



CALIFORNIA DEPARTMENT OF WATER RESOURCES

SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE

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April 27, 2023

Bryan Bondy
Upper Ventura River Groundwater Agency GSA
202 W. El Roblar Dr.
Ojai, CA 93023
bbondy@uvrgroundwater.org

RE: Approved Determination of the 2022 Groundwater Sustainability Plan Submitted for the Ventura River Basin – Upper Ventura River Subbasin

Dear Bryan Bondy,

The Department of Water Resources (Department) has evaluated the groundwater sustainability plan (GSP) submitted for the Ventura River Basin – Upper Ventura River Subbasin and has determined the GSP is approved. The approval is based on recommendations from the Staff Report, included as an exhibit to the attached Statement of Findings, which describes that the Upper Ventura River GSP satisfies the objectives of the Sustainable Groundwater Management Act (SGMA) and substantially complies with the GSP Regulations. The Staff Report also proposes recommended corrective actions that the Department believes will enhance the GSP and facilitate future evaluation by the Department. The Department strongly encourages the recommended corrective actions be given due consideration and suggests incorporating all resulting changes to the GSP in future updates.

Recognizing SGMA sets a long-term horizon for groundwater sustainability agencies (GSAs) to achieve their basin sustainability goals, monitoring progress is fundamental for successful implementation. GSAs are required to evaluate their GSPs at least every five years and whenever the Plan is amended, and to provide a written assessment to the Department. Accordingly, the Department will evaluate approved GSPs and issue an assessment at least every five years. The Department will initiate the first five-year review of the Upper Ventura River GSP no later than January 24, 2027.

Please contact Sustainable Groundwater Management staff by emailing sgmps@water.ca.gov if you have any questions related to the Department's assessment or implementation of your GSP.

Thank You,

Paul Gosselin

Paul Gosselin
Deputy Director
Sustainable Groundwater Management

Attachment:

1. Statement of Findings Regarding the Approval of the Ventura River Basin –
Upper Ventura River Groundwater Sustainability Plan

**STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES**

**STATEMENT OF FINDINGS REGARDING THE
APPROVAL OF THE
VENTURA RIVER VALLEY – UPPER VENTURA RIVER SUBBASIN
GROUNDWATER SUSTAINABILITY PLAN**

The Department of Water Resources (Department) is required to evaluate whether a submitted groundwater sustainability plan (GSP or Plan) conforms to specific requirements of the Sustainable Groundwater Management Act (SGMA or Act), is likely to achieve the sustainability goal for the basin covered by the Plan, and whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin. (Water Code § 10733.) The Department is directed to issue an assessment of the Plan within two years of its submission. (Water Code § 10733.4.) This Statement of Findings explains the Department's decision regarding the Plan submitted by the Upper Ventura River Groundwater Agency Groundwater Sustainability Agency (GSA or Agency) for the Upper Ventura River Subbasin (Basin No. 4-003.01).

Department management has discussed the Plan with staff and has reviewed the Department Staff Report, entitled Sustainable Groundwater Management Program Groundwater Sustainability Plan Assessment Staff Report, attached as Exhibit A, recommending approval of the GSP. Department management is satisfied that staff have conducted a thorough evaluation and assessment of the Plan and concurs with staff's recommendation and all the recommended corrective actions. The Department therefore **APPROVES** the Plan and makes the following findings:

- A. The Plan satisfies the required conditions as outlined in § 355.4(a) of the GSP Regulations (23 CCR § 350 et seq.):
 1. The Plan was submitted within the statutory deadline of January 31, 2022. (Water Code § 10720.7(a); 23 CCR § 355.4(a)(1).)
 2. The Plan was complete, meaning it generally appeared to include the information required by the Act and the GSP Regulations sufficient to warrant a thorough evaluation and issuance of an assessment by the Department. (23 CCR § 355.4(a)(2).)
 3. The Plan, either on its own or in coordination with other Plans, covers the entire Subbasin. (23 CCR § 355.4(a)(3).)
- B. The general standards the Department applied in its evaluation and assessment of the Plan are: (1) "conformance" with the specified statutory requirements, (2) "substantial compliance" with the GSP Regulations, (3) whether the Plan is likely

Statement of Findings

Ventura River Valley – Upper Ventura River Subbasin (No. 4-003.01)

April 27, 2023

to achieve the sustainability goal for the Subbasin within 20 years of the implementation of the Plan, and (4) whether the Plan adversely affects the ability of an adjacent basin to implement its GSP or impedes achievement of sustainability goals in an adjacent basin. (Water Code § 10733.) Application of these standards requires exercise of the Department's expertise, judgment, and discretion when making its determination of whether a Plan should be deemed "approved," "incomplete," or "inadequate."

The statutes and GSP Regulations require Plans to include and address a multitude and wide range of informational and technical components. The Department has observed a diverse array of approaches to addressing these technical and informational components being used by GSAs in different basins throughout the state. The Department does not apply a set formula or criterion that would require a particular outcome based on how a Plan addresses any one of SGMA's numerous informational and technical components. The Department finds that affording flexibility and discretion to local GSAs is consistent with the standards identified above; the state policy that sustainable groundwater management is best achieved locally through the development, implementation, and updating of local plans and programs (Water Code § 113); and the Legislature's express intent under SGMA that groundwater basins be managed through the actions of local governmental agencies to the greatest extent feasible, while minimizing state intervention to only when necessary to ensure that local agencies manage groundwater in a sustainable manner. (Water Code § 10720.1(h)) The Department's final determination of a Plan's status is made based on the entirety of the Plan's contents on a case-by-case basis, considering and weighing factors relevant to the particular Plan and Subbasin under review.

- C. In making these findings and Plan determination, the Department also recognized that: (1) it maintains continuing oversight and jurisdiction to ensure the Plan is adequately implemented; (2) the Legislature intended SGMA to be implemented over many years; (3) SGMA provides Plans 20 years of implementation to achieve the sustainability goal in a Subbasin (with the possibility that the Department may grant GSAs an additional five years upon request if the GSA has made satisfactory progress toward sustainability); and, (4) local agencies acting as GSAs are authorized, but not required, to address undesirable results that occurred prior to enactment of SGMA. (Water Code §§ 10721(r); 10727.2(b); 10733(a); 10733.8.)
- D. The Plan conforms with Water Code §§ 10727.2 and 10727.4, substantially complies with 23 CCR § 355.4, and appears likely to achieve the sustainability goal for the Subbasin. It does not appear at this time that the Plan will adversely affect the ability of adjacent basins to implement their GSPs or impede achievement of sustainability goals.

Statement of Findings

Ventura River Valley – Upper Ventura River Subbasin (No. 4-003.01)

April 27, 2023

1. The sustainable management criteria and goal to maintain groundwater levels within the historical range of groundwater level conditions is reasonable. While Department staff have identified a recommended corrective action, due to a history of stable groundwater conditions, rapid recovery of groundwater levels after temporary declines due to the drought, and plan to manage the basin in the future within historical conditions, this concern does not preclude Plan approval. The Plan relies on credible information and science to quantify the groundwater conditions that the Plan seeks to avoid and provides an objective way to determine whether the Subbasin is being managed sustainably in accordance with SGMA. (23 CCR § 355.4(b)(1).)
2. The Plan has identified reasonable measures and schedules to eliminate data gaps to refine the sustainable management criteria and monitoring network, and to improve the hydrogeologic model and the numerical groundwater model. (23 CCR § 355.4(b)(2).)
3. The projects and management actions proposed are designed to fill the identified data gaps related to domestic wells and interconnected surface water. The projects and management actions are reasonable and commensurate with the level of understanding of the Subbasin setting. The projects and management actions described in the Plan provide a feasible approach to achieving the Subbasin's sustainability goal and should provide the GSA(s) with greater versatility to adapt and respond to changing conditions and future challenges during GSP implementation. (23 CCR § 355.4(b)(3).)
4. The Plan provides a detailed explanation of how the varied interests of groundwater uses and users in the Subbasin were considered in developing the sustainable management criteria and how those interests, including domestic wells and aquatic groundwater dependent ecosystems would be impacted by the chosen minimum thresholds. (23 CCR § 355.4(b)(4).)
5. The Plan's projects and management actions appear feasible at this time and appear likely to prevent undesirable results and ensure that the Subbasin is operated within its sustainable yield within 20 years. The Department will continue to monitor Plan implementation and reserves the right to change its determination if projects and management actions are not implemented or appear unlikely to prevent undesirable results or achieve sustainability within SGMA timeframes. (23 CCR § 355.4(b)(5).)
6. The Plan includes a reasonable assessment of overdraft conditions and includes reasonable means to mitigate overdraft, if present. (23 CCR § 355.4(b)(6).)

Statement of Findings

Ventura River Valley – Upper Ventura River Subbasin (No. 4-003.01)

April 27, 2023

7. At this time, it does not appear that the Plan will adversely affect the ability of an adjacent basin to implement its GSP or impede achievement of sustainability goals in an adjacent basin. The Plan states there is limited subsurface flow between the Subbasin and the adjacent basin due to uplifted bedrock at the borders. (23 CCR § 355.4(b)(7).)
 8. If required, a satisfactory coordination agreement has been adopted by all relevant parties. (23 CCR § 355.4(b)(8).)
 9. The GSA's five member agencies, Casitas Municipal Water District, Meiners Oaks Water District, Ventura River Water District, the City of Ventura (officially named San Buenaventura), and the County of Ventura, have historically managed and implemented the groundwater resources monitoring programs, groundwater quality monitoring, stream gaging, and the Subbasin's California Statewide Groundwater Elevation Monitoring (CASGEM) program. The GSA's member agencies and their history of groundwater management provide a reasonable level of confidence that the GSA has the legal authority and financial resources necessary to implement the Plan. (23 CCR § 355.4(b)(9).)
 10. Through review of the Plan and consideration of public comments, the Department determines that the GSA adequately responded to comments that raised credible technical or policy issues with the Plan, sufficient to warrant approval of the Plan at this time. The Department also notes that the recommended corrective actions included in the Staff Report are important to addressing certain technical or policy issues that may have been raised and, if not addressed before future, subsequent plan evaluations, may preclude approval of the Plan in those future evaluations. (23 CCR § 355.4(b)(10).)
- E. In addition to the grounds listed above, DWR also finds that:

1. The Plan sets forth minimum thresholds for chronic lowering of groundwater levels that maintain conditions within the historical range which should prevent any new impacts from occurring in the Subbasin (Upper Ventura River GSP p. 154). The GSA further states the minimum thresholds have been selected to prevent permanent or prolonged impacts to riparian GDEs (Upper Ventura River GSP p. 157). The Plan's compliance with the requirements of SGMA and substantial compliance with the GSP Regulations supports the state policy regarding the human right to water (Water Code § 106.3). The Department developed its GSP Regulations consistent with, and intending to, further the policy through implementation of SGMA and the Regulations, primarily by achieving sustainable groundwater management in a basin. By ensuring substantial compliance with the GSP Regulations, the Department has considered the

Statement of Findings

Ventura River Valley – Upper Ventura River Subbasin (No. 4-003.01)

April 27, 2023

state policy regarding the human right to water in its evaluation of the Plan. (23 CCR § 350.4(g).)

2. The Plan acknowledges and identifies interconnected surface waters within the Subbasin. The GSA proposes initial sustainable management criteria to manage this sustainability indicator and measures to improve understanding and management of depletions of interconnected surface water. The GSA acknowledges, and the Department agrees, that many data gaps related to interconnected surface water exist. The GSA should continue filling data gaps, collecting additional monitoring data, and coordinating with resources agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping. Future updates to the Plan should aim to improve the initial sustainable management criteria as more information and improved methodology becomes available.
3. The California Environmental Quality Act (Public Resources Code § 21000 *et seq.*) does not apply to the Department's evaluation and assessment of the Plan.

Statement of Findings

Ventura River Valley – Upper Ventura River Subbasin (No. 4-003.01)

April 27, 2023

Accordingly, the GSP submitted by the Agency for the Upper Ventura River Subbasin is hereby **APPROVED**. The recommended corrective actions identified in the Staff Report will assist the Department's future review of the Plan's implementation for consistency with SGMA and the Department therefore recommends the Agency address them by the time of the Department's five-year review, which is set to begin on January 24, 2027, as required by Water Code § 10733.8. Failure to address the Department's Recommended Corrective Actions before future, subsequent plan evaluations, may lead to a Plan being determined incomplete or inadequate.

