# 8. PROJECTS AND MANAGEMENT ACTIONS

~~To achieve the sustainability goals for the Modesto Subbasin by 2042, and~~The GSA acknowledges that during the 20-year GSP implementation period it will be necessary to implement Projects and Management Actions (PMA)s to achieve and maintain sustainable groundwater conditions in the Subbasins by or before 2042. Therefore, multiple PMAs have been identified and considered by the GSAs that are designed to avoid undesirable results over the remainder of a 50-year planning horizon, as required by SGMA regulations~~, multiple Projects and Management Actions (PMAs) have been identified and considered by the Modesto Subbasin Groundwater Sustainability Agencies (GSAs) in this Groundwater Sustainability Plan (GSP).~~.~~

~~A description~~Descriptions of PMAs that will contribute to the achievement of sustainability goals in the ~~Modesto~~ Subbasin ~~is~~are provided herein. PMAs are described in accordance with §354.42 and §354.44 of the SGMA regulations. ~~An evaluation~~Evaluations of the benefits and/or impacts ~~of various planned projects~~ on groundwater levels and storage volumes ~~is~~are also provided for their respective projects.

"Projects" ~~generally~~ refer to physically constructed (structural) features whereas "Management Actions" ~~generally~~ refer to non-structural programs or policies designed to incentivize reductions in groundwater pumping or optimize management of the Subbasin. ~~The PMAs discussed in this chapter are intended to help the GSAs progress toward meeting the sustainability goals and Measurable Objectives (MOs), as well as avoid Minimum Thresholds (MTs) and undesirable results identified for the Subbasin in **Chapter 6: Sustainable Management Criteria** (SMCs). The subsequent~~ **Chapter** Error! Reference source not found.~~9~~**: Plan Implementation** of the GSP describes the plan for implementing the PMAs detailed in this chapter.

~~Recognizing the data gaps identified in the GSP and uncertainties in the basin setting (per §354.44(d)), PMA development and implementation in the Modesto Subbasin applies an adaptive management approach informed by continued monitoring of groundwater conditions. The adaptive approach includes two categories:~~

~~1. **PMAs developed for implementation at this time** that would help to achieve and maintain groundwater sustainability while supporting other local goals. These PMAs include:~~
   - ~~PMAs that are in place and will continue to be implemented by specific participating agencies, that will support groundwater management and GSP implementation.~~
   - ~~PMAs that are currently planned and will be implemented by specific participating agencies, that will contribute to attainment of the Subbasin sustainability goal and will support GSP implementation~~

~~**Other PMAs to be implemented as needed** to gather and evaluate monitoring and investigation data as well as achieve and maintain long-term sustainable groundwater management across the Modesto Subbasin. These potential PMAs will be managed adaptively via further evaluation and initiation during GSP implementation if the GSAs finds that established Interim Milestones (IMs) or MOs cannot be achieved and/or if MTs are being approached.~~The STRGBA GSA adopted a resolution on July 10, 2024, to develop and implement management actions in order to arrest groundwater level declines by 2027 and raise groundwater levels after 2027, and to manage the Subbasin in a sustainable manner. The GSAs committed to developing management actions by January 31, 2026, and implementing these management actions by January 31, 2027. The resolution approves the revised Modesto Subbasin GSP, commits to developing and implementing a well mitigation plan, and commits to developing and implementing management actions. The full text of the resolution can be found in Appendix YYY.

The management actions to be considered include, but are not limited to:

- A groundwater allocation and pumping management program
- A groundwater extraction and surface water reporting program
- Groundwater extraction fees
- A groundwater pumping credit market and trading program
- Voluntary conservation/land fallowing, and
- Conservation practices
- A dry well mitigation program

Management actions will be developed to include triggers, based on sustainable management criteria established in the GSP, so the GSAs have the ability to readily respond to changing hydrologic conditions within the Subbasin. Development of management actions and their components are discussed in **Section 8.4**.

A range of PMAs ~~is~~are presented to allow the GSAs flexibility in their response to changing hydrologic and groundwater conditions. ~~However, it~~It is anticipated that ~~not all PMAs will need to be implemented, or that some PMAs will be implemented by one GSA but not the other. Adaptive implementation~~a subset of ~~PMAs will be informed by ongoing monitoring~~projects will provide the Subbasin with a suitable amount of groundwater ~~conditions using~~ needed for the ~~monitoring network and methods described in~~Subbasin to achieve its sustainability goal. As a result, certain PMAs may not need to be implemented for the ~~GSP. Any adverse groundwater conditions or challenges in maintaining groundwater sustainability will be addressed by scaling and implementing PMAs in a targeted and proportional manner, consistent with conditions observed in the Subbasin~~Subbasin, however, the GSAs will consider these PMAs for future initiatives or as means to achieve local goals and support the sustainability goal. Given their commitment to tangible results by 2027, the GSAs will place highest priority on implementation of PMAs with most rapid results, to be demonstrated with empirical data.

PMAs will be evaluated periodically ~~assessed~~ during the GSP implementation period. ~~As planning is at very~~ PMAs, specifically management actions, are in early stages of development~~, complete~~. Complete information on construction requirements, operations, costs, permitting requirements, and other details are not uniformly available for all the PMAs. ~~Potential timing~~Implementation schedules, costs, and funding ~~of PMAs~~mechanisms are ~~described under~~ provided for each PMA ~~where known. Other implementation and funding efforts will be determined and reported if/when~~based on the ~~PMA is evaluated and selected for implementation. This~~latest information ~~will be reported~~available. Information related to PMAs still in ~~annual reports and five-year updates to~~ development will be reported in Annual Reports and Periodic Evaluations of the GSP ~~when known~~. For more detailed information, refer to **Chapter** Error! Reference source not found.~~9~~**: Plan Implementation**.

## 8.1. MANAGEMENT ACTIONS

This section identifies and describes proposed Management Actions (MA) that will be undertaken by the GSAs as an element of GSP implementation. Management Actions refer to non-structural programs or policies designed to incentivize or enforce reductions in groundwater pumping, optimize management of the Subbasin, or implement GSA management authorities. **Table 8-~~Table 8-~~1** shows a list of the six MAs organized into two categories: pumping management framework (**Section 8.1.1~~8.1.1~~**) and demand reduction strategies (**Section 8.2~~8.1.2~~**). The pumping management framework provides a suite of administrative procedures, programs, and policies that describe how the GSAs will manage and monitor groundwater extractions. Implementation activities such as monitoring, annual reporting, and GSP updates are discussed in further detail in **Chapter 9**. Demand reduction strategies are a broad and strategic set of actions intended to reduce water demand, some of which may be incentivized by State programs or policies, or by a pumping management framework.

As described in **Chapter 5**, the Subbasin has experienced overdraft conditions. Per § 354.44(b)(2), the GSP must describe Projects or MAs, including a quantification of demand reduction or other methods, for the mitigation of overdraft. Several Projects identified in earlier sections of this chapter would increase the available water in the Subbasin through increased recharge or use of alternate supplies and are expected to reduce the groundwater deficit sufficiently to achieve the Subbasin's sustainability goal. Additionally, Group 3 projects may contribute to further improve groundwater conditions. MAs presented in the GSP are designed for the GSAs to promptly implement, while Projects are being designed and implemented. The extent and effectiveness of the MAs described in **Sections 8.1.1~~8.1.1~~** and 8.2~~8.1.2~~ are not yet known, however, these programs will be developed for the GSAs to readily arrest groundwater level decline and storage deficits.

While the tools described in this section will be available for implementation Subbasin-wide, implementation may be prioritized in areas based on groundwater conditions. As such, it is anticipated that responsibility for implementing MAs will correspond with the relative

contribution of each Management Area to overdraft and impacts associated with other sustainability criteria.

Multiple MAs are presented to allow the GSAs flexibility in their response to changing groundwater conditions and as data gaps and uncertainties are addressed during GSP implementation. However, it is anticipated that not all MAs will need to be applied during the GSP implementation period. In addition, implementation and/or escalation of MAs will be based on ongoing monitoring of groundwater conditions using the monitoring network. Monitoring data will be used to assess the need for MAs in the Subbasin as a whole and in specific areas. In general, the potential for undesirable results to be approached, exceedances of minimum thresholds, and poor Project performance will serve as triggers for scaling and implementing MAs in both a targeted and proportional manner, consistent with conditions observed in the Subbasin. The full scope of MAs including program descriptions, triggering criteria, GSA authorities, costs and funding, management of water sources, monitoring processes, and applicable areas will be developed by January 31, 2026, in accordance with the resolution.

**Table 8-~~Table 8-1~~** lists the MAs described in the subsections that follow. Each MA description is organized to address the applicable regulatory requirements:

- Management Action Description: 23 CCR §354.44(b)
- Public Notice: 23 CCR §354.44(b)(1)(B)
- Permitting and Regulatory Process: 23 CCR §354.44(b)(3)
- Expected Benefits: 23 CCR §354.44(b)(4), §354.44(b)(5)
- Implementation Criteria, Status, and Plan: 23 CCR §354.44(b)(1)(A); §354.44(b)(4); §354.44(b)(6)
- Water Source and Reliability: 23 CCR §354.44(b)(6)
- Legal Authority: 23 CCR §354.44(b)(7)
- Estimated Costs and Funding Plan: 23 CCR §354.44(b)(8)
- Management of Groundwater Extractions and Recharge: 23 CCR §354.44(b)(9)

*Summary of Criteria for Project Implementation (23 CCR §354.44(b)(1)(A))*

MAs described in this section will be fully developed into MA-specific policies, resolutions, and/or implementation plans during the first years of GSP implementation as discussed in the subsequent sections. These MAs will be implemented by the GSAs, indicated by forthcoming triggering criteria, to achieve and maintain long-term sustainable groundwater management across the Subbasin. The GSAs will prioritize development of the Pumping Management Framework MAs. These MAs are based on authorities granted to the GSAs through SGMA as a means to establish groundwater extraction limitations and allocations, regulate the pumping of groundwater, and implement special taxes, assessments, and user fees. The Pumping Management Framework provides the GSAs with readily implementable methods to restrict groundwater extraction throughout the entire or portions of the Subbasin. This approach will be informed by continued monitoring of groundwater

conditions, using the monitoring network and methods that will be established in forthcoming MA-specific policies, resolutions, and/or implementation plans. MA's and MA-specific policies will be developed with public participation and input from stakeholders within the Subbasin.

**Table 8-1: List of Management Actions**

| Category | Number | Proponent[2] | Management Action | Primary Mechanism(s)[1] | Partner(s) |
|---|---|---|---|---|---|
| **Pumping Management Framework** | 1 | Modesto Subbasin GSAs | Groundwater Allocation and Pumping Management Program | Pumping Reduction | N/A |
| | 2 | Modesto Subbasin GSAs | Groundwater Extraction and Surface Water Reporting Program | Pumping Reduction | N/A |
| | 3 | Modesto Subbasin GSAs | Groundwater Extraction Fee | Pumping Reduction | N/A |
| | 4 | Modesto Subbasin GSAs | Groundwater Pumping Credit Market and Trading Program | Pumping Reduction | N/A |
| **Demand Reduction Strategies** | 5 | Modesto Subbasin GSAs | Voluntary Conservation and/or Land Fallowing | Conservation/ Land Fallowing | N/A |
| | 6 | Modesto Subbasin GSAs | Conservation Practices | Conservation | N/A |
| **Dry Well Mitigation** | 7 | Modesto Subbasin GSAs | Dry Well Mitigation Program | (multiple) | N/A |

*[1]The primary mechanism of the MA as conceptualized. MAs may support groundwater sustainability through multiple mechanisms during implementation.*

*[2] It is anticipated that MAs will be implemented by the GSAs or by each GSA member agency as needed to mitigate overdraft within their jurisdictional areas and assure that the SMC adopted in **Chapter** Error! Reference source not found.~~6~~ are met.*

### 8.1.1. Pumping Management Framework

The Pumping Management Framework consists of four tiered MAs that would be implemented in a prioritized order as determined by the GSAs. Not all MAs may be needed – Subbasin conditions will be evaluated against the sustainability management criteria when considering whether an additional tiered MA is needed. The tiered order of implementing Pumping Management Framework MAs is:

1. ~~Groundwater Allocation Program (MA 1)~~ – see Section 8.1.1.1
2. ~~Groundwater Extraction and Surface Water Accounting Reporting or Monitoring Program (MA 2)~~ – see Section 8.1.1.1~~8.1.1.2~~
3. ~~Groundwater Extraction Fee (MA 3)~~ – see **Section 8.1.1.1~~8.1.1.3~~**
4. ~~Groundwater Pumping Credit Market and Trading Program (MA 4)~~ – see **Section 8.1.1.3~~8.1.1.4~~**

### 8.1.1.1. Groundwater Allocation Program (Management Action 1)

#### *8.1.1.1.1. Management Action Description*

As previously discussed, the Subbasin has overdraft conditions. While the Projects identified in Sections 8.2 may provide the Subbasin with water necessary to achieve the sustainability goal, management actions will be necessary. As a result, GSAs will develop a Groundwater Allocation Program (Management Action) to allocate the sustainable yield of native groundwater in the Subbasin as a policy-driven approach to arrest groundwater level declines. The GSAs are currently in the process of evaluating and developing methods for the Management Action. In accordance with the resolution, management actions will be developed by January 31, 2026, and implemented by January 31, 2027.

Outlined here is a framework for how the Modesto Subbasin GSAs might develop and implement pumping allocations in the Subbasin based on the magnitude of projected overdraft estimated by Subbasin modeling.

There are four key steps to developing pumping allocations:

1. Identify the sources of water contributing to the native yield and estimate the quantity of native yield for the Subbasin annually (see **Chapter 5** of this GSP)
2. Estimate the amount of native yield that can be used annually consistent with the Sustainable Yield
3. Allocate native yield to groundwater right holders based on:
    a. Priority of right
    b. Prescription
    c. Other legal principles, such as reasonable use
4. Determine how to account for new/additional supplies.
5. Develop a timeline for reducing pumping to achieve allocations over time.

The Groundwater Allocation Program is currently conceptual and actively being evaluated and developed. There are numerous ways to structure and implement an allocation program which will need to be further evaluated, developed, and refined by the GSAs prior to implementation.

#### *8.1.1.1.2. Public Noticing*

Development of a Groundwater Allocation Program requires substantial public input to understand the potential impacts of groundwater allocations and baseline needs that should be accounted for. The Modesto Subbasin GSAs anticipates that public outreach would include multiple public workshops and meetings, potential website and/or email announcements, along with other public notices for the workshops. The Groundwater Allocation Program would be circulated for public comment before finalized, though final approval of the plan would be made by the Modesto Subbasin GSAs in partnership with their respective member agencies. Implementation of the program may be confined to specific Management Areas.

#### *8.1.1.1.3. Permitting and Regulatory Process*

Development of a Groundwater Allocation Program would not require any permitting but would require consideration of existing water rights and applicable permits and regulations associated with groundwater pumping in the Subbasin.

#### *8.1.1.1.4. Expected Benefits*

***Benefits to Sustainability Indicators***

Sustainability indicators benefitting from the Groundwater Allocation Program include:

- Chronic lowering of groundwater levels – By reducing groundwater demand, this MA would reduce pumping and pumping-related contributions to chronic lowering of groundwater levels.
- Reduction of groundwater storage – Reduced pumping throughout the Subbasin contributes to a smaller rate of reduction in groundwater storage.
- Degraded water quality – This MA does not address this sustainability indicator.
- Land subsidence – Reduced groundwater pumping may reduce the risk of subsidence associated with lowering of groundwater levels.
- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***

Benefits to disadvantaged communities overlap with the benefits described above for sustainability indicators.

***Volumetric Benefits to Subbasin Groundwater System***

The volumetric benefit to the groundwater system will depend on the structure of the allocation framework and will be further studied when the program is fully developed by the GSAs.

#### *8.1.1.1.5. Implementation Criteria, Status, and Plan*

The allocation program and its criteria for implementation are still under development. It is anticipated that the program will be implemented after groundwater conditions in the Subbasin do not improve as expected in conjunction with implementation of Group 1 and

Group 2 Projects. These conditions may include unstable groundwater levels, groundwater levels observed consistently nearing interim milestones, continued overdraft conditions, or increased amounts of pumping beyond the sustainable yield.

The program will be developed by January 31, 2026, and implemented by January 31, 2027, in accordance with the resolution. The intent is that groundwater users will have a year to adapt and adjust their pumping operations as necessary to meet the requirements of the program. This resolution was adopted by the STRGBA GSA and can be found in **Appendix X**. The progress of this program will be presented in Annual Reports and is expected to be completed by the forthcoming periodic evaluation.

#### *8.1.1.1.6. Water Source and Reliability*

This program does not rely on the supplies from outside the Subbasin because it is a planning effort that will result in conservation. It will support overall supply reliability by reducing overdraft in the Subbasin and moving the Subbasin towards sustainability.

#### *8.1.1.1.7. Legal Authority*

Under SGMA, GSAs have authority to establish groundwater extraction allocations. Specifically, SGMA authorizes GSAs to control groundwater by regulating, limiting, or suspending extractions from individual wells or extractions in the aggregate.[1] SGMA and GSPs adopted under SGMA cannot alter water rights.

#### *8.1.1.1.8. Estimated Costs and Funding Plan*

Development and initiation of an allocation program is expected to include upfront costs to conduct the analysis, set up the tracking system, and conduct outreach. Costs to implement the plan would depend on the level of enforcement required to achieve allocation targets and the level of outreach required annually to remind users of their allocation for a given year. The Groundwater Allocation Program would also include an annual cost that covers ongoing enforcement and implementation. Because the Groundwater Allocation Program is in the preliminary stages of development, no costs have been estimated. Sources of funding will be determined during the development of the program.

#### *8.1.1.1.9. Management of Groundwater Extractions and Recharge*

The Groundwater Allocation Program would include provisions for the recovery of groundwater levels and groundwater storage during non-drought periods.

### 8.1.1.2 Groundwater Extraction and Surface Water Accounting Reporting or Monitoring Program (Management Action 2)

#### *8.1.1.2.1 Management Action Description*

As required in SGMA regulations, groundwater extractions have been calculated by the GSAs for this GSP using the CV2SIM-TM model (**Appendix C**). Presently, the GSAs intend to continue with their current data collection and groundwater extraction monitoring

[1] California Water Code § 10726.4(a)(2)

techniques. This MA is provided as an alternative to allow the GSAs flexibility and additional options in the event more or alternative forms of data are needed in the future.

There are several ways that this MA could be implemented by the GSAs. For this plan, two potential components have been developed which include a voluntary program and a comprehensive program. However, these two potential components are provided only as options, and likely would be implemented in Management Areas if the triggering criteria is met. If initiated, the GSAs will further develop options before implementation.

- Voluntary program - This program is intended to provide an annual reporting of groundwater use by agricultural and other well owners and surface water transfers for in-lieu use. The Data Management System will be set up with appropriate input data forms for voluntary reporting of groundwater use as well as other relevant information, such as irrigated acreage, crop type, and sources of water.

- Comprehensive program - This program is a more robust and elaborate strategy for reporting groundwater extraction that is intended to cover all groundwater users and surface water transfers for in-lieu use. Implementation of this program may incorporate satellite imagery to estimate the evapotranspiration of crops by parcel. Additionally, this strategy can take the form of requiring the installation of meters at all agricultural and other non-exempt wells.

The Groundwater Extraction Reporting Program would exclude *de minimis* extractors (domestic use of 2 AF or less per year) but may also include surface water accounting in the Subbasin due to the amount of surface water transferred from MID and OID to the NDE area used for in-lieu and direct recharge.

#### *8.1.1.2.2 Public Noticing*

Successful implementation of either component of this program would require the support and coordination of member agencies, well owners throughout the Subbasin, and other stakeholders.

The voluntary program would be noticed via public outreach and education about the logistics of participating in the program as well as the purpose and importance of doing so. Outreach may include public notices, meetings, potential website presence and email announcements.

The comprehensive program would involve more of a robust planning process. The Modesto Subbasin GSAs anticipate that public outreach and education on the potential structure of this program would be necessary, including public notices, meetings, potential website presence and email announcements.

#### *8.1.1.2.3 Permitting and Regulatory Process*

The Groundwater Extraction Reporting Program is not expected to require any permitting or regulatory involvement.

#### *8.1.1.2.4 Expected Benefits*

***Benefits to Sustainability Indicators***

Direct measurement of groundwater extractions may not have direct impacts on sustainability indicators but would improve future water budget and sustainable yield refinement. The accurate and widespread collection of extraction data would provide the Modesto Subbasin GSAs with critical information to assist in management of the Subbasin, development of additional MAs, and monitoring the success of the GSP against the sustainable management criteria.

***Benefits to Disadvantaged Communities***

The Groundwater Extraction Reporting Program would exclude *de minimis* extractors, including those in disadvantaged communities.

***Volumetric Benefits to Subbasin Groundwater System***

Additional measurements and reporting of groundwater extractions would provide a higher resolution of groundwater use in the Subbasin. The addition of these data would provide the GSAs with the ability to further improve current and projected water budgets and basin storage calculations.

#### *8.1.1.2.5 Implementation Criteria, Status, and Plan*

The Modesto Subbasin GSAs will develop Annual Reports to evaluate progress toward meeting the sustainability goal. If monitoring efforts demonstrate that the Projects and MAs being implemented are not effective in achieving stated targets, the GSAs will convene a working group to evaluate the implementation of additional supply-side and demand-side actions, such as the implementation of tiered approaches of the Water Accounting Framework.

#### *8.1.1.2.6 Water Source and Reliability*

This management action is an accounting and monitoring program and as such does not rely on water availability. The Groundwater Extraction and Surface Water Accounting Reporting or Monitoring Program is a planning effort that will support overall supply reliability by providing additional information for better management of the Subbasin and moving the Subbasin towards sustainability.

#### *8.1.1.2.7 Legal Authority*

SGMA provides GSAs with the authority to regulate the pumping of groundwater in order to stabilize the region's water supply and recharge aquifers. As such, the GSAs have the authority to: "control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, . . . or otherwise establishing groundwater extraction allocations" (CWC, §10726.4(a)).

#### *8.1.1.2.8 Estimated Costs and Funding Plan*

The estimated costs for the Groundwater Extraction Reporting Program would vary depending on the components that are implemented:

- The costs for the voluntary component are minimal and include:
  - One-time costs for initial public outreach and setup of tools and procedures to receive and compile voluntary submitted data
  - Ongoing annual administrative costs to review and compile the voluntarily submitted data as well as continued outreach
- The costs for implementing the more comprehensive program would be larger as they may include:
  - One-time costs to develop a remote sensing system or a more comprehensive program to track and monitor well meters, in addition to public outreach
  - Ongoing annual costs to administer the program, whether via purchase and analysis of the latest remote sensing data or to track and collect data from well meters

The Groundwater Extraction Reporting Program is in the preliminary stages of discussion and possible consideration. Therefore, no costs have been estimated for its development and implementation. Such costs would be developed should the Modesto Subbasin GSAs decide to pursue a program in the future.

#### *8.1.1.2.9 Management of Groundwater Extractions and Recharge*

This program would directly develop and expand the reporting of groundwater extractions, including during both dry and wet periods, to support better management of the Subbasin.

### 8.1.1.3 Groundwater Extraction Fee (Management Action 3)

#### *8.1.1.3.1 Management Action Description*

This strategy entails setting up a Groundwater Extraction Fee structure for each groundwater user. The fee structure could work in conjunction with the groundwater allocation and reporting programs, such that groundwater use above a certain allocation can be subject to a fee. This strategy could be implemented within areas of the Subbasin where triggering criteria has been met, as needed to achieve the sustainability goals.

Revenue from these fees could then be used to pay for a variety of activities, such as the construction of water infrastructure, protection of groundwater, proper construction and destruction of wells to prevent contamination, groundwater recharge and recovery projects, purchase of imported water or other supplies to replenish the groundwater basin, and/or purchasing and permanent fallowing of marginally productive agricultural lands dependent on groundwater. Fees could also be used to pay for administration, enforcement, and implementation of the MA.

#### *8.1.1.3.2 Public Noticing*

Development of a Groundwater Extraction Fee would require substantial public input to understand the potential impacts and needs that should be considered. The Modesto Subbasin GSAs anticipate that public outreach would include multiple public workshops and meetings, potential website and/or email announcements, along with other public notices for the workshops. The Groundwater Extraction Fee framework would be circulated for public comment before being finalized, though final approval of the plan would be made by the Modesto Subbasin GSAs in partnership with their member agencies.

Additional noticing for the public would be conducted consistent with permitting requirements in the case of the enactment of fees. GSA outreach may include public notices, meetings, website or social media presence, and email announcements. Prior to implementing any fee or assessment program, the GSAs would complete a rate assessment study or other analysis if required by the regulatory requirements.

Per Water Code §10730, prior to imposing or increasing a fee, a groundwater sustainability agency shall hold at least one public meeting, at which oral or written presentations may be made as part of the meeting. Notice of the time and place of the meeting shall include a general explanation of the matter to be considered and a statement that the data required by this section is available. The notice shall be provided by publication pursuant to §6066 of the Government Code, by posting notice on the Internet Web site of the groundwater sustainability agency, and by mail to any interested party who files a written request with the agency for mailed notice of the meeting on new or increased fees. A written request for mailed notices shall be valid for one year from the date that the request is made and may be renewed by making a written request on or before April 1 of each year. At least 20 days prior to the meeting, the groundwater sustainability agency shall make available to the public data upon which the proposed fee is based. Any action by a groundwater sustainability agency to impose or increase a fee shall be taken only by ordinance or resolution.

#### *8.1.1.3.3 Permitting and Regulatory Process*

Fees imposed pursuant to Water Code §10730 shall be adopted in accordance with all applicable laws.

A fee or charge shall not be extended, imposed, or increased by any agency unless it meets all of the following requirements:

- Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
- Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
- The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.

- No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question. Fees or charges based on potential or future use of a service are not permitted. Standby charges, whether characterized as charges or assessments, shall be classified as assessments and shall not be imposed without compliance with Section 4 (Water Code §10730).
- No fee or charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library services, where the service is available to the public at large in substantially the same manner as it is to property owners.

#### *8.1.1.3.4 Expected Benefits*

***Benefits to Sustainability Indicators***

Collection of groundwater extraction fees incentivizes the use of supplemental or alternative water supplies where fees can also fund activities/projects that increase groundwater supplies, such as groundwater recharge, thus reducing declines in groundwater elevations and groundwater storage. Other sustainability indicators benefitting from the Groundwater Extraction Fee program include:

- Degraded water quality – Funded activities and projects can also reduce degradation of groundwater quality (such as proper construction/destruction of wells to prevent contamination).
- Land subsidence – Reduced groundwater pumping would reduce the risk of subsidence associated with lowering of groundwater levels.
- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***

Any fees would comply with CWC, §10730(a) and shall exclude *de minimis* extractors from fees, where appropriate.

***Volumetric Benefits to Subbasin Groundwater System***

The volumetric benefit to the groundwater system would depend on the framework of the fee implemented and would be further studied as the Groundwater Extraction Fee framework was developed by the GSAs.

#### *8.1.1.3.5 Implementation Criteria, Status, and Plan*

The Modesto Subbasin GSAs will develop Annual Reports to evaluate progress toward meeting the sustainability goal. If monitoring efforts demonstrate that the Projects and MAs being implemented are not effective in achieving stated targets, the GSAs will convene a working group to evaluate the implementation of additional supply-side and demand-side

actions, such as the implementation of tiered approaches in the Water Accounting Framework.

#### *8.1.1.3.6 Water Source and Reliability*

The Groundwater Extraction Fee program will apply in both drought and non-drought periods.

