



2025 Kings Basin Periodic Evaluation

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For clarity, this report has been organized based on the suggested outline presented in the State’s October 2023 *Groundwater Sustainability Plan Implementation: A Guide to Annual Reports, Periodic Evaluations, & Plan Amendments* guidance document. Specific guidance document questions and information that were to be considered in the Periodic Evaluation are presented in red text in this report with answers and responses immediately following in black text.

EXECUTIVE SUMMARY

This is the first Periodic Evaluation for the Kings Subbasin. The Kings Subbasin has seven Groundwater Sustainability Agencies (GSAs) (see **Appendix B - Figure 1**), all of which prepared and submitted individual GSPs. The Periodic Evaluation is due at least every five years after the initial submittal of a Groundwater Sustainability Plan (GSP). The Periodic Evaluation is a written assessment of GSP implementation activities to address whether implementation is on track for reaching the basin's sustainability goal. This Periodic Evaluation has been prepared in accordance with GSP Regulations (i.e., California Code of Regulations section on Groundwater Sustainability Plans, § 356.2. Annual Reports) and the October 2023 Guide to Annual Reports, Periodic Evaluations, & Plan Amendments from DWR. Included in this Periodic Evaluation are the regulation requirements.

The evaluation cycle for this Periodic Evaluation is from the initial submittal of the seven GSPs in January 2020 through fall of 2024 and is required to be submitted to DWR no later than January 31, 2025. It is important to note that this Periodic Evaluation primarily includes information through Water Year 2023, as the preparation of the Periodic Evaluation is needed prior to completion of Water Year 2024 in order to meet the DWR submittal deadline of January 2025.

Some of the major accomplishments during this periodic evaluation period include, but are not limited to:

- Completion of more than 30 projects that recharged more than 150,000AF from WY2020-2023
- Adoption and implementation of a basin-wide Domestic Well Mitigation Program.
- Entering into an MOU with the Madera Basin GSAs, USBR, FWA and SJRRP that establishes a common understanding of interconnected water challenges along the San Joaquin River, and addresses coordination on workplans, data sharing, establishment of a Technical Committee and other topics.
- Completion of confined aquifer data gap study
- Approval of revised GSPs that address the recommended corrective actions from DWR

Other accomplishments and challenges in the basin are identified within this Periodic Evaluation.

- *Period of time the Periodic Evaluation covers (evaluation cycle).*

This periodic evaluation covers 2020-2025 and includes information from water year 2020 through water year 2023. Data and analysis of water year 2024 will be included in the annual report submittal due April 2025. The periodic evaluation also includes GSP revisions made and adopted in late 2024 and early 2025 by the GSAs.

- *Is the Periodic Evaluation accompanied by an amended Plan? If yes, identify the month and year the Plan was amended (e.g., January 2025) and describe the Plan re-adoption process, if applicable.*

No, the Periodic Evaluation is not accompanied by amended GSPs, but rather revised GSPs. The GSAs revised their GSPs to address the Recommended Corrective Actions identified in the 2023 approval letter received from DWR. The GSAs approved revisions to their GSPs in late 2024 and January 2025. A

summary of the revisions to the GSPs is included in this Periodic Evaluation and the revised GSPs accompany this Periodic Evaluation.

The seven GSAs have worked cooperatively since 2016 to coordinate the development of their GSPs. Below is the timeline for GSP submittals, review, resubmittal and approval.

- January 2020 – Initial submittal of GSPs to DWR
- January 2022 – Incomplete determination from DWR with 180 days to revise and resubmit GSPs
- July 2022 – Resubmittal of revised GSPs
- March 2023 – Notification of DWR approval of Kings Subbasin GSPs
- August 2023 – Receipt of Determination Letter from DWR with Recommended Corrective Actions
- Sept 2023 through Fall 2024 – Consultation with DWR, coordinated revisions to GSP, technical committee review
- Summer 2024 – Notification to Cities, Counties and Stakeholders
- Fall 2024 – Public comment on revised GSPs
- Nov/Dec 2024, Jan 2025 – GSA Boards approved revised GSPs

- *Updated GSA information:*

- *Modifications to GSAs and their member agencies.*

There have been no modifications to GSAs or their member agencies within the basin. As noted in the WY2023 Annual report, when the cities within the South Kings GSA boundary annex new lands, the boundary of South Kings is increased and the other GSA areas decrease. The South Kings GSA has increased by about 655 acres with 450 of those acres coming from the Central Kings GSA and more than 200 acres from the North Kings GSA. The GSAs will be finalizing the changes and sending boundary adjustments to DWR. These changes will continue as the cities grow, and updates will be provided to DWR annually regarding boundary changes.

- *Changes to governance structure.*

There have been no changes to governance structure to any of the GSAs within the Kings Subbasin. Some GSAs within the Kings Subbasin have improved their operational structure, including formalization of committees and hiring of staff.

- *If there were recommended corrective actions provided by the Department in the most recent determination of the Plan, summarize what they were, whether they were addressed and whether they led to a Plan Amendment.*

DWR provided a list of 12 recommended corrective actions by letter in August 2023. The GSAs have collaboratively worked since prior to receiving the letter to implement the studies, programs and projects identified in their approved GSPs. The basin has addressed all 12 of the recommended corrective actions, and each of the GSAs have approved revisions to their GSPs. A complete listing of each of the recommended corrective actions and a summary of how they were addressed is included in **Appendix A**. The GSAs determined that the changes did not constitute an amendment to the GSPs because the revisions included were just a furtherance of the existing efforts identified within the GSPs and the sustainability goals and management criteria for the basin were not changing. However, it is

important to note that the GSAs followed their committee and outreach processes for revising and adopting the GSPs, including notification to cities, counties and interested parties, as well as a public comment period and public board meeting opportunity for comment. The seven GSPs within the Kings Subbasin were revised and the revisions have been adopted by each of the GSAs within the basin.

- *Describe the basin's sustainability goal and whether the implementation of the GSP is on track to meet the basin's sustainability goal.*

As noted in the GSPs, the sustainability goal of the Kings Subbasin and the GSAs is to ensure that by 2040 the basin is being managed to maintain a reliable water supply for current and future beneficial uses without experiencing undesirable results. This goal will be met by balancing water demand with available water supply to stabilize declining groundwater levels without significantly and unreasonably impacting water quality, land subsidence, or interconnected surface water. The goal of the basin is to correct and end the long-term trend of a declining water table understanding that water levels will fluctuate based on the season, hydrologic cycle, and changing groundwater demands within the basin and its proximity.

The conditions with the Kings Subbasin and this GSA will be considered sustainable when:

- *The basin is continuously operated within its sustainable yield.*
- *The current rate of decline of the groundwater table within the basin monitoring network indicator (SMC) wells has been corrected and the multi-year trend of water elevations in these wells has been stabilized.*
- *Groundwater management activities prevent undesirable results to groundwater levels, groundwater storage, groundwater quality, land subsidence and interconnected surface water (ISW).*

The basin believes it is on track to reach sustainability. The 2023 water year provided significant additional water that was recharged into the aquifer. This was needed after 3 years (2020, 2021, and 2022) of drought or below average water supply. Critical to the coordination of the basin is each GSA agreeing to being responsible for correction of their portion of the overdraft. Specifically, by 2025 a correction of 12,200 AF average annual (10% of the estimated 122,000 AF overdraft) was required. Through water year 2023, the total amount from new SGMA related facilities or programs has totaled more than 150,000 AF (or 37,500AF/yr), exceeding the requirement.

However, as noted in the WY2023 annual report, some of the SMC wells have declined below 2025 Interim Milestones. This is anticipated based on the 3 drought years of 2020-2022, and the basin still believes it is on a path to sustainability. Additional discussion of water level SMCs, as well as the other SMCs is included later in this Periodic Evaluation.

- *Include a general statement on how GSA activities are progressing within the basin, which should be supported by the content presented in the written assessment.*

The GSAs in the basin continue to implement their approved GSPs and move forward with multiple activities to help the basin reach sustainability. The basin continues to coordinate monthly and has made significant efforts to start and complete several of the projects included in the GSPs. The GSAs have worked to plan, design, and construct facilities to capture additional surface water during wet years. Recharge efforts within the basin have increased significantly since 2020 and are described later

in this report. The GSAs have also focused on filling data gaps, improving monitoring networks, and making revisions to the GSPs to address the Recommended Corrective Actions from DWR. Data gap efforts have focused on land subsidence, interconnected surface water, as well as improving and updating water level and water quality monitoring efforts within the basin. The GSAs have also adopted a Domestic Well Mitigation Program and began implementation of the program in October 2024.

- *Summarize any significant new information and data that were acquired during the evaluation cycle and present how that information or those data were used in preparing the Periodic Evaluation.*

An initial ISW data gap assessment for the San Joaquin River and the Kings River was performed in 2024 by comparing riverbed elevations data and groundwater elevation data from near river wells. The locations of ISW along the rivers were refined and preliminary estimates of the zone of influence adjacent to the rivers that would delineate the area whereby wells are able to influence and deplete surface water were made. Potential new confined aquifer wells for establishing an Initial Lower Aquifer monitoring network have been identified which is beneficial for understanding land subsidence in the impacted areas and also improving water budget calculations. Additional construction information for wells in the monitoring networks was obtained and is available in the revised GSPs. Construction of dedicated monitor wells has also improved the water level monitoring networks in several of the Subbasin GSAs. As this data was used in revising the GSPs they also helped in preparing this periodic evaluation by providing information to develop Table 1, below.

- *Describe the efforts taken to engage with interested parties. Provide a high-level summary of public comments received during GSP implementation or while preparing the Periodic Evaluation*

The basin as a whole has made significant efforts to update and engage interested parties within the basin, and individual GSAs have also made numerous engagement efforts through various means to engage interested parties. These efforts have included, but are not limited to, involvement of interested parties on technical and advisory committees, public meetings and workshops, and public comment periods. A more detailed listing of the efforts by the GSAs is included in Section 7 of this Periodic Evaluation.

1 NEW INFORMATION COLLECTED

The Periodic Evaluation should provide a description of any new information, including significant new data, that the GSA has acquired during the evaluation cycle. The discussion should include whether new information warrants changes to any aspect of the Plan, including the evaluation of the basin setting, measurable objectives, minimum thresholds, or the criteria defining undesirable results. Additionally, this section should evaluate whether those changes associated with the new information led to a Plan Amendment.

Table 1 below provides a summary of significant new data acquired and corresponding revisions made to the GSPs. The GSAs determined that the changes did not constitute an amendment to the GSPs because the revisions included were just a furtherance of the existing efforts identified within the GSPs and the sustainability goals and management criteria for the basin were not changing. However, it is important to note that the GSAs followed their committee and outreach processes for revising and approving the GSPs, including notification to cities, counties and interested parties, as well as a public comment period and public board meeting opportunity for comment. The seven GSPs within the Kings Subbasin were revised and the revisions approved by each of the GSAs within the basin.

Table 1: Summary of New Information Since Periodic Evaluation

Significant New Information (e.g., new monitoring data, reports, coordination with other agencies, data provided by the Department)	Description	Aspects of Plan Affected (e.g., Basin Setting, Sustainable Management Criteria, Projects and Management Actions, Monitoring Network, Coordination Agreement)	Warrant Change to Any Aspects of the Plan (Yes/No) If yes, include section of the Plan
Domestic Well Mitigation Studies and Program	Revised GSP, estimate of wells impacted, and have now developed and implemented a domestic well mitigation program	Successful implementation of the project listed in GSPs	GSPs revised to reflect revisions to domestic well mitigation program. 4.2 and 6.3. See table in Appendix A.
Interconnected Surface Water Studies	An initial ISW data gap assessment for the San Joaquin River and the Kings River was performed in 2024 by comparing riverbed elevations data and groundwater elevation data from near river wells. The locations of ISW along the rivers were refined. Development of revised SMCs was hindered during study due to lack of data, monitoring facilities, and yet to be completed studies by third party stakeholders. Other work in the study included water rights research, stakeholder outreach, review of neighboring GSA's ISW work, preliminary surface water depletion analyses, and developing future monitoring plans.	Current and Historical Groundwater Conditions in the Basin Setting chapter have been revised to refine locations of interconnection and discuss preliminary estimates of zone of influence adjacent to the rivers that would delineate the area whereby wells are able to influence and deplete surface water. Data Gap Analysis was revised in the Sustainable Management Criteria chapter. The Project and Management Action chapter was revised to discuss additional needed data gap assessment(s).	GSPs were revised to reflect new information gathered during initial data gap study. Sections 3.2.7, 4.7, and 6.2. Relevant ISW Data Gap studies provided in the appendices of each GSP

Significant New Information (e.g., new monitoring data, reports, coordination with other agencies, data provided by the Department)	Description	Aspects of Plan Affected (e.g., Basin Setting, Sustainable Management Criteria, Projects and Management Actions, Monitoring Network, Coordination Agreement)	Warrant Change to Any Aspects of the Plan (Yes/No) If yes, include section of the Plan
Land Subsidence/Confined Aquifer Studies	The Kings Subbasin GSAs completed a confined aquifer analysis as part of a land subsidence data gap study to better understand the current groundwater conditions in the confined aquifer. This work is on-going and is still recognized as a data gap.	Water Budget Information in the Basin Setting chapter has been revised to discuss the portion of pumped groundwater that comes from the confined aquifer. The Monitoring Network chapter has been revised to discuss existing and potential new confined aquifer wells for establishing a confined aquifer monitoring network.	GSPs revised to reflect new information gathered during study. Sections 3.3, 5.2, and 6.
New groundwater level monitoring points and improved groundwater level monitoring data collection methods.	Dedicated groundwater level monitoring wells have been installed in the CKGSA (2 wells), SKGSA (2 wells), NFKGSA (1 nested multi-depth well), and JGSA (1 nested multi-depth well).	Data Gaps and Water Budget Improvements in the Water Budget has been revised to document the addition of these new wells to the water level monitoring networks.	GSPs revised to reflect installation of new monitoring wells and improved data collection efforts. Section 3.3.8.
New water quality monitoring points and well construction information for the water quality monitoring network.	The NFKGSA water quality monitoring network had wells with insufficient groundwater quality data to establish Minimum Thresholds. Some water quality monitoring wells in the NFKGSA have been replaced and Minimum Thresholds were established for the replacement wells. Well construction information for the water quality monitoring wells have been revised in the GSPs.	Revisions to the Monitoring Network Chapter of the NFKGSP have been made.	GSPs revised to reflect new information. Section 5.5

Note: GSAs will need to fill in the blanks for information they consider significant new information.

2 GROUNDWATER CONDITIONS RELATIVE TO SUSTAINABLE MANAGEMENT CRITERIA

This section sets the stage for evaluating the GSAs' progress towards achieving groundwater sustainability in their basin. The GSA should evaluate current groundwater conditions for each applicable sustainability indicator relative to sustainable management criteria established in the GSP (i.e., measurable objectives, interim milestones, minimum thresholds, and undesirable results) and describe, with supporting data, whether implementation of the GSP is effective. If the evaluation indicates that GSP implementation has not been effective in making progress toward achieving the sustainability goal, this section should include an explanation of the potential reasons and provide a description of how the GSA intends to get the basin back on track to achieving sustainability. The written assessment should also forecast the likelihood of achieving interim milestones or measurable objectives within the next evaluation cycle. This section may include discussion of hydrologic or climatic extremes and how the associated conditions and/or emergencies have impacted GSP implementation, as well as the adaptive management strategies used to keep the basin on track, or to get the basin back on track, to achieving sustainability.

If the Department provided recommended corrective actions related to sustainable management criteria, the GSA should include a discussion of how those were addressed. If the recommended corrective actions were addressed with a Plan Amendment, the GSA should provide that explanation and indicate where the changes can be found in the amended GSP.

2.1 GROUNDWATER LEVEL

- Did the previous determination of the Plan by the Department include a recommended corrective action related to this sustainability indicator? How was it resolved?*

The Department's recommended corrections action 1a, 1b and 1c were related to groundwater levels. In addition, recommended corrective actions 10a, 10b and 10c were related to the groundwater level monitoring networks for the unconfined and confined aquifers. Each of these corrective actions were addressed in the revised GSPs. The table included in **Appendix A** lists each of the Department's Recommended Corrective Actions, a reference to the section or sections that were revised in the GSP to address this corrective action, and a summary of the revisions made to address the corrective action.

- Describe current conditions relative to the minimum thresholds, interim milestones, and measurable objectives. Are the current conditions in the basin achieving the interim milestones? Describe if undesirable results are occurring or have occurred over the evaluation cycle. Were there minimum threshold exceedances that did not constitute undesirable results as quantitatively defined in the GSP?*

Based on reporting through water year 2023, there are no SMC wells within the basin that have declined below water level minimum thresholds; however the basin continues to monitor water levels closely in relation to interim milestones (**Appendix B - Figure 2**). Section 4.2 of the GSPs includes a description of Interim Milestones that are 5-year target groundwater levels at each Indicator Well. The interim milestones have been set along the curve to the Measurable Objective and are based on the long-term

average hydrologic conditions and the planned projects and management actions the GSAs will use to make incremental improvement toward sustainability over the 20-year planning period. The GSAs will manage the basin to these Interim Milestones during the planning period by comparing hydrologic conditions to historic average conditions and implementing management actions if needed to maintain a path to sustainability. In fall 2023, there were 35 wells that are below their 2025 Interim Milestone or lower, however these wells are not below the operational flexibility buffer below the Measurable Objective. In fact, none of the 35 wells below their 2025 interim milestone had declined more than 50% of their operational flexibility distance below the Measurable Objective. Seven wells have no measurement in fall 2023. The Operational Flexibility is the distance between the Measurable Objective and Minimum Threshold and is for dry periods when increased groundwater pumping will occur. The hydrologic conditions during 2020, 2021 and 2022 water years provided approximately 50% of the average amount of surface water during that period, so utilization of some of the operational flexibility is anticipated. While these declines have not exceeded anticipated declines because of the hydrologic conditions, the GSAs will continue to monitor closely how these wells react based on future hydrologic conditions. Data through water year 2023 is provided in both tabular and hydrograph format in the WY2023 annual report submitted in April 2024. Data for water year 2024 was not fully available at that time of this report, but early information indicates some increases or minimal declines in much of the basin following an average water year that did include some spring flood releases and added recharge opportunities.

- *Evaluate progress made (including challenges encountered, if applicable), describe any adaptive management approaches employed to address minimum threshold exceedances, whether GSP implementation is effective thus far, and any other pertinent information related to progress towards achieving sustainability.*

The basin continues to focus on increasing recharge efforts during wet periods. The basin has completed more than 30 projects that recharged more than 150,000AF from WY2020-2023. A complete listing of the projects implemented and amount of water supply recharged is included in this report. Although the GSAs have met their initial 5-year overdraft correction goals, the GSAs continue to evaluate overdraft estimation and responsibilities in relation to groundwater level conditions. There have been no groundwater level minimum threshold exceedances. There have been educational efforts on improving on-farm efficiency that have helped lead to some reduced grower pumping. There has also been education and outreach on the importance of maintaining surface water connections to maximize use of available surface water.

- *Have basin conditions and GSP implementation affected beneficial uses and users? For example, were there any reported dry wells during the evaluation cycle?*

The Basin's GSPs account for continued groundwater level declines until sustainability is reached, however as noted, the hydrologic years of 2020-2022 provided only about 50% of the historic average surface water supplies, resulting in groundwater levels declining faster than the projected average rate. There have been many new well permits reviewed by the GSAs during this period. Although the water year 2024 period data has not been fully compiled, there has been a significant reduction in the number of new well permits reviewed by GSAs during and following water year 2023.

- *Are other sustainability indicators being impacted?*

No specific impacts to other sustainability indicators have been identified.

- *If significant new information is leading to a change in sustainable management criteria, describe these changes and compare the previous sustainable management criteria to the adjusted management criteria.*

No changes to sustainable management criteria are required at this time.

- *If changes are made, did they warrant a Plan Amendment?*

No, the changes did not warrant a GSP Amendment. The GSAs revised their GSPs to address the Department's Recommended Corrective Actions and approved those revisions to the GSPs.

2.2 GROUNDWATER STORAGE

- *Did the previous determination of the Plan by the Department include a recommended corrective action related to this sustainability indicator? How was it resolved?*

The Department's recommended corrections actions 6b, 8, 10c, 4d, and 9a and 9b were related to groundwater storage, focusing primarily on adding in estimates for the confined aquifer. A significant study effort was conducted to estimate confined aquifer pumping during this period. Preliminary estimates were made, but further work has been identified and continues. These corrective actions were addressed in the revised GSPs by describing the study work conducted and adding clarifying language to the GSPs. The table included in **Appendix A** lists each of the Department's Recommended Corrective Actions, a reference to the section or sections that were revised, and a summary of the revisions made to address the recommended corrective action.

- *Describe current conditions relative to the minimum thresholds, interim milestones, and measurable objectives. Are the current conditions in the basin achieving the interim milestones? Describe if undesirable results are occurring or have occurred over the evaluation cycle. Were there minimum threshold exceedances that did not constitute undesirable results as quantitatively defined in the GSP?*

Table 2 below shows the estimates of storage change year by year from fall 2019 to fall 2023. As noted, the hydrologic years of 2020-2022 provided only about 50% of the historic average surface water supplies, but the 2023 water year contributed approximately 700,000 acre-feet more surface water than the long term historic average. This additional surface water, combined with reduced pumping needs during the wet year resulted in the significant increase in groundwater storage estimated to be 1,280,000 acre-feet as noted in **Table 2**. The basin continues to refine the monitoring network to better estimate the annual total and cumulative storage change within the basin. As mentioned, estimates for water year 2024 are still pending and were not available for this periodic evaluation.

Table 2: Kings Subbasin - Estimated Annual Change in Storage, Fall 2019 to Fall 2023

Kings Subbasin GSA	Fall 19 to Fall 20	Fall 20 to Fall 21	Fall 21 to Fall 22	Fall 22 to Fall 23
Total Est. Storage Change (AF)	-550,000	-890,000	-680,000	1,280,000

- *Evaluate progress made (including challenges encountered, if applicable), describe any adaptive management approaches employed to address minimum threshold exceedances, whether GSP implementation is effective thus far, and any other pertinent information related to progress towards achieving sustainability.*

As described in the GSPs, groundwater storage is tied to groundwater level sustainability. There have been no minimum threshold exceedances, however the basin continues to focus on increasing recharge efforts to reach sustainability. A complete listing of the projects implemented, and the amount of water supply recharged is included in this report. The GSAs and their member agencies also partnered with DWR to develop new places to recharge water during the historically wet 2023 water year. These adaptive strategies included renting lift pumps to get water to land that wouldn't otherwise have access to surface water, and clearing land so recharge could occur.

- *Have basin conditions and GSP implementation affected beneficial uses and users? For example, were there any reported dry wells during the evaluation cycle?*

Impacts to beneficial uses and users for groundwater storage are primarily tied to groundwater levels, which is described in Section 2.1.

- *Are other sustainability indicators being impacted?*

No specific impacts to other sustainability indicators have been identified.

- *If significant new information is leading to a change in sustainable management criteria, describe these changes and compare the previous sustainable management criteria to the adjusted management criteria.*

No changes to sustainable management criteria are required at this time.

- *If changes are made, did they warrant a Plan Amendment?*

No, the changes did not warrant a GSP Amendment. The GSAs revised their GSPs to address the Department's Recommended Corrective Actions and approved those revisions to the GSPs.

2.3 WATER QUALITY

- *Did the previous determination of the Plan by the Department include a recommended corrective action related to this sustainability indicator? How was it resolved?*

The Department's recommended corrections actions 4a, 4b, 4c, 4d, and 9a and 9b were related to groundwater quality. These corrective actions were able to be addressed in the revised GSPs by adding clarifying language to better explain the chosen sustainability indicator criteria or by slightly modifying language for consistency across the GSPs. The table included in **Appendix A** lists each of the Department's Recommended Corrective Actions, a reference to the section or sections that were revised, and a summary of the revisions made to address the recommended corrective action.

- *Describe current conditions relative to the minimum thresholds, interim milestones, and measurable objectives.*

In water year 2023, there were groundwater quality minimum threshold exceedances in 5 wells within the basin out of a total of 151 wells (Appendix B - Figure 3). Minimum Threshold exceedances in four of these wells appear intermittent at this time and it is unknown if the higher reported concentrations in these wells are representative of trending groundwater quality. Future groundwater quality data

reporting will inform the Subbasin of the need to conduct site-specific investigations to assess if GSA actions have contributed to groundwater quality degradation in these four wells.