Signed:

Karla Nemeth

Karla Nemeth, Director

Date: April 27, 2023

Exhibit A: Groundwater Sustainability Plan Assessment Staff Report – Upper Ventura River Subbasin

State of California
Department of Water Resources
Sustainable Groundwater Management Program
Groundwater Sustainability Plan Assessment
Staff Report

Groundwater Basin Name: Ventura River Valley Groundwater Basin – Upper Ventura River Subbasin (No. 4-003.01)

Submitting Agency: Upper Ventura River Groundwater Agency Groundwater Sustainability Agency

Submittal Type: Initial GSP Submission

Submittal Date: January 24, 2022

Recommendation: Approved

Date: April 27, 2023

The Upper Ventura River Groundwater Agency Groundwater Sustainability Agency (Agency or GSA) submitted the Upper Ventura River Subbasin Groundwater Sustainability Plan (GSP or Plan) for the Ventura River Valley Groundwater Basin – Upper Ventura River Subbasin (Subbasin) (No. 4-003.01) to the Department of Water Resources (Department) for evaluation and assessment as required by the Sustainable Groundwater Management Act (SGMA)¹ and GSP Regulations.² The GSP covers the entire Subbasin for the implementation of SGMA.

After evaluation and assessment, Department staff concludes that the Plan contains the required components of a GSP, demonstrates a thorough understanding of the Subbasin based on what appears to be the best available science and information, sets well explained, supported, and reasonable sustainable management criteria to prevent undesirable results as defined in the Plan, and proposes a set of projects and management actions that, if successfully implemented, are likely to achieve the sustainability goal defined for the Subbasin.³ Department staff will continue to monitor and evaluate the Subbasin’s progress toward achieving the sustainability goal through annual reporting and future periodic evaluations of the GSP and its implementation.

- ***Based on the current evaluation of the Plan, Department staff recommend the GSP be approved with the recommended corrective actions described herein.***

¹ Water Code § 10720 *et seq.*

² 23 CCR § 350 *et seq.*

³ 23 CCR § 354.24.

This assessment includes five sections:

- **[Section 1 – Summary](#)**: Provides an overview of the Department’s assessment and recommendations.
- **[Section 2 – Evaluation Criteria](#)**: Describes the legislative requirements and the Department’s evaluation criteria.
- **[Section 3 – Required Conditions](#)**: Describes the submission requirements, GSP completeness, and basin coverage required for a GSP to be evaluated by the Department.
- **[Section 4 – Plan Evaluation](#)**: Provides an assessment of the contents included in the GSP organized by each Subarticle outlined in the GSP Regulations.
- **[Section 5 – Staff Recommendation](#)**: Includes the staff recommendation for the Plan and any recommended or required corrective actions, as applicable.

1 SUMMARY

Department staff recommend approval of the Upper Ventura River Subbasin GSP. The GSA has identified areas for improvement of its Plan (e.g., addressing data gaps related to hydrogeological conceptual model, groundwater conditions, surface water conditions, biological conditions, improving the numerical model, and expanding monitoring networks). Department staff concur that those items are important and recommend the GSA address them as soon as possible. Department staff have also identified additional recommended corrective actions within this assessment that the GSA should consider addressing by the first periodic evaluation of the Plan. The recommended corrective actions generally focus on the following:

- Provide clarification on the definition of undesirable results and evaluate potential impacts to beneficial uses and users at the proposed minimum thresholds for chronic lowering of groundwater levels.
- Continue to fill data gaps, collect additional monitoring data, coordinate with resources agencies and interested parties to understand beneficial uses and users that may be impacted by depletions of interconnected surface water caused by groundwater pumping, and potentially refine sustainable management criteria.
- Clarify how the Foster Park protocols and settlement agreement may impact the GSA’s ability to manage groundwater.

Addressing the recommended corrective actions identified in [Section 5](#) of this assessment will be important to demonstrate, on an ongoing basis, that implementation of the Plan is likely to achieve the sustainability goal.

2 EVALUATION CRITERIA

The GSA submitted a single GSP to the Department to evaluate whether the Plan conforms to specified SGMA requirements⁴ and is likely to achieve the sustainability goal for the Upper Ventura River Subbasin.⁵ To achieve the sustainability goal for the Subbasin, the GSP must demonstrate that implementation of the Plan will lead to sustainable groundwater management, which means the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.⁶ Undesirable results must be defined quantitatively by the GSAs.⁷ The Department is also required to evaluate whether the GSP will adversely affect the ability of an adjacent basin to implement its GSP or achieve its sustainability goal.⁸

For the GSP to be evaluated by the Department, it must first be determined that the Plan was submitted by the statutory deadline,⁹ and that it is complete and covers the entire basin.¹⁰ If these conditions are satisfied, the Department evaluates the Plan to determine whether it complies with specific SGMA requirements and substantially complies with the GSP Regulations.¹¹ “Substantial compliance means that the supporting information is sufficiently detailed and the analyses sufficiently thorough and reasonable, in the judgment of the Department, to evaluate the Plan, and the Department determines that any discrepancy would not materially affect the ability of the Agency to achieve the sustainability goal for the basin, or the ability of the Department to evaluate the likelihood of the Plan to attain that goal.”¹²

When evaluating whether the Plan is likely to achieve the sustainability goal for the Subbasin, Department staff reviewed the information provided and relied upon in the GSP for sufficiency, credibility, and consistency with scientific and engineering professional standards of practice.¹³ The Department’s review considers whether there is a reasonable relationship between the information provided and the assumptions and conclusions made by the GSA, including whether the interests of the beneficial uses and users of groundwater in the basin have been considered; whether sustainable management criteria and projects and management actions described in the Plan are commensurate

⁴ Water Code §§ 10727.2, 10727.4.

⁵ Water Code § 10733(a).

⁶ Water Code § 10721(v).

⁷ 23 CCR § 354.26 *et seq.*

⁸ Water Code § 10733(c).

⁹ 23 CCR § 355.4(a)(1).

¹⁰ 23 CCR §§ 355.4(a)(2), 355.4(a)(3).

¹¹ 23 CCR § 350 *et seq.*

¹² 23 CCR § 355.4(b).

¹³ 23 CCR § 351(h).

with the level of understanding of the basin setting; and whether those projects and management actions are feasible and likely to prevent undesirable results.¹⁴

The Department also considers whether the GSA has the legal authority and financial resources necessary to implement the Plan.¹⁵

To the extent overdraft is present in a basin, the Department evaluates whether the Plan provides a reasonable assessment of the overdraft and includes reasonable means to mitigate the overdraft.¹⁶ The Department also considers whether the Plan provides reasonable measures and schedules to eliminate identified data gaps.¹⁷ Lastly, the Department's review considers the comments submitted on the Plan and evaluates whether the GSA adequately responded to the comments that raise credible technical or policy issues with the Plan.¹⁸

The Department is required to evaluate the Plan within two years of its submittal date and issue a written assessment of the Plan.¹⁹ The assessment is required to include a determination of the Plan's status.²⁰ The GSP Regulations define the three options for determining the status of a Plan: Approved,²¹ Incomplete,²² or Inadequate.²³

Even when review indicates that the GSP satisfies the requirements of SGMA and is in substantial compliance with the GSP Regulations, the Department may recommend corrective actions.²⁴ Recommended corrective actions are intended to facilitate progress in achieving the sustainability goal within the basin and the Department's future evaluations, and to allow the Department to better evaluate whether the Plan adversely affects adjacent basins. While the issues addressed by the recommended corrective actions do not, at this time, preclude approval of the Plan, the Department recommends that the issues be addressed to ensure the Plan's implementation continues to be consistent with SGMA and the Department is able to assess progress in achieving the sustainability goal within the basin.²⁵ Unless otherwise noted, the Department proposes that recommended corrective actions be addressed by the submission date for the first five-year assessment.²⁶

The staff assessment of the GSP involves the review of information presented by the GSA, including models and assumptions, and an evaluation of that information based on

¹⁴ 23 CCR §§ 355.4(b)(1), (3), (4) and (5).

¹⁵ 23 CCR § 355.4(b)(9).

¹⁶ 23 CCR § 355.4(b)(6).

¹⁷ 23 CCR § 355.4(b)(2).

¹⁸ 23 CCR § 355.4(b)(10).

¹⁹ Water Code § 10733.4(d); 23 CCR § 355.2(e).

²⁰ Water Code § 10733.4(d); 23 CCR § 355.2(e).

²¹ 23 CCR § 355.2(e)(1).

²² 23 CCR § 355.2(e)(2).

²³ 23 CCR § 355.2(e)(3).

²⁴ Water Code § 10733.4(d).

²⁵ Water Code § 10733.8.

²⁶ 23 CCR § 356.4 *et seq.*

scientific reasonableness, including standard or accepted professional and scientific methods and practices. The assessment does not require Department staff to recalculate or reevaluate technical information provided in the Plan or to perform its own geologic or engineering analysis of that information. The staff recommendation to approve a Plan does not signify that Department staff, were they to exercise the professional judgment required to develop a GSP for the basin, would make the same assumptions and interpretations as those contained in the Plan, but simply that Department staff have determined that the assumptions and interpretations relied upon by the submitting GSA are supported by adequate, credible evidence, and are scientifically reasonable.

Lastly, the Department's review and approval of the Plan is a continual process. Both SGMA and the GSP Regulations provide the Department with the ongoing authority and duty to review the implementation of the Plan.²⁷ Also, GSAs have an ongoing duty to provide reports to the Department, periodically reassess their plans, and, when necessary, update or amend their plans.²⁸ The passage of time or new information may make what is reasonable and feasible at the time of this review to not be so in the future. The emphasis of the Department's periodic reviews will be to assess the progress toward achieving the sustainability goal for the basin and whether Plan implementation adversely affects the ability of adjacent basins to achieve their sustainability goals.

3 REQUIRED CONDITIONS

A GSP, to be evaluated by the Department, must be submitted within the applicable statutory deadline. The GSP must also be complete and must, either on its own or in coordination with other GSPs, cover the entire basin.

3.1 SUBMISSION DEADLINE

SGMA required basins categorized as high- or medium-priority and not subject to critical conditions of overdraft to submit a GSP no later than January 31, 2022.²⁹

The GSA submitted its GSP on January 24, 2022.

3.2 COMPLETENESS

GSP Regulations specify that the Department shall evaluate a GSP if that GSP is complete and includes the information required by SGMA and the GSP Regulations.³⁰

The GSA submitted an adopted GSP for the entire Subbasin. After an initial, preliminary review, Department staff found the GSP to be complete and appearing to include the

²⁷ Water Code § 10733.8; 23 CCR § 355.6.

²⁸ Water Code §§ 10728 *et seq.*, 10728.2.

²⁹ Water Code § 10720.7(a)(2).

³⁰ 23 CCR § 355.4(a)(2).

required information, sufficient to warrant an evaluation by the Department.³¹ The Department posted the GSP to its website on January 31, 2022.³²

3.3 BASIN COVERAGE

A GSP, either on its own or in coordination with other GSPs, must cover the entire basin.³³ A GSP that is intended to cover the entire basin may be presumed to do so if the basin is fully contained within the jurisdictional boundaries of the submitting GSAs.

The GSP intends to manage the entire Upper Ventura River Subbasin and the jurisdictional boundary of the submitting GSA covers the entire Subbasin.³⁴

4 PLAN EVALUATION

As stated in Section 355.4 of the GSP Regulations, a basin “shall be sustainably managed within 20 years of the applicable statutory deadline consistent with the objectives of the Act.” The Department’s assessment is based on a number of related factors including whether the elements of a GSP were developed in the manner required by the GSP Regulations, whether the GSP was developed using appropriate data and methodologies and whether its conclusions are scientifically reasonable, and whether the GSP, through the implementation of clearly defined and technically feasible projects and management actions, is likely to achieve a tenable sustainability goal for the basin. The Department staff’s evaluation of the likelihood of the Plan to attain the sustainability goal for the basin is provided below.

4.1 ADMINISTRATIVE INFORMATION

The GSP Regulations require each Plan to include administrative information identifying the submitting Agency, its decision-making process, and its legal authority;³⁵ a description of the Plan area and identification of beneficial uses and users in the Plan area,³⁶ and a description of the ability of the submitting Agency to develop and implement a Plan for that area.³⁷

The GSP provides administrative information identifying the submitting agency as the Upper Ventura River Groundwater Agency Groundwater Sustainability Agency.³⁸ The

³¹ The Department undertakes a preliminary completeness review of a submitted Plan under section 355.4(a) of the GSP Regulations to determine whether the elements of a Plan required by SGMA and the GSP Regulations have been provided, which is different from a determination, upon review, that a Plan is “incomplete” for purposes of section 355.2(e)(2) of the GSP Regulations.

³² <https://sgma.water.ca.gov/portal/gsp/preview/77>.

³³ Water Code § 10727(b); 23 CCR § 355.4(a)(3).

³⁴ Upper Ventura River GSP, Section 2.1, p. 52.