#### *8.1.1.3.7 Legal Authority*

The GSAs possess the legal authority to implement special taxes, assessments, and user fees within the Project proponent service area or area of Project benefit. Fees imposed include fixed fees and fees charged on a volumetric basis, including, but not limited to, fees that increase based on the quantity of groundwater produced annually, the year in which the production of groundwater commenced from a groundwater extraction facility, and impacts to the basin.

#### *8.1.1.3.8 Estimated Costs and Funding Plan*

While there are certain administrative costs anticipated with the development and implementation of a Groundwater Extraction Fee, the Groundwater Extraction Fee itself is a potential mechanism to fund the costs of groundwater management. This includes, but is not limited to, the following:

- Administration, operation, and maintenance, including a prudent reserve
- Acquisition of lands or other property, facilities, and services
- Supply, production, treatment, or distribution of water
- Other activities necessary or convenient to implement the plan

#### *8.1.1.3.9 Management of Groundwater Extractions and Recharge*

This program, in conjunction with the Groundwater Extraction Reporting Program, would directly develop and expand the reporting of groundwater extractions, including during both drought and non-drought periods, to support better management of the Subbasin.

### 8.1.1.4 Groundwater Pumping Credit Market and Trading Program (Management Action 4)

#### *8.1.1.4.1 Management Action Description*

Groundwater credit markets and trading programs can be used to exchange and trade the allocation of groundwater use by each landowner within the Subbasin. This strategy is contingent upon implementation of the groundwater reporting and allocation programs (MAs 1 and 2), so that the credit and trading market can monitor the exchange of groundwater allocations among the landowners and/or the GSAs. Should the Modesto Subbasin GSAs decide to pursue a program in the future, they would seek guidance from agencies with experience in water markets to identify options for communications and outreach with stakeholders, program design, and mechanisms to ensure that non-participating stakeholders are not adversely impacted by the program.

#### *8.1.1.4.2 Public Noticing*

Development and implementation of a Groundwater Pumping Credit Market and Trading Program would require substantial public input to understand the potential impacts and nuances of implementing such a program. The Modesto Subbasin GSAs anticipate that public outreach would include multiple public workshops and meetings, potential website and/or email announcements, along with other public notices for the workshops. The program plan would be circulated for public comment before being finalized, though final approval of the plan would be made by the Modesto Subbasin GSAs in partnership with their member agencies.

#### *8.1.1.4.3 Permitting and Regulatory Process*

Permitting and other regulatory compliance issues will be identified and addressed when the program is being further explored and developed, consistent with SGMA §10726.4 (a) (3 & 4).

#### *8.1.1.4.4 Expected Benefits*

***Benefits to Sustainability Indicators***

Sustainability indicators benefitting from the Groundwater Pumping Credit Market and Trading Program include:

- Chronic lowering of groundwater levels – By reducing groundwater demand, this MA would reduce pumping and pumping-related contributions to chronic lowering of groundwater levels.
- Reduction of groundwater storage – Reduced pumping throughout the Subbasin contributes to a smaller rate of reduction in groundwater storage.
- Degraded water quality – This MA does not address this sustainability indicator.
- Land subsidence – Reduced groundwater pumping would reduce the risk of subsidence associated with lowering of groundwater levels.
- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***

Benefits to disadvantaged communities overlap with the benefits described above for sustainability indicators.

***Volumetric Benefits to Subbasin Groundwater System***

The volumetric benefit to the groundwater system will depend on the framework of the credit market and trading program implemented and would be further studied when the program was developed by the GSAs.

#### *8.1.1.4.5 Implementation Criteria, Status, and Plan*

The Modesto Subbasin GSAs will develop Annual Reports to evaluate progress toward meeting the sustainability goal. If monitoring efforts demonstrate that the Projects and MAs being implemented are not effective in achieving stated targets, the GSAs will convene a working group to evaluate the implementation of additional supply-side and demand-side actions, such as the implementation of tiered approaches in the Pumping Management Framework.

#### *8.1.1.4.6 Water Source and Reliability*

The Subbasin area will be the source of groundwater and will be limited by the hydrology of the region.

#### *8.1.1.4.7 Legal Authority*

SGMA §10726.4 (a) (3 & 4) provide legal authority for groundwater transfer and accounting programs.

#### *8.1.1.4.8 Estimated Costs and Funding Plan*

The Groundwater Pumping Credit Market and Trading Program is in preliminary stages of discussion and possible consideration. Therefore, no costs have been estimated for its development and implementation. Such costs would be developed should the Modesto Subbasin GSAs decide to pursue a program in the future. Costs would likely include additional staffing required to administer the program and would be borne by the participants.

#### *8.1.1.4.9 Management of Groundwater Extractions and Recharge*

The implementation of a Groundwater Pumping Credit Market and Trading Program will include provisions for the recovery of groundwater levels and groundwater storage during non-drought periods.

### 8.1.2. Demand Reduction Strategies

Demand reduction strategies will be developed to manage the agricultural and urban water demands in the Subbasin. These strategies could be implemented in the form of voluntary conservation and/or land fallowing (see **Section 8.1.2.1~~8.1.1.1~~**) or other urban and agricultural conservation practices (see **Section 8.1.2.2~~8.1.1.2~~**). While conservation practices are expected to be implemented throughout GSP implementation, specific strategies are in preliminary stages of discussion and possible consideration. Should the Modesto Subbasin GSAs decide to pursue a program in the future, the program would be implemented as necessary in a targeted and proportional manner consistent with conditions observed in the Subbasin. Similarly, the Conservation Practices MA is expected to be implemented adaptively.

#### 8.1.2.1. Voluntary Conservation and/or Land Fallowing (Management Action 5)

##### *8.1.2.1.1. Management Action Description*

Voluntary Conservation and/or Land Fallowing covers several strategies that can be designed to achieve both temporary and permanent water demand reduction. Should the Modesto Subbasin GSAs decide to pursue such strategies, this MA would assess options and develop a program to incentivize voluntary conservation and/or fallowing strategies in close coordination and collaboration with the landowners. Examples of this strategy could include repurposing of lands growing lower value crops. These lands could be dry farmed, fallowed in rotation, or used for recreation, habitat restoration, groundwater recharge, or solar power generation. This MA would also try to prioritize those lands that are more favorable for groundwater recharge projects.

Temporary or permanent land fallowing could also be combined with recharge projects through the application of surplus surface water supplies to the fallowed lands.

##### *8.1.2.1.2. Public Noticing*

A successful Voluntary Conservation and/or Land Fallowing program will require a comprehensive and strategic outreach effort, including multiple public workshops and meetings, potential website and/or email announcements, along with other public notices for the workshops. The outreach will be targeted to both potential participants of the program (landowners) as well as other stakeholders who may be impacted by changes to land and water use.

##### *8.1.2.1.3. Permitting and Regulatory Process*

Preparation of a CEQA evaluation for a fallowing program will identify potential environmental impacts and identify feasible alternatives or feasible mitigation measures. Establishment of a voluntary land fallowing program is expressly authorized under SGMA (CWC, §10726.2(c)). The fallowing program, including program standards, will be developed and undergo CEQA review as necessary.

##### *8.1.2.1.4. Expected Benefits*

***Benefits to Sustainability Indicators***

Sustainability indicators that could benefit from Voluntary Conservation and/or Land Fallowing include:

- Chronic lowering of groundwater levels – By reducing groundwater demand, this MA would reduce pumping and pumping-related contributions to chronic lowering of groundwater levels.
- Reduction of groundwater storage – Reduced pumping throughout the Subbasin contributes to a smaller rate of reduction in groundwater storage.
- Land subsidence – Depending on the location of land fallowing or conservation, reduced pumping stress on local aquifer(s) may reduce the potential for subsidence.

- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***

Benefits to disadvantaged communities overlap with the benefits described above for sustainability indicators. Land repurposing can also provide other ancillary benefits to local communities, such as recreation.

***Volumetric Benefits to Subbasin Groundwater System***

The volumetric benefit to the groundwater system would depend on the extent to which a Voluntary Conservation and/or Land Fallowing program is adopted and would be further studied when the program is implemented by the GSAs.

#### *8.1.2.1.5. Implementation Criteria, Status, and Plan*

Temporary fallowing is a quick way to reduce demand with no capital costs or infrastructure needed. Because it is inexpensive, it can be implemented earlier and quicker while other long-term solutions like land repurposing are investigated. The Modesto Subbasin GSAs may explore options for encouraging voluntary and temporary fallowing during GSP implementation while developing a more structured program and exploring funding opportunities.

The Voluntary Conservation and/or Land Fallowing program is in preliminary stages of discussion and consideration. Should the Modesto Subbasin GSAs decide to pursue a program in the future, the program would be implemented as necessary in a targeted and proportional manner consistent with conditions observed in the Subbasin. To maximize recharge potential, the preservation lands that are more favorable for recharge projects could be prioritized while developing this MA. The implementation timeline has yet to be determined but will be provided in GSP Annual Reports and five-year updates when known. Any future changes in implementation would be communicated with the public and other agencies and would be documented in GSP Annual Reports and five-year updates.

#### *8.1.2.1.6. Water Source and Reliability*

This program does not rely on the supplies from outside the Subbasin because it is a planning effort that will result in conservation. It will support overall supply reliability by reducing overdraft in the Subbasin and moving the Subbasin towards sustainability.

#### *8.1.2.1.7. Legal Authority*

The GSAs have authority to "provide for a program of voluntary fallowing of agricultural lands or validate an existing program" (CWC, §10726.2(c)).

This MA carries forward the policy of the state and satisfies SGMA requirements by establishing a voluntary program that encourages water within the Subbasin to be dedicated to beneficial uses of water in a manner designed to achieve the sustainability goals and to protect against undesirable results.

#### *8.1.2.1.8. Estimated Costs and Funding Plan*

The Voluntary Conservation and/or Land Fallowing program is in preliminary stages of discussion and possible consideration. Therefore, no costs have been estimated for its development and implementation. Such costs would be developed, should the Modesto Subbasin GSAs decide to pursue a program in the future. Separately, multiple funding programs exist as a potential source of revenue for individual landowners looking at options for land repurposing, including (EDF, 2021):

- Mitigation or Conservation Banks
- Conservation Easements
- Solar Rentals
- Grazing Leases
- Converting to Low Water Intensity Crops
- Federal and State Grant Funding Programs

#### *8.1.2.1.9. Management of Groundwater Extractions and Recharge*

This MA encourages the conservation of water; this will be applicable during both drought and non-drought conditions.

### 8.1.2.2. Conservation Practices (Management Action 6)

#### *8.1.2.2.1. Management Action Description*

This MA would create a program to support the use of conservation practices in both urban and agricultural sectors.

Urban water suppliers are already obligated to consider demand reduction and conservation efforts during dry periods. These demand MAs are described in their respective Urban Water Management Plans (UWMPs). These include:

- City of Modesto Urban Water Management Plan (West Yost Associates, 2016b)
  - https://www.modestogov.com/860/Urban-Water-Management-Plan
- Modesto Irrigation District Urban Water Management Plan (West Yost Associates, 2021)
  - https://wuedata.water.ca.gov/public/uwmp_attachments/2173444449/R%20-%20418%20-%20City%20of%20Modesto_MID%20-%20Final%202020%20UWMP%20%20-%2006-23-21.pdf
- City of Riverbank Urban Water Management Plan (KSN Inc, 2016)
  - https://www.riverbank.org/610/Urban-Water-Management-Plan-WSCP
- City of Oakdale Urban Water Management Plan (MCR Engineering, 2015)
  - https://cadwr.app.box.com/s/hg3k8bc9vuka689jkh1x4f9i1n58ey9a/file/521558561581
- City of Waterford (covered under City of Modesto 2015 UWMP)

In addition, SB 606 and AB 1668, both signed into law in May 2018, are laws that introduce conservation mandates that will cap indoor residential use and set a target for efficient outdoor landscape irrigation based on local climate and size of landscaped areas. Urban water suppliers will be required to report on progress to meeting urban water use objectives beginning in 2023 and comply with them beginning in 2028.

In addition to meeting urban water use objectives, this MA could include changing standards for storm drainage so that storm flows do not discharge straight to a river, creek, or canal, as contemplated by the City of Modesto as a potential Group 3 Project. This would help increase the sustainability footprint of the City of Modesto as it grows. Currently approximately 36% of the City of Modesto area drains to a river or canal, while approximately 64% is captured for local recharge. If the City of Modesto adopts new Storm Drain Standards, 100% of runoff from newly developed areas would reach a retention system and contribute to recharge.

Agricultural water suppliers serving more than 25,000 irrigated acres must adopt an Agricultural Water Management Plan (AWMP) that include reports on the implementation status of specific Efficient Water Management Practices required by the Water Conservation Act of 2009 (SB X7-7). Agencies that have developed AWMPs include:

- Modesto Irrigation District Agricultural Water Management Plan
  - https://www.mid.org/water/awmp/default.html
- Oakdale Irrigation District Agricultural Water Management Plan
  - https://wuedata.water.ca.gov/public/awmp_attachments/3350354850/OID%202020%20AWMP%20FINAL%20210323.pdf

The Modesto Subbasin GSAs may choose to evaluate the existing UWMPs and AWMPs in the Subbasin and either expand upon minimum requirements to increase the impact of such programs or implement similar conservation practice programs in other areas of the Subbasin that may not be covered under an UWMP or AWMP.

Notably, conservation practices must be considered in the greater context of the Subbasin water budget, especially at the nexus between on-farm water use and groundwater sustainability. In areas where groundwater is the primary or sole water supply, conservation practices that reduce water demand may also reduce groundwater consumption, but conservation practices may also have unintended consequences that impede water conservation and sustainable groundwater management. Some of these consequences directly result from irrigation efficiency improvements: applying less water to an area and reducing the gap between irrigation and consumptive use also reduces deep percolation and seepage to the groundwater system. Other consequences may stem from behavioral responses and changes in irrigation resulting from these technologies and policies. If less water can be used to produce the same amount of a crop product, growers may be inclined to use the same amount of water and produce more (Lankford, et al., 2020). Additional considerations on the promises, pitfalls, and paradoxes of irrigation efficiency in water management planning are described by Lankford et al. (2020).

Further details on any expansion of the Conservation Practices program are preliminary as of the time of publishing and would need to be developed and refined further during GSP implementation.

#### *8.1.2.2.2. Public Noticing*

The Modesto Subbasin GSAs anticipates that public outreach and education on the potential structure of the Conservation Practices program, as well as feasible monitoring and enforcement mechanisms, would be necessary to enable a successful program. Outreach may include public notices, meetings, potential website presence and email announcements. Initial program implementation would likely focus on voluntary compliance while the GSAs or GSAs member agencies consider the necessary elements to begin enforcing the program potentially by 2027 (five years after adopting and submitting the GSP). This date is contingent upon monitoring results and achievement of Interim Milestones.

#### *8.1.2.2.3. Permitting and Regulatory Process*

Development of a Conservation Practices program is not a Project as defined by the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) and would therefore not trigger either.

#### *8.1.2.2.4. Expected Benefits*

***Benefits to Sustainability Indicators***

Sustainability indicators benefitting from Conservation Practices include:

- Chronic lowering of groundwater levels – By reducing groundwater demand, this MA would reduce pumping and pumping-related contributions to chronic lowering of groundwater levels.
- Reduction of groundwater storage – Reduced pumping throughout the Subbasin contributes to a smaller rate of reduction in groundwater storage.
- Degraded water quality – This MA does not address this sustainability indicator.
- Land subsidence – Depending on the location of Conservation Practices, reduced pumping stress on local aquifer(s) may reduce the potential for subsidence.
- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***

Benefits to disadvantaged communities overlap with the benefits described above for sustainability indicators. Depending on how they are structured, urban conservation programs may also provide a financial benefit to individual users who reduce their water consumption, either via a lower water bill or reduced demand on a domestic well.

***Volumetric Benefits to Subbasin Groundwater System***

The volumetric benefit to the groundwater system will depend on the extent to which a Conservation Practices program is implemented and will be further studied if a program is developed by the GSAs.

#### *8.1.2.2.5. Implementation Criteria, Status, and Plan*

The implementation timeline has yet to be determined but will be provided in GSP Annual Reports and five-year updates when known. Any future changes in implementation would be communicated with the public and other agencies and would be documented in GSP Annual Reports and five-year updates.

#### *8.1.2.2.6. Water Source and Reliability*

This MA does not rely on the supplies from outside the Subbasin because it is a planning effort that will result in conservation benefits. It will support overall supply reliability by reducing groundwater demand in the Subbasin and moving the Subbasin towards sustainability.

#### *8.1.2.2.7. Legal Authority*

The Modesto Subbasin GSAs have the authority to develop a Conservation Practices program and may perform implementation and enforcement of practices via implementation of fees for noncompliance or through metering or other methods to quantify groundwater use. Mechanisms for enforcement would be outlined in the Conservation Practices program once developed and are expected to be enforced by the Modesto Subbasin GSAs and/or member agencies.

#### *8.1.2.2.8. Estimated Costs and Funding Plan*

Costs for UWMP and AWMP report preparation and submittals are ongoing for urban and agricultural water suppliers, respectively. Any future costs related to additional programming or program enforcement have yet to be developed.

#### *8.1.2.2.9. Management of Groundwater Extractions and Recharge*

This MA encourages the conservation of water; this will be applicable during both wet and dry conditions.

### 8.1.3. Dry Well Mitigation (Management Action 7)

This MA will develop and implement a well mitigation program to address and mitigate impacts from groundwater level declines that may occur when water levels drop below the MTs.

***Management Action Description***

This Dry Well Mitigation Program provides mitigation measures for water supply wells that have experienced adverse impacts due to declining groundwater levels, as described in Section 6.3.3.1. It will cover eligible mitigation claims accrued after January 31, 2022, the date the original GSP was adopted. This program will specify mitigation measures, organization of the program, estimated costs and means of funding. As stated in the

Resolution, this program will be developed and implemented no later than January 31, 2026, and will continue into perpetuity unless otherwise directed by the STRGBA GSA.

***Dry Well Mitigation Program Measures***

This Dry Well Mitigation Program will describe potential short-term and long-term measures to mitigate impacts to domestic wells. Mitigation measures may include, but are not limited to:

- Short-term emergency solutions, such as delivery of bottled water and/or water tanks. (Considered only for temporary mitigation while other actions are in progress.)
- Setting well pump at deeper depths, replacement of well pump, well rehabilitation or replacement of wells (including abandonment of existing wells).
- Connection to a public water system.

Long-term management actions and projects may include, but are not limited to:

- Reduction of groundwater demand around communities reliant on groundwater for drinking water, e.g., create buffer zones for drinking water users.
- Support for managed aquifer recharge near affected communities.

***Development of the Dry Well Mitigation Program***

The Dry Well Mitigation Program will be developed with potential elements including:

- One or more committees to develop and implement the program on behalf of the STRGBA GSA,
- A fund to support dry well mitigation and implementation of the program,
- Public outreach to publicize this program,
- Definition of eligibility criteria to guide well owners in considering a claims application for mitigation, such as well failure or diminished well yield due to groundwater levels declining below MTs,
- Definition of an application process, including application submittal, review and investigation of an application, decision-making, reporting, and agreements for approved applications.

#### 8.1.3.1. Public Notice

Public outreach and notice will be included in the Dry Well Mitigation Program. In addition, it is anticipated that the program plan will be circulated for public comment prior to being finalized, although final approval of the plan will be made by STRGBA GSA.

#### ~~8.1.1.1.~~8.1.3.2. Permitting and Regulatory Process

Permitting and other regulatory compliance issues will be identified as the program is developed, consistent with CWC §10726.4 (a) (3 & 4).

#### 8.1.3.3. Expected Benefits

***Benefits to Sustainability Indicators***

This Management Action provides a program for direct mitigation of impacts to domestic wells during early years of GSP implementation.

***Benefits to Disadvantaged Communities***

The Dry Well Mitigation Program provides significant direct benefits to disadvantaged communities who rely on groundwater and supply wells and additional potential benefits for other sustainability indicators (see analyses in Section 6.3.3.2).

***Volumetric Benefits to Subbasin Groundwater System***

The Dry Well Mitigation Program provides benefits to users of the groundwater basin storage who rely on reliability of groundwater and supply wells.

#### 8.1.3.4. Implementation Criteria, Status, and Plan

These components are described in **Section** Error! Reference source not found.~~8.1.3.1~~. The Dry Well Mitigation Program will be developed and implemented no later than January 31, 2026, and will continue into perpetuity unless otherwise directed by the STRGBA GSA.

#### ~~8.1.1.2.~~8.1.3.5. Water Source and Reliability

This program provides mitigation measures for domestic water supply wells that have experienced adverse impacts due to declining groundwater levels occurring after January 31, 2022, the date of adoption of the Joint GSP. It supports reliable access to groundwater in response to eligible claims at the discretion of the STRGBA GSA.

#### 8.1.3.6. Legal Authority

Legal authority for implementation of this action is provided by STRGBA GSA Resolution No. 2024-XX.

#### 8.1.3.7. Estimated Costs and Funding Plan

As stated in the 2024 Resolution, the GSA is establishing baseline funding amounting to $300,000 no later than January 31, 2026.

#### 8.1.3.8. Management of Groundwater Extractions and Recharge

This program involves mitigation for well failures or diminished well yields of existing domestic water supply wells. It is not intended to provide a net increase beyond original well yield. Accordingly, no long-term net increase in groundwater extractions is planned as part of this program. Long-term management actions and projects associated with this program may include support for managed aquifer recharge or in lieu recharge near impacted wells or areas vulnerable to wells going dry.

## 8.2. PROJECTS OVERVIEW

This section describes the Projects that are in place, planned, or may be considered for implementation in the ~~Modesto~~ Subbasin. In accordance with 23 CCR §354.44, Projects

were developed to help achieve and maintain the Subbasin sustainability goal by 2042 and avoid undesirable results over the GSP planning and implementation horizon. Broadly, Projects provide tools that can be used to achieve and maintain groundwater sustainability.

Projects were developed~~, where possible,~~ to be aligned with State grant program preferences and the Governor's Water Action Plan~~, by providing multiple~~. Projects, where possible, were designed to provide benefits~~, embracing innovation and new technologies, and benefitting~~ to surface water users, groundwater users, and disadvantaged communities (DACs) and ~~environmental water users. This Plan~~embrace innovation and new technologies. The GSP prioritizes Projects that contain multi-benefit approaches ~~that~~to address multiple needs and ~~stress~~expand the utilization of natural infrastructure, including the Subbasin itself for storage and the natural waterways and floodplains as recharge areas. ~~An emphasis is also placed on~~ Projects that are located in targeted areas to achieve maximum recharge results and address water level decline~~.~~ are a point of emphasis for the Subbasin to achieve its sustainability goal. Additionally, the ~~Plan stresses~~PMAs prioritize coordination among users, STRBGA GSA member agencies, and neighboring basins to improve the region's groundwater ~~condition and achieve~~conditions while achieving sustainability.

Projects were identified in the Modesto Subbasin through a several-month process involving the STRGBA GSA Technical Advisory Committee. Project information was provided by the STRGBA GSA and compiled into a draft list. The initial set of projects was reviewed further, and a final list of 13 possible projects was identified for inclusion in the GSP~~, representing a variety of~~. The project types ~~including~~presented in the GSP a include direct and in-lieu recharge, water recycling, and ~~advancements~~improvements to metering infrastructure. Projects are classified into three ~~groups~~categories based on project status: ~~Group 1, Group 2, and Group 3, as defined below.~~

- Group 1 – Projects that are in place and will continue to be implemented and expanded upon by specific participating agencies within the ~~Modesto~~ Subbasin to support groundwater management and GSP implementation.
- Group 2 – Projects that are~~, generally, readily implementable but may~~ still ~~be~~ in the ~~planning stages of~~ development ~~and may be pursued by specific participating agencies within~~ phase but are anticipated to be implemented shortly after adoption of the ~~Modesto Subbasin which will~~ GSP. Group 2 Projects are expected to greatly contribute to ~~attainment of Sustainable Management Criteria (SMC) and will support GSP implementation~~achieving the Subbasin's sustainability goal and continue supporting GSP implementation efforts. Project statuses and implementation schedules are presented in Sections 8.2.2 and 8.2.3 of the GSP.
- ~~Group 3~~Supplemental Projects – Projects which have been identified for consideration in the ~~Modesto~~ Subbasin ~~in the~~for future ~~subject to~~ GSA activities. Supplemental Projects are not currently planned for implementation; however, the GSAs will continue assessing their feasibility~~. These projects~~ to support local goals. Should these Projects be implemented, they would ~~provide~~support Group 1 and

Group 2 Projects' benefits in ~~contributing to the~~ attainment of ~~the sustainability goal and Sustainable Management Criteria (~~SMCs~~)~~ and ~~would otherwise~~ support ~~GSP implementation~~the sustainability goal.

Group 1 and Group 2 Projects are summarized in **Section 8.3~~8.23~~: Projects Developed for Implementation**. These Projects were analyzed as part of scenarios using the C2VSimTM model to estimate their benefit to the groundwater system over the projected planning period. The results of the model scenarios are discussed in **Section 8.5**: Plan for Achieving Sustainability.

~~Group 3~~Supplemental Projects are summarized in **Section ~~8.3: Conceptual~~8.4: Supplemental Projects ~~to be Implemented as Needed~~**. ~~Group 3~~. These Projects are currently not evaluated in detail~~,~~ and are described at a more general level, reflecting their conceptual nature and planning status ~~at this time.~~. Additional feasibility studies and details for these Projects ~~will~~may be developed in the future~~, as needed.~~ and their progress will be reported in Annual Reports and Periodic Evaluations should they be implemented.

The ~~proposed~~ Projects identified in this ~~chapter~~section will be either directly funded and implemented by the Project Proponent or will be subject to grant funding requests through state and federal funding opportunities. Project proponents are listed in **Table 8-~~Table 8-1~~2**.

Each ~~individual~~ Project proponent will manage the permitting and ~~other specific~~oversee implementation ~~oversight~~ for ~~its~~their own Projects. Inclusion of Projects in this GSP does not forego any obligations regarding individual Project implementation under local, state, or federal regulatory programs. While the GSAs do ~~not~~ have an obligation to oversee progress towards groundwater sustainability, they are not the primary regulator of land use, water quality, or environmental Project compliance. It is the responsibility of the Project-implementing agencies ~~of planned Projects~~ to ensure that they are collaborating with outside ~~trustee~~trustees and ~~responsible~~ regulatory agencies to ensure ~~their~~the Projects are in compliance with all applicable laws and permitting requirements.

The GSAs will collaborate with Project proponents and partners to track progress and support Project implementation. The implementation of PMAs will be enhanced by the development of ~~clear policy~~policies and guidance by the GSAs that ~~lays out~~consider applicable ~~sustainable management criteria (as described in **Chapter 6: Sustainable Management Criteria**) as well as~~SMCs and establish PMA-specific monitoring and reporting frameworks to facilitate adaptive management ~~toward Subbasin protection and sustainability. The~~. GSP implementation will include guidelines and protocols to coordinate implementation of Projects in such a way that ~~the Subbasin~~ sustainability is achieved ~~in a~~through coordinated ~~environment in~~efforts between the GSAs, ~~with the~~ Project proponents and sponsors, and other stakeholders.