- *Are the current conditions in the basin achieving the interim milestones?*

As stated in the GSPs, no interim milestones have been set in the Kings Subbasin for the groundwater quality sustainability indicator. As explained in the GSPs Sustainable Management Criteria chapter, consistent with current practices by groundwater pumping agencies, and in an effort to proactively monitor conditions before MCLs are exceeded, data from Drinking Water Watch and other sources is reviewed for increased constituent of concern levels approaching the MCL, and when appropriate, contact will be made with the well owner to discuss concerns of levels approaching the MCL.

- *Describe if undesirable results are occurring or have occurred over the evaluation cycle. Were there minimum threshold exceedances that did not constitute undesirable results as quantitatively defined in the GSP?*

The occurrence of a groundwater quality undesirable result has been defined in the Kings Subbasin as 15% of the representative monitoring wells having Minimum Threshold exceedances for two consecutive sampling events at the same wells when shown to be altered by groundwater pumping or recharge activities. There have been no water quality undesirable results in the Kings Subbasin.

- *Evaluate progress made (including challenges encountered, if applicable), describe any adaptive management approaches employed to address minimum threshold exceedances, whether GSP implementation is effective thus far, and any other pertinent information related to progress towards achieving sustainability.*

The GSP implementation is considered effective as water quality data is being tracked across the Kings Subbasin. Increases in concentrations of chemicals of concern that are found to correspond to changes in groundwater levels or groundwater gradients from GSA pumping or groundwater recharge activities may be an indication that GSA actions have contributed to groundwater quality degradation, particularly if third party activities cannot be identified that could have also contributed. To date, there has been no need for these investigations relative to Minimum Thresholds or Undesirable Results. Should future investigations become necessary, and if the results indicate GSA actions have contributed to groundwater quality degradation, then management actions described in the GSPs would be implemented.

- *Have basin conditions and GSP implementation affected beneficial uses and users? For example, were there any reported dry wells during the evaluation cycle?*

Relative to the groundwater quality sustainability indicator and to the best of the Kings Subbasin's knowledge, basin conditions and GSP implementation have not affected beneficial uses and users.

- *Are other sustainability indicators being impacted?*

Other sustainability indicators are not being impacted by groundwater quality in the Kings Subbasin.

- *If significant new information is leading to a change in sustainable management criteria, describe these changes and compare the previous sustainable management criteria to the adjusted management criteria.*

The Departments recommended corrective action 9b asked for clarification on the basin-wide criteria to determine the presence of an Undesirable Result. Previously some Kings Subbasin GSPs indicated an undesirable result was 15% of wells exceeding minimum thresholds for two consecutive years and the other GSPs indicated an undesirable result was 15% of wells exceeding minimum thresholds for two consecutive monitoring events. The GSPs have now been made consistent in stating that an undesirable result is 15% of wells exceeding minimum thresholds for two consecutive monitoring events. The table included in **Appendix A** lists each of the Department's Recommended Corrective Actions, a reference to the section or sections that were revised, and a summary of the revisions made to address the recommended corrective action.

- *If changes are made, did they warrant a Plan Amendment?*

No, the changes did not warrant a GSP Amendment. The GSAs revised their GSPs to address the Department's Recommended Corrective Actions and approved those revisions to the GSPs.

2.4 LAND SUBSIDENCE

- *Did the previous determination of the Plan by the Department include a recommended corrective action related to this sustainability indicator? How was it resolved?*

The Department's recommended corrective actions 2a-e were related to land subsidence. In addition, recommended corrective actions 1a and 10e were related to the lowering of groundwater levels effect on land subsidence and monitoring for land subsidence, respectively. The Kings Subbasin took action on the recommendations and each of these corrective actions were addressed in the revised GSPs. The table included in **Appendix A** lists each of the Department's Recommended Corrective Actions, a reference to the section or sections that were revised in the GSP to address this corrective action, and a summary of the revisions made to address the corrective action.

- *Describe current conditions relative to the minimum thresholds, interim milestones, and measurable objectives.*

Land subsidence is not a significant concern in most of the basin, but some land subsidence is occurring in the southern and western portion of the basin. To date, sustainable management criteria have not been exceeded that cannot be mitigated by raising canal banks on conveyance systems in affected areas.

- *Are the current conditions in the basin achieving the interim milestones?*

Interim milestones and other sustainable management criteria are currently being achieved in most of the basin, see **Appendix B - Figure 4**. The rate of land subsidence has generally slowed throughout the basin; however, the effects of the historic 2012-2015 drought and the 2020-22 drought are still being experienced as residual land subsidence, and may continue to affect subsidence rates for many years. It appears that regional land subsidence occurring outside the basin may also be impacting land subsidence in the Kings Subbasin. The land subsidence that is still occurring that affects infrastructure is being mitigated by those surface water delivery entities that are affected.

- *Describe if undesirable results are occurring or have occurred over the evaluation cycle. Were there minimum threshold exceedances that did not constitute undesirable results as quantitatively defined in the GSP?*

Undesirable results from land subsidence have not occurred during the evaluation cycle. The GSAs within the basin have defined the Undesirable Result of land subsidence as the loss of conveyance capacity of the San Joaquin River, the Kings River, or existing irrigation canals that impacts the ability to match historic water deliveries, and which cannot be mitigated by raising the canal banks or levees. Local irrigation districts and canal companies have been able to raise canal banks as needed in areas where land subsidence has occurred.

- *Evaluate progress made (including challenges encountered, if applicable), describe any adaptive management approaches employed to address minimum threshold exceedances, whether GSP implementation is effective thus far, and any other pertinent information related to progress towards achieving sustainability.*

The basin continues to collect land subsidence data and is working on filling data gaps. GSP implementation has been effective thus far, but land subsidence is still occurring in portions of the basin, although no minimum threshold exceedances have occurred to date. The first phase of the confined aquifer study has been completed, and subsequent work is continuing as part of the land subsidence/confined aquifer data gap study to identify the relationship of pumping in the basin to land subsidence and potential impacts from outside the basin. The land subsidence/confined aquifer study indicated that in the North Fork Kings GSA area, where the majority of the land subsidence is occurring within the basin, only about 9% of the groundwater pumping is occurring from below the Corcoran Clay. This indicates there are other factors likely contributing to land subsidence in the area, potentially including influences from outside the basin. Some discussions have occurred with neighboring subbasins regarding coordinated future monitoring and potential funding sources for extensometers to measure land subsidence.

- *Have basin conditions and GSP implementation affected beneficial uses and users?*

Land subsidence is not a significant concern in most of the basin, and accordingly most beneficial uses and users have not been affected. In those areas where land subsidence is occurring the local irrigation districts and canal companies have been able to raise canal banks as needed to mitigate for land subsidence so beneficial uses and users are not directly impacted.

- *Are other sustainability indicators being impacted?*

No specific impacts to other sustainability indicators have been identified.

- *If significant new information is leading to a change in sustainable management criteria, describe these changes and compare the previous sustainable management criteria to the adjusted management criteria.*

No changes were made to the land subsidence sustainable management criteria.

- *If changes are made, did they warrant a Plan Amendment?*

No, the GSAs determined that the changes did not warrant a GSP Amendment. The GSAs revised their GSPs to address the Department's Recommended Corrective Actions and approved those revisions to the GSPs.

2.5 INTERCONNECTED SURFACE WATER

- *Did the previous determination of the Plan by the Department include a recommended corrective action related to this sustainability indicator? How was it resolved?*

The Department's recommended corrective action 3a and 3b relate to the Interconnected Surface Water (ISW) sustainability indicator. The Kings Subbasin took action on the recommendation by conducting an ISW data gap study for the Kings River and San Joaquin River in 2024. The locations of ISW along the rivers were refined through this initial study. However, development of revised SMCs was hindered during the 2024 assessment due to lack of data and monitoring facilities. The table included in **Appendix A** lists each of the Department's Recommended Corrective Actions, a reference to the section or sections that were revised in the GSPs, and a summary of the revisions made to address the recommended corrective action.

- *Describe current conditions relative to the minimum thresholds, interim milestones, and measurable objectives. Are the current conditions in the basin achieving the interim milestones? Describe if undesirable results are occurring or have occurred over the evaluation cycle. Were there minimum threshold exceedances that did not constitute undesirable results as quantitatively defined in the GSP?*

Significant progress was made with the ISW data gap study, but more studies, monitoring, and coordination with stakeholders are needed. Pending development of final SMCs, groundwater levels near the river systems will be used as a proxy for surface water depletion from rivers. This method uses the MO and MT of representative wells, located within 2 miles of the Kings River and San Joaquin River, as proxies for surface water depletion. Based on reporting through water year 2023, there are no wells within the basin that have declined below groundwater level minimum thresholds; however, the basin continues to monitor groundwater levels closely in relation to interim milestones.

In fall 2023, there were 6 wells in the ISW proxy monitoring network that were below their 2025 Interim Milestones; however, these wells were not below the operational flexibility buffer and none declined more than 50% of their operational flexibility distance below the 2025 Interim Milestone. The Operational Flexibility is the distance between the Measurable Objective and Minimum Threshold and is for dry periods when increased groundwater pumping will occur.

The hydrologic conditions during 2020, 2021 and 2022 water years provided approximately 50% of the average amount of surface water during that period, so utilization of some of the operational flexibility is anticipated. While these declines have not exceeded anticipated declines because of the hydrologic conditions, the GSAs will continue to monitor closely how these wells react based on future hydrologic conditions. Data for water year 2024 was not fully available at that time of this report, but early information indicates some increases or minimal declines in much of the basin following an average water year that did include some spring flood releases and added recharge opportunities.

- *Evaluate progress made (including challenges encountered, if applicable), describe any adaptive management approaches employed to address minimum threshold exceedances, whether GSP implementation is effective thus far, and any other pertinent information related to progress towards achieving sustainability.*

An initial ISW data gap assessment was conducted in 2024, however establishing revised SMCs was hindered at that time due to lack of near-river shallow groundwater elevation data and insufficient monitoring facilities. As a result, a second phase of the data gap study will be performed to identify interconnected sections, evaluate if wells are impacting surface water, and whether those impacts require development of sustainable management criteria.

The Kings Basin, Madera Subbasin, USBR and other stakeholders on the San Joaquin River have finalized a Memorandum of Understanding (MOU). The MOU establishes a common understanding of interconnected water challenges, and addresses coordination on workplans, data sharing, establishment of a Technical Committee and other topics. Overall, the MOU establishes a mutual intent of the parties to collaboratively work together on interconnected surface water projects.

In the interim, groundwater levels near the river system are being used as a proxy for surface water depletion from rivers. This method uses the Measurable Objectives and Minimum Thresholds of representative wells, located within 2 miles of the Kings River and San Joaquin River, as proxies for surface water depletion. This is an interim measure that will be revised once the data gap study is completed. The basin continues to focus on increasing groundwater recharge operations during wet periods. A complete listing of the projects implemented and volumes of water supply recharged is included in this report.

- *Have basin conditions and GSP implementation affected beneficial uses and users? For example, were there any reported dry wells during the evaluation cycle?*

There have been no reports or complaints of beneficial uses or users being affected by surface water depletion along the surface water bodies in the Kings Subbasin.

- *Are other sustainability indicators being impacted?*

No Specific impacts to other sustainability indicators have been identified.

- *If significant new information is leading to a change in sustainable management criteria, describe these changes and compare the previous sustainable management criteria to the adjusted management criteria.*

At this time, there is no significant information that would lead to a change in sustainable management criteria for ISW. The current criteria are being used as a provisional measure until additional data gap studies are performed following and/or concurrently with needed third party stakeholder assessments of the river system management in the Basin. Upon conclusion of the data gap assessments, the Kings Subbasin intends to set revised ISW sustainable management criteria based around surface water depletion metrics.

- *If changes are made, did they warrant a Plan Amendment?*

At this time there have been no changes to SMC criteria for ISW. An initial data gap study was performed in 2024, the results of which have been included in the most recent GSP revisions. The changes did not warrant a GSP Amendment. The GSAs revised their GSPs to address the Department's Recommended Corrective Actions and approved those revisions to the GSPs.

2.6 SEAWATER INTRUSION

The Kings Subbasin is approximately 90 miles from the ocean; therefore, seawater intrusion is not an issue in the Plan Area. In addition, there are no saline water lakes in or near any GSA. This sustainability indicator does not apply to the Kings Subbasin.

3 STATUS OF PROJECTS AND MANAGEMENT ACTIONS

The purpose of this section is to summarize the GSA implementation activities related to projects and management actions that took place over the course of the evaluation cycle. The summary should include descriptions of ongoing projects that have carried over during the evaluation cycle and projects that broke ground but have not become operational. In addition, significant new information should be discussed, such as whether a GSP project was considered no longer necessary and was dropped, a new project was added, or a project has been delayed. New information that affects project development, such as hydrologic changes relative to a drought or wet year should be described. The description should include anticipated projects to be developed over the next evaluation cycle(s). The discussion of the projects should include evaluations and reporting on the quantified benefits of each project and anticipated benefits of the projects that broke ground or were completed during the evaluation cycle.

A listing of the projects was included in the 2022 Revised GSPs approved by DWR. The GSAs review and update their projects each year, and as part of the 2024-25 revisions to the GSPs, each of the GSAs included a revised project list. **Appendix C** provides a complete listing of the projects included in the 2022 approved GSPs, and identifies completed, removed and new projects. Projects no longer identified as needed to reach sustainability were removed. The quantified benefits of the projects completed are also included in the table. For the years included in this evaluation, water years 2020, 2021 and 2022 were dry years, but 2023 was a historically wet year and significant groundwater recharge was recorded. Included in the table (and the revised GSPs) is the anticipated project start and completion dates, identifying which projects are anticipated over the next evaluation cycle.

A GSA should summarize how it is tracking and administering the various projects and management actions within its basin. The summary should describe interactions with the project proponents and member agencies implementing the projects.

Projects and management action status updates are included in the annual reports. The project proponents provide project status updates and quantified benefits to the GSAs for reporting in each year's annual report. The focus in the basin has been groundwater recharge basins and on-farm recharge, so quantifying the total amount of water recharged has been documented and reported.

A GSA should assess the projects and management actions outlined in the original GSP and explain whether those are still relevant and feasible, including estimates of cost and potential funding sources and whether permitting and CEQA requirements need to be met. The Periodic Evaluation should describe if there is a need to revisit or re-evaluate the priority of certain projects. Additionally, for the various projects and management actions outlined in the GSP, the GSA should describe the process for public notice and engagement of interested parties.

The revised GSPs include a revised project list and management action list that are relevant and feasible. CEQA will apply to all agency projects, and each project has unique permitting requirements depending on project type, location and impacts. The project lists included in the revised GSPs include a listing of updated costs and potential funding sources for the projects. These are also shown in Appendix C. Public notice and engagement is driven by the project proponents, which is often not the GSA, but the

GSA's do highlight the projects in their own public outreach and communication, as well as committee and board communication process. The CEQA process also includes public notice for those projects where it applies.

For projects and management actions that are currently ongoing or have already been completed, the Periodic Evaluation should provide an evaluation and status update including realized benefits, expected benefits, and benefits and impacts to beneficial uses and users. The description should include how these projects and management actions are helping the basin achieve sustainability through the assessment of the groundwater conditions in relation to the measurable objectives for the relevant sustainability indicators. A description of the monitoring network and data related to projects and management actions that are showing progress toward sustainability, and documentation that the project is not impacting nearby beneficial users, should be included.

The quantified benefits for water years 2020-2023 are included in Appendix C. Information for Water Year 2024 will be included in the annual report once completed and submitted by April 2025. The project results provide a quantified benefit as the basin works to reach sustainability, however the monitoring networks described early in this report provide results of the progress toward sustainability. The impacts observed near the projects completed to date have been positive as water levels have increased or declined less had the project not been completed.

For projects and management actions that have yet to begin or are still conceptual, assess the need for those based on the current conditions and expected outcomes of the existing projects and management actions. Describe the potential timeline to get those projects and management actions implemented or what may be needed to take them from the conceptual or as-needed phase to the "shovel ready" phase.

Projects listed in the revised GSPs and shown in Appendix C, are included because they are believed to be needed to reach sustainability. The anticipated start and completion dates for projects in the GSP are listed in the revised GSPs as well as shown in. The management actions are listed in Section 6 of each of the GSPs and the status of each is shown. The approved GSPs included a phased approach to reaching sustainability by 2040 and the timeline for implementation is based on that phasing.

The GSA should describe the challenges or setbacks that have prevented or delayed implementation of projects and management actions. If a planned project is not going to be implemented, the GSA should consider re-evaluating projected water budgets and groundwater conditions without the project.

The GSAs have not experienced any significant unexpected delays in implementing the projects. Funding will be critical to implementation and completion of the projects within the timeline anticipated, and the GSAs are exploring options to ensure needed funding.

4 BASIN SETTING BASED ON NEW INFORMATION OR CHANGES IN WATER USE

This section provides an evaluation of the basin setting based on new information or changes in basin water use. GSAs should explain the major cause of any significant new changes in the understanding of the basin setting, such as changes attributed to water use and supply, climate variations, successes and failures of projects and management actions, or significant new information and data that causes changes in model assumptions and results. A suggested outline to discuss the basin setting is provided below:

4.1 HYDROGEOLOGIC CONCEPTUAL MODEL

- o Summarize any new applicable data and analysis and how it informs a revised understanding of the basin's hydrogeologic conceptual model (e.g., Airborne Electromagnetic surveys and other basin characterization and data gap filling actions)*

DWR Corrective Action 5 recommended that the GSAs revise the HCM to identify the Subbasin's principal aquifers. DWR Corrective Action 6a recommends that the GSA's provide a description of the Subbasin's confined aquifers current and historical groundwater conditions. The Hydrogeologic Conceptual Model (HCM) and Current and Historical Groundwater Conditions were revised to include descriptions of the extent of the Corcoran Clay and the extent of the upper and lower aquifers, which are the principal aquifers in the basin. See DWR recommended Corrective Action 5 and 6a in the Kings Basin Recommended Corrective Action List and Summary Table, **Appendix A**.

DWR Corrective Action 6b recommends the Kings Subbasin provides a revised storage change estimate that includes the Subbasin confined aquifers. As explained in the revised GSPs and in the Corrective Action List and Summary Table, **Appendix A**, storage change in the confined aquifer is primarily from aquifer compaction due to land subsidence. Storage change due to changes in the potentiometric surface are relatively minor compared to the storage change in the unconfined aquifer. Lower Aquifer pumping, defined as sub-Corcoran, is initially estimated to be less than 10% of groundwater usage for the area's experiencing land subsidence.

- o If the previously identified data gaps were not filled, discuss why or what prevented these from being filled and discuss what is required to fill these data gaps.*

Lack of an existing dedicated Lower Aquifer monitoring network was a recognized data gap. As explained in Kings Basin Recommended Action List and Summary Table and shown in the revised GSPs, an initial Lower Aquifer monitoring network has been developed. Limited data is available from wells that solely tap the Lower Aquifer; therefore, the Kings Subbasin GSAs will continue to evaluate the density and spacing of wells in the Lower Aquifer network and will add wells according to the methodology discussed in the revised GSPs.

4.2 GROUNDWATER CONDITIONS

- *Indicate new understanding of regional groundwater conditions based on new sources, applications, or tools such as California Groundwater Live, InSAR, Dry Well Reporting System, etc.*

The Online System for Well Completion Reports (OSWCR) database was used to inform the Domestic Well Mitigation Study. Valuable information incorporated into the evaluation of how many domestic wells are expected to go dry included domestic well depth, perforation intervals, domestic well density by Section and location. This information was compared to the Measurable Objectives and Minimum Thresholds established in the GSPs to estimate how many domestic wells may need to be mitigated for declining groundwater levels.

Interferometric Synthetic Aperture Radar (InSAR) data is valuable for evaluations to assess land subsidence on a regional basis that can be cross-checked with surveyed benchmarks. The InSAR data gives the GSAs a clear picture of land subsidence in the Kings Subbasin and surrounding areas.

- *Include new information that affects evaluation of groundwater quality such as:*
 - *Changes to regulatory water quality standards affecting sustainable management criteria*

The State maximum contaminant level (MCL) values, which are protective of human health for the chemicals of concern, are relied upon as the primary criteria for defining minimum thresholds and undesirable results for the water quality sustainable management criteria. In October 2024 the State Water Resources Control Board (SWRCB) re-established the hexavalent chromium MCL at 10 µg/L. The sustainable management criteria for hexavalent chromium have been revised in the GSPs accordingly. No other known changes have occurred to the State MCL values that would affect the evaluation of groundwater quality for the constituents of concern identified in the Kings Subbasin.

- *New constituents of concern or emerging contaminants that may become apparent in the basin*

No new constituents of concern have been identified in the Kings Subbasin at this time. The Subbasin will continue to stay apprised of emerging contaminants, such as per- and polyfluoroalkyl substances (PFAS), to the extent that California drinking water standards dictate that agencies that operate public supply wells monitor for them.

- *Include new information on interconnected surface water and groundwater dependent ecosystems.*

As summarized in **Table 1**, an initial Kings Subbasin ISW data gap assessment for the San Joaquin River and the Kings River was performed in 2024 by comparing riverbed elevations data and groundwater elevation data from near river wells. The locations of ISW along the rivers were refined through this initial study. However, development of revised SMCs was hindered during the 2024 assessment due to lack of data, insufficient monitoring facilities, and yet to be completed studies by third party stakeholders. No new information on groundwater dependent ecosystems has been gathered since the previous GSPs.

New information on ISW includes the following:

- Preliminary calculations were performed to estimate a ‘zone of influence’ adjacent to the rivers that would delineate the area whereby wells are able to influence and deplete surface water. A generalized drawdown analysis using the Neuman Method showed wells more than ½ mile from the river may not have a significant impact on depletion. Streamflow depletion calculations also showed minimal impact when pumping was six days or less.
- The San Joaquin River appears to be connected at Hwy 41 and Hwy 145 (Skaggs Bridge) and intermittently connected downstream of Hwy 145 (Skaggs Bridge) to the downstream end of the river within the Kings Subbasin. Large stretches of the Kings River lack sufficient well and groundwater level data to characterize ISW in the Kings Subbasin; however, the data reviewed indicated that the Kings River is interconnected from Piedra to Mountain View Avenue (West of Dinuba), intermittently interconnected from Mountain View Avenue to Island Weir, and no ISW concerns due to lack of connectivity or special conditions from Island Weir to Mendota Pool.
- Through stakeholder outreach, the Kings Subbasin has become more acutely aware that: (1) the USBR and FWA are still working to quantify total diversions, uses and estimate losses along the San Joaquin River. The USBR is also working on a detailed analysis of the Holding Contracts and the groundwater pumping allowances and limitations that will need to be factored into any allowable groundwater pumping within close proximity to the river; (2) KRWAs estimate Kings River losses internally, and will provide river loss estimations to the GSAs; (3) the GSAs are unable to estimate what portion of losses may be attributed to groundwater pumping that is interconnected until seepage loss estimation work is completed; and (4) the GSAs and major stakeholders ultimately and mutually agreed that additional studies are needed before permanent SMCs can be established.
- Groundwater pumping along the rivers varies by year but currently is generally similar to what it has been for decades along the Kings River. The GSAs are not responsible for restoring conditions to pre-SGMA conditions, nor impacts to ISW along the Kings River that were occurring prior to January 1, 2015.

4.3 WATER USE CHANGES AND ASSOCIATED WATER BUDGET

- *Describe water use for the evaluation cycle, compared to historical, current, and projected water budgets in GSP.*

Total water uses herein are described as total surface water diversions (for direct use and recharge) and total groundwater pumping. The total basin-wide water use for the evaluation cycle and water budgets in the revised GSPs are provided below.

Table 3: Kings Basin Total Water Use

(all units in AF/yr)

Period	Total Water Use
Water Year 2020	2,312,000
Water Year 2021	2,628,000
Water Year 2022	2,574,000
Water Year 2023	2,801,000
Historical Water Budget (09-23)	2,223,000
Current Water Budget (22-23) ¹	2,653,000
Project Water Budget (2040)	2,669,000
Projected Water Budget (2070)	2,599,000

1 – The Current Water Budget is not an average of 2022 and 2023 since only certain 2023 variables were used in Current Water Budget since 2023 was a very wet year.

Note that a higher Total Water Use does not necessarily represent more consumptive use and higher overdraft, but could represent more surface water diversions and recharge. The 2070 water budget assumes Total Water Use will have to be reduced to account for climate change.

o Describe changes to land use or cropping patterns that could affect water use.

The Kings Subbasin is primarily developed into agriculture with some urban and rural residential areas. From 2020 to 2023 the area cropped increased from 617,600 acres to 618,600 acres. While this is a small increase, an estimated 2,000 acres were developed for urban use, mostly in formerly cropped lands. As a result, agricultural expansion actually occurred over about 3,000 acres, with a net increase of 1,000 acres. The net water demands on cropped lands also increased by 13,000 AF/year during this period.

