From: Chad Taylor
To: LPV Watermaster
Cc: Hampson, Robert; Kaseke, Farai
Subject: Draft Las Posas Valley Basin TAC Comments on LPVB 5-Year GSP Evaluation
Date: Friday, October 4, 2024 6:34:17 PM
Attachments: image001.png
image002.png

Hello Watermaster,

The Las Posas Valley Basin Technical Advisory Committee (TAC) has completed initial review of the Draft Las Posas Valley Basin (LPVB) 5-Year Groundwater Sustainability Plan (GSP) Evaluation. Draft comments on the Draft LPVB 5-Year GSP Evaluation were shared among TAC members and the public in a TAC meeting on Wednesday October 2, 2024. In that meeting, the TAC directed me as the Administrator to prepare a Recommendation Report presenting a summary of major comments and recommendations along with tabulated comments from each TAC member. That Recommendation Report will not be completed before the October 7th requested deadline for review. However, the TAC authorized me to share the draft comments from all members with the Watermaster to aid in preparing a revised LPVB 5-Year GSP Evaluation to the California Department of Water Resources (DWR) by the January deadline.

The combined draft TAC comments on the document are too large to email, so I have uploaded them to a SharePoint site for transmittal to you. Please find combined TAC member comments here: Las Posas Valley Basin TAC Draft Comments on Draft LPVB 5-Year GSP Evaluation.pdf

FCGMA Note - the combined comments have been downloaded and added to this PDF as of 10/7/24.

Thank you and do not hesitate to contact me if you have any questions.

Chad Taylor
LPVB TAC Chair and Administrator

Chad Taylor, PG, CHG
Vice President | Principal Hydrogeologist

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Attachment 1

Letter to LPVB Watermaster: Committee Consultation Schedule for the Draft Las Posas Valley Basin 5-Year Groundwater Sustainability Plan (GSP) Evaluation

LAS POSAS VALLEY
TECHNICAL ADVISORY COMMITTEE

Gene West, Chair
Las Posas Basin Watermaster / Fox Canyon Groundwater Management Agency
800 S. Victoria Ave.
Ventura, CA 93009

August 27, 2024

Re: Committee Consultation Schedule for the Draft Las Posas Valley Basin 5-Year Groundwater Sustainability Plan (GSP) Evaluation

Chair West,

The Las Posas Basin Watermaster Staff (Watermaster Staff) requested Las Posas Valley Technical Advisory Committee (TAC) consultation on the Draft Las Posas Valley Basin 5-Year Groundwater Sustainability Plan (GSP) Evaluation in a memorandum dated August 26, 2024. In that memorandum the Watermaster Staff requested a response from the TAC by October 7, 2024.

Following this consultation request the TAC was informed that the Judgment and the recent modifications to the Watermaster Rules stemming from Judge Anderle's September 4, 2024, status conference order provide 77 days for committee consultation on the 5-Year GSP Evaluation. The TAC understands that the Las Posas Valley Policy Advisory Committee (PAC) has notified the Watermaster Board and Staff that the deadline should be November 11, 2024 and that the PAC intends to adhere to that deadline.

The TAC understands the schedule constraints faced by Watermaster Staff and will review the Draft 5-Year GSP Evaluation as quickly as possible. However, meeting the October 7, 2024 requested deadline is not feasible. Final TAC comments on the Draft 5-Year GSP Evaluation cannot be presented to the Watermaster Board and Staff by October 7th, but the TAC will make every effort to produce a complete Recommendation Report prior to November 11th.

Sincerely.

Chad Taylor, PG, CHG, Chair and Administrator, Las Posas Basin TAC

Attachment 2

Draft Committee Member Comments on the Draft Las Posas Valley Basin – 5 Year Groundwater Sustainability Plan (GSP) Evaluation

Bob Abrams Comments

aquilogic, Inc.
environment ● water ● strategy

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MEMORANDUM

To: Chad Taylor, PG, CHg, Todd Grondwater
From: Robert H. Abrams, PhD, PG, CHg., aquilogic, Inc.
Date: September 23, 2024

Subject: **Draft Comments on Las Posas Valley Basin Groundwater Sustainability Plan 5-Year Evaluation**
Project No.: 091-01

Herein are my comments on the Las Posas Valley Basin (LPVB) Groundwater Sustainability Plan (GSP) 5-Year Evaluation (the Evaluation).

Overall, monitoring in the LPVB could be improved. Many key wells have not been monitored and no reasons for this are provided. For example, key well 02N20W06R01S, which has been below the water-level minimum threshold, was not monitored in 2024. The lack of monitoring seems particularly true in the West Las Posas Management Area (WLPMA), where there are five key wells but only two or three are ever monitored. The lack of explanation could be interpreted to mean that the Fox Canyon Groundwater Management Agency (FCGMA) is trying to downplay this issue.

In terms of projects benefitting the LPVB, the evaluation appears to indicate that action is being delayed because of the Judgment and Basin Optimization Plan. For example, it appears that FCGMA has spent most their time on the Oxnard Basin model, work that was done by United Water Conservation District (UWCD). This seems to be the only substantive management action that has moved forward in LPVB.

Some other points to consider:

- The Grimes Canyon Aquifer (GCA) seems to be mentioned then ignored. In WLPMA, where data are particularly sparse, it just gets lumped into the Lower Aquifer System (LAS).
- Figure 4-1 that shows recharge areas for Fox Canyon Aquifer (FCA). Why no equivalent figure for the GCA recharge area?
- There are indications of deteriorating groundwater quality in localized areas. The Evaluations states that this is not related to pumping, but no explanation is given for why for the local concentration increases. Is water from the Upper San Pedro possibly being pulled down by pumping?
- FCGMA appears to source most or all of the necessary monitoring data from other agencies. Thus, there is no apparent direct culpability if data are not collected.

- A large amount of new modeling work for the Oxnard Basin is presented. This work is only slightly relevant to the WLPMA of LPVB, but much attention is devoted to describing this work in the Evaluation. The many particle tracking figures presented do not appear to be relevant to the Evaluation.

Specific comments in text passages are provided in the table below.

Page number, Section and quoted text	**Comment**
ES-1: Footnote 1	Not sure what this is referring to?
ES-1: Footnote 2 "Under the Judgment adopted in the LPVB adjudication (Las Posas Valley Water Rights Coalition, et al. v. Fox Canyon Groundwater Management Agency, Santa Barbara Sup. Ct. Case No. VENC100509700) water year 2024 begins on October 1, 2024 and will end on September 30, 2025."	Need to explain how this apparent mismatch will be managed in the document and in future. Water Year and Court Water Year (when required)?
ES-2: "Because the Judgment is still being implemented and subject to appellate court review, its effect on FCGMA's implementation of the LPVB GSP and sustainable management of the LPVB is uncertain."	Not clear what this sentence achieves? Suggest re-wording or deleting.
ES-2: Groundwater elevations in the GCA in WLPMA are not mentioned? This is inconsistent, as it is mentioned for ELPMA	Need to mention that there are few wells in the GCA in WLPMA and this is an area of uncertainty? Or is it the intention to call the FCA/GCA the LAS in WLPMA as per Table 2.2 and brush over the lack of aquifer specific wells?
ES-2: "Groundwater elevations in central ELPMA near the CMWD ASR well field"	Suggested addition in red text
ES-4: "groundwater levels in the WLPMA should be maintained at elevations that are high enough to not inhibit the ability of the Oxnard Subbasin to prevent net landward migration of the saline water impact front"	Can this be re-written? This is expressed more clearly on page 17 as "…groundwater levels, significant and unreasonable loss of groundwater in storage, and, in the WLPMA, will not prevent the Oxnard Subbasin from achieving its sustainability goal"
ES-4: "The largest administrative uncertainty is related to how the LPVB Judgment will impact FCGMA's ability to implement the GSP and sustainably manage the LPVB,"	This is a subjective comment and could be deleted. Or the red text could be added. Suggest this document should focus on technical uncertainties rather than administrative.
10: "Groundwater elevation was not measured in well 02N20W12MMW1 in water year 2024"	Is it worth noting the reason why the elevation was not measured in this key well? Leaving it as unexplained reduces the robustness of data reporting.

11: Table 2.2	The Table would be stronger if there was a column or note explaining why key wells were not measured, otherwise it looks like poor groundwater management – there are lots of '-' cells indicating data not collected, which is obviously disappointing.
13: FCA third paragraph "Fall groundwater elevations decreased ~~from~~ by less than a foot to 48 feet"	To avoid confusion - the 'from' in the sentence could be read as ft msl, when the intention is to show the change in elevations. Previous paras and next sentence are clearer.
13: GCA "Sufficient measurements were not collected by the monitoring agency to evaluate the change in groundwater elevation for fall 2015 to fall 2023 and spring 2015 to spring 2024."	Explain the reasons and note that it remains an area of uncertainty? Otherwise, it looks like it is being glossed over.
15: "Fall 2023 groundwater elevations were below the 2025 interim milestones in ~~the~~ two of the key wells in the WLPMA"	typo
19: 1st paragraph "The lack of measurements at these two wells creates data gaps in the characterization of groundwater conditions within the LPVB."	Is there any proposal to replace these two key wells with new or other wells? It would counterbalance the negative.
22: Table 2-4b Title of last "Outflow" column is "Subsurface flow to the ELPMA[a]" Footnote "a" states, "Represents simulated underflows from the East Las Posas Management Area"	Do these contradict? Footnote should say "to"? With respect to flow from WLPMA to ELPMA, reference Section 5.1.1 because new finding and still being evaluated.
23: Table 2-4c First column of "Outflow" is "Outflow to PV1"	Should that be PVB?
26: Table 2-6. Column labeled "Aquifer" has many instances of "Unknown"	Can the aquifer be ascertained by well depth, well completion data, local stratigraphy, well chemistry etc? Collecting data from wells without knowing the aquifer diminishes the value of that data. Doing statistics on data of unknown provenance is questionable/not robust
28: 4th paragraph ELPMA groundwater quality "While recent data doesn't suggest a link between groundwater quality degradation and groundwater production during the evaluation period"	Increasing trends are noted in a number of wells. While the conclusion is that there is no link between increasing trends and GW production, there is a notable absence of explanations for the increasing trends. If not GW production, then what local

	conceptual site model is postulated to cause the increases?
28: 2.5.2.1 WLPMA "TDS concentration data do not indicate that groundwater production since 2015 has caused degradation of groundwater quality"	The previous sentence suggests increases are occurring in wells completed in the USP, but not in the FCA/GCA. Would a hypothetical conceptual model be that groundwater production is pulling higher TDS water down from the USP and that there is a link? What is the TDS of USP groundwater?
40: 3.1.2.3.2 last sentence "A formal agreement to ensure future maintenance of these non-native flows will be evaluated ~~as~~ through the Basin Optimization Plan."	typo
41: Table 3-1 Row "Reduction in Groundwater Production" Column headed "Estimated Accrued Benefits at Completion: Recovery of groundwater levels that have contributed to seawater intrusion in the Oxnard Subbasin."	Is not the biggest benefit of reduced groundwater production the reduced possibility of adverse effects, rather than a specific effect in Oxnard Subbasin?
51: 4.1.1.1. "Projects have been identified to install additional monitoring wells and transducers in existing wells that would address data gaps in the ELPMA"	Why none in the WLPMA?
64: 4.3.2.3 "Between 2003 and 2022, recycled water in the ELPMA was used exclusively for municipal and industrial uses."	Missing word?
70: 5.2.1.3 "climate change factors~~.~~, with the noted exception that"	typo
73: 5.2.2 "…model runs that resulted in: (1) no net flux of seawater into either the UAS or LAS of the Oxnard Subbasin,~~,~~	typo
Figures 5-23a, b	Why are the simulated hydrographs shifted by -60 and +70 feet?
73: 5.2.2 "Due to the connection between the WLPMA and Oxnard Subbasin, the sustainable yield was evaluated using the model runs that resulted in: (1) no net flux of seawater into either the UAS or LAS of the Oxnard Subbasin,, (2) no landward migration of the saline water impact front in the Oxnard Subbasin, and (3) no chronic lowering of groundwater levels in WLPMA."	Understood that the subbasins are connected, but shouldn't the focus of sustainability be on the LPVB? The numerous particle tracking figures don't even show the LPVB. What is a LPVB stakeholder supposed to think about this?
89 "No New Projects Scenario Model Results"	Should this be 'Arundo Removal Scenario Model results'?

97: 6.2.2. "the existing monitoring network in the LPVB is sufficient to document groundwater and can be used to document progress toward the sustainability goals for the LPVB."	The loss of key well monitoring wells has not really been addressed – either the GSP had too many key wells, or this statement isn't really true?
98: 6.2.2.1 "The removal of 02N21W16J03S limits characterization of groundwater conditions in the eastern part of WLPMA, where groundwater elevations are influenced by operations in the Oxnard Subbasin" "As noted above, FCGMA anticipates evaluating projects that help to fill these critical data gaps as part of the Basin Optimization Plan"	Typo. Also, are GW elevations in the eastern part of WLPMA influenced by Oxnard? More likely wells in western part of WLPMA? Insufficient urgency demonstrated? Only one new well installed since 2019.
107: 8.3 "with FCGMA holding regular meetings ~~with~~ to coordinate on projects"	typo
110: 9.3 "Because the Judgment is still being implemented and subject to appellate court review, the effect of the Judgment on FCGMA's implementation of the LPV GSP and sustainable management of the LPV Basin is uncertain at this time."	Not clear what this sentence achieves? Suggest rewording or deleting (ame as p ES-2, above)
112: 10 "~~Revisions~~ Reductions to the monitoring network, including the key well network"	The word "reduction" is a more accurate representation of facts

Bryan Bondy
Comments

BONDY
Groundwater Consulting, Inc.

MEMORANDUM

To: Chad Taylor, PG, CHG, TAC Chair

From: Bryan Bondy, PG, CHG, Calleguas MWD TAC Appointee

Date: September 25, 2024

Re: Comments on Draft First Periodic Evaluation, Groundwater Sustainability Plan for the Las Posas Valley Basin, dated August 2024

Overview

Bondy Groundwater Consulting, Inc. (BGC), has prepared comments on the above-referenced document pursuant to the Las Posas Valley Watermaster committee consultation request dated August 26, 2024 Technical comments are provided in Attachment A. Editorial comments are provided in Attachment B.

Closing

Please contact me if you have any questions regarding this memorandum. The opportunity to provide input on the GSP period evaluation is TAC is greatly appreciated.

Limitations

This memorandum was prepared by Bondy Groundwater Consulting, Inc. (BGC) for the Technical Advisory Committee. BGC has employed accepted geologic and hydrogeologic procedures and its opinions are made in accordance with generally accepted principles and practices of these professions. The analyses, conclusions, and recommendations contained in this document reflect BGC's best judgment in light of the information readily available to BGC at the time of preparation and experience with similar projects. All locations depicted and/or described in this document are approximate and are provided as general information only. Interpretations, location descriptions, location depictions, conclusions, and other information presented in this report should not be relied upon to site or design wells or any other infrastructure without field confirmation. Any use which a third party makes of this report, or any reliance on or decisions made based on this report, are the sole responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on the information presented in this report.

Attachment A - Technical Comments

Comment No.	Document Reference	Comments
BB—TC-1	General Comment – Interpretations Made Based on Limited Data	Interpretations presented in the document that are based on limited data (in some cases as little as one or two data points), should be appropriately caveated and, as discussed in other comments, steps should be taken to better coordinate with monitoring partners to reduce the frequency of missing data.
BB—TC-2	General Comment – Missing Monitoring Data	There are a notable number of unavailable groundwater level and quality measurements during period since GSP adoption. It is critical that data be collected to evaluate status relative to the sustainable management criteria and more generally understand groundwater conditions. It is noted that FCGMA does not collect data itself and, instead, relies on other entities monitoring programs for data. To date, it does not appear that FCGMA has formalized arrangements with the monitoring entities. It is recommended that FCGMA coordinate with the monitoring entities communicate FCGMA's data needs and formalize agreements. In cases where the monitoring entities cannot commit to providing certain data or if monitoring locations are no longer available or accessible, FCGMA should take steps to address those gaps.
BB—TC-3	ES-2, 3rd, paragraph	Text states "*In the western part of the WLPMA groundwater elevations in the FCA were higher in water year 2024 than they were in water year 2015*." Based on Figure 2-4, there does not appear to be any 2024 groundwater level measurements in the western half of the WLPMA. Therefore, it is unclear what data the quoted sentence is based upon. Text states "In contrast, groundwater elevations in the eastern part of the WLPMA were lower in water year 2024 than they were in water year 2015." Based on Figure 2-4, there is one well indicating a higher groundwater level in 2024 and one indicating a lower groundwater level in the eastern half of the WLPMA. Therefore, it is unclear what data this statement is based upon. Consider instead distinguishing between changes in the pumping depression in the southeastern corner of the WLPMA versus the remainder of the management area, with groundwater levels appearing to be lower in former and higher in the latter.
BB—TC-4	Figure 2-2; Table 2-2 - Representative Monitoring Points	Consideration should be given to enhancing the RMP network (per review of Figure 2-2): • Western WLPMA – there is no RMP for the Fox Canyon Aquifer • WLPMA and ELPMA – both areas lack GCA RMPs (potential candidate RPM well is 03N19W30E07-D) • Epworth Gravels – only one RPM (potential candidate for additional RMPs include 03N19W30M02 and 03N19W30E07-S)
BB—TC-5	Table 1-1, 4th row; Section 3.2.1; Section 5.2.2.1.5 – Zone Mutual Water Company Infrastructure Improvement Project	While Zone Mutual Water Company (Zone) is moving forward with the infrastructure improvements described in the evaluation report, Zone has indicated there are potential legal issues that may prohibit or limit Zone's ability to wheel water to non-shareholders. These issues need to be studied along with other opportunities for moving water between WLPMA and ELPMA. Regarding the 500 AFY of water savings associated with converting from scheduled deliveries to on-demand deliveries, this benefit should not be included in the future water supplies for the Projects Scenario because that water savings will be retained as carryover or leased to other water right holders for the benefit of Zone shareholders unless Watermaster creates a financial mechanism to make Zone whole.
BB—TC-6	Section 2.2.1.2 (pp. 7-8); Table 2-1 – Analysis of Effects of MTs on Beneficial Users in ELPMA	2nd paragraph of Section 2.2.1.2 (p. 7) states: "The depth and groundwater production rates from the wells in this area indicate that they are agricultural wells…". This statement is incorrect. 10 of the 22 wells are Calleguas ASR wells.
BB—TC-7	Section 2.2.1.2 (pp. 7-8); Table 2-1 – Analysis of Effects of MTs on Beneficial Users in ELPMA	The reviewer checked the top perforation elevation of 13 of the 22 wells in Table 2-1 for which data was readily available and found 12/13 to be incorrect, with errors averaging 48 feet ranging from 10 to 364 feet. Using the correct elevations for the twelve wells reviewed would add three wells to the number of wells with a projected groundwater elevation below the top of the screen. Based on these findings, a full QC of this table is warranted.

Attachment A - Technical Comments

Comment No.	Document Reference	Comments
BB—TC-8	Section 2.2.1.2 (pp. 7-8); Table 2-1 – Analysis of Effects of MTs on Beneficial Users in ELPMA	The analysis implies that significant effects will not manifest until the static groundwater level drops below the top of the screen in a well. The analysis also implicitly assumes that pumping can be sustained with pump placements in the screen interval. These assumptions are inconsistent with the generally accepted well design principle of pump placement above the top of screen to avoid pump bowl or screen abrasion, sand production, cascading water, and accelerated fouling (Glotfelty, 2019 - *Art of Water Wells*). Wells with partially desaturated screens commonly experience increased fouling rates (sometimes very rapid), which causes significant loss of production, premature well rehabilitation, and premature well replacement. Text should be added to explain why these effects are not considered in the analysis.
BB—TC-9	Section 2.2.1.2 (pp. 7-8); Table 2-1 – Analysis of Effects of MTs on Beneficial Users in ELPMA	Given that 10 of the 22 wells identified in Table 2-1 are Calleguas ASR wells, the analysis should address potential effects on storage and recovery operations of the Calleguas ASR well fields.
BB—TC-10	Section 2.7.2, p. 34 – GDEs	The text states "The areas where satellite imagery indicates declining plant cover may be related to shifting flow patterns within the arroyo, with decreasing greenness on the banks of the arroyo and decreasing greenness in the downstream portion of the arroyo, adjacent to the PVB." Another potential explanation for decrease greenness could be vegetation removal during high flow events during the 2023 and 2023 wet seasons. Air photos could be reviewed to assess this.
BB—TC-11	Section 3.1.2.3.2, p. 40 and Table 3-1 - Arroyo Simi-Las Posas Water Acquisition Project	Text states the project "will make additional water available to recharge" and table states the project benefit will be "increase in sustainable yield." These statements are incorrect. The project would ensure that existing inflows continue, which maintains status quo, as opposed to adding water to the ELPMA water balance.
BB—TC-12	Section 3.2.2; p. 43	Text states the project would "reduce the dependence on imported water in the LPVB by providing new local potable supplies" and later states the project will "reduce groundwater demands in the LPVB." These statements appear to be in conflict. Please provide information about anticipated reductions in groundwater demand vs. reduction in imported water purchases. In other words, what is the anticipated net benefit to the ELPMA water balance?
BB—TC-13	Section 4.1.1.1, p. 51 – New Data for ELPMA	Text states "No new information is available that would improve or update the understanding of the hydrogeologic conceptual model of the ELPMA and Epworth Gravels Management Area." Calleguas has constructed three multi-level groundwater monitoring wells, which provides new stratigraphic data for the hydrostratigraphic model. In particular, 03N19W30E07 is a nested monitoring well that provides data to better characterize the Epworth, FCA, and GCA in northern ELPMA and 02N20W11B01-3 is a clustered monitoring well that provides data better characterize the Upper San Pedro Formation and FCA south of the Moorpark Anticline in the ELPMA. In addition, groundwater level data collected from these wells can be used to characterize vertical gradients. These data should be incorporated into the Hydrogeologic Conceptual Model.
BB—TC-14	Section 4.2, pp. 52-52; Table 4-1 – Data Gaps in the HCM	Text states that no additional information has been collected to address data gaps. Please see prior comment. New data from Calleguas' multi-level groundwater monitoring wells helps address the data gaps listed in Table 4-1.
BB—TC-15	Section 5.1.1, Table 2-4b – WLPMA Model Update	Review of the modeling for the WLPMA cannot not be completed at this time because documentation of the Coastal Plan model is not yet available. Based on review of the GSP evaluation, there are several issues with the Coastal Plain model that appear worthy of further review in consultation with the TAC. Additional items worthy of further review may be identified after documentation review. The issues identified based on the GSP evaluation review include (1) conversion of the WLPMA-ELPMA model boundary from no-flow to general head, (2) inconsistency between the model LAS water balance (Table 2-4b), which indicates little to no underflow from the Oxnard Subbasin into WLPMA in contrast with spring groundwater elevation contours in the annual reports that suggest there is underflow from the Oxnard Subbasin into WLPMA; (3) groundwater exchange between Pleasant Valley Basin and WLPMA; and (4) groundwater exchange between ELPMA and WLPMA.
BB—TC-16	Section 5.2.2.1 – WLPMA Modeling Section 5.2.3.1 – Sustainable Yield Estimate for WLPMA	While assessment of impacts on adjacent basins is clearly required under SGMA, the framing and analysis of WLPMA impact on Oxnard Basin and the approach to estimating WLPMA sustainable yield seem problematic for multiple reasons. First the analysis has not isolated the impact of WLPMA pumping on seawater intrusion for technical evaluation and consideration in policy making. Second, the