Table 8-~~Table 8-1~~ shows the Projects ~~with~~within their respective groups. This represents an initial list of Projects ~~that will be further refined as~~; additional Projects ~~are identified~~may be added during GSP implementation, with updates included in Annual Reports and the ~~GSP~~

~~updates, as appropriate. A description~~Periodic Evaluations. Detailed descriptions of each Project ~~in more detail is~~ are provided in **Sections ~~8.2~~8.3** [~~Projects Developed for Near-Term Implementation (Groups 1 and 2)~~Projects Developed for Near-Term Implementation (Groups 1 and 2)] and **Section ~~8.3~~ [~~Other~~8.4** [Supplemental Projects ~~to be Implemented as Needed].~~

## Table 8-1:-2: List of Projects

| Number | Proponent(s) | Project Name | Primary Mechanism(s)[1] | Partner(s) | Group | Included in Modeling Scenario |
|---|---|---|---|---|---|---|
| **Urban Projects** | | | | | | |
| **1** | City of Modesto | Growth Realization of Surface Water Treatment Plant Phase II | In-lieuLieu Groundwater Recharge | N/A | 1 | Baseline |
| **2** | City of Modesto | Advanced Metering Infrastructure Project (AMI) | Conservation | N/A | 1 | × |
| **3** | City of Modesto | Storm Drain Cross Connection Removal Project | Stormwater Capture | N/A | 2 | × |
| **4** | City of Waterford | Project 3: Waterford/Hickman Surface Water Pump Station and Storage Tank | In-lieuLieu Groundwater Recharge | City of Modesto, MID | 2 | × |
| **In-Lieu & Direct Recharge Projects** | | | | | | |
| **5** | Non-District East Areas | Modesto Irrigation District In-lieu and Direct Recharge Project | Direct orand In-lieuLieu Groundwater Recharge | Modesto ID | 2 | × |
| **6** | NDE Areas | Oakdale Irrigation District In-lieu and Direct Recharge Project | Direct orand In-lieuLieu Groundwater Recharge | OID | 2 | × |
| **Flood Mitigation Projects** | | | | | | |
| **7** | NDE Areas | Tuolumne River Flood Mitigation and Direct Recharge Project | Direct Groundwater Recharge | Modesto ID | 2 | × |
| **8** | NDE Areas | Dry Creek Flood Mitigation and Direct Recharge Project | Direct Groundwater Recharge | Stanislaus County | 2 | × |
| **Potential FutureSupplemental Projects** | | | | | | |
| **9** | NDE Areas | Stanislaus River Flood Mitigation and Direct Recharge Project | Direct Groundwater Recharge | Stanislaus County | 3 | |
| **10** | City of Modesto | Detention Basin Standards Specifications Update | Groundwater Recharge | N/A | 3 | |
| **11** | NDE Areas | Recharge Ponds | Groundwater Recharge | N/A | 3 | |
| **12** | City of Oakdale | OID Irrigation and Recharge to Benefit City of Oakdale | Direct or In-lieuLieu Groundwater Recharge | N/A | 3 | |
| **13** | MID | MID FloodMARFlood-MAR Projects | Direct Groundwater Recharge | N/A | 3 | |

These Projects are considered as potential projects to support the GSP implementation. They are currently considered as alternative options and are not directly analyzed in this Chapter.

## 8.3. PROJECTS DEVELOPED FOR NEAR-TERM IMPLEMENTATION (GROUPS 1 AND 2)

This section describes the Projects that were developed for near-term implementation in the ~~Modesto~~ Subbasin~~, organized~~ and are categorized by proponent. This includes all Group 1 and 2 Projects identified in **Table 8-~~Table 8-1~~**. These Projects are either:

- Currently in place and will continue to be implemented by specific participating agencies~~, or are~~ with future expansions planned, or
- Currently planned and will be implemented or started by specific participating agencies in the next five years.

The Projects developed for near-term implementation were modeled in the C2VSimTM to estimate their potential benefit to the groundwater system over the projected future water budget period. Applicable assumptions used to model each Project are described in each Project description. The results of these model scenarios are discussed in **Section ~~8.5~~: 8.5: Plan for Achieving Sustainability~~Plan for Achieving Sustainability~~**. C2VSimTM modeling results of Group 1 and Group 2 Projects indicate that Projects developed for near-term implementation are expected to be sufficient in the Subbasin for reaching its sustainability goal. However, the GSAs understand that assumptions used in modeling may differ from actual conditions. As a result, the GSAs have begun developing Management Actions that will be implemented to arrest groundwater level declines by 2027 and raise groundwater levels after 2027. These Management Actions currently under development are presented in **Section 8.1: Management Actions**.

**As described** above, the Group 1 and Group 2 Projects presented in this section are either currently in place or are planned to be initiated within five years. Projects that are currently in place will continue to be implemented over the 2042 Plan horizon.

~~Table 8-**As described** above, the Group 1 and Group 2 PMAs described in this section are either currently in place or are planned to be initiated within 5 years. Those PMAs that are currently in place will continue to be implemented over the 2042 Plan horizon.~~

**~~Table 8-2~~3** lists all Group 1 and Group 2 ~~PMAs~~Projects described in the subsections that follow. Each Project description is organized to address the applicable regulatory requirements:

- Project Description: 23 CCR §354.44(b)
- Public Noticing: 23 CCR §354.44(b)(1)(B)
- Permitting and Regulatory Process: 23 CCR §354.44(b)(3)
- Expected Benefits: 23 CCR §354.44(b)(4), §354.44(b)(5)
- Implementation Criteria, Status, and Plan: 23 CCR §354.44(b)(1)(A); §354.44(b)(4); §354.44(b)(6)

- Water Source and Reliability: 23 CCR §354.44(b)(6)
- Legal Authority: 23 CCR §354.44(b)(7)
- Estimated Costs and Funding Plan: 23 CCR §354.44(b)(8)
- Management of Groundwater Extractions and Recharge: 23 CCR §354.44(b)(9)

*Summary of Criteria for Project Implementation (23 CCR §354.44(b)(1)(A))*

As described above, the Group 1 and Group 2 ~~PMAs described~~Projects presented in this section are either currently in place or are planned to be initiated within ~~5~~five years. ~~Those PMAs~~Projects that are currently in place will continue to be implemented over the 2042 Plan horizon.

**Table 8~~-2: List of~~-3: Projects Developed for Near-Term Implementation ~~in the Modesto Subbasin~~**

| Location (Proponent) | Project Name | Primary Mechanism(s)[1] |
|---|---|---|
| City of Modesto | Project 1: Growth Realization of Surface Water Treatment Plant Phase II | In-Lieu Recharge |
| | Project 2: Advanced Metering Infrastructure Project (AMI) | Water Conservation |
| | Project 3: Storm Drain Cross Connection Removal Project | Stormwater Capture |
| City of Waterford | Project 4: Waterford/Hickman Surface Water Pump Station and Storage Tank | Water Conservation |
| NDE Areas | Project 5: Modesto Irrigation District In-lieu and Direct Recharge Project | In-lieu and Direct Recharge Project |
| | Project 6: Oakdale Irrigation District In-lieu and Direct Recharge Project | In-lieu and Direct Recharge Project |
| | Project 7: Tuolumne River Flood Mitigation and Direct Recharge Project | Flood control and Direct Recharge Project |
| | Project 8: Dry Creek Flood Mitigation and Direct Recharge Project | Flood control and Direct Recharge Project |

~~[1]The primary mechanism of the Project as conceptualized, although during implementation Projects may be used for multiple functions to support groundwater sustainability and multiple other benefits.~~

~~–~~[1]The primary mechanism of the Project as conceptualized, although during implementation Projects may be used for multiple functions to support groundwater sustainability and beneficial users.

### 8.3.1. Urban and Municipal Projects

~~PMAs~~Projects developed for implementation by urban and municipal proponents in the Modesto Subbasin are summarized in the sections below.

#### 8.3.1.1. Growth Realization of Surface Water Treatment Plant Phase II (Project 1)

##### *8.3.1.1.1. Project Description*

~~This project~~The Growth Realization of Surface Water Treatment Plant Phase II project (Project) continues the water purchase agreement between Modesto Irrigation District (MID) and the City of Modesto to meet urban demands. It utilizes the expansion from Phase II of the Modesto Regional Water Treatment Plant (MRWTP).

The Modesto Irrigation District operates the MRWTP to treat surface water for use within the City of Modesto and has been expanding its capacity to meet growing and future water demands from its customers. The Initial Phase (first phase) of the MRWTP Project included the construction of a 30 million-gallon per day (mgd) surface water treatment plant, two 5-million-gallon (MG) terminal storage tanks and associated pumping facility. The pump station delivered water into the MID transmission system for distribution into either the Del Este or City of Modesto water distribution systems through several MID turnouts. The City of Modesto now owns the Del Este water system. ~~Figure 1-1 shows the existing transmission mains and turnouts constructed as part of the Phase One MRWTP Project~~

The Expansion Phase of the MRWTP Project (~~second phase~~Phase II) included the construction of a new parallel treatment process consisting of low-pressure membranes, ozone disinfection system, a dissolved air flotation thickener and a new Supervisory Control and Data Acquisition (SCADA) system. The total capacity available at the MRWTP with the completion of the MRWTP Phase ~~Two~~II Expansion Project is 60 ~~MGD~~mgd with a maximum annual supply of up to 67,200 AFY.

The City of Modesto currently operates its treatment and conveyance systems at capacity and has not been able to utilize any additional surface water supply. However, recently the City of Modesto has taken several ~~proactive~~ steps to increase its infrastructural optimization, particularly its water utilization and storage. Some of these steps include: (1) the submittal of a conceptual grant application to modify up to four recharge basins to dilute aquifer contaminants, increase aquifer storage, and improve water quality, and (2) hiring an outside consultant to study system optimization and (3) investigate the feasibility of integrating additional surface water supply for recharge in wet years.

##### *8.3.1.1.2. Public Noticing*

The public and other agencies will be notified of the planned or ongoing implementation of ~~PMA~~Project activities through the outreach and communication channels identified in the GSP and during updates presented at regularly scheduled STRGBA GSA meetings. Noticing will occur as potential activities are being considered for implementation, and as ongoing

and planned activities are implemented. Noticing will inform the public and other agencies what that the proponent is considering ~~or will be implementing~~related to the ~~PMA~~Project and will provide a description of the actions that will be taken.

Public and/or inter-agency noticing may be facilitated through ~~the~~ STRGBA ~~GSA's board~~GSA meetings and/or ~~City and Agency~~local agency meetings, associated website(s), inter-basin coordination meetings, other public meetings hosted by the GSAs, ~~GSP annual reports~~Annual Reports and ~~five-year updates~~Periodic Evaluations, public scoping meetings, and/or ~~environmental/regulatory~~applicable permitting notification processes.

#### *8.3.1.1.3. Permitting and Regulatory Process*

This Project includes the continued transfer of water purchased between MID and the City of Modesto, ~~and~~ therefore, permitting~~,~~ and regulatory requirements have already been completed. Future permitting and regulatory processes, if needed to continue or expand Project activities, will be managed through MID and the City of Modesto.

#### *8.3.1.1.4. Expected Benefits*

***Benefits to Sustainability Indicators***

Utilization of purchased water for urban water demands is expected to offset groundwater pumping demands~~, with~~ through in-lieu groundwater recharge benefits to the Subbasin. The sustainability indicators expected to benefit from this Project are groundwater levels, groundwater ~~in~~ storage, land subsidence, and interconnected surface water~~, and possibly land subsidence. All~~. Project benefits to sustainability indicators ~~in the Modesto Subbasin~~ will be evaluated through monitoring groundwater ~~monitoring at nearby~~levels within the GSP's representative monitoring ~~sites, identified in the GSP~~network.

***Benefits to Disadvantaged Communities***

Water supplied through this Project directly benefits areas within the City of Modesto's ~~contiguous~~ water service areas within the ~~Modesto~~ Subbasin, most of which ~~is~~are classified as ~~a DAC~~DACs. By supplementing and diversifying their drinking water supply, this Project will provide an alternate drinking water source and operational flexibility to remove or blend production wells with treated surface water to comply with safe drinking water regulations and meeting ~~Maximum Contaminant Levels (MCLs).~~MCLs. The additional surface water supply will also reduce groundwater pumping and increase groundwater levels near the communities which can reduce pumping costs and potentially mitigate some groundwater quality concerns. Additionally, benefits to groundwater conditions in the ~~Modesto~~ Subbasin are also expected to ~~broadly~~ benefit all local DACs, SDACs (Severely Disadvantaged Communities), and EDAs (Economically Distressed Areas~~) in the Modesto Subbasin.~~).

***Volumetric Benefits to the Subbasin Groundwater System***

The expected yield of the benefits from the ~~Growth Realization of Surface Water Treatment Plan Phase II~~ Project was estimated by ~~simulating this Project~~simulations performed in the

C2VSimTM model. General information and assumptions used to simulate this Project are summarized in the Implementation section below. Additional information is provided in **Section 8.5**: Plan for Achieving Sustainability~~Plan for Achieving Sustainability~~.

This Project has provided an estimated additional 10 mgd (11,200 AFY) starting in 2016 and continuing at 10 mgd through 2020, and then is anticipated to gradually increase to an additional 30 mgd (33,600 AFY) by 2050.

Evaluation of benefits will be based on analysis of without-Project and with-Project measurements supported by modeling. Measured parameters will include surface water deliveries, groundwater levels, and other parameters to be determined. Modeling will be done with the C2VSimTM model used ~~for~~in developing the GSP ~~development~~.

#### *8.3.1.1.5. Implementation Criteria, Status, and Strategy*

***Implementation Strategy and Timeline***

This Project is being implemented by the City of Modesto and MID and ~~is expected to provide~~provides 10 mgd ~~initially~~ and will eventually increase to 30 mgd. This Project includes the expansion of current water transfers between MID and the City of Modesto. Updates to the status and continuation of this agreement and Project will be provided in ~~GSP~~ Annual Reports and ~~Five-Year GSP updates~~Periodic Evaluations.

***Implementation Assumptions for Modeling***

Impacts to the Subbasin from the ~~Growth Realization of Surface Water Treatment Plan Phase II~~ Project were already captured in the Projected Conditions Baseline and thus no additional changes were needed to simulate this Project in the ~~PMA~~modeling scenarios. Baseline conditions include both the expansion of the City of Modesto's footprint and the resulting increase of surface water available for urban use.

#### *8.3.1.1.6. Water Source and Reliability*

This Project would use water from MID to supplement water for the City of Modesto for urban demands. ~~This~~The Project has provided an estimated additional 10 mgd (11,200 AFY) starting in 2016 and continuing at 10 mgd through 2020, and then is anticipated to gradually increase to an additional 30 mgd (33,600 AFY) by 2050. These assumptions are included in the model development. ~~The exact volume~~Volumetric groundwater benefits will be reported in Annual Reports and ~~GSP Five-Year Update Reports when known~~Periodic Evaluations.

#### *8.3.1.1.7. Legal Authority*

The GSAs, Districts, and ~~individual~~ Project proponents have the authority to plan and implement Projects through consultation with applicable governing agencies. MID has the authority to construct and continue to operate its water treatment plant and to continue to transfer water to the City of Modesto.

#### *8.3.1.1.8. Estimated Costs and Funding Plan*

~~The Growth Realization of Surface Water Treatment Plant Phase II~~The Project is a continuation of water transfers from MID to the City of Modesto. Because an agreement and water transfers have already commenced, the estimated costs of this Project are low and include agreement/coordination costs and yearly costs. Infrastructure for this Project has already been constructed and ~~therefore~~additional infrastructure is not ~~needed. Continued~~required. The ongoing capital cost for this Project is $4.1M annually, which will increase to $8.3M in FY 2024 when payment towards the principal balance begins. The City of Modesto has been utilizing the Water Fund as a funding ~~sources~~source to cover Project costs as part of Project development and continuation. Other funding sources ~~may be identified in the future including~~, such as grants (e.g., Prop 1, Prop 68m, NRCS), fees, local cost share, and loans, ~~and other assessments~~may be pursued in the future if needed.

#### *8.3.1.1.9. Management of Groundwater Extractions and Recharge*

Per 23 CCR § 354.44(b)(9), all PMAs developed for implementation are targeted to maintain the balance of groundwater extractions and recharge to help ensure that lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels and storage in other years.

In-lieu recharge benefits of this Project are expected to increase the use and recharge of available surface water supplies during wetter years, helping to offset potential increases in groundwater pumping during drought when surface water supplies are limited.

### 8.3.1.2. Advanced Metering Infrastructure Project (AMI) (Project 2)

The Advanced Metering Infrastructure (AMI) Project (Project) involves the installation of AMI throughout the City of Modesto. The City of Modesto is in the initial stages of ~~on~~ installing AMI smart meters to support water reduction goals. Smart meters will assist the City of Modesto in notifying residents of leaking pipes and helping to reduce overall domestic water consumption through improved and direct consumer data.

#### *8.3.1.2.1. Project Description*

The City of Modesto is ~~planning on~~in progress of upgrading 75,000 meters to AMI smart meters to support water reduction goals. ~~-~~ Smart meters will assist the City of Modesto in providing analytical tools to manage water usage better such as identifying potential leaks sooner and providing customers with more usable and user~~-~~friendly data to manage their water usage.

#### *8.3.1.2.2. Public Noticing*

Public and/or inter-agency noticing ~~will~~may be facilitated through ~~GSAs, City Council or District Board~~STRGBA GSA meetings~~, GSAs~~ and/or ~~district~~local agency meetings, associated website(s), ~~GSAs and/or district newsletters,~~ inter-basin coordination meetings, ~~GSP~~ other public meetings hosted by the GSAs, Annual Reports and ~~Five-Year Assessment~~

~~Reports~~Periodic Evaluations, public scoping meetings, and ~~environmental/regulatory~~/or applicable permitting notification processes.

#### *8.3.1.2.3. Permitting and Regulatory Process*

Required permitting and regulatory review will be Project-specific and initiated through consultation with applicable governing agencies. Governing agencies for which consultation will be initiated may include, but ~~is~~are not limited to: DWR, SWRCB, CDFW, Flood Board, Regional Water Boards, USFWS, NMFS, LAFCO, County of Stanislaus, and CARB.

#### *8.3.1.2.4. Expected Benefits*

***Benefits to Sustainability Indicators***

The sustainability indicators expected to benefit from the Project are groundwater levels, groundwater ~~in~~ storage, land subsidence, and ~~depletion of~~ interconnected surface water.

***Benefits to Disadvantaged Communities***

This Project would apply to and benefit all water customers served by the City of Modesto, most of which are considered a DAC or SDAC.

***Volumetric Benefits to the Subbasin Groundwater System***

~~This~~The Project is currently in development and AMI is actively being installed throughout the ~~early conceptual stage. Thus~~Project area. As a result, the expected yield of this Project has ~~yet to be~~not been determined ~~and~~. Volumetric benefits will be reported in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known~~Periodic Evaluations. However, the Project is expected to reduce water use in the City of Modesto to meet future water use mandates and conservation goals.

Evaluation of benefits will be based on analysis of without-Project and with-Project effects on the SGMA sustainability indicators. ~~Each~~ Project is evaluated as part of ~~a scenario and the~~ C2VSimTM ~~is~~modeling scenarios used to assess the benefits and impacts on the ~~subbasin sustainability~~Subbasin.

#### *8.3.1.2.5. Implementation Criteria, Status, and Strategy*

***Implementation Strategy and Timeline***

This Project would install AMI smart meters to support water reduction goals~~,~~ by helping the City ~~to~~of Modesto obtain the analytical tools to manage water usage better. The planning phase ~~is scheduled for~~was completed between 2022 ~~through~~and 2023 ~~with implementation occurring from~~. Installation activities began in 2024 ~~through~~and Project completion is anticipated in 2026.

***Implementation Assumptions for Modeling***

The ~~Advanced Metering Infrastructure~~ Project ~~has been~~was modeled in the C2VSimTM model. Additional information ~~about~~on Project-related modeling is described in **Section 8.5**: **Plan for Achieving Sustainability**.

The following ~~general~~ information and assumptions were used to simulate implementation of the Project:

- Modeled as part of scenario of ongoing conservation efforts within the City of Modesto. Simulated change includes the reduction of urban water demand from 228 gallons per person per day (GPCD) (2015 City of Modesto UWMP) to 175 GPCD (2020 City of Modesto UWMP) (West Yost Associates, 2016 & 2021).

***8.3.1.2.6. Water Source and Reliability***

This Project would not directly use a water source but would help to manage and enhance use of existing water City of Modesto supplies.

***8.3.1.2.7. Legal Authority***

The GSAs, Districts, and ~~individual~~ Project proponents have the authority to plan and implement Projects.

***8.3.1.2.8. Estimated Costs and Funding Plan***

The anticipated ~~costs~~cost of this Project ~~are~~is estimated to be $20 million. Any updates or changes to the estimated costs will be reported in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known~~Periodic Evaluations. The Project proponent will identify funding sources to cover Project costs as part of Project development. These may include grants, fees, loans, and other assessments.

***8.3.1.2.9. Management of Groundwater Extractions and Recharge***

~~This Project would~~ AMI does not ~~directly use~~rely on a water source (e.g., no groundwater extraction or recharge is involved~~)~~), but the Project would help ~~to~~ manage and enhance use of existing ~~water~~ City of Modesto water supplies.

**8.3.1.3. Storm Drain Cross Connection Removal Project (Project 3)**

***8.3.1.3.1. Project Description***

~~This multi-benefit and multi-component~~The Storm Drain Cross Connection Removal Project (Project) captures, treats, and infiltrates stormwater within the City of Modesto. ~~Projects~~The Project components use low impact development (LID) techniques including bio-retention planters, infiltration trenches, and underground retention basins ~~under~~within city parks ~~to recharge the~~ for groundwater ~~aquifer. Other~~recharge. Additional benefits include ~~reduced~~ the reduction of stormwater flows to the City of Modesto's wastewater treatment plant~~, reduced number of~~ and sanitary sewer overflows, reduction of localized flooding ~~in heavily~~

~~traveled and localized streets~~, and improved water quality ~~for~~within Dry Creek and the Lower Tuolumne River ~~(both of which are 303d water bodies).~~. Each ~~Project~~project component is located ~~within the City of Modesto jurisdiction~~ in areas with no positive storm drainage systems within the City of Modesto's jurisdiction. The Project components are a cost effective and LID alternative to constructing detention basins in undeveloped portions of the city and constructing miles of storm drains. ~~-~~ This Project also includes the removal of failed dry wells and storm to sanitary sewer cross connections. The Project components, status, and expected recharge benefits are included in Table 8-1~~Table 8-3~~.

**Table 8-1~~3~~: Storm Drain Cross Connection Removal Project Components, Status, and Expected Recharge Benefit**

| Component | Status | Expected Recharge Benefit |
|---|---|---|
| Garrison Park | Completed | 12 AFY |
| Roosevelt Park | Completed | 29 AFY |
| JM Pike Park | Design in Progress | 53 AFY |
| Catherine Everett Park | Planning/Construction (2026 completion) | 29 AFY |
| Other | Planning | 125 AFY |
| Removal of failed dry wells and storm to sanitary sewer cross connection | In Progress | N/A |

#### *8.3.1.3.2. Public Noticing*

The public and other agencies will be notified of the planned or ongoing implementation of ~~PMA~~Project activities through the outreach and communication channels identified in the GSP, during the preparation process of the PEIR (if applicable), and during updates presented at regularly scheduled STRGBA GSA meetings. Noticing will occur as potential activities are being considered for implementation, and as ongoing and planned activities are implemented. Noticing will inform the public and other agencies that the proponent is considering ~~or will be implementing~~modifications to the ~~PMA~~Project and will provide a description of the actions that will be taken.

Public and/or inter-agency noticing may be facilitated through ~~the GSA's board~~STRGBA GSA meetings and/or ~~City and Agency~~local agency meetings, associated website(s), inter-basin coordination meetings, other public meetings hosted by the GSAs, ~~GSP annual reports and five-year updates~~Annual Reports and Periodic Evaluations, public scoping meetings, and/or ~~environmental/regulatory~~applicable permitting notification processes.

#### *8.3.1.3.3. Permitting and Regulatory Process*

Required permitting and regulatory review is being initiated as necessary through consultation with applicable governing agencies. Governing agencies that may be consulted for this Project include, but are not limited to: DWR, SWRCB, the California Department of Fish and Wildlife (CDFW), the Central Valley Flood Protection Board (Flood Board), Regional Water Boards, the United States Bureau of Reclamation (Reclamation or USBR), the United States Army Corps of Engineers (USACE), the United States Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), Local Agency Formation Commissions (LAFCo), the County of Stanislaus and/or Tuolumne, and the California Air Resources Board (CARB).

#### *8.3.1.3.4. Expected Benefits*

***Benefits to Sustainability Indicators***

Stormwater flows going to sanitary sewer systems will be disconnected and rerouted to provide direct groundwater recharge ~~to the Subbasin.~~. Sustainability indicators expected to benefit from this Project are groundwater levels, groundwater ~~in~~ storage, land subsidence, and interconnected surface water. All benefits to sustainability indicators ~~in the Modesto Subbasin~~ will be evaluated through groundwater monitoring at nearby monitoring sites~~,~~ as identified in Section 7.1 of the GSP.

***Benefits to Disadvantaged Communities***

~~The City of Modesto storm drain cross connection removal~~The Storm Drain Cross Connection Removal Project is expected to provide direct recharge in and around the City of Modesto. Most communities in the Modesto Subbasin are classified as DACs, SDACs, or EDAs (according to 2018 census data, evaluated by place, tract, and block group). Depending on which specific parcels receive surface water deliveries, this Project may directly benefit specific DACs in this area. In addition, maintenance or improvement of groundwater levels will help to protect beneficial groundwater use by rural domestic wells from potential adverse impacts related to chronic groundwater level decline. Benefits to groundwater conditions in the ~~Modesto~~ Subbasin are also expected to ~~broadly~~ benefit all DACs, SDACs, and EDAs.

***Volumetric Benefits to the Subbasin Groundwater System***

The expected yield of the ~~City of Modesto storm drain cross connection removal~~ Project was estimated by ~~simulating this Project~~simulations run in the C2VSimTM model. General information and assumptions used to simulate this Project are summarized in the ~~Implementation~~following section ~~below~~. Additional information is provided in **Section 8.5: Plan for Achieving Sustainability~~Plan for Achieving Sustainability~~**.

On average across all years, the ~~City of Modesto storm drain cross connection removal~~ Project is expected to provide approximately 248 AFY of recharge benefit to the ~~Modesto~~ Subbasin~~, once completed~~.

Evaluation of benefits will be based on analysis of without-Project and with-Project measurements supported by modeling. Measured parameters will include surface water deliveries, groundwater levels, and other parameters to be determined. Modeling may be done with the C2VSimTM model used for GSP development to evaluate volumetric benefits.

#### *8.3.1.3.5. Implementation Criteria, Status, and Strategy*

***Implementation Strategy and Timeline***

This Project consists of several different components of a larger program which has relied on the success of previous grant funds. For the components included in this Project, work is already in progress. The JM Pike Park component ~~is expected to be~~was completed in 2023. Overall, the final storm to sewer cross connection removals for the program are estimated to be completed in 2061.

***Implementation Assumptions for Modeling***

The Storm Drian Cross Connection Removal Project has been modeled in the C2VSimTM model. Additional information about Project-related modeling is described in **Section 8.5**: **Plan for Achieving Sustainability**.

The following general information and assumptions were used to simulate implementation of the Project:

- Volume of water: 41 AFY were provided during the first 10 years of simulation, 70 AFY during the following 5 years of simulation, and 248 AFY for the rest of the simulation, distributed evenly between the months of October and April. The annual average during the 50-year simulation period would be ~~of~~ 189 AFY.
- The total volume would be provided as direct recharge ~~over the aquifer.~~.

#### *8.3.1.3.6. Water Source and Reliability*

This Project would ~~use~~utilize flows that ~~became~~become available from disconnecting storm drain flows going to sanitary sewer systems and redirecting them ~~to recharge~~for groundwater recharge. Stormwater flows are more dependent on precipitation events. It is anticipated that annual contributions from this ~~Project~~project will collect approximately 12 AF from Garrison Park, 29 AF from Roosevelt Park, 53 AF from JM Pike Park, 29 AF from Catherine Everett, and an additional 125 AF from other areas. ~~The precise reliability of available~~Changes to water source availability will be identified as the Project is evaluated ~~during implementation.~~further. This information will be reported in ~~GSP annual reports~~Annual Reports and ~~five-year updates when known~~Periodic Evaluations.