The mix of crops grown also changed during the evaluation cycle. Specifically, there were reductions in grain, alfalfa, grapes and young perennials, and increases in almonds, pistachios, and citrus. Overall, the area of permanent crops increased by 25,000 acres. Permanent crops cannot be fallowed in dry years and create a hardened demand that is more challenging to manage in dry years.

o Describe whether changes to surface water supply reliability will affect water budget assumptions.

No new changes in surface water reliability were identified during the evaluation cycle. Reliability issues presented in the 2020 GSP remained unchanged. Those reliability issues include climate change and the reductions in diversions due to the San Joaquin River Restoration Program.

o Provide updated current and projected water budgets.

The results from the current water budget (2022-2023) and projected water budgets (2040 and 2070) for the entire Kings Subbasin are summarized in the tables below. The current water budget shows a deficit of 165,000 AF/year, which will need to be mitigated before 2040. The projected 2040 water budget shows a balanced sustainable groundwater condition with the implementation of projects, demand reduction and management actions. The 2070 water budget assumes 2040 conditions with water supply and demand impacts from climate change.

Table 4: Kings Subbasin Current Water Budget (2022-2023)

(all units in AF/year)

Description	Kings Subbasin
Groundwater Recharge	1,522,400
Groundwater Pumping	-1,399,400
Groundwater Outflow	-288,500
Groundwater Storage Change	-165,500

Table 5: Kings Subbasin Projected Water Budget (2040)

(all units in AF/yr)

Description	Kings Subbasin
Groundwater Recharge	1,434,000
Groundwater Pumping	-1,467,000
Groundwater Outflow	-200,000
Projects for Water Supply Augmentation	152,000
Demand Reduction from Project Development	7,500
Management Actions for Demand Reductions	43,400
Change in Groundwater Storage	0

Table 6: Kings Basin 2070 Groundwater Storage Change

Description	Volume (AF)
Groundwater Storage Change (2040)	0
Climate Change Impacts (2040 to 2070)	-61,000
Groundwater Storage Change (2070)	-61,000

o Describe updates to the sustainable yield and changes in storage.

The sustainable yield estimation increased from 1,140,000 AF/yr (2020 GSP) to 1,240,000 AF/yr (2025 GSP). However, the sustainable yield is determined by using numerous water budget variables, each with some level of uncertainty or inaccuracy. Hence, the sustainable yield has an estimated accuracy of +/- 15%. The revised sustainable yield falls within this range of accuracy, so it is concluded there was little to no change in the overall Basin-wide sustainable yield.

o If basin is experiencing overdraft, describe the evaluation and quantification of those conditions. Provide an assessment of measures to mitigate the overdraft including how the projects and management actions described in the Periodic Evaluation may affect overdraft.

Since 2020, numerous groundwater recharge projects have been developed throughout the Kings Basin to mitigate groundwater overdraft. Water delivery volumes to these facilities were collected for the evaluation cycle (2020-2023). The total volume of groundwater recharged in these new facilities and through on-farm recharge was more than 150,000 AF, which represents an average of 37,500 AF/year. A complete listing of the projects implemented and amount of water supply recharged is included in this report. The GSAs have met their initial 5-year overdraft correction goals, however as discussed, the extreme dry period from 2020-2023 caused groundwater level decline followed by some recovery in 2023. The GSAs continue to evaluate overdraft estimation and responsibilities in relation to groundwater level conditions.

4.4 MODEL UPDATES

o Briefly describe if and how the model was updated for the water budget development.

The water budget was evaluated with an analytical model. The model was revised to cover a more recent period that covered at least 10 years, including normal, dry and wet periods, and the severe 2012 to 2015 drought. The historical water budget covered 2009-2023 and the current water budget covered 2022-2023.

Several improvements were made to the water budget methodology to improve accuracy. Some of the major improvements include:

1. Many monitoring well locations and elevations were resurveyed
2. Installation of numerous dedicated monitoring wells and use of monitoring well data where available

3. Use of PRISM Climate Group precipitation data
4. Collection of data annually as part of the SGMA annual reports

All of the improvements are listed in Section 3.3.8 – Data Gap and Water Budget Improvements of each GSP.

o How has GSP implementation informed model revisions, if any?

Several aspects of the GSP implementation have informed model revisions. These implementation activities included groundwater level monitoring, groundwater contour map preparation, and preparation of annual reports. These efforts have helped to elucidate the need for better precipitation data, additional groundwater-level monitoring wells, and training in groundwater level data collection. These observations all resulted in direct improvements in model data quality.

o Note that model updates may indicate where more monitoring is needed, and the quality of the existing monitoring informs the model revisions. (done)

During the model revisions it became apparent that more data is needed from neighboring GSAs to assist with preparation of groundwater contours and estimation of groundwater flows. Several areas lacked sufficient data outside of the boundary that prevented estimation of groundwater flows, which were then assumed to be zero. Filling these data gaps will be a priority.

The revised model also resulted in the same general discrepancies found during the model runs for the 2020 GSP. Certain areas that had positive or negative mismatches were found to have similar mismatches in 2020 and 2025. This signifies that additional improvements are still needed to the water budget model. The Kings Basin will focus on improving the largest water budget variables including crop evapotranspiration, groundwater flows, and groundwater storage during the subsequent evaluation cycle.

5 MONITORING NETWORKS

The purpose of this section is to provide an assessment of the GSP's monitoring network for each applicable sustainability indicator. GSAs submitting an amended GSP with their Periodic Evaluation should include any discussions related to the assessment and improvement of the GSP's monitoring network in the amended GSP. GSAs should reference the sections of the amended GSP in the Periodic Evaluation rather than replicating the same information in the Periodic Evaluation.

As a reminder, the requirements of the GSP Regulations (23 CCR § 354.38) are provided below:

GSP Regulations § 354.38. Assessment and Improvement of Monitoring Network

- a) Each Agency shall review the monitoring network and include an evaluation in the Plan and each five-year assessment, including a determination of uncertainty and whether there are data gaps that could affect the ability of the Plan to achieve the sustainability goal for the basin.
- b) Each Agency shall identify data gaps wherever the basin does not contain a sufficient number of monitoring sites, does not monitor sites at a sufficient frequency, or utilizes monitoring sites that are unreliable, including those that do not satisfy minimum standards of the monitoring network adopted by the Agency.
- c) If the monitoring network contains data gaps, the Plan shall include a description of the following:
 - 1. The location and reason for data gaps in the monitoring network.
 - 2. Local issues and circumstances that limit or prevent monitoring.
- d) Each Agency shall describe steps that will be taken to fill data gaps before the next five-year assessment, including the location and purpose of newly added or installed monitoring sites.
- e) Each Agency shall adjust the monitoring frequency and density of monitoring sites to provide an adequate level of detail about site-specific surface water and groundwater conditions and to assess the effectiveness of management actions under circumstances that include the following:
 - 1. Minimum threshold exceedances
 - 2. Highly variable spatial or temporal conditions
 - 3. Adverse impacts to beneficial uses and users of groundwater
 - 4. The potential to adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of sustainability goals in an adjacent basin

This section should include the GSA's findings from the evaluation of the GSP's monitoring networks for each sustainability indicator. It is suggested that this section includes the following topics, information, and data:

- *Provide an overall summary of changes to monitoring networks since the last GSP or Periodic Evaluation.*
- *Describe whether identified monitoring network data gaps have been filled. If the previously identified data gaps were not filled, explain why or what prevented these from being filled and discuss what is required to fill these data gaps.*
- *Discuss any new data gaps that have been identified since the previous GSP.*
- *Assess the functionality of the water level monitoring network and whether any existing GSP monitoring network locations are no longer viable. The following information should be included and referred to in this section of the evaluation:*
 - *Identify each monitoring location on a map including the wells used to monitor each specific principal aquifer.*
 - *If a well is damaged or dry, determine whether the site is necessary to evaluate basin conditions, and if so, propose a plan to replace it.*
 - *Review sustainable management criteria relative to well construction, and if the monitoring point is not capable of measuring the sustainable management criteria (i.e., is not deep enough), propose an alternative monitoring approach or well replacement plan.*
- *For other sustainability indicators, perform a similar monitoring network functionality assessment in light of appropriateness of location of sites, accessibility and viability of sites, and any corrections needed.*
- *Describe remaining actions necessary to improve the monitoring networks.*
- *Summarize any adjustments made to monitoring frequency and density of monitoring sites.*
- *Summarize any changes to the GSP's monitoring network as highlighted in the Periodic Evaluation or Plan Amendment.*
- *Verify that any updates to the GSP's monitoring network are reflected in the Monitoring Network Module*

5.1 WATER LEVEL MONITORING NETWORK

- *Provide an overall summary of changes to monitoring networks since the last GSP or Periodic Evaluation.*

Changes to the water-level Sustainable Management Criteria wells (SMC wells) have included replacement of wells for various reasons including but not limited to, the well going dry, the well routinely being in operation when data is needed, no longer being able to gain access to the well, or not being able to gather construction information. If a well was replaced, it was swapped-out for a different well at a nearby location. The GSAs gathered well construction of the SMC wells by videoing wells, and where necessary, pulling pumps to allow for video of the well to be conducted to determine perforation interval and well depth. The changes in the SMC wells have been and will continue to be documented in Kings Basin Annual Reports. A map of the current water level SMC monitoring network, along with wells that have been replaced, is included in **Appendix B - Figure 2**.

Through working on a Land Subsidence/Confined Aquifer data gap study, the Kings Subbasin GSAs have developed an Initial Lower Aquifer Monitoring Network, See **Appendix B - Figure 5**. Additional details are included below.

- *Describe whether identified monitoring network data gaps have been filled. If the previously identified data gaps were not filled, explain why or what prevented these from being filled and discuss what is required to fill these data gaps.*

DWR Recommended Corrective Action 5 relates to identifying the principal aquifers in the basin. The Kings Subbasin GSAs conducted a Land Subsidence/Confined Aquifer data gap study in 2024 and developed an Initial Lower Aquifer Monitoring Network, as shown in **Appendix B - Figure 5**. This initial Lower Aquifer Monitoring network is a substantial step towards filling the Lower Aquifer data gap. Several dedicated, nested, monitoring wells have also been constructed through the Technical Support Services Program, which, by providing information in one location at different depths for different aquifers, provides valuable information on vertical gradients and water level differences between the Upper and Lower Aquifers. Four dedicated monitoring wells have been built with Proposition 68 funds to fill data gaps in the unconfined aquifer monitoring network. The monitoring well constructed in James GSA also has a deeper, sub-Corcoran casing which monitors the Lower Aquifer. The GSAs have and will continue to add wells to increase the density of the monitoring network and fill data gaps. Improvements to date have significantly reduced data gaps in the basin in both Upper and Lower Aquifers. It should be noted that the wells discussed here are not SMC wells, but are significant improvements to water level monitoring in the basin.

- *Discuss any new data gaps that have been identified since the previous GSP.*

There are no new identified water level monitoring data gaps in the Kings Subbasin. As discussed above significant actions have taken place, and efforts will continue to fill data gaps and improve the water level monitoring networks.

- *Assess the functionality of the water level monitoring network and whether any existing GSP monitoring network locations are no longer viable. The following information should be included and referred to in this section of the evaluation:*

- *Identify each monitoring location on a map including the wells used to monitor each specific principal aquifer.*

A map of the SMC wells for the Upper (unconfined aquifer) monitoring network is shown in **Appendix B - Figure 2**. A map of the initial Lower (confined aquifer) monitoring network is included in **Appendix B - Figure 5**.

- *If a well is damaged or dry, determine whether the site is necessary to evaluate basin conditions, and if so, propose a plan to replace it.*

Wells that no longer provide reliable data, including wells that are dry, are replaced in the monitoring network. Replacement wells are picked to maintain a two-well per township density. Since having wells in these areas is necessary to evaluate the basin conditions, the Kings Subbasin GSAs are diligent in replacing wells that go dry. **Appendix B - Figure 2** shows wells that have been replaced or are pending replacement.

- *Review sustainable management criteria relative to well construction, and if the monitoring point is not capable of measuring the sustainable management criteria (i.e., is not deep enough), propose an alternative monitoring approach or well replacement plan.*

Several actions have already been employed, or will be employed, for wells that may go dry at the water level MT elevation. Wells that have gone dry are actively being replaced by another nearby well (see **Appendix B - Figure 2**) to maintain the required two-well per township density. Other planned actions, currently in process, include construction of dedicated monitoring wells in North Kings GSA. These new monitoring wells will be constructed to depths of at least the water-level MT, if not deeper.

- *For other sustainability indicators, perform a similar monitoring network functionality assessment in light of appropriateness of location of sites, accessibility and viability of sites, and any corrections needed.*

The water level SMC wells are the same wells used in the storage change network. These SMC wells, along with other wells monitored in the Subbasin, are used to prepare groundwater contours that are used in estimating storage change. The on-going assessment and monitoring network improvements discussed above also benefit the storage change estimates.

- *Describe remaining actions necessary to improve the monitoring networks.*
The Kings Subbasin GSAs will continue to assess the wells in the SMC network and replace wells as needed and fill in remaining data gaps. Actions being implemented include continued construction of dedicated monitoring wells, equipping some wells with data loggers and telemetry, removing oil from wells as opportunity provides, retrofitting wells as needed for reliable access, and performing camera surveys on wells with unknown construction.
- *Summarize any adjustments made to monitoring frequency and density of monitoring sites.*
By addition of new wells, the network has become more dense. At locations where there are data loggers, water level data is collected more frequently than the required twice a year.
- *Summarize any changes to the GSP's monitoring network as highlighted in the Periodic Evaluation or Plan Amendment.*
Changes to the monitoring network for water levels are as described above. Changes to the water level network are made, as needed, and are shown in the Kings Subbasin Annual Reports.
- *Verify that any updates to the GSP's monitoring network are reflected in the Monitoring Network Module²⁴*
Changes to the Monitoring network are reflected in the monitoring network module as part of the preparation for annual reporting and seasonal water level measurements.

5.2 GROUNDWATER STORAGE MONITORING NETWORK

The groundwater storage monitoring network is the same as unconfined aquifer monitoring network, see **Appendix B - Figure 2**.

5.3 WATER QUALITY MONITORING NETWORK

- *Provide an overall summary of changes to monitoring networks since the last GSP or Periodic Evaluation.*

The water quality monitoring network has undergone small revisions since the last GSP. A small number of public supply wells in the monitoring network which had become inactive or for which groundwater

quality data were not available to establish Minimum Thresholds were replaced with other wells that were actively being monitored. Minimum Thresholds were established in the replacement wells using the methods presented in the GSP.

- *Describe whether identified monitoring network data gaps have been filled. If the previously identified data gaps were not filled, explain why or what prevented these from being filled and discuss what is required to fill these data gaps.*

Spatial data gaps in the water quality monitoring network are present both laterally and vertically in the North Fork Kings GSA. The spatial data gaps in the water quality monitoring network will be filled through coordination with stakeholders for sampling at existing wells, or through the construction of dedicated monitoring wells. However, dedicated monitor wells are expensive to construct, and their installation will depend on available funding. For the other GSAs in the Kings Subbasin, the existing networks provide sufficient monitoring in urban, rural residential and agricultural areas.

- *Discuss any new data gaps that have been identified since the previous GSP.*

No additional groundwater quality monitoring data gaps have been identified since the previous revisions to the GSP.

- *Assess the functionality of the water quality monitoring network and whether any existing GSP monitoring network locations are no longer viable.*

With the exception of the previously discussed data gaps in the North Fork Kings GSA, the groundwater quality monitoring network is considered adequate and provides sufficient monitoring in urban, rural residential and agricultural areas.

- *Identify each monitoring location on a map including the wells used to monitor each specific principal aquifer.*

The groundwater quality monitoring network is shown on **Appendix B - Figure 3**.

- *If a well is damaged or dry, determine whether the site is necessary to evaluate basin conditions, and if so, propose a plan to replace it.*
- *Review sustainable management criteria relative to well construction, and if the monitoring point is not capable of measuring the sustainable management criteria (i.e., is not deep enough), propose an alternative monitoring approach or well replacement plan.*

Generally speaking, a well that becomes inactive or for which groundwater quality data becomes unavailable would be replaced with another public supply well located in the general vicinity of the original well, if possible.

- *Describe remaining actions necessary to improve the monitoring networks.*

Locating acceptable public supply wells actively being monitored and reported and with known construction information is necessary to fill the data gap in the North Fork Kings GSA.

- *Summarize any adjustments made to monitoring frequency and density of monitoring sites.*

The monitoring network is composed almost entirely of public supply wells. The State Water Resources Control Board Division of Drinking Water (DDW) determines the sampling frequency of the various

constituents of concern at individual public supply wells. In general terms, the monitoring frequency for each constituent of concern in the wells will be modified depending on the historical detections of the constituent as dictated by DDW staff.

- *Verify that any updates to the GSP's monitoring network are reflected in the Monitoring Network Module.*

The monitoring network information in the Monitoring Network Module is up to date.

5.4 LAND SUBSIDENCE MONITORING NETWORK

- *Provide an overall summary of changes to monitoring networks since the last GSP or Periodic Evaluation.*

The Kings Subbasin monitors land subsidence with DWR-provided InSAR remote sensing data and cross checks the data against a network of benchmarks located on a 7-mile grid. DWR-provided InSAR remote sensing data is used to observe subsidence and fill in gaps between the surveyed benchmarks. No changes to the land subsidence monitoring network have occurred since the prior revisions to the GSP.

Appendix B - Figure 4 shows the map of the land subsidence monitoring network and those areas in the Subbasin where there have been SMC exceedances.

- *Describe whether identified monitoring network data gaps have been filled. If the previously identified data gaps were not filled, explain why or what prevented these from being filled and discuss what is required to fill these data gaps.*

The presence of multiple laterally extensive clay units in the North Fork Kings GSA makes it unclear if subsidence is occurring as a result of groundwater extraction from a single or multiple aquifer zones. It is also not clear if subsidence is occurring from groundwater pumping in the GSA or from pumping outside of the Kings Subbasin. The GSA is still in the process of investigating the installation of a monitoring device within the North Fork Kings GSA to help determine vertically where the subsidence is occurring.

- *Discuss any new data gaps that have been identified since the previous GSP.*

No new data gaps have been identified since the previous GSP.

- *Assess the functionality of the subsidence monitoring network and whether any existing GSP monitoring network locations are no longer viable.*

This spatial and temporal network has the flexibility to increase measurement frequency or increase benchmark density if more data is needed. With the exception of the previously discussed data gap in the North Fork Kings GSA, the land subsidence monitoring network is considered adequate.

- *Identify each monitoring location on a map including the wells used to monitor each specific principal aquifer.*

The benchmarks that make up part of the Kings Subbasin land subsidence monitoring network are shown on **Appendix B - Figure 4**.

- *If a well is damaged or dry, determine whether the site is necessary to evaluate basin conditions, and if so, propose a plan to replace it.*

No benchmarks are damaged as of the date of this evaluation. Benchmarks that become damaged to the extent that they are no longer usable for the intended purpose would be replaced.

- *Review sustainable management criteria relative to well construction, and if the monitoring point is not capable of measuring the sustainable management criteria (i.e., is not deep enough), propose an alternative monitoring approach or well replacement plan.*

The established land subsidence monitoring network is capable of monitoring the sustainable management criteria.

- *Describe remaining actions necessary to improve the monitoring networks*

At least one multi-depth subsidence monitoring device will be investigated for installation in the North Fork Kings GSA to help determine at what depth the subsidence is occurring. The GSA is continuing its ongoing efforts to identify necessary funding and grant opportunities for the installation of the monitoring point.

- *Summarize any adjustments made to monitoring frequency and density of monitoring sites.*

Monitoring frequency of the land subsidence monitoring network has not been adjusted since the previous GSP.

- *Summarize any changes to the GSP's monitoring network as highlighted in the Periodic Evaluation or Plan Amendment.*

The land subsidence monitoring network has not been adjusted since the previous GSP.

- *Verify that any updates to the GSP's monitoring network are reflected in the Monitoring Network Module.*

The monitoring network information in the Monitoring Network Module is up to date.

5.5 INTERCONNECTED SURFACE WATER MONITORING NETWORK

- *Provide an overall summary of changes to monitoring networks since the last GSP or Periodic Evaluation.*

No changes to the interconnected surface water monitoring network have been made since the last GSP.

- *Describe whether identified monitoring network data gaps have been filled. If the previously identified data gaps were not filled, explain why or what prevented these from being filled and discuss what is required to fill these data gaps.*

The Kings Basin together with the Madera Basin GSAs have entered into a MOU with the USBR, FWA and SJRRP that establishes a common understanding of interconnected water challenges, and addresses collaboration on workplans, data sharing, establishment of a Technical Committee and other topics. An initial ISW data gap assessment was conducted in 2024; however, establishing revised SMCs was hindered at that time due to lack of near-river shallow

groundwater elevation data, insufficient monitoring facilities, and studies that will be performed by third party stakeholders. As a result, a second phase of the data gap study will be performed to refine interconnected sections, evaluate if wells are impacting surface water, and whether those impacts require development of sustainable management criteria. In the interim, groundwater levels near the river system will be used as a proxy for surface water depletion from rivers. This method will use the Measurable Objectives and Minimum Thresholds of representative wells, located within 2 miles of the Kings River and San Joaquin River, as proxies for surface water depletion. This is an interim measure that will be revised once the next phase of the data gap study is completed in 2027.

- *Discuss any new data gaps that have been identified since the previous GSP.*

No additional data gaps have been identified since the last revisions to the GSP.

- *Assess the functionality of the water level monitoring network and whether any existing GSP monitoring network locations are no longer viable.*

Regional studies appear to show that the San Joaquin River and Kings River are connected to groundwater along some reaches in the Kings Subbasin, but may be disconnected in other reaches. Existing management programs on both rivers guarantee certain flow rates and water releases to accommodate all river losses (evaporation, seepage, riparian diversions and groundwater pumping induced seepage). These programs could mitigate for any surface water depletion from well pumping. Nevertheless, more information is needed to fully understand the interconnection between surface water and groundwater in the Kings Subbasin. The Kings Subbasin GSAs have established a groundwater level monitoring network with monitoring points near both the San Joaquin River and the Kings River. This method will use the Measurable Objectives and Minimum Thresholds of representative wells, located within 2 miles of the Kings River and San Joaquin River, as proxies for surface water depletion. This is an interim measure and considered by the Kings Subbasin as the best available option pending further ISW data gap studies. At this time there are no issues with the functionality of the near river water level monitoring networks for the ISW sustainability indicator.

- *Identify each monitoring location on a map including the wells used to monitor each specific principal aquifer.*

The interim ISW monitoring network well locations are shown on **Appendix B - Figure 6**.

- *If a well is damaged or dry, determine whether the site is necessary to evaluate basin conditions, and if so, propose a plan to replace it.*

No ISW monitoring network wells are known to be damaged or dry as of the date of this evaluation. Wells that become damaged to the extent that they are no longer usable for the intended purpose would be replaced with other existing wells in the general vicinity.

- *Review sustainable management criteria relative to well construction, and if the monitoring point is not capable of measuring the sustainable management criteria*

(i.e., is not deep enough), propose an alternative monitoring approach or well replacement plan.

The metric defined in GSP regulation is volume or rate of surface water depletion. Groundwater levels are being used as a proxy for surface water depletion, until data gap studies are completed and sufficient information is available to implement the defined ISW metric. The Kings Subbasin GSAs are proactive in replacing wells that go dry or otherwise become unavailable for monitoring. In addition, there are plans in process to build ISW monitor wells and also incorporate existing SJRRP monitor wells in the ISW network. However, to date the wells currently assessed for ISW are not dry and are not anticipated to go dry at the established sustainable management criteria water levels.

- *Describe remaining actions necessary to improve the monitoring networks.*

The metric defined in GSP regulation is volume or rate of surface water depletion. Until data gap studies are completed and sufficient information is available to implement the defined ISW metric, an interim monitoring network using groundwater levels is being used as a proxy for surface water depletion.

- *Summarize any adjustments made to monitoring frequency and density of monitoring sites.*

No monitoring frequency or network density adjustments have been made since the previous GSP.

- *Summarize any changes to the GSP's monitoring network as highlighted in the Periodic Evaluation or Plan Amendment.*

The ISW monitoring network has not changed since the previous revisions to the GSPs in the Kings Subbasin.

- *Verify that any updates to the GSP's monitoring network are reflected in the Monitoring Network Module.*

The monitoring network information in the Monitoring Network Module is up to date.

5.6 SEAWATER INTRUSION MONITORING NETWORK

The Kings Subbasin is approximately 90 miles from the ocean; therefore, seawater intrusion is not an issue in the Plan Area. In addition, there are no saline water lakes in or near any GSA. This sustainability indicator does not apply to Kings Subbasin.