³⁵ 23 CCR § 354.6 *et seq.*

³⁶ 23 CCR § 354.8 *et seq.*

³⁷ 23 CCR § 354.2 *et seq.*

³⁸ Upper Ventura River GSP, Section 2.1, p. 52.

GSP describes in an understandable format, the Plan area (i.e., the Ventura River Subbasin), and the GSA’s legal authority and ability to manage groundwater in the Subbasin, as summarized below.

The Upper Ventura River Groundwater Agency GSA was formed pursuant to a joint exercise of powers agreement between five local public agencies: Casitas Municipal Water District, Meiners Oaks Water District, Ventura River Water District, the City of Ventura (officially named San Buenaventura), and the County of Ventura.³⁹ The GSA has a seven-member board of directors; each member agency appoints one board director and there are an additional two directors that represent agricultural stakeholders and environmental stakeholders, respectively.⁴⁰

The Upper Ventura River Subbasin is located in the central portion of the Ventura River Watershed near the communities of Casitas Springs, Mira Monte and Meiners Oaks.⁴¹ The Subbasin has two adjacent groundwater basins, the Ojai Valley Basin (located to the east) and the Lower Ventura River Subbasin (located to the south). A map showing the location of the Subbasin, GSA boundary, and adjacent basins is shown in Figure 1.

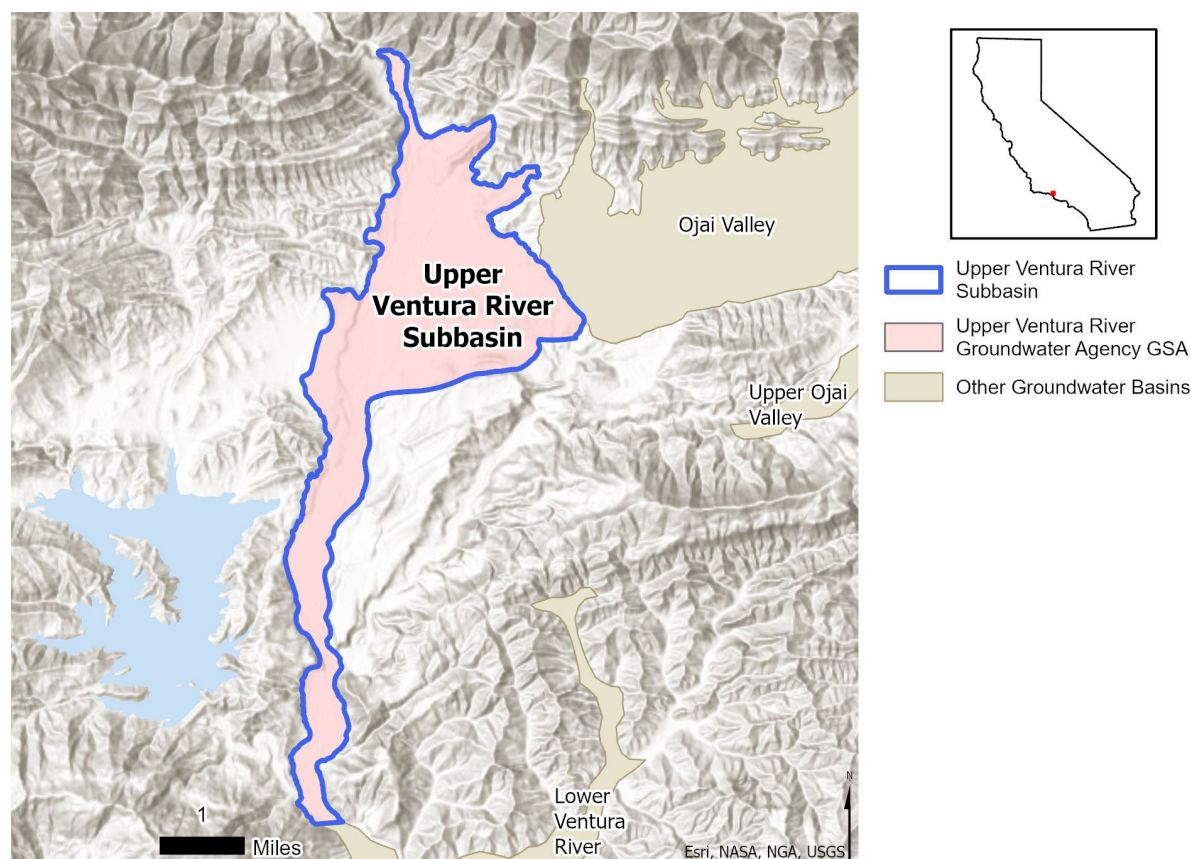


Figure 1: Location Map for the Upper Ventura River Subbasin.

³⁹ Upper Ventura River GSP, Executive Summary Introduction, p. 3.

⁴⁰ Upper Ventura River GSP, Appendix C, pp. 426-427.

⁴¹ Upper Ventura River GSP, Section 2.2.1, p. 55.

The GSP states the most common land use in the Subbasin is low- to medium- density residential use (approximately 40% by acreage) near the communities of Casitas Springs, Mira Monte, and Meiners Oaks.⁴² Other land uses include open space (approximately 38%) and agricultural land use (approximately 9%).⁴³ The GSP states that the jurisdictional boundary of each of the member agencies of Upper Ventura River Groundwater Agency GSA Joint Powers Agreement covers the Subbasin. Members include water districts with a water supply and management authority in the Subbasin, operation of water production facilities, and the permitting and regulating of groundwater wells.

The identified beneficial uses and users of groundwater in the Subbasin include holders of overlying groundwater rights, municipal well operators, public water systems, local land use planning agencies, environmental users of groundwater, surface water rightsholders, Federal government, California Native American Tribes, disadvantaged communities, and entities listed in Water Code §10927 that monitor and report groundwater elevations.⁴⁴ The GSP states that groundwater provides approximately one-third of the water supply in the Subbasin with local surface water supplies from Lake Casitas accounting for the remaining two-thirds of the water supply.⁴⁵ The residential water use sector, referred to in the GSP as “municipal and industrial”, sources water from local groundwater, surface water from Lake Casitas, and direct retail service by Casitas Municipal Water District. The GSP states the majority of the groundwater pumped in the Subbasin is for municipal use.⁴⁶ Agricultural water use is supplied by groundwater pumped from private and water district wells, and surface water from Lake Casitas.⁴⁷ There are 90 domestic wells identified by the GSP believed to be de minimis uses.⁴⁸ The GSP identifies two riparian groundwater dependent ecosystem (GDE) units and five aquatic GDE areas in the Subbasin that rely on groundwater.⁴⁹

The GSP includes information on water resources monitoring programs⁵⁰ and water resources management plans⁵¹ currently operating in the Subbasin. The GSP indicates that many of these water resources monitoring and management plans have been incorporated into the GSP.

The GSP includes information regarding the Stakeholder Engagement Plan and the public meetings held by the GSA in preparation for the GSP.⁵² The GSP states that the GSA will continue to follow its adopted Stakeholder Engagement Plan to inform the public

⁴² Upper Ventura River GSP, Section 2.2.1, p 56, and Section 2.2.3, p 61.

⁴³ Upper Ventura River GSP, Section 2.2.3, p 61.

⁴⁴ Upper Ventura River GSP, Section 2.3.1, pp. 71-74.

⁴⁵ Upper Ventura River GSP, Section 2.2.1, pp. 56-57.

⁴⁶ Upper Ventura River GSP, Section 3.1.3.4, p. 100.

⁴⁷ Upper Ventura River GSP, Section 2.2.1, p 56,

⁴⁸ Upper Ventura River GSP, Section 2.3.1, p. 71.

⁴⁹ Upper Ventura River GSP, Section ES-2, pp. 5-6.

⁵⁰ Upper Ventura River GSP, Table 2.2-01, p. 341.

⁵¹ Upper Ventura River GSP, Table 2.2-02, p. 342.

⁵² Upper Ventura River GSP, Appendix E, pp. 830-841, and Appendix F, pp. 842-850.

about progress implementing the GSP, including status of projects and actions.”⁵³ The GSA estimates the first 5-year cost to implement the Plan to be \$2,272,885 and the 20-year total cost to be \$10,068,507.⁵⁴

The GSP’s discussion and presentation of administrative information covers the specific items listed in the GSP Regulations in an understandable format using appropriate data. Staff are aware of no significant inconsistencies or contrary information to that presented in the GSP and therefore have no significant concerns regarding the quality, data, and discussion of this subject in the GSP. The administrative information included in the Plan substantially complies with the requirements outlined in the GSP Regulations.

4.2 BASIN SETTING

GSP Regulations require information about the physical setting and characteristics of the basin and current conditions of the basin, including a hydrogeologic conceptual model; a description of historical and current groundwater conditions; and a water budget accounting for total annual volume of groundwater and surface water entering and leaving the basin, including historical, current, and projected water budget conditions.⁵⁵

4.2.1 Hydrogeologic Conceptual Model

The hydrogeologic conceptual model is a non-numerical model of the physical setting, characteristics, and processes that govern groundwater occurrence within a basin, and represents a local agency’s understanding of the geology and hydrology of the basin that support the geologic assumptions used in developing mathematical models, such as those that allow for quantification of the water budget.⁵⁶ The GSP Regulations require a descriptive hydrogeologic conceptual model that includes a written description of geologic conditions, supported by cross sections and maps,⁵⁷ and includes a description of basin boundaries and the bottom of the basin,⁵⁸ principal aquifers and aquitards,⁵⁹ and data gaps.⁶⁰

The GSP includes a description of the geology of the Subbasin, including its regional geologic setting, the Subbasin’s lateral and vertical extents, its pertinent geologic structures, stratigraphy, geologic formations, and soils, supported by maps and cross sections.

⁵³ Upper Ventura River GSP, Section 2.3.4.3, p.78.

⁵⁴ Upper Ventura River GSP, Table 7.1-01, p. 385.

⁵⁵ 23 CCR § 354.12 *et seq.*

⁵⁶ DWR Best Management Practices for the Sustainable Management of Groundwater: Hydrogeologic Conceptual Model, December 2016: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-3-Hydrogeologic-Conceptual-Model_ay_19.pdf.

⁵⁷ 23 CCR §§ 354.14 (a), 354.14 (c).

⁵⁸ 23 CCR §§ 354.14 (b)(2) and (3).

⁵⁹ 23 CCR § 354.14 (b)(4) *et seq.*

⁶⁰ 23 CCR § 354.14 (b)(5).

The Subbasin, located in the central portion of the Ventura River Watershed, is described as a narrow, north-south trending, shallow erosional trough filled with young alluvium deposited by the Ventura River, with sediment derived from weathering and erosion of the surrounding mountains.⁶¹ Groundwater in the Subbasin is believed to be predominantly unconfined and has an open and direct relationship with precipitation and surface water of the Ventura River and its tributaries crossing the Subbasin.⁶²

The Subbasin is bound on the north, west, and south by bedrock and thin to non-existent alluvium and bound on the east by the Ojai Valley Groundwater Basin and on the south by Lower Ventura River Subbasin, which corresponds with a bedrock high and surface water and groundwater divide.⁶³ The GSP describes the bottom of the Subbasin as the contact between alluvium or Ojai Conglomerate and the various Tertiary bedrock formations.⁶⁴ The GSP also identifies a series of east-west trending reverse faults crossing the Subbasin affecting the aquifer thickness and groundwater flow.⁶⁵

The GSP identifies one principal aquifer in the Subbasin that consists of Holocene and Pleistocene alluvial sediments deposited by the Ventura River. The GSP states that the aquifer is thin in thickness due to an approximate balance between the rate of tectonic uplift and the rate of downcutting by the Ventura River; the Ventura River Watershed is described as one of the earth's most rapidly uplifting areas.⁶⁶ The principal aquifer is comprised of two layers of alluvium. The young layer of alluvium is located between the banks of the Ventura River and is highly permeable with relatively high storage coefficients; whereas the older layer of alluvium is outside the banks of the Ventura River generally above the water table with a slow infiltration rate that impedes the downward movement of water.⁶⁷

The GSP provides a discussion of data gaps and uncertainty within the hydrogeologic conceptual model. The GSP recognizes the lack of stream flow gages between the Robles Diversion and the Foster Park along the Ventura River as one data gap that may affect the modeling and understanding of groundwater-surface water interactions within the Subbasin.⁶⁸ The Subbasin also lacks long-term aquifer tests; however, the GSP considers this not significant stating that the best available information for aquifer and aquitard hydraulic properties are currently from the calibrated numerical flow model for the Subbasin.⁶⁹ Still, the GSA will work with well owners to conduct aquifer tests when there are opportunities and will use the data to refine the modeled estimates of hydraulic properties.⁷⁰ At this time, Department staff do not believe the identified data gaps will

⁶¹ Upper Ventura River GSP, Section 3.1.2.1, p. 86.