Comment No.	Document Reference	Comments
		analysis of the interaction between WLPMA and the Oxnard Subbasin appears to ignore the fact that numerous WLPMA groundwater pumpers pay pump fees to UWCD. This is evident in the discussion of the underflows from Oxnard Subbasin into WLPMA, which are characterized as a "losses of underflow recharge" to the Oxnard Subbasin. The implication is that WLPMA is taking water away from the Oxnard Subbasin, when, in fact, many pumpers have paid for the benefit of underflow from UCWD's recharge operations. Consideration should be given to reframing analysis of WLPMA impacts on seawater intrusion and WLPMA sustainable yield to account for underflow that is paid for by WLPMA extraction fees paid to UWCD and additional analysis that isolates the actual influence of WLPMA pumping on seawater intrusion.
BB—TC-17	Section 5.2.2.1.6, p.85 – Future Baseline with EBB Results	Regarding the Future Baseline with EBB scenario, the text states "These results indicate that groundwater production at the average 2016 to 2022 rates in the Oxnard Subbasin, PVB, and WLPMA may be sustainable if UWCD's EBB project is implemented at a 10,000 AFY production scale." It is unclear how this scenario can be considered sustainable for the WLPMA because Figures 5-23a and b show minimum threshold exceedances for this scenario.
BB—TC-18	Section 5.2.2.2.1 – ELPMA Future Baseline Scenario	Please incorporate the table produced for TAC titled "Summary of Annual Discharges Simulated in the East Las Posas Model (2040-2069 Average" into the evaluation report in this section as it provides important context for technical evaluation of the scenarios.
BB—TC-19	Section 5.2.3.2, p. 91	Average ELPMA pumping 2021-2022 value of 23,800 incorrectly includes Epworth Gravels pumping and should be reduced to 23,400 (see Table 4-4). After making that correction, the amount of extraction in excess of the upper estimate of sustainable yield becomes 1,900 AFY and should be updated.
BB—TC-20	Section 5.2.3.3, .92	The 2021-2022 average annual extractions from the Epworth Gravels is incorrectly reported as approximately 900 AFY and being approximately 450 AFY lower than the estimated upper end of the sustainable yield. Per Table 4-4, the 2021-2022 average annual extractions should be approximately 460 AFY, which is approximately 890 AFY lower than the estimated upper end of the sustainable yield.
BB—TC-21	Section 6 – Monitoring Network	Consideration should be given to incorporating the three multi-level monitoring wells constructed by Calleguas in the ELPMA into the monitoring network. These monitoring well nests/clusters provide valuable aquifer specific data, including much needed data for the Grimes Canyon Aquifer at one location. Data from these wells are already provided to FCGMA by Calleguas MWD on a regular basis.
BB—TC-22	Section 6.1, p. 95; Table 6-2 – Revisions to CMWD Monitoring Network	The text states "Four of the wells have been removed from the monitoring network because they were either destroyed or CMWD had recurring access issues." Calleguas has not had access issues. The following are clarifications concerning the wells listed in Table 6-2: • Well 03N20W32H02S has been dry for numerous years. Calleguas continues to check the well for water and will reinstall a transducer if water returns. Consider retaining in monitoring network pending increasing groundwater levels. • Well 02N20W02D02S was destroyed by the owner. • Well 03N20W36P01S has a transducer stuck in the sounding tube. The transducer will be reinstalled the next time the well pump is removed. • Well 03N20W35J01S is continuing to be monitored with a transducer. However, the groundwater levels are considered anomalous. It is recommended that this well be removed from the monitoring network due to anomalous data. • Well 02N20W01B02 is noted as being added to the monitoring network in Table 6-2. This is not correct. This well was already included in the monitoring network in the GSP. Table 6-2 says no water quality sampling. This is not correct. Water quality samples are collected according to satisfy Division of Drinking Water requirements and are available from Calleguas or from the SWRCB website.

Attachment A - Technical Comments

Comment No.	Document Reference	Comments
		Calleguas has added its three multilevel groundwater monitoring wells to its monitoring network.
BB—TC-23	Table 6-3 - Change in CMWD Monitoring Schedule	Table 6-3 indicates that several wells are "no longer monitored" for water quality. It is noted that Calleguas has never sampled these wells (except once for monitoring wells immediately following construction). FCGMA incorrectly assumed that Calleguas was sampling these wells. Well 02N19W06F01S is an agricultural well, not a monitoring well. Well 02N20W09Q08S is a monitoring well, not a municipal well.
BB—TC-24	Section 6.2.2.2 – Water Level Measurements: Temporal Data Gap, p. 98	Text states "Currently, groundwater elevation measurements are not scheduled according to these criteria because FCGMA relies on monitoring by several other agencies. To minimize the effects of this type of temporal data gap in the future, it would be necessary to coordinate the collection of groundwater elevation data, so it occurs within a 2-week window during the key reporting periods of mid-March and mid-October. The recommended collection windows are October 9–22 in the fall and March 9–22 in the spring." Calleguas and VCWWD have transducers installed in all the wells in their monitoring network. The only reason data may be missing for these wells during the fall and spring two-week windows is if a transducer has failed and is pending reinstallation. FCGMA is encouraged to coordinate with Calleguas and VCWWD to facilitate determine an approach for collection of manual groundwater level measurements to address the fall and spring window data needs.
BB—TC-25	Section 6.2.2.2 – Water Level Measurements: Temporal Data Gap, p. 98	Text states "Additionally, as funding becomes available, pressure transducers should be added to wells in the groundwater monitoring network." It is noted that Calleguas and VCWWD already have transducers installed in all the wells in their monitoring network.
BB—TC-26	Section 6.2.2.2 – Water Level Measurements: Temporal Data Gap, p. 98	Text states "Since adoption of the GSP, 13 wells that were to be monitored for groundwater quality are no longer monitored for groundwater quality. The majority these wells, 11 of the 13 wells, are representative monitoring wells located in the ELPMA." As noted in comment BB-TC-23, Calleguas never committed to sample the wells in its monitoring network, other than ASR wells, which are sampled to comply with Division of Drinking Water requirements.
BB—TC-27	Section 6.2 – Data Gaps	Consideration should be given to reevaluating data gaps in consultation with TAC after FCGMA staff have met and conferred with the monitoring entities.
BB—TC-28	Potential Additional Report Elements	1. Consideration should be given to including groundwater level contour maps. Perhaps the annual report figures could be compiled into an appendix. 2. Consideration should be given to including discussion concerning whether there were any notable changes in the spatial distribution of pumping in the management areas.

Attachment B - Editorial Comments

Comment No.	Document Reference	Comments
BB—EC-1	Figure References	The reviewer noticed a number of incorrect figure and table number references in the text. Consider QC'ing.
BB—EC-2	Figure 2-2	Wells 18H12 and 17L01 (WLPMA) and 01Q02 (ELPMA) are depicted as RMP/Key Wells but are not identified as such in the GSP and are not listed in Table 2-2.
BB—EC-3	Figure 2-2	RMP/Key Well 35R02 is missing on Figure 2-2.
BB—EC-4	ES-3, 2nd full paragraph	"…14 key wells in the ELPMA…" per Table 2-2 and the GSP, there are 15 (13 FCA and 2 Shallow Aquifer).
BB—EC-5	Figures 2-3 and 2-4	These figures are a clever approach to communicating status relative to the SMCs. However, while the graphics in the lower half of the figures are intuitive, they are misleading because the scale for each well is different. This is most evident in the fact that the distance between the MO and MT lines are same for each well when the actual distance between MO and MT ranges from 20 to 100 feet. Additionally, wells appear closer or further from their respective MO / MT relative to other wells than they actually are. For example, the Spring 2024 groundwater levels for 26R03 and 01B02 on Figure 2-4 visually appear to be very different heights above their respective MOs but are actually about the same (24 and 23 feet, respectively). At a minimum, the bottom graphics should be noted as being not to scale and that the graphics for the various wells are not comparable. Preferable, the graphics would be adjusted to that all wells are at the same scale and the actual distances between MO and MT for each well are depicted.
BB—EC-6	ES-4, 1st paragraph	The values in this paragraph are incorrect: • Average WLPMA pumping 2021-2022 was 4,000 AFY more than the upper estimate of sustainable yield, not 3,100 AFY (see value reported on p. 90). • Average ELPMA pumping 2021-2022 was 1,900 AFY more than the upper estimate of sustainable yield, not 2,300 AFY (note: although 2,300 is reported on p. 91, the pumping used for the calculation incorrectly includes Epworth Gravels pumping).
BB—EC-7	Table 1-1, 2nd row	Consider also mentioning Simi Valley dewatering wells here, i.e., the City of Simi Valley is no longer planning to divert dewatering well discharges to a desalter for potable use.
BB—EC-8	Section 2.2 second paragraph	Per Figure 2-4, groundwater elevations were measured in 16 of the 21 key wells, not 15 as indicated in the text.
BB—EC-9	Table 2-5	WLPMA – LAS estimated 2016-2024 change in storage value is incorrect. S/B -3**2**,970
BB—EC-10	Section 4.1.3.1, p. 52	It is unclear what new information has been incorporated into understanding of recharge areas.
BB—EC-11	Section 4.3.2.1, p. 55	Text states "Available data characterizing groundwater extractions in water years 2021 and 2022 indicate that groundwater extractions from the LPVB averaged approximately 42,400 AFY (Tables 4-3 and 4-4)." Per the referenced tables, the value cited in the text should be 40,400 AFY.
BB—EC-12	Table 4-4	WY 2022 Epworth Gravels Aquifer extraction value appears anomalously low. Consider investigating and/or footnoting.
BB—EC-13	Table 4-4	Please footnote table to clarify whether values include Calleguas MWD extractions.
BB—EC-14	pp. 68-69	Something is wrong with the transition from p. 68 to p. 69.
BB—EC-15	Section 5.2.2.2.1, p. 86	Second bullet – the wrong model is referenced.
BB—EC-16	Table 6-1	Explanation for footnote "a" is missing.
BB—EC-17	p. 98	"CGMA" s/b "FCGMA"

Tony Morgan
Comments

From: Chad Taylor
To: LPV Watermaster
Cc: Hampson, Robert; Kaseke, Farai
Subject: Draft Las Posas Valley Basin TAC Comments on LPVB 5-Year GSP Evaluation
Date: Friday, October 4, 2024 6:34:17 PM
Attachments: image001.png
image002.png

Hello Watermaster,

The Las Posas Valley Basin Technical Advisory Committee (TAC) has completed initial review of the Draft Las Posas Valley Basin (LPVB) 5-Year Groundwater Sustainability Plan (GSP) Evaluation. Draft comments on the Draft LPVB 5-Year GSP Evaluation were shared among TAC members and the public in a TAC meeting on Wednesday October 2, 2024. In that meeting, the TAC directed me as the Administrator to prepare a Recommendation Report presenting a summary of major comments and recommendations along with tabulated comments from each TAC member. That Recommendation Report will not be completed before the October 7th requested deadline for review. However, the TAC authorized me to share the draft comments from all members with the Watermaster to aid in preparing a revised LPVB 5-Year GSP Evaluation to the California Department of Water Resources (DWR) by the January deadline.

The combined draft TAC comments on the document are too large to email, so I have uploaded them to a SharePoint site for transmittal to you. Please find combined TAC member comments here: Las Posas Valley Basin TAC Draft Comments on Draft LPVB 5-Year GSP Evaluation.pdf

FCGMA Note - the combined comments have been downloaded and added to this PDF as of 10/7/24.

Thank you and do not hesitate to contact me if you have any questions.

Chad Taylor
LPVB TAC Chair and Administrator

Chad Taylor, PG, CHG
Vice President | Principal Hydrogeologist

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Summary of Comments on 20241007_Chad Taylor_LPV TAC GSP evaluation draft comments.pdf

Page: 1

Number: 1 Author: Date: Indeterminate

Number: 2 Author: Date: Indeterminate

Executive Summary

The Fox Canyon Groundwater Management Agency (FCGMA), the Groundwater Sustainability Agency (GSA) for the portions of the Las Posas Valley Basin (LPVB) within its jurisdictional boundaries, and Watermaster for the entire LPVB, has prepared this first Periodic Evaluation of the LPVB Groundwater Sustainability Plan (GSP) in coordination with the Camrosa Water District-Las Posas Basin GSA and the Las Posas Basin Outlying Areas GSA (County of Ventura) and in compliance with the 2014 Sustainable Groundwater Management Act (SGMA) (California Water Code, Section 10720 et seq.)[1]. This first Periodic Evaluation of the GSP evaluates impacts of climate, water usage trends, and groundwater management decisions on groundwater conditions in the LPVB between water year 2015[2], the last water year reported in the GSP, and water year 2024.

The GSP was submitted to the Department of Water Resources (DWR) on January 13, 2020, and was approved by DWR on January 13, 2022. DWR's approval of the GSP included five recommended corrective actions, which FCGMA has worked to address over the past three years (Table ES-1).

Table ES-1. Recommended Corrective Actions and Corresponding FCGMA Activities

NO.	Summary of Recommended Corrective Action	Activities completed by FCGMA			Discussion of FCGMA Responses
		Technical Analysis or Study	New Project	Updated Monitoring Network	
1	Investigate the connectivity between surface water and groundwater in the ELPMA	✓	✓	✓	Section 2.7.1 and Appendix A
2	Discuss the impact of loss of storage on beneficial uses and users	✓			Section 2.3.1
3	Incorporate periodic land subsidence monitoring into the GSP's monitoring plan			✓	Sections 2.6.1 and 1.2
4	Elaborate on the use of groundwater levels as a proxy for degraded water quality	✓			Section 2.5.1
5	Develop an additional project or management action to ensure sustainability by 2040		✓		Section 3.1.1.1.4

Additionally, the FCGMA has been working to fill data gaps identified in the GSP, implement projects and management actions, and address legal actions taken in the LPVB. In particular, since the GSP was adopted, FCGMA has been focused on the action taken to adjudicate all groundwater rights in the LPVB (Las Posas Valley Water Rights Coalition, et al. v. Fox Canyon Groundwater Management Agency, Santa Barbara Sup. Ct. Case No. VENC100509700). The Santa Barbara Superior Court entered a statement of decision adopting a judgement (Judgment) that adjudicates groundwater rights, implements a physical solution, and appoints FCGMA as the Watermaster for the LPVB on July 10, 2023. In its role as the Watermaster, FCGMA has worked to implement the new administrative, fiscal, reporting, and stakeholder processes outlined in the Judgment, while simultaneously

[1] The GSAs that overlie that Oxnard Subbasin have not been modified since the GSP was submitted.

[2] A water year begins October 1 and ends September 30 to reflect the precipitation patterns in California. Under DWR's definition of a water year, water year 2024 began October 1, 2023 and ended September 30, 2024. Under the Judgment adopted in the LPVB adjudication (Las Posas Valley Water Rights Coalition, et al. v. Fox Canyon Groundwater Management Agency, Santa Barbara Sup. Ct. Case No. VENC100509700) water year 2024 begins on October 1, 2024 and will end on September 30, 2025.

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subsidence is not discussed in Section 7.2

conditions in the ELPMA and the Epworth Gravels Management Area, and, based on the result of the evaluation, discuss the effects of such conditions on beneficial users and users.

The following subsections discuss how this recommended corrective action was addressed since it was issued in 2022.

2.2.1.1 West Las Posas Management Area

In the WLPMA, the minimum thresholds and measurable objectives for the key wells are all above the 2015 and historical low groundwater elevations. As discussed in the GSP, the beneficial uses of groundwater in the WLPMA are anticipated to improve with these minimum thresholds and measurable objectives because they will [1]revent chronic lowering of groundwater levels and work in concert with the selected minimum thresholds and measurable objectives in the adjacent Oxnard Subbasin to limit further seawater intrusion into the coastal aquifers in that basin. The minimum thresholds and measurable objectives may impact beneficial users of groundwater in the WLPMA if additional projects are not developed for the region because users may be forced to reduce groundwater production in order to maintain groundwater elevations above the minimum thresholds. However, since the GSP was adopted, groundwater use in the LPVB has undergone adjudication. The Fox Canyon Groundwater Management Agency (FCGMA), as Watermaster for the LPVB, is working in consultation with the LPVB Policy Advisory Committee (PAC) and Technical Advisory Committee (TAC) to develop projects to minimize future pumping reductions while maintaining groundwater elevations above the minimum thresholds.

2.2.1.2 East Las Posas Management Area

In the ELPMA, groundwater elevation declines cause differential impacts depending on location within the management area. These impacts are expected to be greatest in parts of the ELPMA where groundwater in the FCA occurs under unconfined conditions or may convert from confined to unconfined conditions. In order [2]o limit the area of the FCA that would convert from confined to unconfined conditions with declining water levels, the undesirable result associated with water level declines and loss of storage was defined as localized loss of storage in excess of 20% of the estimated 2015 groundwater storage (FCGMA 2019). The areas of the ELPMA prone to conversion from confined to unconfined conditions are on the northern and southern margins of the management area, and in the vicinity of the Moorpark anticline in the central portion of the management area (FCGMA 2019).

FCGMA reviewed well screen intervals and groundwater production in areas of the ELPMA that are prone to conversion from confined to unconfined conditions. The depth and groundwater production rates from the wells in this area indicate that they are agricultural wells and are not domestic or de minimis wells that produce less than 2 acre-feet per year (AFY). Of the 22 wells located within this area, groundwater elevation declines to the minimum threshold [3]ould result in projected groundwater elevations that are below the top of the well screen in nine wells (Table 2-1, Wells in the Area of the ELPMA Subject to Conversion of the FCA from Confined to Unconfined Conditions). Projections suggest that groundwater decline to the minimum threshold would expose greater than 50% of the well screen in four wells, and two of these wells would go dry (Table 2-1).

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is chronic lowering of water levels currently a WLPMA condition? That message doesn't seem to be a prevalent message throughout the document.

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the undesirable condition is a conversion of the aquifer from confined to unconfined. The following paragraph moves from a discussion of the aquifer transitioning from confined to unconfined, to an individual well?

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declines in water levels to below the top of screen does not necessarily equate to the dewatering of the aquifer. Not clear how this analysis helps assess the potential for CONF-UNCONF conversion. A more powerful analysis would be to determine the tops of the confined aquifer and then compare to a declining water level.

2.3.2.1 West Las Posas Management Area

Upper Aquifer System

The GSP reported on the change in groundwater in storage in the LPVB through the end of calendar year 2015. Between January 1, 2016, and September 30, 2022, the VRGWFM estimates that groundwater in storage in the UAS decreased by approximately 110 AF (Table 2-4a). Between water years 2004 and 2010[9], the VRGWFM estimates that groundwater in storage in the UAS decreased by approximately 580 AF (Table 2-5). Adding these estimates to the simulation results for water years 2016 through 2022 suggests that since 2016, groundwater in storage in the UAS has decreased by approximately 690 AF (Table 2-4b).

Lower Aquifer System

Between January 1, 2016, and September 30, 2022, the VRGWFM estimates that groundwater in storage in the LAS decreased by approximately 34,780 AF (Table 2-5). During the 2004 through 2010 period, the VRGWFM estimates that groundwater in storage in the LAS increased by approximately 1,810 AF (Table 2-5). Adding these estimates to the simulation results for water years 2016 through 2022 suggest that groundwater in storage in the LAS has decreased by approximately 12,970 AF since 2015 (Table 2-5).

Table 2-5. Change in Groundwater in Storage in the LPVB

Management Area	Aquifer / Aquifer System	Simulated 2016 - 2022 Change in Storage (acre-feet)[a]	Estimated Change in Storage for Water Years 2023 and 2024		Estimated 2016 – 2024 Change in Storage (acre-feet)[a]
			Change in Storage (acre-feet)[a]	Representative Time Period (Water Year(s)	
West Las Posas	UAS[b]	-110	-580	2004-2010[d]	-690
	LAS[c]	34,780	1,810		-35,970
Epworth Gravels	Epworth Gravels	1,100	-380	2004 – 2008	720
East Las Posas	Shallow Alluvial Aquifer	210	380	2018	590
	FCA	2,680	10,700	2009 – 2011	13,380
	GCA	370	1,600		1,970

Notes:

[a] Values rounded to the nearest 10 acre-feet. Negative (-) values denote a reduction in groundwater in storage. Positive (+) values denote in increase in groundwater in storage.

[b] In the WLPMA, the Upper Aquifer System (UAS) does not host any principal aquifers of the LPVB.

[c] In the WLPMA, the Lower Aquifer System (LAS) consists of the Upper San Pedro Formation (age-equivalent to the Hueneme aquifer in the adjacent Oxnard Subbasin), the FCA, and the GCA.

[d] Due to the limited availability of complete measurements at key wells in the WLPMA, the 2004-2010 period was selected using a single well (02N21W12H01S).

[9] Groundwater elevation changes measured in the WLPMA during the 2004 to 2010 period were similar to those measured between October 1, 2022, and September 30, 2024. Because of this, the simulated change in storage for the period from 2004 to 2010 was used as an estimate of the change in storage for water years 2023 and 2024.

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value doesn't match Table 2-5

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-34,780+1,810 = -32,970

2.5 Groundwater Quality

This section summarizes groundwater quality conditions in the LPVB. Due to the variation in groundwater quality monitoring schedules across the LPVB, groundwater quality is characterized using the most recent groundwater samples collected over a 5-year window, during the period from 2019 through 2023 (Figure 2-19, Most Recent TDS (mg/L) Measured 2019-2023, through Figure 2-23, Most Recent Boron (mg/L) Measured 2019-2023). For the GSP, groundwater quality conditions were characterized using the most recent groundwater samples collected during the period from 2011 through 2015.

The FCGMA adopted Basin Management Objectives (BMOs) for nitrate, chloride, and total dissolved solids (TDS) in the LPVB as part of its 2007 Groundwater Management Plan (FCGMA 2007). Additionally, the Water Quality Control Plan: Los Angeles Region (Basin Plan) specifies water quality objectives for TDS, chloride, nitrate, sulfate, and boron (LARWQCB 2014). The change in groundwater quality concentrations related to each constituent relative to the 2011 to 2015 period is summarized below.

