAC is not explicitly considered. "The Sustainable Management Criteria presented in this chapter were developed using information from public input, received in public surveys, public meetings, comment forms; hydrogeologic analysis; and meetings with GSA staff and Cooperative Committee members. The process built on the Paso Robles Basin's long history of interested parties - including rural residents, farmers, local cities, and the County - holding public meetings to work on protecting the groundwater resource. The general process for establishing Sustainable Management Criteria included: Holding a series of public outreach meetings that outlined the GSP development process and introduced stakeholders to Sustainable Management Criteria. Surveying the public and gathering input on minimum thresholds and measurable objectives. The survey questions were designed to get public input on all five sustainability indicators applicable to the Subbasin. A summary of the survey results is included in Appendix G. Analyzing survey results to assess preferences and trends relevant to Sustainable Management Criteria. Survey results and public comments from outreach meetings were analyzed to assess if different areas in the Subbasin had different preferences for minimum thresholds and measurable objectives. Combining survey results, outreach efforts, and hydrogeologic data to set initial conceptual minimum thresholds and measurable objectives. Conducting public meetings to present initial conceptual minimum thresholds and measurable objectives. Conducting public meetings to present initial conceptual minimum thresholds and measurable objectives. Conducting public meetings to present initial conceptual minimum thresholds and measurable objectives. Conducting public input. Three meetings on Sustainable Management Criteria were held in the Subbasin. Reviewing public input on preliminary Sustainable Management Cri	Section 8.2, Page 239	Νο				
3.	Does the GSP explicitly consider impacts to GDEs and environmental BUs of surface water in the development of MOs and MTs for groundwater levels and depletions of ISWs?	x	 [Section 8.8 Depletion of Interconnected Surface Water Sustainable Management Criteria] The GSP fails to establish measurable objectives or minimum thresholds for this sustainability indicator, citing it as a data gap. However, the existence of riparian GDEs along the streams in the basin has been identified in Appendix C of the GSP, and their connection to groundwater is assumed. Irreversible harm to GDEs can occur within a relatively short period of time. Section 8.3.4.9 summarizes interim milestones to prevent chronic lowering of groundwater levels to achieve the sustainability goal by at least 2040. But does not identify how significant and unreasonable harm to GDEs will be prevented in the interim. 	Section 8.8 Section 8.3.4.9	Νο				

				The GSP proposes to allow violation of minimum thresholds at a certain percentage of locations prior to considering threshold violations as representative of an undesirable result. Damage to GDEs is often irreversible, leading to the permanent loss of a protected resource. A percentage violation trigger is therefore inadequate to assure that the sustainability goals of the GSP are met.	Sections 8.3.5.1 and 8.3.5.3	
4.	Does the GSP e environmental the discussion	explicitly consider impacts GDEs and BUs of surface water and recreational lands in and development of Undesirable Results?	x	The GSP does not describe the potential effects of undesirable results on GDEs and environmental BUs.	Section 8.3	No
5.	Does the GSP of water level MOs and MTs?	clearly identify and detail the anticipated degree decline from current elevations to the water level $*^{14}$		The GSP does not clearly identify and detail the anticipated degree of water level decline from current elevations to the water level MOs and MTs. Groundwater level measurements and MOs/MTs are presented in hydrographs in Appendix H.	Appendix H, page 584	No
6.	If yes, does it	a. Is this information presented in table(s)?				No
	include: *	b. Is this information presented on map(s)?				No
		c. Is this information presented relative to the locations of DACs and domestic well users?				No
		 Is this information presented relative to the locations of ISW and GDEs? 				No
7.	Does the GSP i water level MC	nclude an analysis of the anticipated impacts of Ds and MTs on drinking water users? *		The GSP does not include an analysis of the anticipated impacts of water level MOs and MTs on drinking water users. See question 1 above.		No
8.	If yes: *	a. On domestic well users?				No
		b. On small water system production wells?				No
		c. Was an analysis conducted and clearly illustrated (with maps) to identify what wells would be expected to be partially and fully dewatered at the MOs?				No
		d. Was an analysis conducted and clearly illustrated (with maps) to identify what wells would be expected to be partially and fully dewatered at the MTs?				No
		e. Was an economic analysis performed to assess the increased operation costs associated with increased lift as a result of water level decline?				No
9.	Does the sustanature? *	inability goal explicitly include drinking water and		"The goal of this GSP is to sustainably manage the groundwater resources of the Paso Robles Subbasin for long-term community, financial, and environmental benefit of Subbasin users. This GSP outlines the approach to achieve a sustainable groundwater resource free of undesirable results within 20 years, while maintaining the unique cultural, community, and business aspects of the Subbasin. In adopting this GSP, it is the express goal	8.2, page 220	No