#### *8.3.1.3.7. Legal Authority*

The GSAs, Districts, and ~~individual~~ Project proponents have the authority to plan and implement Projects. Required permitting and regulatory review will be Project-specific and initiated through consultation with applicable governing agencies. Governing agencies for which consultation will be initiated may include, but is not limited to: DWR, SWRCB, CDFW, Flood Board, Regional Water Boards, USFWS, NMFS, LAFCO, Stanislaus County, and CARB.

#### *8.3.1.3.8. Estimated Costs and Funding Plan*

Potential costs of this Project include construction or improvements to new or existing recharge basin and alteration of current stormwater and sewer system connections. The ~~current~~estimated cost ~~estimate~~ for this Project is $40 million for all ~~Project~~ components. It is anticipated that the City of Modesto would identify funding sources to cover Project costs as part of ~~Project~~ development. These may include grants (e.g., Prop 1, Prop 68, NRCS), fees, local cost share, loans and other assessments.

#### *8.3.1.3.9. Management of Groundwater Extractions and Recharge*

Per 23 CCR § 354.44(b)(9), all PMAs developed for implementation are expected to maintain the balance of groundwater extractions and recharge to ensure that lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels and storage in other years.

### 8.3.1.4. Surface Water Pump Station and Storage Tank (Project 4)

#### *8.3.1.4.1. Project Description*

The Surface Water Pump Station and Storage Tank project (Project~~)~~ entails connecting the City of ~~Waterford (Waterford)~~Waterford's water supply system to ~~Modesto Irrigation District's (MID)~~MID's water treatment plant and potable surface water supply system. The Project includes several components, described in order of the flow of the surface water. Surface water will be diverted from MID's distribution network at a pipeline turn-out located at the corner of Tim Bell and Vineyard Road, northeast of the City of Waterford. The surface water will be piped into a one-million-gallon storage tank that will be constructed at this intersection. A pump station at this location and transmission line will also be constructed that transports the water to Yosemite Boulevard in the City of Waterford. This project involves water supply agreements between Modesto Irrigation District, the City of Modesto, and the City of Waterford, the details of which are currently being negotiated.

~~As part~~Another component of ~~a separate~~this Project~~, by~~ entails combining the ~~end~~City of ~~2023 Waterford is planning to combine its~~Waterford's distribution network and ~~provide~~providing water to the disadvantaged community of Hickman~~, located in the Turlock Subbasin~~ by 2023. While Hickman is in the Turlock Subbasin, supplying surface water to the community would support the Modesto Subbasin's sustainability goals of mitigating stream depletions along the Tuolumne River and protecting domestic wells by reinforcing groundwater levels along the Subbasin boundary.

#### *8.3.1.4.2. Public Noticing*

The public and other agencies will be notified of the planned or ongoing implementation of ~~PMA~~Project activities through the outreach and communication channels identified in the GSP, during the preparation process of the PEIR (if applicable), and during updates presented at regularly scheduled STRGBA GSA meetings. Noticing will occur as potential activities are being considered for implementation, and as ongoing and planned activities are implemented. Noticing will inform the public and other agencies that the proponent is considering ~~or will be implementing~~modifications to the ~~PMA~~Project and will provide a description of the actions that will be taken.

Public and/or inter-agency noticing may be facilitated through ~~the~~ STRGBA GSA ~~board~~ meetings and/or ~~MID board~~local agency meetings, ~~the Modesto Subbasin and/or MID~~associated website(s), ~~the MID newsletter,~~ inter-basin coordination meetings, other public meetings hosted by the ~~STRGBA and/or MID, GSP annual reports and five-year updates~~GSAs, Annual Reports and Periodic Evaluations, public scoping meetings, and/or ~~environmental/regulatory~~applicable permitting notification processes.

#### *8.3.1.4.3. Permitting and Regulatory Process*

Required permitting and regulatory review would be initiated through consultation with applicable governing agencies. Governing agencies for which consultation will be initiated may include, but are not limited to: DWR, SWRCB, CDFW, Flood Board, Regional Water Boards, USFWS, NMFS, LAFCO, Counties of Stanislaus and/or Tuolumne, and CARB. Specific permitting and regulatory processes that may potentially affect the construction of Project-related infrastructure include, but are not limited to:

- USACE Section 404 Permits (potential exemption under Section 404(f)(1)(C) of Clean Water Act)
- Regional Water Quality Control Board Section 401 Water Quality Certification (not required if exempt from USACE Section 404)
- SWRCB Construction General Permit and Storm Water Pollution Prevention Plan (SWPPP)
- State Historic Preservation Office (SHPO) and National Historic Preservation Act (NHPA) Section 106 Coordination
- CEQA Environmental Review Process
- California Endangered Species Act (CESA) Consultation
- Endangered Species Act (ESA) Compliance
- National Environmental Policy Act (NEPA) Compliance (expected to require either an Environmental Impact Report and Negative Declaration or Mitigated Negative Declaration)

#### *8.3.1.4.4. Expected Benefits*

***Benefits to Sustainability Indicators***

Utilization of surface water for urban water demands in Waterford and Hickman is expected to offset groundwater pumping demands, with in-lieu groundwater recharge benefits to the ~~Modesto~~ Subbasin. Because ~~a single water~~ Waterford and Hickman use a combined system, Hickman (which lies in the Turlock Subbasin) will also benefit. Benefits in this area are seen in Tuolumne River stream ~~depletions~~conditions and will further protect domestic wells in both the Modesto and Turlock Subbasins. The sustainability indicators expected to benefit from this ~~Project~~project are groundwater levels, groundwater ~~in~~ storage, land subsidence, and interconnected surface water~~, and possibly land subsidence.~~. All benefits to sustainability indicators in the ~~Modesto~~ Subbasin will be evaluated through groundwater monitoring at nearby monitoring sites, identified in the GSP.

***Benefits to Disadvantaged Communities***

The Waterford/Hickman Surface Water Pump Station and Storage Tank Project directly benefits Waterford and Hickman, both classified as ~~a~~ DACs, by supplementing and diversifying their drinking water supply. This Project will provide an alternate drinking water source in case of infrastructure or contamination concerns with the communities' groundwater production wells. The additional surface water supply will also reduce groundwater pumping and increase groundwater levels near the communities which can reduce pumping costs, decrease the likelihood of dewatering domestic wells, and potentially mitigate some groundwater quality concerns. Additionally, benefits to groundwater conditions in the ~~Modesto~~ Subbasin are also expected to ~~broadly~~ benefit all DACs, SDACs, and EDAs in the Modesto Subbasin.

***Volumetric Benefits to the Subbasin Groundwater System***

The expected yield of the Waterford/Hickman Surface Water Pump Station and Storage Tank was estimated ~~by simulating this Project~~through simulations in the C2VSimTM model. General information and assumptions used to simulate this Project are summarized in the Implementation section below. Additional information is provided in **Section 8.5: Plan for Achieving Sustainability~~Plan for Achieving Sustainability~~**.

It is assumed that MID will provide 900 ~~AF/year~~AFY to Waterford and Hickman, except for critical years which will provide a partial allotment (approximately 750 ~~AF/year~~AFY in critical years).

Evaluation of benefits will be based on analysis of without-Project and with-Project measurements supported by modeling. Measured parameters will include surface water deliveries, groundwater levels, and other parameters to be determined. Modeling will be done with the C2VSimTM model used for GSP development.

#### *8.3.1.4.5. Implementation Criteria, Status, and Strategy*

***Implementation Strategy and Timeline***

The Waterford/Hickman Surface Water Pump Station and Storage Tank will be implemented by the City of Waterford. Waterford will oversee the Project financing and funding, permitting, and construction. The Project will require an agreement(s) between MID and the City of Modesto to purchase treated surface water. Negotiations are underway but have not been concluded. Once negotiations are finalized and financing is secured, then design and subsequent construction will begin. This ~~PMA~~Project is currently in the early conceptual stage. Thus, the start and completion dates for this ~~PMA~~Project have yet to be determined and will be provided in GSP ~~annual reports~~Annual Reports and ~~five-year updates~~Periodic Evaluations when known. Once the Project construction is complete, it is expected that MID would provide 900 ~~AF/year~~AFY to Waterford and Hickman in all water years except critical years which will provide a partial allocation.

***Implementation Assumptions for Modeling***

The Waterford/Hickman Surface Water Pump Station and Storage Tank has been modeled in the C2VSimTM model. Additional information about Project-related modeling is described in **Section 8.5: Plan for Achieving Sustainability~~Plan for Achieving Sustainability~~**.

The following general information and assumptions were used to simulate implementation of the Project:

- Estimated volume of surface water deliveries: Proportional to the MID irrigation water allotment based on water year type, not to exceed 900 AFY. The surface water deliveries are distributed throughout the months proportional to monthly urban demands.
- Area receiving surface water deliveries: Surface water is delivered to the jurisdictional extent of the Hickman and Waterford communities, consistent with the extent in the historical C2VSimTM model. Surface water is distributed between Waterford and Hickman ~~proportional~~proportionally to simulated demands of each community.
- Water source: It is assumed that all surface water is diverted from MID's distribution system, with no adjustment to modeled MID diversions, spillage, and seepage.
- Groundwater pumping: It is assumed that groundwater production is reduced by the volume of surface water deliveries which is distributed evenly among all wells in Waterford and Hickman.

#### *8.3.1.4.6. Water Source and Reliability*

The Waterford/Hickman Surface Water Pump Station and Storage Tank will use water diverted from MID's surface water distribution network. MID has existing water rights on the Tuolumne River and existing storage and conveyance facilities that afford secure surface

water supplies. Surface water is expected to be available for this Project in all hydrologic years, proportional to MID irrigation allotment, while still meeting the demand of existing MID customers.

#### *8.3.1.4.7. Legal Authority*

The GSAs, Districts, and ~~individual~~ Project proponents have the authority to plan and implement Projects through consultation with applicable governing agencies. MID and the City of Modesto have the authority to sell surface water to the City of Waterford.

#### *8.3.1.4.8. Estimated Costs and Funding Plan*

Costs of this Project include right of way purchase, environmental permitting, design, construction, and Project management costs. The ~~estimate~~estimated cost is approximately $8.5 million. However, this Project is currently in the early conceptual stage and a more refined cost can be reported in GSP ~~annual reports~~Annual Reports and ~~five-year updates~~Periodic Evaluations when known. It is anticipated that the City of Waterford would identify grant funding sources to cover Project costs as part of ~~Project~~ development.

#### *8.3.1.4.9. Management of Groundwater Extractions and Recharge*

Per 23 CCR § 354.44(b)(9), all PMAs developed for implementation are expected to maintain the balance of groundwater extractions and recharge to ensure that lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels and storage in other years.

In ~~particular, in~~-lieu recharge benefits ~~of~~from this Project are expected to increase the use and recharge of available surface water supplies, helping to offset any potential increases in groundwater pumping during drought when surface water supplies are limited.

### 8.3.2. In-Lieu & Direct Recharge Projects

#### 8.3.2.1. Modesto Irrigation District In-Lieu and Direct Recharge Project (Project 5)

#### *8.3.2.1.1. Project Description*

The Modesto Irrigation District In-~~lieu~~Lieu and Direct Recharge Project (Project~~)~~), also known as the Long-Term Groundwater Replenishment Program (GRP), is intended to be a cooperative long-term Project between ~~Modesto Irrigation District (~~MID~~)~~ and the non-district east (NDE) landowners. The purpose of this Project is to allow MID to facilitate recharge for NDE landowners during times and conditions that will not impact MID's existing agricultural and urban customers. ~~This~~The Project would be operated separately but coordinated with the Oakdale Irrigation District In-lieu and Direct Recharge Project, which shares a similar goal of facilitating groundwater sustainability in the NDE areas.

~~Currently developed~~Developed agriculture in the NDE areas of the ~~Modesto subbasin~~Subbasin is estimated to be approximately 36,000 acres, of which approximately 30,000 acres ~~is~~are permanent crops such as deciduous fruits and nuts ~~(permanent crops).~~.

With limited exception, the entire NDE area is solely reliant on groundwater from the ~~Modesto subbasin. The~~Subbasin. This Project involves the delivery of approximately 60,000 AF of surface water from the Tuolumne River in Wet and Above Normal water years (WYs~~)~~). Deliveries would be supplied through a ~~limited~~ number of new points of diversions ~~off~~on MID's existing irrigation conveyance infrastructure and subsequent conveyance through newly constructed private irrigation conveyance infrastructure ~~for~~. Water supply would be provided to NDE during the growing season in the form of in-lieu and direct recharge ~~during the growing season.~~. Historically (1972-2020), Wet and Above Normal WYs have occurred approximately 47% of the time ~~on~~within the ~~Tuolumne River~~Subbasin. Under the current Final Environmental Impact Statement for the relicensing of Don Pedro Reservoir, there is estimated to be approximately 1,500,000 AF of surface water in Wet WYs and 620,000 AF of surface water in Above Normal WYs in the Tuolumne River ~~above and beyond that~~. These water volumes exceed what is necessary to ~~meeting~~meet existing customer demands (all Tuolumne River Partners) and the recommended instream flow obligations. As a result, 60,000 AF of Tuolumne River surface water to applicable NDE areas amounts to approximately 4% and 10% of available surface water supply ~~respectively,~~ for Wet and Above Normal WYs~~.~~, respectively. Project operation is intended to make surface water delivery available to applicable NDE areas in ~~most~~Above Normal and Wet WYs.

#### *8.3.2.1.2. Public Noticing*

The public and other agencies will be notified of the planned or ongoing implementation of ~~PMA~~Project activities through the outreach and communication channels identified in the GSP, during the preparation process of the PEIR (if applicable), and during updates presented at regularly scheduled STRGBA GSA meetings. Noticing will occur as potential activities are being considered for implementation, and as ongoing and planned activities are implemented. Noticing will inform the public and other agencies that the proponent is considering or will be implementing the ~~PMA~~Project and will provide a description of the actions that will be taken.

~~Public~~ During the development of the Revised GSP, MID has held multiple meetings and workshops to promote the program:

- Landowner Meeting held March 4, 2024, at MID Downtown Office
- Landowner Meeting held March 5, 2024, at Waterford Council Chambers
- Long-term Groundwater Replenishment Program Workshop held April 23, 2024, at MID Downtown Office
- Long-term Groundwater Replenishment Program Workshop held April 24, 2024, at Waterford Council Chambers

Additionally, MID has promoted the program at STRGBA meetings and Stanislaus County meetings, as well as issued social media notifications and postcard fliers.

Additional public and/or inter-agency noticing may be facilitated through ~~the GSA's board~~STRGBA GSA meetings and/or ~~District~~local agency meetings, associated website(s), inter-basin coordination meetings, other public meetings hosted by the GSAs, ~~GSP annual reports and five-year updates~~Annual Reports and Periodic Evaluations, public scoping meetings, and/or ~~environmental/regulatory~~applicable permitting notification processes.

#### *8.3.2.1.3. Permitting and Regulatory Process*

Required permitting and regulatory review would be initiated as necessary through consultation with applicable governing agencies. Surface water would be diverted for this Project by MID through existing pre- and post-1914 water rights. Governing agencies that may be consulted for this Project include but are not limited to the State Water Resources Control Board (SWRCB), ~~the County(ies)~~Stanislaus and/or Tuolumne Counties of Stanislaus and/or Tuolumne, and DWR.

If necessary for field flooding, the Project proponent will obtain land grading permits from the ~~County(ies). Recharge Projects may also require an environmental~~Stanislaus and/or Tuolumne Counties. Environmental review ~~process~~ under CEQA~~.~~ may also be required for the Projects.

#### *8.3.2.1.4. Expected Benefits*

***Benefits to Sustainability Indicators***

Surface water deliveries during the non-irrigation season are expected to provide direct ~~groundwater~~ recharge to the Subbasin. For fields that are irrigated using groundwater, surface water deliveries during the irrigation season are expected to offset groundwater demand and provide in-lieu groundwater recharge benefits. In both cases, the sustainability indicators expected to benefit from this Project are groundwater levels, groundwater ~~in~~ storage, land subsidence, and interconnected surface water~~, and land subsidence (depending on where recharge occurs).~~. All benefits to sustainability indicators in the ~~Modesto~~ Subbasin will be evaluated through groundwater monitoring at nearby monitoring sites, identified in the GSP.

***Benefits to Disadvantaged Communities***

The MID ~~in-lieu~~In-Lieu and ~~direct recharge~~Direct Recharge Project is expected to provide direct or in-lieu recharge for use in the NDE area. Most communities in the ~~Modesto~~ Subbasin, particularly in the NDE area, are classified as DACs, SDACs, or EDAs (according to 2018 census data, evaluated by place, tract, and block group). Depending on which specific parcels receive surface water deliveries, this Project may directly benefit ~~specific~~certain DACs in this area. In addition, maintenance or improvement of groundwater levels will help to protect beneficial groundwater use by rural domestic wells from potential adverse impacts related to ~~chronic~~ groundwater level decline. Benefits to groundwater conditions in the ~~Modesto~~ Subbasin are also expected to ~~broadly~~ benefit all DACs, SDACs, and EDAs.

***Volumetric Benefits to the Subbasin Groundwater System***

The expected yield of the ~~MID in-lieu and direct recharge~~ Project was estimated ~~by simulating this Project~~through simulations in the C2VSimTM model. General information and assumptions used to simulate this ~~Project~~project are summarized in the ~~Implementation~~following section ~~below~~. Additional information is provided in **Section 8.5: Plan for Achieving Sustainability~~Plan for Achieving Sustainability~~**.

On average across all years, the MID ~~in-lieu~~In-Lieu and ~~direct recharge~~Direct Recharge Project is expected to provide an ~~average~~ annual benefit of 28,800 AFY ~~of recharge benefit~~ to the ~~Modesto~~ Subbasin. These benefits would accrue in years with Wet or Above Normal hydrologic conditions when sufficient water is expected to be available for on-farm recharge (approximately ~~50~~47 percent of years historically). In ~~those years~~Above Normal and Wet WYs, approximately 60,000 AFY of groundwater recharge is expected to ~~occur~~be supplied.

~~Evaluation of benefits will be based on analysis of without-Project and with-Project measurements supported by modeling. Measured parameters will include surface water deliveries, groundwater levels, and other parameters to be determined. Modeling may~~Evaluation of benefits will be based on analysis of without-Project and with-Project measurements supported by modeling. Measured parameters will include surface water deliveries, groundwater levels, and other parameters to be determined. Modeling will be done with the C2VSimTM model used for GSP development.

***8.3.2.1.5. Implementation Criteria, Status, and Strategy***

***Implementation Strategy and Timeline***

The Project involves the delivery of surface water from the Tuolumne River in Wet and Above Normal ~~water years (~~WYs~~)~~ through a limited number of new points of diversions ~~off~~on MID's existing irrigation conveyance infrastructure and subsequent conveyance through existing and newly constructed private irrigation conveyance infrastructure for in-lieu and direct recharge during the growing season.

~~It is anticipated~~Modeling results indicate that that most of the surface water made available will be used to meet agricultural demand during the irrigation season throughout the NDE area. This in-lieu use is intended to reduce the pumping needed in this area of the ~~subbasin~~Subbasin in ~~wet~~Wet and ~~above normal years~~Above Normal WYs.

~~This Project is currently in~~On January 23, 2024, the ~~early conceptual stage. Thus,~~MID Board of Directors approved the ~~start~~implementation of the GRP and ~~completion dates for this Project have yet~~adopted an Addendum to the Modesto Irrigation District Comprehensive Water Resources Management Plan Final Programmatic Environmental Impact Report which incorporated the Long-term Groundwater Replenishment Program. Project activities, such as surface water deliveries, are anticipated to begin January 2024.

The GRP is planned to be ~~determined and~~expanded to parcels outside of the MID Service Boundary but within the Modesto Subbasin following adoption of the Revised GSP. Project updates will be provided in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known.~~ Periodic Evaluations.

***Implementation Assumptions for Modeling***

The MID In-lieu and Direct Recharge Project has been modeled in the C2VSimTM model. Additional information about Project-related modeling is described in **Section 8.5: Plan for Achieving Sustainability.**

The following general information and assumptions were used to simulate implementation of the Project:

- Volume of water: 60,000 AFY were provided during Wet and Above Normal ~~years~~WYs, distributed in the months following the demand distribution. During the 50-year simulation period, the average annual water supply from this Project would be 28,800 AFY.
- One third of the total volume would be provided as direct recharge ~~over the aquifer. The other two thirds~~and remainder would be delivered as in-lieu recharge.
- The location of the in-lieu and direct recharge would be within the NDE area, located near existing MID conveyance facilities and those parcels with low/medium infrastructure requirements.

***8.3.2.1.6. Water Source and Reliability***

The Project involves the delivery of approximately 60,000 AF of surface water from the Tuolumne River in Wet and Above Normal ~~water years (WYs) through a limited number of new points of diversions off MID's existing irrigation conveyance infrastructure and subsequent conveyance through newly constructed private irrigation conveyance infrastructure for in-lieu and direct recharge during the growing season. Historically (1969-2018), Wet and Above Normal WYs have occurred approximately 48% of the time on the Tuolumne River.~~WYs. Under the current Final Environmental Impact Statement for the relicensing of Don Pedro Reservoir, there is estimated to be approximately 1,500,000 AF of surface water in Wet WYs and 620,000 AF of surface water in Above Normal WYs in the Tuolumne River above and beyond that necessary to meeting existing customer demands (all Tuolumne River Partners) and the recommended instream flow obligations. As a result, 60,000 AF of Tuolumne River surface water to applicable NDE areas amounts to approximately 4% and 10% of available surface water supply respectively, for Wet and Above Normal WYs.

***8.3.2.1.7. Legal Authority***

The GSAs, Districts, and ~~individual~~ Project proponents have the authority to plan and implement Projects through consultation with applicable governing agencies. MID has the

authority to contract with and provide deliveries to ~~non-districted east landowners~~parcels in the NDE area, and individual irrigators have the authority to apply surface water to their fields for on-farm recharge.

#### *8.3.2.1.8. Estimated Costs and Funding Plan*

Potential costs of this Project may include ~~Project~~ coordination and administration, financial, or other incentives to encourage on-farm recharge, field preparation to enhance flooding, and other potential on-field monitoring equipment. Costs per site may vary depending on changes in Project implementation and incentives. Slightly higher costs per site would likely be incurred in the first year an irrigator participates, as more coordination and site preparation may be required. The total costs of the Project will vary over time, depending on the number of sites receiving water, the extent to which irrigators require coordination and support, and any applicable Project incentives.

This Project is currently in the early conceptual stage. Thus, the anticipated costs contained herein are planning level costs and subject to change. However, high-level initial estimates are on the order of $53,340,000 – $75,000,000 of new conveyance infrastructure. ~~-~~Most costs are anticipated to be borne by the NDE participants; however, member agencies of the STRGBA GSA may identify funding sources to cover Project costs as part of ~~Project~~ development. These may include grants (e.g., Prop 1, Prop 68, NRCS, others), fees, and loans. Participating NDE landowners would ultimately be responsible for payment and installation of their private conveyance systems and the volumetric rate of MID surface water deliveries.

#### *8.3.2.1.9. Management of Groundwater Extractions and Recharge*

Per 23 CCR § 354.44(b)(9), all PMAs developed for implementation are targeted to maintain the balance of groundwater extractions and recharge to help ensure that lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels and storage in other years.

In-lieu recharge benefits of this Project are expected to increase the use and recharge of available surface water supplies during wetter years, helping to offset potential increases in groundwater pumping during drought when surface water supplies are limited.

### 8.3.2.2. Oakdale Irrigation District In-lieu and Direct Recharge Project (Project 6)

#### *8.3.2.2.1. Project Description*

The Oakdale Irrigation District In-lieu and Direct Recharge Project (Project) is intended to be a cooperative long-term Project between OID and the NDE east landowners. The purpose of this Project is to allow OID to facilitate recharge for NDE landowners during times and conditions that will not impact OID's existing agricultural customers. The Project is separate from but ~~coordinated with~~similar to the Modesto Irrigation District In-~~lieu~~Lieu and Direct Recharge Project~~, which~~ and shares a similar goal of facilitating groundwater sustainability in the NDE areas. Coordination between the two Districts is ongoing and these

~~projects~~Projects may be operated in tandem, utilizing the MID-OID interconnected distribution systems to potentially work together and convey water to the NDE or others from OID.

~~Currently developed~~Developed agriculture in the NDE areas of the ~~Modesto subbasin~~Subbasin is estimated to be approximately 36,000 acres, of which approximately 30,000 acres ~~is~~are permanent crops such as deciduous fruits and nuts ~~(permanent crops).~~. With limited exception, the NDE area is solely reliant on groundwater from the ~~Modesto subbasin.~~Subbasin. The Project ~~envisions the development of up to~~is anticipated to provide approximately 20,000 AF of surface water from the Stanislaus River in all ~~water years (~~WYs~~)~~ except Critically Dry WYs. Deliveries would be supplied through ~~a limited number of~~ several existing and new points of diversions ~~off~~on OID's existing irrigation conveyance infrastructure and subsequent conveyance through newly constructed ~~private irrigation conveyance~~ infrastructure ~~for in-lieu use~~. Water supply benefits would be provided to NDE between March 1st ~~- October~~ and September 31st in the form of in-lieu and direct recharge. Some direct recharge is expected to occur as canal or reservoir seepage in the expanded conveyance network. ~~OID surface water~~ The Project will not ~~be delivered~~deliver water supply to the NDE between ~~November~~October 1st - March 1st~~.~~ The OID Board of Directors would consider and define the volume of water (if any) available to this Project on an annual basis ~~in non-Critically Dry WYs. The Project is in the initial planning phase and as such, the Project terms have yet to be considered or approved by the OID Board of Directors.~~ outside of the Project's scope (Critically Dry WYs). Significant progress has been made with this Project since the adoption of the 2022 Modesto Subbasin GSP. The 10-Year out-of-District Water Sales Program (10-Year Program) began in 2023 and includes 4,882 irrigated acres in the Modesto Subbasin within the NDE. Under the 10-Year Program, participating landowners are required to purchase a minimum of 1.5 acre-feet per irrigated acre during each year that surplus surface water is available from OID. The landowners also have the opportunity to purchase and use additional surplus surface water throughout the irrigation season if available. Under the 10-Year Program, a minimum of 7,300 acre-feet will be purchased each year that out-of-District water is available.

The Paulsell Lateral Expansion (Paulsell Expansion) has been approved by OID and will be funded at least in part with $14.4M of SGMA Implementation Grant funding that was awarded to OID in October 2023. Working in sync with the 10-Year Program, the Paulsell Expansion will rehabilitate, automate, and expand the Paulsell Lateral, largely within the existing right of way, to accommodate an additional 150 cfs, allowing OID to deliver up to 20,000 AFY of available surface water for in-lieu and direct recharge. Infrastructure improvements will also provide further in-lieu recharge benefits by improving irrigation service to in-District lands served by OID, but that have resorted in part to pumping groundwater to supplement irrigation due to service issues on the Paulsell Lateral. In total, the Paulsell Expansion is expected to provide in-lieu and direct recharge benefits across 11,000 irrigated acres in the Subbasin.

Historically (2010-2019), OID diverts between approximately 165,000 AF to 246,000 AF, with an overall average of approximately 208,000 AF. Given OID's existing surface water rights of 300,000 AF from the Stanislaus ~~(300,000 AF)~~River and its overall average system inflows, the surface water ~~contemplated for~~deliveries estimated from this Project amounts to approximately 22% of the total available surface water supply ~~above and beyond that necessary to meet their existing customer demands (on an average basis).~~. As a result, ~~if~~ this Project ~~were approved, it would provide~~provides the opportunity for OID to meet a portion of the NDE area needs ~~while retaining some volume of water for "high-value" out-of-basin water transfers.~~.