2.5.1 Department of Water Resources Recommended Corrective Actions

DWR issued a recommended corrective action related to groundwater quality (DWR 2021). This recommended corrective action states:

> By the first periodic evaluation of the GSP, the Agency should further describe efforts to evaluate the connection between groundwater production and groundwater quality, including the monitoring the Agency is conducting and any progress made toward evaluation of the causal relationship referenced in the GSP. The Agency should document specific details of the processes they will use to determine if groundwater management and extraction are causing adverse impacts to groundwater quality. This should include coordination with all interested parties, beneficial users of groundwater, water quality regulatory agencies, and water quality program administrators within the Basin.

FCGMA partners with local agencies, including VCWPD, UWCD, and CMWD, to monitor groundwater quality in the LPVB. For this first periodic update, changes in groundwater quality were mapped, by constituent to assess areas of the LPVB in which groundwater quality may be deteriorating (Figures 2-19 through 2-23). For those wells in which groundwater quality declined since 2015, a Mann Kendall analysis of water quality trends was performed. The results of that analysis are shown in Table 2-6, LPVB Water Quality Trend Statistics.

Table 2-6. LPVB Water Quality Trend Statistics

Well Number	Management Area	Aquifer	TDS	Chloride	Nitrate	Sulfate	Boron
02N20W06R01S	WLPMA	FCA	No Trend	No Trend	—	No Trend	No Trend
02N20W17L01S	WLPMA	Unknown	No Trend	No Trend	No Trend	No Trend	No Trend
02N21W11A02S	WLPMA	FCA	No Trend	No Trend	—	No Trend	No Trend
02N21W17N03S	WLPMA	Unknown	No Trend	**Increasing**	**Increasing**	**Increasing**	No Trend
02N21W18H12S	WLPMA	Multiple	No Trend	No Trend	No Trend	No Trend	No Trend

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migration of infiltrated surface water, each of the constituents in this well would be expected to increase. In contrast, the TDS, chloride, and boron concentrations in this had no statistically significant trend, and the nitrate concentration in this well had a statistically significant increasing trend. Therefore, the increase in nitrate at well 02N19W07B02S is not likely related to surface water infiltration and subsequent groundwater migration from the Arroyo Simi-Las Posas.

The increasing concentrations of sulfate in 03N19W29K06S is also not related to groundwater production induced migration from Arroyo Las Posas, because this well is located in the northern part of the ELPMA north of the Moorpark Anticline. Recharge from Arroyo Simi-Las Posas does not reach the northeastern portion of the ELPMA, and groundwater quality in this area is better than it is in the southern part of the ELPMA, adjacent to Arroyo Simi-Las Posas (Figures 2-19 through 2-23).

The increase in TDS observed in well 02N20W04F01S is unlikely to be related to the migration of the non-native recharge from Arroyo Simi-Las Posas as an increasing trend was not observed at well 02N20W09Q07S, which is between the Arroyo Simi-Las Posas and well 02N20W04F01S. There is no evidence for widespread migration of the area of degraded groundwater quality as a result of groundwater production.

The new information gathered since the GSP was prepared has helped fill in water quality data gaps surrounding the potential linkage between groundwater production and the migration of non-native recharge with higher concentrations of TDS, chloride, nitrate, sulfate, and boron. While recent data doesn't suggest a link between groundwater quality degradation and groundwater production during the evaluation period, FCGMA will continue to collaborate with UWCD, VCWPD, and CMWD to monitor groundwater quality and evaluate the potential link between these processes in the future.

2.5.2 Groundwater Quality Changes in the Las Posas Valley Basin

2.5.2.1 West Las Posas Management Area

Total Dissolved Solids (TDS)

There are no geographic patterns in the observed change in TDS concentrations in the WLPMA since the GSP was prepared (Figure 2-24). The concentration of TDS increased by approximately 50 to 160 milligrams per liter (mg/L) in three wells on the western boundary of the WLPMA, approximately 50 to 70 mg/L in two wells in the Camarillo Hills, and approximately 80 to 90 mg/L in two wells in the central and eastern WLPMA (Figure 2-24). The concentration of TDS decreased by approximately 10 to 90 mg/L in all the other wells in the WLPMA since the GSP was prepared. In general, TDS concentrations decreased in wells screened in the FCA and GCA and increased in wells screened in the USP or unknown aquifers (Figure 2-24). TDS concentration data do not indicate that groundwater production since 2015 has caused degradation of groundwater quality or migration of contaminant plumes in the WLPMA.

Chloride

Although the concentration of chloride declined in six wells in the WLPMA since 2015, it increased by 1 to 19 mg/L in the remaining wells in the monitoring network (Figure 2-25, Change in Chloride Concentration (mg/L) between the period from 2011-2015 and 2019-2023). Wells 02N21W17N03S and 02N21W18H14S, on the western margin of the WLPMA were the only two wells with statistically significant increasing trend since 2015 (Section

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Where are these data presented?

2.6 Land Subsidence

2.6.1 Department of Water Resources Recommended Corrective Actions

DWR issued a recommended corrective action related to land subsidence (DWR 2022). This recommended corrective action states:

> Incorporate periodic subsidence monitoring into the GSP's monitoring plan that can be used to quantify whether land subsidence is occurring and whether the groundwater level proxy is avoiding undesirable results associated with land subsidence. As an option, the Department provides statewide InSAR data that can be used for monitoring land subsidence.

The majority of the minimum threshold groundwater levels in the LPVB are higher than or equal to historical low groundwater elevations. The only area where the minimum threshold is lower than the historical lows is in the northern part of the ELPMA. In this area, the minimum threshold is within 30 feet of the current water level. This area has experienced over 20 feet of decline in groundwater elevation since 2015, and there has been less than 2.5 inches of decline in the land surface elevation since that time. While this decline in groundwater elevation may be the source of changes in the land surface elevation, it is challenging to disentangle changes due to groundwater production from those due to tectonic forces in the LPVB. Because of the limited area in which groundwater elevation will decline below historical lows, and the changes in land surface elevation over the last 10 years have not impacted land use, groundwater management under the GSP is not anticipated to cause land subsidence that would significantly impact future land uses and critical infrastructure. To monitor these conditions in the future, FCGMA has incorporated periodic subsidence monitoring into the GSP monitoring network. Subsidence monitoring will be performed using DWR's statewide InSAR datasets (Section 6.4, Functionality of Additional Monitoring Network).

2.6.2 Land Subsidence in the Las Posas Valley Basin

Since 2015, DWR's InSAR data indicates that land surface elevations have changed by less than approximately 2.5 inches (Figure 2-29). These land surface deformations have not impacted land uses or critical infrastructure within the LPVB.

2.6.3 Sustainable Management Criteria

Groundwater elevations in the WLPMA indicated that the management area experienced undesirable results related to chronic declines in groundwater elevation between 2019 and 2024 (Section 2.2.4, Undesirable Results). However, no wells were reported to have gone dry during that period and changes in land surface elevation do not appear to be correlated with decreases in groundwater elevation. The ELPMA and Epworth Gravels Management Areas did not experience undesirable results related to chronic declines in groundwater elevation or significant and unreasonable loss of groundwater in storage. At this time, FCGMA will incorporate regular subsidence monitoring into its monitoring program. However, groundwater level minimum thresholds are anticipated to be protective against land subsidence related to groundwater production that impacts surface infrastructure.

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What are the criticial infrastructure? Their location(s) are not shown on Fig 2-29.

3 Status of Projects and Management Actions

The GSP identified three projects and one management action that support groundwater sustainability in the LPVB (FCGMA 2019). These projects are: (1) Purchase of Imported Water from CMWD for Basin Replenishment, (2) Arroyo Simi-Las Posas Arundo Removal, and (3) Arroyo Simi-Las Posas Water Acquisition. The management action identified in the GSP was Reduction in Groundwater Production from the LPVB. Since adoption of the GSP, FCGMA and other agencies in the basin have identified additionally projects that increase water supplies, reduce groundwater demands, and address data gaps identified in the LPVB.

As described in Section 1, Significant New Information, the LPVB is now managed under the Judgment. As part of this, projects are required to be prioritized, funded, and implemented according to a specific process and criteria developed though the LPVB Basin Optimization Plan. Additionally, the Judgment requires the development of a Basin Optimization Yield study, which defines the Basin Optimization Yield[10] and Rampdown Rate[11] for the LPVB. Development of the Basin Optimization Yield and Rampdown Rate will directly inform the rate of reduction in groundwater production required to reach and maintain groundwater sustainability. Both the Basin Optimization Plan and Basin Optimization Yield Study are developed by FCGMA, as Watermaster for the LPVB, with consultation, review, and recommendation from the LPVB PAC and TAC. FCGMA has begun development of each plan.

This section of the GSP evaluation provides an assessment of the projects and management actions identified in the GSP, summarizes all new projects that have been identified in the LPVB that support implementation of the GSP and Judgment, and describes the process for public notice and engagement throughout the implementation of projects and management actions in the LPVB.

10 The Judgment defines the Basin Optimization Yield as, "the estimated yield that is projected to be available to achieve sustainable groundwater management by 2040.... The Basin Optimization Yield will take into account: (i) the water available from native groundwater inflows; (ii) Return Flows; (iii) reasonably anticipated enhanced yield (i.e., managed replenishment excluding water stored and dedicated and (iv) opportunities for optimization of the Sustainable Yield achieving by relocating Extraction and transmission of water to avoid Undesirable Results. The Basin Optimization Yield will also, through Adaptive Management, take into account circumstances including: (a) improved understanding of Basin conditions and hydrogeologic parameters as a result of new data over time; (b) the current status of Basin Optimization Projects; and (c) changing hydrological conditions."

11 The Judgment defines the Rampdown Rate as, "The rate of Rampdown beginning in Water Year 2025 and each Water Year thereafter, which will result from the Basin Optimization Yield Study" and defines that the Rampdown Rate shall be calculated, "by dividing the amount of any deficit between the then-effective Operating Yield (e.g. 40,000 AFY) and the Basin Optimization Yield by fifteen (i.e. fifteen annual increments)." Note that the Judgment defines the start of water year 2025 as October 1, 2025.

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planned to be

The Judgment adjudicated water rights in the basin and established an allocation system based on those water rights. The Judgment allocations supersede the allocations developed and adopted by FCGMA in 2019. The Judgment grants four types of allocations - Agricultural, Commercial, Domestic, and Mutual Water Company Allocations – that are based on a Landowners' Overlying Rights and the amount of groundwater used rather than the amount of groundwater extracted. The initial allocations are based on the LPVB's Operating Yield[14].

Rampdown Framework

The Judgment defines a framework for a Rampdown in groundwater production such that by 2040, sustainable groundwater management is achieved in the LPVB. Rampdown is based on the difference between the then-effective Operating Yield and Basin Optimization Yield of the LPVB.

The Judgment defines that the initial Operating Yield for the LPVB be equal to 40,000 AFY through at least water year 2024 (i.e., October 1, 2024, through September 30, 2025, based on the Judgment's Water Year definition). Under the Judgment, Rampdown will begin in Water Year 2025, following completion of the *Basin Optimization Plan* and *Basin Optimization Yield Study*, and will continue through Water Year 2039. The amount of annual Rampdown will be calculated by dividing the amount of any deficit between the then-effective Operating Yield and the Basin Optimization Yield by fifteen (i.e., fifteen annual increments). Rampdown is re-evaluated every 5 years based on an updated *Basin Optimization Study.*

3.1.1.1.3 Benefits and Impacts of Management Action No. 1

Realized Benefits

This management action has not yet been implemented in the LPVB. Under the Judgment, reduction in groundwater production will commence in Water Year 2025 (beginning October 1, 2025).

Expected Benefits

This management action is expected to help maintain groundwater elevations to prevent declines in groundwater elevation, loss of storage, and land subsidence.

Impacts to beneficial uses and users

Maintaining groundwater elevations with reduced extraction would help maintain groundwater storage and potential groundwater-surface water connections. Reduction in groundwater production may have short-term negative operational impacts on groundwater users that are required to reduce groundwater extraction. However, over the long-term, reduction in groundwater production will have a positive impact on beneficial uses and users by avoiding undesirable results in the LPVB.

[14] The Judgment defines the "Operating Yield" as the cumulative amount of Allocated Groundwater that may be sustainably Extracted from the Basin for Use in any particular Water Year under the terms of this Judgment, excluding the Use of any Groundwater pursuant to a right of Carryover. Consistent with the definition of "Total Safe Yield" in the Phase 1 Order, the components of the Operating Yield include all native and non-native sources of water within the Basin, or within either subbasin (as the contexts requires), presently and in the future, including native Groundwater, surface water underflow, Return Flows from the use of imported water within the Basin, recharge from treated wastewater, recharge from septic systems, storm water recharge (intentional or otherwise), recharge from natural and non-natural sources originating inside or outside the Basin, excepting augmented yield physically existing within, and recoverable from, the Basin as a result of the Calleguas ASR Project, if any.

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these connections are not highlighted/identified in this document. Why mention them here?

3.1.2.1 Project No. 1: Purchase of Imported Water from Calleguas Municipal Water District for Basin Replenishment

3.1.2.1.1 Description of Project No. 1

The Purchase of Imported Water from CMWD for Basin Replenishment Project (Purchase of Imported Water from CMWD Project) would supply imported water to the eastern part of the WLPMA in lieu of groundwater production (FCGMA 2018). This project would directly result in decreased groundwater production from discrete wells in the WLPMA. This project is limited to water purveyors with ability to receive water from CMWD (FCGMA 2019).

3.1.2.1.2 Benefits and Impacts of Project No. 1

Realized Benefits

This project is conceptual; thus, benefits have not yet been realized. Feasibility of implementing this project in the LPVB will be evaluated through the Basin Optimization Plan.

Expected Benefits

The project is expected to help to assist with water level recoveries and 1revent declines in groundwater elevation, loss of storage, and land subsidence by reducing groundwater demands in the eastern part of the WLPMA.

Impacts to beneficial uses and users

In lieu deliveries to the WLPMA would help to maintain groundwater in storage in the WLPMA and prevent 2hronic lowering of groundwater levels, thereby having a positive impact on beneficial uses and users.

3.1.2.2 Project No. 2: Arroyo Simi-Las Posas Arundo Removal

3.1.2.2.1 Description of Project No. 2

The Arroyo Simi–Las Posas Arundo Removal Project involves removing the invasive plant species Arundo donax from approximately 324 acres of land along the Arroyo Simi–Las Posas corridor (FCGMA 2019). Arundo would be replaced with native riparian plant species, which are estimated to consume approximately 6 to 25 AFY per acre less water than Arundo. If all of the Arundo within the 324-acre area is removed, this project could result in up to an additional 2,680 AFY of recharge to the ELPMA (FCGMA 2018).

3.1.2.2.2 Benefits and Impacts of Project No. 2

Realized Benefits

This project is conceptual; thus, benefits have not yet been realized. Feasibility of implementing this project in the LPVB will be evaluated through the Basin Optimization Plan.

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These benefits are logical, but are they actually needed to lessen declines in groundwater elevations, loss of storage, or land subsidence. Other sections in this document do not identify undesirable results associated with them (e.g., subsidence).

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is chronic lowering of groundwater a risk in the WLPMA?

Expected Benefits

Surface water infiltration through the bottom of Arroyo Simi–Las Posas is a primary recharge mechanism for the ELPMA. Arundo that lines the banks of Arroyo Simi–Las Posas consumes more water than native riparian vegetation would. Therefore, removing Arundo will make additional water available to recharge the groundwater aquifers of the ELPMA.

Impacts to beneficial uses and users

This project is anticipated to have a positive impact on groundwater recharge, as well as a positive impact on the health of riparian habitat along Arroyo Simi–Las Posas.

3.1.2.3 Project No. 3: Arroyo Simi-Las Posas Water Acquisition

3.1.2.3.1 Description of Project No. 3

The Arroyo Simi–Las Posas Water Acquisition Project would involve the purchase of recycled water from the City of Simi Valley (Simi Valley) (FCGMA 2018). In return, Simi Valley would commit to continuing to discharge the purchased or leased water from its shallow dewatering wells or the Simi Valley Water Quality Control Plant (SVWQCP) to Arroyo Simi–Las Posas for downstream recharge to the LPVB.

3.1.2.3.2 Benefits and Impacts of Project No. 3

Realized Benefits

Since adoption of the GSP, the City of Simi Valley has decided not to pursue its plans to increase recycled water utilization within its service area. As a result, the City of Simi Valley continued to discharge water produced at the SVWQCP to Arroyo Simi-Las Posas. Over the 2016 to 2023 period, these discharges averaged approximately 8,000 AFY, which is 300 AFY higher than projected in the GSP.

A formal agreement to ensure future maintenance of these non-native flows will be evaluated is through the Basin Optimization Plan.

Expected Benefits

As noted above, surface water infiltration through the bottom of Arroyo Simi–Las Posas is a primary recharge mechanism for the ELPMA. Maintaining SVWQCP discharges to Arroyo Simi-Las Posas will make additional water available to recharge the groundwater aquifers of the ELPMA; help to prevent declines in groundwater levels and storage; help to support the health of riparian habitat along Arroyo Simi-Las Posas; and increase the sustainable yield of the ELPMA.

Impacts to beneficial uses and users

This project is expected to benefit all beneficial uses and users in the ELPMA by providing a reliable, supplemental source of recharge.

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Table 3-1. Status of Projects and Management Actions Identified in the Groundwater Sustainability Plan

Name	Description	Status	Expected Schedule	Benefits Observed to Date	Estimated Accrued Benefits at Completion
Management Actions					
Reduction in Groundwater Production	Reduce Groundwater production by monitoring and imposing quantitative limits on pumpers; with governing authority from the FCGMA Board. 2	Not Implemented	Not defined	▪ Establishment of a revised allocation system ▪ Establishment of a Rampdown framework and timeline	Recovery of groundwater levels that have contributed to seawater intrusion in the Oxnard Subbasin.
Projects					
Purchase of Imported Water from CMWD for Basin Replacement	Purchase of imported from CMWD for basin replenishment to supply water to the eastern part of WLPMA	Not Implemented	Not defined	N/A	Reduce groundwater production from WLPMA without limiting total quantity of water available
Arroyo Simi-Las Posas Arundo Removal	Removal of invasive Arundo donax from the Arroyo Simi-Las Posas Corridor	Not implemented	Not defined	N/A	Increase in sustainable yield
Arroyo Simi-Las Posas Water Acquisition	Purchase of recycled water from the City of Simi Valley to maintain non-native flows in the Arroyo Simi-Las Posas	Not implemented	Not defined	N/A	Increase in sustainable yield

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as the Watermaster

3.2 Newly Identified Projects and Management Actions

FCGMA and the interested parties in the LPVB have identified projects that increase water supplies in the LPVB and support implementation of the GSP and Judgment. These projects were not included in the GSP. A portion of these projects were incorporated into the GSP through the 2021 GSP Annual Report for the LPVB (FCGMA 2022). These projects are summarized below and in Table 3-2.

In addition to these projects, the Judgment identifies additional projects to be evaluated as part of the Basin Optimization Plan. These are summarized in Section 3.2.2, Projects Identified through the Judgment.

3.2.1 Project No. 4: Infrastructure Improvements to Zone Mutual Water Company's Water Delivery System

3.2.1.1 Description of Project No. 4

This project is intended to increase the capacity of Zone Mutual Water Company (ZMWC) delivery system to physically transfer water between the ELPMA and WLPMA of the LPVB by converting the existing ZMWC delivery system from gravity to pressure. The conversion will require: the replacement of approximately 4.5 miles of concrete gravity pipeline with PVC, HDPE, or steel pipeline and associated appurtenances, and instrumenting the delivery system with system automation controls to provide on-demand services. Implementation of this project would contribute to GSP Project No. 1, Purchase of Imported Water from CMWD for Basin Replenishment, by allowing for in-lieu deliveries to farmers within, and potentially surrounding, the ZMWC service area. In addition, this project would increase water use efficiency through pipeline upgrades and system automation and increase the capacity to deliver blending water to agricultural well owners impacted by poor quality groundwater. It is estimated that this project would result in approximately 500 AFY of water savings and would 1ecrease groundwater demand in the LPVB by 2,300 AFY.

3.2.1.2 Benefits and Impacts of Project No. 4

Realized Benefits

This project is conceptual; thus, benefits have not yet been realized.

Expected Benefits

The project should aid in the achievement of measurable objectives and minimum thresholds for the four sustainability indicators applicable to the LPVB. This project will: (1) help raise groundwater levels, thereby increasing the volume of groundwater in storage and reducing the potential for land subsidence related to groundwater withdrawal, and (2) improve groundwater quality by providing blending water to agricultural pumpers impacted by low quality groundwater. Higher groundwater levels will also reduce pump lift, and therefore energy consumption, for municipal and agricultural pumpers.

It is estimated that implementation of 2his project would decrease groundwater demand in the LPVB by approximately 500 AFY.

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section below says groundwater demand would be decreased by 500 AFY

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paragraph above says groundwater demand would be decreased by 2,300 AFY

Impacts to beneficial uses and users

This project benefits beneficial uses and users in the WLPMA by helping to raise groundwater levels and storage.

3.2.2 Project No. 5: Moorpark Groundwater Desalter

3.2.2.1 Description of Project No. 5

This project proposed by the Ventura County Waterworks District No. 1 (VCWWD-1) consists of construction of a new groundwater desalter facility located east of the Moorpark Water Reclamation Facility, along Los Angeles Avenue. The project goals are to improve water quality in the southern portion of the ELPMA and provide an additional source of potable water supply to the LPVB. The project aims to achieve these goals by pumping and treating high-TDS groundwater from the southern portion of the ELPMA. In doing this, the project would: (1) assist the wastewater treatment plants in the Calleguas Creek Watershed in compliance with the Regional Water Quality Control Board total maximum daily load limit for chloride, sulfate, and TDS, (2) reduce the dependence on imported water in the LPVB by providing new local potable supplies, (3) improve groundwater quality in the southern portion of the ELPMA, and (4) create additional underground storage within the ELPMA. Preliminary analyses of the project anticipate that the Moorpark Desalter operate at a maximum sustainable rate of 7,600 AFY.

Project components include: (1) construction of new groundwater extraction wells to pump high-TDS groundwater from the ELPMA, and (2) construction of a desalter facility that would treat the low-quality groundwater prior to incorporation into the VCWWD-1 delivery system. Preliminary analyses for the proposed desalter have been completed and the project is in the planning phase.

3.2.2.2 Benefits and Impacts of Project No. 5

Realized Benefits

This project is conceptual; thus, benefits have not yet been realized. Feasibility of implementing this project in the LPVB will be evaluated in the Basin Optimization Plan.

Expected Benefits

Depending on the operational conditions and distribution of desalted water, this project should aid in the achievement of measurable objectives and minimum thresholds for the four sustainability indicators applicable to the LPVB. This project would aid in achieving these metrics by: (1) removing constituents of concern from the southern portion of the ELPMA, which directly addresses undesirable results associated with degraded water quality, and (2) reducing groundwater demands in the LPVB. In addition, this project would be complementary to GSP Project No. 3, *Arroyo Simi-Las Posas Water Acquisition*, which aims to maintain dewatering well and/or SVWQCP discharges to the Arroyo Simi-Las Posas for downstream recharge to the LPVB, by increasing the available storage capacity in the aquifers underlying Arroyo Simi-Las Posas.