6 GSA AUTHORITIES AND ENFORCEMENT ACTIONS

The Periodic Evaluation should describe any new authorities the basin's GSAs have gained, established, or exercised since the last GSP submittal and summarize what has been implemented to advance groundwater sustainability. Authorities could pertain to relevant actions related to regulations and ordinances applicable to the Plan. In addition, GSAs should provide information describing any enforcement or legal actions taken in the basin to further the sustainability goal. This could include any new significant information such as funding and fee actions, installing volumetric measuring devices on wells (i.e., flow meters), or collecting other data related to allocation programs and pumping reductions. Demonstrating how these components of GSP implementation will help GSAs reach sustainability is important.

Some considerations for this section are listed below:

- *Provide a summary of GSA regulations or ordinances related to the Plan [Water Code 10725, 10726, 10730, and 10731].*
- *Describe GSA enforcement or legal actions [Water Code 10725.4, 10730, and 10732].*

The GSAs successfully adopted GSPs that were approved by DWR, and have developed policies, programs, studies and projects to implement their GSPs during this periodic evaluation period. Each GSA's Board documents the actions they take, including but not limited to fees, policies, programs, etc., in their committee and Board meeting minutes that are documented on each of their websites. In addition, each annual report prepared since 2020 includes a listing of policy, program or sustainability actions. Some of the various policies, programs and related actions implemented by certain GSAs include:

- Adoption of Rules and Regulations for a Domestic Well Mitigation Program, development of a website (mydrywell.org), forms, database and hotline to solicit applications. Implementation of the Domestic Well Mitigation Program was effective on October 1, 2024 and has been soliciting applications since then.
- Approval of new and renewed rate assessments to fund groundwater sustainability efforts
- Secured more than \$20M in loan funds for groundwater recharge basin development by multiple GSA member agencies
- Secured numerous grants through state and federal agencies to fund projects and programs associated with GSP implementation
- Development, implementation and expansion of on-farm recharge programs
- Implementation of well registration and securing funding to assist growers with meter installation in multiple GSAs
- Adoption of Rules and Regulations for metering, measurement, monitoring and construction.
- Adoption of a moratorium on wells constructed through the Corcoran Clay layer
- Setting minimum depths for domestic wells (below Minimum Threshold) in order to participate in any future well mitigation programs
- Initiation of development of an allocation methodology and transitional pumping program
- Creation of a landowner recharge registration program to compile and track recharge by landowners
- Adoption of a Development Impact Fee Study to be used to collect groundwater mitigation fees from developers in member agencies

- Review of permits for new wells within the Kings Subbasin boundary prior to issuance of permit to construct new wells since 2020.
- Expanding use of flood water during wet years to maximize groundwater recharge in wet years.
- Collection of construction information for representative monitoring wells in the groundwater and water quality monitoring networks.
- Review of planning documents for new developments to evaluate increased water demands and sources of supply.
- *Describe activities advancing other regulations and orders outside of SGMA that are related to SGMA implementation, if applicable (e.g., legislation such as Senate Bill 552²⁶ [Drought Planning for Small Water Suppliers and Rural Communities], well moratoriums, and land use zoning).*

Project funding has been secured by the GSAs for the direct use and benefit of Disadvantaged Communities within the basin to help them reach sustainability. New agreements have been reached between surface water providers and Disadvantaged Communities to provide for surface water use for groundwater recharge. GSAs and their member entities provide input to and review other entity's planning and CEQA documents related to groundwater impacts.

- *Describe how Plan implementation has been affected by external regulatory requirements or executive orders issued by the Governor, if applicable.*

Executive Order N-7-22 required GSAs to review well permits within their GSAs, a process that continues to be performed by the GSAs. Executive Order N-4-23 was issued to facilitate the use of flood waters to recharge California's groundwater aquifers. The GSAs and several member agencies within the basin worked closely with DWR during the historic 2023 water year to help reduce flooding and maximize the recharge of available flood water. Temporary pumping facilities were installed to allow recharge to occur in areas not accessible by typical gravity methods and reduce downstream flows. In addition, removal and grinding of retired orchards also allowed for land to be accessible for recharge.

7 OUTREACH, ENGAGEMENT, AND COORDINATION WITH OTHER AGENCIES

During GSP implementation it is important to continue to build on the outreach, engagement, and communication efforts established during initial Plan development across multiple entities. GSAs should notice and engage the public on the draft Periodic Evaluation in a manner similar to initial Plan adoption. This section should describe, as appropriate, the coordination efforts and activities that occurred between multiple GSAs in a single basin, GSAs in hydrologically connected basins, and land use agencies, as well as federal, state, and local agency coordination that was related to SGMA implementation. Specifically, GSAs should consider the various audiences they need to communicate and interact with during GSP implementation activities.

7.1 OUTREACH AND ENGAGEMENT

GSAs are responsible for engaging interested parties, the public, and beneficial users to provide updates on basin conditions during annual reporting, regularly share groundwater management information, solicit feedback on projects and management actions prior to and during implementation, and collect public comments during Periodic Evaluation and Plan Amendment drafting. GSAs should demonstrate these responsibilities in the following ways:

- Provide an assessment of public comments submitted to the GSA after the initial Plan submittal or during evaluation cycle. The assessment should include a discussion of how the GSA responded to the comments and implemented relevant changes (i.e., incorporating components into the Periodic Evaluation or Plan Amendment).*

The GSAs received public comment through their own public comment period prior to the January 2020 initial submittals of GSPs. These comments were considered in the preparation of the final GSPs that were adopted, and a complete listing of comments and responses were included in the adopted GSPs. Following initial submittal, additional comments were received through the DWR posting process, that DWR considered as part of its determination. Another public comment period was included in 2024 as part of the revisions to the GSPs to address DWR's recommended corrective actions. A list of these comments and responses is included in the revised GSPs.

- Describe public engagement efforts including activities that help the implementation of project and management actions, such as project siting and construction, water conservation, and participation in recharge, recycled water use, land repurposing, or domestic well monitoring and reporting programs. Identify and describe how the GSA will address potential impacts on beneficial users documented through these public engagement efforts.*
- Preparation of a coordinated outreach effort including video, storymap, press release and social media that highlighted the significant amount of recharge that occurred since 2020.
- Wide range of public relations and communications efforts with stakeholders including website blog postings, e-blasts, weekly and monthly social media postings, landowner/stakeholder video

interviews, quarterly newsletter mailings, project update communication. Further stakeholder engagement activities include meetings on specific topics or issues of concern (e.g...Interconnected Surface Water, domestic well impacts, etc...), annual review and look-forward presentations, public outreach workshops, participation in community events, and numerous speaking engagements and conferences to stakeholders, agencies, social clubs, and professional groups.

- Development of a Domestic Well Owner guidance document for domestic well owners.
- Helping develop and distribute dry well resources for domestic well owners with a broad coalition of San Joaquin Valley agencies, and distributed these resources through their websites and via email to the Interested Persons lists
- Development of a school site guidance document for public and private schools. The outreach with Schools included a live webinar in which 30 schools participated and which featured a local landscape specialist to talk about the drought tolerant landscaping at school sites.
- Preparation and distribution of Annual Reports along with educational infographics and press releases highlighting key report takeaways.
- Sponsorship of the facilitation of a quarterly conference call between the 11 San Joaquin Valley Basin Point of Contact individuals with DWR staff
- Coordination of multiple joint grant contracts that include gathering well construction information and implementation of construction projects within each of GSAs, including multiple projects with DAC benefits
- Development and implementation of the Domestic Well Mitigation Program
- Development of several hundred acres of recharge basins (as described in the project update section of this report)
- Education of growers and successful implementation of on-farm recharge using flood release and entitlement supplies.
- Successful proposition 218 rate assessment elections to help fund groundwater sustainability efforts.
- Initiation of well registration efforts and associated well owner outreach, education, and support.
- Coordination of outreach with NRCS to accomplish increased water efficiency EQIP grant applications for growers.
- Conducted regular discussions with SJR Restoration and Friant-Kern interest groups in an effort to better plan for Interconnected Surface Waters in the revised GSPs
- *Evaluate and verify that the methods described in the Plan for outreach and engagement activities are relevant to implementation and are being maintained and updated.*

Social media and email outreach are efficient ways the GSAs quickly reach stakeholders with updates about groundwater management. The GSAs continue to have increased social media presence and engagement, and continue to gain new signups for email distribution lists. In addition to social media and email, the GSAs websites experience consistent site traffic and are maintained with up-to-date information for visitors. Tools used by the GSAs to track their online presence include social media analytics reports, website traffic reports, and email contact database numbers. These digital communications methods continue to be effective channels to reach stakeholders with key updates regarding GSP implementation, including project information, adoption of policies, notification of workshops and public meetings, and more.

In addition to maintaining and tracking online-based outreach efforts, the GSAs continue to pursue opportunities for engagement through events, workshops, and meetings – both virtual and in-person. GSAs evaluate in-person engagement activities through tracking number of participants (quantity) and/or by soliciting stakeholder feedback (quality). These engagements may be one-on-one or small group meetings with a representative(s) of stakeholder groups, or large group meetings, community events, or public workshops. These types of activities have served as opportunities to provide more in-depth updates, education on a topic of significance, and/or to solicit feedback on the GSAs activities. This type of engagement has allowed for quality two-way communication between the GSAs and their stakeholders. Receiving feedback from participants is one of the ways GSAs evaluate their engagement effectiveness, while also gaining an understanding of their stakeholders' perspectives. These methods of engagement continue to be an effective tool to reach stakeholders and ensure their input is considered.

The GSAs also have relied on direct mailers to reach stakeholders with key updates and information about GSP implementation. Direct mail serves as an important tool to ensure the GSAs reach all landowners within their boundaries with information, even those who may not be signed up to receive digital communications or who prefer not to attend meetings. Because direct mail reaches all landowners, it will continue to serve as an important complementary outreach tool throughout implementation to ensure stakeholders remain updated.

GSPs, annual reports, and project lists are posted on GSA websites. Each of annual reports submitted since 2020 include a detailed listing of the stakeholder engagement activities and efforts conducted by the GSAs.

7.2 RESPONSIBILITIES OF GSA BOARDS

Keeping GSA board members engaged and ensuring they understand GSA responsibilities for Periodic Evaluation development and decisions on Plan Amendment needs is crucial to ensure a successful implementation program. The Periodic Evaluation should provide a summary of GSA board, technical advisory committee, and other related meetings since the last Periodic Evaluation, including notifications to the list of interested persons [23 CCR § 351(p); Water Code § 10723.4, 10723.2, 10723.8, and 10727.8].

The GSAs have conducted numerous Board, Advisory, Technical, Rural Community Advisory, Grower Advisory, Financial, and other special committee meetings since 2020. These board and committee meetings have included all aspects of GSP implementation, including but not limited to formation, policy, funding, engagement and outreach, project and management action implementation, GSP revisions, coordination update, and more. A complete listing of these meetings is maintained on each of the GSA's websites, including minutes and documentation.

7.3 COORDINATION WITH OTHER AGENCIES

Multiple layers of inter-agency coordination are needed periodically during GSP implementation, such as: 1) Coordinating with other agencies in the same basin or county during implementation efforts that have land use, well permitting and water management responsibilities (e.g., neighboring GSAs in same basin). 2) Coordinating with GSAs in hydrologically connected basins to understand implementation

activities and potential effects across basin boundaries, and to share data. and 3) Reaching out to tribal, federal, state, and other local agencies, as needed, to facilitate implementation activities.

- *Indicate if any new inter-agency agreements and efforts are under way.*

The Kings Basin, Madera Subbasin, USBR and other stakeholders on the San Joaquin River have finalized a Memorandum of Understanding (MOU). The MOU establishes a common understanding of interconnected water challenges, and addresses collaboration on workplans, data sharing, establishment of a Technical Committee and other topics. Overall, the MOU establishes a mutual intent of the parties to collaboratively work together on interconnected surface water projects.

- *Provide a summary of inter-agency coordination efforts, coordination with local well permitting and land use planning agencies, state and federal agencies, and non-governmental organizations (e.g., coordination efforts related to impacts to drinking water wells, mitigating subsidence before infrastructure damage, or water quality impairment). Document if any changes were made to the GSP in response to new local requirements by these agencies.*

This topic is addressed in more detail under Section 8.1 of this Periodic Evaluation. Coordination has included working with the Madera Subbasin on ISW issues, working with the Tulare Lake Subbasin and Westside Subbasin on land subsidence, and data sharing with the Westside Subbasin.

No tribes will be directly impacted by GSP implementation. The Kings Subbasin contacted state and federal agencies with an interest in the San Joaquin River to discuss and provide input on the Interconnected Surface Water Data Gap Study. These agencies included Friant Water Authority, USBR and the San Joaquin River Restoration. At least eight meetings were held with these agencies to discuss the studies, share information and discuss long-term goals.

Representatives of the GSAs have attended meetings and provided input on the County of Fresno Drought Resilience Plan, which addresses drought mitigation for domestic wells owners and State Small Water Systems.

The seven Kings Subbasin GSAs have held meetings since formation of the GSAs in 2016 to coordinate efforts, share information, and help ensure consistency in their efforts. The meetings have been important for discussing the three Data Gap Studies performed in 2023 and 2024 on the topics of domestic well mitigation, interconnected surface water, and land subsidence from confined aquifer pumping.

The seven GSAs in the Basin will be collaborating on the development of a Basin-wide groundwater allocation. North Fork Kings GSA has been performing technical studies and committee meetings to develop a draft groundwater allocation methodology. Progress updates have been provided to the entire group of GSAs at monthly meetings. Their proposed allocation method will be presented to the entire basin in 2025 for review, discussion and negotiation.

- *Discuss any changes to the GSA Coordination Agreement (for basins with multiple GSPs)*

- *Review the initial Coordination Agreement to ensure the agreement is still applicable or if the agreement needs to be updated or revisited.*

The initial Coordination Agreement was reviewed by the GSAs and it was agreed that only Exhibit B to the Agreement needs to be modified. Exhibit B summarizes methods and processes used in developing the Groundwater Sustainability Plans.

- *If changes are made, summarize those changes.*

The changes made to Exhibit B of the Coordination Agreement include minor edits to update or clarify methods used in monitoring and water budget analyses.

8 OTHER INFORMATION

GSAs may decide to include any additional information in the Periodic Evaluation that helps describe progress made toward achieving the sustainability goal for the basin. The Department also has the authority to request supplemental information from a GSA to conduct the Periodic Review, as necessary. A list of potential additional information is provided below.

8.1 CONSIDERATION OF ADJACENT BASINS

The GSP Regulations require the Department to review the potential impacts a Plan may have on adjacent basins (23 CCR § 355.4(b)(7)). Other sections in the GSP Regulations request this information from the GSAs (23 § CCR 354.38). Therefore, it is important to provide that information in the Periodic Evaluation to give the Department a complete overview, such as:

- Describe relevant interbasin coordination efforts.*

Relevant interbasin coordination efforts have included the following:

Madera Subbasin: In 2023 and 2024, the Kings Subbasin and Madera Subbasin engaged in significant coordination on interconnected surface water since the San Joaquin River is a physical divide between the subbasins. Eight meetings were held between the two subbasins to share data, propose approaches and methodologies, present a common unified approach, and prepare a common workplan for both Subbasins. These coordination efforts are expected to continue indefinitely. Both Subbasins also jointly participated in meetings with important stakeholders on the San Joaquin River including USBR, Friant Water Authority and the San Joaquin River Restoration Program.

Westside Subbasin: After completion of the 2020 GSPs, representatives from the Westside and Kings Subbasins met to discuss coordination efforts and data sharing. The Kings Basin provided data requested by the Westside Subbasin for use in their groundwater model. They also discussed land subsidence monitoring as described below.

Tulare Lake Subbasin. In March 2024, representatives from the Kings Basin, Tulare Lake Subbasin and Westside Subbasin held a meeting to discuss coordination on land subsidence monitoring and funding for the installation of subsidence monitoring facilities. The Tulare Lake Subbasin is currently under probation and has been focusing their efforts on gaining approval from the State. Interbasin coordination has not been their priority recently, but it is expected that coordination efforts will resume in 2025 or 2026.

- Discuss how the proposed management of the Basin (including minimum thresholds and measurable objectives) aligns with the management of adjacent basins.*

The inter-basin coordination effort described above helped align with groundwater modelling, interconnected surface water and land subsidence management of adjacent basins. The most significant effort includes coordination of interconnected surface water studies with Madera Subbasin. Each subbasin has developed a workplan for future monitoring and analysis, and they plan to include

mirrored monitoring facilities on each side of the San Joaquin River to assist with interconnection analysis. The interconnected surface water efforts of both basins are expected to align very closely due to the successful coordination efforts.

- *Describe potential impacts from adjacent basins and/or to adjacent basins due to Plan implementation.*

The Kings Subbasin GSP implementation will be largely through additional recharge of floodwaters and high flows. These efforts will help to raise and stabilize groundwater levels. These efforts will not have an adverse impact on adjacent basins. There is concern of land subsidence within the Kings Subbasin being at least partially caused by groundwater pumping in adjacent basins. The Kings Subbasin will continue to monitor potential impacts to and from adjacent basins and coordinate with adjacent basins.

- *Assess whether Plan implementation is affecting the ability of an adjacent basin to achieve its sustainability goal.*

The Plan implementation is not expected to impact the adjacent Basin's ability to meet sustainability goals. The Kings Subbasin has selected final sustainability goals that will be protective of the groundwater supply, groundwater quality, interconnected surface water and groundwater levels. These specific goals have been discussed with adjacent basins or presented in our GSPs with no comments from other basins. These goals will be gradually met as they will be in the adjacent Basins. The Kings Subbasin will continue to coordinate with adjacent basins to ensure that each Basin's goals can be met.

8.2 CHALLENGES NOT PREVIOUSLY DISCUSSED

The Periodic Evaluation process provides the GSAs with an important opportunity to highlight technical and financial challenges the Department should be aware of. Allowing the Department to understand these challenges may inform future assistance and services. Below are a few example items that could be added to the Periodic Evaluation:

- *Identify the most significant challenges and assistance needs for the GSA and Plan implementation.*

The most significant challenge is developing and implementing SMCs for interconnected surface water. First, practical literature and guidelines on interconnected surface water analysis are scarce. DWR did release some draft guidelines, but most of them were released too late to be incorporated into the 2025 GSPs. The Kings Subbasin provided written comments on the guidelines requesting additional details on practical analytical methods for evaluating interconnected surface water. Long-term near-river groundwater level data is also not available along many reaches of the rivers in the Kings Subbasin. Monitoring networks are being expanded, but, for the next few years, analysis will have to be based on limited data. Another significant challenge will be determining the cause of land subsidence, and whether it is caused by groundwater withdrawal from within the GSA where subsidence is occurring, or from other causes, including impacts coming into the Kings Subbasin from adjacent areas.

- *Assess how the Plan or amended Plan may affect relevant city and county general plans related to water resources management or other natural resources and land use planning programs.*

The Domestic Well Mitigation Plan will be an important component of newly required County Drought Resilience Plans, which must address drought impacts and mitigation for domestic wells and State Small Water Systems.

New developments will likely require a groundwater balance to comply with SGMA. This may impact policies in City and County General Plans.

- *Other general considerations include technical and financial resource limitations, Proposition 218 and other funding stream efforts, shifts in Joint Powers Authority agreements or other aspects of basin governance.*

Funding for GSP implementation is an important consideration. Specifically, the largest and most important funding needs will be for interconnected surface water monitoring, Domestic Well Mitigation Program implementation, and recharge basin development. Supplementary funding from the State of California would be helpful for these projects.

8.3 LEGAL CHALLENGES

GSAs should consider providing a discussion on legal matters, especially if GSP implementation is affected or may be affected by any legal challenge or adjudication.

There are currently three ongoing litigation processes between James Irrigation District and MAGSA related to the JID's use of their existing 100-year-old well field located within MAGSA that extracts groundwater for conveyance outside of MAGSA to James Irrigation District located within the James GSA. Resolution of the disputes will be needed to determine overall overdraft responsibility within the basin and complete GSP implementation to reach sustainability.

9 SUMMARY OF PROPOSED OR COMPLETED REVISIONS TO PLAN ELEMENTS

This section summarizes the key take-aways from the Periodic Evaluation. In addition, this section should end with a brief overview of next steps and how the GSAs intend to use this evaluation to continue moving the basin towards their sustainability goal.

The Periodic Evaluation is a required submittal to DWR every five years. The GSAs in the Kings Subbasin prepare an annual report that provides a more frequent assessment of progress toward sustainability and includes consideration of next steps and considerations toward reaching sustainability. The information included in annual reports was, and will continue to be, used to prepare the required five-year Periodic Evaluations. The main takeaways within this Periodic Evaluation is that the Kings Subbasin has made significant strides in coordinating efforts to have approved GSPs, and has now adopted revised GSPs that address the recommended corrective actions from DWR. The Basin has made good progress toward sustainability by constructing new recharge facilities and implementing on-farm recharge to recharge a significant amount of water during wet years. There is still a significant amount of work to do to reach sustainability and the GSAs are working to implement the projects and programs identified in their GSPs to reach sustainability by 2040.

9.1 PROPOSED REVISIONS TO PLAN ELEMENTS

If the GSA decides a Plan Amendment is necessary, the GSA should describe proposed revisions to relevant Plan elements. This section should also provide the rationale for developing a Plan Amendment and the necessary actions the GSA will take to complete the amendment, including outreach and engagement to interested parties.

The GSAs have revised their GSPs to address the recommended corrective actions from DWR. The GSAs in Kings Subbasin did not determine the changes identified to constitute an Amendment to the GSPs because the sustainability goals and overall management criteria were not being modified. The notification and outreach process associated with the revisions to the GSPs followed each GSAs process for notification to interested parties, review by technical committees and stakeholders, and also included 90-day notification to cities and counties, as well as outreach and engagement with interested parties within the GSAs. Notifications were sent in July and August 2024. A public comment period was conducted in late 2024, including opportunity for comment at a regular Board meeting of each GSA. Consideration of comments was given and the GSPs were then presented at another Board meeting with opportunity for comment, and then adopted in time for submittal to DWR by the January 31, 2025 deadline for submittal of the revised GSP with this Periodic Evaluation.

REMINDER:

For Periodic Evaluations that accompany a Plan Amendment, GSAs must ensure the Periodic Evaluation is not:

- A copy/paste of the GSP sections that were revised or amended.
- A simple: "See Section X."

The Periodic Evaluation must provide specific explanations of what was amended, why, and the effects of those amendments on the implementation of the Plan (e.g., adapting the management program, adjusting projects and management actions).

Appendix A— Recommended Corrective Action List

Kings Basin Recommended Corrective Action List and Summary Table

DWR Recommended Action	Specific Item	GSP Sections Edited	General description of changes
1 Department staff recommend that the GSAs address following chronic lowering of groundwater levels related items by the Subbasin next periodic evaluation:	a) The MAGSA, NFKGSA, and JSA should provide justification for how they have determined that their GSP's chronic lowering of groundwater level minimum thresholds will not result in a land subsidence undesirable result.	4.6.6.2	Added clarification the land subsidence primarily occurs within the confined aquifer, and the unconfined aquifer water level minimum thresholds vary by location but have been set a significant distance above the Corcoran Clay layer that defines the upper level of the confined aquifer.
	b) The Plan should clearly define what is considered a "shallow well" and provide a table identifying the number and percentage of "shallow wells" projected to be impacted by minimum thresholds for each GSP area. If "shallow wells" include more than one well type, then the table should identify the number of wells, by well type, projected to be impacted by minimum thresholds for each GSP are	4.2	Removed the word 'shallow' and referred instead to domestic wells the GSPs and in the Well Mitigation Plan.
	c) GSAs should demonstrate successful development and initial implementation of the Domestic Well Mitigation Program (Program) by the next periodic evaluation. This demonstration should, at a minimum, provide the source and amount of funding secured, the well mitigation request and evaluation processes, and a summary of the requests received, approved, and completed.	6.3.3	The studies completed for the Well Mitigation Program are described as well as the plans for initial implementation.
2. Department staff recommend that the GSAs address the following land subsidence related items by the Subbasin's next periodic evaluation:	a) Identify the loss of conveyance capacity from the San Joaquin River channel and related canals in the Subbasin's undesirable result definition to be inclusive of all the GSPs	4.6, 5.6	Loss of conveyance capacity from the San Joaquin River channel and related channels was added to the Subbasin's definition of undesirable results that is included in all Kings GSPs.
	b) Provide clarification on whether the Department's interpretation of the criteria to define an undesirable result, minimum thresholds, and measurable objectives for subsidence is correct. If the Plan intended the criteria to require 3 feet of continuous subsidence over 36 square miles, then the GSAs should provide additional justification for how this criterion meets the Subbasin's undesirable result definition and complies with the requirements of SGMA and the GSP Regulations.	4.6, 5.6	Clarified that subsidence at any point within a 36 square mile area is used for undesirable results, minimum threshold, and measurable objective. The minimum threshold was maintained at 3 feet of subsidence because that is the amount of subsidence the Kings River levees can withstand and the surface water agencies within the Kings Basin are able to mitigate for by raising canal banks. This was discussed with the districts within the Kings Basin and agree that the loss of freeboard can be corrected by raising the canal banks and infrastructure can be mitigated for up to 3 feet of subsidence.