Voluntary transfers of water have provided a basis for funding improvements to the OID distribution system under the District's Water Resources Plan. ~~-~~As water is conserved and transferred, OID receives revenue and implements additional improvements, resulting in additional water conservation. More information on OID's WRP implementation to date can be found in Section 8 of OID's AWMP. Both the OID WRP and AWMP are available for reference on OID's website (www.oakdaleirrigation.com). OID has participated in numerous water transfers in the past and continues to seek opportunities for mutually beneficial temporary transfer agreements with water users (agricultural, urban, and others) outside of the District.

#### *8.3.2.2.2. Public Noticing*

The public and other agencies will continue to be notified of the planned or ongoing implementation of ~~PMA~~project activities through the outreach and communication channels identified in the GSP, during the preparation process of the PEIR (if applicable), and during updates presented at regularly scheduled STRGBA GSA meetings. Noticing will occur as potential activities are being considered for implementation, and as ongoing and planned activities are implemented. Noticing will inform the public and other agencies that the proponent is considering or will be implementing the ~~PMA~~project and will provide a description of the actions that will be taken.

Public and/or inter-agency noticing may be facilitated through ~~the GSA's board~~STRGBA GSA meetings and/or ~~District~~local agency meetings, associated website(s), inter-basin coordination meetings, other public meetings hosted by the GSAs, ~~GSP annual reports~~Annual Reports and ~~five-year updates~~Periodic Evaluations, public scoping meetings, and/or ~~environmental/regulatory~~applicable permitting notification processes.

Review and approval of both the 10-Year Program and the Paulsell Expansion has occurred at public OID Board of Directors meetings. Numerous presentations of both the 10-Year Program and the Paulsell Expansion have occurred at other Board meetings, workshops, and venues. Landowners impacted by the Paulsell Expansion and those participating in the 10-Year Program continue to be updated by OID staff about project progress on a regular basis.

#### *8.3.2.2.3. Permitting and Regulatory Process*

Required permitting and regulatory review would be initiated as necessary through consultation with applicable governing agencies. Surface water would be diverted ~~for~~through this Project by OID ~~through~~via existing water rights. Governing agencies that may be consulted for this Project include but are not limited to the State Water Resources Control Board (SWRCB), ~~the County(ies) of~~ Stanislaus and/or Tuolumne Counties, USBR, and DWR.

If necessary, Project proponent will obtain any applicable permits from the ~~County(ies).~~Tuolumne and/or Stanislaus Counties. Recharge projects and construction or expansion of conveyance facilities may also require an environmental review process under CEQA. CEQA review has been completed for both the 10-Year Program and the Paulsell Expansion.

#### *8.3.2.2.4. Expected Benefits*

***Benefits to Sustainability Indicators***

For fields that are irrigated using groundwater, surface water deliveries during the irrigation season are expected to offset groundwater demand and provide in-lieu groundwater recharge benefits. ~~-~~Some additional recharge is anticipated to occur from canal and reservoir seepage in the expanded conveyance network. The sustainability indicators expected to benefit from this Project are groundwater levels, groundwater ~~in~~ storage, land subsidence, and interconnected surface water~~, and land subsidence (depending on where recharge occurs).~~. All benefits to sustainability indicators in the ~~Modesto~~ Subbasin will be evaluated through groundwater monitoring at nearby monitoring sites, identified in the GSP.

***Benefits to Disadvantaged Communities***

The Oakdale Irrigation District ~~in-lieu~~In-Lieu and ~~direct recharge~~Direct Recharge Project is expected to provide direct ~~or~~and in-lieu recharge for parcels in the NDE ~~landowners~~ area. ~~The majority of~~Several communities in the ~~Modesto~~ Subbasin, including the NDE area, are classified as DACs, SDACs, or EDAs (according to 2018 census data, evaluated by place, tract, and block group). Depending on which specific parcels receive surface water deliveries, this Project may directly benefit specific DACs in this area. In addition, maintenance or improvement of groundwater levels will help to protect beneficial groundwater use by rural domestic wells from potential adverse impacts related to ~~chronic~~ groundwater level decline. Benefits to groundwater conditions in the ~~Modesto~~ Subbasin are also expected to ~~broadly~~ benefit all DACs, SDACs, and EDAs.

***Volumetric Benefits to the Subbasin Groundwater System***

The expected yield of the ~~Oakdale Irrigation District in-lieu and direct recharge~~ Project was estimated ~~by simulating this Project in~~through simulations using the C2VSimTM model. General information and assumptions used to simulate this Project are summarized in the

~~Implementation~~following section ~~below~~. Additional information is provided in **Section 8.5: Plan for Achieving Sustainability~~Plan for Achieving Sustainability~~**.

On average across all years, the ~~Oakdale Irrigation District in-lieu and direct recharge~~ Project is expected to provide approximately 14,400 AFY of recharge benefit to the ~~Modesto~~ Subbasin. These benefits would accrue in all hydrologic conditions except for ~~critically dry years~~Critically Dry WYs (approximately 72 percent of years historically). In ~~those years~~non-Critically Dry WYs, approximately 20,000 AFY of groundwater recharge is expected to occur.

Evaluation of benefits will be based on analysis of without-Project and with-Project measurements supported by modeling. Measured parameters will include surface water deliveries, groundwater levels, and other parameters to be determined. Modeling has been done with the C2VSimTM model used for GSP development and will continue to be analyzed during plan implementation.

#### *8.3.2.2.5. Implementation Criteria, Status, and Strategy*

***Implementation Strategy and Timeline***

The Project involves the delivery of surface water from the Stanislaus River in Wet, Above Normal, Below Normal and Dry ~~water years (~~WYs~~)~~ through a limited number of existing and new points of diversions off OID's existing irrigation conveyance infrastructure and subsequent newly constructed private irrigation conveyance infrastructure for in-lieu and direct recharge during the growing season. ~~It is~~ The 10-Year Program has entered its second year and the 10-Year term ends in 2032, at which time the OID Board of Directors may decide to extend the program at the request of the participants for another 10-Year term. New turnouts for participants without existing service connections have been installed on the OID canals and it is expected that ~~most of the Project water~~those landowners will ~~be used for in-lieu recharge on parcels that have previously purchased surface water from OID, but it is anticipated that other NDE growers will participate as additional~~have their private conveyance ~~infrastructure is constructed.~~

~~This Project is currently in the early conceptual stage. Thus,~~systems connected no later than the start ~~and completion dates for this Project have yet to be determined and will be provided in GSP Annual Reports and Five-Year Assessment Reports when known~~of the 2025 irrigation season.

Construction of the Paulsell Expansion is proposed to start in Fall 2024 with completion by Spring 2026.

***Implementation Assumptions for Modeling***

The OID In-~~lieu~~Lieu and Direct Recharge Project has been modeled in the C2VSimTM model. Additional information about Project-related modeling is described in **Section 8.5: Plan for Achieving Sustainability.**

The following general information and assumptions were used to simulate implementation of the Project:

- Volume of water: Up to 20,000 AFY of water was made available in all years except critically dry hydrologic year types. Surface water deliveries were made within the irrigation season, distributed based on agricultural demand. The annual average water supply during the 50-year simulation period would be ~~of~~approximately 14,400 AFY.
- The location of the in-lieu and direct recharge would be within the NDE area, located near existing OID conveyance facilities and those parcels with low/med infrastructure requirements.

#### *8.3.2.2.6. Water Source and Reliability*

The Project ~~contemplates~~anticipates the delivery of approximately 20,000 AF of surface water from the Stanislaus River in all ~~water years (~~WYs~~)~~ except Critically Dry WYs~~, through a limited number of existing and new points of diversions off OID's existing irrigation conveyance infrastructure and subsequent newly constructed private irrigation conveyance infrastructure for in-lieu and direct recharge during the growing season.~~.~~ Historically (2010-2019), OID diverts between approximately 165,000 AF to 246,000 AF, with an overall average of approximately 208,000 AF. Given OID's existing surface water rights of up to 300,00 AF from the Stanislaus ~~(300,000 AF)~~ and its overall average system inflows, the surface water ~~contemplated for~~deliveries expected from this Project amounts to approximately 22% of the total available surface water~~ supply above and beyond that necessary to meet their existing customer demands (on an average basis).~~.~~ As a result, ~~if~~ this Project ~~were approved, it would provide~~provides the opportunity for OID to meet a portion of the NDE area ~~demands while retaining some volume of water for "high-value" out-of-basin water transfers~~needs.

#### *8.3.2.2.7. Legal Authority*

The GSAs, Districts, and ~~individual~~ Project proponents have the authority to plan and implement Projects through consultation with applicable governing agencies. OID has the authority to contract with and provide deliveries to ~~non-districted east~~NDE landowners ~~area~~, and individual irrigators have the authority to apply surface water to their fields for in-lieu recharge.

#### *8.3.2.2.8. Estimated Costs and Funding Plan*

Potential costs of this Project ~~may~~ include ~~Project~~ coordination and administration, permitting, CEQA analysis, construction or expansion of conveyance facilities, and financial or other incentives to encourage in-lieu use. Costs per site may vary depending on proximity to OID conveyance facilities and changes in Project implementation or incentives. The total costs of the Project will vary over time depending on how many NDE landowners

participate, the amount of construction necessary, the volumetric rate of OID surface water deliveries, and the extent to which irrigators require coordination and support.

~~This Project is currently in~~ Costs related to the ~~early conceptual stage. Thus, the anticipated costs have yet to be determined~~new turnout construction, CEQA process, and ~~will be reported in GSP Annual Reports and Five-Year Assessment Reports when known. However, high-level initial estimates are on the order of $17,780,000 - $25,000,000 of new conveyance~~private irrigation infrastructure~~. The majority of costs are anticipated to be~~ for the 10-Year Program have been borne by the ~~NDE~~program participants~~, however, STRGBA GSA member agencies may identify funding sources to cover Project costs as part of Project development. These may include grants (e.g., Prop 1, Prop 68, NRCS, others), fees, and loans. The~~ .

The participating NDE landowners will ~~ultimately~~also be responsible for ~~the cost of new private conveyance infrastructure and~~maintenance costs of the turnout, flowmeter, and appurtenances as well as the volumetric rate of OID surface water deliveries. The volumetric price of out-of-District surface water began at $200 per acre-foot during the first year of the 10-Year Program and is subject to a rate increase of 3% each year thereafter.

The estimated cost of design and construction of all three phases of the Paulsell Expansion was $18.6M. OID received $14.4M in funding under a DWR SGMA Implementation Grant for the design of all three phases and the construction of the first phase of the Paulsell Expansion. The first phase includes most of the major construction components (tunnels, siphons, control structures), and will provide a significant improvement to the level of irrigation service. OID or NDE stakeholder groups may pursue future grant funding opportunities to complete construction of the final two phases of the Paulsell Expansion.

#### *8.3.2.2.9. Management of Groundwater Extractions and Recharge*

Per 23 CCR § 354.44(b)(9), all PMAs developed for implementation are targeted to maintain the balance of groundwater extractions and recharge to help ensure that lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels and storage in other years.

In-lieu recharge benefits of this Project are expected to increase the use and recharge of available surface water supplies during wetter years, helping to offset potential increases in groundwater pumping during drought when surface water supplies are limited.

### 8.3.3. Flood Mitigation Projects

#### 8.3.3.1. Tuolumne River Flood Mitigation and Direct Recharge Project (Project 7)

#### *8.3.3.1.1. Project Description*

The Tuolumne River Flood Mitigation and Direct Recharge Project (Project) is intended to be a cooperative long-term Project between ~~Modesto Irrigation District (MID)~~MID and the NDE

landowners and is designed to be implemented with no impacts to MID's existing agricultural and urban customers. Currently developed agriculture in the NDE areas of the ~~Modesto subbasin~~Subbasin is estimated to be approximately 36,000 acres, of which approximately 30,000 acres is deciduous fruits and nuts (permanent crops). With limited exception, the entire NDE area is solely reliant on groundwater from the Modesto subbasin. The Project ~~is different than~~differs from the Modesto Irrigation District In-lieu and Direct Recharge Project, namely from a timing perspective, and involves the delivery of approximately 20,000 AF of surface water from the Tuolumne River in Wet and Above Normal ~~water years (WYs) through a limited number of new points of diversions off MID's existing irrigation conveyance infrastructure and subsequent conveyance through newly constructed private irrigation conveyance infrastructure for storage and direct recharge~~WYs during the non-growing season. Historically (1972-2020), Wet and Above Normal WYs have occurred approximately 47% of the time on the Tuolumne River. In addition to measurable benefits to groundwater resources within the ~~Modesto subbasin~~Subbasin, this Project is intended to mitigate flood releases from Don Pedro Reservoir during the winter months whereby reducing impacts on the lower Tuolumne River (City of Modesto and growers near the confluence of the lower Tuolumne River and the San Joaquin River), the San Joaquin River and the Delta. Under the current Final Environmental Impact Statement for the relicensing of Don Pedro Reservoir, there is estimated to be approximately 1,500,000 AF of surface water in Wet WYs and 620,000 AF of surface water in Above Normal WYs in the Tuolumne River ~~above and beyond that~~. These water volumes exceed what is necessary to ~~meeting~~meet existing customer demands (all Tuolumne River Partners) and the recommended instream flow obligations. As a result, 20,000 AF of Tuolumne River surface water to applicable NDE areas during the non-growing season amounts to approximately 1% and 3% of available surface water supply respectively, for Wet and Above Normal WYs. New licenses for diversions/water rights may be required for this Project.

#### *8.3.3.1.2. Public Noticing*

The public and other agencies will be notified of the planned or ongoing implementation of ~~PMA~~Project activities through the outreach and communication channels identified in the GSP, during the preparation process of the PEIR (if applicable), and during updates presented at regularly scheduled STRGBA GSA meetings. Noticing will occur as potential activities are being considered for implementation, and as ongoing and planned activities are implemented. Noticing will inform the public and other agencies that the proponent is considering or will be implementing the ~~PMA~~Project and will provide a description of the actions that will be taken.

Public and/or inter-agency noticing may be facilitated through ~~the GSA's board~~STRGBA GSA meetings and/or ~~District~~local agency meetings, associated website(s), inter-basin coordination meetings, other public meetings hosted by the GSAs, ~~GSP annual reports~~Annual Reports and ~~five-year updates~~Periodic Evaluations, public scoping meetings, and/or ~~environmental/regulatory~~ applicable permitting notification processes.

#### *8.3.3.1.3. Permitting and Regulatory Process*

Required permitting and regulatory review would be initiated as necessary through consultation with applicable governing agencies. Surface water would be diverted ~~for~~through this ~~Project~~project by MID ~~through~~via existing ~~pre- and post-1914~~ water rights. Governing agencies that may be consulted for this Project include but are not limited to the State Water Resources Control Board (SWRCB), ~~the County(ies) of~~ Stanislaus and/or Tuolumne Counties, USBR, and DWR.

If necessary ~~for field flooding, the,~~ Project ~~proponent~~proponents will obtain ~~land grading~~any applicable permits from the ~~County(ies).~~Tuolumne and Stanislaus Counties. Recharge ~~Projects~~projects and construction or expansion of conveyance facilities may also require an environmental review process under CEQA.

#### *8.3.3.1.4. Expected Benefits*

***Benefits to Sustainability Indicators***

Surface water deliveries during the non-irrigation season are expected to provide direct groundwater recharge to the Subbasin. For fields that are irrigated using groundwater, surface water deliveries during the irrigation season are expected to offset groundwater demand and provide groundwater recharge benefits. In both cases, the sustainability indicators expected to benefit from this Project are groundwater levels, groundwater ~~in~~ storage, land subsidence, and interconnected surface water~~, and land subsidence (depending on where recharge occurs).~~ All benefits to sustainability indicators in the ~~Modesto~~ Subbasin will be evaluated through groundwater monitoring at nearby monitoring sites, identified in the GSP.

***Benefits to Disadvantaged Communities***

The Tuolumne River flood mitigation and direct recharge Project is expected to provide direct recharge for NDE landowners area. Most communities in the ~~Modesto~~ Subbasin, particularly the NDE area, are classified as DACs, SDACs, or EDAs (according to 2018 census data, evaluated by place, tract, and block group). Depending on which specific parcels receive surface water deliveries, this Project may directly benefit specific DACs in this area. In addition, maintenance or improvement of groundwater levels will help to protect beneficial groundwater use by rural domestic wells from potential adverse impacts related to ~~chronic~~ groundwater level decline. Benefits to groundwater conditions in the ~~Modesto~~ Subbasin are also expected to ~~broadly~~ benefit all DACs, SDACs, and EDAs.

***Volumetric Benefits to the Subbasin Groundwater System***

The expected yield of the Tuolumne River ~~flood mitigation~~Flood Mitigation and ~~direct recharge~~Direct Recharge Project was estimated ~~by simulating this Project in~~through simulations using the C2VSimTM model. General information and assumptions used to simulate this Project are summarized in the ~~Implementation~~following section below. Additional information is provided in **Section 8.5**: **Plan for Achieving Sustainability~~Plan for Achieving Sustainability~~.**

On average across all years, the ~~Tuolumne River flood mitigation and direct recharge Project~~project is expected to provide approximately 9,600 AFY of recharge benefit to the ~~Modesto~~ Subbasin. These benefits would accrue in years with ~~wet~~Wet or ~~above normal~~Above Normal hydrologic conditions when sufficient water is expected to be available for on-farm recharge (approximately 50 percent of years historically). In those years, approximately 20,000 AFY of groundwater recharge is expected to occur.

Evaluation of benefits will be based on analysis of without-~~Project~~project and with-~~Project~~project measurements supported by modeling. Measured parameters will include surface water deliveries, groundwater levels, and other parameters to be determined. Modeling ~~may~~for the Project will be done with the ~~C2VsimTM~~C2VSimTM model used for GSP development.

#### *8.3.3.1.5. Implementation Criteria, Status, and Strategy*

***Implementation Strategy and Timeline***

Project involves the delivery of surface water from the Tuolumne River in Wet and Above Normal ~~water years~~WYs through a limited number of new points of diversions off MID's existing irrigation conveyance infrastructure and subsequent conveyance through newly constructed private irrigation conveyance infrastructure for direct recharge~~.~~ during the growing season. It is expected that fields with non-permanent crops, permeable soils, and existing flood irrigation infrastructure will be most suitable for Project participation.

~~This Project is currently in the early conceptual stage.~~The Project is planned for discussion with the MID Water Advisory Committee to determine if an implementation plan will be prepared and recommended to Board of Directors for approval. Thus, the start and completion dates for this Project have yet to be determined and will be provided in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known~~Periodic Evaluations.

However, once Project implementation begins, it is expected that MID would deliver surface water during wet and above normal hydrologic years (approximately 50 percent of years historically) when sufficient water is available for field flooding and on-farm recharge. MID would deliver surface water to participating fields, and irrigators would use that water to flood their fields for recharge. Subsequent analysis of projected water availability, actual annual application rates, and extent of participating lands will be necessary as Project development continues and implementation begins.

***Implementation Assumptions for Modeling***

The Tuolumne River Flood Mitigation Direct Recharge Project has been modeled in the ~~C2VsimTM model~~C2VSimTM~~. Additional information about project-related modeling is described in **Section 8.5: Plan for Achieving Sustainability.**~~

~~The following general information and assumptions were used to simulate implementation of the project:~~

model. Additional information about project-related modeling is described in **Section 8.5: Plan for Achieving Sustainability**.

The following general information and assumptions were used to simulate implementation of the Project:

- Volume of water: 20,000 AFY were provided during Wet and Above Normal years, distributed between the months of January and February for direct recharge. The annual average during the 50-year simulation period would be ~~of~~ 9,600 AFY.

#### *8.3.3.1.6. Water Source and Reliability*

The Project involves the delivery of approximately 20,000 AF of surface water from the Tuolumne River in Wet and Above Normal ~~water years~~WYs through a limited number of new points of diversions off MID's existing irrigation conveyance infrastructure and subsequent conveyance through newly constructed private irrigation conveyance infrastructure for and direct recharge during the non-growing season. Historically (1972-2020), Wet and Above Normal WYs have occurred approximately 47% of the time on the Tuolumne River. ~~In addition to measurable benefits to groundwater resources within the Modesto subbasin, this Project is intended to mitigate flood releases from Don Pedro Reservoir during the winter months whereby reducing impacts on the lower Tuolumne River (City of Modesto and growers near the confluence of the lower Tuolumne River and the San Joaquin River), the San Joaquin River and the Delta.~~ Under the current Final Environmental Impact Statement for the relicensing of Don Pedro Reservoir, there is estimated to be approximately 1,500,000 AF of surface water in Wet WYs and 620,000 AF of surface water in Above Normal WYs in the Tuolumne River above and beyond that necessary to meeting existing customer demands (all Tuolumne River Partners) and the recommended instream flow obligations. As a result, 20,000 AF of Tuolumne River surface water to applicable NDE areas during the non-growing season amounts to approximately 1% and 3% of available surface water supply respectively, for Wet and Above Normal WYs. New licenses for diversions/water rights may be required for this project.

#### *~~8.3.3.1.6.~~8.3.3.1.7. Legal Authority*

The GSAs, Districts, and individual Project proponents have the authority to plan and implement projects through consultation with applicable governing agencies. MID has the authority to contract with and provide deliveries to ~~non-districted east~~NDE landowners ~~area~~, and individual irrigators have the authority to apply surface water to their fields for on-farm recharge.

#### *~~8.3.3.1.7.~~8.3.3.1.8. Estimated Costs and Funding Plan*

Potential costs ~~of~~for this Project ~~may~~ include ~~Project~~ coordination and administration, financial, or other incentives to encourage on-farm recharge, field preparation to enhance flooding, and other potential on-field monitoring equipment. Costs per site may vary depending on changes in Project implementation and incentives. Slightly higher costs per

site would likely be incurred in the first year an irrigator participates, as more coordination and site preparation may be required. The total costs of the Project will vary over time, depending on the number of sites receiving water, the extent to which irrigators require coordination and support, and any applicable Project incentives.

This Project is currently in the early conceptual stage. Thus, the anticipated costs have yet to be determined and will be reported in GSP Annual Reports and Five-Year Assessment Reports when known. This project shares the same infrastructural development as the Modesto Irrigation District In-Lieu and Direct Recharge Project (Project 5). However, if implemented without Project 5, high-level initial estimates are on the order of $53,340,000 – $75,000,000 of new conveyance infrastructure. It is anticipated that STRGBA GSA member agencies and/or NDE landowners would identify funding sources to cover Project costs as part of Project development. These may include grants (e.g., Prop 1, Prop 68, NRCS, others), fees, and loans.

#### ~~*8.3.3.1.8.*~~*8.3.3.1.9.* *Management of Groundwater Extractions and Recharge*

Per 23 CCR § 354.44(b)(9), all PMAs developed for implementation are targeted to maintain the balance of groundwater extractions and recharge to help ensure that lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels and storage in other years.

Recharge benefits of this Project are expected to increase the use and recharge of available surface water supplies during wetter years, helping to offset potential increases in groundwater pumping during drought when surface water supplies are limited.

### 8.3.3.2. Dry Creek Flood Mitigation and Direct Recharge Project (Project 8)

#### *8.3.3.2.1. Project Description*

The Dry Creek Flood Mitigation and Direct Recharge Project (Project) is intended to be a cooperative long-term Project implemented by the NDE landowners and is designed to be constructed and managed in a way to prevent negative impacts to downstream users. Currently developed agriculture in the NDE areas ~~of the Modesto subbasin~~ is estimated to be approximately 36,000 acres, of which approximately 30,000 acres ~~is~~are deciduous fruits and nuts ~~(permanent crops).~~. With limited exception, the entire NDE area is solely reliant on groundwater from the Modesto Subbasin. The Project involves the delivery of approximately 5,400 AF of surface water from Dry Creek through a limited number of new and/or existing points of diversions off Dry Creek and subsequent conveyance through new and/or existing private irrigation conveyance infrastructure for direct recharge during the non-growing season. The volume of water associated with this Project was derived from previous work done on behalf of Stanislaus County and is representative of only a fraction of modeled results for a 2-year storm event in the lower reaches of Dry Creek. As a result, both the frequency and volume of water available are conservative estimates. In addition to measurable benefits to groundwater resources within the Modesto subbasin, this Project is

intended to mitigate flood flows in Dry Creek whereby reducing impacts on the lower Tuolumne River (City of Modesto and growers near the confluence of the lower Tuolumne River and the San Joaquin River), the San Joaquin River and the Delta. ~~-~~New licenses for diversions/water rights may be required for this project.

#### *8.3.3.2.2. Public Noticing*

The public and other agencies will be notified of the planned or ongoing implementation of ~~PMA~~Project activities through the outreach and communication channels identified in the GSP, during the preparation process of the PEIR (if applicable), and during updates presented at regularly scheduled STRGBA GSA meetings. Noticing will occur as potential activities are being considered for implementation, and as ongoing and planned activities are implemented. Noticing will inform the public and other agencies that the proponent is considering or will be implementing the ~~PMA~~Project and will provide a description of the actions that will be taken.

Public and/or inter-agency noticing may be facilitated through ~~the GSA's board~~STRGBA GSA meetings and/or ~~City and Agency~~local agency meetings, associated website(s), inter-basin coordination meetings, other public meetings hosted by the GSAs, ~~GSP annual~~Annual reports and ~~five-year updates~~Periodic Evaluations, public scoping meetings, and/or ~~environmental/regulatory~~applicable permitting notification processes.

#### *8.3.3.2.3. Permitting and Regulatory Process*

Required permitting and regulatory review would be initiated as necessary through consultation with applicable governing agencies. Surface water would be diverted through this project by MID via existing water rights. Governing agencies that may be consulted for this ~~Project~~project include but are not limited to the State Water Resources Control Board (SWRCB), ~~the County(ies) of~~ Stanislaus and/or Tuolumne Counties, USBR, and DWR.

If necessary~~ for field flooding, the,~~ Project ~~proponent~~proponents will obtain ~~land grading~~any applicable permits from the ~~County(ies).~~Tuolumne and Stanislaus Counties. Recharge projects and construction or expansion of conveyance facilities may also require an environmental review process under CEQA.

#### *8.3.3.2.4. Expected Benefits*

***Benefits to Sustainability Indicators***

Surface water deliveries from storm events during the non-irrigation season are expected to provide direct groundwater recharge to the Subbasin. The sustainability indicators expected to benefit from this ~~Project~~project are groundwater levels, groundwater ~~in~~ storage, land subsidence, and interconnected surface water~~, and land subsidence (depending on where recharge occurs).~~. All benefits to sustainability indicators in the ~~Modesto~~ Subbasin will be evaluated through groundwater monitoring at nearby monitoring sites, identified in the GSP.

***Benefits to Disadvantaged Communities***

The Dry Creek ~~flood mitigation~~Flood Mitigation and ~~direct recharge~~Direct Recharge Project is expected to provide direct recharge for NDE landowners area. Most communities in the ~~Modesto~~ Subbasin, including the NDE area, are classified as DACs, SDACs, or EDAs (according to 2018 census data, evaluated by place, tract, and block group). Depending on which specific parcels receive surface water deliveries, this Project may directly benefit specific DACs in this area. In addition, maintenance or improvement of groundwater levels will help to protect beneficial groundwater use by rural domestic wells from potential adverse impacts related to chronic groundwater level decline. Benefits to groundwater conditions in the ~~Modesto~~ Subbasin are also expected to ~~broadly~~ benefit all DACs, SDACs, and EDAs.