Impacts to beneficial uses and users

This project would benefit beneficial uses and users by improving groundwater quality conditions in the Southern ELPMA and helping to prevent groundwater elevation declines by providing a new source of water supply throughout the LPVB.

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what degraded water quality impacts are attributable to the GSP's management of the basin?

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how does the pumping of groundwater to supply the desalter achieve a reduction in groundwater demands?

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the desalter needs a source of water to treat - groundwater. Not clear how this project reduces groundwater demand and therefore prevents groundwater elevation decline.

3.2.3 Project No. 6: Arroyo Las Posas Storm Flow Diversions for Recharge to the East Las Posas Management Area

3.2.3.1 Description of Project No. 6

This project proposes to divert storm flows from Arroyo Simi-Las Posas for recharge to the ELPMA. The proposed diversions would occur during high flow events via a new surface intake located near the existing stabilizer structure in the Arroyo Simi-Las Posas adjacent to the Moorpark Wastewater Water Reclamation Facility operated by VCWWD-1. The storm flows would then be delivered to the existing percolation ponds to recharge the aquifers in the ELPMA. The project proposes to use the entire 40 acres of the existing percolation ponds and anticipates that the diversions would provide up to 2,000 AFY of recharge. The 2,000 AFY estimated recharge may increase the sustainable yield of the ELPMA up to the corresponding amount, provided adequate storage is available in the aquifers.

3.2.3.2 Benefits and Impacts of Project No. 6

Realized Benefits

This project is conceptual; thus, benefits have not yet been realized. Feasibility of implementing this project will be evaluated in the Basin Optimization Plan.

Expected Benefits

The project should aid in the achievement of measurable objectives and minimum thresholds for the four sustainability indicators applicable to the LPVB. This project will: (1) help raise groundwater levels throughout the ELPMA by providing 2,000 AFY of additional recharge to the basin, thereby increasing the volume of groundwater in storage and reducing the potential for land subsidence related to groundwater withdrawal, and (2) improve groundwater quality in the southern portion of the ELPMA by recharging higher-quality water compared to the base flows in Arroyo Las Posas that are composed predominantly of discharges from the SVWQCP. Higher groundwater levels that result from this recharge project may also reduce pump lift, and therefore energy consumption, for municipal and agricultural pumpers.

This project is estimated to increase the sustainable yield of the ELPMA by up to 2,000 AFY.

Impacts to beneficial uses and users

This project would positively impact beneficial uses and users in the ELPMA.

3.2.4 Project No. 7: Installation of Additional Groundwater Monitoring Wells

3.2.4.1 Description of Project No. 7

This project proposes installation of multi-depth monitoring wells in the WLPMA and ELPMA of the LPVB to assess groundwater conditions in the principal aquifers of the LPVB that lack data. The GSP determined that there were spatial data gaps in the understanding of aquifer conditions and identified four potential new well locations that

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how much of the 2,000 AFY of recharge would have normally been recharged downstream of the percolation ponds or in the PVB? Is this expected to be 2,000 AFY net of the "normal" recharge?

would help fill the identified gaps. In the WLPMA, the GSP identified the boundary between the WLPMA and the Oxnard Subbasin as an area that would benefit from additional groundwater monitoring to improve characterization of groundwater gradients across the basin boundary. In the ELPMA, the GSP identified the potential groundwater dependent ecosystem located along Arroyo Simi-Las Posas as a region that would benefit from additional groundwater monitoring. A new multi-depth groundwater monitoring well in this location would provide data on whether the vegetation in the riparian corridor relies on groundwater or soil moisture from infiltrating surface water. In addition, the GSP notes that there are no dedicated monitoring wells screened in the GCA in the ELPMA and that adding a monitoring well would improve the understanding of groundwater gradients between the FCA and GCA.

Since submittal of the GSP, well 02N20W04F02S, a key well in the ELPMA, was destroyed. A new dedicated monitoring well to replace this well would provide better characterization of groundwater conditions in the western part of the ELPMA. In the WLPMA, FCGMA identified the pumping depression in the eastern portion of the management area as an area that would benefit from a new dedicated monitoring well. Additionally, well 02N21W16J03S, the only key well in the central part of the WLPMA, has not been measured since 2016. This part of the WLPMA would benefit from a new dedicated monitoring well.

3.2.4.2 Benefits and Impacts of Project No. 7

Realized Benefits

This project is conceptual; thus, benefits have not yet been realized.

Expected Benefits

The expected benefits of this project lie in the additional data gathered from the well installation process and the ongoing monitoring of the groundwater conditions at the well sites. These data can be used to refine the conceptual and numerical models of the LPVB. Such refinement may result in reevaluation and adjustment of the minimum thresholds or measurable objectives.

Impacts to beneficial uses and users

This project is anticipated to benefit beneficial uses and users in the LPVB by improving characterization and management of the basin.

3.2.5 Project No. 8: Installation of Transducers in Groundwater Monitoring Wells

3.2.5.1 Description of Project No. 8

This project proposes installation of transducers in representative monitoring points, or key wells, in the LPVB. The GSP determined that there were temporal data gaps in the understanding of aquifer conditions. These data gaps limit the number of wells that can be used to contour spring high and fall low groundwater conditions. These temporal data gaps also impact estimates of the change in groundwater in storage in the LPVB. The temporal data gaps have persisted in each annual report prepared after the GSP was submitted to DWR. Additionally, as most key wells are agricultural irrigation wells, transducers will help assure that measured groundwater levels are static water levels unaffected by recovery or potential well interference. The addition of transducers will help ensure that spring

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other sections stated that vegetation is not dependent on groundwater. This seems to be backtracking on the conclusions offered elsewhere.

4.3.2.1 Groundwater

On December 14, 2020, the FCGMA adopted a new Ordinance to Establish an Extraction Allocation System for the Las Posas Valley Groundwater Basin. The prior system provided an efficiency allocation to agricultural pumpers based on the crop type, number of acres planted, and water-year type. This enabled increased groundwater extractions if more water-intensive crops were planted, or additional acres were brought into production. The new system established fixed extraction allocations assigned to each production well, a change that was needed to sustainably manage the basin. The ordinance additionally transitioned extraction reporting from calendar year to water year. The allocation system went into effect on October 1, 2021 (start of water year 2022[16]) through September 30, 2023. The Judgment adjudicated water rights in the basin and established an allocation system based on those water rights. The Judgment allocations supersede the allocations developed and adopted by FCGMA in 2019. The initial allocations are based on the LPVB's Operating Yield[17].

Table 4-3, Reported Annual Groundwater Extractions in the WLPMA by Aquifer System and Water Use Sector, and Table 4-4, Reported Annual Groundwater Extractions in the ELPMA by Aquifer System and Water Use Sector, summarize groundwater extractions from the LPVB since 2015. Because groundwater extractions are not reported monthly, groundwater production prior to calendar year 2021 cannot be reported on a water-year basis. Therefore, the groundwater extractions for 2016 through 2020 reported in Tables 4-3 and 4-4 follow the historical precedent and represent calendar year extractions.

Due to the transition from calendar-year to water-year reporting, the water year 2021 groundwater extractions reported in Tables 4-3 and 4-4 represent: (i) a combination of reported and estimated extractions for the period from October 1, 2020, through December 31, 2020, and (ii) a combination of reported and estimated extractions for the period from January 1, 2021, through September 30, 2021. Agricultural extractions between October and December 2020 were estimated using monthly automated metering infrastructure (AMI) data that were validated against the 2020 calendar year extraction reports. Municipal and domestic extractions between October and December 2020 were estimated by assuming that 50% of the reported extraction between June and December occurred between October and December.

The water year 2023 extractions presented in Tables 4-3 and 4-4 represent the extractions reported to FCGMA over the 2023 reporting period as of January 26, 2024, and do not include estimates of extractions from non-reporting wells based on AMI data. FCGMA had received complete reporting from approximately 70% of the operators within the LPVB. In water year 2022, extraction from the operators with incomplete reporting accounted for approximately 15% of the total extractions in the basin.

Comparison to Historical Groundwater Supplies

During the 1985 to 2015 period, approximately 35,100 AFY of groundwater was extracted from the LPVB (FCGMA 2019). Approximately 86% was used for agriculture, 14% was used for municipal supply, and less than 2% was

16 Water year 2022 covers the period from October 1, 2021, through September 30, 2022.

17 The Judgment defines the "Operating Yield" as the cumulative amount of Allocated Groundwater that may be sustainably Extracted from the Basin for Use in any particular Water Year under the terms of this Judgment, excluding the Use of any Groundwater pursuant to a right of Carryover. Consistent with the definition of "Total Safe Yield" in the Phase 1 Order, the components of the Operating Yield include all native and non-native sources of water within the Basin, or within either subbasin (as the contexts requires), presently and in the future, including native Groundwater, surface water underflow, Return Flows from the use of imported water within the Basin, recharge from treated wastewater, recharge from septic systems, storm water recharge (intentional or otherwise), recharge from natural and non-natural sources originating inside or outside the Basin, excepting augmented yield physically existing within, and recoverable from, the Basin as a result of the Calleguas ASR Project, if any.

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...an average of approximately 35,100 AFY of groundwater...

Table 5-2. Summary of WLPMA Modeling Results

Future Scenario		Average Annual Extraction and Flow Rates Over the Sustaining Period (2040 – 2069; AFY)							
		Future Baseline	No New Projects			Basin Optimization	Projects	EBB	
			NNP1	NNP2	NNP3			Baseline	Projects
Groundwater Extractions[a]	SA	-400	-300	-400	-300	-400	-300	-400	-300
	LAS	-13,100	-10,500	-13,100	-11,100	-11,800	-11,100	-13,100	-11,100
	Total	**-13,500**	**-10,800**	**-13,500**	**-11,400**	**-12,200**	**-11,400**	**-13,500**	**-11,400**
1 eawater Flux into the Oxnard Subbasin[b]	UAS	2,100	-1,000	-1,100	-600	-400	1,300	6,900	6,200
	LAS	3,400	500	200	1,000	1,100	2,900	4,000	3,400
	Total	**5,500**	**-500**	**-900**	**400**	**700**	**4,200**	**10,900**	**9,600**
Flux across the Current Saline Water Impact Front in the Oxnard Subbasin[c]	UAS	—	—	—	—	—	—	3,200	3,800
	LAS	—	—	—	—	—	—	500	600
	Total	—	—	—	—	—	—	**3,700**	**4,200**
Underflows from PVB to the Oxnard Subbasin [d]	UAS	900	700	600	700	900	1,600	1,100	1,800
	LAS	300	-1,200	-2,000	-1,000	-1,000	600	500	900
	Total	**1,200**	**-500**	**-1,400**	**-300**	**-100**	**2,200**	**1,600**	**2,700**
Underflows from WLPMA to the Oxnard Subbasin [d]	UAS	-4,900	-4,400	-4,500	-4600	-4500	-4,400	-5,000	-4,500
	LAS	500	-1,000	-1,800	-700	300	700	500	800
	Total	**-4,400**	**-5,400**	**-6,300**	**-5,300**	**-4,200**	**-3,700**	**-4,500**	**-3,700**

Notes: SA = shallow aquifer system; NNP = No New Projects; AFY = acre-feet per year; PVB = Pleasant Valley Basin; WLPMA = West Las Posas Management Area of the Las Posas Valley Basin

[a] Negative (-) values denote discharges, or outflows, from the Oxnard Subbasin. Positive (+) values denote recharge, or inflows, to the Subbasin.

[b] Represents the average annual simulated seawater flux across the coastline south of Channel Islands Harbor in the Oxnard Subbasin.

[c] Represents sum of fluxes across the interpreted 500 mg/L chloride concentration contour in each principal aquifer. Positive (+) values indicate that fresh groundwater is migrating toward the coast and UWCD's EBB extraction wells. Results are shown only for the EBB scenarios because seawater flux across the coastline in all other scenarios is an indication of ongoing seawater intrusion.

2 Positive (+) values represent net underflow into the Oxnard Subbasin. Negative (-) values represent net underflows out of the Oxnard Subbasin.

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it is a little misleading to show the SWI values as a single number when in reality the modeling results have an error bar associated with them (e.g., 500 AFY +/-200 AFY). The single value presented in the table suggests a more exact rate than we have data to support. Can error estimates be added to the table?

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d

CGMA reviewed groundwater wells in the vicinity of these key wells but was unable to identify suitable replacements that have similar geographic location, construction, and historical record of measurement. Because of this, the removal of these wells from the key well network introduces new spatial groundwater elevation data gaps:

- The destruction of well 02N20W04F02S limits characterization of groundwater conditions in the southeastern part of the ELPMA, near portions of the FCA that may transition from confined to unconfined if groundwater elevations drop to the minimum thresholds.
- The removal of 02N21W16J03S limits characterization of groundwater conditions in the easter part of WLPMA, where groundwater elevations are influenced by operations in the Oxnard Subbasin.

As noted above, FCGMA anticipates evaluating projects that help to fill these critical data gaps as part of the Basin Optimization Plan

6.2.2.2 Water Level Measurements: Temporal Data Gap

The DWR Monitoring Protocols Best Management Practices (DWR 2016a) states the following:

> Groundwater elevation data … should approximate conditions at a discrete period in time. Therefore, all groundwater levels in a basin should be collected within as short a time as possible, preferably within a 1-to-2-week period.

The DWR Monitoring Networks Best Management Practices (DWR 2016b) states the following:

> Groundwater levels will be collected during the middle of October and March for comparative reporting purposes.

Currently, groundwater elevation measurements are not scheduled according to these criteria because FCGMA relies on monitoring by several other agencies. To minimize the effects of this type of temporal data gap in the future, it would be necessary to coordinate the collection of groundwater elevation data, so it occurs within a 2-week window during the key reporting periods of mid-March and mid-October. The recommended collection windows are October 9–22 in the fall and March 9–22 in the spring.

Additionally, as funding becomes available, pressure transducers should be added to wells in the groundwater monitoring network. Pressure transducer records provide the high-temporal-resolution data that allows for a better understanding of water level dynamics in the wells related to groundwater production, groundwater management activities, and climatic influence.

6.2.2.3 Groundwater Quality Monitoring

Groundwater quality monitoring is conducted on at least an annual basis by UWCD, VCWPD, and CMWD. The GSP monitoring well network included 49 wells that were to be regularly monitored for groundwater quality. Since adoption of the GSP, 13 wells that were to be monitored for groundwater quality are no longer monitored for groundwater quality. The majority these wells, 11 of the 13 wells, are representative monitoring wells located in the ELPMA. Despite the removal of the 11 wells, there remain 18 wells in the ELPMA that are monitored for groundwater quality. The spatial distribution of these 11 wells is considered sufficient to determine trends in groundwater quality; however, FCGMA continues to evaluate opportunities to include additional monitoring wells.

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Seem appropriate to provide the reader with some idea of why so many wells are no longer monitored. Were the wells destroyed, landowner access denied, data determined to be redundant, monitoring entity dropped these wells from their suite of monitored wells, or ??.

6.3 Functionality of the Water Level Monitoring Network

While data gaps remain in the LPVB, the spatial and temporal coverage of the existing groundwater monitoring network is sufficient to provide an understanding of representative water level conditions for the FCA, Epworth Gravels, and LAS of the WLPMA. FCGMA anticipates evaluating opportunities to fill these data gaps over the next 5 years as part of implementing the GSP and Judgment.

6.4 Functionality of Additional Monitoring Network

FCGMA will monitor subsidence in the LPVB using DWR's TRE ALTAMIRA InSAR data. Updates are provided annually with point data and raster interpolations of total vertical displacement since June 13, 2015, and annual vertical displacement rates. This data will be used in conjunction with groundwater elevation data to monitor land subsidence with relation to groundwater extraction.

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Is it anticipated that an annual report will be produced? Will the report address inferred land surface movement near critical infrastructure? If so, what infrastructure?

7.1.2 Extraction Allocations

Regulating extraction allocations is the primary management action available to FCGMA for managing groundwater demand in the Basin. FCGMA's previous allocation system needed to be replaced to sustainably manage the Basin and a new allocation system was developed over several years concurrent with development of the GSP. The new allocation ordinance was adopted in December 2020 and became effective on October 1, 2021. FCGMA amended the ordinance to facilitate transition to the new ordinance. Additionally, FCGMA adopted resolutions increasing tiered groundwater surcharge rates for extractions that exceed allocation. The surcharge provides an economic disincentive to extract groundwater exceeding allocation.

7.1.3 Funding

FCGMA adopted a "groundwater sustainability" regulatory fee on extractions to fund development of the GSP. Subsequent to adoption of the GSP, the fee was increased from $14 per acre-foot to $29 per acre-foot to fund the cost of FCGMA's groundwater sustainability program. FCGMA also adopted a $20 per acre-foot "reserve fee" to fund the cost and expense of legal actions and proceedings brought against FCGMA related to implementation of FCGMA's groundwater sustainability program. Surcharges collected for extractions exceeding allocation are accounted separate from the operating account and are to be used for acquisition of supplemental water or actions to increase the yield of the Basin. Subsequent to the adjudication judgment, FCGMA adopted an ordinance levying a Basin assessment on water rights holders to fund management of the Basin.

1s described in Section 3.1, Evaluation of Projects and Management Actions, the Judgment adjudicated water rights in the basin and established an allocation system based on those water rights. The Judgment allocations supersede the allocations developed and adopted by FCGMA in 2019.

7.2 Enforcement and Legal Actions Agency

FCGMA has a robust ordinance code and set of resolutions that establish programs for basin management and reporting. These include ordinances and resolutions adopted under both the authority of the FCGMA Act and SGMA. The FCGMA Board has adopted policies and procedures for ordinance code violations, including sending notices of violation and assessing civil penalties, for failure to:

- Register an extraction facility.
- Report a change in owner or operator of an extraction facility within 30 days.
- Submit a semi-annual groundwater extraction statement.
- Install and maintain advanced metering infrastructure (AMI) on an extraction facility, unless exempt.
- Submit monthly reports of extractions from AMI, unless exempt.
- Install a flowmeter prior to pumping groundwater from an extraction facility.
- Report flowmeter failure and repair or replace the flowmeter within the required timeframe.
- Test and calibrate a flowmeter at the required frequency.
- Remit payment of groundwater extraction fees or civil penalties

The FCGMA Board additionally established a tiered surcharge for extractions in excess of extraction allocation.

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Number: 1 Author: 1086 Subject: Highlight Date: 9/24/2024 9:32:07 AM -07'00'
This paragraph seems to fit better in 7.1.2 Extraction Allocations.

9 Other Information

9.1 Consideration of Adjacent Basins

The LPVB is hydrogeologically connected with the Oxnard Subbasin and PVB. FCGMA is the GSA for both the PVB and Oxnard Subbasin. FCGMA, as the lead GSA for the LPVB, PVB, and Oxnard Subbasin, used a regional approach to determine the combined sustainable yield of all three basins during development of the GSP. The individual sustainable yields and sustainable management criteria for each basin were then established to ensure that each basin is managed with mutually beneficial sustainability goals. DWR found that FCGMA's approach demonstrated an adequate consideration of adjacent basins and subbasins (DWR 2021). FCGMA has not altered this approach as a result of the first periodic evaluation process because implementation of the GSP has not affected the ability of the Oxnard Subbasin or PVB to achieve their respective sustainability goals. FCGMA will continue to manage the LPVB with consideration of impacts to the adjacent basins and, as part of GSP implementation, will continue to evaluate the relationship between groundwater production in the LPVB and groundwater conditions in adjacent basins.

9.2 Challenges Not Previously Discussed

The most significant challenge for successful implementation of the GSP is acquiring funding to fill data gaps, address DWR recommended corrective actions, and construct projects. FCGMA has investigated funding mechanisms to support these efforts and has implemented a replenishment fee to respond to legal challenges. However, development and implementation of replenishment fees sufficient to fund full GSP implementation remains a challenge for the agency.

9.3 Legal Challenges

FCGMA did not take legal action or enforcement in the LPVB in furtherance of the LPVB's sustainability goal. (23 C.C.R. § 356.4(h).) The following discussion describes the lawsuits pending against FCGMA and their effect on FCGMA's implementation of the LPVB GSP and sustainable management of the LPVB.

Las Posas Valley Water rights Coalition, et al. v. Fox Canyon Groundwater Management Agency, Santa Barbara Sup. Ct. Case No. VENC100509700

On July 10, 2023, the Santa Barbara Superior Court entered a statement of decision adopting a judgment in Las Posas Valley Water Rights Coalition, et al. v. Fox Canyon Groundwater Management Agency, Santa Barbara Sup. Ct. Case No. VENC100509700 (Judgment). The Judgment adjudicates all groundwater rights in the LPVB, appoints FCGMA as the Watermaster for the LPVB, and 1dopts a physical solution that requires FCGMA to prepare new studies and reports designed to maintain an annual operating yield for the LPVB at 40,000 AFY. Although the Judgment has been appealed, the trial court chose not to stay implementation of the Judgment; over the past year, FCGMA has worked to implement the Judgment's several new administrative, fiscal, reporting, and stakeholder processes. Because the Judgment is still being implemented and subject to appellate court review, the effect of the Judgment on FCGMA's implementation of the LPV GSP and sustainable management of the LPV Basin is uncertain at this time.

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Number: 1 Author: 1086 Subject: Highlight Date: 9/26/2024 10:06:24 AM -07'00'

This GSP puts the sustainable yield at ~27K-34K AFY with projects. The judgment requires a sustainable yield of 40K AFY. What is the GSA (Watermaster?) doing to get to the 40K AFY value? Was this discussed in the GSP?

A.1 Department of Water Resources Recommended Corrective Action

In its approval of the Las Posas Valley Basin (LPVB) Groundwater Sustainability Plan (GSP), the California Department of Water Resources provided one recommended corrective action related to groundwater-surface water connections in the East Las Posas Management Area (ELPMA) (DWR 2022):

> Investigate the hydraulic connectivity of the Arroyo Simi-Las Posas, shallow aquifers, and principal aquifer to understand the reliance of the potential GDEs [groundwater-dependent ecosystems] on the native flow and depletion of interconnected surface water bodies. Also, identify specific locations where Arroyo Simi-Las Posas is connected to the underlying aquifer and conduct necessary investigation to quantify the depletion of interconnected surface water along with the timing of depletions.
>
> Provide a schedule detailing when and how the data gaps identified in the GSP related to shallow groundwater monitoring near surface water bodies will be fulfilled and confirm the identification of potential GDEs.

In order to refine the understanding of the surface water and groundwater conditions that contributed to the development of vegetation and in-stream habitat on Arroyo Simi-Las Posas and address the question of the reliance of the potential GDEs on the native flow in Arroyo Simi-Las Posas, Fox Canyon Groundwater Management Agency conducted an additional review of historical aerial photographs, groundwater production rates, and groundwater elevations.