Kings Basin Recommended Corrective Action List and Summary Table

DWR Recommended Action	Specific Item	GSP Sections Edited	General description of changes
	c) Better identify land uses and property interests that are likely to be affected by land subsidence in the Subbasin and provide an explanation of how these land uses, and property interests were adequately considered in the establishment of minimum thresholds. The GSAs should not assume that subsidence caused by groundwater pumping can reduce or eliminate the claimed 3 feet of freeboard of canals and levees unless the GSAs can substantiate that this will not substantially interfere with the functioning and purposes of those structures. This will require, at a minimum, that the GSAs specifically identify the infrastructure involved, demonstrate that 3 feet (or some other amount) of freeboard currently exists, and provide evidence that the owners or operators of that infrastructure would not consider the loss of the existing freeboard, due to additional future land subsidence, to substantially interfere with the uses of that infrastructure.	4.6, 5.6	The cumulative minimum threshold was maintained at 3 feet of subsidence, but clarified to be at any point within a 36 square mile area, because 3 feet of subsidence is what the Kings River levees can withstand and that is the amount of subsidence that the surface water agencies within the Kings Basin are able to mitigate for by raising canal banks. This was discussed with the agencies within the Kings Basin and they agree that the loss of freeboard can be corrected by raising canal banks and infrastructure can be mitigated for up to 3 feet of subsidence.
	d) Provide additional information concerning the land subsidence capacity analysis process, specifically: • Like corrective action 2b, if the Department's interpretation is incorrect, justify how 1-foot of subsidence over a 36 square mile area is an adequate trigger considering critical infrastructure is commonly impacted by subsidence occurring over a smaller area. • Describe how the GSAs will determine when and where a capacity analysis investigation is required.	4.6, 5.6	Clarified that 1 foot of subsidence at any point within a 36 square mile area over a 5-year period is used for the interim milestone for the first two 5-year incremental periods, and decreases in subsequent 5-year incremental periods. Exceedance of the interim milestones is used as a trigger for a capacity analysis. Added language to explain the capacity analysis would occur when agencies are unable to mitigate for the loss of freeboard or if raising the canal banks would impact other critical infrastructure.
	e) Fill the confined aquifer data gap and update the associated Plan sections.	4.6, 5.2, 5.6	Completed the confined aquifer data gap portion of the land subsidence data gap study, noting that additional work is still required to identify the source of land subsidence. Added a confined aquifer groundwater level monitoring network and identified data gaps where new monitor wells will be developed/identified to complete the network.

Kings Basin Recommended Corrective Action List and Summary Table

DWR Recommended Action	Specific Item	GSP Sections Edited	General description of changes
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.	a) Department staff recommend the GSAs revisit the schedule of the Project and establish undesirable results, minimum thresholds, and measurable objectives consistent with the GSP Regulations by the Subbasin's next periodic evaluation. Measurable objectives are to use the same metric used for minimum thresholds, including quantifying the location, quantity, and timing of depletions of interconnected surface water due to groundwater extraction. Consider utilizing the interconnected surface water guidance, as appropriate, when issued by the Department.	3.2.7, 4.7 , 5.7, 6.2, 6.3	The GSAs are working closely with the stakeholders, as well as the Madera Basin for the San Joaquin River, to develop a common approach related to ISW. ISW studies were conducted for the San Joaquin River and the Kings River, which included stakeholder engagement. The GSP revisions include the ISW studies and establish a common approach for further refinement of ISW criteria that was developed with needed information from water supply stakeholders in order to establish the criteria. DWR guidance documents were not available until after preparation of draft GSP preparation.
	b) 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.	3.2.7, 4.7 , 5.7, 6.2, 6.3	The GSAs are working closely with the stakeholders, as well as the Madera Basin for the San Joaquin River, to develop a common approach related to ISW. ISW studies were conducted for the San Joaquin River and the Kings River, which included stakeholder engagement. Several factors unique to the Kings River and San Joaquin River impact river releases, river seepage and depletion of surface waters. These include Federal Holding Contracts along the San Joaquin River, San Joaquin River Restoration Program Flows, riparian water users and highly variable surface water supplies. In response to higher than anticipated river losses in recent years, the USBR and Friant Water Authority (FWA) are planning a detailed assessment of Holding Contracts and a river water budget. During engagement discussions, it was mutually agreed upon with the Federal and local river management agencies that these studies should be completed before long-term sustainable management criteria can be established.

Kings Basin Recommended Corrective Action List and Summary Table

DWR Recommended Action	Specific Item	GSP Sections Edited	General description of changes
	c) 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.	3.2.7, 4.7, 5.7, 6.2, 6.3	Kings and Madera Basins have been meeting monthly to coordinate ISW approach on the SJR. ISW studies were conducted for the San Joaquin River and the Kings River in 2024 to better define reaches of the rivers that were connected to groundwater and to engage the local and federal agencies that manage the rivers in discussions on the need for SGMA regulations on managing seepage losses. Explanations of the studies results and findings have been added to the GSPs.
4. Department staff recommend that the GSAs address the following degraded water quality related items by the Subbasin's next periodic evaluation:	a) Define what is meant by "recent historically high concentration" in the establishment of minimum thresholds.	4.5.1.1	Added clarification that "recent historically high concentrations" means the highest reported concentration in groundwater quality samples collected between 2015 and 2021.
	b) Provide a robust explanation and justification for setting some minimum thresholds 20% greater than historical concentrations that already exceed California's MCLs	4.5.1.1	Added explanation that it's normal for concentrations to oscillate and that setting minimum thresholds, where concentrations already exceed California MCLs, to a lower percent increase could more easily lead to faulty indications of degradation.
	c) Provide additional details concerning how the results of the site-specific investigations will be used to determine if GSA actions have contributed to groundwater quality degradation.	4.5.3.4	Added further explanation that groundwater quality degradation which has been found to correspond with changes in groundwater levels or groundwater flow gradients from GSA pumping may be an indication that GSA actions have contributed, if a responsible third party cannot be identified.
	d) Provide the specific management actions that will be implemented if the Plan's groundwater quality degradation investigations conclude that GSA actions contributed to the groundwater quality degradation.	4.5.3.4, 6.3.1.1, 6.4.1.1, 6.4.6.1	Added a specific reference to the groundwater quality degradation management action provided in Section 6 of the GSP and amended the language in the management action as needed.
5. Department staff recommend that the GSAs update the Plan's hydrogeologic conceptual model to identify the Subbasin's principal aquifers, and provide the associated data and information required by the GSP Regulations.		3.1, 3.2, 3.3	Added discussion of the Subbasin Principal Aquifers to the HCM and Current and Historical Groundwater Conditions. Generally, an Upper unconfined aquifer and a Lower confined aquifer exist in the Subbasin where the Corcoran Clay is present, and locally may exist intermittently east of the Corcoran Clay extent. Confined aquifer pumping, where the Corcoran Clay is present, is estimated to be 10% or less of total groundwater usage for the same area.

Kings Basin Recommended Corrective Action List and Summary Table

DWR Recommended Action	Specific Item	GSP Sections Edited	General description of changes
6. Department staff recommend that the GSAs address the following groundwater conditions related items by the Subbasin's next periodic evaluation:	a) Provide a description of the Subbasin's confined aquifer(s) current and historical groundwater conditions	3.1, 3.2, 3.3, 5.2	The confined aquifer, a.k.a. the Lower Aquifer, described in the HCM. Historical groundwater conditions for the confined aquifer described in Current and Historical Groundwater Conditions. Historically, i.e., pre-groundwater development the Lower Aquifer had an upward direction of flow. Currently, based on available information, piezometric head in the Lower confined aquifer is normally less than the water levels in the unconfined aquifer indicating a downward direction of flow from the unconfined to the confined aquifer. Limited data is available from wells perforated solely in Lower Aquifer and sealed at the Corcoran Clay. Existing Lower Aquifer wells which appear to be viable candidates for Lower Aquifer monitoring, and Lower Aquifer data gaps are shown in 5.2. At this time there is not enough data for the Lower Aquifer to estimate change in storage using the specific storage method and generate potentiometric surface groundwater contours. Confined aquifer pumping, where the Corcoran Clay is present, is estimated to be 10% or less of total groundwater usage for the same area.
	b) Provide an updated change in storage estimate which includes the Subbasin's confined aquifer	3.2, 3.3	A long-term groundwater storage change for the unconfined aquifer was estimated. In addition, storage change in the confined aquifer from land subsidence i.e., water from aquifer compaction, was also estimated. Storage change from changes in the potentiometric surface of the confined aquifer could not be calculated due to an insufficient number of wells that tap only the confined aquifer. This volume is expected to be minor as explained in the GSP. A long-term plan for developing a confined aquifer network was documented in the Lower Aquifer Data Gap Study, completed in 2024. See Section 5.2 of the GSPs for the map showing the initial Lower Aquifer monitoring network.
7. Department staff recommend that the GSAs address the following water budget related items by the Subbasin's next periodic evaluation:	a) Update the historical water budget using a singular basin-wide methodology. This water budget should be based on the best and most recently available data which considers all aspects of groundwater extractions (such as the groundwater extractions and/or storage losses from the confined aquifer).	3.3	The historical water budget was updated with a new more recent period from 2009-2023. A single basin-wide method was used for all GSAs.

Kings Basin Recommended Corrective Action List and Summary Table

DWR Recommended Action	Specific Item	GSP Sections Edited	General description of changes
	b) Provide a thorough explanation for the inconsistencies between the volume of overdraft quantified from the Subbasin's water budgets and the cumulative volume of overdraft that the GSAs indicate their management will mitigate.	3.3.13	The differences between the different groundwater storage change values, how they were derived, and their use in groundwater management were explained.
	c) Identify and fill water budget related data gaps and update the Subbasin's water budgets, quantification of overdraft, and estimate of sustainable yield by the Subbasin's next periodic evaluation.	3.3.8	Water budget data gaps that were filled from 2020 to 2025 were described. Additional data gaps that will be investigated before the next GSP updated were also described.
8. Department staff recommend the GSAs update the Subbasin's reduction of groundwater storage sustainable management criteria to include the volume of reduced groundwater storage associated with the Subbasin's confined aquifer(s).		4.3	Description of the principal confined aquifer provided in Section 3.1. The E-Clay separates the aquifer system into an upper unconfined aquifer and a lower confined aquifer. Storage change in the confined aquifer is predominantly from land subsidence, a.k.a. water of compaction, an inelastic confined aquifer response. According to the USGS, the amount of storage change in confined aquifers is roughly equal to the amount of land subsidence observed at ground surface. Pumpage from the confined aquifer is offset by leakage through the aquitard and groundwater inflows from other portions of the aquifer system. Other component of storage change in the confined aquifer is from elastic specific storage which is estimated to be 0.000003/ft on average for San Joaquin Valley sediments, see Section 4.3 for a sample calculation. Therefore, storage change due to elastic confined aquifer response is small compared to water of compaction. Water of compaction is a component of the water budgets. Preparation of potentiometric surface maps and estimates of confined aquifer elastic specific storage change are not currently possible due to minimal amounts of historic data from confined aquifer wells. Confined aquifer pumping, where the Corcoran Clay is present, is estimated to be 10% or less of total groundwater usage for the same area.
9. Department staff recommend that the GSAs address the following degraded water quality related items by the Subbasin's next periodic evaluation:	a) Describe the basin-wide methodology for identifying the Subbasin's chemicals of concern. This description should explain why each GSP established sustainable management criteria for different chemicals of concern.	3.2.5	Added common language to all GSPs further explaining that chemicals of concern were chosen based on evaluations from a combination of local knowledge and data from published reports and online groundwater quality databases such as GAMA.

Kings Basin Recommended Corrective Action List and Summary Table

DWR Recommended Action	Specific Item	GSP Sections Edited	General description of changes
	b) Clarify what the basin-wide criteria to determine the presence of an undesirable result is. This criterion should be used by each GSP.	4.5.1.1, 4.5.1.2	Previously some GSPs indicated an undesirable result was 15% of wells exceeding minimum thresholds for two consecutive years and the other GSPs indicated an undesirable result was 15% of wells exceeding minimum thresholds for two consecutive monitoring events. The GSPs have now been made consistent in stating that an undesirable result is 15% of wells exceeding minimum thresholds for two consecutive monitoring events.
	c) Provide the monitoring frequency for each constituent of concern at each representative monitoring well and justify how this monitoring frequency ensures that minimum thresholds are measured in a manner consistent with the monitoring network requirements of the GSP Regulations. The GSP Regulations requires the Plan's monitoring frequency be capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term water quality trends. If a representative monitoring well is not monitored annually then the GSAs could assume, for the purpose to determining the presence of an undesirable result, that the well's concentration remains the same between monitoring events.	4.5.1.1, 5.5.5	DDW well monitoring schedules have been added to GSP appendices, if not already present. Additional language has been added to further explain that DDW prescribed frequencies of analytical testing for constituents are based on known water quality issues in the area of the well; the results from initial battery of analyses performed on water from the well prior to the well going online; and the historical groundwater quality monitoring results from routine monitoring of the well. If a constituent is not monitored annually, historical data has indicated it is not a water quality issue in the well or area of the well. Detections of constituents above drinking water standards will lead to more frequent monitoring of the constituent, typically multiple times a year. Language has also been added to explain that in the event that a constituent is not monitored annually, between monitoring events the assumption will be made that the concentration in the well remains at a comparative level as the previous detection.
10. Department staff recommend that the GSAs address the following monitoring network related items by the Subbasin's next periodic evaluation:	a) Update the chronic lowering of the groundwater levels monitoring network with the information and data required by the GSP Regulation's data and reporting standards, including all known physical attributes of wells used in the network.	5.2.5	Well construction information added for representative monitor wells
	b) The GSAs should ensure that the chronic lowering of groundwater levels monitoring network adequately accounts for each principal aquifer.	5.2	Figure 5-x shows an initial set of wells believed to be sealed across from and perforated solely below the Cororan Clay. The map also shows data gaps in the lower aquifer monitoring network.

Kings Basin Recommended Corrective Action List and Summary Table

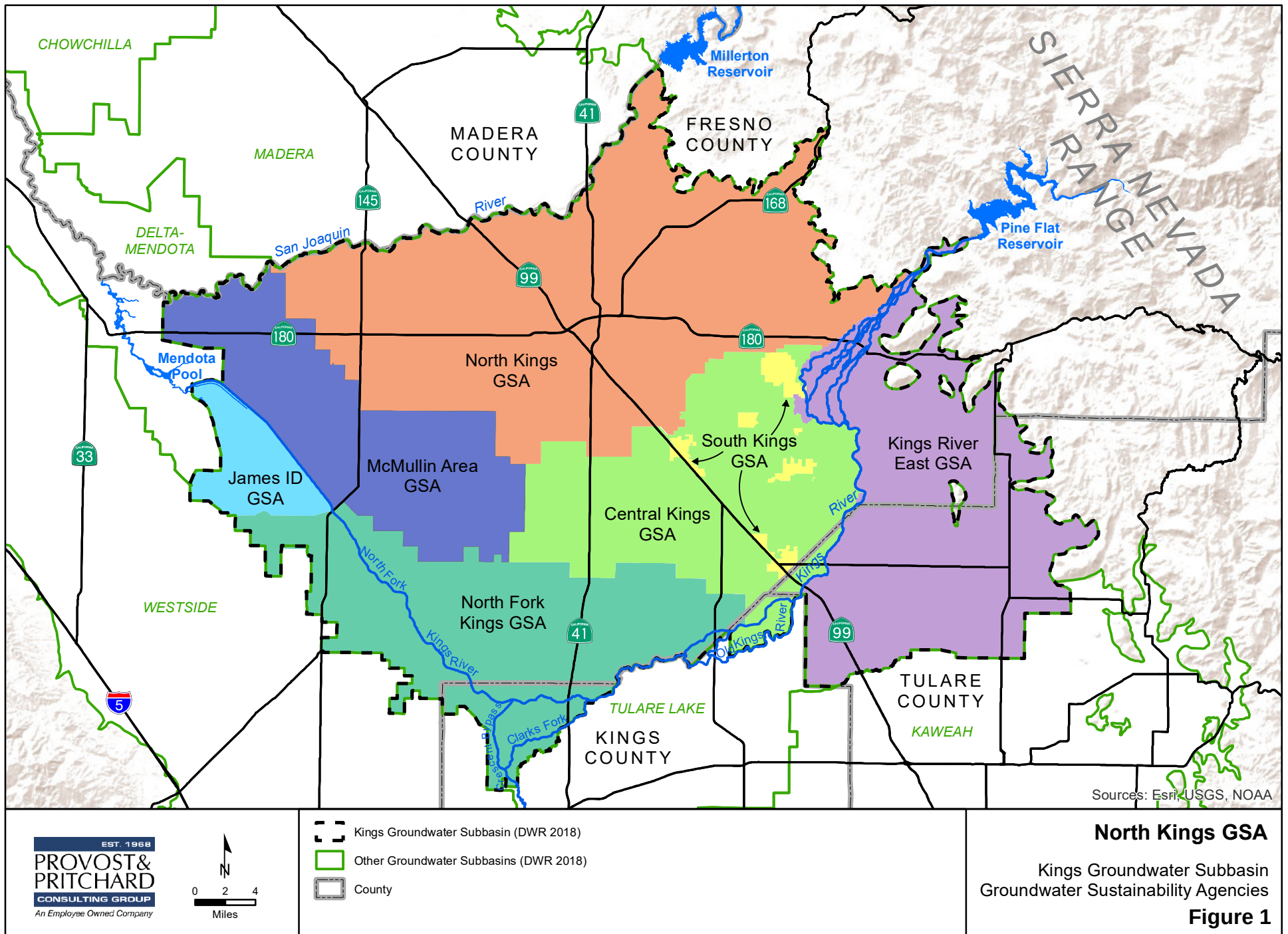
DWR Recommended Action	Specific Item	GSP Sections Edited	General description of changes
	c) The GSAs should ensure the monitoring network quantifies storage change from each of the Subbasin's principal aquifers.	4.3, 5.2, 5.6	The Kings Subbasin GSA have completed a lower aquifer data gap study which has identified several wells, including monitoring wells, with perforations below the Corcoran Clay. These wells are the beginning of a lower aquifer monitoring network. These wells will be used to collect water level data for the lower aquifer, see Section 5.2. As mentioned in Section 4.3 storage change in the lower aquifer is predominantly due to land subsidence, refer to Section 5.6 for the land subsidence monitoring network.
	d) Update the degraded water quality monitoring network with the information and data required by the GSP Regulation's data and reporting standards. Provide the monitoring frequency for each constituent monitored at each monitoring well.	5.5.5	Tables of well construction, well location, and other specific monitoring site information have been added to the GSPs when they were not already present. Likewise, Well Completion Reports and DDW well monitoring schedules have been added to GSP appendices, if not already present.
	e) Department staff recommend that the GSAs demonstrate how the TRE Altamira InSAR dataset is used to demonstrate progress toward achieving the Plan's measurable objectives or avoiding the Plan's minimum thresholds. Department staff suggest that this could be completed by annually providing the annual maximum rate and maximum cumulative subsidence since January 2020 for each GSP area.	5.6 Summary table provided in periodic evaluation and annual reports	The Kings Basin has used DWR InSAR data as part of their monitoring network from the start. Originally the DWR data was NASA InSAR which was the program mentioned in the 2020 and 2022 versions of the GSP. The 2025 GSP has been updated to reference the TRE Altamira InSAR dataset. TRE Altamira InSAR dataset is one of the existing monitoring programs used by the GSAs to monitor land subsidence in the Kings Basin. The periodic evaluation and annual reports will provide the annual maximum rate and maximum cumulative subsidence since 2020.
11. Department staff recommend that for those projects that are conceptual or in-progress, the GSAs should provide an updated timeline which includes when the GSAs expects to secure funding, initiate and complete construction, and accrue the project's expected benefits.		Ch. 6	A project table was added to each GSP and an updated timeline including the anticipated project start and completion is shown for each project with the anticipated benefits occurring after completion.

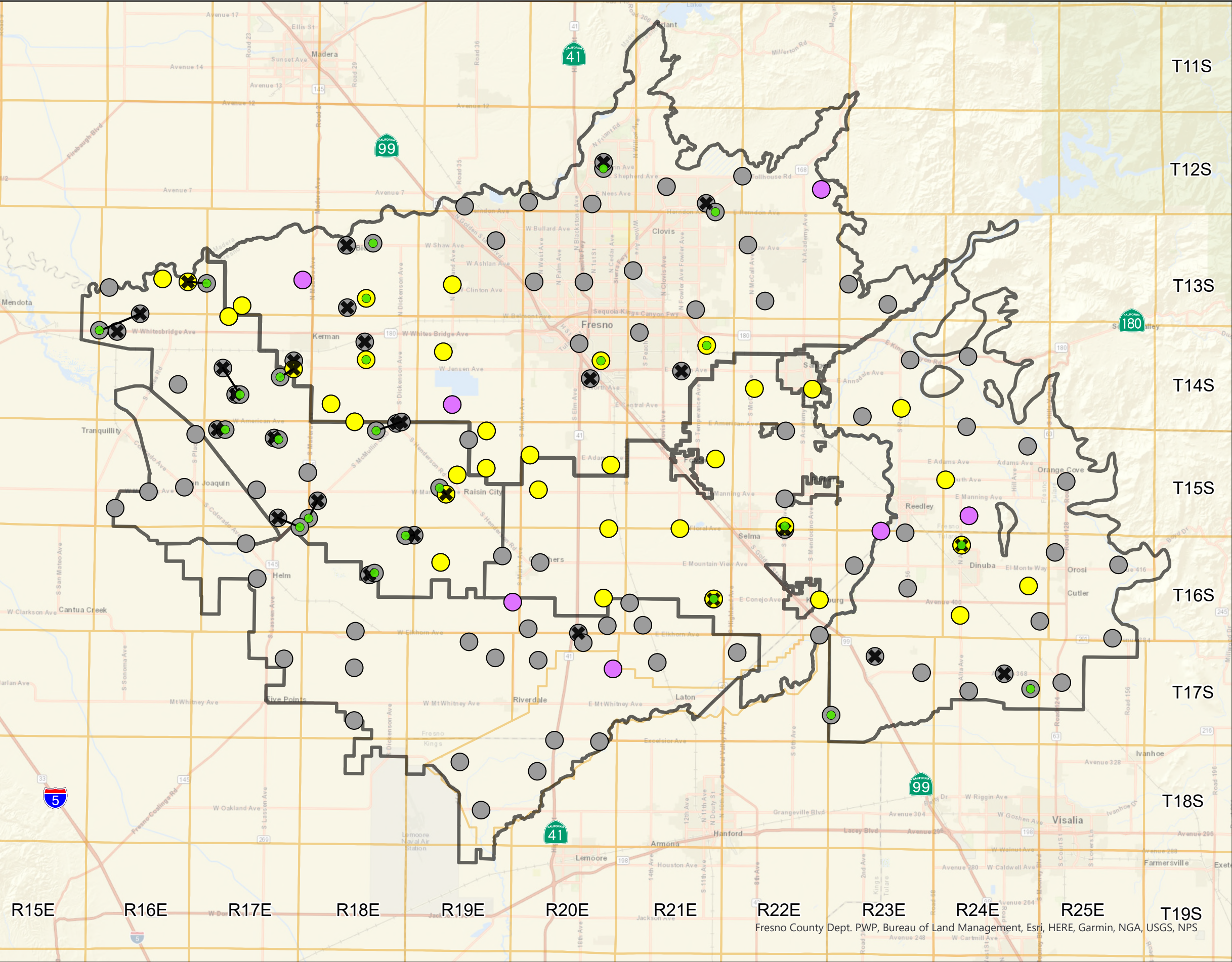
Kings Basin Recommended Corrective Action List and Summary Table

DWR Recommended Action	Specific Item	GSP Sections Edited	General description of changes
12. Department staff recommend the GSAs update the Plan's management actions section to discuss the implementation timeline for those management actions which will result in the demand management benefits required to reach sustainability.		Ch. 6	A table of each possible Management Action was added to each GSP, including a column stating the GSAs anticipated implementation timeline for each management action. A description for those management actions anticipated is included.