¹⁴ Review criteria marked with an asterisk (*) have been added after comments on the draft GSP were submitted to the GSA. The responses to these questions are based on the final GSP.

		of the GSAs to balance the needs of all groundwater users in the Subbasin, within the sustainable limits of the Subbasin's resources."	

Summary/Comments on Public Draft GSP

Based on the presented information, domestic well uses are considered under URs and for the development of water level MOS and MTs, but DAC members are not explicitly considered. More detail and specifics regarding DAC members, including those that rely on smaller community drinking water systems, not only domestic wells, is necessary to demonstrate that these beneficial users were adequately considered.¹⁵ Further, the GSP states that the minimum thresholds protect "most" domestic wells and that domestic well-users may "generally" benefit from the minimum thresholds. Also the plan commits to additional analysis of minimum thresholds to ensure that they are "protective of "average" domestic well operations. The GSP should identify the number and locations of domestic wells potentially impacted by the selected criteria, particularly in areas identified as DAC communities.

The GSP includes insufficient data on the proximity of DACs to the representative monitoring wells that will be used to measure undesirable results.

The GSP should also discuss whether and how input from DAC members was considered and incorporated into the development of URs, MOs, and MTs.

[8.3.4] Chronic lowering of groundwater levels can have a direct effect on environmental beneficial users and this effect should be considered when setting minimum thresholds for this sustainability indicator and discussed in this section and supporting materials provided. A technically defensible approach is to use 10-year baseline period of groundwater elevation data (2005-2015) to establish how groundwater conditions during that time period affect different beneficial water uses and users across the basin, including GDEs. Please document the consideration of the following when establishing minimum thresholds for chronic lowering of groundwater levels:

- The relationship between the minimum threshold for chronic lowering of groundwater levels and potential significant and unreasonable impacts to GDEs and ecological beneficial uses of surface water are not described. Please provide additional analysis to substantiate that the potential impacts of applying the proposed minimum thresholds will not cause significant and unreasonable impacts to GDEs and ecological beneficial uses of ISW, or identify this as a data gap.
- The potential effects of undesirable results on environmental beneficial users are not described and quantified. Please expand the section to describe the potential effects of undesirable results on all beneficial users, including environmental uses and users."

The GSP (Section 8.8) fails to establish measurable objectives or minimum thresholds for the ISW sustainability indicator, citing it as a data gap. The existence of riparian GDEs along the streams in the basin was identified in Appendix C of the GSP, and their connection to groundwater is assumed. Their occurrence in the riparian zone means that these GDEs should be considered a beneficial user of groundwater that could be affected by chronic groundwater level decline as discussed above, as well as beneficial users of surface water that could be depleted by groundwater extraction. A more robust discussion of the known facts regarding these surface-groundwater interactions in the riparian zone should be provided. In addition, more detailed discussion regarding specific data gaps should be included.

The GSP should include a discussion regarding how the selected minimum thresholds will affect compliance with federal, state and local standards related to protected habitats, protected species, and other requirements, such as biological opinions, habitat conservation plans and other applicable standards.

Irreversible harm to GDEs can occur within a relatively short period of time. Section 8.3.4.9 summarizes interim milestones to prevent chronic lowering of groundwater levels to

¹⁵ Community Water Center and Stanford School of Earth, Energy, and the Environmental Sciences, Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium,

https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896; Community Water Center, *Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act,*

https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwate r_Management_Act.pdf?1559328858.

achieve the sustainability goal by at least 2040. The GSP should identify how significant and unreasonable harm to GDEs will be prevented in the interim.