***Volumetric Benefits to the Subbasin Groundwater System***

The expected yield of the Dry Creek ~~flood mitigation~~Flood Mitigation and ~~direct recharge~~Direct Recharge Project was estimated ~~by simulating this Project~~through simulations in the C2VSimTM model. General information and assumptions used to simulate this Project are summarized in the ~~Implementation~~following section ~~below~~. Additional information is provided in **Section 8.5**: **Plan for Achieving Sustainability**~~**Plan for Achieving Sustainability**~~.

On average across all years, ~~Dry Creek flood mitigation and direct recharge~~the Project is expected to provide approximately 5,400 AFY of recharge benefit to the ~~Modesto~~ Subbasin.

~~Evaluation of benefits will be based on analysis of without-Project and with-Project measurements supported by modeling. Measured parameters will include surface water deliveries, groundwater levels, and other parameters to be determined.~~ Evaluation of benefits will be based on analysis of without-project and with-project measurements supported by modeling. Measured parameters will include surface water deliveries, groundwater levels, and other parameters to be determined. ~~Modeling may~~Modeling will be done with the C2VSimTM model used for GSP development.

### *8.3.3.2.5. Implementation Criteria, Status, and Strategy*

***Implementation Strategy and Timeline***

The Project ~~involves~~anticipates the delivery of approximately 5,400 AF of surface water from Dry Creek through a limited number of new and/or existing points of diversions off Dry Creek and subsequent conveyance through new and/or existing private irrigation conveyance infrastructure for direct recharge during the non-growing season. At the initiation of this Project and on an ongoing basis, the GSAs and/or NDE landowners plan to identify fields that are most suitable for groundwater recharge. It is expected that fields with non-permanent crops, permeable soils, and existing flood irrigation infrastructure will be most suitable for Project participation.

This Project is currently in the early conceptual stage. Thus, the start and completion dates for this Project have yet to be determined and will be provided in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known~~Periodic Evaluations.

However, once Project implementation begins, it is expected that storm water would be available for diversion during wet and above normal hydrologic years (approximately 50 percent of years historically) when sufficient water is available for field flooding and on-farm recharge. Subsequent analysis of projected water availability, actual annual application rates, and extent of participating lands will be necessary as Project development continues and implementation begins.

***Implementation Assumptions for Modeling***

The Dry Creek Flood Mitigation Direct Recharge Project has been modeled in the C2VSimTM. Additional information about project-related modeling is described in **Section 8.5: Plan for Achieving Sustainability**.

The following general information and assumptions were used to simulate implementation of the ~~model. Additional information about project-related modeling is described in **Section 8.5: Plan for Achieving Sustainability.**~~

~~The following general information and assumptions were used to simulate implementation of the~~ project:

- Volume of water: 5,400 AFY were diverted during all years, distributed evenly in the months of January and February. The annual average during the 50-year simulation period would be ~~of~~ 5,400 AFY.
- The total volume would be applied as direct recharge over the aquifer.

***8.3.3.2.6. Water Source and Reliability***

The Project involves the diversion and application of approximately 5,400 AF of surface water from Dry Creek through a limited number of new and/or existing points of diversions off Dry Creek and subsequent conveyance through new and/or existing private irrigation conveyance infrastructure for direct recharge during the non-growing season. The volume of water associated with this Project was derived from previous work done on behalf of Stanislaus County and is representative of only a fraction of modelled results for a 2-year storm event in the lower reaches of Dry Creek. As a result, both the frequency and volume of water available are conservative estimates. In addition to measurable benefits to groundwater resources within the ~~Modesto subbasin~~Subbasin, this Project is intended to mitigate flood flows in Dry Creek whereby reducing impacts on the lower Tuolumne River (City of Modesto and growers near the confluence of the lower Tuolumne River and the San Joaquin River), the San Joaquin River and the Delta. ~~-~~New licenses for diversions/water rights may be required for this project.

#### *8.3.3.2.7. Legal Authority*

The GSAs and ~~individual~~ Project proponents have the authority to plan and implement projects through consultation with applicable governing agencies. Individual irrigators have the authority to apply surface water to their fields for on-farm recharge. However, new licenses for diversions/water rights may be required for this Project.

#### *8.3.3.2.8. Estimated Costs and Funding Plan*

Potential costs of this Project ~~may~~ include ~~Project~~ coordination and administration, financial, or other incentives to encourage on-farm recharge, field preparation to enhance flooding, and other potential on-field monitoring equipment. Costs per site may vary depending on changes in ~~Project~~project implementation and incentives. Slightly higher costs per site would likely be incurred in the first year an irrigator participates, as more coordination and site preparation may be required. The total costs of the Project will vary over time, depending on the number of sites receiving water, the extent to which irrigators require coordination and support, and any applicable Project incentives.

This Project is currently in the early conceptual stage. Thus, the anticipated costs have yet to be determined and will be reported in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known~~Periodic Evaluations. However, high-level initial estimates are on the order of $4,800,600 - $6,750,000 of new conveyance infrastructure. It is anticipated that STRGBA GSA member agencies would identify funding sources to cover Project costs as part of ~~Project~~ development. These may include grants (e.g., Prop 1, Prop 68, NRCS, others), fees, and loans.

#### *8.3.3.2.9. Management of Groundwater Extractions and Recharge*

Per 23 CCR § 354.44(b)(9), all PMAs developed for implementation are targeted to maintain the balance of groundwater extractions and recharge to help ensure that lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels and storage in other years.

In particular, recharge benefits of this ~~Project~~project are expected to increase the use and recharge of available surface water supplies during wetter years, helping to offset potential increases in groundwater pumping during drought when surface water supplies are limited.

## 8.4. ~~OTHER~~SUPPLEMENTAL PROJECTS ~~TO BE IMPLEMENTED AS NEEDED (GROUP 3)~~

This section describes ~~potential Project(s)~~Projects that ~~would~~may be implemented ~~if determined~~in the Subbasin to support local goals and future GSA activities (Supplemental Projects, Table 8-~~Table 8-1~~). Group 3 projects are not currently planned for implementation; however, the GSAs will continue assessing their feasibility to ~~be necessary, pending future conditions in the Modesto Subbasin (Group 3 Projects, Table 8-1). While~~support sustainable groundwater management. Regardless, should these ~~Projects could contribute~~projects be implemented, the projects would provide benefits in contributing to the attainment of SMCs

and the sustainability goal ~~and support GSP implementation, they~~. Group 3 projects are in the early conceptual or planning stages at this time, with no specific implementation timeline established.

~~To the extent that future monitoring indicates the occurrence of undesirable results in the Subbasin, additional Projects will be implemented to address these changing conditions. As additional development occurs for the Projects described below or for other projects identified in the future, updates will be documented and reported in subsequent GSP Annual Reports and Five-Year Assessment Reports.~~

~~*Summary of Criteria for Project Implementation (23 CCR §354.44(b)(1)(A))*~~

*Summary of Criteria for Project Implementation (23 CCR §354.44(b)(1)(A))*

As described above, the Projects described in this section are still in the early conceptual or planning stages. ~~These potential Projects could be implemented as needed to achieve and maintain long-term sustainable groundwater management across the Modesto Subbasin. The Projects would be evaluated for implementation if, based on data gathered during GSP implementation, the GSAs find that established IMs and MOs cannot be maintained and/or if MTs are being approached. This adaptive approach will be informed by continued monitoring of groundwater conditions, using the monitoring network and methods described in the GSP. This initial list will likely be supplemented with additional projects~~ The GSAs will continue evaluating the feasibility for implementing these projects in the future. Additional projects may be added to this list as they are identified and reported through Annual Reports and ~~Five-Year Assessment Reports~~Periodic Evaluations of the GSP.

In addition, there are projects that have been considered in the past as part of the Integrated Regional Water Management Planning (IRWMP) and are included in the East Stanislaus IRWMP project database[2]. These projects are considered as potential projects to support the ~~GSP implementation~~groundwater sustainability in the Subbasin but are currently considered as alternative options and are not directly analyzed in this Chapter.

### 8.4.1. Stanislaus River Flood Mitigation and Direct Recharge Project (Project 9)

The Stanislaus River Flood Mitigation and Direct Recharge Project (Project) is ~~conceptually~~ proposed by the NDE landowners to be a cooperative long-term Project with ~~Oakdale Irrigation District (~~OID~~)~~ and is designed to be implemented with no impacts to OID's existing agricultural customers. ~~Currently developed agriculture in the NDE areas of the Modesto subbasin is estimated to be approximately 36,000 acres, of which approximately 30,000 acres is deciduous fruits and nuts (permanent crops). With limited exception, the NDE area is solely reliant on groundwater~~The project differs from ~~the Modesto subbasin. The Project is different than~~ the Oakdale Irrigation District In-lieu and Direct Recharge Project, namely

[2] http://www.eaststanirwm.org/projects/

from a timing perspective, and involves the delivery of approximately 5,000 AF of surface water from the Stanislaus River in Wet ~~water years (~~WYs~~)~~ through a limited number of new points of diversion off OID's existing irrigation conveyance infrastructure and subsequent newly constructed private irrigation conveyance infrastructure for direct recharge during the non-growing season. Storage in New Melones is approximately 2.5 times what the watershed yields on an average annual basis and as a result, the magnitude and frequency (5,000 AF and ~~wet~~Wet WYs) of this Project has been limited. Nonetheless, this Project is intended to mitigate flood releases from New Melones Reservoir during the winter months whereby reducing impacts on the lower Stanislaus River (growers along the lower Stanislaus River), the San Joaquin River and the Delta. This Project may require the acquisition of a right to divert flood flows and supplemental groundwater ~~in~~ storage application, as well as agreements with multiple agencies potentially including but not limited to, UBSR, OID, and the SWRCB for the revised operation of existing storage facilities, water diversion and rights on the Stanislaus River.

~~If this project is pursued, further~~Further analysis, consultation, and review ~~would be needed~~is anticipated prior to any ~~additional refinement~~determination of water availability and utilization ~~given it~~for the project. Additional considerations may ~~be contingent upon~~include the terms and negotiations of a new water rights permit/license ~~if required. Of note, historical~~. Historical operations of New Melones Reservoir and future water supply availability also ~~has~~have the potential to change significantly if the Lower San Joaquin River flow objectives proposed in the Bay-Delta Plan amendments and Final SED are implemented.

A summary of the Project is provided in **Table 8-~~Table 8-45~~.**

### Table 8-~~4:~~ 5: Stanislaus River Flood Mitigation and Direct Recharge Project: Summary (23 CCR §354.44(b))

| Item in GSP Regulations | Description |
|---|---|
| Implementation Strategy and Criteria (§354.44(b)(1)(A); §354.44(b)(6)) | ~~Although similar to~~Utilizing the conveyance infrastructure provided by the OID In-lieu and Direct Recharge Project, this Project ~~is different because of the timing perspective and the delivery of~~would provide approximately 5,000 AF of surface water from the Stanislaus River in Wet ~~water years (~~WYs~~). This~~. The Project is intended to mitigate flood releases from New Melones Reservoir during the winter months whereby reducing impacts on the lower Stanislaus River, the San Joaquin River, and the Delta. ~~This~~The Project is currently in the conceptual stage and ~~is a Project~~ will continue to be evaluated by the GSAs and NDE landowners ~~may wish to pursue in the future if additional Projects are needed to reach sustainability in lieu of Management Actions.~~. |
| Timeline and Implementation Status | ~~This~~ Project ~~is currently in the early conceptual stage and thus, the~~ start and completion dates ~~for this Project~~ have ~~yet to be~~not been |

| Item in GSP Regulations | Description |
|---|---|
| (§354.44(b)(4)) | determined. ~~If it should ultimately be implemented, an updated timeline~~Updates to Project activities will be provided in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports~~Periodic Evaluations. Benefits are expected to accrue in wet hydrologic year types when flood water is available for use, potentially beginning the first year of Project implementation. |
| ~~Notice to public and other agencies~~<br><br>Public Noticing<br>(§354.44(b)(1)(B)) | Public and/or inter-agency noticing ~~will~~may be facilitated through ~~GSAs and/or district board~~STRGBA GSA meetings~~, GSAs~~ and/or ~~district~~local agency meetings, associated website(s), ~~GSAs and/or district newsletters,~~ inter-basin coordination meetings, ~~GSP~~other public meetings hosted by the GSAs, Annual Reports and ~~Five-Year Assessment Reports~~Periodic Evaluations, public scoping meetings, and ~~environmental/regulatory~~/or applicable permitting notification processes. |
| Water ~~source & reliability~~Source & Reliability<br>(§354.44(b)(6)) | ~~This~~The Project would use available flood water from the Stanislaus River.<br>~~This Project is currently in the early conceptual stage.~~ The precise reliability of available water would be identified ~~if/~~when the Project ~~is~~has been evaluated and ~~selected~~developed for implementation. This information will be reported in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known~~Periodic Evaluations. |
| Legal ~~authority, permitting processes,~~Authority, Permitting and ~~regulatory control~~Regulatory Processes,<br>(§354.44(b)(3); §354.44(b)(7)) | Required permitting and regulatory review will be ~~project~~Project-specific and initiated through consultation with applicable governing agencies. Governing agencies for which consultation will be initiated ~~may include, but is not limited to: OID, USBR, DWR, SWRCB, CDFW, Flood Board, RWQCBs, USFWS, NMFS, LAFCo, County(ies) of Stanislaus and/or Tuolumne, and CARB.~~will be identified during Project evaluation. |
| Benefits and benefit evaluation methodology<br>(§354.44(b)(5)) | The sustainability indicators expected to benefit ~~are~~ would be determined during Project evaluation. Conceptually, groundwater levels, groundwater ~~in~~ storage, land subsidence, and ~~depletion of~~ interconnected surface water would benefit from this project.<br>~~This Project is currently in the early conceptual stage. Thus, the~~The expected ~~yield of this~~ groundwater benefits from the Project ~~has~~are not yet ~~to be determined~~ known and will be ~~reported in GSP Annual Reports and Five-Year Assessment Reports when known.~~<br><br>determined during project evaluation. Evaluation of benefits will be based on analysis of without-~~Project~~ project and with-~~Project~~project |

| Item in GSP Regulations | Description |
|---|---|
| | effects on ~~the SGMA~~ sustainability indicators. Each Project may be evaluated as part of a scenario and the C2VSimTM would be used to assess the benefits and impacts on the subbasin sustainability. |
| Costs (§354.44(b)(8)) | ~~This Project is currently in the early conceptual stage. Thus, the~~ The anticipated costs of this Project ~~have yet to~~will be determined ~~and will be reported in GSP Annual Reports and Five-Year Assessment Reports when known. The NDE landowners, as the~~during its evaluation. The Project proponent~~,~~ would identify funding sources to cover ~~Project~~ costs as part of Project development. These may include grants, fees, loans, and other assessments. |

### 8.4.2. Retention Basin Standards Specifications Update (Project 10)

~~This Project~~The Retention Basin Standards Specifications Update Project (Project) would aim to change standards for future storm drains so that the drains would not discharge straight to rivers, creeks, or canals but rather to retention basins. This would increase the sustainability footprint of the City of Modesto through future growth. ~~Currently, approximately 16.37 Square miles out of 45 Square miles (~~Approximately 36 percent~~)~~ of the surface area in the City of Modesto ~~area drain~~drains to surface water, with approximately 64 percent draining and contributing to local recharge. If the City of Modesto adopts new storm drain standards, 100 percent of runoff from newly developed areas would reach a retention system with an approximate runoff coefficient of 0.7~~,~~ and an average rainfall of 12.14 inches per year.

A summary of the Project is provided in **Table 8-~~Table 8-5~~6**.

### Table 8 ~~5:~~ 6: Retention Basin Standards Specifications Update: Summary (23 CCR §354.44(b))

| Item in GSP Regulations | Description |
|---|---|
| Implementation Strategy and Criteria (§354.44(b)(1)(A); §354.44(b)(6)) | ~~This~~The Project would aim to change standards for future storm drains so that the drains would not discharge straight to rivers, creeks, or canals ~~but~~ rather ~~to~~than retention basins. ~~This~~The Project is currently in the conceptual stage and is ~~a Project~~ being evaluated by the GSAs ~~may decide to pursue in the future if additional strategies are needed to reach sustainability~~. |
| Timeline and Implementation Status (§354.44(b)(4)) | ~~This~~ Project ~~is currently in the early conceptual stage and will be implemented at the discretion of the GSAs. Thus, the~~ start and completion dates ~~for this Project~~ have ~~yet to be~~not been determined ~~and if the GSAs determine it should be implemented, an update~~. Updates on Project activities will be provided in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports.~~Periodic Evaluations. Benefits are expected to accrue in all years and potentially beginning the first year of ~~Project~~ implementation. |
| ~~Notice to public and other agencies~~ Public Noticing (§354.44(b)(1)(B)) | Public and/or inter-agency noticing ~~will~~may be facilitated ~~by the City of Modesto as well as~~ through ~~GSAs and/or City council~~STRGBA GSA meetings~~, GSAs~~ and/or ~~city~~local agency meetings, associated website(s), ~~GSAs and/or district newsletters,~~ inter-basin coordination meetings, ~~GSP~~other public meetings hosted by the GSAs, Annual Reports and ~~Five-Year Assessment Reports~~Periodic Evaluations, public scoping meetings, and ~~environmental/regulatory~~/or applicable permitting notification processes. |

| Item in GSP Regulations | Description |
|---|---|
| Water ~~source & reliability~~Source & Reliability (§354.44(b)(6)) | This Project would use urban storm runoff flows from the City of Modesto. This Project is currently in the early conceptual stage. The precise reliability of available water would be identified ~~if/~~when the Project ~~is~~has been evaluated and selected and developed for implementation. This information ~~would~~will be reported in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known~~Periodic Evaluations. |
| Legal ~~authority, permitting processes,~~Authority, Permitting and ~~regulatory control~~Regulatory Processes (§354.44(b)(3); §354.44(b)(7)) | ~~The GSAs and individual Project proponents have the authority to plan and implement projects.~~ Required permitting and regulatory review will be project-specific and initiated through consultation with applicable governing agencies. Governing agencies for which consultation will be initiated ~~may include, but is not limited to: DWR, SWRCB, CDFW, Flood Board, RWQCBs, USFWS, NMFS, LAFCo, County of Stanislaus, and CARB.~~will be identified during Project evaluation. |
| Benefits and ~~benefit evaluation methodology~~Benefit Evaluation Methodology (§354.44(b)(5)) | The sustainability indicators expected to benefit ~~are~~ would be determined during Project evaluation. Conceptually, groundwater levels, groundwater ~~in~~ storage, land subsidence, and ~~depletion of~~ interconnected surface water~~.~~<br>~~This Project is currently in the early conceptual stage. Thus, the expected yield of~~ would benefit from this Project ~~has~~.<br>The expected groundwater benefits from the project are not yet ~~to be determined and would be reported in GSP Annual Reports and Five-Year Assessment Reports when~~ known~~.~~<br>and will be determined during project evaluation. Evaluation of benefits ~~would~~will be based on analysis of without-~~Project~~ project and with-~~Project~~project effects on ~~the SGMA~~ sustainability indicators. Each Project may be evaluated as part of a scenario and the C2VSimTM would be used to assess the benefits and impacts on the subbasin sustainability. |
| Costs (§354.44(b)(8)) | ~~This Project is currently in the early conceptual stage. Thus, the~~ The anticipated costs of this Project ~~have yet to~~will be determined ~~and would be reported in GSP Annual Reports and Five-Year Assessment Reports when known. The Project~~during its evaluation. The project proponent would identify funding sources to cover ~~Project~~ costs as part of Project development. These sources may include grants, fees, loans, and other assessments. |

### 8.4.3. Recharge Ponds Constructed by Non-District East Landowners (Project 11)

~~This~~The Recharge Ponds Constructed by Non-District East Landowners Project (Project) would ~~aim to~~ capture ~~some~~ wintertime runoff from the Dry Creek Watershed by constructing detention basins. ~~These~~ It is anticipated the basins would be constructed by NDE Landowners. NDE participants have identified five reservoirs for direct diversion and off-stream storage through an existing water right on Dry Creek. Diversions would originate from a facility on Dry Creek, which was constructed and fully operational by February 2021, to the reservoirs for storage. Stored water would then be used during the growing season in-lieu of groundwater while also providing direct recharge benefits. Conveyance infrastructure from the diversion facility to the proposed reservoirs and receiving irrigated acreage was completed in April 2024. The Project is currently in the conceptual phase. Project scope, implementation schedule, groundwater benefits, and costs will be evaluated further and presented in Annual Reports and Periodic Evaluations.

A summary of the Project is provided in **Table 8-~~Table 8-6~~7**.

**Table 8-~~6:~~ 7: Recharge Ponds Constructed by Non-District East Landowners: Summary (23 CCR §354.44(b))**

| Item in GSP Regulations | Description |
|---|---|
| Implementation Strategy and Criteria (§354.44(b)(1)(A); §354.44(b)(6)) | This Project would ~~aim to~~ capture ~~some~~ wintertime runoff from the Dry Creek Watershed by constructing detention basins. ~~These~~It is anticipated the basins would be constructed by NDE Landowners.<br>The project is currently in the conceptual stage and is being evaluated by the GSAs. |
| Timeline and Implementation Status (§354.44(b)(4)) | ~~This~~ Project ~~is currently in the early conceptual stage and will be implemented at the discretion of the NDE Landowners. Thus, the~~ start and completion dates ~~for this Project~~ have ~~yet to be~~not been determined ~~and if the NDE Landowners determines it should be implemented, an updated timeline~~. Updates on Project activities will be provided in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports.~~Periodic Evaluations. Benefits are expected to accrue during the winter ~~periods when water is available for use, potentially~~months beginning the first year of ~~Project~~ implementation. |
| ~~Notice to public and other agencies~~ Public Noticing (§354.44(b)(1)(B)) | Public and/or inter-agency noticing may be facilitated through ~~GSAs~~ STRGBA GSA meetings and/or ~~other~~local agency meetings, ~~GSAs~~associated website(s), ~~GSAs newsletters,~~ inter-basin coordination meetings, ~~GSP~~other public meetings hosted by the GSAs, Annual Reports and ~~Five-Year Assessment Reports~~Periodic Evaluations, public scoping meetings, and ~~environmental/regulatory~~/or applicable permitting notification processes. |

| Item in GSP Regulations | Description |
|---|---|
| Water ~~source & reliability~~Source & Reliability (§354.44(b)(6)) | This ~~Project~~project would use water from the Dry Creek Watershed. This Project is currently in the early conceptual stage. The precise reliability of available water would be identified ~~if/~~when the ~~Project is~~project has been evaluated and selected and developed for implementation. This information ~~would~~will be reported in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known~~Periodic Evaluations. |
| Legal ~~authority, permitting processes,~~Authority, Permitting and ~~regulatory control~~Regulatory Processes (§354.44(b)(3); §354.44(b)(7)) | Required permitting and regulatory review will be project-specific and initiated through consultation with applicable governing agencies. Governing agencies for which consultation will be initiated ~~may include, but is not limited to: DWR, SWRCB, CDFW, Flood Board, RWQCBs, USFWS, NMFS, LAFCo, County(ies) of Stanislaus and/or Tuolumne, and CARB.~~will be identified during project evaluation. |
| Benefits and ~~benefit evaluation methodology~~Benefit Evaluation Methodology (§354.44(b)(5)) | The sustainability indicators expected to benefit ~~are~~ would be determined during project evaluation. Conceptually, groundwater levels, groundwater ~~in~~ storage, land subsidence, and ~~depletion of~~ interconnected surface water would benefit from this project. ~~This Project is currently in the early conceptual stage. Thus, the~~The expected ~~yield of this Project has~~groundwater benefits from the project are not yet ~~to be determined and would be reported in GSP Annual Reports and Five-Year Assessment Reports when~~ known~~.~~ and will be determined during project evaluation. Evaluation of benefits ~~would~~will be based on analysis of without-~~Project~~ project and with-~~Project~~project effects on ~~the SGMA~~ sustainability indicators. Each Project may be evaluated as part of a scenario and the C2VSimTM would be used to assess the benefits and impacts on the subbasin sustainability. |
| Costs (§354.44(b)(8)) | ~~This Project is currently in the early conceptual stage. Thus, the~~ The anticipated costs of this ~~Project have yet to~~project will be determined ~~and would be reported in GSP Annual Reports and Five-Year Assessment Reports when known. The NDE landowners, as the Project~~during its evaluation. The project proponent would identify funding sources to cover ~~Project~~ costs as part of ~~Project~~project development. These sources may include grants, fees, loans, and other assessments. |

### 8.4.4. OID Irrigation and Recharge to Benefit City of Oakdale (Project 12)

~~This Project~~The OID Irrigation and Recharge to Benefit City of Oakdale Project (Project) proposes to utilize surface water from OID to irrigate the City of Oakdale's parks. The first phase of this Project ~~is being~~was constructed at two City of Oakdale parks to assess the costs and benefits~~.~~ for implementation of additional components. The two parks involved in ~~this~~the initial phase are located ~~within close proximity to~~near an existing OID conveyance system. Surface water for irrigation ~~would be~~is being provided for City of Oakdale use during the irrigation, starting as early as March 1st and ending no later than October 31st each year. Anticipated yield ~~of this~~from the Project is approximately 50 AF per year. Pending results from the initial phase of the Project, expanded implementation of this Project in cooperation with OID may be subsequently considered by the City of Oakdale.

A summary of the Project is provided in Table 8-~~Table 8-7~~8.

**Table 8-~~7:~~ 8: OID Irrigation and Recharge to Benefit City of Oakdale Summary (23 CCR §354.44(b))**

| Item in GSP Regulations | Description |
|---|---|
| Implementation Strategy and Criteria (§354.44(b)(1)(A); §354.44(b)(6)) | This Project ~~would aim~~aims to reduce City of Oakdale groundwater pumping by providing OID surface water for irrigation of City parks. Construction of the first phase of implementation ~~is currently in progress.~~ has been completed. The City of Oakdale may decide to pursue expansion in the future if the first phase is successful and additional strategies are needed to reach sustainability. |
| Timeline and Implementation Status (§354.44(b)(4)) | Construction of the first phase of the Project ~~will likely be~~was completed by the summer of ~~2022.An updated timeline and~~2023. Updated Project results will be provided in GSP Annual Reports and Five-Year Assessment Reports. Benefits are expected to accrue in all hydrologic year types provided OID's surface water allocation is sufficient, potentially beginning the first year of Project implementation. |
| ~~Notice to public and other agencies~~ Public Noticing (§354.44(b)(1)(B)) | Public and/or inter-agency noticing ~~will~~may be facilitated through ~~GSAs and/or City/District board~~STRGBA GSA meetings~~, GSAs~~ and/or ~~district~~local agency meetings, associated website(s), ~~GSAs and/or district newsletters,~~ inter-basin coordination meetings, ~~GSP~~other public meetings hosted by the GSAs, Annual Reports and ~~Five-Year Assessment Reports~~Periodic Evaluations, public scoping meetings, and ~~environmental/regulatory~~/or applicable permitting notification processes. |

| Item in GSP Regulations | Description |
|---|---|
| Water ~~source & reliability~~Source & Reliability<br>(§354.44(b)(6)) | The City of Oakdale remains within the OID boundary and thus is entitled to receive OID surface water when it is available. |
| Legal ~~authority, permitting processes,~~Authority, Permitting and ~~regulatory control~~Regulatory Processes<br>(§354.44(b)(3); §354.44(b)(7)) | The Districts~~/~~, Cities, and ~~individual~~ Project proponents have the authority to plan and implement projects. Required permitting and regulatory review will be project-specific and initiated through consultation with applicable governing agencies. Governing agencies for which consultation will be initiated will be identified during project evaluation. |
| Benefits and ~~benefit evaluation methodology~~Benefit Evaluation Methodology<br>(§354.44(b)(5)) | The sustainability indicators expected to benefit are groundwater levels, groundwater ~~in~~ storage, land subsidence, and ~~depletion of~~ interconnected surface water.<br>This first phase of the Project ~~is currently being~~has been constructed. The anticipated yield of this Project is approximately 50 AF per year ~~and actual~~; results will be reported in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known.~~Periodic Evaluations once available.<br>Evaluation of benefits will be based on analysis of without-~~Project~~project and with-~~Project effects~~project impacts on the ~~SGMA~~ sustainability indicators. ~~Each Project~~The project may be evaluated as part of a scenario and the C2VSimTM would be used to assess the benefits and impacts on the ~~subbasin sustainability.~~Subbasin. |
| Costs<br>(§354.44(b)(8)) | This first phase of the ~~Project is estimated to~~project cost approximately $~~300~~250,000. Costs of any future expansion have ~~yet to be~~not been determined ~~and would be reported in GSP Annual Reports and Five-Year Assessment Reports if pursued and when known.~~. The ~~City of Oakdale, as the Project~~project proponent~~,~~ would identify funding sources to cover ~~Project~~project costs as part of ~~Project~~project development. These may include grants, fees, loans, and other assessments. |

### 8.4.5. MID ~~FloodMAR~~Flood-MAR Projects (Project 13)

~~This~~ The MID Flood-MAR Projects (Project) would support the development of flood managed aquifer recharge (~~FloodMAR~~Flood-MAR) activities in locations in ~~the Modesto Irrigation District~~MID boundaries where storm flows are available, or where existing surface

water facilities can be utilized to direct and control surface water for various beneficial uses. Components of this Project would be developed privately or as coordinated efforts. Necessary infrastructure would be installed to connect existing delivery systems to ~~FloodMAR~~Flood-MAR activities. ~~This~~The Project is ~~a~~still conceptual ~~Project~~ and ~~has not benefited from~~undergoing evaluation, however, the next steps would likely include a feasibility analysis ~~or any subsequent~~and design.