A.2 Historical Aerial Photograph Review

Ventura County aerial photographs indicate that Arroyo Simi-Las Posas in the LPVB was dry prior to the 1970s (FCGMA 2019). By 2016, however, vegetation lined much of the reach of Arroyo Las Posas within the LPVB, and, in several places, vegetation density exceeded 75% (Figure A1). For this updated study, Fox Canyon Groundwater Management Agency reviewed a series of aerial photographs from 1969 through 2023 to examine the timing of vegetation growth along Arroyo Simi Las Posas and changes since the GSP was prepared (Figures A2 through A5). Review of the 2023 aerial photograph indicates that there has been little change in vegetation location and density since 2016 (Figure A2). This is consistent with the depth to groundwater measured in well MMW-1, a shallow well adjacent to Arroyo Las Posas, which has remained at approximately 31 feet below ground surface (ft bgs) since 2016 (Figure A2). Additionally, between 2014 and 2023 the greenness and water content of the vegetation along the upstream reaches of Arroyo Las Posas, as measured with the normalized difference vegetation index (NDVI) and normalized difference moisture index, has increased (TNC 2024).

Between 1994 and 2013, aerial photos show that vegetation location along Arroyo Las Posas is similar to the location mapped in 2016 (Figures A3 and A4). Depth to groundwater in well MMW-1 was approximately 28 ft bgs in 2003, and 31 ft bgs in 2013. Depth to groundwater was first measured in well MMW-1 in1996. For earlier measurements of depth to groundwater in the vicinity of Arroyo Las Posas, this review relies on well 02N20W12G02, which, for the period of overlap in the record, was approximately 2 feet shallower than the water level in well MMW-1. In 1994, the depth to groundwater in well 02N20W12G02 was approximately 24 ft bgs (Figure A4).

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Number: 1 Author: 1086 Subject: Highlight Date: 9/24/2024 7:43:45 AM -07'00'
Is there a map or ?? showing these locations?

In contrast to the period from 1994 through 2023, when vegetation coverage is relatively stable, the vegetation coverage in Arroyo Las Posas is greatly reduced in 1985 relative to the later period of time. Only the upstream areas of the Arroyo have visible vegetation in the 1985 aerial photos, whereas the downstream areas remain dry (Figure A4). This reflects the 1echarge of the surface water discharges to the Arroyo upstream of the LPVB. Flow in the Arroyo is still ephemeral at this time. The groundwater elevation in well 02N20W12G02 was approximately 28 ft bgs in 1985.

Prior to 1985, there was no naturally occurring vegetation adjacent to Arroyo Las Posas and flow in the Arroyo was ephemeral (Figure A5). The groundwater elevation in well 02N20W12G02 was approximately 28 ft bgs in 1985. In 1979 the depth to groundwater was approximately 50 ft bgs, and in 1969 the depth to groundwater was approximately 70 ft bgs. The trends in groundwater elevation, vegetation density, and location of vegetation all demonstrate that the potential GDEs on Arroyo Las Posas are not dependent on native flow in the Arroyo, as discussed in the GSP. Instead, these potential GDEs are reliant on the surface water infiltration and, potentially, higher groundwater elevations that occurred since the onset of non-native discharges to the Arroyo upstream of LPVB.

A.3 Groundwater Production

Between 1985 and 2023 calendar year groundwater production rates in the ELPMA of the LPVB ranged from 11,935 AF, in 1996, to 30,315 in 2007 (Figure A6). On average, groundwater production rates were approximately 6,800 AFY lower between 1985 and 2006 than they were between 2007 and 2022 (Figure A6). Between 2007 and 2022, during the time of higher groundwater production rates, the depth to groundwater in well MMW-1, adjacent to Arroyo Las Posas, ranged from 24 to 43 ft bgs. Between 1996 and 2007, when groundwater production rates were lower, the depth to groundwater in well MMW-1 ranged from 25 to 42 ft bgs, which is effectively the same range as was measured between 2007 and 2022. 2his indicates that groundwater production in the principal aquifers of the ELPMA has not impacted the groundwater level in the shallow alluvial aquifer adjacent to the Arroyo near well MMW-1.

The groundwater elevation in the shallow alluvial aquifer well 20N20W09Q08S, which is downstream of well MMW-1, has a declining trend in fall water levels between 2016 and 2022 (Figure A6). This trend is not correlated with changes in groundwater production, although it may reflect the combined influences of groundwater production, drought, and declining dry season discharges to the Arroyo.

A.4 Conclusions

The Arroyo Simi-Las Posas, shallow aquifer is hydraulically connected to the principal aquifer in the ELPMA, as demonstrated by long-term trends in groundwater elevation. However, the potential GDEs in the ELPMA do not rely on native flow, but rather on upstream surface water discharges to the Arroyo. Depletion of 3nterconnected surface water bodies 4as not occurred in relation to current groundwater production, although this could occur in the future if upstream surface water discharges decrease.

FCGMA has actively sought funding for additional monitoring wells to further characterize the interconnections between the shallow alluvial aquifer and the underlying principal aquifer. As funding becomes available data gaps identified in the GSP related to shallow groundwater monitoring near surface water bodies will be fulfilled.

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Number: 1 Author: 1086 Subject: Highlight Date: 9/24/2024 7:05:36 AM -07'00'
Helpful to reader to identify these surface water discharges. Can the surface water discharges be quantified (e.g., time series)? What values were used for the groundwater model?

Number: 2 Author: 1086 Subject: Highlight Date: 9/24/2024 7:14:59 AM -07'00'
This implies limited interconnection between the principal and shallow aquifers. Is this conclusionary statement consistent with the findings from the groundwater flow model? If so, suggest stating the model is supportive of these observations. If not, then why the difference.

Number: 3 Author: 1086 Subject: Highlight Date: 9/24/2024 7:11:45 AM -07'00'
Were the interconnected surface water bodies identified?

Number: 4 Author: 1086 Subject: Highlight Date: 9/24/2024 7:25:56 AM -07'00'
is this sentence saying that depletions of interconnected surface waters due to pumping could occur if upstream surface water discharges decrease? Suggest splitting the sentence into two. Add a period after "...groundwater production." Create a new sentence to say "Interconnected surface water bodies could occur in the future if upstream surface water discharges decrease."

1 Significant New Information

Table 1-1. Summary of New Information Since Groundwater Sustainability Plan

Significant New Information	Description	Aspects of Plan Affected	Warrant Changes to Any Aspects of the Plan
LPVB Adjudication			
Las Posas Valley Water Rights Coalition, et al., v. Fox Canyon Groundwater Management Agency	The Judgment adjudicates all groundwater rights in the LPVB, provides for the LPVB's sustainable management pursuant to SGMA, and appoints FCGMA as the Watermaster for the LPVB responsible for overseeing implementation of the Judgment.	Administrative Information	Yes
Basin Setting			
SVWQCP Discharges to Arroyo Simi-Las Posas	Since adoption of the GSP, the City of Simi Valley is no longer pursuing a program to increase recycled water use within their service area. As a result, FCGMA anticipates approximately more flow in Arroyo Simi-Las Posas than previously assumed for the GSP	Future water budgets; Sustainable Yield.	Yes.
Monitoring Network Information			
Interferometric Synthetic Aperture Radar (InSAR) Data	DWR InSAR data is now available to evaluate land subsidence in the LPVB.	Monitoring Network	Yes
Projects and Management Actions			
Water Supply Projects			
Infrastructure Improvements to Zone Mutual Water Company's water delivery system	This project increases the capacity of ZMWC's delivery system to physically transfer water between the ELPMA and WLPMA of the LPVB by converting the existing ZMWC delivery system from gravity to pressure (FCGMA 2022).	Projects and Management Actions	Yes
Moorpark Groundwater Desalter	This project constructs a new groundwater desalter facility located east of the Moorpark Water Reclamation Facility to improve water quality in the southern portion of the ELPMA and provide an additional source of potable water supply to the LPVB (FCGMA 2022).	Projects and Management Actions	Yes
Arroyo Las Posas Storm Flow Diversions for Recharge to the ELPMA	This project uses the stabilizer structure in the Arroyo Simi-Las Posas to divert storm flows during high flow events for recharge to the ELPMA (FCGMA 2022). The structure is, adjacent to the Moorpark Wastewater Water Reclamation Facility operated by VCWWD-1,	Projects and Management Actions	Yes

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:22:58 AM -07'00'
Is this a typo, or should a value of additional flow be included here?

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:22:33 AM -07'00'
This project may need to be modified based on feedback from Bryan Bondy regarding ZMWC's ability to finance improvements. TAC recommendations on the projects for the Basin Optimization Plan include changing this to a Basin-wide feasibility study to increase transfers between management areas.

Table 1-1. Summary of New Information Since Groundwater Sustainability Plan

Significant New Information	Description	Aspects of Plan Affected	Warrant Changes to Any Aspects of the Plan
Projects to Address Data Gaps			
Installation of Additional Groundwater Monitoring Wells	This project proposes installation of multi-depth monitoring wells in the LPVB to assess groundwater conditions in the principal aquifers in the areas of the LPVB that lack data (FCGMA 2022).	Projects and Management Actions	Yes
Installation of Transducers in Monitoring Wells	This project proposes installation of transducers in representative monitoring points, or key wells, in the LPVB to reduce the temporal data gaps that currently exist in the record of aquifer conditions (FCGMA 2022).	Projects and Management Actions	Yes
Feasibility Studies			
Supplemental Water Supply Sources for the northern ELPMA	The studies will investigate the feasibility of providing supplemental water supplies to the northern area of the ELPMA where groundwater elevations have declined in excess of 250 feet, locally (FCGMA 2022).	Projects and Management Actions	Yes
Agency Coordination and Public Participation			
Formation of a Policy Advisory Committee (PAC)	The PAC serves as an advisory board to the LPVB Watermaster on policy-related matters of a non-technical nature. The PAC provides water rights holders with a voice and representation on policy matters in the LPVB.	Public Participation	No
Formation of a Technical Advisory Committee (TAC)	The TAC serves as an advisory board to the LPVB Watermaster on technical matters relating to groundwater management and sustainability of the LPVB.	Public Participation	No

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:23:39 AM -07'00'
These are important projects that should be advanced quickly. See later comments on monitoring adequacy.

Management Area was selected as the groundwater level that limits reduction in storage to less than 20% relative to the estimated 2015 groundwater storage volume. The measurable objective water levels in all three management areas of the LPVB are at least 20 feet higher than the minimum threshold groundwater levels to allow for operational flexibility (FCGMA 2019).

At the time the GSP was prepared, the groundwater elevations were below the minimum threshold groundwater elevations in the at four of the five key wells in WLPMA, the only key well in the Epworth Gravels Management Area, and one well in the ELPMA. Therefore, the GSP established interim milestone groundwater elevations for these wells (FCGMA 2019). Groundwater elevations are compared to the interim milestones for these wells in the following sections.

The groundwater elevation minimum thresholds and measurable objectives selected to meet the sustainability goal for the LPVB were used as a proxy for all other applicable sustainability indicators in the GSP (FCGMA 2019). These groundwater elevations are higher than or equal to the historical low groundwater elevations. Therefore, the minimum thresholds and measurable objective water levels will prevent chronic lowering of groundwater levels, significant and unreasonable reduction of groundwater storage, degraded water quality as a result of groundwater production, and land subsidence related to groundwater production (FCGMA 2019). Depletions of interconnected surface water that result in a significant and unreasonable loss of groundwater-dependent ecosystem (GDE) habitat, have not occurred within the LPVB because the potential GDEs in the ELPMA are supported by surface water discharges of treated wastewater and dewatering well water that occur upstream of the eastern boundary of the LPVB (FCGMA 2019). Although the Shallow Alluvial aquifer in the ELPMA is considered to be a principal aquifer, groundwater production in the ELPMA primarily occurs in the FCA and GCA (FCGMA 2019).

2.1.1 Department of Water Resources Recommended Corrective Actions

DWR's assessment and approval of the GSP included five "recommended corrective actions" that should be considered for the first periodic GSP evaluation. These recommended corrective actions and the applicable sustainability indicators are:

RECOMMENDED CORRECTIVE ACTION 1

Investigate the hydraulic connectivity of the Arroyo Simi-Las Posas, shallow aquifers, and principal aquifer to understand the reliance of the potential GDEs on the native flow and the depletion of interconnected surface water bodies. Also, identify specific locations where Arroyo Simi-Las Posas is connected to the underlying aquifer and conduct necessary investigation to quantify the depletion of interconnected surface water along with the timing of depletions.

Provide a schedule detailing when and how the data gaps identified in the GSP related to shallow groundwater monitoring near surface water bodies will be fulfilled and confirm the identification of potential GDEs.

Recommended corrective action 1 applies to depletions of interconnected surface water.

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Number: 1 Author: Chad Taylor Subject: Cross-Out Date: 9/30/2024 7:17:41 AM -07'00'
Typo

conditions in the ELPMA and the Epworth Gravels Management Area, and, based on the result of the evaluation, discuss the effects of such conditions on beneficial users and users.

The following subsections discuss how this recommended corrective action was addressed since it was issued in 2022.

2.2.1.1 West Las Posas Management Area

In the WLPMA, the minimum thresholds and measurable objectives for the key wells are all above the 2015 and historical low groundwater elevations. As discussed in the GSP, the beneficial uses of groundwater in the WLPMA are anticipated to improve with these minimum thresholds and measurable objectives because they will prevent chronic lowering of groundwater levels and work in concert with the selected minimum thresholds and measurable objectives in the adjacent Oxnard Subbasin to limit further seawater intrusion into the coastal aquifers in that basin. The minimum thresholds and measurable objectives may impact beneficial users of groundwater in the WLPMA if additional projects are not developed for the region because users may be forced to reduce groundwater production in order to maintain groundwater elevations above the minimum thresholds. However, since the GSP was adopted, groundwater use in the LPVB has undergone adjudication. The Fox Canyon Groundwater Management Agency (FCGMA), as Watermaster for the LPVB, is working in consultation with the LPVB Policy Advisory Committee (PAC) and Technical Advisory Committee (TAC) to develop projects to minimize future pumping reductions while maintaining groundwater elevations above the minimum thresholds.

2.2.1.2 East Las Posas Management Area

In the ELPMA, groundwater elevation declines cause differential impacts depending on location within the management area. These impacts are expected to be greatest in parts of the ELPMA where groundwater in the FCA occurs under unconfined conditions or may convert from confined to unconfined conditions. In order to limit the area of the FCA that would convert from confined to unconfined conditions with declining water levels, the undesirable result associated with water level declines and loss of storage was defined as localized loss of storage in excess of 20% of the estimated 2015 groundwater storage (FCGMA 2019). The areas of the ELPMA prone to conversion from confined to unconfined conditions are on the northern and southern margins of the management area, and in the vicinity of the Moorpark anticline in the central portion of the management area (FCGMA 2019).

FCGMA reviewed well screen intervals and groundwater production in areas of the ELPMA that are prone to conversion from confined to unconfined conditions. The depth and groundwater production rates from the wells in this area indicate that they are agricultural wells and are not domestic or de minimis wells that produce less than 2 acre-feet per year (AFY). Of the 22 wells located within this area, groundwater elevation declines to the minimum threshold would result in projected groundwater elevations that are below the top of the well screen in nine wells (Table 2-1, Wells in the Area of the ELPMA Subject to Conversion of the FCA from Confined to Unconfined Conditions). Projections suggest that groundwater decline to the minimum threshold would expose greater than 50% of the well screen in four wells, and two of these wells would go dry (Table 2-1).

Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:26:10 AM -07'00'
Recommend showing the all the data included in and results of this analysis in figures and tables. Table 2-1 shows only perforated interval depths, not production rates that would distinguish domestic wells from those for other uses.

Table 2-1. Wells in the Area of the ELPMA Subject to Conversion of the FCA from Confined to Unconfined Conditions

State Well Number	Projected Groundwater Elevation at the Minimum Threshold (ft MSL)	Top Perforation (ft MSL)	Bottom Perforation (ft MSL)	Feet Below Top of Screen at Minimum Threshold (ft)	Loss of Production from Greater than 50% of the Well Screen	Projected Water Level Below the Bottom of the Well
03N20W26R03S	100	113	-347	13	No	No
03N20W34L02S	76	-175	-552	NA	No	No
02N20W01B03S	82	47	-151	NA	No	No
03N19W31E02S	108	75	-265	NA	No	No
03N19W31D03S	107	-420	-700	NA	No	No
03N19W31D02S	107	142	-108	35	No	No
03N19W31C02S	106	52	-378	NA	No	No
03N19W31D05S	107	0	-420	NA	No	No
03N20W33B03S	76	82	-453	6	No	No
03N20W33B01S	76	72	-248	NA	No	No
03N20W35G01S	100	-128	-425	NA	No	No
02N20W01A01S	74	222	-238	148	No	No
02N20W13F02S	193	100	-120	NA	No	No
03N19W30D01S	101	420	145	319	1es	2es
03N19W30D02S	101	451	126	350	Yes	Yes
03N19W19J01S	130	396	126	266	Yes	No
03N19W28N03S	130	262	72	132	Yes	No
03N19W31N02S	110	35	-267	NA	No	No
03N19W31M03S	108	-242	-442	NA	No	No
03N19W31M04S	108	38	-272	NA	No	No
03N19W31H01S	104	-196	-476	NA	No	No
03N20W27H03S	-28	16	-176	44	No	No

Notes: NA = "Not Applicable." Well is projected to go dry if the projected water level at the minimum threshold exposes more than 50% of the total screen interval.

The average groundwater production between 2015 and 2022 was 506 AFY for the nine wells in which groundwater elevations would fall below the top of the screen. The average groundwater production was 263 AFY from the 4 wells in which greater than 50% of the screen interval would be exposed. The GSP estimated the sustainable yield of the ELPMA to be between 15,500 and 20,100 AFY. 3oss of production at the minimum threshold groundwater elevations represents a loss of between 1% and 3% of the total production from the management area.

In its role as LPVB Watermaster, FCGMA appointed members to two advisory committees: the LPVB TAC and LPVB PAC. As provided in the LPVB adjudication Judgment, the FCGMA, in consultation with the TAC and PAC, are currently working to develop a suite of projects to increase the sustainable yield of the basin and offset losses in yield because of groundwater elevation declines.

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:33:42 AM -07'00'
18 percent of wells (4 of 22) with reduced capacity seems high

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:32:50 AM -07'00'
2 wells out of 22 is 9%. That is a fairly large percentage of wells going dry.

Number: 3 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:30:42 AM -07'00'
The DWR Recommended Corrective Action requested discussion of the effects of the MTs and MOs on beneficial uses and users. This analysis only discusses the MTs. Additionally, contextualizing the reductions in production ability from these wells in the context of the entire production from the management area may not meet DWR expectations regarding effects on beneficial users.
Recommend including discussion of effects on individual well owners. Also, will there be a dry well mitigation program in case wells do go dry?

2.2.1.3 Epworth Gravels Management Area

The minimum threshold in the Epworth Gravels Management Area, which allows for up to 20% loss of storage compared to 2015 conditions, is above the historical low water level (FCGMA 2019). Many groundwater users with wells in the Epworth Gravels aquifer also have wells screened in the underlying FCA. As groundwater elevations decline in the Epworth Gravels aquifer, groundwater users in this management area rest their Epworth Gravels aquifer wells and rely on water from the FCA instead. In 2015, after several years of drought, groundwater elevations in the Epworth Gravels aquifer were 50 feet higher than the historical low water level because groundwater users reduced their pumping in this management area. Because the minimum threshold is higher than the historical low water level, groundwater users in this management area are familiar with and have historically implemented adaptive management strategies when the groundwater elevation declines, and the minimum threshold prevents chronic lowering of groundwater, the minimum threshold in the Epworth Gravels Management Area is anticipated to be protective of beneficial uses and users of groundwater in the LPVB.

The GSP reported on groundwater conditions through fall 2015. The change in water levels since 2015 varies geographically within the LPVB, reflecting both the influence of groundwater extraction and the availability and extent of groundwater recharge in the WLPMA, ELPMA, and Epworth Gravels Management Area.

2.2.2 Groundwater Elevation Changes in the Las Posas Valley Basin

2.2.2.1 West Las Posas Management Area

Upper San Pedro Formation

Groundwater elevations were measured in five wells in fall 2015 and fall 2023 and in six wells in spring 2015 and spring 2024 (Figure 2-5, Upper San Pedro Formation Groundwater Elevation Changes from Fall 2015 to 2023, and Figure 2-6, Upper San Pedro Formation Groundwater Elevation Changes from Spring 2015 to 2024). There are no key wells screened in the USP because it is not a primary aquifer, although it is a source of water to the underlying FCA. Between 2015 and 2024, groundwater elevations declined in the three nested wells in the central WLPMA (wells 02N21W11J04S, 02N21W11J05S, and 02N21W11J06S) and in well 02N21W15M03S (Figures 2-5 and 2-6). The only well in which groundwater elevations were higher in water year 2024 than they were in calendar year 2015 was well 02N21W16J01S in the western portion of the WLPMA (Figures 2-5 and 2-6).

Fox Canyon Aquifer

In the western part of the WLPMA, adjacent to the Oxnard Subbasin, fall 2023 and spring 2024 groundwater elevations in the FCA were approximately 55 to 35 feet higher than they were in fall 2015 and spring 2015, respectively (Figure 2-7, Fox Canyon Aquifer – Groundwater Elevation Changes from Fall 2015 to 2023, and Figure 2-8, Fox Canyon Aquifer – Groundwater Elevation Changes from Spring 2015 to 2024). Groundwater elevations in this part of the WLPMA were also higher than they were in fall 2019, the start of the current evaluation period (FCGMA 2021). Groundwater elevation recoveries in the western WLPMA since 2015 reflect the influence of UWCD's recharge operations in the Forebay Management Area of the Oxnard Subbasin, which promoted groundwater elevation recoveries in the Oxnard Subbasin of approximately 120 feet between 2015 and 2024 (FCGMA 2024a).

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:35:21 AM -07'00'
Can this practice be incorporated into a management action?

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:34:25 AM -07'00'
This paragraph seems out of place. Is it supposed to follow the header for 2.2.2?

Number: 3 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:36:04 AM -07'00'
should this be principal?

Number: 4 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:41:43 AM -07'00'
These statements are based solely on one monitoring well at the extreme western end of the WLPMA. That data limitation should be discussed somewhere.

In contrast, groundwater elevations in the eastern part of the WLPMA were lower in the fall of 2023 than they were in fall 2015 (Figures 2-7)[8]. The largest groundwater elevation decline measured over this period was at well 02N20W06R01S, where the fall 2023 groundwater elevation was approximately 80 feet lower than fall 2015 (Table 2-2, Water Year 2024 Groundwater Elevations at Key Wells in the Las Posas Valley Basin; Figures 2-7 and 2-8). Groundwater elevation declines in the eastern WLPMA reflect ongoing groundwater production in an area with limited groundwater recharge.