The GSP proposes to allow violation of minimum thresholds at a certain percentage of locations prior to considering threshold violations as representative of an undesirable result. Damage to GDEs is often irreversible, leading to the permanent loss of a protected resource. A percentage violation trigger is therefore inadequate to assure that the sustainability goals of the GSP are met. The GSP should elaborate on how the exceedance criteria would be applied in a way that is protective of significant and unreasonable harm to GDEs. A procedure should be included for violation of minimum thresholds that includes early identification of potential GDE impacts and prioritization potentially impacted areas for investigation of impacts and appropriate response actions. This could be accomplished efficiently and cost-effectively through the use of remote sensing tools, such as GDE Pulse (available at: https://groundwaterresourcehub.org/sgma-tools/gde-pulse/) or other remote sensing approaches.

Summary/Comments on Adopted GSP

Highlighted comments above were not fully addressed in the adopted GSP.

The GSP does not appear to have been updated in response to comments submitted on the public draft regarding:

- Analysis of potential impacts of MOs/MTs on DACs (23 CCR § 354.28(b)(4)),
- Discussion of how input from DACs was considered and incorporated (23 CCR § 355.4(b)(4)), or
- Analysis of potential impacts of MOs/MTs on GDEs and any other environmental users of groundwater (23 CCR § 354.28(b)(2) and 23 CCR § 354.28(b)(4)).

The adopted GSP appears to be incomplete relative to the GDE and ISW sustainability indicators and has not fully described the potential impacts on DACs and drinking water users, per 23 CCR 354.26(b), or demonstrated that the interests of these beneficial users have been considered per 23 CCR § 355.4(b)(4).

Based on our review, the GSA has not adequately responded to the comments we provided on the public draft GSP, and therefore has not adequately responded to comments that raised technical or policy issues with the GSP, 23 CCR § 355.4(b)(10).

7. Management Actions and Costs

What does the GSP identify as specific actions to achieve the MOs, particularly those that affect the key BUs, including actions triggered by failure to meet MOs? What funding mechanisms and processes are identified that will ensure that the proposed projects and management actions are achievable and implementable?

Selected relevant requirements and guidance

GSP Element 4.0 Projects and Management Actions to Achieve Sustainability Goal (§ 354.44)

(a) Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action.

				Review of Draft GSP					
			Review Criteria	Y e s	N o	N / A	Relevant Info per Draft GSP	Location (Section, Page)	Addressed in GSP
1.	Does the GSP i	den age	tify benefits or impacts to DACs as a result of ment actions?		x		Project benefits and impacts are not explicitly discussed in terms of DACs. The City Recycled Water Delivery project is expected to improve groundwater quality: "The primary benefit from the Paso Robles RW project is higher groundwater elevations in the Central portion of the Subbasin due to in-lieu recharge from the direct use of the RW and recharge through Huer Huero Creek. Ancillary benefits of shallower groundwater elevations may include an increase in groundwater storage, improved groundwater quality from recharge of high-quality water, and avoiding pumping induced subsidence. The GSP model was used to quantify the expected benefit from this project."	Section 9.5.2.2, Page 296	No
2.	If yes:	a.	Is a plan to mitigate impacts on DAC drinking water users included in the proposed Projects and Management Actions?		x				No
		b.	Does the GSP identify costs to fund a mitigation program?		x				No
		c. Does the GSP include a funding mechanism to support the mitigation program?		х				No	
3.	Does the GSP i projects and m	den ana	tify any demand management measures in its gement actions? *				See below.	Section 9, page 259-304	Yes
4.	If yes, does it	a.	Irrigation efficiency program				9.3.2 Promoting Best Water Use Practices		Yes
	include: *	b.	Ag land fallowing (voluntary or mandatory)				9.3.4 Promote Voluntary Fallowing of Agricultural Land		Yes
		c.	Pumping allocation/restriction				9.4.1 Mandatory pumping limitations in specific areas		Yes
		d.	Pumping fees/fines						No
		e.	Development of a water market/credit						No