⁶² Upper Ventura River GSP, Section 3.1.3.2, p. 95.

⁶³ Upper Ventura River GSP, Section 3.1.3.1, p. 90.

⁶⁴ Upper Ventura River GSP, Section 3.1.3.1, p. 91; Figures 3.1-15 and 3.1-16, pp. 276-277.

⁶⁵ Upper Ventura River GSP, Section 3.1.2.1, p. 87; Figures 3.1-10a, 3.1-10b, and 3.1-11, pp. 270-272.

⁶⁶ Upper Ventura River GSP, Section 3.1.2.1, p. 85.

⁶⁷ Upper Ventura River GSP, Section 3.1.2.1, pp. 85-88.

⁶⁸ Upper Ventura River GSP, Section 3.1.4.2, p. 103.

⁶⁹ Upper Ventura River GSP, Section 3.1.3.1.3, p. 93; Section 3.1.4.8, p. 103.

⁷⁰ Upper Ventura River GSP, Section 3.1.4.8, p. 103.

inhibit the GSA from achieving its sustainability goal on the timelines required by SGMA, but staff encourages the GSA to address these data gaps on an expeditious schedule as more information becomes available during plan implementation.

The information provided in the GSP that comprises the hydrogeologic conceptual model substantially complies with the requirements outlined in the GSP Regulations. In general, the Plan’s descriptions of the regional geologic setting, the Subbasin’s physical characteristics, the principal aquifer, and the hydrogeologic conceptual model appear to utilize the best available science. Department staff are aware of no significant inconsistencies or contrary technical information to that presented in the Plan.

4.2.2 Groundwater Conditions

The GSP Regulations require a written description of historical and current groundwater conditions for each of the applicable sustainability indicators and groundwater dependent ecosystems (GDEs) that includes the following: groundwater elevation contour maps and hydrographs,⁷¹ a graph depicting change in groundwater storage,⁷² maps and cross-sections of the seawater intrusion front,⁷³ maps of groundwater contamination sites and plumes,⁷⁴ maps depicting total subsidence,⁷⁵ identification of interconnected surface water systems and an estimate of the quantity and timing of depletions of those systems,⁷⁶ and identification of groundwater dependent ecosystems.⁷⁷

The GSP reports long-term, chronic declines in groundwater storage and groundwater elevations have not been observed in the Subbasin.⁷⁸ The GSP explains this is largely due to the unusual nature of the Subbasin where groundwater levels and storage trends mimic surface water flows resulting in large and rapid fluctuations in levels and storage based on climatic conditions.⁷⁹ The GSP discusses that during non-drought periods, the Subbasin’s groundwater storage “fills up” and discharge to the Ventura River is significantly larger than groundwater extraction in the Subbasin.⁸⁰ During droughts, the GSP states “most of the Basin storage discharges to the Ventura River during the first few years and groundwater-supplied surface water baseflow in the southern part of the Basin declines.”⁸¹ The GSP provides groundwater elevation contour maps⁸² and a collection of hydrographs⁸³ to depict regional groundwater levels, long-term groundwater level trends, and historical highs and lows. Department staff and the GSP note

⁷¹ 23 CCR § 354.16 (a)(1-2).

⁷² 23 CCR § 354.16 (b).

⁷³ 23 CCR § 354.16 (c).

⁷⁴ 23 CCR § 354.16 (d).

⁷⁵ 23 CCR § 354.16 (e).

⁷⁶ 23 CCR § 354.16 (f).

⁷⁷ 23 CCR § 354.16 (g).

⁷⁸ Upper Ventura River GSP, Section 3.2.2, p. 108.

⁷⁹ Upper Ventura River GSP, Section 3.2.1.2, p. 106.

⁸⁰ Upper Ventura River GSP, Section 3.2.2, p. 108.

⁸¹ Upper Ventura River GSP, Section 3.2.2, p. 108.

⁸² Upper Ventura River GSP, Figure 3.2-01 and Figure 3.2-02, pp. 304-305.

⁸³ Upper Ventura River GSP, Figure 3.2-06, p. 309.

hydrographs provided in the Plan show water level declines during periods of drought (such as the late 1980s and 2010s) followed by a rapid recovery in the wet years to follow.

The GSP reports long-term, chronic declines in groundwater storage have not been observed in the Subbasin.⁸⁴ The GSP states that the storage capacities for the Subbasin range from 14,000 acre-feet to 35,000 acre-feet.⁸⁵ The long-term groundwater storage trends in the Subbasin are characterized by very rapid cyclical draining and filling of most of the total Subbasin storage volume over a relatively brief period of time.⁸⁶ Department staff note the fluctuations in storage appear to be linked with climatic conditions rather than changes in groundwater extraction.

The GSP states that seawater intrusion is not a relevant sustainability indicator for the Subbasin⁸⁷ because the Subbasin is approximately six miles inland from the Pacific Ocean and the basin bottom is more than 160 feet higher than the mean sea level. Department staff concur with the GSA's conclusion that seawater intrusion is unlikely to occur in the Subbasin.

The GSP describes groundwater quality concerns in the Subbasin including nitrate, boron, total dissolved solids (TDS), sulfate, and chloride.⁸⁸ The GSP states that nitrate is the primary groundwater quality concern.⁸⁹ Elevated nitrate concentrations above the maximum contaminant level (MCL) for drinking water have been observed in Mira Monte/Meiners Oaks area which the GSP states is due to historical land uses. Groundwater in this area needs to be blended with water from other sources to meet drinking water quality standards. Overall, the GSA states that groundwater in the Subbasin is generally of good quality for drinking and irrigating.⁹⁰

The GSP states that land subsidence is not an applicable sustainability indicator for the Subbasin because it "is not considered possible for multiple reasons."⁹¹ The GSP notes these reasons being the aquifer is thin; it lacks clay materials; groundwater water levels go up and down based on streamflow and recharge conditions so long-term declines are highly unlikely; and, there has been no recorded subsidence.⁹² The GSP reports that the cumulative vertical displacement from the InSAR measurements during the 2015-2019 study period were consistently below 0.4 inches, equivalent to less than 0.1 inches per year. Department staff concur with the GSA's conclusion that land subsidence has not occurred in the past and is unlikely to occur in the future within the Subbasin.

⁸⁴ Upper Ventura River GSP, Section 3.2.2, p. 108.

⁸⁵ Upper Ventura River GSP, Section 3.2.2, p. 108.

⁸⁶ Upper Ventura River GSP, Figure 3.2-08, p. 311, Figure 3.3-03, p. 322.

⁸⁷ Upper Ventura River GSP, Section 3.2.3, pp. 108-109.

⁸⁸ Upper Ventura River GSP, Section 3.1.3.3, pp. 97-100, Section 3.2.4, pp. 109-110.

⁸⁹ Upper Ventura River GSP, Section 3.2.4, pp. 109-110.

⁹⁰ Upper Ventura River GSP, Section 3.2.4, pp. 109-110.

⁹¹ Upper Ventura River GSP, Section 3.2.5, pp. 111-112.

⁹² Upper Ventura River GSP, Section 3.2.5, pp. 111-112.

The GSP states that due to the “thinness of the aquifer, high permeability, large north-south topographic gradient, and intimate interconnection between groundwater and surface water causes UVRGB [Upper Ventura River Groundwater Basin] to behave materially differently”⁹³ than most groundwater basins in the State. The GSP explains that the Ventura River is considered a highly connected stream system in the Subbasin, with complex groundwater-surface water interactions that vary significantly with time and location in the Subbasin.⁹⁴ The GSP describes two types of interconnected surface water depletion: direct depletion and indirect depletion. Direct depletion is primarily associated with the City of Ventura water extraction facilities adjacent to the Ventura River in Foster Park. Indirect depletion is associated with groundwater extraction in wells away from the Ventura River.

The GSP discusses interconnected surface water in four hydrogeologic areas along the Ventura River: Kennedy Area, Robles Area, Santa Ana Area, and Casitas Spring Area.⁹⁵ The GSP estimates historical monthly depletions of interconnected surface water (in cubic feet per second) along the Ventura River by calculating the streamflow difference with and without groundwater pumping scenarios in the numerical model.⁹⁶ The GSP identifies the Ventura River as a losing reach in Kennedy Area with intermittent interconnected groundwater-surface water, a losing reach in Robles Area with generally disconnected groundwater-surface water, a variably losing or gaining reach in Santa Ana Area with intermittent interconnected groundwater-surface water, and a gaining reach in Casitas Spring Area with generally interconnected groundwater-surface water. The GSP also estimates projected monthly depletions of interconnected surface water (in cubic feet per second) for future conditions using the same method.⁹⁷

The GSP includes a detailed discussion about GDEs and concludes GDEs are present in the Subbasin. The GSP separates GDEs areas into two categories: riparian GDEs and aquatic GDEs. Riparian GDEs are potentially affected by lowering groundwater levels and aquatic GDEs are potentially impacted by depletion of surface water. The Subbasin was divided into eight subareas to screen and evaluate potential riparian GDE areas. Two of the eight areas “were confirmed as groundwater dependent” riparian GDEs, the South Santa Ana Riparian GDE Unit and the Foster Park Riparian GDE Unit.⁹⁸ Five areas were identified as aquatic GDE areas and evaluated by the GSA. Three areas were screened out by the GSA due to low simulated depletion rates leaving two areas, the Confluence Aquatic Habitat Area and Foster Park Aquatic Habitat Area which are identified as potential aquatic GDE Areas and discussed in detail in the GSP. Further discussion on riparian GDEs is included in a detailed assessment included in Appendix O and a detailed assessment of aquatic GDEs is included in Appendix P.⁹⁹ Department staff note the Plan

⁹³ Upper Ventura River GSP, Section 3.2.1.2, p. 106.

⁹⁴ Upper Ventura River GSP, Section 4.9, p. 176.

⁹⁵ Upper Ventura River GSP, Figure 3.2-11, p. 314.

⁹⁶ Upper Ventura River GSP, Table 3.2-01, p. 346, Appendix N, pp. 1279-1287.

⁹⁷ Upper Ventura River GSP, Table 4.9-01, p. 373

⁹⁸ Upper Ventura River GSP, Section 3.2.7.2.1, p. 117.

⁹⁹ Upper Ventura River GSP, Appendix O, pp. 1289-1348.

includes a thorough discussion about GDEs based on the best available science including the Department's Natural Communities Commonly Associated with Groundwater database (NCCAGW), United States Department of Agriculture's Classification and Assessment with Landsat of Visible Ecological Groupings (CALVEG), the Ventura River Watershed Management Plan, review of local studies and report, review of aerial photos, and consultation from local biologists.

Overall, the Plan sufficiently describes the historical and current groundwater conditions throughout the Subbasin, and the information included in the Plan substantially complies with the requirements outlined in the GSP Regulations.

4.2.3 Water Budget

GSP Regulations require a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current, and projected water budget conditions, and the sustainable yield.¹⁰⁰

The GSP used a numerical groundwater model called the Upper Ventura River Groundwater Model (UVRGM) for the water budget analysis. The UVRGM was calibrated to available 2015 – 2019 groundwater levels and flows. The GSP provides the historical (2006-2016) and current (2017-2019) budget information.¹⁰¹ Based on the information presented in the GSP, Department staff note there is no overdraft present in this Subbasin.

The GSP provides projected (2020-2069) water budgets using the UVRGM incorporating the projected future hydrology and climate change scenarios.¹⁰² The GSP states that the projected inflow and outflows will be approximately balanced during the 20-year GSP implementation period with climate change considered. The GSP estimates that the sustainable yield for the Subbasin is 5,500 to 5,600 acre-feet per year.

Department staff conclude that the historical, current, and projected water budgets included in the Plan substantially comply with the requirements outlined in the GSP Regulations.

4.2.4 Management Areas

The GSP Regulations provide the option for one or more management areas to be defined within a basin if the GSA has determined that the creation of the management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives, provided that undesirable results are defined consistently throughout the basin.¹⁰³

¹⁰⁰ 23 CCR § 354.18 (b)(7).

¹⁰¹ Upper Ventura River GSP, Table 3.3-03, p. 350, Figure 3.3-02, p. 321.

¹⁰² Upper Ventura River GSP, Tables 3.3-11 to 3.3-16, pp. 361-369.

¹⁰³ 23 CCR § 345.20.

The GSP does not define management areas.