Grimes Canyon Aquifer

No wells screened in the GCA had groundwater elevations measured in both fall 2015 and fall 2023 (Figure 2-9, Grimes Canyon Aquifer Groundwater Elevation Changes from Fall 2015 to 2023). Two wells, 02N21W28A02S and 02N21W22G01S, had groundwater elevations measured in both spring 2015 and spring 2024. Over this period, the groundwater elevation at these wells declined by approximately 7 and 10 feet, respectively (Figure 2-10, Grimes Canyon Aquifer Groundwater Elevation Changes from Spring 2015 to 2024). These wells are both located in the southern part of the WLPMA, within the Camarillo Hills, and the connectivity between water level elevations in these wells and other parts of the management area remains an area of uncertainty in the hydrogeologic conceptual model of the management area.

2.2.2.2 East Las Posas Management Area

Shallow Alluvial Aquifer

Groundwater elevations in the Shallow Alluvial aquifer have been stable since 2015 with elevations in upstream wells declining by 1 foot or less between calendar year 2015 and water year 2024. Groundwater elevations in downstream wells, adjacent to the PVB, increased by 1 to 6 feet over the same time period (Table 2-2; Figure 2-11, Shallow Alluvium – Groundwater Elevation Changes from Fall 2015 to 2024, and Figure 2-12, Shallow Alluvium Groundwater Elevation Changes from Spring 2015 to 2024). There are two key wells screened in the Shallow Alluvial aquifer. The groundwater elevation increased in well 02N20W09Q08S by 1 foot between fall 2019 and fall 2023 and increased by 0.5 feet between spring 2020 and spring 2024 (Table 2-2). Groundwater elevation was not measured in well 02N20W12MMW1 in water year 2024.

[8] There are insufficient measurements to provide a direct comparison of spring 2015 and spring 2024 groundwater elevations in the WLPMA.

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:45:58 AM -07'00'

The lack of consistent monitoring for comparing water levels may be the cause of the apparent difference between fall and spring comparisons. Inconsistent monitoring makes tracking sustainability very challenging, especially when there are so few Key Wells in the network. This problem may be skewing the assessment of sustainability and should be addressed immediately by adding dedicated monitoring wells that the FCGMA/ Watermaster monitors or uses transducers to reliably measure water levels regularly.

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:46:29 AM -07'00'

Spring to spring declines with no fall comparison due to inconsistent monitoring should raise concern.

groundwater elevation in this well was 13 feet and 18 feet higher than it was in both spring 2020 and spring 2015, respectively, (Table 2-1; Figure 2-14, Epworth Gravels Aquifer – Groundwater Elevation Changes from Spring 2015 to 2024).

2.2.3 Sustainable Management Criteria

2.2.3.1 Measurable Objectives

In 2015, the end of the GSP reporting period, groundwater elevations in the WLPMA were lower than the measurable objective water levels at three of the five key wells (FCGMA 2019). In the ELPMA, groundwater elevations were lower than the measurable objective water levels at two of the fifteen key wells (FCGMA 2019). In the Epworth Gravels management area, the groundwater elevation at the only key well was below the measurable objective (FCGMA 2019). The GSP defined interim milestones for the key wells with groundwater elevations below the measurable objectives, so that groundwater elevations would reach the measurable objectives by 2040 (FCGMA 2019).

Fall 2023 groundwater elevations were measured in three of the five key wells in the WLPMA. The elevations at two of these wells were below the measurable objectives (Table 2-2; Table 2-1; Figure 2-3 and Figure 2-15, Groundwater Elevation Hydrographs for Representative Monitoring Points in the WLPMA). Spring 2024 groundwater elevations were above the measurable objective groundwater elevations at two (02N20W08F01S and 02N21W12H01S) of the three of the key wells measured in the WLPMA (Table 2-2; Figures 2-4 and 2-15). FCGMA has relied on other agencies for monitoring data but recognizes the need for more consistent monitoring of groundwater elevations in the WLPMA and anticipates that groundwater elevations will rise between 2025 and 2040 with the implementation of projects and management actions in the WLPMA that are consistent with the GSP and Judgment.

In the ELPMA, fall 2023 groundwater elevations were measured in 14 key wells and were above the measurable objectives in seven of these wells. Spring 2024 groundwater elevations were measured in 12 of 15 key wells and were above the measurable objectives in 10 of these wells (Table 2-2; Figure 2-4; Figure 2-16, Groundwater Elevation Hydrographs for ELPMA Representative Monitoring Points Screened in the Shallow Alluvial Aquifer; and Figures 2-17a and 2-17b, Groundwater Elevation Hydrographs for ELPMA Representative Monitoring Points Screened in the FCA). FCGMA anticipates that groundwater elevations will stabilize between 2025 and 2040 with the implementation of projects and management actions in the ELPMA that are consistent with the GSP and Judgment.

In the only key well in the Epworth Gravels Management Area, the groundwater elevation was above the measurable objective groundwater in fall 2023 and spring 2024 (Table 2-2; Figures 2-3, 2-4, and 2-18, Groundwater Elevation Hydrographs for the Representative Monitoring Point in the Epworth Gravels Aquifer).

2.2.3.2 Minimum Thresholds

In 2015, the end of the GSP reporting period, groundwater elevations in the WLPMA were above than the minimum threshold water levels at four of the five key wells in the management area (FCGMA 2019). In the ELPMA, groundwater elevations were higher than the minimum threshold water levels at all of the key wells in the management area (FCGMA 2019). In the Epworth Gravels management area, the groundwater elevation at the only key well was above the minimum threshold.

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:26:36 AM -07'00'
Recommend referencing relevant section discussing Interim Milestones.

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:51:23 AM -07'00'
This should be prioritized using available funding sources, not waiting for grant funding as alluded to in other sections.
Has the FCGMA considered the Technical Support Services available through DWR? Those may not be available now that the Basin is adjudicated, but worth asking about.

Number: 3 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:53:38 AM -07'00'
This seems a weak statement without further explanation of the mechanisms for increased groundwater elevations. Specifically, "anticipates' and "will rise" are very passive.

Number: 4 Author: Chad Taylor Subject: Cross-Out Date: 9/30/2024 7:53:53 AM -07'00'
typo

Fall 2023 groundwater elevations were measured in three of the five key wells in the WLPMA. The elevations at two of these wells, wells 02N20W06R01S and 02N21W11J03S, were below the minimum thresholds (Table 2-1). Spring 2024 groundwater elevations were above the minimum threshold groundwater elevations at all of the key wells measured in the WLPMA (Table 2-1; Figures 2-4 and 2-15).

In the ELPMA, fall 2023 and spring 2024 groundwater elevations were higher than the minimum threshold at all measured key wells (Table 2-2; Figure 2-3, 2-16, 2-17a, and 2-17b).

The groundwater elevation in the only key well in the Epworth Gravels management area was above the minimum threshold groundwater elevation in the fall of 2023 and the spring of 2024 (Table 2-1; Figures 2-3, 2-4, and 2-18).

2.2.3.3 Interim Milestones

Fall 2023 groundwater elevations were below the 2025 interim milestones the two the key wells in the WLPMA that were measured in the fall of 2023 and had established interim milestones (Table 2-1). In the WLPMA, the spring 2024 groundwater elevation was above the 2025 interim milestones for the one key well in the WLPMA that was measured and had established interim milestone (Table 2-1).

Interim milestones were established for two wells in the ELPMA. The fall 2023 groundwater elevation was approximately 3 feet higher than the interim milestone for one of these wells and 4 feet lower in the other (Table 2-2). The spring 2024 groundwater elevations were above the interim milestones at both wells (Table 2-2).

Both the fall and spring groundwater elevations at the key well in the Epworth Gravels Management Area were above the 2025 interim milestone for this well (Table 2-1).

2.2.4 Undesirable Results

The GSP defined undesirable results for each management area of the LPVB. The WLPMA is expected to experience undesirable results if:

- In any single monitoring event, water levels in three of the five representative monitoring points are below their respective minimum threshold; or
- The groundwater elevation in any individual key well is below the minimum threshold for either three consecutive monitoring events or three of five consecutive monitoring events, where monitoring events are scheduled to occur in the spring and fall of each year.

During the evaluation period (water year 2019 through water year 2024) fall groundwater elevations were consistently below the minimum threshold at well 02N20W06R01S. While groundwater elevations are currently higher than the minimum thresholds at four of the five key wells, the prolonged period of minimum threshold exceedances at well 02N20W06R01S indicates that the WLPMA has experienced undesirable results since the GSP was adopted.

The ELPMA is expected to experience undesirable results if:

- In any single monitoring event, water levels in 5 of the 15 representative monitoring points are below their respective minimum threshold; or

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:57:02 AM -07'00'
40 percent of key wells were not monitored and 2/3 of those that were monitored were below the MT. The importance of more consistent monitoring cannot be stressed highly enough.

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 7:57:14 AM -07'00'
Table 2-2?

Number: 3 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:00:15 AM -07'00'
The spring 2024 measurements also included only 60% of Key Wells and the well that was furthest below the MT in fall 2023 was not included.

Number: 4 Author: Chad Taylor Subject: Inserted Text Date: 9/30/2024 8:26:59 AM -07'00'
in

Number: 5 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:27:22 AM -07'00'
Table 2-2

- An updated allocation system.
- A framework for evaluating the need for, and rate of, Rampdown within the LPVB; and
- An updated process for evaluating projects that increase water supply and Operational Yield of the LPVB.

As Watermaster for the LPVB, FCGMA is responsible for implementing the management framework outlined in the Judgment. To support the initial implementation of this management framework, FCGMA has begun development of the Basin Optimization Plan and is coordinating development of the Basin Optimization Yield Study with the LPVB TAC. These planning activities are critical first steps in constraining future Rampdown, project implementation, and additional management actions.

2.2.5.2 Impacts to Beneficial Uses and Users of Groundwater

Beneficial uses and users of groundwater within the LPVB include environmental, agricultural, domestic, and municipal and industrial users (FCGMA 2019). Groundwater elevations that remain above the minimum thresholds are anticipated to maintain beneficial uses of groundwater in the LPVB by limiting chronic lowering of groundwater levels and limiting the area of the FCA that may convert from confined to unconfined conditions. Groundwater elevations in one key well in the WLPMA were below the minimum threshold groundwater elevation for three consecutive measurement periods, which, by definition in the GSP, means the WLPMA experienced undesirable results since 2019. However, groundwater conditions in the WLPMA have not impacted beneficial users of groundwater. No wells were reported to have gone dry, and there are no interconnected surface and groundwaters in the WLPMA. Groundwater elevations in the ELPMA and Epworth Gravels Management Area do not indicate that undesirable results are occurring in either of these management areas. Similarly, no wells were reported to have gone dry and groundwater elevations adjacent to Arroyo Las Posas have not declined since 2019.

2.2.5.3 Changes to Sustainable Management Criteria

The minimum threshold and measurable objectives for each representative monitoring point are listed in Table 2-3.

The evaluation following does not suggest the need to change the SMC for the LPVB: current groundwater levels, updated future model scenario results, projects and management strategies, and requirements of the Judgment. The minimum thresholds will prevent chronic declines in groundwater levels, significant and unreasonable loss of groundwater in storage, and, in the WLPMA, will not prevent the Oxnard Subbasin from achieving its sustainability goal. Minimum thresholds were selected based on historical low water levels and the simulated water levels that would limit storage loss to less than 20% of the 2015 groundwater in storage. The information gained and updated numerical modeling conducted for this periodic evaluation (see Section 5, Updated Numerical Modeling) suggest that these thresholds are appropriate to prevent undesirable results in the LPVB.

Table 2-3. LPVB Measurable Objectives and Minimum Thresholds

Well Number	Management Area	Aquifer	Minimum Threshold	Measurable Objective	Fall 2015 Water Level Low	
			(ft msl)	(ft msl)	(ft msl)	Date Measured
03N19W29F06S	Epworth Gravels	Epworth Gravels	555	585	580	10/21/2015
02N20W09Q08S	ELPMA	Shallow Alluvial	170	255	271	10/15/2015

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:02:41 AM -07'00'
This makes it sound like there is uncertainty regarding the effectiveness of the thresholds. Can this be strengthened, or is there significant uncertainty?

As described in Section 6, Monitoring Network, two key wells were removed from the monitoring network: well 02N20W04F02S in the ELPMA and well 02N21W16J03S in the WLPMA. Well 02N20W04F02S was removed because the well was destroyed. Well 02N21W16J03S was removed because ongoing access issues has resulted in the well last being measured in 2019. The lack of measurements at these two wells creates data gaps in the characterization of groundwater conditions within the LPVB.

2.3 Groundwater in Storage

2.3.1 Department of Water Resources Recommended Corrective Actions

DWR issued a recommended corrective action related to groundwater in storage (DWR, 2021). This recommended corrective action states the following:

> Discuss the potential effects of the minimum thresholds and measurable objectives on beneficial uses and users of groundwater, particularly in the areas where groundwater levels will be maintained below 2015 and historical low levels. Provide an evaluation of the groundwater level and storage conditions when the groundwater storage loss will be 20 percent compared to 2015 conditions in the ELPMA and the Epworth Gravels Management Area, and, based on the result of the evaluation, discuss the effects of such conditions on beneficial users and users.

FCGMA's response to this corrective action is addressed in Section 2.2, Groundwater Levels.

2.3.2 Groundwater in Storage Changes in the Las Posas Valley Basin

Since adoption of the GSP, FCGMA has estimated the change in groundwater in storage in the LPVB annually using a series of linear regression models that relate measured groundwater elevations to simulated values of change in storage extracted from the Ventura Regional Groundwater Flow Model (VRGWFM; UWCD 2018) for the WLPMA and the CMWD numerical groundwater flow model for the ELPMA (CMWD 2018, FCGMA 2020, 2021, 2022, 2023, 2024b). The linear regressions utilized results from the VRGWFM for the historical period from 1985 through 2015 and from the ELPMA for the historical period from 1970 through 2015 (UWCD 2018, CMWD 2018).

As part of the periodic GSP evaluation, UWCD updated the VRGWFM to improve the hydrogeologic conceptual model of the Oxnard Subbasin and simulate groundwater conditions through September 30, 2022 (FCGMA 2024b). The CMWD model of the ELPMA is based on another hydrogeologic conceptual model; it has not been updated since the GSP. However, the model was extended to simulate groundwater conditions in the ELPMA through September 30, 2022 (See Section 5.1, Model Updates). The extended model is referred to in this document as the ELPMA model (See Section 5, Updated Numerical Modeling).

The change in storage values for the WLPMA summarized below are based on the model results from the updated VRGWFM (Table 2-4a, UWCD Model Water Budget for the West Las Posas Management Area Shallow Aquifer, Table 2-4b, UWCD Model Water Budget for the West Las Posas Management Area Lower Aquifer System). The change in storage values for the ELPMA summarized below are based on the results from the ELPMA model (Table 2-4c, ELPMA Model Water Budget). Because neither model simulates water years 2023 and 2024, the change in storage

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:11:08 AM -07'00'

SGMA characterizes data gaps as "a lack of information that significantly affects the understanding of basin setting or evaluation of the efficacy of the Plan implementation, and could limit the ability to assess whether a basin is being sustainably managed."
Data gaps include not only limited geographic representation, but also monitoring sites that are unreliable.

Once identified, as GSA must include a description in the GSP that addresses the data gaps (23CCR §354.38.)

As noted above, a plan to address these data gaps should be developed and implemented as soon as possible.

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:13:43 AM -07'00'

While this section does acknowledge that undesirable results have occurred, it does not appear to address the DWR RCA request for discussion of potential effects of MTs and MOs on beneficial uses and users.
Recommend including a discussion to this effect to address the DWR request.

Table 2-4b. UWCD Model Water Budget for the West Las Posas Management Area Lower Aquifer System

WY	Inflows (Acre-Feet)					Outflows (Acre-Feet)				Total Inflows (Acre-Feet)	Total Outflows (Acre-feet)	Change in Groundwater in Storage (Acre-Feet)[b]
	Recharge from USP outcrops	Recharge	From Shallow Aquifer	Subsurface flow from Oxnard Subbasin	Subsurface flow from Pleasant Valley Basin	Subsurface flow to Oxnard Subbasin	Pumping	Subsurface flow to Pleasant Valley Basin	Subsurface flow to the ELPMA[a]			
2016[c]	713	977	5,022	0	0	-2,453	-9,856	-6	-874	6,712	-13,189	-6,477
2017	1,890	2,241	9,317	0	498	-2,763	-13,109	0	-1,232	13,946	-17,104	-3,158
2018	764	1,195	6,959	0	482	-2,388	-13,979	0	-1,179	9,401	-17,546	-8,145
2019	1,778	2,121	9,043	0	1,078	-754	-13,687	0	-951	14,021	-15,392	-1,372
2020	1,284	1,392	8,209	134	1,237	0	-14,031	0	-713	12,256	-14,744	-2,489
2021	147	379	5,700	0	912	-169	-15,360	0	-464	7,139	-15,993	-8,855
2022	1,064	1,140	7,349	0	804	-472	-13,755	0	-410	10,357	-14,638	-4,281
Average	**1,092**	**1,349**	**7,371**	**19**	**716**	**-1,286**	**-13,397**	**-1**	**-832**	**10,547**	**-15,515**	**-1,968**

Notes:
a Represents simulated underflows from the East Las Posas Management Area
b Negative (-) values denote a reduction of groundwater in storage. Positive (+) values denote an increase in groundwater in storage.
c Represents the nine-month period from January 1, 2016, through September 30, 2022.

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:23:47 AM -07'00'

Why does this table show the average and not the total change in storage over the period?
The sum of the annual changes in storage is a loss of 34,777 AF, which is 3.3 times the average annual inflow to the WLPMA. By comparison, the total change in storage for the ELPMA over the same period was a loss of 2,824 AF, which is only 10% of the average annual inflow to the management area.

Recommend including and discussing the change in storage over the period as it represents significant sustained storage decline.

2.3.2.1 West Las Posas Management Area

Upper Aquifer System

The GSP reported on the change in groundwater in storage in the LPVB through the end of calendar year 2015. Between January 1, 2016, and September 30, 2022, the VRGWFM estimates that groundwater in storage in the UAS decreased by approximately 110 AF (Table 2-4a). Between water years 2004 and 2010[9], the VRGWFM estimates that groundwater in storage in the UAS decreased by approximately 580 AF (Table 2-5). Adding these estimates to the simulation results for water years 2016 through 2022 suggests that since 2016, groundwater in storage in the UAS has decreased by approximately 690 AF (Table 2-4b).

Lower Aquifer System

Between January 1, 2016, and September 30, 2022, the VRGWFM estimates that groundwater in storage in the LAS decreased by approximately 34,780 AF (Table 2-5). During the 2004 through 2010 period, the VRGWFM estimates that groundwater in storage in the LAS increased by approximately 1,810 AF (Table 2-5). Adding these estimates to the simulation results for water years 2016 through 2022 suggest that groundwater in storage in the LAS has decreased by approximately 32,970 AF since 2015 (Table 2-5).

Table 2-5. Change in Groundwater in Storage in the LPVB

Management Area	Aquifer / Aquifer System	Simulated 2016 - 2022 Change in Storage (acre-feet)[a]	Estimated Change in Storage for Water Years 2023 and 2024		Estimated 2016 – 2024 Change in Storage (acre-feet)[a]
			Change in Storage (acre-feet)[a]	Representative Time Period (Water Year(s)	
West Las Posas	UAS[b]	-110	-580	2004-2010[d]	-690
	LAS[c]	-34,780	1,810		-32,970
Epworth Gravels	Epworth Gravels	1,100	-380	2004 – 2008	720
East Las Posas	Shallow Alluvial Aquifer	210	380	2018	590
	FCA	2,680	10,700	2009 – 2011	13,380
	GCA	370	1,600		1,970

Notes:

[a] Values rounded to the nearest 10 acre-feet. Negative (-) values denote a reduction in groundwater in storage. Positive (+) values denote in increase in groundwater in storage.

[b] In the WLPMA, the Upper Aquifer System (UAS) does not host any principal aquifers of the LPVB.

[c] In the WLPMA, the Lower Aquifer System (LAS) consists of the Upper San Pedro Formation (age-equivalent to the Hueneme aquifer in the adjacent Oxnard Subbasin), the FCA, and the GCA.

[d] Due to the limited availability of complete measurements at key wells in the WLPMA, the 2004-2010 period was selected using a single well (02N21W12H01S).

[9] Groundwater elevation changes measured in the WLPMA during the 2004 to 2010 period were similar to those measured between October 1, 2022, and September 30, 2024. Because of this, the simulated change in storage for the period from 2004 to 2010 was used as an estimate of the change in storage for water years 2023 and 2024.

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:32:04 AM -07'00'
Please explain this calculation. As presented it appears that the change in storage for the entire period of 2004 through 2010 was an increase of 1,810 AF, but the table makes it appear to be an estimate of annual storage change.

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:29:02 AM -07'00'
should this be -32,970 as in the text above?

Number: 3 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:38:06 AM -07'00'
Recommend explaining how the values in this table relate to those in Table 2-4c

2.5 Groundwater Quality

This section summarizes groundwater quality conditions in the LPVB. Due to the variation in groundwater quality monitoring schedules across the LPVB, groundwater quality is characterized using the most recent groundwater samples collected over a 5-year window, during the period from 2019 through 2023 (Figure 2-19, Most Recent TDS (mg/L) Measured 2019-2023, through Figure 2-23, Most Recent Boron (mg/L) Measured 2019-2023). For the GSP, groundwater quality conditions were characterized using the most recent groundwater samples collected during the period from 2011 through 2015.

The FCGMA adopted Basin Management Objectives (BMOs) for nitrate, chloride, and total dissolved solids (TDS) in the LPVB as part of its 2007 Groundwater Management Plan (FCGMA 2007). Additionally, the Water Quality Control Plan: Los Angeles Region (Basin Plan) specifies water quality objectives for TDS, chloride, nitrate, sulfate, and boron (LARWQCB 2014). The change in groundwater quality concentrations related to each constituent relative to the 2011 to 2015 period is summarized below.

2.5.1 Department of Water Resources Recommended Corrective Actions

DWR issued a recommended corrective action related to groundwater quality (DWR 2021). This recommended corrective action states:

> By the first periodic evaluation of the GSP, the Agency should further describe efforts to evaluate the connection between groundwater production and groundwater quality, including the monitoring the Agency is conducting and any progress made toward evaluation of the causal relationship referenced in the GSP. The Agency should document specific details of the processes they will use to determine if groundwater management and extraction are causing adverse impacts to groundwater quality. This should include coordination with all interested parties, beneficial users of groundwater, water quality regulatory agencies, and water quality program administrators within the Basin.

FCGMA partners with local agencies, including VCWPD, UWCD, and CMWD, to monitor groundwater quality in the LPVB. For this first periodic update, changes in groundwater quality were mapped, by constituent to assess areas of the LPVB in which groundwater quality may be deteriorating (Figures 2-19 through 2-23). For those wells in which groundwater quality declined since 2015, a Mann Kendall analysis of water quality trends was performed. The results of that analysis are shown in Table 2-6, LPVB Water Quality Trend Statistics.