			system				
		f.	Prohibition on new well construction				No
		g.	Limits on municipal pumping		"After GSP adoption, developing the program would likely require the		No
		h.	Limits on domestic well pumping		following steps: [] Establishing a methodology to determine whose use must be limited and by how much considering, though not limited to, water rights and evaluation of anticipated benefits from projects bringing in supplemental water or other relevant actions individual pumpers take."		No
		<u>i.</u>	Other		9.6.1 Continue Urban and Rural Residential Conservation		Yes
5.	Does the GSP i projects and m	iden nana	tify water supply augmentation projects in its gement actions? *		See below.	Section 9, page 259-304	Yes
6.	If yes, does it	a.	Increasing existing water supplies				No
	include: *	b.	Obtaining new water supplies		 9.5.2.4 Preferred Project 3: NWP Delivery at Salinas and Estrella River Confluence 9.5.2.5 Preferred Project 4: NWP Delivery North of City of Paso Robles 9.5.2.6 Preferred Project 5: NWP Delivery East of City of Paso Robles 		Yes
		c.	Increasing surface water storage		9.5.2.7 Preferred Project 6: Expansion of Salinas Dam		Yes
		d.	Groundwater recharge projects – District or Regional level		9.5.2.2 Preferred Project 1: City Recycled Water Delivery		Yes
		e.	On-farm recharge		9.3.3 Promote Stormwater Capture "Examples of this type of activity include LID and on-farm recharge of local runoff."		Yes
		f.	Conjunctive use of surface water				No
		g.	Developing/utilizing recycled water		9.5.2.2 Preferred Project 1: City Recycled Water Delivery 9.5.2.3 Preferred Project 2: San Miguel CSD Recycled Water Delivery		Yes
		h.	Stormwater capture and reuse		9.3.3 Promote Stormwater Capture		Yes
		i.	Increasing operational flexibility (e.g., new interties and conveyance)				No
		j.	Other				No
7.	Does the GSP i mechanisms to and groundwa	iden ome	tify specific management actions and funding eet the identified MOs for groundwater quality evels?	x	"The GSAs will establish a regulatory program to identify and enforce required pumping limitation as necessary to arrest persistent groundwater level declines in specific areas. The amount of mandatory pumping limitations is uncertain, and will depend on the effectiveness and timeliness of voluntary actions by pumpers to limit pumping as well as the extent of the specific areas identified for mandatory limitations a reduction in total pumping across the Subbasin of approximately 18% ² will be needed to reduce pumping to the sustainable yield. Larger pumping reductions will likely be necessary in specific areas to arrest groundwater level declines. The actual pumping limitations mandated by the GSAs will be determined after assessing groundwater level trend and pumping data, and identifying specific areas for pumping limitations."	Section 9.4.1, pp 290	Yes
					1. Iertiary treated wastewater supplied and sold by City of Paso Robles and the San Miguel CSD to private groundwater extractors to use in lieu of	Section 9.5, pp 292	