4.3 SUSTAINABLE MANAGEMENT CRITERIA

GSP Regulations require each Plan to include a sustainability goal for the basin and to characterize and establish undesirable results, minimum thresholds, and measurable objectives for each applicable sustainability indicator, as appropriate. The GSP Regulations require each Plan to define conditions that constitute sustainable groundwater management for the basin including the process by which the GSA characterizes undesirable results and establishes minimum thresholds and measurable objectives for each applicable sustainability indicator.¹⁰⁴

4.3.1 Sustainability Goal

GSP Regulations require that GSAs establish a sustainability goal for the basin. The sustainability goal should be based on information provided in the GSP's basin setting and should include an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation.¹⁰⁵

The GSP describes the Subbasin's sustainability goal as “to sustainably manage the groundwater resources of the Upper Ventura River [Subbasin] for the benefit of current and anticipated future beneficial users of groundwater, including the environment, and the welfare of the general public who rely directly or indirectly on groundwater.”¹⁰⁶ The GSP describes that sustainable groundwater management will ensure the long-term reliability of the Subbasin's groundwater resources by avoiding undesirable results within 20 years of the GSP implementation. In Section 6, Projects and Management Actions, and Section 7, GSP Implementation, the GSP describes the measures that will be implemented to ensure the Subbasin is operating within its sustainable yield and how the sustainability goal is likely to be achieved within 20 years of implementation and is likely to be maintained through the planning and implementation horizon.¹⁰⁷

The GSP describes the conditions used for the development of sustainable groundwater management criteria in the Subbasin and discusses the process of how undesirable results, minimum thresholds, measurable objectives, and interim milestones are defined for each applicable sustainability indicator.¹⁰⁸ The GSP describes a process for sustainable management criteria development that was a deliberate iterative process with stakeholders' involvement. The sustainable management criteria proposals were prepared by the GSA staff, reviewed by the GSA Board and stakeholders, presented and discussed in numerous Board meetings and three GSP workshops, and approved by the GSA Board.¹⁰⁹

¹⁰⁴ 23 CCR § 354.22 *et seq.*

¹⁰⁵ 23 CCR § 354.24.

¹⁰⁶ Upper Ventura River GSP, Section 4.2, pp. 147-148.

¹⁰⁷ Upper Ventura River GSP, Section 4.2, p. 148.

¹⁰⁸ Upper Ventura River GSP, Section 4.1, pp. 146-147.

¹⁰⁹ Upper Ventura River GSP, Section 4.3, p. 149.

Department staff conclude that the GSP's discussion and presentation of information on the sustainability goal covers the specific items listed in the GSP Regulations in an understandable format using appropriate data.

4.3.2 Sustainability Indicators

Sustainability indicators are defined as any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results.¹¹⁰ Sustainability indicators thus correspond with the six undesirable results – chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon, significant and unreasonable reduction of groundwater storage, significant and unreasonable seawater intrusion, significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies, land subsidence that substantially interferes with surface land uses, and depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water¹¹¹ – but refer to groundwater conditions that are not, in and of themselves, significant and unreasonable. Rather, sustainability indicators refer to the effects caused by changing groundwater conditions that are monitored, and for which criteria in the form of minimum thresholds are established by the agency to define when the effect becomes significant and unreasonable, producing an undesirable result.

GSP Regulations require that GSAs provide descriptions of undesirable results including defining what are significant and unreasonable potential effects to beneficial uses and users for each sustainability indicator.¹¹² GSP Regulations also require GSPs to provide the criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.¹¹³

GSP Regulations require that the description of minimum thresholds include the information and criteria relied upon to establish and justify the minimum threshold for each sustainability indicator.¹¹⁴ GSAs are required to describe how conditions at minimum thresholds may affect beneficial uses and users,¹¹⁵ and the relationship between the minimum thresholds for each sustainability indicator, including an explanation for how the GSA has determined conditions at each minimum threshold will avoid causing undesirable results for other sustainability indicators.¹¹⁶

GSP Regulations require that GSPs include a description of the criteria used to select measurable objectives, including interim milestones, to achieve the sustainability goal

¹¹⁰ 23 CCR § 351(ah).

¹¹¹ Water Code § 10721(x).

¹¹² 23 CCR §§ 354.26 (a), 354.26 (b)(c).

¹¹³ 23 CCR § 354.26 (b)(2).

¹¹⁴ 23 CCR § 354.28 (b)(1).

¹¹⁵ 23 CCR § 354.28 (b)(4).

¹¹⁶ 23 CCR § 354.28 (b)(2).

within 20 years.¹¹⁷ GSP Regulations also require that the measurable objectives be established based on the same metrics and monitoring sites as those used to define minimum thresholds.¹¹⁸

The following subsections thus consolidate three facets of sustainable management criteria: undesirable results, minimum thresholds, and measurable objectives. Information, as presented in the Plan, pertaining to the processes and criteria relied upon to define undesirable results applicable to the Subbasin, as quantified through the establishment of minimum thresholds, are addressed for each applicable sustainability indicator. A submitting agency is not required to establish criteria for undesirable results that the agency can demonstrate are not present and are not likely to occur in a basin.¹¹⁹

4.3.2.1 Chronic Lowering of Groundwater Levels

In addition to components identified in 23 CCR §§ 354.28 (a-b), for the chronic lowering of groundwater, the GSP Regulations require the minimum threshold for chronic lowering of groundwater levels to be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results that is supported by information about groundwater elevation conditions and potential effects on other sustainability indicators.¹²⁰

The GSP states that significant and unreasonable effects on beneficial uses and users of groundwater would be depletions of supply for municipal, agricultural, and domestic wells, or permanent or prolonged impacts to riparian GDEs.¹²¹ The GSP further states that significant and unreasonable conditions have not occurred historically for agricultural, municipal, or domestic beneficial uses.¹²² However, the GSA does acknowledge that more information is needed regarding domestic beneficial uses due to limited participation from domestic well stakeholders during the GSP development process. The GSA plans to implement a management action to survey and inventory domestic wells and revisit the evaluation during the first 5-year GSP assessment.¹²³ The GSP also states that riparian plant communities experienced stress during the 2012-2016 drought but rebounded following drought periods without causing significant and unreasonable effects on the riparian GDEs.¹²⁴ Department staff encourage the GSA to provide updates to the Plan once the domestic well survey is complete and incorporate the results of the survey into the sustainable management criteria if it is found domestic users experienced undesirable results due to the chronic lowering of groundwater levels.

The GSP defines the quantitative definition of undesirable results as “minimum thresholds exceedances in the seven representative monitoring sites caused by groundwater

¹¹⁷ 23 CCR § 354.30 (a).

¹¹⁸ 23 CCR § 354.30 (b).

¹¹⁹ 23 CCR § 354.26 (d).

¹²⁰ 23 CCR § 354.28(c)(1) *et seq.*

¹²¹ Upper Ventura River GSP, Section 4.4.1, p. 152.

¹²² Upper Ventura River GSP, Section 4.4.1, p. 153.

¹²³ Upper Ventura River GSP, Section 4.4.1, p. 153.

¹²⁴ Upper Ventura River GSP, Section 4.4.1, p. 153; Appendix O, pp. 1289-1349.

extraction.”¹²⁵ The GSP supports the definition of undesirable results by describing the Subbasin’s rapid filling up to its full capacity in a subsequent average or wet year following a dry year, but the condition could be exacerbated significantly if another dry year or multiple dry years occur after a dry year. The GSP states that the combination of minimum threshold exceedances is set up to prevent significant and unreasonable effects in the basin for the chronic lowering of groundwater levels.¹²⁶ If an undesirable result occurs in the Subbasin, the GSA will “review monitoring data and utilize its numerical model to determine if the minimum threshold exceedances were caused by groundwater extraction.”¹²⁷

Department staff note the GSA’s description of undesirable results is problematic for two reasons. Department staff infer that the GSA would consider undesirable results occurring when groundwater levels exceed the minimum threshold at all seven monitoring wells (100 percent of wells). Department staff question whether the proposed definition of undesirable results not occurring until 100 percent of monitoring sites exceed their minimum thresholds is a realistic value to avoid significant and unreasonable conditions in the Subbasin. Under this definition, localized or regional exceedances could impact large portions of the Subbasin without the GSA determining this is undesirable. Further, Department staff note the GSP does not provide a time component to the definition of undesirable results. It is inferred that exceedances of the proposed threshold at any time, even after one measurement, would constitute an undesirable result. Department staff recommend the GSA amend the quantitative definition of undesirable results to account for localized threshold exceedances or provide additional information to the GSP to support why undesirable results will not occur until minimum thresholds are exceeded in 100 percent of representative monitoring sites and clarify the time component in the definition (see [Recommended Corrective Action 1a](#)).

Department staff also note the GSA’s caveat that undesirable results can only occur due to groundwater extraction to be problematic. While Department staff acknowledge that a reduction in groundwater levels could be caused by factors other than groundwater pumping, it is the responsibility of the GSA to analyze threshold exceedances and determine why there are occurring. If the results of this analysis determine the cause is linked to other factors such as drought, this should be clearly disclosed in annual reports and future updates to the Plan as part of plan implementation. Department staff recommend the GSA should revise the definition of undesirable results to remove the groundwater extraction condition or clearly explain how the Subbasin can be managed in a way where groundwater extractions would not contribute at all to a combination of threshold exceedances that lead to undesirable results ([see Recommended Corrective Action 1b](#)).

¹²⁵ Upper Ventura River GSP, Section 4.4.1, p. 154.

¹²⁶ Upper Ventura River GSP, Section 4.4.1, p. 154.

¹²⁷ Upper Ventura River GSP, Section 4.4.1, p. 154.

The GSA establishes the historical low groundwater level as the minimum threshold for the chronic lowering of groundwater levels at seven representative monitoring well sites. The GSP based the selection of minimum thresholds on the evaluation of significant and unreasonable effects on beneficial uses and users and concluded that significant and unreasonable effects for the chronic lowering of groundwater levels sustainability indicator may occur if pumping causes groundwater levels to decline below historical low levels.¹²⁸ The GSP also states that the rate of groundwater elevation decline based on historical trend, water year type, and projected water uses in the Subbasin were considered during the development of minimum threshold for groundwater levels.¹²⁹ The resulting minimum thresholds are provided in Table 4.4-01 and Appendix Q of the GSP.¹³⁰

The GSP describes the potential impacts of the selected minimum thresholds for groundwater levels on beneficial uses and users. The GSP states that the minimum thresholds are intended to prevent significant and unreasonable depletions of supply, which will prevent significant financial burdens associated with purchasing more supplemental water than has been necessary historically. Additionally, the minimum thresholds are selected to prevent permanent or prolonged impacts on riparian GDEs.¹³¹ Department staff note the GSP does not include a summary of wells that may be impacted if the proposed minimum thresholds are exceeded. The GSP states model results suggest minimum thresholds may be exceeded occasionally at different monitoring locations during Plan implementation; therefore, it is important for the GSA to understand how these exceedances could impact beneficial uses and users. Department staff recommend the GSA implement the management action entitled, “*Domestic Well Survey*” to obtain additional information about domestic wells in the Subbasin. After the project is implemented, the GSA should identify the degree/extent of potential impacts including the percentage, number, and location of potentially impacted wells at the proposed minimum thresholds for chronic lowering of groundwater levels (see [Recommended Corrective Action 2](#)).

The GSA states that the selection of minimum thresholds for groundwater levels will not adversely impact the other sustainability indicators or adversely impact adjacent basins in achieving their sustainability goal. However, the GSA acknowledges the data gaps in groundwater level and streamflow data to assess the relationship between groundwater levels and the depletions of interconnected surface water.¹³²

The GSP sets the measurable objective at a level representing a full or near full basin condition.¹³³ The GSP sets the first five-year interim milestone at the minimum threshold and at full basin level for the remaining five-year intervals.¹³⁴

¹²⁸ Upper Ventura River GSP, Section 4.4.2, pp. 155-156.

¹²⁹ Upper Ventura River GSP, Section 4.4.2, p. 156.

¹³⁰ Upper Ventura River GSP, Figures Q-02 to Q-08 in Appendix Q, pp. 1387-1393.

¹³¹ Upper Ventura River GSP, Section 4.4.2.4, p. 157.

¹³² Upper Ventura River GSP, Section 4.4.2.5, p. 158.

¹³³ Upper Ventura River GSP, Section 4.4.3.1, p. 160, Table 4.4-01, p. 371.

¹³⁴ Upper Ventura River GSP, Section 4.4.3.2, p. 161, Table 4.4-01, p. 371.

While there are recommended corrective actions identified related to the definition of the undesirable result in the GSP and understanding more about potential impacts to beneficial uses and users, this does not preclude Plan approval at this time. Due to a history of stable groundwater conditions, rapid recovery of groundwater levels after temporary declines due to the drought, and plan to manage the basin in the future within historical conditions, allowing the GSA time to update the Plan to address these recommended corrective actions by the next periodic update is appropriate. Staff are aware of no significant inconsistencies or contrary information to that presented in the GSP and have no significant concerns regarding the quality, data, and discussion of this subject in the GSP.