Table 2-6. LPVB Water Quality Trend Statistics

Well Number	Management Area	Aquifer	TDS	Chloride	Nitrate	Sulfate	Boron
02N20W06R01S	WLPMA	FCA	No Trend	No Trend	—	No Trend	No Trend
02N20W17L01S	WLPMA	Unknown	No Trend	No Trend	No Trend	No Trend	No Trend
02N21W11A02S	WLPMA	FCA	No Trend	No Trend	—	No Trend	No Trend
02N21W17N03S	WLPMA	Unknown	No Trend	**Increasing**	**Increasing**	**Increasing**	No Trend
02N21W18H12S	WLPMA	Multiple	No Trend	No Trend	No Trend	No Trend	No Trend

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:45:22 AM -07'00'

DWR's RCA for water quality included a request to further describe efforts to evaluate connections between groundwater production and quality, including evaluation of the "casual relationship" referenced in the GSP and document details of a process for determining if groundwater management and extraction are causing adverse impacts to groundwater quality.

This discussion and documentation do not appear to have been included and neither is there a statement addressing DWR's request.

Table 2-6. LPVB Water Quality Trend Statistics

Well Number	Management Area	Aquifer	TDS	Chloride	Nitrate	Sulfate	Boron
02N21W18H14S	WLPMA	FCA	No Trend	**Increasing**	—	No Trend	No Trend
02N21W22G01S	WLPMA	FCA	—	—	—	—	—
02N19W07B02S	ELPMA	Unknown	No Trend	No Trend	**Increasing**	Decreasing	No Trend
02N20W03J01S	ELPMA	FCA	—	—	—	—	—
02N20W04F01S	ELPMA	FCA	**Increasing**	No Trend	—	No Trend	No Trend
02N20W09Q05S	ELPMA	Unknown	—	—	—	—	—
02N20W09Q07S	ELPMA	Unknown	No Trend	No Trend	No Trend	No Trend	No Trend
03N19W29K06S	ELPMA	Unknown	No Trend	No Trend	No Trend	**Increasing**	—
03N19W30E06S	ELPMA	Unknown	No Trend	No Trend	No Trend	No Trend	—
03N19W31B01S	ELPMA	FCA	No Trend	No Trend	—	No Trend	No Trend
03N19W31H01S	ELPMA	FCA	—	—	—	—	—
03N20W36A02S	ELPMA	FCA	—	—	—	—	—
03N20W36G01S	ELPMA	FCA	—	—	—	—	—

Notes: FCA = Fox Canyon Aquifer.
Statistical significance was determined via Mann Kendall analysis. "-" indicates wells with fewer than four water quality measurements since 2015. A trend cannot be determined for these wells. "No Trend" means there were sufficient data to determine whether there was a statistically significant increase or decrease, and none was found.

2.5.1.1 West Las Posas Management Area

In the WLPMA, wells 02N21W18H14S and 02N21W17N03S had statistically significant increasing chloride concentrations since 2015 (Table 2-6). Well 02N21W17N03S also had increasing nitrate and sulfate concentrations. Both wells are located on the boundary between the WLPMA and the Oxnard Subbasin (Figures 2-26 through 2-28). Water quality in this area has been impacted by historical land uses and is generally tied to groundwater elevation (FCGMA 2019). Higher groundwater elevations in these wells are correlated with increased spreading at the UWCD groundwater recharge facilities, where diverted surface water from the Santa Clara River lowers the concentration of TDS, chloride, nitrate, sulfate, and boron in the groundwater. The observed increases in concentration of these constituents reflects the ongoing drought from 2015 through 2022. UWCD manages the spreading and distribution of surface water from the Santa Clara River to mitigate impacts to groundwater quality in this region. FCGMA will continue to coordinate with UWCD to monitor groundwater quality in these wells.

2.5.1.2 East Las Posas Management Area

In the ELPMA, only well 02N20W04F01S in the western portion of the ELPMA near the Somis Fault, had a statistically significant increasing trend in TDS (Table 2-6, Figure 2-24, Change in TDS Concentration (mg/L) between the period from 2011-2015 and 2019-2023). Wells 03N19W29K06S and 02N19W07B02S had statistically significant increasing trends in sulfate and nitrate, respectively (Table 2-6, Figure 2-26 and Figure 2-27). Well 03N19W29K06S is in the northeastern portion of the ELPMA, whereas 02N19W07B02S is near the Arroyo Simi. Historically, as treated wastewater discharges and discharges from groundwater dewatering wells upstream of the LPVB reached the ELPMA, TDS, chloride, nitrate, sulfate, and boron increased (FCGMA 2019). Therefore, if the increase in nitrate at well 02N19W07B02S were related to groundwater production induced

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:47:23 AM -07'00'

This references the "casual relationship" DWR mentioned, but does not explain the reasons behind the statement or provide any plan for further assessment.

Recommend being very careful about statements concerning connections between groundwater elevations and quality without evidence.

2.5.3 Sustainable Management Criteria

The GSP did not establish specific groundwater quality minimum thresholds, measurable objectives, or interim milestones (FCGMA 2019). The SMC for groundwater quality were based on the groundwater elevations that would prevent undesirable results related to chronic declines in groundwater elevation and significant and unreasonable loss of groundwater in storage.

2.5.4 Undesirable Results

Groundwater elevations in the WLPMA indicated that the management area experienced undesirable results related to chronic declines in groundwater elevation between 2019 and 2024 (Section 2.2.4, Undesirable Results). However, no wells were reported to have gone dry during that period and changes in the groundwater quality do not appear to be correlated with decreases in groundwater elevation. The ELPMA and Epworth Gravels Management Areas did not experience undesirable results related to chronic declines in groundwater elevation or significant and unreasonable loss of groundwater in storage.

A review of the most recent concentrations of TDS, chloride, nitrate, sulfate, and boron, as well as the changes in concentration of those constituents since 2015, does not indicate that the LPVB is experiencing degraded groundwater quality related to groundwater production.

2.5.5 Progress Toward Achieving Sustainability

FCGMA has begun to address DWR's recommended corrective action related to groundwater quality and is working to improve the groundwater quality monitoring network.

2.5.5.1 Adaptive Management Approaches

The adaptive management approaches taken in the LPVB are discussed in Section 2.2.5.1.

2.5.5.2 Impacts to Beneficial Uses and Users of Groundwater

Evaluation of the changes in water quality presented in Section 2.5.2 does not indicate that beneficial uses and users of groundwater have been impacted by water quality degradation since 2015. Additionally, beneficial uses and users of groundwater in the LPVB have not reported any impacts as a result of groundwater quality changes since the GSP was prepared.

2.5.5.3 Changes to Sustainable Management Criteria

The GSP did not define specific SMC for groundwater quality. No changes related to groundwater quality SMC are warranted at this time.

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 8:48:43 AM -07'00'
Section 2.5.1.1. says there is a relationship. See comment on that section.

3.2 Newly Identified Projects and Management Actions

FCGMA and the interested parties in the LPVB have identified projects that increase water supplies in the LPVB and support implementation of the GSP and Judgment. These projects were not included in the GSP. A portion of these projects were incorporated into the GSP through the 2021 GSP Annual Report for the LPVB (FCGMA 2022). These projects are summarized below and in Table 3-2.

In addition to these projects, the Judgment identifies additional projects to be evaluated as part of the Basin Optimization Plan. These are summarized in Section 3.2.2, Projects Identified through the Judgment.

3.2.1 Project No. 4: Infrastructure Improvements to Zone Mutual Water Company's Water Delivery System

3.2.1.1 Description of Project No. 4

This project is intended to increase the capacity of Zone Mutual Water Company (ZMWC) delivery system to physically transfer water between the ELPMA and WLPMA of the LPVB by converting the existing ZMWC delivery system from gravity to pressure. The conversion will require: the replacement of approximately 4.5 miles of concrete gravity pipeline with PVC, HDPE, or steel pipeline and associated appurtenances, and instrumenting the delivery system with system automation controls to provide on-demand services. Implementation of this project would contribute to GSP Project No. 1, Purchase of Imported Water from CMWD for Basin Replenishment, by allowing for in-lieu deliveries to farmers within, and potentially surrounding, the ZMWC service area. In addition, this project would increase water use efficiency through pipeline upgrades and system automation and increase the capacity to deliver blending water to agricultural well owners impacted by poor quality groundwater. It is estimated that this project would result in approximately 500 AFY of water savings and would decrease groundwater demand in the LPVB by 2,300 AFY.

3.2.1.2 Benefits and Impacts of Project No. 4

Realized Benefits

This project is conceptual; thus, benefits have not yet been realized.

Expected Benefits

The project should aid in the achievement of measurable objectives and minimum thresholds for the four sustainability indicators applicable to the LPVB. This project will: (1) help raise groundwater levels, thereby increasing the volume of groundwater in storage and reducing the potential for land subsidence related to groundwater withdrawal, and (2) improve groundwater quality by providing blending water to agricultural pumpers impacted by low quality groundwater. Higher groundwater levels will also reduce pump lift, and therefore energy consumption, for municipal and agricultural pumpers.

It is estimated that implementation of this project would decrease groundwater demand in the LPVB by approximately 500 AFY.

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This project may need to be revised based on recent information presented to the TAC. See TAC Recommendation Report on the Basin Optimization Plan projects.

3.2.3 Project No. 6: Arroyo Las Posas Storm Flow Diversions for Recharge to the East Las Posas Management Area

3.2.3.1 Description of Project No. 6

This project proposes to divert storm flows from Arroyo Simi-Las Posas for recharge to the ELPMA. The proposed diversions would occur during high flow events via a new surface intake located near the existing stabilizer structure in the Arroyo Simi-Las Posas adjacent to the Moorpark Wastewater Water Reclamation Facility operated by VCWWD-1. The storm flows would then be delivered to the existing percolation ponds to recharge the aquifers in the ELPMA. The project proposes to use the entire 40 acres of the existing percolation ponds and anticipates that the diversions would provide up to 2,000 AFY of recharge. The 2,000 AFY estimated recharge may increase the sustainable yield of the ELPMA up to the corresponding amount, provided adequate storage is available in the aquifers.

3.2.3.2 Benefits and Impacts of Project No. 6

Realized Benefits

This project is conceptual; thus, benefits have not yet been realized. Feasibility of implementing this project will be evaluated in the Basin Optimization Plan.

Expected Benefits

The project should aid in the achievement of measurable objectives and minimum thresholds for the four sustainability indicators applicable to the LPVB. This project will: (1) help raise groundwater levels throughout the ELPMA by providing 2,000 AFY of additional recharge to the basin, thereby increasing the volume of groundwater in storage and reducing the potential for land subsidence related to groundwater withdrawal, and (2) improve groundwater quality in the southern portion of the ELPMA by recharging higher-quality water compared to the base flows in Arroyo Las Posas that are composed predominantly of discharges from the SVWQCP. Higher groundwater levels that result from this recharge project may also reduce pump lift, and therefore energy consumption, for municipal and agricultural pumpers.

This project is estimated to increase the sustainable yield of the ELPMA by up to 2,000 AFY.

Impacts to beneficial uses and users

This project would positively impact beneficial uses and users in the ELPMA.

3.2.4 Project No. 7: Installation of Additional Groundwater Monitoring Wells

3.2.4.1 Description of Project No. 7

This project proposes installation of multi-depth monitoring wells in the WLPMA and ELPMA of the LPVB to assess groundwater conditions in the principal aquifers of the LPVB that lack data. The GSP determined that there were spatial data gaps in the understanding of aquifer conditions and identified four potential new well locations that

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Recommend advancing this project as quickly as possible

would help fill the identified gaps. In the WLPMA, the GSP identified the boundary between the WLPMA and the Oxnard Subbasin as an area that would benefit from additional groundwater monitoring to improve characterization of groundwater gradients across the basin boundary. In the ELPMA, the GSP identified the potential groundwater dependent ecosystem located along Arroyo Simi-Las Posas as a region that would benefit from additional groundwater monitoring. A new multi-depth groundwater monitoring well in this location would provide data on whether the vegetation in the riparian corridor relies on groundwater or soil moisture from infiltrating surface water. In addition, the GSP notes that there are no dedicated monitoring wells screened in the GCA in the ELPMA and that adding a monitoring well would improve the understanding of groundwater gradients between the FCA and GCA.

Since submittal of the GSP, well 02N20W04F02S, a key well in the ELPMA, was destroyed. A new dedicated monitoring well to replace this well would provide better characterization of groundwater conditions in the western part of the ELPMA. In the WLPMA, FCGMA identified the pumping depression in the eastern portion of the management area as an area that would benefit from a new dedicated monitoring well. Additionally, well 02N21W16J03S, the only key well in the central part of the WLPMA, has not been measured since 2016. This part of the WLPMA would benefit from a new dedicated monitoring well.

3.2.4.2 Benefits and Impacts of Project No. 7

Realized Benefits

This project is conceptual; thus, benefits have not yet been realized.

Expected Benefits

The expected benefits of this project lie in the additional data gathered from the well installation process and the ongoing monitoring of the groundwater conditions at the well sites. These data can be used to refine the conceptual and numerical models of the LPVB. Such refinement may result in reevaluation and adjustment of the minimum thresholds or measurable objectives.

Impacts to beneficial uses and users

This project is anticipated to benefit beneficial uses and users in the LPVB by improving characterization and management of the basin.

3.2.5 Project No. 8: Installation of Transducers in Groundwater Monitoring Wells

3.2.5.1 Description of Project No. 8

This project proposes installation of transducers in representative monitoring points, or key wells, in the LPVB. The GSP determined that there were temporal data gaps in the understanding of aquifer conditions. These data gaps limit the number of wells that can be used to contour spring high and fall low groundwater conditions. These temporal data gaps also impact estimates of the change in groundwater in storage in the LPVB. The temporal data gaps have persisted in each annual report prepared after the GSP was submitted to DWR. Additionally, as most key wells are agricultural irrigation wells, transducers will help assure that measured groundwater levels are static water levels unaffected by recovery or potential well interference. The addition of transducers will help ensure that spring

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Recommend advancing this project as quickly as possible

4 Basin Setting Review

4.1 Hydrogeologic Conceptual Model

There are three hydrogeologically distinct management areas (WLPMA, ELPMA, and Epworth Gravels Management Area) and four principal aquifers (the Shallow Alluvial aquifer, Epworth Gravels aquifer, FCA, and GCA) in the LPVB (FCGMA 2019). The FCA and GCA are present in both the WLPMA and ELPMA, although hydrogeologic communication between the two management areas is limited by the Somis Fault. The Shallow Alluvial aquifer is only present in the East Las Posas Management Area (ELMPA), constrained to an area adjacent to Arroyo Simi–Las Posas. The Epworth Gravels aquifer is located geographically within the ELPMA, near Broadway Road, however it is hydrologically disconnected from the underlying FCA and, therefore, is defined as its own management area. The Upper San Pedro formation, while not a principal aquifer in the LPVB, acts as a source of water to the underlying FCA. This section of the GSP evaluation summarizes new information that helps to improve understanding of the groundwater conditions within each principal aquifer.

4.1.1 New Information and Data

4.1.1.1 Hydrostratigraphic Information

WLPMA

UWCD maintains the three-dimensional (3D) hydrostratigraphic model of the Oxnard Subbasin, PVB, and WLPMA. This 3D hydrostratigraphic model maps the lateral extents, thicknesses, and properties of the six water-bearing aquifers in the LPVB. The 3D model was designed during development of the VRGWFM and integrates geophysical logs (e-logs) and lithologic data from approximately 575 wells in the Oxnard Subbasin, PVB, and WLPMA with structural geologic information into a 3D model developed using the Rockworks software (UWCD 2018). Since adoption of the GSP, UWCD has continued development of the 3D hydrostratigraphic model of the region. UWCD has focused their hydrostratigraphic model updates on areas in the Oxnard Subbasin underlying the Naval Base Ventura County installations at Point Mugu and Port Hueneme, where groundwater is impacted by seawater intrusion. These revisions impact the interpretation of aquifer thicknesses and extents along the coastline of the Oxnard Subbasin.

While these hydrostratigraphic model updates are not specific to the LPVB, they help to improve understanding of the impacts of groundwater conditions in the WLPMA of the LPVB on seawater intrusion in the Oxnard Subbasin. These revisions are described in FCGMA (2024a). Projects have been identified to install additional monitoring wells and transducers in existing wells that would address data gaps in the ELPMA (Sections 3.2.4 and 3.2.5.) FCGMA applied for DWR SGMA Implementation Grant funding for these projects but was not awarded funds. These projects will be evaluated further in the Basin Optimization Plan.

ELPMA and Epworth Gravels

No new information is available that would improve or update the understanding of the hydrogeologic conceptual model of the ELPMA and Epworth Gravels Management Area. Data gaps in the hydrogeologic conceptual model still exist in both management areas. Projects have been identified to install additional monitoring wells and

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Please include information regarding the understanding of the LPVB and relevant information about the connection to Oxnard in this document.

reportedly used for domestic purposes. Available data characterizing groundwater extractions in water years 2021 and 2022 indicate that groundwater extractions from the LPVB averaged approximately 42,400 AFY (Tables 4-3 and 4-4), or 15% higher than the 1985 to 2015 average. In water years 2021 and 2022, approximately 86% of the pumped groundwater was used for agriculture, 13% was used for municipal supply, and 1% was used for domestic purposes.

The higher than historical average groundwater extractions over the 2020 and 2021 water years reflect a general increase in groundwater demands and reduction in imported water usage. Additionally, in-lieu deliveries to both the ELPMA and WLPMA were discontinued in 2016; these deliveries have historically reduced groundwater demands within the LPVB (Section 4.3.2.2, Imported Water, and Section 4.3.2.4, Calleguas Municipal Water District Aquifer Storage and Recovery Project and In-Lieu Storage).

Comparison to Projected Groundwater Supplies

Future projections of groundwater extractions were updated as part of this 5-year GSP evaluation (Section 5.2). Under baseline conditions, groundwater extractions from the LPVB are projected to average approximately 36,100 AFY. This is approximately 10% lower than the average annual groundwater extractions over the 2021 and 2022 water years.

Importantly, groundwater extractions from the LPVB are now managed under the Judgment, which establishes the initial Operating Yield of the LPVB at 40,000 AFY. This Operating Yield will remain in effect through Water Year 2024 (October 1, 2024, through September 30, 2025), after which FCGMA may implement Rampdown to support sustainable groundwater management of the LPVB. The rate of, and need for, Rampdown will be developed through the Basin Optimization Yield Study.

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42,400 - 36,100 = 6,300 AFY, and 6,300/42,400 = 15% (14.858).

5 Updated Numerical Modeling

Numerical groundwater flow modeling of the LPVB was performed using two different models:

- **Coastal Plain Model:** a version of the VRGWFM MODFLOW numerical model developed and maintained by UWCD, which covers the entirety of the WLPMA, Oxnard Subbasin, PVB, and Mound Subbasin (UWCD 2018).
- **ELPMA Model:** a MODFLOW numerical model developed by CMWD, which covers the entirety of the ELPMA and Epworth Gravels Management Area (CMWD 2018).

As part of this GSP evaluation of the LPVB, both the VRGWFM and ELPMA model were updated to re-evaluate projected future conditions in the LPVB and validate each model's ability to reproduce groundwater elevations measured between January 1, 2015, and September 30, 2022. Section 5.1, Model Updates, describes the updates to each model since development of the GSP and Section 5.2, describes the updated future scenario modeling performed for this GSP evaluation, along with updated estimates of the sustainable yield of the LPVB.

5.1 Model Updates

5.1.1 West Las Posas Management Area Model

For the GSP, numerical groundwater flow modeling for the WLPMA was performed using the VRGWFM (UWCD 2018). UWCD actively maintains the VRGWFM to support regional groundwater management. The version of the VRGWFM used during development of the GSP covered the entirety of Oxnard and Mound subbasins and the majority of the WLPMA and PVB (UWCD 2018). Following adoption of the GSP, UWCD expanded the VRGWFM to cover the entirety of WLPMA and PVB and include the Santa Paula, Piru, and Fillmore Subbasins (UWCD 2021a). As part of this, UWCD updated their hydrogeologic conceptual model of the Oxnard, Santa Paula, Piru, and Fillmore Subbasins to improve representation of local hydrogeologic conditions and, in the Oxnard Subbasin, better represent groundwater elevations along the coast and their influence on seawater intrusion.

Due to the complexity of simulating the effects of Santa Clara River flows on groundwater conditions in the Santa Paula, Piru, and Fillmore subbasins, with a daily model timestep, UWCD maintains a localized version of the VRGWFM that excludes these upper basins and uses a monthly timestep. This branch-off of the VRGWFM is informally referred to as the Coastal Plain Model. Consistent with the GSP modeling, the Coastal Plain Model represents interactions between the Oxnard Subbasin and the upgradient Santa Paula Subbasin using a general head boundary condition (UWCD 2018). While the Coastal Plain Model is distinct from the VRGWFM, the model design and structure are consistent with the model used during development of the GSP. Therefore, the Coastal Plain Model is considered an update to the GSP model and was used for the 5-year GSP evaluation modeling.

Improvements to the Coastal Plain Model compared to the GSP model include revised estimates of subsurface exchanges with the Santa Paula Subbasin (Basin No. 4-004.04), and updated hydrostratigraphy in the vicinity of Port Hueneme and Point Mugu. These updates are summarized in FCGMA (2024a).

In the WLPMA, UWCD updated the boundary condition used to represent the Somis Fault, which separates the WLPMA and ELPMA (FCGMA 2019). For the GSP modeling, this boundary was represented using a no-flow boundary condition. The Coastal Plain Model now includes a general head boundary condition along the southeastern portion

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1f the fault. As a result, the Coastal Plain Model simulates subsurface flows from the WLPMA to the ELPMA (Table 2-4c). These modeled flows are not integrated into the modeling conducted for the ELPMA.

While groundwater elevation measurements on the east and west side of the Somis Fault are limited, available data suggest that the Somis Fault is a significant barrier to groundwater flow (FCGMA 2024b, FCGMA 2019). The groundwater elevation gradient is from the ELPMA to the WLPMA (FCGMA 2024b, FCGMA 2019). FCGMA anticipates coordinating with UWCD, in consultation with the LPVB TAC, to better coordinate the representation of this boundary between the ELPMA and WLPMA in both LPVB models. This coordination will occur ahead of, and during development, the Basin Optimization Yield Study. Resulting revisions to the models will be incorporated into future modeling of the LPVB.

2 broader discussion of updates to the Coastal Plain Model will be detailed in a technical memorandum prepared by UWCD[18].