			groundwater. This water is commonly referred to as recycled water (RW).		
			3. Nacimiento Water Project (NWP) water		
			4. Salinas Dam/Santa Margarita Reservoir water		
			5. Local recycled water		
			6. Flood flows/stormwater from local rivers and streams"		
			"Six projects are included in this GSP as conceptual projects and have been		
			identified after extensive public meetings and studies over the last decade		
			and are currently being developed."		
			Identified conceptual projects include:		
			Preferred Project 1: City Recycled Water Delivery		
			 Preferred Project 2: San Miguel CSD Recycled Water Delivery 		
			 Preferred Project 3: NWP Delivery at Salinas and Estrella River 		
			Confluence		
			Preferred Project 4: NWP Delivery North of City of Paso Robles		
			Preferred Project 5: NWP Delivery Fast of City of Paso Bobles		
			Preferred Project 6: Expansion of Salinas Dam		
			"As summarized in Table 10-1, a conceptual planning-level cost of about		
			\$7,800,000 was estimated for planned activities during the first five years		
			of implementation, or an estimated cost of \$1,560,000 per year. This cost		
			the basin wide and area specific management actions outlined in Chanter		
			9.		
			The GSP calls for implementation to be covered under the terms of the		
			existing MOA (see Chapter 12) between the four GSAs until DWR approves		
			the GSP and a new or renewed GSA cooperative agreement is established.		
			This budget information and management action details would be used		
			to conduct a fee study for purposes of developing a groundwater pumping		
			tee to cover the costs of implementing the regulatory program"		
			"California Water Code Sections 10730 and 10730.2 provide GSAs with the		
			authority to impose certain fees, including fees on groundwater pumping.		
			Any imposition of fees, taxes or other charges would need to follow the		
			applicable protocols outlined in the above sections and all applicable		
			Constitutional requirements based on the nature of the fee."		
			Constitution of the second section of the second se		
			specific running sources for the conceptual level capital projects are not identified, but may include loans		
8 Does the GSP include plans to fill identified data gaps by the first			Appendix L2 Data Gap Plan	App. L2.	
five-vear report?	Х			Page 334	Yes
9 Do proposed management actions include any changes to local				-	
ordinances or land use planning?		x			Vos
oranances of land use planning.		~			103

10. Does the GSP identify additional/contingent actions and funding mechanisms in the event that MOs are not met by the identified actions?		x			No
11. Does the GSP provide a plan to study the interconnectedness of surface water bodies?	x		"Ephemeral surface water flows in the Subbasin over the last 40 years make it difficult to assess the interconnectivity of surface water and groundwater and to quantify the degree to which surface water depletion has occurred. There are no available data that establish whether or not the groundwater and surface water are connected through a continuous saturated zone in any aquifer. Water elevation contour maps of the Paso Robles Formation wells may suggest that a continuous saturated zone between the surface water and the Paso Robles Formation aquifer does not exist. The potential for interconnected surface water with the alluvial aquifer will be assessed as data are developed and analyzed. Definitive data delineating any connections between surface water and groundwater or a lack of interconnected surface waters is a data gap that will be addressed during implementation of this GSP." "studies will be conducted after GSP adoption to verify whether or not there are interconnected surface waters will be evaluated by monitoring surface water and groundwater in areas where interconnected surface water and groundwater in areas where interconnected surface water conditions may exist. Shallow monitoring well data will be collected and compared to the surveyed streambed of adjacent streams, rivers, or wetlands." "The GSAs will develop and conduct a hydrogeologic investigation to establish whether or not interconnected surface waters exist in the Subbasin. The overall goal of this investigation is to obtain sufficient stream flow, stream geometry and groundwater level data in areas of potential interconnection to quantitatively determine if and when surface and groundwater water are interconnected. More specifically, the investigation could include gathering the following data as resources allow. Shallow Groundwater Levels Streamflow Monitoring"	Section 5.5, Page 139 Section 7.6, Page 230 App. L2.2.4, Page 339	Yes
12. If yes: a. Does the GSP identify costs to study the interconnectedness of surface water bodies?		х			No
 b. Does the GSP include a funding mechanism to support the study of interconnectedness surface water bodies? 		x			No
13. Does the GSP explicitly evaluate potential impacts of projects and management actions on groundwater levels near surface water bodies?		x	The total volume of water anticipated to be supplied is identified, but not the localized or regional effects on groundwater levels near surface water bodies or other areas other basin.	Section 9	No

Summary/Comments on Public Draft GSP

A discussion should be added for each project or management action to clearly identify the benefits to DAC drinking water users and potential impacts to the water supply. For all potential impacts, the project/management action should include a clear plan to monitor for, prevent, and/or mitigate against such impacts. The GSP should identify

additional actions and funding mechanisms for potential failures of achieving the MOs by the identified actions.

The GSP does not appear to include any plans to address impacts to domestic well users if domestic wells do go dry in the future, and references that some domestic well users may need to drill deeper wells. A plan to mitigate impacts to DAC drinking water users could include a program to replace wells, connect well users to a public water system, reinstatement of the emergency tanked water program, etc. Of these, connecting well users to public water systems would be most preferable as this will result in a more sustainable water supply for these users over the long-term.