4.3.2.2 Reduction of Groundwater Storage

In addition to components identified in 23 CCR §§ 354.28 (a-b), for the reduction of groundwater storage, the GSP Regulations require the minimum threshold for the reduction of groundwater storage to be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results. Minimum thresholds for reduction of groundwater storage shall be supported by the sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin.¹³⁵

The GSP uses groundwater levels as a proxy for groundwater storage, and the sustainability management criteria for the reduction of groundwater storage are identical to those developed for the chronic lowering of groundwater levels.¹³⁶ The GSP performed a correlation analysis to support the use of groundwater levels as a proxy, and the analysis shows that groundwater levels correlate strongly with the Subbasin's groundwater storage.¹³⁷ Department staff note the information provided in the GSP to establish the correlation appears reasonable.

Department staff conclude that the GSP's discussion and presentation of information on sustainability management criteria for the reduction of groundwater storage is consistent with the requirements of GSP Regulations.

4.3.2.3 Seawater Intrusion

In addition to components identified in 23 CCR §§ 354.28 (a-b), for seawater intrusion, the GSP Regulations require the minimum threshold for seawater intrusion to be defined by a chloride concentration isocontour for each principal aquifer where seawater intrusion may lead to undesirable results.¹³⁸

The GSP states that seawater intrusion is not a relevant sustainability indicator for the Subbasin¹³⁹ because the Subbasin is approximately six miles inland from the Pacific

¹³⁵ 23 CCR § 354.28(c)(2).

¹³⁶ Upper Ventura River GSP, Section 4.5, p. 162.

¹³⁷ Upper Ventura River GSP, Appendix M, pp. 1274-1278.

¹³⁸ 23 CCR § 354.28(c)(3).

¹³⁹ Upper Ventura River GSP, Section 3.2.3, pp. 108-109.

Ocean and the basin bottom is greater than 160 feet above the mean sea level. Therefore, the GSA does not develop sustainable management criteria for seawater intrusion.

Staff conclude that the explanation and justification in the GSP for the conclusion is reasonable and that this effort is within the range of what staff consider professional and acceptable under the circumstances.

4.3.2.4 Degraded Water Quality

In addition to components identified in 23 CCR §§ 354.28 (a-b), for degraded water quality, the GSP Regulations require the minimum threshold for degraded water quality to be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.¹⁴⁰

The GSP identifies nitrate as the major concern for groundwater quality and establishes sustainable management criteria for this constituent. The GSP states that potential effects on municipal beneficial uses associated with water quality degradation include increased costs for treatment or blending to meet drinking water standards. Potential effects on domestic beneficial uses include health effects (resulting from elevated nitrate concentrations) and increased costs for alternative water supplies, treatment, or blending to meet drinking water standards. According to the GSP, nitrate does not impact the agricultural beneficial use of groundwater.¹⁴¹ The GSP states that elevated nitrate concentrations greater than the MCL of 10 milligrams per liter (mg/L) caused by land uses (equestrian facilities, agricultural, and septic systems) were observed in the Mira Monte/Meiners Oaks areas.¹⁴²

The GSP defines undesirable results related to degradation of groundwater quality as “a nitrate isocontour exceeds 10 mg/L outside of the Mira Monte/Meiners Oaks area and encompasses an area with active domestic wells producing groundwater from the alluvial aquifer that lack an alternative drinking water source.”¹⁴³

The GSP sets the minimum threshold for nitrate at 10 mg/L in areas outside of the Mira Monte/Meiners Oaks area consistent with the MCL for nitrate in the State’s Drink Water Standards.¹⁴⁴ The GSP states that any isocontour exceeding 10 mg/L located outside the Mira Monte/Meiners Oaks area and encompassing domestic wells without an alternative source of drinking water would be considered a minimum threshold exceedance.¹⁴⁵ The

¹⁴⁰ 23 CCR § 354.28(c)(4).

¹⁴¹ Upper Ventura River GSP, Section 4.7.1, p. 169.

¹⁴² Upper Ventura River GSP, Executive summary, p. 21.

¹⁴³ Upper Ventura River GSP, Section 4.7.1, p. 170.

¹⁴⁴ Upper Ventura River GSP, Section 4.7.2, p. 172, Table 4.7-01, p. 372.

¹⁴⁵ Upper Ventura River GSP, Section 4.7.2, p. 172.

GSP notes that the well operators in Mira Monte/Meiners Oaks area currently manage nitrate by blending groundwater with surface water from Lake Casitas.

The GSP sets the nitrate measurable objective at 7.5 mg/L for areas near the losing reaches of the Ventura River such as Kennedy, Robles, and Santa Ana hydrogeologic areas and at 3 mg/L in areas near gaining reaches of the Ventura River such as Casitas Springs hydrogeologic area. The GSP notes that the measurable objective for nitrate is set at a concentration level lower than the RWQCB Water Quality Objective (WQO) and the primary MCL for nitrate.¹⁴⁶

Department staff note the GSA's decision to focus their water quality management on areas that are currently not experiencing water quality concerns related to the constituent of concern (nitrate) is a reasonable approach. Department staff encourage the GSA to coordinate with local water systems and regulatory oversight programs working to address nitrate problems in the Mira Monte/Meiners Oaks area to understand how groundwater management under the GSP may be impacting their ongoing water quality remediation efforts.

Department staff conclude that the GSP's discussion is comprehensive and covers the specific items listed in the GSP Regulations in an understandable format using appropriate data and that presentation of information on sustainability management criteria for degradation of groundwater quality is consistent with the requirements of GSP Regulations.

4.3.2.5 Land Subsidence

In addition to components identified in 23 CCR §§ 354.28 (a-b), the GSP Regulations require the minimum threshold for land subsidence to be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results.¹⁴⁷ Minimum thresholds for land subsidence shall be supported by identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin, including an explanation of how the Agency has determined and considered those uses and interests, and the Agency's rationale for establishing minimum thresholds in light of those effects and maps and graphs showing the extent and rate of land subsidence in the basin that defines the minimum thresholds and measurable objectives.¹⁴⁸

The GSP states that land subsidence is not an applicable sustainability indicator for the Subbasin. The GSP reports that the cumulative vertical displacement from the InSAR measurements during the 2015-2019 study period was consistently below 0.4 inches, equivalent to less than 0.1 inches per year. The GSP notes that the aquifer is thin in thickness consisting of coarse grain materials.¹⁴⁹ Department staff note that the GSA set

¹⁴⁶ Upper Ventura River GSP, Section 4.7.3.1, pp. 175-176.

¹⁴⁷ 23 CCR § 354.28(c)(5).

¹⁴⁸ 23 CCR §§ 354.28(c)(5) (A-B).

¹⁴⁹ Upper Ventura River GSP, Section 3.2.5, pp. 111-112.

the minimum threshold for groundwater levels at historical lows, a time when no land subsidence was documented in the Subbasin.

Department staff conclude that the explanation and justification in the GSP that land subsidence is not an applicable sustainable indicator is reasonable given the proposed minimum thresholds established for groundwater levels. Given the GSA has chosen to maintain groundwater levels within the historical range and there has been no documented land subsidence in the Subbasin, it is reasonable to assume land subsidence is not likely to occur if conditions are maintained. Department staff recommend the GSA continue to monitor publicly available land subsidence data to ensure there is no land subsidence occurring in the Subbasin. If land subsidence is documented, the Plan should be updated as necessary in future periodic updates.

4.3.2.6 Depletions of Interconnected Surface Water

SGMA defines undesirable results for the depletion of interconnected surface water as those that have significant and unreasonable adverse impacts on beneficial uses of surface water and are caused by groundwater conditions occurring throughout the basin.¹⁵⁰ The GSP Regulations require that a Plan identify the presence of interconnected surface water systems in the basin and estimate the quantity and timing of depletions of those systems.¹⁵¹ The GSP Regulations further require that minimum thresholds be set based on the rate or volume of surface water depletions caused by groundwater use, supported by information including the location, quantity, and timing of depletions, that adversely impact beneficial uses of the surface water and may lead to undesirable results.¹⁵²

The GSP states that the Ventura River is considered an interconnected stream system in the Subbasin with complex groundwater-surface water interactions varying significantly with time and location in the Subbasin.¹⁵³ The GSA used a numerical model to estimate historical depletions of interconnected surface water in the Ventura River. The modeling results show that the Ventura River is a losing reach in Kennedy Area with intermittent interconnection, a losing reach in Robles Area with generally no interconnection, a variably losing or gaining reach in Santa Ana Area with intermittent interconnection, and a gaining reach in Casitas Spring Area with general interconnection.¹⁵⁴ The GSP identifies five aquatic GDEs within the Subbasin that may be impacted by depletions of interconnected surface water: the South Robles Critical Riffle, the South Santa Ana Critical Riffle, the North Robles Habitat Area, the Confluence Aquatic Habitat Area, and the Foster Park Habitat Area.¹⁵⁵ Three areas were screened out by the GSA due to low simulated depletion rates leaving two areas, the Confluence Aquatic Habitat Area and Foster Park Aquatic Habitat Area which are identified as potential aquatic GDE Areas and

¹⁵⁰ Water Code § 10721(x)(6).

¹⁵¹ 23 CCR § 354.16 (f).

¹⁵² 23 CCR § 354.28 (c)(6).

¹⁵³ Upper Ventura River GSP, Section 4.9, p. 176.

¹⁵⁴ Upper Ventura River GSP, Section 4.9, pp. 176-177.

¹⁵⁵ Upper Ventura River GSP, Section 4.9.1, p. 180, Figure 3.2-16, p. 319.

discussed in detail in the GSP. Department staff are satisfied that the GSA has adopted a reasonable approach to identify the location of interconnected surface waters in the Subbasin.

The GSP uses the numerical model to quantify the future volume of surface water depletion caused by groundwater use (by comparing a pumping versus no pumping scenario). The information is presented as a monthly value in cubic feet per second (cfs) for seven locations within the Subbasin. The seven locations are the five aquatic GDE areas and the location of two surface water diversions. The results of the future modeling outputs show less than 1 cfs of depletion from pumping at five locations (two diversion locations and three GDE areas), 1 cfs to 2 cfs at the Confluence Aquatic Habitat Area, and 4 cfs to 7.5 cfs at the Foster Park Aquatic Habitat Area. The GSA then uses these stream depletion values to establish sustainable management criteria in the Subbasin only in the Foster Park Aquatic Area.

The GSP discusses the potential impacts of interconnected surface water on aquatic GDEs. Significant and unreasonable effects on recreation beneficial uses are addressed if significant and unreasonable effects on aquatic GDEs are addressed because the presence of habitat is a primary reason for the recreational use of trails, preserves, etc. in the Subbasin.¹⁵⁶

The GSP sets the minimum threshold for depletions of interconnected surface water for the Foster Park Habitat Area to maintain the streamflow greater than 2 cfs at the Casitas Vista Road Bridge if the natural stream flow is greater than 2 cfs. The minimum threshold is set to zero if the natural stream flow is less than 2 cfs.¹⁵⁷ Based on such criteria, the GSP used the groundwater model to estimate the volume and rate of depletions for the minimum threshold at the Foster Park Habitat Area.¹⁵⁸

For the Foster Park Aquatic Habitat Area, the GSP states that streamflow is generally considered perennial, and much of the flow is the result of groundwater discharging into the Ventura River in dry seasons. Several studies concerning the effects of streamflow depletion on habitat are cited in the GSP and by various public comments including 1) 2011 California Department of Fish and Wildlife (CDFW) Draft Instream Flow Recommendations, 2) 2007 National Marine Fishery Services (NMFS) Draft Opinion for Foster Park Wellfield, and 3) Hopkins Groundwater Consultants, Inc. and Padre Associates Inc. 2012 appendix (or referred to as the 2013 Hopkins Study).¹⁵⁹ The GSA relied upon the 2013 Hopkins Study as the most relevant study and used its findings to develop sustainability management criteria for the Foster Park Habitat Area. According to the 2013 Hopkins Study, steelhead would experience stress when the river flows are less than 2 cfs. The GSP concludes that at that point any depletions caused by groundwater pumping would exacerbate the stress, potentially leading to significant and

¹⁵⁶ Upper Ventura River GSP, Section 4.9.1, p. 180.

¹⁵⁷ Upper Ventura River GSP, Section 4.9.2, pp. 184-185.

¹⁵⁸ Upper Ventura River GSP, Figure 4.9-04, p. 334.