A summary of the Project is provided in **Table 8-~~Table 8-89~~**.

**Table 8-~~8:~~ 9: MID ~~FloodMAR~~Flood-MAR Projects Summary (23 CCR §354.44(b))**

| Item in GSP Regulations | Description |
|---|---|
| Implementation Strategy and Criteria (§354.44(b)(1)(A); §354.44(b)(6)) | This Project would support the development ~~of flood-managed aquifer recharge (FloodMAR)~~Flood-MAR activities in locations in ~~the Modesto Irrigation District~~MID where storm flows are available, or where existing surface water facilities can be utilized to direct and control stormwater for various beneficial uses.<br><br>~~The Project may be implemented and would be monitored and quantified with respect to groundwater conditions, as needed, if sustainable levels are not reached following implementation of other PMAs.~~<br>~~This is currently in the conceptual stage and is a Project that may be considered in the future if additional strategies are needed to reach sustainability.~~ |
| Timeline and Implementation Status (§354.44(b)(4)) | ~~This~~ Project ~~is currently in the early conceptual stage thus, the~~ start and completion dates ~~for this Project~~ have ~~yet to be~~not been determined. ~~If the Project proponents determine it should be implemented, an updated timeline~~Updates on project activities will be provided in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports.~~ Periodic Evaluations.<br><br>Benefits would be expected to accrue in ~~wet~~Wet and ~~above normal hydrologic years~~Above Normal WYs when flood water is available for use~~, potentially beginning the first year of Project implementation.~~. |
| ~~Notice to public and other agencies~~ Public Noticing (§354.44(b)(1)(B)) | Public and/or inter-agency noticing ~~would~~may be facilitated through ~~GSAs and/or district board~~STRGBA GSA meetings~~, GSAs~~ and/or ~~district~~local agency meetings, associated website(s), ~~GSAs and/or district newsletters,~~ inter-basin coordination meetings, ~~GSP~~other public meetings hosted by the GSAs, Annual Reports and ~~Five-Year Assessment Reports~~Periodic Evaluations, public scoping meetings, and ~~environmental/regulatory~~/or applicable permitting notification processes. |

| Item in GSP Regulations | Description |
|---|---|
| Water ~~source & reliability~~Source & Reliability (§354.44(b)(6)) | This Project would use water from storm flows or other excess flow. This Project is currently in the early conceptual stage. The precise reliability of ~~storm flows or other excess flows~~available water would be identified ~~if/~~when the ~~Project is~~project has been evaluated and selected and developed for implementation. This information ~~would~~will be reported in ~~GSP~~ Annual Reports and ~~Five-Year Assessment Reports when known~~Periodic Evaluations. |
| Legal ~~authority, permitting processes,~~Authority, Permitting and ~~regulatory control~~Regulatory Processes (§354.44(b)(3); §354.44(b)(7)) | Required permitting and regulatory review will be project-specific and initiated through consultation with applicable governing agencies. Governing agencies for which consultation will be initiated ~~may include, but is not limited to: MID, DWR, SWRCB, CDFW, Flood Board, RWQCBs, USFWS, NMFS, LAFCo, County(ies) of Stanislaus and/or Tuolumne, and CARB.~~will be identified during project evaluation. |
| Benefits and ~~benefit evaluation methodology~~Benefit Evaluation Methodology (§354.44(b)(5)) | The sustainability indicators expected to benefit ~~are~~ would be determined during project evaluation. Conceptually, groundwater levels, groundwater ~~in~~ storage, land subsidence, and ~~depletion of~~ interconnected surface water would benefit from this project. ~~This Project is currently in the early conceptual stage. Thus, the~~The expected ~~yield of this Project has~~groundwater benefits from the project are not yet ~~to be determined and would be reported in GSP Annual Reports and Five-Year Assessment Reports when~~ known~~.~~ and will be determined during project evaluation. Evaluation of benefits ~~would~~will be based on analysis of without-~~Project~~ project and with-~~Project~~project effects on ~~the SGMA~~ sustainability indicators. Each Project may be evaluated as part of a scenario and the C2VSimTM would be used to assess the benefits and impacts on the subbasin sustainability. |
| Costs (§354.44(b)(8)) | ~~This Project is currently in the early conceptual stage. Thus, the~~ The anticipated costs of this ~~Project have yet to~~project will be determined ~~and would be reported in GSP Annual Reports and Five-Year Assessment Reports when known. The Project~~during its evaluation. The project proponent would identify funding sources to cover ~~Project~~ costs as part of ~~Project~~project development. These sources may include grants, fees, loans, and other assessments. |

## 8.5. MANAGEMENT ACTIONS

This Section identifies and describes proposed Management Actions (MA) that may be undertaken by the Modesto Subbasin GSAs as an element of GSP implementation. Management Actions generally refer to non-structural programs or policies designed to incentivize reductions in groundwater pumping, optimize management of the Subbasin, or implement GSA management authorities. **Table 8-9** shows a list of the six MAs organized into two categories: demand reduction strategies (**Section 8.4.1**) and pumping management framework (**Section 8.4.2**). Demand reduction strategies are a broad and strategic set of actions intended to reduce water demand, some of which may be incentivized by State programs or policies, or by a pumping management framework. The pumping management framework provides a suite of administrative procedures, programs, and policies that describe how the GSAs will manage and monitor groundwater extractions. Implementation activities such as monitoring, annual reporting, and GSP updates are discussed in further detail in **Chapter 9.**

As described in **Chapter 5**, the Subbasin has experienced overdraft conditions. Per § 354.44(b)(2), the GSP must describe Projects or MAs, including a quantification of demand reduction or other methods, for the mitigation of overdraft. Several Projects identified in earlier sections of this chapter would increase the available water in the Subbasin through increased recharge or use of alternate supplies and are expected to reduce the groundwater deficit sufficiently to achieve the Subbasin's sustainability goal. Additional Group 3 projects could be implemented to further decrease this deficit if necessary. Projects will need to be implemented as soon as feasible to prevent the need for MAs to be imposed. MAs are strategies the GSAs could additionally implement or implement in parallel to assist in achieving the sustainability goal if needed. A modeling analysis to assess the effectiveness of the current Group 1 and Group 2 projects is provided in **Section 8.5**. Although the C2VSim-TM model used in this analysis is currently the best available tool for this analysis, its ability to accurately predict future groundwater levels is limited and the estimate is therefore approximate and subject to future refinement. In addition, the extent and effectiveness of the Group 3 projects that will be implemented in the future, and of the water conservation MAs described in **Sections 8.4.1** and **8.4.2** is not yet known.

This section describes potential MAs that could be implemented in the Subbasin. While the tools described in this section will be available for implementation basin wide, implementation will be determined based upon need within each Management Area separately. PMAs implemented in one Management Area represent that Management Area's contributions to subbasin sustainability. As such, it is anticipated that responsibility for implementing MAs will correspond with the relative Management Area contribution to overdraft and impacts associated with other sustainability criteria within that Management Area.

A range of MAs is presented to allow the GSAs flexibility in their response to changing groundwater conditions and as data gaps and uncertainties are addressed during GSP implementation. However, it is anticipated that not all MAs will need to be implemented, or that individual MAs may be implemented by the GSAs in one Management Area but not by the other. In addition, implementation of MAs will be based on adaptive management strategies informed by ongoing monitoring of groundwater conditions using the monitoring network and methods described in the GSP. Monitoring data will be used to assess the need for PMAs in the Subbasin as a whole, in the Management Area, and at specific locations. This will occur incrementally as monitoring data become available, the effectiveness of prior PMAs is established, and knowledge of the Subbasin improves over time. The advent or threat of undesirable results and the performance or failure of the Subbasin to meet Interim Milestones or Measurable Objectives will serve as triggers for scaling and implementing both Projects and MAs in a targeted and proportional manner, consistent with conditions observed in the Subbasin.

**Table 8-9** lists the MAs described in the subsections that follow. Each MA description is organized to address the applicable regulatory requirements:

- Management Action Description: 23 CCR §354.44(b)
- Public Notice: 23 CCR §354.44(b)(1)(B)
- Permitting and Regulatory Process: 23 CCR §354.44(b)(3)
- Expected Benefits: 23 CCR §354.44(b)(4), §354.44(b)(5)
- Implementation Criteria, Status, and Plan: 23 CCR §354.44(b)(1)(A); §354.44(b)(4); §354.44(b)(6)
- Water Source and Reliability: 23 CCR §354.44(b)(6)
- Legal Authority: 23 CCR §354.44(b)(7)
- Estimated Costs and Funding Plan: 23 CCR §354.44(b)(8)
- Management of Groundwater Extractions and Recharge: 23 CCR §354.44(b)(9)

*Summary of Criteria for Project Implementation (23 CCR §354.44(b)(1)(A))*

Most of the MAs described in this section are presented as frameworks and will be fully developed into implementation plans during the first years of GSP implementation as indicated in the subsequent sections. These potential MAs will be implemented by the GSAs as needed to achieve and maintain long-term sustainable groundwater management across the Modesto Subbasin. They would be evaluated and selected for implementation if, based on data gathered during GSP implementation, the GSAs find that established IMs and MOs cannot be maintained and/or if MTs are being approached. This adaptive approach will be informed by continued monitoring of groundwater conditions, using the monitoring network and methods described in the GSP.

**Table 8-9: List of Management Actions**

| Category | Number | Proponent[2] | Management Action | Primary Mechanism(s)[1] | Partner(s) |
|---|---|---|---|---|---|
| **Demand Reduction Strategies** | 1 | Modesto Subbasin GSAs | Voluntary Conservation and/or Land Fallowing | Conservation/ Land Fallowing | N/A |
| | 2 | Modesto Subbasin GSAs | Conservation Practices | Conservation | N/A |
| **Water Accounting framework** | 3 | Modesto Subbasin GSAs | Groundwater Extraction and Surface Water Reporting Program | Pumping Reduction | N/A |
| | 4 | Modesto Subbasin GSAs | Groundwater Allocation and Pumping Management Program | Pumping Reduction | N/A |
| | 5 | Modesto Subbasin GSAs | Groundwater Extraction Fee | Pumping Reduction | N/A |
| | 6 | Modesto Subbasin GSAs | Groundwater Pumping Credit Market and Trading Program | Pumping Reduction | N/A |

[1]The primary mechanism of the MA as conceptualized. MAs may support groundwater sustainability through multiple mechanisms during implementation.

[2] It is anticipated that MAs will be implemented by the GSAs or by each GSA member agency as needed to mitigate overdraft within their jurisdictional areas and assure that the SMC adopted in **Chapter 6** are met.

### 8.5.1. Demand Management Strategies

In case Projects are insufficient to manage the Subbasin in a sustainable condition, strategies may need to be developed to manage the agricultural and urban water demands in the Subbasin. These strategies could be implemented in the form of voluntary conservation and/or land fallowing (see **Section 8.4.1.1**) or other urban and agricultural conservation practices (see **Section 8.4.1.2**). While conservation practices are expected to be implemented throughout GSP implementation, specific strategies are in preliminary stages of discussion and possible consideration. Should the Modesto Subbasin GSAs decide to pursue a program in the future, the program would be implemented as necessary in a targeted and proportional manner consistent with conditions observed in the Subbasin. Similarly, the Conservation Practices MA is expected to be implemented adaptively.

### 8.5.1.1. Voluntary Conservation and/or Land Fallowing (Management Action 1)

#### *8.5.1.1.1 8.1.1.1.1. Management Action Description*

Voluntary Conservation and/or Land Fallowing covers several strategies that can be designed to achieve both temporary and permanent water demand reduction. Should the Modesto Subbasin GSAs decide to pursue such strategies, this MA would assess options and develop a program to incentivize voluntary conservation and/or fallowing strategies in close coordination and collaboration with the landowners. Examples of this strategy could include repurposing of lands growing lower value crops. These lands could be dry farmed, fallowed in rotation, or used for recreation, habitat restoration, groundwater recharge, or solar power generation. This MA would also try to prioritize those lands that are more favorable for groundwater recharge projects.

Temporary or permanent land fallowing could also be combined with recharge projects through the application of surplus surface water supplies to the fallowed lands.

#### *8.5.1.1.2 8.1.1.1.1. Public Noticing*

A successful Voluntary Conservation and/or Land Fallowing program will require a comprehensive and strategic outreach effort, including multiple public workshops and meetings, potential website and/or email announcements, along with other public notices for the workshops. The outreach will be targeted to both potential participants of the program (landowners) as well as other stakeholders who may be impacted by changes to land and water use.

#### *8.5.1.1.3 8.1.1.1.1. Permitting and Regulatory Process*

Preparation of a CEQA evaluation for a fallowing program will identify potential environmental impacts and identify feasible alternatives or feasible mitigation measures. Establishment of a voluntary land fallowing program is expressly authorized under SGMA (CWC, §10726.2(c)). The fallowing program, including program standards, will be developed and undergo CEQA review as necessary.

#### *8.5.1.1.4 8.1.1.1.1. Expected Benefits*

***Benefits to Sustainability Indicators***

Sustainability indicators that could benefit from Voluntary Conservation and/or Land Fallowing include:

- Chronic lowering of groundwater levels – By reducing groundwater demand, this MA would reduce pumping and pumping-related contributions to chronic lowering of groundwater levels.
- Reduction of groundwater in storage – Reduced pumping throughout the Subbasin contributes to a smaller rate of reduction of groundwater in storage.

- Land subsidence – Depending on the location of land fallowing or conservation, reduced pumping stress on local aquifer(s) may reduce the potential for subsidence.
- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***

Benefits to disadvantaged communities overlap with the benefits described above for sustainability indicators. Land repurposing can also provide other ancillary benefits to local communities, such as recreation.

***Volumetric Benefits to Subbasin Groundwater System***

The volumetric benefit to the groundwater system would depend on the extent to which a Voluntary Conservation and/or Land Fallowing program is adopted and would be further studied when the program is implemented by the GSAs.

***8.5.1.1.5 8.1.1.1.1. Implementation Criteria, Status, and Plan***

Temporary fallowing is a quick way to reduce demand with no capital costs or infrastructure needed. Because it is inexpensive, it can be implemented earlier and quicker while other long-term solutions like land repurposing are investigated. The Modesto Subbasin GSAs may explore options for encouraging voluntary and temporary fallowing during GSP implementation while developing a more structured program and exploring funding opportunities.

The Voluntary Conservation and/or Land Fallowing program is in preliminary stages of discussion and consideration. Should the Modesto Subbasin GSAs decide to pursue a program in the future, the program would be implemented as necessary in a targeted and proportional manner consistent with conditions observed in the Subbasin. To maximize recharge potential, the preservation lands that are more favorable for recharge projects could be prioritized while developing this MA. The implementation timeline has yet to be determined but would be provided in GSP annual reports and five-year updates when known. Any future changes in implementation would be communicated with the public and other agencies and would be documented in GSP annual reports and five-year updates.

***8.5.1.1.6 8.1.1.1.1. Water Source and Reliability***

This program does not rely on the supplies from outside the Subbasin because it is a planning effort that will result in conservation. It will support overall supply reliability by reducing overdraft in the Subbasin and moving the Subbasin towards sustainability.

***8.5.1.1.7 8.1.1.1.1. Legal Authority***

The GSAs have authority to "provide for a program of voluntary fallowing of agricultural lands or validate an existing program" (CWC, §10726.2(c)).

This MA carries forward the policy of the state and satisfies SGMA requirements by establishing a voluntary program that encourages water within the Subbasin to be dedicated to beneficial uses of water in a manner designed to achieve the sustainability goals and to protect against undesirable results.

#### *8.5.1.1.8.8.1.1.1.1. Estimated Costs and Funding Plan*

The Voluntary Conservation and/or Land Fallowing program is in preliminary stages of discussion and possible consideration. Therefore, no costs have been estimated for its development and implementation. Such costs would be developed should the Modesto Subbasin GSAs decide to pursue a program in the future. Separately, multiple funding programs exist as a potential source of revenue for individual landowners looking at options for land repurposing, including (EDF, 2021):

- Mitigation or Conservation Banks
- Conservation Easements
- Solar Rentals
- Grazing Leases
- Converting to Low Water Intensity Crops
- Federal and State Grant Funding Programs

#### *8.5.1.1.9. Management of Groundwater Extractions and Recharge*

This MA encourages the conservation of water; this will be applicable during both drought and non-drought conditions.

### 8.5.1.2. Conservation Practices (Management Action 2)

#### *8.5.1.2.1.8.1.1.1.1. Management Action Description*

This MA would create a program to support the use of conservation practices in both urban and agricultural sectors.

Urban water suppliers are already obligated to consider demand reduction and conservation efforts during dry periods. These demand MAs are described in their respective Urban Water Management Plans (UWMPs). These include:

- City of Modesto Urban Water Management Plan (West Yost Associates, 2016b)
  - https://www.modestogov.com/860/Urban-Water-Management-Plan
- Modesto Irrigation District Urban Water Management Plan (West Yost Associates, 2021)
  - https://wuedata.water.ca.gov/public/uwmp_attachments/2173444449/R%20-%20418%20-%20City%20of%20Modesto_MID%20-%20Final%202020%20UWMP%20%20-%2006-23-21.pdf

- City of Riverbank Urban Water Management Plan (KSN Inc, 2016)
  - https://www.riverbank.org/610/Urban-Water-Management-Plan-WSCP
- City of Oakdale Urban Water Management Plan (MCR Engineering, 2015)
  - https://cadwr.app.box.com/s/hg3k8bc9vuka689jkh1x4f9i1n58ey9a/file/521558561581
- City of Waterford (covered under City of Modesto 2015 UWMP)

In addition, SB 606 and AB 1668, both signed into law in May 2018, are laws that introduce conservation mandates that will cap indoor residential use and set a target for efficient outdoor landscape irrigation based on local climate and size of landscaped areas. Urban water suppliers will be required to report on progress to meeting urban water use objectives beginning in 2023 and comply with them beginning in 2028.

In addition to meeting urban water use objectives, this MA could include changing standards for storm drainage so that storm flows do not discharge straight to a river, creek, or canal, as contemplated by the City of Modesto as a potential Group 3 Project. This would help increase the sustainability footprint of the City of Modesto as it grows. Currently approximately 36% of the City of Modesto area drains to a river or canal, while approximately 64% is captured for local recharge. If the City of Modesto adopts new Storm Drain Standards, 100% of runoff from newly developed areas would reach a retention system and contribute to recharge.

In addition to urban conservation, agricultural water suppliers serving more than 25,000 irrigated acres must adopt an Agricultural Water Management Plan (AWMP) that include reports on the implementation status of specific Efficient Water Management Practices required by the Water Conservation Act of 2009 (SB X7-7). Agencies that have developed AWMPs include:

- Modesto Irrigation District Agricultural Water Management Plan
  - https://www.mid.org/water/awmp/default.html
- Oakdale Irrigation District Agricultural Water Management Plan
  - https://wuedata.water.ca.gov/public/awmp_attachments/3350354850/OID%202020%20AWMP%20FINAL%20210323.pdf

The Modesto Subbasin GSAs may choose to evaluate the existing UWMPs and AWMPs in the Subbasin and either expand upon minimum requirements to increase the impact of such programs or implement similar conservation practice programs in other areas of the Subbasin that may not be covered under an UWMP or AWMP.

Notably, conservation practices must be considered in the greater context of the Subbasin water budget, especially at the nexus between on-farm water use and groundwater sustainability. In areas where groundwater is the primary or sole water supply, conservation practices that reduce water demand may also reduce groundwater consumption, but

conservation practices may also have unintended consequences that impede water conservation and sustainable groundwater management. Some of these consequences directly result from irrigation efficiency improvements: applying less water to an area and reducing the gap between irrigation and consumptive use also reduces deep percolation and seepage to the groundwater system. Other consequences may stem from behavioral responses and changes in irrigation resulting from these technologies and policies. If less water can be used to produce the same amount of a crop product, growers may be inclined to use the same amount of water and produce more (Lankford, et al., 2020). Additional considerations on the promises, pitfalls, and paradoxes of irrigation efficiency in water management planning are described by Lankford et al. (2020).

Further details on any expansion of the Conservation Practices program are preliminary as of the time of publishing and would need to be developed and refined further during GSP implementation.

#### *8.5.1.2.2. Public Noticing*

The Modesto Subbasin GSAs anticipates that public outreach and education on the potential structure of the Conservation Practices program, as well as feasible monitoring and enforcement mechanisms, would be necessary to enable a successful program. Outreach may include public notices, meetings, potential website presence and email announcements. Initial program implementation would likely focus on voluntary compliance while the GSAs or GSAs member agencies consider the necessary elements to begin enforcing the program potentially by 2027 (five years after adopting and submitting the GSP). This date is contingent upon monitoring results and achievement of Interim Milestones.

#### *8.5.1.2.3 8.1.1.1.1. Permitting and Regulatory Process*

Development of a Conservation Practices program is not a Project as defined by the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) and would therefore not trigger either.

#### *8.5.1.2.4 8.1.1.1.1. Expected Benefits*

***Benefits to Sustainability Indicators***

Sustainability indicators benefitting from Conservation Practices include:

- Chronic lowering of groundwater levels – By reducing groundwater demand, this MA would reduce pumping and pumping-related contributions to chronic lowering of groundwater levels.
- Reduction of groundwater in storage – Reduced pumping throughout the Subbasin contributes to a smaller rate of reduction of groundwater in storage.
- Degraded water quality – This MA does not address this sustainability indicator.

- Land subsidence – Depending on the location of Conservation Practices, reduced pumping stress on local aquifer(s) may reduce the potential for subsidence.
- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***

Benefits to disadvantaged communities overlap with the benefits described above for sustainability indicators. Depending on how they're structured, urban conservation programs may also provide a financial benefit to individual users who reduce their water consumption, either via a lower water bill or reduced demand on a domestic well.

***Volumetric Benefits to Subbasin Groundwater System***

The volumetric benefit to the groundwater system will depend on the extent to which a Conservation Practices program is implemented and will be further studied if a program is developed by the GSAs.

***8.5.1.2.5 8.1.1.1.1. Implementation Criteria, Status, and Plan***

The implementation timeline has yet to be determined but would be provided in GSP annual reports and five-year updates when known. Any future changes in implementation would be communicated with the public and other agencies and would be documented in GSP annual reports and five-year updates.

***8.5.1.2.6 8.1.1.1.1. Water Source and Reliability***

This MA does not rely on the supplies from outside the Subbasin because it is a planning effort that will result in conservation benefits. It will support overall supply reliability by reducing groundwater demand in the Subbasin and moving the Subbasin towards sustainability.

***8.5.1.2.7 8.1.1.1.1. Legal Authority***

The Modesto Subbasin GSAs have the authority to develop a Conservation Practices program and may perform implementation and enforcement of practices via implementation of fees for noncompliance or through metering or other methods to quantify groundwater use. Mechanisms for enforcement would be outlined in the Conservation Practices program once developed and are expected to be enforced by the Modesto Subbasin GSAs and/or member agencies.

***8.5.1.2.8 8.1.1.1.1. Estimated Costs and Funding Plan***

Costs for UWMP and AWMP report preparation and submittals are ongoing for urban and agricultural water suppliers, respectively. Any future costs related to additional programming or program enforcement have yet to be developed.

***8.5.1.2.9.8.1.1.1.1. Management of Groundwater Extractions and Recharge***

This MA encourages the conservation of water; this will be applicable during both wet and dry conditions.

**8.5.2. Water Accounting Framework**

The Water Accounting Framework consists of four-tiered MAs that would be implemented in a prioritized order as determined by the Modesto Subbasin GSAs to meet the Subbasin's sustainability goal. Not all MAs may be needed. Subbasin conditions will be evaluated against the sustainability management criteria when considering whether an additional tiered MA is needed. The tiered order of potential Water Accounting Framework MAs implementation is:

1. Groundwater Extraction and Surface Water Accounting Reporting or Monitoring Program (Management Action 3) – see **Section 8.4.2.1**
2. Groundwater Allocation Program (Management Action 4) – see **Section 8.4.2.2**
3. Groundwater Extraction Fee (Management Action 5) – see **Section 8.4.2.3**
4. Groundwater Pumping Credit Market and Trading Program (Management Action 6) – see **Section 8.4.2.4**

The process of providing annual reports to DWR and of GSA self-reporting will allow them to update the Plan and adjust the implementation course as needed based on changing conditions.

**8.5.2.1. Groundwater Extraction and Surface Water Accounting Reporting or Monitoring Program (Management Action 3)**

***8.1.1.2.1 Management Action Description***

As required in SGMA regulations, groundwater extraction has been calculated by the GSAs for this GSP using the groundwater model (**Appendix C**). Presently, the GSAs intend to continue with its current data collection and groundwater extraction monitoring techniques. This MA is provided as an alternative to allow the GSAs flexibility and additional options in the event more or alternative forms of data are needed in the future.

There are several ways that this MA could be implemented by the GSAs. For this plan, two potential components have been developed and include a voluntary program and a comprehensive program. However, these two potential components are provided only as options, and likely would be implemented in Management Areas that are determined to be net extractors. If this MA is initiated, the GSAs will further develop options before implementing.

- Voluntary program – This program is intended to provide an annual reporting of groundwater use by agricultural and private well owners and surface water transfers for in-lieu use. The Data Management System will be set up with

appropriate input data forms for voluntary reporting of groundwater use as well as other relevant information, such as irrigated acreage, crop type, and sources of water.

- Comprehensive program – This program is a more robust and elaborate strategy for reporting groundwater extraction that is intended to cover all groundwater users and surface water transfers for in-lieu use. Implementation of this program can be using satellite imagery to estimate the evapotranspiration of crops by parcel. Additionally, this strategy can take the form of requiring the installation of meters at all agricultural wells.