The GSP identifies a pumping restriction program as a management action. The GSP should detail how this program would be implemented such that drinking water beneficial users, including DACs, are protected.

The GSP should better identify the funding mechanisms that would be used to support the six identified capital projects. Understanding that these projects are in the conceptual phase, it is not clear in the GSP whether the GSA would be responsible for their funding, or other entities/direct users of the projects. It is also not clear if the intent is to rely on loans, grants, or other funding sources.

It is recommended that the basin groundwater flow model be used to estimate the changes in groundwater levels anticipated by the implementation of the identified projects and management actions, and that such assessment be included in the GSP.

The GSP should identify appropriate biological indicators that can be used to monitor potential impacts to environmental beneficial users as a current data gap and make plans to reconcile these in Chapter 10 (Plan Implementation).

The GSP should describe the expansion of the monitoring program and specify what types of monitoring will be done to identify impacts to GDEs. The GSP should be specific in describing wells and screened intervals that represent the water levels of both the Alluvial Aquifer and Paso Robles Formation Aquifer. The GSP should also identify an appropriate funding mechanism for this.

The GSP should provide a more detailed discussion on surface-groundwater interactions and the respective data gaps, specify plans and schedules to establish minimum thresholds of ISWs, and gather information to address the impacts of groundwater level on critical species in the basin.

Summary/Comments on Adopted GSP

Highlighted comments above were not fully addressed in the adopted GSP.

The GSP identifies data gaps regarding GDEs and ISWs, and recognizes that additional studies are needed to address these gaps, but does not clearly propose to perform these studies to fill the data gaps. Therefore, it is not clear whether these data gaps will be addressed through implementation of the GSP, per 23 CCR § 355.4(b)(2). The proposed projects and management actions appear insufficient to address GDEs and ISWs, and do not appropriately reflect the level of uncertainty associated with the GSA's understanding of these conditions (23 CCR § 355.4(b)(3)).

Funding mechanisms to implement the proposed projects and management actions are not clearly identified in the GSP and thus it is not clear whether the GSA has the financial resources necessary to implement the plan (23 CCR § 355.4(b)(9)).

Based on our review, the GSA has not adequately responded to the comments we provided on the public draft GSP, and therefore has not adequately responded to comments that raised technical or policy issues with the GSP, 23 CCR § 355.4(b)(10).

Appendix B

Summary of Projects and Management Actions Proposed in First Five Years of SGMA Implementation (2020 – 2025) Paso Robles Subbasin GSP, January 31, 2020