¹⁵⁹ Upper Ventura River GSP, Section 4.9.1, p. 182.

unreasonable effects.¹⁶⁰ The GSP states that the GSA considered the CDFW draft flow recommendations and NMFS draft biological opinion when developing the sustainable management criteria for the Foster Park Habitat Area. However, the GSP states that neither the CDFW flow recommendations nor the NMFS draft biological opinion identify a threshold for significant and unreasonable effects based on groundwater pumping like the 2013 Hopkins Study. Rather, the GSA indicates that the flow recommendations in those documents are intended to create beneficial conditions for steelhead instead of indicative of an undesirable result.

Department staff recognize that there can be disagreement regarding which scientific studies, reports, information, and biological, physical, or ecological factors are best suited to use when developing sustainable management criteria in the basin for depletions of interconnected surface water under SGMA. Additionally, there appear to be other state and federal agencies that are or may act under other laws and authorities to address biological or ecological concerns regarding low instream flows in portions of the Ventura River, which appear to be caused by numerous factors of which depletions of interconnected surface waters from groundwater extractions in the basin is only one. Department staff conclude that at this time the GSA has considered this issue and explained and supported its choices adequately. It may be that alternative choices or methodology could also be supported by other studies or data, but it does not appear that there is a clear or convincing case that the GSA's choices or explanation are inappropriate. Department staff are also encouraged that the GSP will evaluate future data collected by the GSA, the City of Ventura, local stakeholders and resources agencies and potentially adjust the sustainable management criteria during the GSP periodic assessments.¹⁶¹

The GSP states that the selected minimum threshold will protect the aquatic GDEs of the Foster Park Habitat Area from streamflow depletions that could degrade habitat conditions and lead to substantial stress and/or potential mortality for steelhead, but it will not have a material impact on the other aquatic GDEs areas or surface water diversions.

The GSP describes the relationship between the minimum threshold for interconnected surface water and other sustainability indicators stating that the chronic lowering of groundwater levels and reduction of groundwater storage are related to the depletions of interconnected surface water, but data gaps need to be addressed to provide better estimates of the relationship.¹⁶² The GSP describes that the selected minimum threshold for interconnected surface water will not have an adverse impact on the Lower Upper Ventura River Subbasin because it will help protect the quantity of groundwater that becomes surface water and may percolate into the Lower Ventura River Subbasin.¹⁶³ Department staff note that the Lower Ventura River Subbasin is a low-priority basin.

¹⁶⁰ Upper Ventura River GSP, Section 4.9.1, p. 183.

¹⁶¹ Upper Ventura River GSP, Section 4.9.2.1, p. 185.

¹⁶² Upper Ventura River GSP, Section 4.9.2.2, p. 186.

¹⁶³ Upper Ventura River GSP, Section 4.9.2.3, p. 186.

The GSP set the measurable objective at the same level as the minimum threshold for the Foster Park Habitat Area.¹⁶⁴ The GSP sets interim milestones at the maximum depletion rate above the measurable objective/minimum threshold, or 10.7 cfs based on model simulation until achieving the measurable objective after 20 years (i.e., 2042).¹⁶⁵ As described above, the significant and unreasonable effects for fish may change in wet months when the river flows are high. The GSA should consider adjustment of the measurable objective and interim milestones accordingly (see Recommended Corrective Action 2a-2c).

The GSP concludes that surface water depletions due to groundwater pumping do not have a significant and unreasonable effect on the two surface water diversions and three of the five aquatic GDE Areas (South Robles Critical Riffle, the South Santa Ana Critical Riffle, the North Robles Habitat Area) in the Subbasin. This conclusion is based on the rationale that depletion rates are insignificant relative to the stream flows by comparing the annual average/median depletion rates to the annual average/median stream flows.¹⁶⁶ For example, the annual average and median depletion rates are estimated to be 0.5 cfs and 0.5 cfs at the agricultural diversion, compared to the annual average and median stream flows of 50 cfs and 8 cfs. Department staff note, based on information presented in the GSP, the annual average/median depletion values for the Robles municipal diversion and these three aquatic GDE areas are an order of magnitude smaller than the annual average/median streamflows at these locations and the GSA's conclusion that interconnected surface water depletions do not have a significant and unreasonable effect at these locations in the Subbasin appears reasonable. However, Department staff note that monthly depletion values vary at each of these locations and can be significant relative to the monthly streamflows based on what is presented in the GSP. Department staff question whether the granular analysis based on annual average/median values is sufficient and whether a more refined analysis based on monthly values is needed.

The GSP does not establish sustainable management criteria for the Confluence Aquatic Habitat Area, an aquatic GDE area characterized by cool upwelling groundwater and inflow from San Antonio Creek. The Confluence Aquatic Habitat Area includes federally designated critical habitat for steelhead and California red-legged frog, and it also provides important habitat for two-striped garter snake, southwestern pond turtle, and Pacific lamprey according to the GSP. San Antonio Creek provides important spawning and rearing habitat for steelhead and fish must pass through the confluence area to reach this tributary of the Ventura River. The GSP estimates the depletion rates of interconnected surface water using the groundwater model and indicates that depletions may be significant during summer and fall of some years in the Confluence Aquatic Habitat Area.¹⁶⁷ For instance, the depletions can reduce the median flow to 0.5 cfs, 0 cfs,

¹⁶⁴ Upper Ventura River GSP, Tables 4.9-04, p. 376.

¹⁶⁵ Upper Ventura River GSP, Table 4.9-05, p. 377.

¹⁶⁶ Upper Ventura River GSP, Section 4.9.1, p. 179.

¹⁶⁷ Upper Ventura River GSP, Section 4.9.4, p. 180.

and 1.3 cfs for the months of September, October, and November, respectively.¹⁶⁸ However, the GSP does not develop the sustainability management criteria for the Confluence Aquatic Habitat Area due to the data gaps.¹⁶⁹ The GSP states that there is limited available biological data or information to assesses whether depletion effects in the Confluence Aquatic Habitat Area are significant and unreasonable. The GSP states, “while aquatic species that live in intermittent or ephemeral environments have adapted to periodic dry or low-flow conditions to survive, it is not known whether depletion causes standing in isolated habitat areas or mortality that would not otherwise occur and, if so, whether such effects are significant and unreasonable.”¹⁷⁰ The GSP identifies the biological effects, groundwater level and surface water flow data in the Confluence Aquatic Habitat Area as data gaps. The GSP plans to fill the data gaps with a biological monitoring program and at least one groundwater level monitoring site and one stream gage. Department staff recommend the GSA investigate and define what is considered significant and unreasonable conditions in the Confluence Aquatic Habitat Area and establish sustainable management criteria consisting of the rate or volume of surface water depletions caused by groundwater use that will avoid those conditions (see [Recommended Corrective Action 3a](#)).

While the approach taken by the GSA seems reasonable at this time, Department staff encourage the GSA to continue engaging and working with local stakeholders and resources agencies to assess the need to refine the management of depletions of interconnected surface water. Given the seasonal patterns of some of the identified GDEs such as anadromous fish, the GSA may consider adjusting the minimum thresholds in the future accordingly to focus on depletion values during critical time periods such as spawning. Department staff are encouraged that the GSP used the numerical model and a minimum instream flow requirement to indirectly quantify the rate or volume of surface water depletions in the development of the sustainable management criteria for interconnected surface water.

Department staff understand that quantifying depletions of surface water from groundwater extractions is a complex task that likely requires developing new, specialized tools, models, and methods to understand local hydrogeologic conditions, interactions, and responses. During the initial review of GSPs, Department staff have observed that most GSAs have struggled with this new requirement of SGMA. However, staff believe that most GSAs will more fully comply with regulatory requirements after several years of Plan implementation that includes projects and management actions to address the data gaps and other issues necessary to understand, quantify, and manage depletions of interconnected surface waters. Department staff further advise that at this stage in SGMA implementation it is appropriate to approve Plans with recommended corrective actions to address deficiencies related to interconnected surface water depletion where GSAs are still working to fill data gaps related to interconnected surface water and where these

¹⁶⁸ Upper Ventura River GSP, Table 4.9-01, p. 373.

¹⁶⁹ Upper Ventura River GSP, Section 4.9.1, p. 181.

¹⁷⁰ Upper Ventura River GSP, Section 4.9.1, p. 181.

data will be used to inform plan components that will be subject to future review. Accordingly, Department staff believe that affording GSAs adequate time to refine their Plans to address interconnected surface waters is appropriate and remains consistent with SGMA’s timelines and local control preferences.

The Department will continue to support GSAs in this regard by providing, as appropriate, financial and technical assistance to GSAs, including the development of guidance describing appropriate methods and approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water caused by groundwater extractions. Once the Department’s guidance related to depletions of interconnected surface water is publicly available, the GSA, where applicable, should consider incorporating appropriate guidance approaches into their future periodic updates to the GSP (see [Recommended Corrective Action 3b](#)). GSAs should consider availing themselves of the Department’s financial or technical assistance, but in any event must continue to fill data gaps, collect additional monitoring data, and implement strategies to better understand and manage depletions of interconnected surface water caused by groundwater extractions and define segments of interconnectivity and timing within their jurisdictional area (see [Recommended Corrective Action 3c](#)). Furthermore, GSAs should coordinate with local, state, and federal resources agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion (see [Recommended Corrective Action 3d](#)).

4.4 MONITORING NETWORKS

The GSP Regulations describe the monitoring network that must be developed for each sustainability indicator including monitoring objectives, monitoring protocols, and data reporting requirements. Collecting monitoring data of a sufficient quality and quantity is necessary for the successful implementation of a groundwater sustainability plan. The GSP Regulations require a monitoring network of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions that occur through implementation of the Plan.¹⁷¹ Specifically, a monitoring network must be able to monitor impacts to beneficial uses and users,¹⁷² monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds,¹⁷³ capture seasonal low and high conditions,¹⁷⁴ include required information such as location and well construction and include maps and tables clearly showing the monitoring site type, location, and frequency.¹⁷⁵ Department staff encourage GSAs to collect monitoring data as specified in the GSP, follow SGMA data and reporting standards,¹⁷⁶ fill data gaps identified in the GSP prior to the first periodic

¹⁷¹ 23 CCR § 354.32.

¹⁷² 23 CCR § 354.34(b)(2).

¹⁷³ 23 CCR § 354.34(b)(3).

¹⁷⁴ 23 CCR § 354.34(c)(1)(B).

¹⁷⁵ 23 CCR §§ 354.34(g-h).

¹⁷⁶ 23 CCR § 352.4 *et seq.*

update,¹⁷⁷ update monitoring network information as needed, follow monitoring best management practices,¹⁷⁸ and submit all monitoring data to the Department’s Monitoring Network Module immediately after collection including any additional groundwater monitoring data that is collected within the Plan area that is used for groundwater management decisions. Department staff note that if GSAs do not fill their identified data gaps, the GSA’s basin understanding may not represent the best available science for use to monitor basin conditions.

The groundwater level monitoring network consists of 15 monitoring wells of which seven are SGMA Representative wells.¹⁷⁹ Out of 15 wells, three are screened in the Ojai Conglomerate and 12 are screened in the alluvial aquifer.¹⁸⁰ Eight of the 15 wells are measured quarterly and seven are measured continuously using transducers.¹⁸¹ The GSP states that static groundwater levels will be measured no less than twice a year to capture seasonal high and low groundwater conditions.¹⁸² The monitoring sites are located in areas where groundwater elevations and hydraulic gradients are known to fluctuate with time and will capture seasonal high and low groundwater conditions.¹⁸³ The monitoring network proposed for groundwater level monitoring network will also be used to monitor change in groundwater storage.¹⁸⁴ Department staff note that a total of 15 wells have been uploaded to DWR’s SGMA Portal Monitoring Network Module with seven being identified as representative wells.

The groundwater quality monitoring network consists of 18 wells that are part of an existing groundwater quality monitoring network.¹⁸⁵ All wells within the network will be sampled for nitrate, sulfate, TDS, chloride, and boron.¹⁸⁶ Additionally, five new monitoring sites are proposed to be added to the network to monitor groundwater quality, as well as groundwater levels, to address data gaps in the Santa Ana Area and northern half of the Casitas Springs Area.

Although land subsidence was determined by the GSA to not be an applicable sustainability indicator in the Subbasin, the GSP states that InSAR data will be reviewed annually to monitor land subsidence.

The GSP discusses several elements of the monitoring network for the depletion of interconnected surface water sustainability indicator: surface water gages, ephemeral/intermittent flow monitoring, comparative groundwater level monitoring, and

¹⁷⁷ 23 CCR § 354.38(d).

¹⁷⁸ Department of Water Resources, 2016, [Best Management Practices and Guidance Documents](#).