Appendix B— Figures

1. *Kings Subbasin GSAs*
2. *Kings Subbasin, Groundwater Level Monitoring Network Updates and Improvements*
3. *Kings Subbasin, Groundwater Quality Monitoring Network*
4. *Kings Subbasin, Land Subsidence Monitoring, Fall 2020 to Fall 2023*
5. *Kings Subbasin, Initial Lower Aquifer Monitoring Network*
6. *Kings Subbasin, Interconnected Surface Water Monitoring Network*



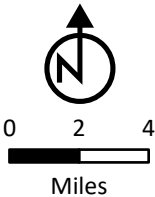


Kings Subbasin
Groundwater Level Monitoring
Network Updates and Improvements
Figure 2

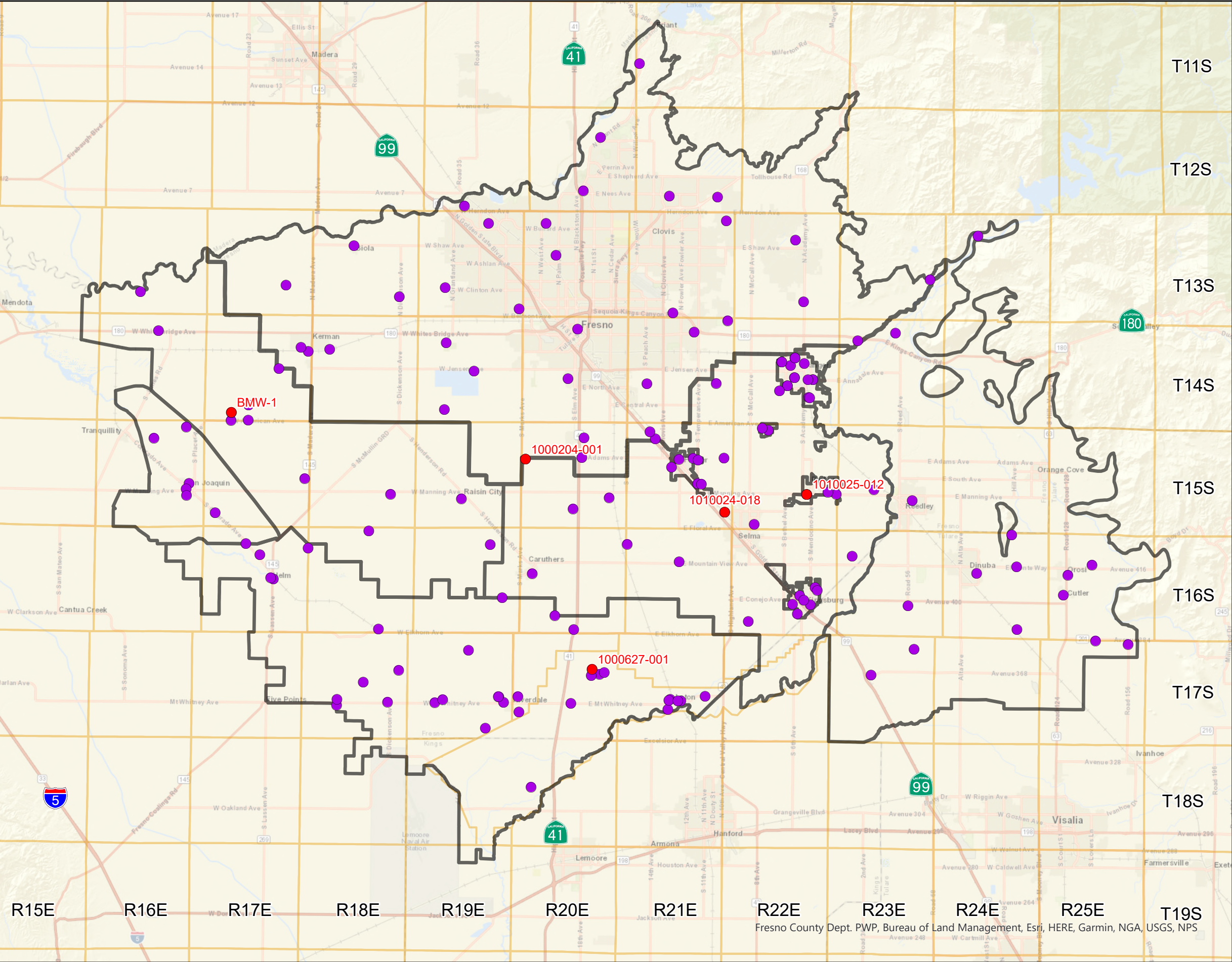
- Kings Subbasin GSAs
- Township/Range
- SMC Wells
- SMC Well, Fall 2023 WSE Below MT
- SMC Well, Fall 2023 WSE Below 2025 IM
- SMC Well, Fall 2023 - No Measurement
- SMC Wells Removed from Network
- Replacement SMC Wells Added to Network

DRAFT
01/21/2025

**PROVOST &
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Fresno County Dept. PWP, Bureau of Land Management, Esri, HERE, Garmin, NGA, USGS, NPS



Kings Subbasin

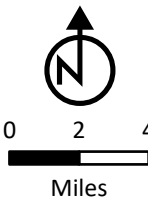
Groundwater Quality
Monitoring Network

Figure 3

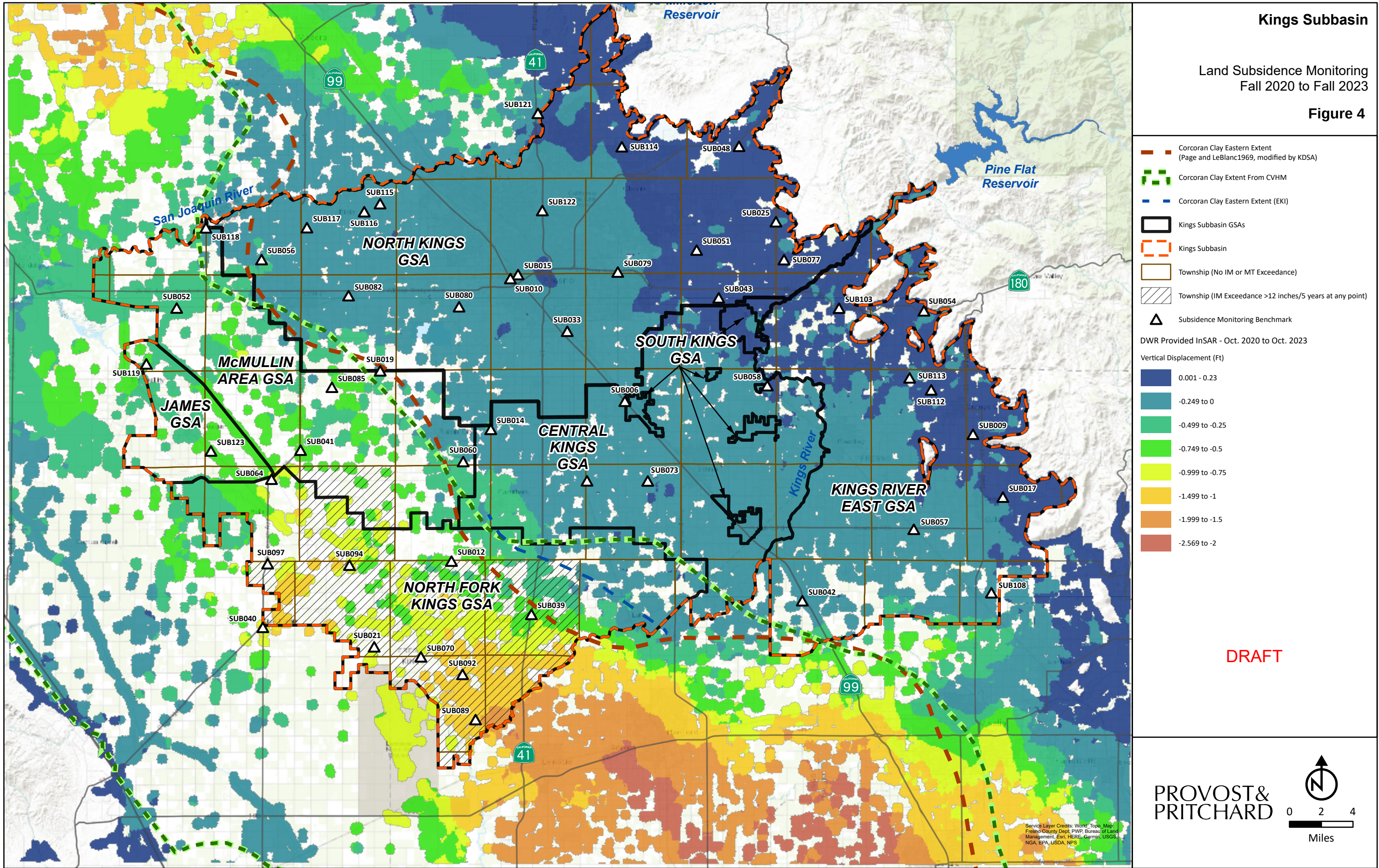
- Kings Subbasin GSAs
- Township/Range
- Selected Representative Groundwater Monitoring Wells
- Wells Exceeding the Minimum Threshold in 2023

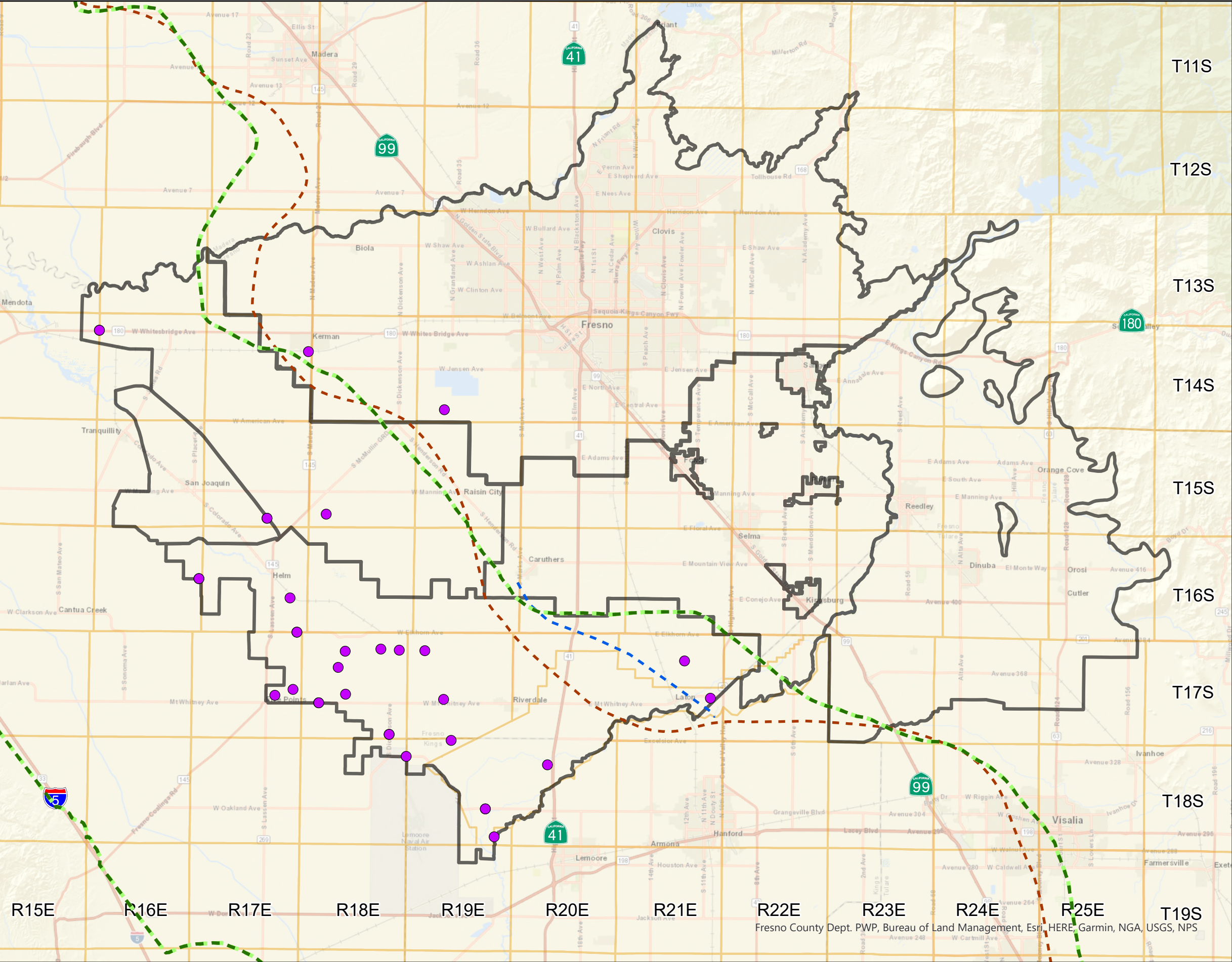
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**PROVOST &
PRITCHARD**



Fresno County Dept. PWP, Bureau of Land Management, Esri, HERE, Garmin, NGA, USGS, NPS





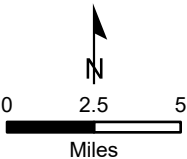
Kings Subbasin

Initial Lower Aquifer
Monitoring Network

Figure 5

- Kings Subbasin GSAs
- Township/Range
- Initial Lower Aquifer Well
- E-Clay Eastern Extent from EKI
- E-Clay Eastern Extent
(Page and LeBlanc1969,
modified by KDSA)
- Corcoran Clay Extent From CVHM

DRAFT
12/09/2024



Fresno County Dept. PWP, Bureau of Land Management, Esri, HERE, Garmin, NGA, USGS, NPS

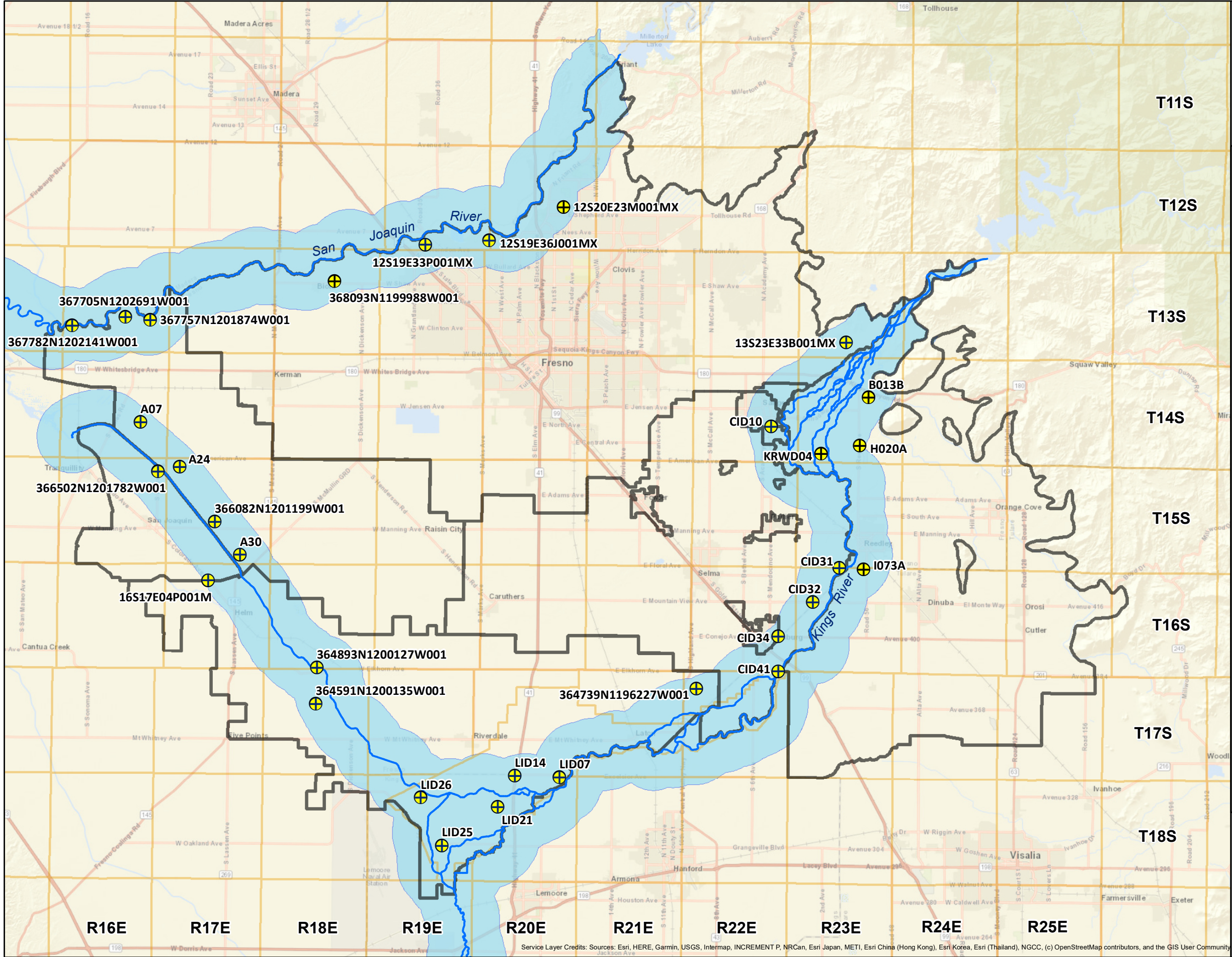
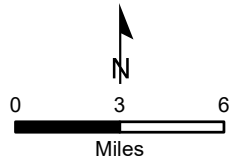
Interconnected Surface Water
Monitoring Network

Figure 6

Legend

-  Indicator Well To Serve As Proxy*
-  Groundwater Sustainability Agency
-  Township/Range
-  Major Waterway
-  2-mile Buffer of Major Waterway

*Preliminary monitoring network



Appendix C— Project Status Table

					354.44(a)	354.44(b)(2)&(5)	354.44(b)(2)&(5)	354.44(b)(2)&(5)		354.44(b)(4)	354.44(b)(4)	354.44(b)(4)	354.44(b)(8)
GSA	Dated Added	Status	Agency to Implement	Project or Management Action Title	Description	Anticipated Project Benefit	Quantified Project Benefit WY2020 to WY2023	Project Benefit Units	Funding for Planned Projects Secured By	Start Date	Completion Date	Completion by Milestone Year	Cost Estimate
CKGSA	2020	Completed	CID	Adams and Academy Recharge Basin	50 acre recharge basin	2,000	3,262	AF/yr		2019	2024	2025	\$3,500,000
CKGSA	2020	Completed	CID	Central and Bethel Recharge Basin	20 acre recharge basin	800	-	AF/yr		2023	2024	2025	\$4,000,000
CKGSA	2020	Completed	CID	Huntsman Recharge Basin	40 acre recharge basin	1,600	2,538	AF/yr		2023	2024	2025	\$4,000,000
CKGSA	2020	Completed	CID	Temperance and Bethel Mountain View Basin	40 acre recharge basin	1,600	4,167	AF/yr		2023	2024	2025	\$4,000,000
CKGSA	2020	Completed	CID	Nebraska and Walnut Recharge Basin	120 acre recharge basin	4,800	3,000	AF/yr		2023	2025	2030	\$6,000,000
CKGSA	2020	In Progress	CID	Kamm and DeWolf Recharge Basin	50 acre recharge basin	2,000		AF/yr	2023	2023	2025	2030	\$4,000,000
CKGSA	2020	Planned for Development	CID	Rose Ave Recharge Basin	40 acre recharge basin	1,600		AF/yr	2025	2025	2026	2035	\$4,000,000
CKGSA	2020	Planned for Development	CID	Recharge Basin	50 acre recharge basin	2,000		AF/yr	2031	2032	2034	2035	\$4,000,000
CKGSA	2020	Planned for Development	CID	Recharge Basin	50 acre recharge basin	2,000		AF/yr	2035	2036	2038	2040	\$4,000,000
CKGSA	2020	Planned for Development	CID	Recharge Basin	50 acre recharge basin	2,000		AF/yr	2036	2037	2039	2040	\$4,000,000
CKGSA	2020	Planned for Development	CID	Recharge Basin	50 acre recharge basin	2,000		AF/yr	2037	2038	2040	2040	\$4,000,000

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GSA	Dated Added	Status	Agency to Implement	Project or Management Action Title	Description	Anticipated Project Benefit	Quantified Project Benefit WY2020 to WY2023	Project Benefit Units	Funding for Planned Projects Secured By	Start Date	Completion Date	Completion by Milestone Year	Cost Estimate
James	2020	Completed	City of San Joaquin	City of San Joaquin Storm Water Pond Recharge	The project site consists of utilizing two existing storm water basins in the City of San Joaquin for groundwater recharge. The first basin is located on Colorado Avenue and is 2.8 acres. The second basin is located on California Avenue and is 1.8 acres.	120	670	AF/yr		2023	2024	2025	\$200,000
James	2020	Completed	James ID	Southwest Groundwater Banking	The project is a joint project of James ID and Fresno ID and consists of three recharge basins totaling 100 acres located in the County of Fresno within the McMullin Area GSA.	1,000	6,200	AF/yr		2018	2018	2025	\$4,200,000
James	2020	Completed	James ID	Carmichael Slough Recharge	The project will introduce flood and excess water into the slough and will utilize the slough for groundwater recharge.	500	300	AF/yr		2023	2024	2025	\$20,000
James	2020	Completed	James ID	James Main Canal Spreading	The project site consists of two linear shallow basins parallel to the James ID Main Canal between its Lateral N and Lateral P. The first basin, Basin O located between Laterals O and P, is 4,000 feet by 80 feet (7.4 acres). The second basin, Basin N located between Laterals N and O, is 3,900 feet by 50 feet (4.5 acres). The shallow basins will be used for spreading.	190	820	AF/yr		2023	2024	2025	\$60,000
James	2020	Completed	James ID	Rathman On-Farm Recharge Project	100 acres of farm ground purchased for Flood-Mar/On-Farm recharge purposes in flood release years. No farming will occur in the wettest year types.	1,650	670	AF/yr		2024	2024	2025	\$1,700,000
James	2020	Completed	James ID	Surface Water Coordination Agreement	Agreement for annual delivery of a dedicated surface water supply through existing facilities.	4,000	0	AF/yr		2024	2024	2025	--
James	2020	Completed	James ID	Floodway Recharge and Spreading	The project seeks to utilize the property owned by RD 1606 (about 300 acres) for spreading and shallow recharge.	3,000	15,390	AF/yr		2023	2024	2025	\$40,000
James	2020	In Progress	James ID	Basin 3 Floodwater Capture and Recharge	The project will utilize an existing basin and channel currently used by James ID for the dual purpose of capturing flood and excess water for later use and to recharge water into the aquifer. Project includes construction of a check structure on the Easterly Channel of the James Bypass.	400		AF/yr	2022	2022	2026	2030	\$2,200,000
James	2020	Planned for Development	James ID	Basin 2 Storage and Recharge Expansion	The project seeks to expand Floral Avenue Basin #2 by enlarging the storage and increasing the flowrate to fill the site faster by capturing flood and excess water for later use and to recharge water into the aquifer. Basin 2 is about 40 acres and holds approximately 900 AF.	150		AF/yr	2029	2030	2040	2040	\$300,000
James	2020	Removed	James ID	James Bypass Floodwater Utilization	The project utilizes existing James ID conveyances within the James Bypass to provide flood water and excess water to landowners in areas that do not have surface water deliveries.								
James	2020	Removed	James ID	Distribution System Recharge	The project consists of the utilization of the James ID water distribution system to recharge additional water into the aquifer by operating laterals and ditches at times when those facilities would not normally be operated.								
James	2020	Removed	James ID	McMullin On-Farm Flood Capture and Recharge	The Kings River Conservation District project consists of constructing a 500-cfs turnout on the Kings River to divert flood water through two conveyance canals onto adjacent lands.								
James	2020	Removed	James ID	Fresno Slough Recharge	The project will utilize the Fresno Slough to recharge water into the aquifer. A portion of the water delivered into the slough will recharge the aquifer. Water will also be stored and circulated within the slough for later use.								
James	2020	Removed	James ID	Mud Dam Spreading and Recharge	The project will utilize the small reservoir created by Mud Dam to pool and store water and allow it to be spread over time across conservation easement lands. An estimated 360 acres will be inundated by the project.								
James	2020	Removed	James ID	Lassen Ave Floodwater Utilization	The project utilizes existing James ID conveyances along the Lassen Avenue alignment to provide flood water and excess water to landowners in areas that do not have surface water deliveries. Water will be "backed into" the conveyance and one or more temporary lift stations may be required.								
James	2020	Removed	James ID	McMullin Grade Floodwater Utilization	The project utilizes existing James ID conveyances along the McMullin Grade to provide flood water and excess water to landowners in areas that do not have surface water deliveries. Water will either be "backed into" the conveyance using one or more temporary lift stations or routed through the conveyance from Fresno ID.								
James	2020	Removed	James ID	Distributed Recharge Basin	The project will construct a number of small recharge basins either adjacent to or near existing district-owned conveyances located outside of the James GSA for the purpose of groundwater recharge.								
James	2020	Removed	James ID	McMullin Masterplan	The project is the preparation of a comprehensive master planning study to implement surface water deliveries in the undistricted area east of the James GSA. .								