Projects and Management Actions (a)	Timeline	Cost	Funding Source	Water Supply Benefits (b)	Further Environmental Impact Analyses
Projects					
City Recycled Water Delivery "This project will use up to 2,200 AFY of disinfected tertiary effluent for in-lieu recharge in the central portion of the basin near and inside the City of Paso Robles. Water that is not used for recycled water purposes will be discharged to Huer Huero Creek with the potential for additional recharge benefits.".	"The phase design is expected to be complete by 2019 and construction complete by 2021."	"The estimated total project cost for this project is \$22M. The cost and financing for the project is being determined by the City of Paso Robles. Annual O&M costs are not provided in this GSP."	"The cost (\$/AF) of this water will be set by the City of Paso Robles and is not included in this GSP." "The cost and financing for the project is being determined by the City of Paso Robles." Not Identified	"This project will use up to 2,200 AFY of disinfected tertiary effluent for in-lieu recharge in the central portion of the basin near and inside the City of Paso Robles." "The primary benefit from the Paso Robles RW project is higher groundwater elevations in the Central portion of the Subbasin due to in-lieu recharge from the direct use of the RW and recharge through Huer Huero Creek. Ancillary benefits of shallower groundwater elevations may include an increase in groundwater storage, improved groundwater quality from recharge of high-quality water, and avoiding pumping induced subsidence."	Not identified in GSP.
San Miguel CSD Recycled Water Delivery "This project is a planned project that involves the upgrade of San Miguel Community Services District (CSD) wastewater treatment plant to meet California Code of Regulations (CCR) Title 22 criteria for disinfected secondary recycled water for irrigation use by vineyards."	"The project will take 4 to 6 years to implement. The actual project start date is to be determined on an as-needed basis or by San Miguel CSD."	"This project is currently in the planning phases, and the San Miguel RW project presented herein might not accurately reflect the most current design concept. The cost of the potential project that is described herein was estimated for the purposes of the GSP." "Annual O&M costs are estimated at \$340,000. O&M costs would be covered by the overproduction surcharges."	"The estimated total project cost for this project is \$15M, not including wastewater treatment plant upgrades. Cost can be covered by the bonding capacity developed through the groundwater conservation program." "Based on a 30-year loan at a 5% interest rate, the cost of water for this project would be approximately \$2,900/AF." Proposed	"The primary benefit from RW use for irrigation is higher groundwater elevations in the northern portion of the Subbasin due to in-lieu recharge from the direct use of the RW. Ancillary benefits may include an increase in groundwater storage and avoiding pumping induced subsidence. The GSP model was used to quantify the expected benefit from this project. Figure 9-6 shows the expected groundwater level benefit predicted by the GSP model after 10 years of project operation."	Not identified in GSP.
Expansion of Salinas Dam "SLOCFCWCD operates the Salinas Dam to provide water to the City of San Luis Obispo. The storage capacity of the lake is 23,843 AF; however, the City has existing water rights of 45,000 AF of storage."	"The project will take 4 to 5 years to implement. Conceptually, project implementation would occur in years 3 through 8 after GSP adoption."	"The cost to increase the storage capacity behind the Salinas Dam has been estimated at between \$30M and \$50M. O&M costs have not been estimated at this time."	"Some of these costs may be available from federal sources. No additional capital cost would be required to release water to the Salinas River for recharge during the summer months." Not Identified	"The primary benefit from releasing additional water to the Salinas River during the summer is higher groundwater elevations along the Salinas River. Ancillary benefits of shallower groundwater elevations may include an increase in groundwater storage and avoiding pumping induced subsidence."	Not identified in GSP
Management Actions					
Monitoring, reporting and outreach "The GSAs will direct the monitoring programs outlined in Chapter 7 to track Subbasin conditions related to the five applicable sustainability indicators. Data from the monitoring programs will be routinely evaluated to ensure progress is being made toward sustainability or to	"Monitoring, Reporting and Outreach will begin upon adoption of the GSP."	"The total estimated cost for Monitoring, Reporting, and Outreach is \$1,150,000."	Not Identified	"The primary benefit from Monitoring, Reporting and Outreach is increasing hydrogeologic understanding of basin conditions and how management affects those conditions. Outreach, public education and associated changes in behavior improve the chances of achieving sustainability. Because it is unknown how much behavior will change as a result of	"It is anticipated that the GSAs will adopt a regulation governing the metering and reporting program."

Appendix B Summary of Projects and Management Actions Proposed in First Five Years of SGMA Implementation (2020 – 2025) Paso Robles Subbasin GSP, January 31, 2020