¹⁷⁹ Upper Ventura River GSP, Section 5.3, p. 195, Figure 5.3-01, p. 336, Table 5.3-01, p. 379.

¹⁸⁰ Upper Ventura River GSP, Table 5.3-01, p. 379.

¹⁸¹ Upper Ventura River GSP, Section 5.3, p. 195, Section 5.3.1, p.197, Table 5.3-01, p. 379.

¹⁸² Upper Ventura River GSP, Section 5.3.1, p. 197.

¹⁸³ Upper Ventura River GSP, Section 5.3.1, p. 197.

¹⁸⁴ Upper Ventura River GSP, Section 5.4, p. 200.

¹⁸⁵ Upper Ventura River GSP, Section 5.6, p. 203.

¹⁸⁶ Upper Ventura River GSP, Section 5.6, p. 203, Table 5.6-01, p. 380.

aquatic GDE monitoring.¹⁸⁷ There are seven active surface water flow gages maintained by other entities that provide continuous monitoring of streamflow. Three more surface water gages are proposed (two near Ventura River and one south of San Antonio Creek confluence) to monitor streamflow.¹⁸⁸ The GSP states that monitoring with GPS locating will be conducted to identify timing and locations where ephemeral or intermittent flow ceases.¹⁸⁹ The GSP states that comparative groundwater level monitoring will be accomplished by collocating two proposed monitoring sites with two planned stream gage sites to provide paired groundwater level and streamflow data.¹⁹⁰ The GSP states that a work plan will be developed that will include a greater degree of monitoring activities leading up to the first 5-year GSP assessment to establish baseline information, followed by a more limited and streamlined monitoring program for the remainder of the GSP implementation period.¹⁹¹ Similarly, a multi-year focused monitoring program is being developed for the Confluence Aquatic Habitat Area.

The description of the monitoring network included in the Plan substantially complies with the requirements outlined in the GSP Regulations. Overall, the Plan describes in sufficient detail a monitoring network that promotes the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the Subbasin and evaluate changing conditions that occur through Plan implementation. The GSP provides a good explanation for the conclusion that the monitoring network is supported by the best available information and data and is designed to ensure adequate coverage of sustainability indicators. The Plan also describes existing data gaps and the steps that will be taken to fill data gaps and improve the monitoring network. Department staff consider the information presented in the Plan to satisfy the general requirements of the GSP Regulations regarding monitoring network.

4.5 PROJECTS AND MANAGEMENT ACTIONS

The GSP Regulations require a description of the projects and management actions the submitting Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.¹⁹² Each Plan's description of projects and management actions must include details such as: how projects and management actions in the GSP will achieve sustainability, the implementation process and expected benefits, and prioritization and criteria used to initiate projects and management actions.¹⁹³

The GSP proposes three projects and three management actions. The three projects include:

¹⁸⁷ Upper Ventura River GSP, Section 5.8, pp. 208-209.

¹⁸⁸ Upper Ventura River GSP, Section 5.8, p. 208, Figure 5.8-01, p. 381.

¹⁸⁹ Upper Ventura River GSP, Section 5.8, p. 208.

¹⁹⁰ Upper Ventura River GSP, Section 5.8, p. 209.

¹⁹¹ Upper Ventura River GSP, Section 5.8, p. 209.

¹⁹² 23 CCR § 354.44 (a).

¹⁹³ 23 CCR § 354.44 (b) *et seq.*

1. Addressing groundwater level monitoring well data gaps by adding five wells (three existing and two new wells) to the groundwater level monitoring network,¹⁹⁴
2. Addressing stream gage data gaps by installing three new surface water gages,¹⁹⁵ and
3. Addressing biological data gaps in the Confluence Aquatic Habitat Area to determine whether depletions of interconnected surface water will cause significant and unreasonable effects on aquatic species in Confluence Aquatic Habitat Area.¹⁹⁶

The GSP describes three management actions including:

1. Conducting domestic well survey to collect domestic well information such as location, status, well construction, and water uses to address data gaps in the development of minimum thresholds for groundwater levels,¹⁹⁷
2. Implementing Foster Park Protocols to address direct depletion of interconnected surface water in the Foster Park Habitat Area,¹⁹⁸ and
3. Addressing indirect depletion of interconnected surface water upgradient of the Foster Park Habitat Area.¹⁹⁹ The Foster Park Protocols are implemented pursuant to a settlement agreement between the City of Ventura and Santa Barbara Channelkeeper (Case No. 19STCP01176).²⁰⁰ The GSP notes that the sustainable management criteria for interconnected surface water in the Forster Park Aquatic Habitat area is consistent with this settlement.

Department staff note that the settlement agreement amendment²⁰¹ may pose a potential challenge to the GSA's management of the Subbasin because it allows for the operational protocols to be temporarily modified or suspended under various conditions following a declaration of emergency. This provision, which appears to be out of the GSA's control to implement based on information included in the Plan, could potentially lead to minimum threshold exceeds and even undesirable results. The agreement does require the parties to meet to discuss ways to limit the emergency declaration's impact but does not identify any mitigating options. Department staff recommend the GSA provide further discussion surrounding the how the Foster Park Protocols and the settlement agreement may impact or limit the GSA's ability to manage groundwater in the Subbasin. Specifically, the GSA should describe how these existing agreements may temporarily modify operations within the subbasin and discuss any possible mitigation measures or actions that may be taken by the GSA in response (see [Recommended Corrective Action 4](#)).

¹⁹⁴ Upper Ventura River GSP, Figure 5.3-01, p. 336.

¹⁹⁵ Upper Ventura River GSP, Figure 5.8-01, p. 338.

¹⁹⁶ Upper Ventura River GSP, Section 6.7, p. 234.

¹⁹⁷ Upper Ventura River GSP, Section 6.2, p. 217.

¹⁹⁸ Upper Ventura River GSP, Section 6.3, p. 220.

¹⁹⁹ Upper Ventura River GSP, Section 6.4, p. 224.

²⁰⁰ Upper Ventura River GSP, Appendix D, pp. 464-829.

²⁰¹ Upper Ventura River GSP, Appendix D, p. 603.

The GSP describes each project and management action with a description, the relationship to sustainability criteria, expected benefits, metrics for evaluation, legal authority, and funding sources. The GSA will continue to follow the adopted Stakeholder Engagement Plan²⁰² as the method of informing the public on project updates.

Department staff conclude that the Plan describes proposed projects and management actions in a manner that is generally consistent and substantially complies with the GSP Regulations.²⁰³ The projects and management actions, which focus largely on filling the data gaps are directly related to the sustainable management criteria and present a generally feasible approach to achieving the sustainability goal of the Subbasin.

4.6 CONSIDERATION OF ADJACENT BASINS/SUBBASINS

SGMA requires the Department to “...evaluate whether a groundwater sustainability plan adversely affects the ability of an adjacent basin to implement their groundwater sustainability plan or impedes achievement of sustainability goals in an adjacent basin.”²⁰⁴ Furthermore, the GSP Regulations state that minimum thresholds defined in each GSP be designed to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.²⁰⁵

The has two adjacent basin/subbasins: the Ojai Valley Basin and the Lower Ventura River Subbasin. The Ojai Valley Basin is a high-priority basin located upgradient of the Subbasin. The Lower Ventura River Subbasin is a very low-priority basin, which is not currently required to be managed under a GSP. The Plan discusses that the selected minimum thresholds and the implementation of the Plan will not adversely affect the ability of adjacent basins to achieve sustainability goals.

Based on information available, Department staff have no reason to believe that groundwater management under the Plan in the Upper Ventura River Subbasin will adversely affect the ability of local agencies in the adjacent basin at this time. Department staff will review this issue during periodic updates to the Plan.

4.7 CONSIDERATION OF CLIMATE CHANGE AND FUTURE CONDITIONS

The GSP Regulations require a GSA to consider future conditions and project how future water use may change due to multiple factors including climate change.²⁰⁶

Since the GSP was adopted and submitted, climate change conditions have advanced faster and more dramatically. It is anticipated that the hotter, drier conditions will result in a loss of 10% of California’s water supply. As California adapts to a hotter, drier climate, GSAs should be preparing for these changing conditions as they work to sustainably

²⁰² Upper Ventura River GSP, Appendix E, pp. 830-841.

²⁰³ 23 CCR §§ 354.44 (a), 354.44 (b), 354.44 (c), 354.44 (d).

²⁰⁴ Water Code § 10733(c).

²⁰⁵ 23 CCR § 354.28(b)(3).

²⁰⁶ 23 CCR § 354.18.

manage groundwater within their jurisdictional areas. Specifically, the Department encourages GSAs to:

1. Explore how their proposed groundwater level thresholds have been established in consideration of groundwater level conditions in the basin based on current and future drought conditions;
2. Explore how groundwater level data from the existing monitoring network will be used to make progress towards sustainable management of the basin given increasing aridification and effects of climate change, such as prolonged drought;
3. Take into consideration changes to surface water reliability and that impact on groundwater conditions;
4. Evaluate updated watershed studies that may modify assumed frequency and magnitude of recharge projects, if applicable, and
5. Continually coordinate with the appropriate groundwater users, including but not limited to domestic well owners and state small water systems, and the appropriate overlying county jurisdictions developing drought plans and establishing local drought task forces²⁰⁷ to evaluate how their Plan's groundwater management strategy aligns with drought planning, response, and mitigation efforts within the basin.

²⁰⁷ Water Code § 10609.50.

5 STAFF RECOMMENDATION

Department staff recommend the approval of the GSP with the recommended corrective actions listed below. The Upper Ventura River Subbasin GSP conforms with Water Code Sections 10727.2 and 10727.4 of SGMA and substantially complies with the GSP Regulations. Implementation of the GSP will likely achieve the sustainability goal for the Upper Ventura River Subbasin. The GSA has identified several areas for improvement of its Plan and Department staff concur that those items are important and should be addressed as soon as possible. Department staff have also identified additional recommended corrective actions that should be considered by the GSA for the first periodic update of its GSP. Addressing these recommended corrective actions will be important to demonstrate that implementation of the Plan is likely to achieve the sustainability goal.

The recommended corrective actions include:

RECOMMENDED CORRECTIVE ACTION 1

Update the sustainable management criteria for the chronic lowering of groundwater levels as follows:

- a. Amend the quantitative definition of undesirable results to account for localized threshold exceedances or provide additional information to the GSP to support why undesirable results will not occur until minimum thresholds are exceeded in 100 percent of representative monitoring sites and clarify the time component in the definition.
- b. Revise the definition of undesirable results to remove the groundwater extraction condition or clearly explain how the Subbasin can be managed in a way where groundwater extractions would not contribute at all to a combination of threshold exceedances that lead to undesirable results.

RECOMMENDED CORRECTIVE ACTION 2

Implement the management action entitled, “*Domestic Well Survey*” to obtain additional information about domestic wells in the Subbasin. After the project is implemented, the GSA should identify the degree/extent of potential impacts including the percentage, number, and location of potentially impacted wells at the proposed minimum thresholds for chronic lowering of groundwater levels.

RECOMMENDED CORRECTIVE ACTION 3

Department staff understand that estimating the location, quantity, and timing of stream depletion due to ongoing, Subbasin-wide pumping is a complex task and that developing suitable tools may take additional time; however, it is critical for the Department’s ongoing and future evaluations of whether GSP implementation is on track to achieve sustainable groundwater management. The Department plans to provide guidance on methods and

approaches to evaluate the rate, timing, and volume of depletions of interconnected surface water and support for establishing specific sustainable management criteria in the near future. This guidance is intended to assist GSAs to sustainably manage depletions of interconnected surface water.

In addition, the GSA should work to address the following items by the first periodic update:

- a. Investigate and define what is considered significant and unreasonable conditions in the Confluence Aquatic Habitat Area. Establish sustainable management criteria consisting of the rate or volume of surface water depletions caused by groundwater use that will avoid those conditions in this portion of the Plan area.
- b. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department to establish quantifiable minimum thresholds, measurable objectives, and management actions.
- c. Continue to fill data gaps, collect additional monitoring data, and implement the current strategy to manage depletions of interconnected surface water and define segments of interconnectivity and timing.
- d. Prioritize collaborating and coordinating with local, state, and federal regulatory agencies as well as interested parties to better understand the full suite of beneficial uses and users that may be impacted by pumping induced surface water depletion within the GSA's jurisdictional area.

RECOMMENDED CORRECTIVE ACTION 4

Provide further discussion surrounding the how the Foster Park Protocols and the settlement agreement may impact or limit the GSA's ability to manage groundwater in the Subbasin. Specifically, the GSA should describe how these existing agreements may temporarily modify operations within the subbasin and discuss any possible mitigation measures or actions that may be taken by the GSA in response.