5.1.1.1 Model Extension and Recalibration

As part of this 5-year evaluation, UWCD extended the Coastal Plain Model to simulate groundwater conditions in the WLPMA through the end of water year 2022 (i.e., September 30, 2022). During the model update and extension process, UWCD re-calibrated the Coastal Plain Model. This re-calibration effort involved incremental adjustments to local hydraulic conductivity, storativity, and boundary conductance values and resulted in better simulation of groundwater conditions along the coastline and simulation of groundwater conditions in the WLPMA (details to be included in UWCD's Coastal Plain Model update technical memorandum).

5.1.2 East Las Posas Management Area Model

For the GSP, numerical groundwater flow modeling for the ELPMA and Epworth Gravels Management Area was performed using the ELPMA model (CMWD 2018). CMWD no longer maintains this model but has provided the model to FCGMA to support management of the LPVB. As discussed in Section 4.1, Hydrogeologic Conceptual Model, no new information that warranted revisions to the hydrogeologic conceptual model used in the numerical model was identified in the ELPMA and Epworth Gravels Management Area. Because of this, the ELPMA model was not revised for this GSP evaluation.

5.1.2.1 Model Extension

As part of this 5-year evaluation, FCGMA extended the ELPMA model to simulate groundwater conditions in the ELPMA and Epworth Gravels through the end of water year 2022 (i.e., September 30, 2022). The model was not re-calibrated as part of this effort. 3he ELPMA model extension, and validation, will be detailed in a technical memorandum prepared by FCGMA[19].

18 United Water Conservation District anticipates publishing the Coastal Plain Model update technical memorandum in fall 2024.
19 FCGMA anticipates publishing the ELPMA extension and validation technical memorandum in fall 2024.

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Why are the modeled flows between WLPMA and ELPMA not integrated into the modeling for the ELPMA?

This raises a concern that the two LPVB management areas are not being modeled in a similar or complimentary way. The statement implies that the ELPMA model still uses a no flow boundary at the Somis Fault, which would be expected to produce very different flow and water budget results when compared to the Coastal Plain model that has a partial general head boundary along the fault. The potential for flow between ELPMA and WLPMA in the coastal plain model may also have an impact on seawater intrusion in Oxnard, and that potential is not discussed. Recommend reconsidering the disparity in the way the Somis Fault is modeled in the Coastal Plain and ELPMA models.

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Where is this document? This seems like important information for the LPVB 5-Year GSP Evaluation

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When will this be available? Shouldn't this be available for committee review?

1mulation of future groundwater conditions. In addition, the future modeling time period was updated to account for the extension in the historical modeling period. Results from the updated future model scenarios were used to estimate the sustainable yield of the LPVB under different project and management scenarios.

Revisions to the simulation time period, baseline extractions, future hydrology, and suite of projects considered in the future scenarios are described in Section 5.2.1, Updated Future Scenario Assumptions. The suite of future scenarios, and associated model results, are summarized in Section 5.2.2, Projected Water Budgets. Resulting revisions to the estimates of the future sustainable yield of the Subbasin are summarized in Section 5.2.3, Estimates of the Future Sustainable Yield.

5.2.1 Updated Future Scenario Assumptions

This section describes the set of assumptions used for the updated modeling and provides a comparison to the assumptions used for the GSP.

5.2.1.1 Updated Simulation Time Period

The future scenarios developed for this 5-year evaluation simulate groundwater conditions in the LPVB over the 47-year period from October 1, 2022, through September 30, 2069 (i.e., water years 2023 through 2069). This simulation period, combined with the 2020, 2021, and 2022 water-year simulation results (Sections 5.1.1, West Las Posas Management Area Model, and 5.1.2, East Las Posas Management Area Model), provides a 50-year GSP projection horizon as required under 23 CCR §354.18.

Comparison to the GSP Modeling

The future scenarios developed for the GSP simulated groundwater conditions in the LPVB over the 50-year period from January 1, 2020, through December 31, 2069 (FCGMA 2019). Because water years 2020, 2021, and 2022 were incorporated into the historical modeling, the future scenarios were updated to begin in water year 2023[20].

5.2.1.2 Updated Baseline Extraction Rates

The future baseline groundwater extraction rates used for the 5-year evaluation modeling are equal to the 2016 to 2022 average[21]. Groundwater extractions over this period consist of both reported and estimated extractions. Estimated extractions were based on available AMI data for wells with missing extraction reports (for example, see FCGMA 2023).

Comparison to the GSP Modeling

For the GSP, the future baseline extraction rates were equal to the average 2015 to 2017 extraction rates. The 2015 to 2017 extraction rate for the LPVB was equal to approximately 36,000 AFY. The updated baseline extraction rates are approximately equal to those simulated for the GSP (FCGMA 2019; Sections 5.2.2.1.2, Future Baseline Scenario, and 5.2.2.2.2, No New Projects Scenario).

[20] For the GSP modeling, water year is defined as October 1 of the previous calendar year through September 30 of the current calendar year. For example, water year 2020 refers to the period from October 1, 2019, through September 30, 2020.

[21] Water year 2020 was not included in the calculation. FCGMA transitioned extraction reporting from calendar year to water year in 2020; therefore 2020 extraction reporting only spanned 9 months (January 1 through September 30).

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5.2.2 Projected Water Budgets

Five model scenarios were developed for this 5-year evaluation in accordance with the SGMA guidelines, and consistent with the GSP, to evaluate the future sustainable yield of the LPVB. These scenarios are:

- Future Baseline Scenario
- No New Projects Scenario
- Projects Scenario
- Basin Optimization Scenario
- Extraction Barrier Brackish (EBB) Water Treatment Project Scenario

The Basin Optimization and EBB Water Treatment Project Scenario are only applicable to the WLPMA because they evaluate the effects of projects specific to the Oxnard Subbasin; these projects do not provide a new source of water supply for, or impact groundwater conditions in, the ELPMA and Epworth Gravels Management Area.

As noted in Section 5.2.1, Updated Future Scenario Assumptions, the scenarios cover a 47-year period from October 1, 2022, through September 30, 2069 (i.e., water year 2023 through water year 2069). Consistent with the GSP, the period from 2023 through 2039 is referred to as the "implementation period" and the period from 2040 to 2069 is referred to as the "sustaining period." Due to the connection between the WLPMA and Oxnard Subbasin, the sustainable yield was evaluated using the model runs that resulted in: (1) no net flux of seawater into either the UAS or LAS of the Oxnard Subbasin,, (2) no landward migration of the saline water impact front in the Oxnard Subbasin, and (3) no chronic lowering of groundwater levels in WLPMA. These metrics were evaluated over the 30-year sustaining period, with consideration of the uncertainty in Coastal Plain Model's predictions (FCGMA 2019).

The Coastal Plain Model includes both the Oxnard Subbasin and the PVB in the model domain, and the modeling assumptions associated with each scenario discussed below include the assumptions made for these adjacent basins.

5.2.2.1 West Las Posas Management Area Modeling

5.2.2.1.1 Evaluation Metrics

A total of eight (8) model simulations were completed for the WLPMA under the five scenarios referenced above. Results from each model run were analyzed to characterize the effects of different pumping distributions, projects, and management actions on:

- Groundwater conditions in the WLPMA
- Underflows between the WLPMA and Oxnard Subbasin
- Seawater flux in the Oxnard Subbasin
- Landward migration of the saline water impact front in the Oxnard Subbasin

The methods for characterizing these four model-estimates are summarized below.

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How do flows between WLPMA and ELPMA differ in the two models?

5.2.2.1.3 No New Projects Model Scenario

The No New Projects (NNP) Scenario was designed to provide a direct simulation of the groundwater pumping distributions in the Oxnard Subbasin, PVB, and WLPMA that limit seawater flux into the Oxnard Subbasin and the landward migration of the 2020 saline water impact front. Three separate model runs were conducted under the NNP Scenario: NNP 1, NNP2, and NNP3. Each model run incorporated all the assumptions included in the Future Baseline scenario (Section 5.2.2.1.2, Future Baseline Scenario) but used different sets of assumptions for groundwater production.

The NNP Scenario model runs evaluated different pumping distributions and reductions to provide the FCGMA Board of Directors information to evaluate potential future projects and management actions and their relation to sustainable groundwater management of the WLPMA, Oxnard Subbasin, and PVB.

Additionally, and importantly, FCGMA as the Watermaster for the LPVB, will be developing a Basin Optimization Plan that evaluates and prioritizes projects that increase the sustainable yield of the WLPMA (Section 3.1.2, Projects). Information developed as part of the Basin Optimization Plan will be integrated into future evaluations and, as appropriate, amendments to the LPVB GSP.

No New Projects Scenario Assumptions

As described above, the NNP Scenario included all the assumptions from the Future Baseline Scenario, except for the distribution of groundwater production. Groundwater production distributions were adjusted by basin and aquifer system in each of the three model runs. The specific distributions used in each model run are described below.

No New Projects 1

The NNP1 model run incorporated a 20% reduction in pumping in the UAS of the Oxnard Subbasin, an 80% reduction in pumping in the LAS of the Oxnard Subbasin, and a 20% reduction in pumping from both aquifer systems in the PVB and WLPMA (Table 5-2). This reduction in groundwater production, adjusted by surface and recycled water availability, resulted in an average annual groundwater production rate of approximately 39,100 AFY in the Oxnard Subbasin, 13,200 AFY in the PVB, and 10,800 AFY in the WLPMA.

No New Projects 2

The NNP2 model run was designed to evaluate the impacts of pumping in the PVB and WLPMA on seawater flux in the LAS of the Oxnard Subbasin. To do this, a 10% reduction in pumping was implemented in the UAS of the Oxnard Subbasin, a 100% reduction in pumping was implemented in the LAS of the Oxnard Subbasin, and no pumping reductions were implemented in the PVB and WLPMA. Implementing this reduction in groundwater production resulted in an average annual groundwater production rate of approximately 37,800 AFY in the Oxnard Subbasin, 14,000 AFY in the PVB, and 13,500 AFY in the WLPMA. The NNP2 run was specifically to evaluate flows between the basins and not as a potential management scenario.

No New Projects 3

The NNP3 model run was designed to evaluate future groundwater conditions using a revised estimate of the sustainable yield of the Oxnard Subbasin, PVB, and WLPMA. The revised estimate was developed using a multi-parameter system of linear regressions developed using results from the Future Baseline, NNP1, and NNP2 model

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The percent change referenced for PVB is not consistent with the annual pumping values presented in the assumption summaries. I suspect this is a function of how the information is presented, but it should be checked and the text or percentages/volumes corrected.

For instance, in NPP1 the summary says "a 20% reduction in both aquifer systems in the PVB and WLPMA" then references production volumes of "13,200 AFY in the PVB, and 10,800 AFY in the WLPMA." Comparing 13,200 AFY for NPP1 in the PVB to 13,900 AFY in Future Baseline shows a change of -5%, not 20%.

All other scenarios have similar results when compared to baseline.

migration of the saline water impact front over the 30-year sustaining period are sustainable for the Oxnard Subbasin, while those that allow for net seawater intrusion and landward migration of the saline water impact front are not.

Sustainable Yield without Future Projects

All three simulations performed under the NNP Scenario avoided chronic lowering of groundwater levels in the WLPMA and reduced seawater intrusion in the LAS of the Oxnard Subbasin during the 30-year sustaining period and resulted in net freshwater loss from the UAS of the Oxnard Subbasin to the Pacific Ocean. Therefore, the simulation with the highest overall production rate, that also minimized impacts from adjacent basins, was identified as the best estimate of the sustainable yield of the Oxnard Subbasin, PVB, and WLPMA, in the event that no new future projects are implemented in each basin. The simulation with the highest total groundwater production rate from this scenario was NNP3 – under this simulation, an average of approximately 11,400 AFY of groundwater was pumped from the WLPMA (Section 5.2.2.1.3 No New Projects Model Scenario). This estimate of the sustainable yield is approximately 1,100 AFY lower than the estimate presented in the GSP (FCGMA 2019). Applying the estimate of sustainable yield uncertainty calculated during the development of the GSP for the sustaining period suggests that the sustainable yield of the WLPMA may be as high as 12,600 AFY or as low as 10,200 AFY (FCGMA 2019).

The 2021 to 2022 average annual extractions from the WLPMA of 16,600 AFY is approximately 4,000 AFY higher than the estimated upper end of the sustainable yield of the WLPMA (Table 4-3).

Sustainable Yield with Future Projects

In the Projects Scenario, implementation of the UWCD's Freeman Expansion project and FCGMA's Voluntary Temporary Fallowing project helped to increase groundwater levels and the sustainable yield of the WLPMA. The primary benefits to the sustainable yield of the WLPMA associated with these projects are increased underflow recharge from the Oxnard Subbasin to the WLPMA that result from additional recharge in the Forebay Management Area of the Oxnard Subbasin. While the Purchase of Imported Water from CWMD for Basin Replenishment helps to increase groundwater levels in the WLPMA, the project does not increase the sustainable yield of the management area.

Over the 1985 to 2015 period, the relationship between modeled underflows between the Oxnard Subbasin and WLPMA suggest that approximately 7% of the water recharged in the Oxnard Forebay recharges the WLPMA as underflows from the UAS of the Oxnard Subbasin to the WLPMA. In the Projects scenario, recharge in the Oxnard Forebay was approximately 4,900 AFY higher than the Future Baseline scenario. Using the relationship between historical Forebay recharge and underflows, it is estimated that the implementation of projects in the Oxnard Subbasin and PVB would increase the sustainable yield of the WLPMA by approximately 340 AFY.

Therefore, if projects are implemented to increase diversions from the Santa Clara River and incentivize Voluntary Temporary Fallowing in the Oxnard Subbasin and PVB, the sustainable yield of the WLPMA may be as high as approximately 13,040 AFY or as low as 10,640 AFY.

Sustainable Yield with UWCD's EBB Water Treatment Project

Both simulations conducted under the EBB Water Treatment Scenario avoided chronic lowering of groundwater levels in the WLPMA and limited the landward migration of saline water in the Oxnard aquifer, Mugu aquifer, FCA, and GCA along the coastline of the Oxnard Subbasin. Because of this, the simulation with the highest overall production rate was used as the estimate of sustainable yield of the Oxnard Subbasin if UWCD's EBB Water

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This appears to be an arbitrary means of estimating sustainable yield. The values listed are simply the results of one of several production reduction scenarios not an assessment of the maximum "amount of groundwater that can be withdrawn annually without causing undesirable results." (DWR BMP for Sustainable Management Criteria, November 2017).
The SMC BMP also indicates that sustainable yield should be a single value, not a range as presented here.
Please provide more information regarding the methods for estimating uncertainty in the sustainable yield estimate.

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 10:45:31 AM -07'00'

See comment on sustainable yield without future projects regarding how to define sustainable yield.

Number: 3 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 10:44:57 AM -07'00'

Please explain how this range was estimated.

Number: 4 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 10:46:03 AM -07'00'

See comment on sustainable yield without future projects regarding how to define sustainable yield.

Treatment project is successfully implemented as described in Section 5.2.2.1.6, Extraction Barrier and Brackish Water Treatment Scenario. The simulation with the highest total groundwater production rate from this scenario was the Future Baseline with EBB simulation – under this simulation, an average of approximately 13,500 AFY of groundwater was extracted from the WLPMA (Section 5.2.2.1.6 Extraction Barrier and Brackish Water Treatment Scenario). This would represent an increase in the sustainable yield of WLPMA of approximately 2,100 AFY compared to the scenario in which no new projects are implemented in the Oxnard Subbasin, PVB, and WLPMA.

Therefore, if UWCD's EBB project is implemented at a 10,000 AFY production scale, the sustainable yield of the WLPMA may be as high as approximately 11,700 AFY or as low as 12,300 AFY.

5.2.3.2 East Las Posas Management Area

Sustainable Yield without Future Projects

Both simulations performed in the NNP Scenario avoided chronic lowering of groundwater elevations and storage in the ELPMA. Because of this, the estimated sustainable yield of the ELPMA, in the absence of new projects that increase water supplies in the management area, is approximately equal to 19,200 AFY (Table 5-3)[25]. This estimate of sustainable yield is approximately 1,400 AFY higher than the estimate of sustainable yield presented in the GSP (FCGMA 2019). The increase in sustainable yield compared to the GSP reflects the benefits of sustained flows in the Arroyo Simi-Las Posas.

Applying the estimate of sustainable yield uncertainty calculated during the development of the GSP for the sustaining period suggests that the sustainable yield of the ELPMA may be as high as 31,500 AFY or as low as 16,900 AFY (FCGMA 2019).

The 2021 to 2022 average annual extractions from the ELPMA of 23,800 AFY is approximately 2,300 AFY higher than the estimated upper end of the sustainable yield of the ELPMA (Table 4-4).

Sustainable Yield with Future Projects

The Projects scenario suggests that, under the simulated pumping conditions, if future SVWQCP discharges are greater than 8,040 AFY, the Arroyo-Simi Arundo Removal Project will not increase the sustainable yield of the ELPMA. As noted in Section 5.2.2.2.3, Projects Scenario, under these conditions, this project will likely result in increased surface water flows to the PVB. However, the benefits of maintaining, or increasing, flows in Arroyo Simi-Las Posas may increase if new projects are implemented in the ELPMA that increase available storage in the aquifers that underlie the Arroyo. FCGMA anticipates evaluating these types of projects in the Basin Optimization Plan and Basin Optimization Yield Study.

5.2.3.3 Epworth Gravels Management Area

Both simulations performed in the NNP Scenario mitigated against chronic lowering of groundwater elevations and storage in the Epworth Gravels Management Area. Because of this, the estimated sustainable yield of the Epworth Gravels Management Area, in the absence of new projects that increase water supplies in the management area, is approximately equal to 1,330 AFY (Table 5-3). This estimate of sustainable yield is approximately equal to the sustainable yield presented in the GSP (FCGMA 2019). Applying the estimate of sustainable yield uncertainty

[25] Consistent with the GSP, this includes the sustainable yield of the Epworth Gravels Management Area.

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Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 10:48:05 AM -07'00'
Please explain how this range was estimated.

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 10:46:49 AM -07'00'
See comment on WLPMA sustainable yield without future projects regarding how to define sustainable yield.

Number: 3 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 10:47:24 AM -07'00'
Please explain how this range was estimated.

Number: 4 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 10:46:54 AM -07'00'
See comment on WLPMA sustainable yield without future projects regarding how to define sustainable yield.

6.2 Data Gaps

6.2.1 Data Gaps That Have Been Partially Addressed

Spatial Data Gaps

FCGMA has undertaken several steps toward filling data gaps identified in the GSP. At the request of FCGMA, DWR installed a nested monitoring well cluster in 2019 near the boundary between the PVB and ELPMA, an area identified in the GSP as a critical location where groundwater elevation measurements were lacking. Another nested monitoring well cluster is being constructed in the Oxnard Subbasin near the border with WLPMA. Construction of these well clusters help characterize the interaction between the LPVB and adjacent basins.

6.2.2 Remaining Data Gaps

As described in the GSP, the existing monitoring network in the LPVB is sufficient to document groundwater and can be used to document progress toward the sustainability goals for the LPVB. Potential monitoring network improvements that address data gaps that remain from the GSP are summarized below.

6.2.2.1 Water Level Measurements: Spatial Data Gaps

The GSP identified data gaps in the spatial and vertical distribution of groundwater elevation measurements in the LPVB and recommended construction of:

- A monitoring well or wells near the boundary between the WLPMA and the Oxnard Subbasin to the west.
- A monitoring well or wells adjacent to Arroyo Simi–Las Posas, within the boundaries of the potential GDE.
- A monitoring well or wells screened in the GCA.

As described in Section 6.2.1, Data Gaps that Have Been Partially Addressed, the newly constructed monitoring well in the Oxnard Subbasin, near the boundary with the WLPMA, helps to partially address the first data gap listed above. In 2022, FCGMA applied for grant funding through DWR's Sustainable Groundwater Management Grant program to construct dedicated monitoring wells in the ELPMA and WLPMA to address the remaining spatial data gaps identified in the GSP. FCGMA was not awarded funds through this program but anticipates evaluating projects that address these data gaps as part of the Basin Optimization Plan.

Importantly, since adoption of the GSP, several groundwater level monitoring wells have been removed from the monitoring network, including two key wells (Figure 6-3):

- 02N20W04F02S, which was destroyed; and
- 02N21W16J03S, which has not been measured since 2019.

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See previous statements about consistency and the effects of data gaps on sustainable management.

Number: 2 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 10:50:24 AM -07'00'
Is the monitoring network still adequate with the removal of these wells?

8 Outreach, Engagement, and Coordination

8.1 Outreach and Engagement

A public outreach and engagement plan was developed for the LPVB GSP (FCGMA 2019). The outreach and engagement plan:

- Discusses FCGMA's decision-making process and how public input and responses will be used.
- Identifies opportunities for public engagement.
- Describes how FCGMA encourages the active involvement of diverse social, cultural, and economic elements of the population in the LPVB; and
- Describes the method FCGMA shall follow to inform the public about progress implementing the plan, including the status of projects and management actions.

Since adopting the GSP for the LPVB in 2019, the FCGMA Board of Directors has continued to prioritize outreach and engagement with interested parties and has followed the elements of the outreach and engagement plan developed for the GSP. Review of the outreach and engagement plan for this First Periodic Evaluation indicates that the methods described for outreach and engagement activities are relevant to GSP implementation and are being used to successfully support interested party involvement in the GSP implementation process.

During the GSP development and adoption process, interested parties expressed an interest in developing additional projects to increase the sustainable yield of the LPVB. FCGMA engaged with interested parties to solicit project descriptions, which were included in the 2022 GSP annual report (FCGMA 2022). In order to assist the FCGMA Board with evaluating the projects, FCGMA collaborated with interested parties to develop a project evaluation criteria checklist and held multiple operations committee meetings at which the project evaluation process was discussed, and project descriptions were refined. This process will allow FCGMA and project proponents to pursue project funding opportunities and has helped the implementation of project and management actions.

FCGMA has provided updates on GSP implementation activities and public participation opportunities to interested parties through direct electronic communications and posts to the FCGMA website. Additional, updates and opportunities for public comment were provided at FCGMA Regular Board meetings, FCGMA Special Board meetings, and FCGMA Board Committee meetings. Meeting agendas and minutes, as well as video recordings of all FCGMA Board meetings and workshops, were made available on the FCGMA website. The Draft Periodic Evaluation of the GSP, was made available for review on the GSP website for 45 days. FCGMA encouraged active participation from interested parties through public workshops (August 30, 2023; April 25, 2024; and September 9, 2024).

Additionally, the LPV Judgment established both a Policy Advisory Committee and a Technical Advisory Committee to solicit feedback from interested parties and advise the LPVB Watermaster on decisions that would impact interested parties and beneficial uses and users of groundwater in the LPVB. The Technical Advisory Committee provides additional review of documents developed to support GSP implementation and updates to the sustainable yield of the LPVB. Under the LPV Judgment, the Watermaster and the Technical Advisory Committee have a formal

Number: 1 Author: Chad Taylor Subject: Comment on Text Date: 9/30/2024 10:51:44 AM -07'00'
Recommend including discussion of the TAC and PAC here as they are outreach, engagement, and coordination components