identify whether undesirable results are occurring."				Monitoring, Reporting and Outreach, it is difficult to quantify the expected benefits at this time."	
Promoting Best Water Use Practices "This GSP calls for the GSAs to encourage pumpers to implement the most effective water use efficiency methods applicable, often referred to as Best Management Practices (BMPs). It is anticipated that industry leaders would facilitate workshops or other programs designed to communicate what the latest best water use practices are for their industry."	"The GSAs envision that BMPs will be promoted within a year of GSP adoption."	"The estimated cost for promoting BMPs and understanding the extent to which they are being implemented in the Subbasin is included in the cost of the metering and reporting program and developing annual reports."	Not Identified	"The primary benefit from initiating BMPs is mitigating the decline, or raising, groundwater elevations. An ancillary benefit from stable or rising groundwater levels may include avoiding pumping induced subsidence. Because it is unknown how much pumping will be reduced from promoting BMPs, it is difficult to quantify the expected benefits at this time."	"No permitting or regulatory process is needed for promoting BMPs."
Promote Stormwater Capture "Stormwater and dry weather runoff capture projects, including Low Impact Development (LID) standards for new or retrofitted construction, will be promoted as priority projects to be implemented as described in the San Luis Obispo County Stormwater Resource Plan (SWRP)."	"The GSAs envision that stormwater capture will be promoted within two years of GSP adoption."	" The estimated cost for promoting stormwater capture and understanding the extent to which it is being implemented in the Subbasin is included in the cost of the metering and reporting program and developing annual reports."	Not Identified	"The primary benefit from promoting stormwater capture is to mitigate the decline of, or possibly raise, groundwater elevations through additional recharge. An ancillary benefit from stable or rising groundwater elevations may include avoiding pumping induced subsidence. Because the amount of recharge that could be accomplished from the program is unknown at this time, it is difficult to quantify the expected benefits."	"Recharge of stormwater by retaining and recharging onsite runoff does not require permits. Recharge of unallocated storm flows is currently subject to the SWRCB's existing temporary permit for groundwater recharge program. The SWRCB is currently developing five-year permits for capturing high flow events. Recharge of unallocated storm flows will be subject to the terms of these five-year permits if and when they are enacted. Stormwater capture may also be subject to CEQA permitting. A regulation will need to be adopted by the GSAs to account for projects that recharge unallocated storm flows as a part of the metering and reporting program. Regulations are subject to CEQA "
Promote Voluntary Fallowing of Agricultural Land "This GSP calls for the GSAs to promote voluntary fallowing of crop land to reduce overall groundwater demand. For example, the GSAs could develop a Subbasin-wide accounting system that tracks landowners who decide to voluntarily fallow their land and cease groundwater pumping or otherwise refrain from using groundwater. If given the opportunity to create a "place holder" for their ability to pump under regulations adopted by the GSAs, some property owners currently irrigating crops or that might want to irrigate in the future may choose to forego the expense of farming and extracting water if those	"The GSAs envision that voluntary fallowing will be promoted within two years of GSP adoption."	The estimated cost for promoting and accounting for land fallowing is included in the cost of the metering and reporting program and developing annual reports.	Not Identified	"The primary benefit of voluntary fallowing would be mitigating the decline of groundwater elevations by reducing pumping. An ancillary benefit from stable or rising groundwater elevations may include avoiding pumping induced subsidence. Because it is unknown how many landowners will willingly fallow their land, it is difficult to quantify the expected benefits at this time."	"Regulations are subject to CEQA."

Appendix B Summary of Projects and Management Actions Proposed in First Five Years of SGMA Implementation (2020 – 2025) Paso Robles Subbasin GSP, January 31, 2020

rights can be accounted for and protected."					
Mandatory pumping limitations in specific areas "The GSAs will establish a regulatory program to identify and enforce required pumping limitation as necessary to arrest persistent groundwater level declines in specific areas."	"Developing the mandatory pumping limitation program and adopting the regulation would likely take up to five years. Once the regulation is adopted, the program will be implemented."	"The cost to develop and implement the mandatory pumping limitation program is estimated to be \$350,000. This does not include the cost of the CEQA permitting or any ongoing program oversight."	Not Identified	"The primary benefit from the mandatory pumping limitations is mitigating the decline of groundwater levels through reduced total pumping. An ancillary benefit from stable or increasing groundwater elevations may include avoiding pumping induced subsidence. The program is designed to ramp down total pumping to the sustainable yield; therefore, the quantifiable goal is to maintain pumping within the sustainable yield."	Not identified in GSP.

<u>Note</u>

- a) Information regarding projects and management actions in the table above is excerpted and summarized from Section 9 of the Paso Robles Subbasin GSP dated January 2020. Projects and management actions listed are limited to those that are anticipated to be implemented within the 2020-2025 time period, per the GSP.
- b) The funding status of each project and management action in the table above is categorized as not identified, proposed, identified, or secured.
- c) Based on our review of the GSP's description of projects and management actions to be implemented in the next five years, the GSA has not quantified the benefit for and identified funding sources to meet any of the identified current annual overdraft (65,400 AFY) within the next five years.