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James	2020	Removed	James ID	James Ranch Recharge Basin	The project is analyzed assuming four 640 acre recharge basins would be constructed in the area east of the James Bypass within the former landholding of the James Ranch. The basins would be used to capture flood flows for groundwater recharge on a large scale.								
James	2020	Removed	James ID	Mendota Pool Water Quality Monitoring	The project will construct a water quality monitoring site on the Fresno Slough, approximately two miles downstream of Highway 180 in Fresno County.								
James	2020	Removed	James ID	K-Basin Groundwater Recharge	The Lateral K Recharge Basin is a 226-acre basin in the JID used for groundwater recharge and banking.								
James	2020	Removed	James ID	Lake Avenue Canal	The project improves existing James ID conveyances within then/a James Bypass and constructs a new canal tentatively planned along the Lake Avenue alignment to provide flood water and excess water to landowners in areas that do not have surface water deliveries.								
James	2020	Removed	James ID	Wildlife Habitat Restoration	The project provides surface water to conservation easement lands south of the district for wildlife benefit. The water provided will either be recharged into the aquifer or delivered to the lands. A component of the project would store water on the lands and allow recovery of a portion of the stored water.								

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GSA	Dated Added	Status	Agency to Implement	Project or Management Action Title	Description	Anticipated Project Benefit	Quantified Project Benefit WY2020 to WY2023	Project Benefit Units	Funding for Planned Projects Secured By	Start Date	Completion Date	Completion by Milestone Year	Cost Estimate
KREGSA	2020	Completed	OCID	OCID Customized Rules and Regulations for Reducing Groundwater Reliance	The Orange Cove Irrigation District 'amended its Rules and Regulations (applicable to all landowners and users of water in the District) to encourage use of each year's available surface water supply.			AF/yr		2020	2021	2025	
KREGSA	2020	In Progress	Tulare County	Sultana Stormwater/Recharge Basin	Storm drain and basin interconnection improvements to allow for recharge of surface water	50		AF/yr	2022	2022	2025	2025	\$750,000
KREGSA	2020	Ongoing	Alta ID	FARM Program (formerly called Enhanced Utilization of High Flows from the Kings River)	The project has and will continue to beneficially use high flows from the Kings River within the Alta Irrigation District service area.	5,000	40,693	AF/yr	measured	2019	2020	2025	No construction, operational adjustments only
KREGSA	2020	Planned for Development	Alta ID	North Dinuba Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2025	2025	2027	2030	\$6,000,000
KREGSA	2020	Planned for Development	Alta ID	North London Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2026	2026	2028	2030	\$6,000,000
KREGSA	2020	Planned for Development	Alta ID	South London Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2027	2027	2029	2030	\$6,000,000
KREGSA	2020	Planned for Development	Alta ID	North Traver Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2024	2024	2026	2030	\$5,000,000
KREGSA	2020	Planned for Development	Alta ID	North Caesar Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2028	2028	2030	2035	\$6,000,000
KREGSA	2020	Planned for Development	Alta ID	South Traver Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		Af/yr	2030	2030	2032	2035	\$6,000,000
KREGSA	2020	Planned for Development	Alta ID	Monson-Sultana Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2032	2032	2034	2035	\$6,000,000
KREGSA	2020	Planned for Development	Alta ID	South Caesar Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2033	2033	2035	2040	\$6,000,000
KREGSA	2020	Planned for Development	Alta ID	Highway 63 Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2034	2034	2036	2040	\$6,000,000
KREGSA	2020	Planned for Development	Alta ID	West 99 Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2036	2036	2038	2040	\$6,000,000
KREGSA	2020	Planned for Development	Alta ID	Avenue 352 Water Supply Augmentation Area	Development of a 40-acre recharge basin	1,200		AF/yr	2038	2038	2040	2040	\$6,000,000
KREGSA	2020	Removed	Alta ID	North Tulare County Surface Water Treatment Plant	North Tulare County Surface Water Treatment Plant is a 2.23 MGD facility that would serve as a long-term solution to meeting drinking water supply needs for disadvantaged and severely disadvantaged communities in the northern portion of Tulare County.			AF/yr					

					354.44(a)	354.44(b)(2)&(5)	354.44(b)(2)&(5)	354.44(b)(2)&(5)		354.44(b)(4)	354.44(b)(4)	354.44(b)(4)	354.44(b)(8)
GSA	Dated Added	Status	Agency to Implement	Project or Management Action Title	Description	Anticipated Project Benefit	Quantified Project Benefit WY2020 to WY2023	Project Benefit Units	Funding for Planned Projects Secured By	Start Date	Completion Date	Completion by Milestone Year	Cost Estimate
MAGSA	2020	Completed		McMullin On-Farm Flood Capture, Phase 1	This project is construction of a 150cfs turnout and the McMullin Grade Canal to divert Kings River high flows releases for delivery to approximately 5,000 acres in MAGSA for on-farm recharge or direct irrigation use.	5,000	19,000	AF/yr		2018	2019	2025	
MAGSA	2024	Ongoing	MAGSA	Irrigation Efficiency (Grower Irrigation Academy)	Reduction of irrigation pumping from outreach, education and training in meter use, irrigation scheduling, telemetry and monitoring.	3,000	500	AF/yr		2020			\$100,000
MAGSA	2024	In Progress	MAGSA	MAGSA AQUATERRA Groundwater Banking Program (formerly James Bypass Surface Water Supply & Recharge)	The Project will establish the 800,000 AF capacity groundwater bank underlying the MAGSA area, which is adjacent to, and will accept water from, the Fresno Slough and the Mendota Pool. The Project will be designed to divert and recharge up to 208,000 acre-feet per year (AFY) into the bank over a 5-month period, and subsequently recover up to 148,000 AFY over a 5-month period.	13,900		AF/yr	2030	2022	2040	2040	\$777,000,000
MAGSA	2020	Planned for Development	MAGSA	Southwest Groundwater Banking	Expansion of FID and JID's 100-acre groundwater banking facility.	2,625		AF/yr	2026	2026	2028	2030	\$6,221,403
MAGSA	2024	In Progress	MAGSA	On-Farm Recharge outside of McMullin Project	This project would include on-farm recharge of flood and storm water for lands not within MAGSA but not lying within the McMullin On-Farm Flood Capture Project limits.	5,000	10,500	AF/yr	2027	2027	2028	2030	\$1,000,000
MAGSA	2020	Planned for Development	MAGSA	Lassen Avenue Reverse Flow & Recharge	This project would improve groundwater levels and mitigate critical overdrafting by redirecting flood flows or other flows that could be wheeled through JID off the Mendota Pool for on-farm or in-lieu groundwater recharge using JID's Kerman Line.	3,000		AF/yr	2028	2028	2030	2030	\$3,263,000
MAGSA	2020	Planned for Development	MAGSA	Upgradient Recharge Programs	This project or program would recharge surface water upgradient from MAGSA in neighboring water districts and provide for the mutual benefit of all participating entities. The project yield will likely be split in some manner between the parties that develop the project.	8,000		AF/yr	2027	2028	2030	2030	\$42,464,000
MAGSA	2020	Planned for Development	MAGSA	Houghton Wasteway Expansion	Expansion of FID's existing 10-acre basin located within MAGSA to an 80-acre recharge basin.	2,400		AF/yr	2029	2030	2032	2035	\$5,000,000
MAGSA	2020	Planned for Development	MAGSA	South Sandridge Canal Water Supply & Recharge	This project would construct a new turnout and conveyance facility to convey surface water from FID's Big Sandridge Canal to convey water to lands for on-farm recharge or to a new recharge basin wtihin MAGSA boundaries.	4,800		AF/yr	2031	2032	2034	2035	\$8,700,000
MAGSA	2020	Planned for Development	MAGSA	Stinson North Canal Phase 1	This project would convey up to 500 cfs of flood water from the North Fork of the Kings River into the GSA into MAGSA for delivery to groundwater recharge basins and/or used for on-farm recharge.	8,000		AF/yr	2033	2034	2036	2040	\$61,114,000
MAGSA	2020	Planned for Development	MAGSA	McMullin On-Farm Flood Capture, Phase 2 and 3	This project would increase capacity diversion and conveyance capacity of the McMullin On-Farm Flood Capture project to 500cfs and expand delivery to approximately 40,000 acres.	15,000		AF/yr	2035	2036	2038	2040	\$62,379,000
MAGSA	2020	Planned for Development	MAGSA	Grantland Area Recharge	This project would construct a connection and new conveyance canal from the LMC into MAGSA at the Grantland Avenue alignment to capture excess surface water during wet years and replenish the aquifer through either direct recharge, on-farm recharge, or an in-lieu recharge method.	3,200		AF/yr	2035	2036	2038	2040	\$22,043,000
MAGSA	2020	Planned for Development	MAGSA	CID Wristen Ditch Intertie	This project would construct an intertie with CID's Wristen Ditch to convey water an estimated 40cfs into MAGSA for delivery to landwoners or to groundwater recharge basins.	3,200		AF/yr	2037	2038	2040	2040	\$13,420,000
MAGSA	2020	Removed		Fresno City Wastewater Treatment Plant Recharge Basin, FID Houghton Canal System	The project is located within the North Kings GSA, just outside of MAGSA, allowing for a potential groundwater credit to benefit MAGSA by an intra-basin groundwater transfer agreement between GSAs.								
MAGSA	2020	Removed		Fresno City Wastewater Treatment Plant Recharge Basin, FID Lower Dry Creek System	The project is located within the North Kings GSA, just outside of MAGSA, allowing for a potential groundwater credit to benefit MAGSA by an intra-basin groundwater transfer agreement between GSAs.								

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NFKGSA	2020	Completed	Laguna ID	Basin 11 Improvement Project	The Basin 11 recharge project was constructed in 2016. At the time of construction, minimal excavation of the site occurred. The Basin 11 Improvement Project consists of excavation of the basin to remove organic matter and shallow clay lenses to improve the recharge rates.	1,360	1,269	AF/yr		2020	2023	2025	Funded by Laguna ID assessments
NFKGSA	2020	Completed	Landowner	Basin 11 Expansion Project	This landowner initiated project expands the existing LID Basin 11 recharge facility by constructing an additional 35-acre recharge basin immediately west and contiguous to the existing basin. The additional storage capacity relies on the same water source as the Basin 11 project .	970	2,435	AF/yr		2022	2023	2025	Privately funded by Landowner
NFKGSA	2020	Completed	Landowner to implement; NFKGSA to administrate	Cerini Recharge Project	The project involves utilizing undeveloped property for recharge, even though the property has low recharge rates. Multiple ephemeral swales and drainages naturally occur on the property and can be used to deliver and spread water on portions of the property for recharge credits .	2,500	8,034	AF/yr		2020	2021	2025	Privately funded by Landowner
NFKGSA	2020	Completed	Landowner to implement; NFKGSA to administrate	Kamm Recharge Project	The project involves utilizing undeveloped property for recharge, even though the property has low recharge rates. Multiple ephemeral swales and drainages naturally occur on the property and can be used to deliver and spread water on portions of the property for recharge credits .	2,900	10,742	AF/yr		2020	2021	2025	Privately funded by Landowner
NFKGSA	2020	Completed	Landowner to implement; NFKGSA to administrate	Terra Linda Recharge Project	This landowner initiated project entails taking land out of production and constructing a recharge basin with balanced earthwork and limited excavation. The project can store water approximately 5 feet deep and provide recharge when excess high flow water is available.	1,450	3,380	AF/yr		2020	2021	2025	Privately funded by Landowner
NFKGSA	2020	Completed	Landowner to implement; NFKGSA to administrate	Linda Vista Recharge Project	This landowner initiated project entails taking land out of production and constructing several recharge basins with balanced earthwork and limited excavation. The project can store water approximately 5 feet deep and provide recharge when excess high flow water is available.	1,800	4,864	AF/yr		2020	2021	2025	Privately funded by Landowner
NFKGSA	2020	Completed	Landowner to implement; NFKGSA to administrate	Casaca Recharge Project	This landowner initiated project entails taking land out of production and constructing a recharge basin with balanced earthwork and limited excavation. The project can store water approximately 5 feet deep and provide recharge when excess high flow water is available.	2,340	3,288	AF/yr		2020	2021	2025	Privately funded by Landowner
NFKGSA	2020	Completed	Laguna ID	Fremont Recharge Project (formerly Pires)	The existing property has approximately 27 acres of partially excavated land capable that will be deepened and perimeter levees with be constructed for increased storage capacity when excess high flow water is available to achieve groundwater recharge.	530	250	AF/yr		2023	2023	2025	Funded by Laguna ID assessments
NFKGSA	2020	Completed	Laguna ID	North Fork Group Site 3 Recharge Improvement Project (Dias Pond)	The 15-acre parcel owned by LID is currently used as a terminal reservoir and groundwater recharge basin. The project will further excavate the basin to increase infiltration rates, particularly through lateral infiltration at the edges of the basin.	290	475	AF/yr		2022	2022	2025	Funded by Laguna ID assessments
NFKGSA	2022	Completed	Riverdale ID	Blythe Ave Recharge Basin	The project entails construction of a groundwater recharge basin on a 30-acre site to capture excess high flow Kings River water or CVP water. The anticipated net recharge area is approximately 24 acres.	480		AF/yr	2023	2024	2025	2030	SGMA Grant and Riverdale ID assessments
NFKGSA	2020	In Progress	Laguna ID	Laton North Recharge Project	A gross 150-acre parcel will be excavated for groundwater recharge in conjunction with the California High Speed Rail Project. The net ponded area is approximately 109 acres. A conveyance system will be constructed to deliver water to the project site from Cole Slough on the Kings River.	3,500	7,809	AF/yr	2025	2023	2025	2030	Funded by Laguna ID assessments
NFKGSA	2020	In Progress	NFKGSA, Fresno County	Elkhorn Recharge Facility (formerly listed under North Fork Regional)	The project entails construction of two groundwater recharge basins on a site owned by Fresno County with a total net recharge area of approximately 125 acres to capture available excess high flow water.	3,550		AF/yr	2025	2025	2027	2030	Funded by Fresno County and NFKGSA assessments
NFKGSA	2020	In Progress	Landowners to implement; NFKGSA to administrate	Miscellaneous Landowner Recharge Basins	The project entails private landowners constructing groundwater recharge basins for use when excess high flow water is available to develop recharge credits. It is anticipated that 100-acres will be developed into basins prior to 2030 and another 100-acres prior to 2035.	6,290	6,942	AF/yr	2026	2026	2035	2035	Privately funded by Landowners
NFKGSA	2020	In Progress	Reed Ditch Co with NFKGSA supporting	North Fork Group Site 6 Recharge Project	The project entails construction of a narrow recharge basin on a 10-acre parcel adjacent to Murphy Slough to capture excess high flow Kings River water or CVP water that is available to achieve groundwater recharge.	140		AF/yr	2025	2025	2026	2030	Funded by Reed Ditch Company assessments

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NFKGSA	2020	Ongoing	Landowner to implement; NFKGSA to administrate	On-Farm Recharge (Flood-Mar)	The project entails spreading available water on suitable fields and crops by landowners when excess high flow Kings River water or CVP water is available to achieve groundwater recharge. The GSA is developing a groundwater credit system to encourage landowners to participate.	6,000	6,190	AF/yr	2023	2023	on-going	2030	Privately funded by Landowners
NFKGSA	2022	Ongoing	NFKGSA	Supplemental Water Purchase - River Recharge	The project consists of the NFKGSA purchasing available surface water for delivery into the Kings River to achieve groundwater recharge through the linear river system.	2,000	1,564	AF/yr	2023	2023	on-going	2030	Funded by NFKGSA Assessments
NFKGSA	2020	Planned for Development	Laguna ID	Beeler Recharge Project (formerly listed under North Fork Regional)	The project entails construction of a groundwater recharge basin on a 109-acre site to capture excess high flow Kings River water or CVP water. The anticipated net recharge area is approximately 98 acres.	2,280		AF/yr	2030	2030	2031	2035	Funded by Laguna ID assessments
NFKGSA	2020	Planned for Development	Laguna ID	Zonneveld Pond Improvement Project	The existing 25-acre parcel owned by LID is currently used as a regulating reservoir and groundwater recharge basin but is underlain by a shallow clay layer. The improvement project will entail excavating the basin to a depth below the shallow clay layer to increase infiltration rates.	410		AF/yr	2026	2026	2027	2030	Funded by Laguna ID assessments
NFKGSA	2020	Planned for Development	NFKGSA	Upgradient Recharge Outside the NFKGSA	The project entails mutual landowners recharging water upgradient for recharge credits prior to 2030 and the GSA developing groundwater recharge basins upgradient of NFKGSA in cooperation with the upgradient partner. Anticipate developing 80-acres of upgradient basins prior to 2040.	2,000		AF/yr	2026	2026	2040	2040	Funded by NFKGSA Assessments
NFKGSA	2020	Planned for Development	Laguna ID	Mussel Slough Recharge Project	The project entails construction of a groundwater recharge basin on a 288-acre site to capture excess high flow Kings River water or CVP water. The anticipated net recharge area is approximately 220 acres.	5,190		AF/yr	2031	2031	2032	2035	Funded by Laguna ID assessments
NFKGSA	2020	Planned for Development	Landowners to implement; NFKGSA to administrate	Dry Well Recharge Systems	The project envisions individual landowners constructing a series of interconnected dry wells for groundwater recharge, comprised of a standpipe filled with gravel that would allow water to infiltrate below the soil surface. Fifty dry wells anticipated in several stages prior to 2040.	1,000		AF/yr	2031	2031	2040	2040	Privately funded by Landowners
NFKGSA	2020	Planned for Development	Landowners to implement; NFKGSA to administrate	Miscellaneous Subsurface Tile Recharge Systems	The project envisions individual landowners constructing a series of subsurface tile recharge systems to achieve groundwater recharge at a depth of 8-10 feet below the soil surface. Systems on 200-acres anticipated in several stages prior to 2040.	800		AF/yr	2031	2031	2040	2040	Privately funded by Landowners
NFKGSA	2020	Planned for Development	Laguna ID	Laton North Phase 2 Recharge Project	An additional gross 150-acre parcel will be excavated for groundwater recharge in conjunction with the California High Speed Rail Project. The net ponded area is approximately 109 acres. The conveyance system serving the first Phase of the project will serve this phase also.	3,900		AF/yr	2028	2028	2028	2030	Funded by Laguna ID assessments
NFKGSA	2020	Planned for Development	NFKGSA	North Fork Group Site 16 Recharge Project	A small site, approximately 6 acres, that is no longer farmed will be developed into a groundwater recharge basin capable of capturing surface water flows from the Liberty Millrace Canal when excess high flow Kings River water or CVP water is available.	120		AF/yr	2033	2033	2034	2035	Funded by NFKGSA Assessments
NFKGSA	2022	Planned for Development	NFKGSA and KRCD	Excelsior & 26-1/4 Ave Recharge Project	The project entails construction of a groundwater recharge basin on a 130-acre site adjacent to the Kings River water to a capture excess high flow water and serve a flood control function. The anticipated net recharge area is approximately 115 acres.	940		AF/yr	2031	2031	2032	2035	Funded by NFKGSA Assessments

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NKGSA	2019	Completed	City of Fresno	Residential Water Meter Retrofit Project	Install water meters on all residential service connections.	43600		AF/yr		2010	2012	2015	\$76,829,600
NKGSA	2019	Completed	City of Fresno	T-3 Surface Water Treatment Facility	Expansion of 4mgd surface water treatment facility.	2210		AF/yr		2011	2013	2015	\$21,819,800
NKGSA	2019	Completed	City of Fresno	Nielsen Recharge Facility	This project is to expand the City's groundwater recharge program and includes land acquisition, development of new recharge basin, structures and conveyance systems such as pipelines, canal turnouts, metering systems, and interties.	3500		AF/yr		2015	2016	2020	\$3,657,000
NKGSA	2019	Completed	City of Fresno	Southeast Surface Water Treatment Facility	Constructuion of a new Southeast Surface Water Treatment Facility (SESWTF) and associated large diameter transmission mains. New facility is required to treat surface water diverted from the Kings River through canal and raw water pipeline system.	82240		AF/yr		2014	2019	2020	\$314,600,000
NKGSA	2019	Completed	City of Kerman	Lions Park Groundwater Recharge project	The proposed project would install the valving, piping, and metering equipment necessary to allow for regular distribution of FID surface water into the City's stormwater collection system, to be conveyed to the Lion's Park Stormwater Basin for groundwater recharge purposes.	195	50	AF/yr		2021	2024	2025	\$207,000
NKGSA	2019	Completed	Fresno Irrigation District	Central Basin Recharge Project	The Fresno Irrigation District’s Central Basin Project is approximately 90-acres of groundwater banking and recharge facilities at three locations.	2592	8,732	AF/yr		2018	2020	2025	\$6,500,000
NKGSA	2019	Completed	Fresno Irrigation District	Wagner Recharge Basin	The project is a 60-acre groundwater recharge basin, including earthwork and structures. The project will provide approximately 200 AF of flood water surface storage and recharge approximately 2,300 AF/year annual average.	2300	4,069	AF/yr		2019	2021	2025	\$4,276,780
NKGSA	2019	Completed	Fresno Irrigation District	Savory Pond Expansion	FID will expand the expanding Savory Pond to an approximately 30-acre recharge basin near the corner of Lincoln & Chestnut Avenues.	1200	555	AF/yr		2020	2022	2025	\$2,000,000
NKGSA	2021	Completed	Fresno Irrigation District	Kenneson Sanchez Basin (formerly known as Shubin Pond Expansion Project)	This project is an approximately 40-acre recharge basin, including earthwork and structures. The project will provide approximately 120 AF of flood water surface storage and recharge approximately 720 AF/year annual average.	960	14	AF/yr		2023	2024	2025	\$6,400,000

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NKGSA	2023	Completed	Fresno Irrigation District	Basin Interties	This project will construct interties at certain FIM CD basin sites. The project will focus on sites not yet intertied with an FID canal system for delivery of surface water when available during irrigation season. Initially 3 sites have been identified, but additional sites may be added. The project will recharge approximately 840 AF/year annual average.	840		AF/yr		2024	2025	2025	\$1,200,000
NKGSA	2019	Completed	Garfield Water District	Ricchiuti Recharge Basin Project	The District proposes to annex into the District the remaining portion of APN 580-040-01, an existing five (5) acre basin, then construct a delivery connection from its distribution system to the existing basin to allow for the delivery of surface water for recharge.	150		AF/yr		2020	2020	2025	\$175,000
NKGSA	2024	Completed	Pinedale County Water District	Basin DH2 Intertie	The project will re-intertie and allow for the utilization of Basin DH for groundwater recharge using surface water by agreement with FID	240	543	AF/yr		2024	2024	2025	\$10,000
NKGSA	2020	In Progress	Bakman Water Company	Water Meter Project	Bakman Water Company is installing water meters on all of its approximately 2,450 service connections in its service area.	870		AF/yr	2015	2015	2025	2025	\$2,907,000
NKGSA	2019	In Progress	Biola CSD	Biola Groundwater Recharge Project	Construct a canal turnout and pipeline to deliver surface water from FID Herndon Canal to an existing storm drain basin that will be enlarged to hold 30 acre-feet of water.	150		AF/yr	2020	2020	2024	2025	\$705,000
NKGSA	2021	In Progress	Fresno Irrigation District	Carter-Bybee Basin (formerly known as Barstow Jameson Basin)	This project is an approximately 35-acre recharge basin, including earthwork and structures. The project will provide approximately 140 AF of flood water surface storage and recharge approximately 840 AF/year annual average.	840		AF/yr	2023	2024	2025	2025	\$5,500,000
NKGSA	2021	In Progress	Fresno Irrigation District	Big Dry Creek Restoration and Urban Access Improvement Project	A multi-agency collaborative project providing improved flood protection, maintain safe creek trail access, and improved recharge through increased capacity.	4,500		AF/yr	2024	2025	2026	2030	\$3,500,000
NKGSA	2021	In Progress	Fresno Irrigation District	Friant-Kern Canal Turnout to Big Dry Creek	A multi-agency collaborative project providing direct recharge along the Big Dry Creek channel north and east of Clovis. The new turnout will allow for the City of Fresno and FID to divert water in wetter years and recharge in the Big Dry Creek channel.	2,500		AF/yr	2024	2026	2027	2030	\$3,500,000
NKGSA	2019	In Progress	Malaga County Water District	Basin CF - Stormwater Recharge and Flood Protection Project	This project will construct an intertie (connection) between FMFCD's existing Basin "CF" with FID's Washington Colony Canal No. 15 to allow for the delivery of surface water for recharge into the basin.	970		AF/yr	2021	2021	2025	2025	\$1,072,036
NKGSA	2019	In Progress	Pinedale County Water District	PCWD residential meter installation	The District has initiated efforts to secure funding for plans to install residential water meters (including multi-unit customers) and switch from a fixed flat-rate to a volumetric rate based on consumption. The project also includes replacing 8,050 feet of old main lines. The project will be bolstered by outdoor water restrictions and conservation.	210		AF/yr	2022	2022	2022	2025	\$7,000,000

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NKGSA	2021	Planned for Development	Bakman Water Company	Fowler Spillway Recharge Basin Project	Construction of an approximately 11 acre recharge basin.	519		AF/yr	2025	2025	2027	2030	\$2,750,000
NKGSA	2024	Planned for Development	Bakman Water Company	Groundwater Recharge at FMFCD facilities	Bakman Water Company is working with FID and FMFCD to recharge Bakman's contracted surface water at various FMFCD facilities in and around Bakman's boundary.	2000		AF/yr	2024	2024	2025	2025	\$200,000
NKGSA	2024	Planned for Development	California State University Fresno	Surface Water Use Expansion Project	Development of facilities to extend surface water use to additional agricultural lands that currently cannot receive surface water	600		AF/yr	2026	2026	2029	2030	\$3,000,000
NKGSA	2019	Planned for Development	City of Clovis	Marion Recharge Basin Improvements	Improve recharge at the Marion Recharge Basins through a variety of measures to increase percolation including routine maintenance and capital projects.	2,500		AF/yr	2025	2020	2025	2025	\$500,000
NKGSA	2019	Planned for Development	City of Clovis	Clovis SWTP Pretreatment	This project will construct effective pretreatment for the existing 22.5 MGD surface water treatment plant (SWTP) so that the plant can continuously run during times of high turbidity in the water source.	2,000		AF/yr	2025	2025	2030	2030	\$18,000,000
NKGSA	2019	Planned for Development	City of Clovis	Clovis SWTP Expansion	Expand the existing SWTP 22.5 MGD to a total of 45 MGD.	23,100		AF/yr	2035	2035	2040	2040	\$87,000,000
NKGSA	2019	Planned for Development	City of Clovis	ST-WRF Expansion	Expand the existing 2.8 MGD Clovis Sewage Treatment/Water Reuse Facility (ST-WRF) to 5.6 MGD and then to 8.4 MGD	9,400		AF/yr	2035	2035	2040	2040	\$80,000,000
NKGSA	2021	Planned for Development	City of Clovis	Tarpey Village Metering Project	Install new water meters in all unmetered services in Tarpey Village, approximately 363 services. Located in the County of Fresno but part of the City of Clovis water service area.	237		AF/yr	2024	2024	2025	2025	\$550,000
NKGSA	2021	Planned for Development	City of Clovis	Clovis SWTP 3.5 MGD Water Tank	Construct a 3.5 MGD tank at the southeast SWTP in Clovis	3,900		AF/yr	2025	2025	2026	2030	\$10,000,000
NKGSA	2021	Planned for Development	City of Clovis	New Clovis SWTP	Construct a new 20 MGD SWTP, tank and pumps in the northern ara of the Clovis General Plan	22,400		AF/yr	2040	2040	2040	2040	\$100,000,000
NKGSA	2023	Planned for Development	City of Clovis	Basin Recharge Park (Heritage Grove)	This 18-acre facility will serve as a dual-purpose project, providing park space and a nature facility that serves as a 6 acre recharge basin. The recharge basin would be capable of recharging approximately 151 AFY from the Enterprise Canal.	151		AF/yr	2025	2025	2030	2030	\$7,000,000
NKGSA	2019	Planned for Development	City of Fresno	Southwest Reclamation Facility and Distribution System	Construction of an initial 5-MGD tertiary treatment facility and transmission and distribution system. The reclaimed water produced and distributed in the southwest region will provide a direct potable water offset, thus reducing the reliance on and use of groundwater supplies.	5140		AF/yr	2014	2014	2019	2020	\$114,600,000
NKGSA	2019	Planned for Development	City of Fresno	Northeast Surface Water Treatment Facility Expansion	This project is for the 30-MDG expansion of the existing surface water treatment facility for a total capability of 60-MGD. To enable water from the expansion to reach further into the City large diameter transmission mains will also be constructed.	30,840		AF/yr	2025	2025	2030	2030	\$170,000,000

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NKGSA	2021	Planned for Development	City of Fresno	Recycled Water Storage Tank & Booster Pump Station	Design and Construction of 3 Million Gallon Recycled Water Storage Tank and Booster Station to improve and ensure adequate delivery system level of service.	1200		AF/yr	2023	2023	2026	2030	\$12,500,000
NKGSA	2021	Planned for Development	City of Fresno	RWRF Reclamation Well Pipeline and Storage Basin	Construct pipeline to intertie reclamation well outfall irrigation pipeline to recycled water distribution system. Includes conversion of existing aeration basin to storage basin.	10000		AF/yr	2024	2024	2026	2030	\$13,300,000
NKGSA	2021	Planned for Development	City of Fresno	Northwest Fresno Regional Recharge Facility	Approximately 40 to 60 acres of land will be acquired in the area near Shaw and Garfield Avenues. This facility will be able to capture flood flows and as well as City contract surface water supplies from FID to recharge the aquifer.	1920		AF/yr	2024	2024	2028	2030	\$9,000,000
NKGSA	2021	Planned for Development	City of Fresno	Southwest Fresno Regional Recharge Facility	Approximately 40 to 60 acres of land will be acquired in the area near Belmont and Blythe Avenues. This facility will be able to capture flood flows and as well as City contract surface water supplies from FID to recharge the aquifer.	1920		AF/yr	2028	2028	2028	2030	\$9,000,000
NKGSA	2021	Planned for Development	City of Fresno	Southeast Fresno Regional Recharge Facility	Approximately 40 to 60 acres of land will be acquired in the area near North and Peach Avenues. I This facility will be able to capture flood flows and as well as City contract surface water supplies from FID to recharge the aquifer.	1920		AF/yr	2030	2030	2030	2030	\$9,000,000
NKGSA	2024	Planned for Development	City of Fresno	Large Diameter Meter Replacement Project	Replace large diameter meters that have been under-reporting consumption	5000		AF/yr	2025	2025	2030	2030	\$18,000,000
NKGSA	2021	Planned for Development	City of Kerman	Basin 'C' Groundwater Recharge Project	The project will construct a turnout structure on the Houghton West No. 94 Canal and a pipeline along Madera Avenue from the Canal to the City Storm Drainage System north of Whitesbridge Road. The Project will allow for surface water from the Canal to be conveyed via the proposed pipeline to the City's Storm Drainage System, which will convey the surface water to City Basin 'C' for recharge purposes.	255		AF/yr	2027	2027	2029	2030	\$535,000
NKGSA	2021	Planned for Development	City of Kerman	Basin 'M' Groundwater Recharge Project	The project will construct an approximately 12 acre recharge basin, including basin excavation, structures, and a pipeline to convey surface water to the basin. The basin is shown on the City's General Plan to be located in the southwest quadrant of Nielsen and Siskiyou Avenues.	776		AF/yr	2032	2032	2034	2035	\$4,028,000
NKGSA	2021	Planned for Development	City of Kerman	Basin 'D' Recharge Project	The project will construct an approximately 11 acre recharge basin, including basin excavation, structures, and a pipeline to convey surface water to the basin. The basin is shown on the City's General Plan to be located in the southwest quadrant of Nielsen and Vineland Avenues.	667		AF/yr	2032	2032	2034	2035	\$3,705,000
NKGSA	2021	Planned for Development	City of Kerman	Basin 'P' Groundwater Recharge Project	The project will construct an approximately 7 acre recharge basin, including basin excavation, structures, and a pipeline to convey surface water to the basin. The basin is shown on the City's General Plan to be located in the northeast quadrant of Goldenrod and Whitesbridge.	447		AF/yr	2036	2036	2038	2040	\$2,396,000
NKGSA	2019	Planned for Development	County of Fresno	County of Fresno NKGSA Recharge Program	This project will implement priority projects identified in the Northeast Fresno-Clovis Area Potential and Groundwater Investigation (April 2015), to provide groundwater recharge in the County of Fresno area east of FID within the NKGSA. The report identified 19 potential recharge within Big Dry Creek, Dog Creek, as well as dedicated recharge basin sites.	2,000		AF/yr	2025	2025	2030	2030	\$8,000,000
NKGSA	2019	Planned for Development	Fresno Irrigation District	On-Farm Recharge Program	FID will establish a program to offer and encourage growers to perform on-farm recharge during wet years when would otherwise be lost to the region.	2,000		AF/yr	2030	2030	2030	2030	\$200,000
NKGSA	2021	Planned for Development	Fresno Irrigation District	Wagner Basin Expansion Project	This project is an approximately 30-acre recharge basin, including earthwork and structures. The project will provide approximately 120 AF of flood water surface storage and recharge approximately 720 AF/year annual average.	720		AF/yr	2030	2030	2030	2030	\$2,000,000
NKGSA	2021	Planned for Development	Fresno Irrigation District	Schneider Basin (formerly known as Empire Pond Expansion Project)	This project is an approximately 20-acre recharge basin, including earthwork and structures. The project will provide approximately 80 AF of flood water surface storage and recharge approximately 480 AF/year annual average.	480		AF/yr	2032	2032	2033	2035	\$3,800,000
NKGSA	2021	Planned for Development	Fresno Irrigation District	Hornor Basin (formerly known as Lambrecht Pond Expansion Project)	This project is an approximately 35-acre recharge basin, including earthwork and structures. The project will provide approximately 140 AF of flood water surface storage and recharge approximately 840 AF/year annual average.	840		AF/yr	2025	2025	2030	2030	\$5,400,000
NKGSA	2021	Planned for Development	Fresno Irrigation District	Laub Basin (formerly known as Central Hughes Basin Expansion Project)	This project is an approximately 75-acre recharge basin, including earthwork and structures. The project will provide approximately 300 AF of flood water surface storage and recharge approximately 1,800 AF/year annual average.	1800		AF/yr	2027	2027	2030	2030	\$10,500,000

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NKGSA	2021	Planned for Development	Fresno Irrigation District	Schmall Recharge Basin (formerly Barstow Westlawn)	This project is an approximately 50-acre recharge basin, including earthwork and structures. The project will provide approximately 200 AF of flood water surface storage and recharge approximately 1200 AF/year annual average.	1200		AF/yr	2028	2028	2030	2030	\$7,600,000
NKGSA	2021	Planned for Development	Fresno Irrigation District	Krum Basin (formerly known as Whitesbridge Nielsen Recharge Basin)	This project is an approximately 55-acre recharge basin, including earthwork and structures. The project will provide approximately 220 AF of flood water surface storage and recharge approximately 1,320 AF/year annual average.	1,320		AF/yr	2025	2025	2030	2030	\$8,100,000
NKGSA	2023	Planned for Development	Fresno Irrigation District	Badhesha Basin (Hughes & North Ave)	This project is an approximately 28-acre recharge basin, including earthwork and structures. The project will provide approximately 100 AF of flood water surface storage and recharge approximately 672 AF/year annual average.	672		AF/yr	2030	2030	2031	2035	\$4,200,000
NKGSA	2023	Planned for Development	Fresno Irrigation District	Crossland Basin (Butler & DeWolf Ave)	This project is an approximately 20-acre recharge basin, including earthwork and structures. The project will provide approximately 80 AF of flood water surface storage and recharge approximately 480 AF/year annual average.	480		AF/yr	2029	2029	2030	2030	\$3,700,000
NKGSA	2024	Planned for Development	Fresno Irrigation District	Metzler Basin (Shaw & Jameson)	This project is an approximately 20-acre recharge basin, including earthwork and structures. The project will provide approximately 80 AF of flood water surface storage and recharge approximately 480 AF/year annual average.	480		AF/yr	2028	2028	2030	2030	\$3,800,000
NKGSA	2021	Removed	Bakman Water Company	Tulare Avenue Recharge Basin Project	Construction of a 4.3-acre recharge basin.	185		AF/yr		2026	2027	2030	\$1,800,000
NKGSA	2021	Removed	Bakman Water Company	Torrey Ridge Recharge Basin Project	Expand an existing pond to 7 acres and convert it to a recharge basin.	313		AF/yr		2026	2027	2030	\$4,200,000
NKGSA	2021	Removed	City of Clovis	Friant-Kern Canal Turnout and 42" Raw Water Pipeline	Construct a 42" water pipeline between the existing SWTP and a turnout at Friant Kern where the future NESWTP will be located	2,000		AF/yr		2028	2030	2030	\$15,000,000
NKGSA	2019	Removed	City of Fresno	Southeast Reclamation Facility and Distribution System	As part of the City's long-term goal to utilize resources sustainably the development of a recycled water program will be key. This project includes design and construction of an initial 8-MGD tertiary treatment facility with transmission and distribution mains. The reclaimed water produced and distributed in the southeast region will provide a direct potable water offset, thus reducing the reliance on and use of groundwater supplies.	8,227		AF/yr		2021	2025	2030	\$155,000,000
NKGSA	2021	Removed	Fresno Irrigation District	American Fowler Recharge Project	This project is an approximately 15-acre recharge basin, including earthwork and structures. The project will provide approximately 60 AF of flood water surface storage and recharge approximately 360 AF/year annual average.	360		AF/yr		2030	2030	2030	\$1,500,000
NKGSA	2021	Removed	Fresno Irrigation District	Barstow Chateau Fresno Recharge Project	This project is an approximately 40-acre recharge basin, including earthwork and structures. The project will provide approximately 160 AF of flood water surface storage and recharge approximately 960 AF/year annual average.	960		AF/yr		2030	2030	2030	\$4,000,000
NKGSA	2021	Removed	Fresno Irrigation District	Orange Lincoln Pond Expansion Project	This project is an approximately 10-acre recharge basin, including earthwork and structures. The project will provide approximately 40 AF of flood water surface storage and recharge approximately 240 AF/year annual average.	240		AF/yr		2030	2030	2030	\$1,000,000
NKGSA	2021	Removed	Fresno Irrigation District	Ventura Pond Expansion Project	This project is an approximately 10-acre recharge basin, including earthwork and structures. The project will provide approximately 40 AF of flood water surface storage and recharge approximately 240 AF/year annual average.	240		AF/yr		2030	2030	2030	\$1,000,000
NKGSA	2021	Removed	Fresno Irrigation District	Purcell West Pond Expansion Project	This project is an approximately 5-acre recharge basin, including earthwork and structures. The project will provide approximately 20 AF of flood water surface storage and recharge approximately 120 AF/year annual average.	120		AF/yr		2030	2030	2030	\$500,000
NKGSA	2021	Removed	Fresno Irrigation District	Little Pine Flat Expansion Project	This project is an approximately 20-acre recharge basin, including earthwork and structures. The project will provide approximately 80 AF of flood water surface storage and recharge approximately 480 AF/year annual average.	480		AF/yr		2030	2030	2030	\$2,000,000
NKGSA	2021	Removed	Fresno Irrigation District	Chestnut Lincoln Pond Expansion Project	This project is an approximately 20-acre recharge basin, including earthwork and structures. The project will provide approximately 80 AF of flood water surface storage and recharge approximately 480 AF/year annual average.	480		AF/yr		2030	2030	2030	\$2,000,000
NKGSA	2021	Removed	Fresno Irrigation District	Malaga East Pond Expansion Project	This project is an approximately 20-acre recharge basin, including earthwork and structures. The project will provide approximately 80 AF of flood water surface storage and recharge approximately 480 AF/year annual average.	480		AF/yr		2030	2030	2030	\$2,000,000
SKGSA	2020	Completed	City of Kingsburg	Madsen Avenue Basin	In addition to any work required on the basin itself, efforts will include modifications or additions to the basin's piping that are needed to convey surface water from CID facilities to the basin	211	600	AF/yr		2023	2023	2025	\$78,000

					354.44(a)	354.44(b)(2)&(5)	354.44(b)(2)&(5)	354.44(b)(2)&(5)		354.44(b)(4)	354.44(b)(4)	354.44(b)(4)	354.44(b)(8)
GSA	Dated Added	Status	Agency to Implement	Project or Management Action Title	Description	Anticipated Project Benefit	Quantified Project Benefit WY2020 to WY2023	Project Benefit Units	Funding for Planned Projects Secured By	Start Date	Completion Date	Completion by Milestone Year	Cost Estimate
SKGSA	2020	Completed	City of Kingsburg	Athwal Park Basin	In addition to any work required on the basin itself, efforts will include modifications or additions to the basin’s piping that are needed to convey surface water from CID facilities to the basin.	208	240	AF/yr		2027	2027	2030	\$78,000
SKGSA	2020	Completed	City of Sanger	Kelly Basin	The existing basin will be converted to a recharge basin and will be connected to CID facilities through existing storm drain mains, which can be dual purposed for conveyance of surface water to the basin.	231	1,020	AF/yr		2023	2023	2025	\$106,000
SKGSA	2020	Completed	City of Sanger	West Sanger 7.6 acre Recharge Basin	In addition to excavation efforts, work will include construction and installation of necessary turnout and outlet structures, piping, and fencing.	528	430	AF/yr		2028	2028	2030	\$170,000
SKGSA	2020	Completed	City of Sanger	North Sanger Recharge Basin Ph 1 (formerly 27.4)	15-acre recharge basin	1,500		AF/yr	2022	2022	2025	2025	\$2,600,000
SKGSA	2020	In Progress	Del Rey CSD	American & Del Rey Avenues Basin	The project will consist of converting an existing storm drain retention basin into a recharge basin with a pipeline connected to the basin.	62		AF/yr	2023	2023	2025	2025	\$134,000
SKGSA	2025	Planned for Development	City of Sanger	North Sanger Recharge Basin Ph 2	Approximately 12-acre recharge basin	1,000		AF/yr	2037	2038	2039	2040	\$2,000,000
SKGSA	2020	Planned for Development	City of Sanger	Medrano Basin	The Medrano Basin Project will convert an existing stormwater basin into a recharge basin. Additions and modifications to the existing nearby storm drain system will be needed to allow conveyance of water from the Lonetree Channel to the basin for recharge.	68		AF/yr	2028	2029	2030	2030	\$134,000
SKGSA	2020	Planned for Development	City of Kingsburg	22.5-Acre Basin	The project will consist of the construction of a new basin or basins and required piping to connect to CID facilities. Placement of the basin near these facilities will reduce piping and maintenance costs and should be considered when further developing the project.	1,656		AF/yr	2032	2033	2034	2035	\$2,862,000
SKGSA	2020	Planned for Development	Del Rey CSD	Melruna & Carmel Avenues Basin	The project will consist of the construction of a new basin and required piping to connect to CID facilities.	131		AF/yr	2032	2033	2033	2035	\$313,000
SKGSA	2020	Planned for Development	Del Rey CSD	South Del Rey Avenue Basin	The basin conversion and expansion will consist of any modifications and additions to existing pipelines to allow conveyance of surface water from CID facilities to the basin, additional excavation, fencing, and any other work required to increase the capacity of the existing basin.	13		AF/yr	2036	2037	2037	2040	\$142,000
SKGSA	2020	Planned for Development	City of Parlier	Milton Avenue Basin	The project entails the conversion of the existing stormwater retention basin at this location into a recharge basin. Modifications and additions to the existing basin and its related infrastructure will allow for conveyance of surface water from CID facilities for recharge.	185		AF/yr	2027	2028	2028	2030	\$729,000
SKGSA	2020	Planned for Development	City of Parlier	Tuolumne Street Basin	The project will consist of any needed modifications or additions to the existing basin, its piping, and connection to CID facilities to allow water to be delivered for recharge.	224		AF/yr	2031	2032	2032	2035	\$106,000
SKGSA	2020	Planned for Development	City of Parlier	Manning Avenue Basin	The project will involve the conversion of the existing stormwater basin to a recharge basin, which will likely include additions and modifications to the basin’s existing piping in order to deliver water from CID facilities to the basin.	79		AF/yr	2032	2033	2033	2035	\$106,000
SKGSA	2020	Planned for Development	City of Parlier	Avila Street Basin	The efforts to convert the basin into a recharge basin may include modifying or adding to the existing storm drainage system connected to the basin to allow water to flow from CID facilities to the basin.	73		AF/yr	2033	2034	2034	2035	\$106,000
SKGSA	2020	Planned for Development	City of Parlier	Mendocino Avenue Basin	The project will convert an existing stormwater basin into a recharge basin. In order to deliver water from CID facilities to the basin, additions and modifications to the existing structures and piping at the basin and CID lateral may be included in the project.	93		AF/yr	2035	2036	2036	2040	\$106,000
SKGSA	2020	Planned for Development	City of Parlier	Academy Avenue Basin	This project will involve converting the existing stormwater basin into a recharge basin by making additions and modifications to the basin’s piping and allowing the flow of water from the Kingsburg Branch canal to the basin.	144		AF/yr	2036	2037	2037	2040	\$162,000
SKGSA	2020	Planned for Development	City of Parlier	4.2-Acre Basin	This project will consist of the construction of a new basin or basins and required piping to connect to CID facilities.	278		AF/yr	2037	2038	2038	2040	\$586,000
SKGSA	2020	Planned for Development	City of Fowler	19.5-Acre Basin	A new approximately 20-acre recharge basin will be constructed. In addition to construction of the basin itself, all infrastructure needed to convey surface water from CID facilities to the basin will be a part of the project.	1,427		AF/yr	2027	2028	2029	2030	\$2,462,000

					354.44(a)	354.44(b)(2)&(5)	354.44(b)(2)&(5)	354.44(b)(2)&(5)		354.44(b)(4)	354.44(b)(4)	354.44(b)(4)	354.44(b)(8)
GSA	Dated Added	Status	Agency to Implement	Project or Management Action Title	Description	Anticipated Project Benefit	Quantified Project Benefit WY2020 to WY2023	Project Benefit Units	Funding for Planned Projects Secured By	Start Date	Completion Date	Completion by Milestone Year	Cost Estimate
SKGSA	2020	Planned for Development	City of Parlier	Industrial Drive Basin	The project will include modifying the existing basin, providing any infrastructure needed to convey surface water from CID facilities to the basin for recharge. The basin will not be increased from its current size of 3.1 acres.	198		AF/yr	2027	2028	2029	2030	\$540,000

					354.44(a)	354.44(b)(2)&(5)	354.44(b)(2)&(5)	354.44(b)(2)&(5)		354.44(b)(4)	354.44(b)(4)	354.44(b)(4)	354.44(b)(8)
GSA	Dated Added	Status	Agency to Implement	Project or Management Action Title	Description	Anticipated Project Benefit	Quantified Project Benefit WY2020 to WY2023	Project Benefit Units	Funding for Planned Projects Secured By	Start Date	Completion Date	Completion by Milestone Year	Cost Estimate
ALL	2024	In Progress	Each GSA as applicable	Surface Water - Groundwater Interconnection Data Gap Analysis	The GSA currently lacks sufficient information on where local rivers are interconnected with groundwater, to what extent groundwater pumping is depleting surface water, if at all, and how river management programs ameliorate impacts of surface water depletions. This study will help provide a better picture of the extent groundwater pumping is impacting surface water and whether the GSA considers those impacts to be significant and unreasonable. This information can then be used to develop sustainable management criteria. Due to the length of the project description, it is provided in supplementary text in the GSP outside of this table.					2023	2026	2030	\$500,000 - \$1,000,000
ALL	2022	In Progress	Each GSA as applicable	Land Subsidence Data Gap Analysis	The GSA currently lacks some information on the confined aquifer that would help improve prediction and management of land subsidence. Specifically, the quantity of water pumped from the confined aquifer, potentiometric surface maps, and confined aquifer flow patterns are not well known. This information can be used to evaluate the causes of land subsidence, estimate future subsidence, and identify appropriate mitigation measures	n/a				2023	2025	2025	\$50,000
ALL	2022	Ongoing	Each GSA as applicable	Domestic Well Mitigation Program	A Domestic Well Mitigation Program has been developed and has been implemented for domestic wells that have gone dry or are in imminent threat of going dry due to declining water levels. The policies and procedures for the Program have been developed through a basin-wide effort, then each GSA implements the Program to meet their specific needs after performing public outreach and developing funding.	--		--		2024	2040	2040	Cost varies by GSA