The Groundwater Extraction Reporting Program would exclude *de minimis* extractors (domestic use of 2 AF or less per year) but may also include surface water accounting in the Subbasin due to the amount of surface water transferred from MID and OID to the NDE area used for in-lieu and direct recharge.

***8.1.1.2.28.1.1.2.1 Public Noticing***

Successful implementation of either component of this program would require the support and coordination of member agencies, well owners throughout the Subbasin, and other stakeholders.

The voluntary program would be noticed via public outreach and education about the logistics of participating in the program as well as the purpose and importance of doing so. Outreach may include public notices, meetings, potential website presence and email announcements.

The comprehensive program would involve more of a robust planning process. The Modesto Subbasin GSAs anticipates that public outreach and education on the potential structure of this program would be necessary, including public notices, meetings, potential website presence and email announcements.

***Permitting and Regulatory Process***

The Groundwater Extraction Reporting Program is not expected to require any permitting or regulatory involvement.

***Expected Benefits***

***Benefits to Sustainability Indicators***

Direct measurement of groundwater extractions may not have direct impacts on sustainability indicators but would improve future water budget and sustainable yield refinement. The accurate and widespread collection of extraction data would provide the Modesto Subbasin GSAs with critical information to assist in management of the Subbasin, development of additional MAs, and monitoring the success of the GSP against the sustainable management criteria.

***Benefits to Disadvantaged Communities***

The Groundwater Extraction Reporting Program would exclude *de minimis* extractors.

***Volumetric Benefits to Subbasin Groundwater System***

Measurement of groundwater extractions provides a vast improvement to the refinement of water budgets and basin storage calculations.

***8.5.2.1.1 8.1.1.1.1 Implementation Criteria, Status, and Plan***

The Modesto Subbasin GSAs will develop annual reports to evaluate progress toward meeting the sustainability goal. If monitoring efforts demonstrate that the Projects and MAs being implemented are not effective in achieving stated targets, the GSAs will convene a working group to evaluate the implementation of additional supply-side and demand-side actions, such as the implementation of tiered approaches in the Pumping Management Framework.

***8.1.1.2.5 Water Source and Reliability***

This management action is an accounting and monitoring program and as such does not rely on water availability. The Groundwater Extraction and Surface Water Accounting Reporting or Monitoring Program is a planning effort that will support overall supply reliability by providing additional information for better management of the Subbasin and moving the Subbasin towards sustainability.

***8.1.1.2.6 8.1.1.2.5 Legal Authority***

SGMA provides GSAs with the authority to regulate the pumping of groundwater in order to stabilize the region's water supply and recharge aquifers. As such, the GSAs have the authority to: "control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, . . . or otherwise establishing groundwater extraction allocations" (CWC, §10726.4(a)).

***8.1.1.2.7 8.1.1.2.5 Estimated Costs and Funding Plan***

The estimated costs for the Groundwater Extraction Reporting Program would vary depending on the components that are implemented:

- The costs for the voluntary component are minimal and include:
  - One-time costs for initial public outreach and setup of tools and procedures to receive and compile voluntary submitted data
  - Ongoing annual administrative costs to review and compile the voluntarily submitted data as well as continued outreach
- The costs for implementing the more comprehensive program would be larger as they may include:

- One-time costs to develop a remote sensing system or a more comprehensive program to track and monitor well meters, in addition to public outreach
- Ongoing annual costs to administer the program, whether via purchase and analysis of the latest remote sensing data or to track and collect data from well meters

The Groundwater Extraction Reporting Program is in preliminary stages of discussion and possible consideration. Therefore, no costs have been estimated for its development and implementation. Such costs would be developed should the Modesto Subbasin GSAs decide to pursue a program in the future.

***8.5.2.1.2.8.1.1.2.5 Management of Groundwater Extractions and Recharge***

This program would directly develop and expand the reporting of groundwater extractions, including during both dry and wet periods, to support better management of the Subbasin.

**8.5.2.2.8.1.1.1. Groundwater Allocation Program (Management Action 4)**

***8.5.2.2.1.8.1.1.1.1. Management Action Description***

This strategy considers the development of a Groundwater Allocation Program for the Subbasin that would result in groundwater sustainability for the Subbasin as a whole.

Outlined here is a framework for how the Modesto Subbasin GSAs might develop and implement pumping allocations in the Subbasin based on the magnitude of projected overdraft estimated by Subbasin modeling.

There are four key steps to developing pumping allocations:

1. Identify the sources of water contributing to the native yield and estimate the quantity of native yield for the subbasin annually (see **Chapter 6** of this GSP)
2. 1. Estimate the amount of native yield that can be used annually consistent with the Sustainable Yield

3. 1. Allocate native yield to groundwater right holders based on:
    a. Priority of right
    b. a. Prescription
    c. a. Other legal principles, such as reasonable use

4. Determine how to account for new/additional supplies
5. Develop a timeline for reducing pumping to achieve allocations over time

The Groundwater Allocation Program is only conceptual at this time. There are numerous ways to structure and implement an allocation program which will need to be further evaluated, developed, and refined by the Modesto Subbasin GSAs prior to implementation.

***8.5.2.2.2.8.1.1.1.1. Public Noticing***

Development of a Groundwater Allocation Program would require substantial public input to understand the potential impacts of groundwater allocations and baseline needs that should be accounted for. The Modesto Subbasin GSAs anticipates that public outreach would include multiple public workshops and meetings, potential website and/or email announcements, along with other public notices for the workshops. The Groundwater Allocation Program would be circulated for public comment before finalized, though final approval of the plan would be made by the Modesto Subbasin GSAs in partnership with their respective member agencies. Implementation of the program may be confined to specific Management Areas.

***8.5.2.2.3.8.1.1.1.1. Permitting and Regulatory Process***

Development of a Groundwater Allocation Program would not require any permitting but would require consideration of existing water rights and applicable permits and regulations associated with groundwater pumping in the Subbasin.

***8.5.2.2.4.8.1.1.1.1. Expected Benefits***

***Benefits to Sustainability Indicators***

Sustainability indicators benefitting from the Groundwater Allocation Program include:

- Chronic lowering of groundwater levels – By reducing groundwater demand, this MA would reduce pumping and pumping-related contributions to chronic lowering of groundwater levels.
- Reduction of groundwater in storage – Reduced pumping throughout the Subbasin contributes to a smaller rate of reduction of groundwater in storage.
- Degraded water quality – This MA does not address this sustainability indicator.
- Land subsidence – Reduced groundwater pumping may reduce the risk of subsidence associated with lowering of groundwater levels.
- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***

Benefits to disadvantaged communities overlap with the benefits described above for sustainability indicators.

***Volumetric Benefits to Subbasin Groundwater System***

The volumetric benefit to the groundwater system will depend on the structure of the allocation framework and will be further studied if and when the program is developed by the GSAs.

***8.5.2.2.5 8.1.1.2.5 Implementation Criteria, Status, and Plan***

The Modesto Subbasin GSAs will develop annual reports to evaluate progress toward meeting the sustainability goal. If monitoring efforts demonstrate that the Projects and MAs being implemented are not effective in achieving stated targets, the GSAs will convene a working group to evaluate the implementation of additional supply-side and demand-side actions, such as the implementation of tiered approaches in the Water Accounting Framework.

***8.5.2.2.6 8.1.1.1.1. Water Source and Reliability***

This program does not rely on the supplies from outside the Subbasin because it is a planning effort that will result in conservation. It will support overall supply reliability by reducing overdraft in the Subbasin and moving the Subbasin towards sustainability.

***8.5.2.2.7 8.1.1.1.1. Legal Authority***

Under SGMA, GSAs have authority to establish groundwater extraction allocations. Specifically, SGMA authorizes GSAs to control groundwater by regulating, limiting, or suspending extractions from individual wells or extractions in the aggregate.[3] SGMA and GSPs adopted under SGMA cannot alter water rights.

***8.5.2.2.8 8.1.1.1.1. Estimated Costs and Funding Plan***

Development and initiation of an allocation program is expected to include upfront costs to conduct the analysis, set up the tracking system, and conduct outreach. Costs to implement the plan would depend on the level of enforcement required to achieve allocation targets and the level of outreach required annually to remind users of their allocation for a given year. The Groundwater Allocation Program would also include an annual cost that covers ongoing enforcement and implementation. Because the Groundwater Allocation Program is in preliminary stages of discussion and possible consideration, no costs have been estimated. Such costs could be developed if the Modesto Subbasin GSAs decide to pursue a program in the future.

***8.5.2.2.9 8.1.1.1. Management of Groundwater Extractions and Recharge***

The Groundwater Allocation Program would include provisions for the recovery of groundwater levels and groundwater in storage during non-drought periods.

[3] California Water Code § 10726.4(a)(2)

### ~~8.5.2.3. Groundwater Extraction Fee (Management Action 5)~~

#### ~~*8.5.2.3.1 8.1.1.3.1 Management Action Description*~~

~~This strategy entails setting up a Groundwater Extraction Fee structure for each groundwater user. The fee structure could work in conjunction with the groundwater allocation and reporting programs, such that groundwater use above a certain allocation can be subject to a fee. This strategy could be implemented within the GSAs as needed to achieve the sustainability goals.~~

~~Revenue from these fees could then be used to pay for a variety of activities, such as the construction of water infrastructure, protection of groundwater, proper construction and destruction of wells to prevent contamination, groundwater recharge and recovery projects, purchase of imported water or other supplies to replenish the groundwater basin, and/or purchasing and permanent fallowing of marginally productive agricultural lands dependent on groundwater. Fees could also be used to pay for administration, enforcement, and implementation of the MA.~~

#### ~~*8.5.2.3.2 8.1.1.3.1 Public Noticing*~~

~~Development of a Groundwater Extraction Fee would require substantial public input to understand the potential impacts and needs that should be accounted for. The Modesto Subbasin GSAs anticipates that public outreach would include multiple public workshops and meetings, potential website and/or email announcements, along with other public notices for the workshops. The Groundwater Extraction Fee framework would be circulated for public comment before being finalized, though final approval of the plan would be made by the Modesto Subbasin GSAs in partnership with its member agencies.~~

~~Additional noticing for the public would be conducted consistent with permitting requirements in the case of the enactment of fees. GSA outreach may include public notices, meetings, website or social media presence, and email announcements. Prior to implementing any fee or assessment program, the GSAs would complete a rate assessment study or other analysis if required by the regulatory requirements.~~

~~Per Water Code §10730, prior to imposing or increasing a fee, a groundwater sustainability agency shall hold at least one public meeting, at which oral or written presentations may be made as part of the meeting. Notice of the time and place of the meeting shall include a general explanation of the matter to be considered and a statement that the data required by this section is available. The notice shall be provided by publication pursuant to §6066 of the Government Code, by posting notice on the Internet Web site of the groundwater sustainability agency, and by mail to any interested party who files a written request with the agency for mailed notice of the meeting on new or increased fees. A written request for mailed notices shall be valid for one year from the date that the request is made and may be renewed by making a written request on or before April 1 of each year. At least 20 days prior to the meeting, the groundwater sustainability agency shall make available to the~~

public data upon which the proposed fee is based. Any action by a groundwater sustainability agency to impose or increase a fee shall be taken only by ordinance or resolution.

***8.5.2.3.3.8.1.1.3.1 Permitting and Regulatory Process***

Fees imposed pursuant to Water Code §10730 shall be adopted in accordance with all applicable laws.

A fee or charge shall not be extended, imposed, or increased by any agency unless it meets all of the following requirements:

- Revenues derived from the fee or charge shall not exceed the funds required to provide the property related service.
- Revenues derived from the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
- The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership shall not exceed the proportional cost of the service attributable to the parcel.
- No fee or charge may be imposed for a service unless that service is actually used by, or immediately available to, the owner of the property in question. Fees or charges based on potential or future use of a service are not permitted. Standby charges, whether characterized as charges or assessments, shall be classified as assessments and shall not be imposed without compliance with Section 4 (Water Code §10730).
- No fee or charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library services, where the service is available to the public at large in substantially the same manner as it is to property owners.

***8.5.2.3.4.8.1.1.3.1 Expected Benefits***

***Benefits to Sustainability Indicators***

Collection of groundwater extraction fees incentivizes the use of supplemental or alternative water supplies where fees can also fund activities/projects that increase groundwater supplies, such as groundwater recharge, thus reducing declines in groundwater elevations and groundwater in storage. Other sustainability indicators benefitting from the Groundwater Extraction Fee program include:

- Degraded water quality – Funded activities and projects can also reduce degradation of groundwater quality (such as proper construction/destruction of wells to prevent contamination).

- Land subsidence – Reduced groundwater pumping would reduce the risk of subsidence associated with lowering of groundwater levels.
- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***

Any fees would comply with CWC, §10730(a) and shall exclude *de minimis* extractors from fees, where appropriate.

***Volumetric Benefits to Subbasin Groundwater System***

The volumetric benefit to the groundwater system would depend on the framework of the fee implemented and would be further studied as the Groundwater Extraction Fee framework was developed by the GSAs.

***8.5.2.3.5 8.1.1.3.1 Implementation Criteria, Status, and Plan***

The Modesto Subbasin GSAs will develop annual reports to evaluate progress toward meeting the sustainability goal. If monitoring efforts demonstrate that the Projects and MAs being implemented are not effective in achieving stated targets, the GSAs will convene a working group to evaluate the implementation of additional supply-side and demand-side actions, such as the implementation of tiered approaches in the Water Accounting Framework.

***8.5.2.3.6 8.1.1.3.1 Water Source and Reliability***

The Groundwater Extraction Fee program will apply in both drought and non-drought periods.

***8.5.2.3.7 8.1.1.3.1 Legal Authority***

The GSAs possess the legal authority to implement special taxes, assessments, and user fees within the Project proponent service area or area of Project benefit. Fees imposed include fixed fees and fees charged on a volumetric basis, including, but not limited to, fees that increase based on the quantity of groundwater produced annually, the year in which the production of groundwater commenced from a groundwater extraction facility, and impacts to the basin.

***8.5.2.3.8 8.1.1.3.1 Estimated Costs and Funding Plan***

While there are certain administrative costs anticipated with the development and implementation of a Groundwater Extraction Fee, the Groundwater Extraction Fee itself is a

potential mechanism to fund the costs of groundwater management. This includes, but is not limited to, the following:

- Administration, operation, and maintenance, including a prudent reserve
- Acquisition of lands or other property, facilities, and services
- Supply, production, treatment, or distribution of water
- Other activities necessary or convenient to implement the plan

### *8.5.2.3.9 8.1.1.3.1 Management of Groundwater Extractions and Recharge*

This program, in conjunction with the Groundwater Extraction Reporting Program (MA 3), would directly develop and expand the reporting of groundwater extractions, including during both drought and non-drought periods, to support better management of the Subbasin.

### 8.5.2.4 8.1.1.3 Groundwater Pumping Credit Market and Trading Program (Management Action 6)

#### *8.5.2.4.1 8.1.1.3.1 Management Action Description*

Groundwater credit markets and trading programs can be used to exchange and trade the allocation of groundwater use by each landowner within the GSAs. This strategy is contingent upon implementation of the groundwater reporting and allocation programs (MAs 1 and 2), so that the credit and trading market can monitor the exchange of groundwater allocations among the landowners and/or the GSAs. Should the Modesto Subbasin GSAs decide to pursue a program in the future, the Modesto Subbasin GSAs would seek guidance from agencies with experience in water markets to identify options for communications and outreach with stakeholders, program design, and mechanisms to ensure that non-participating stakeholders are not adversely impacted by the program.

#### *8.5.2.4.2 8.1.1.3.1 Public Noticing*

Development and implementation of a Groundwater Pumping Credit Market and Trading Program would require substantial public input to understand the potential impacts and nuances of implementing such a program. The Modesto Subbasin GSAs anticipate that public outreach would include multiple public workshops and meetings, potential website and/or email announcements, along with other public notices for the workshops. The program plan would be circulated for public comment before being finalized, though final approval of the plan would be made by the Modesto Subbasin GSAs in partnership with their member agencies.

#### *8.5.2.4.3 8.1.1.3.1 Permitting and Regulatory Process*

Permitting and other regulatory compliance issues will be identified and addressed when the program is being further explored and developed, consistent with SGMA §10726.4 (a) (3 & 4).

***8.5.2.4.4 8.1.1.3.1 Expected Benefits***

***Benefits to Sustainability Indicators***
Sustainability indicators benefitting from the Groundwater Pumping Credit Market and Trading Program include:

- Chronic lowering of groundwater levels – By reducing groundwater demand, this MA would reduce pumping and pumping-related contributions to chronic lowering of groundwater levels.
- Reduction of groundwater in storage – Reduced pumping throughout the Subbasin contributes to a smaller rate of reduction of groundwater in storage.
- Degraded water quality – This MA does not address this sustainability indicator.
- Land subsidence – Reduced groundwater pumping would reduce the risk of subsidence associated with lowering of groundwater levels.
- Depletion of interconnected surface water – Reduced pumping would reduce the potential for negative impacts to surface water flows associated with lowering groundwater levels.

***Benefits to Disadvantaged Communities***
Benefits to disadvantaged communities overlap with the benefits described above for sustainability indicators.

***Volumetric Benefits to Subbasin Groundwater System***
The volumetric benefit to the groundwater system will depend on the framework of the credit market and trading program implemented and would be further studied when the program was developed by the GSAs.

***8.5.2.4.5 8.1.1.3.1 Implementation Criteria, Status, and Plan***
The Modesto Subbasin GSAs will develop annual reports to evaluate progress toward meeting the sustainability goal. If monitoring efforts demonstrate that the Projects and MAs being implemented are not effective in achieving stated targets, the GSAs will convene a working group to evaluate the implementation of additional supply-side and demand-side actions, such as the implementation of tiered approaches in the Pumping Management Framework.

***8.5.2.4.6 8.1.1.3.1 Water Source and Reliability***
The Subbasin area will be the source of groundwater and will be limited by the hydrology of the region.

***8.5.2.4.7 8.1.1.3.1 Legal Authority***
SGMA §10726.4 (a) (3 & 4) provide legal authority for groundwater transfer and accounting programs.

~~*8.5.2.4.8.8.1.1.3.1 Estimated Costs and Funding Plan*~~

~~The Groundwater Pumping Credit Market and Trading Program is in preliminary stages of discussion and possible consideration. Therefore, no costs have been estimated for its development and implementation. Such costs would be developed should the Modesto Subbasin GSAs decide to pursue a program in the future. Costs would likely include additional staffing required to administer the program and would be borne by the participants.~~

~~*8.5.2.4.9.8.1.1.3.1 Management of Groundwater Extractions and Recharge*~~

~~The implementation of a Groundwater Pumping Credit Market and Trading Program will include provisions for the recovery of groundwater levels and groundwater in storage during non-drought periods.~~

## ~~8.6.~~8.5. PLAN FOR ACHIEVING SUSTAINABILITY

### ~~8.6.1.~~8.5.1. Integrated Modeling Scenarios

To evaluate the effects of PMAs in meeting the sustainability goals of the Modesto Subbasin, Group 1 and 2 Projects have been analyzed using the C2VSimTM model. C2VSimTM is a fully integrated surface and groundwater flow model capable of analyzing the effects of the PMAs on the land surface, stream, and groundwater systems of the Modesto Subbasin. The C2VSimTM model is used to develop the GSP's water budget estimates for historical, current, and projected conditions, as well as Subbasin groundwater levels, streamflow, and interconnected surface water bodies under historical, baseline, and various Project conditions. It is understood that the projections of future groundwater conditions using the C2VSimTM model are based on the current understanding of the Subbasin, which can be further refined as more information becomes available. The 50-year projection of groundwater conditions using C2VSimTM is based on assumptions that has uncertainties in hydrologic and climatic conditions, agricultural crop mix and patterns, irrigation practices, population growth patterns and urban development trends, and land use plans, and environmental regulations. However, the C2VSimTM is currently the best available analysis tool to assist in evaluation of Project benefits and impacts, not in an absolute sense, but in a relative scale.

The analysis below evaluates the proposed projects relative to the C2VSimTM Projected Conditions Baseline. The results of this analysis are then compared to MTs to estimate the approximate amount of additional net demand reduction that will be needed to meet the sustainability goal of the Subbasin. The Projected Conditions Baseline applies the projected water supply and demand conditions under the 50-year hydrologic period of WYs 1969-2018. A total of seven (7) Group 1 and 2 Projects were grouped into two (2) scenarios based on their use-sector and Project type. Table 8-2~~Table 8-10~~ shows a matrix of the simulated

projects and their respective scenarios. Each of these projects are described in detail in **Section** 8.3~~8.2~~, with modeling assumptions outlined in sub-section 5 for each project.

### Table 8-2~~10~~: Projects Analyzed Using C2VSimTM Model

| Urban and Municipal Projects | | Scenario 1 | Scenario 2 |
|---|---|---|---|
| 1 | Growth Realization of Surface Water Treatment Plant Phase II | **Baseline** | **Baseline** |
| 2 | Municipal Conservations Projects | **X** | **X** |
| 3 | Storm Drain Cross Connection Removal Project | **X** | **X** |
| 4 | Surface Water Supply Project | **X** | **X** |
| **In-lieu Supply or Recharge Projects** | | | |
| 5 | MID to Out-of-District Lands In-lieu and Direct Recharge Project | | **X** |
| 6 | OID to Out-of-District Lands In-lieu and Direct Recharge Project | | **X** |
| **Flood Mitigation Projects** | | | |
| 7 | Tuolumne River Flood Mitigation Direct Recharge Project | | **X** |
| 8 | Dry Creek Flood Mitigation Direct Recharge Project | | **X** |

***Scenario 1: Urban and Municipal Surface Water Supply***

Scenario 1 includes the three urban and municipal projects as proposed by their respective agencies. These projects, shown in Table 8-3~~Table 8-11~~ total an average net-recharge of 13,700 AFY over the 50-year simulation period. Impacts to the subbasin were simulated by reducing the urban demand in the City of Modesto, providing surface water supplies to the City of Waterford, and incorporating additional recharge facilities throughout the City of Modesto. Table 8-3~~Table 8-11~~ below summarizes the individual and cumulative impacts of each Project within this scenario.

### Table 8-3~~11~~: Scenario 1 Project Summary

| | Project | Direct Recharge | In-Lieu Recharge | Demand Reduction |
|---|---|---|---|---|
| Urban and Municipal Projects | Municipal Conservation Projects[1] | | | 12,800 |
| | Storm Drain Cross Connection Removal Project | 200 | | |

| | | | | |
|---|---|---|---|---|
| | City of Waterford Surface Water Supply Project[1] | | 700 | |
| | All Urban and Municipal Projects | 200 | 700 | 12,800 |
| **All Scenario 1 Projects** | | **200** | **700** | **12,800** |

**Notes:** All Units are in acre-feet

[1] The City of Modesto Conservation Projects and the City of Waterford Surface Water Supply Project include beneficiaries in both the Turlock and Modesto Subbasin. The volumes in this table represent an estimated fraction of the effective contribution to the Modesto Subbasin

Scenario 1 projects are expected to reduce net groundwater pumping in the subbasin by 13,700 AFY. The net benefit to groundwater ~~in~~ storage is to reduce the projected average annual groundwater ~~in~~ storage deficit from 11,000 AFY under the Baseline conditions to 9,500 AFY with these projects, resulting in a net savings of 1,500 AFY of groundwater in storage. Details are shown in Table 8-5~~Table 8-13~~ and Error! Reference source not found.~~Error! Reference source not found.~~Figure 8-1.

Principally, Scenario 1 projects were implemented to mitigate lowering groundwater levels, depletions of interconnected surface water systems, and potential subsidence near the urban centers within the Modesto Subbasin. **Section 8.5.2** presents the simulated groundwater conditions under both the projected conditions baseline and each of the PMA scenarios.

Scenario 1 is anticipated to be implemented in conjunction with multiple other agriculturally based projects to further improve and project aquifer conditions. See the descriptions of the following scenario for information on the cumulative impacts to the system.

***Scenario 2: In-Lieu Supply Recharge and Flood Mitigation Projects***

Scenario 2 builds on the benefits of Scenario 1 to incorporate the agriculturally based in-lieu and direct recharge projects. The addition of the projects to this scenario increases the net simulated contribution to the groundwater system from an average of 13,700 AF to 71,900 AFY. The four proposed projects include

1. The MID to Out-of-District Lands In-lieu and Direct Recharge Project, providing up to 60,000 AF of in-lieu recharge in Wet and Above Normal years, or an average annual contribution of 28,800 over the 50-year simulation period.
2. The OID to Out-of-District Lands In-lieu and Direct Recharge Project, providing up to 20,000 AFY of in-lieu recharge in all non-critically dry years, providing an average of 14,400 across the planning horizon.
3. The Tuolumne River Flood Mitigation Direct Recharge Project, providing 20,000 AFY of direct recharge in Wet and Above Normal years (9,600 AFY in the 50-year simulation average),

4. The Dry Creek Flood Mitigation Direct Recharge Project, providing 5,400 AFY of direct recharge in all year types.

~~The table~~Table 8-4~~Table 8-12~~ below summarizes the individual and cumulative impacts of each Project within this scenario.

### Table 8-4~~12~~: Scenario 2 Project Summary

| | Project | Direct Recharge | In-Lieu Recharge | Demand Reduction |
|---|---|---|---|---|
| Urban and Municipal Projects | Municipal Conservation Projects[1] | | | 12,800 |
| | Storm Drain Cross Connection Removal Project | 200 | | |
| | City of Waterford Surface Water Supply Project[1] | | 700 | |
| | All Urban and Municipal Projects | 200 | 700 | 12,800 |
| In-lieu Supply and Direct Recharge Projects | MID to Out-of-District Lands In-lieu and Direct Recharge Project | 9,600 | 19,200 | |
| | OID to Out-of-District Lands In-lieu and Direct Recharge Project | 1,400 | 13,000 | |
| | All In-lieu Supply or Recharge Projects | 11,000 | 32,200 | 0 |
| Flood Mitigation Projects | Tuolumne River Flood Mitigation Direct Recharge Project | 9,600 | | |
| | Dry Creek Flood Mitigation Direct Recharge Project | 5,400 | | |
| | All In-lieu Supply or Recharge Projects | 15,000 | 0 | 0 |
| **All Scenario 2 Projects** | | **26,200** | **32,900** | **12,800** |

**Notes:**— All Units are in acre-feet

[1] The City of Modesto Conservation Projects and the City of Waterford Surface Water Supply Project include beneficiaries in both the Turlock and Modesto Subbasin. The volumes in this table represent an estimated fraction of the effective contribution to the Modesto Subbasin

Scenario 2 projects are expected to reduce groundwater pumping in the subbasin by 44,400 AFY. The net benefit to groundwater ~~in~~ storage projected is to reduce the average annual groundwater ~~in~~ storage deficit from 11,000 AFY under the Baseline conditions to an average annual positive change in storage of 1,400 AFY with these projects, resulting in a net savings of 12,400 AFY of groundwater in storage. Details are shown in Table 8-5~~Table 8-13~~ and Error! Reference source not found.~~Error! Reference source not found.~~Figure 8-1.

Analysis of conditions under Scenario 2 show that under Project buildout, sustainability goals as defined by the Minimum Thresholds (MTs) outlined in **Chapter 6, Sustainable Management Criteria,** can be met without demand management. **Section 8.5.2** below shows how Scenarios 1 and 2 effect groundwater levels at representative monitoring locations throughout the subbasin relative to the simulated minimum thresholds.

While simulated conditions meet sustainability metrics in the long-term, the Modesto Subbasin acknowledges that these scenarios assume immediate implementation of the projects and MAs listed above. In the near-term, sustainability of the Modesto Subbasin relies on the NDE area to actively pursue the development of these projects and understands that interim MAs, including the potential for demand reduction, may be necessary to meet SMCs.

**Figure 8-1: Scenario 1-2 Cumulative Change in Storage**

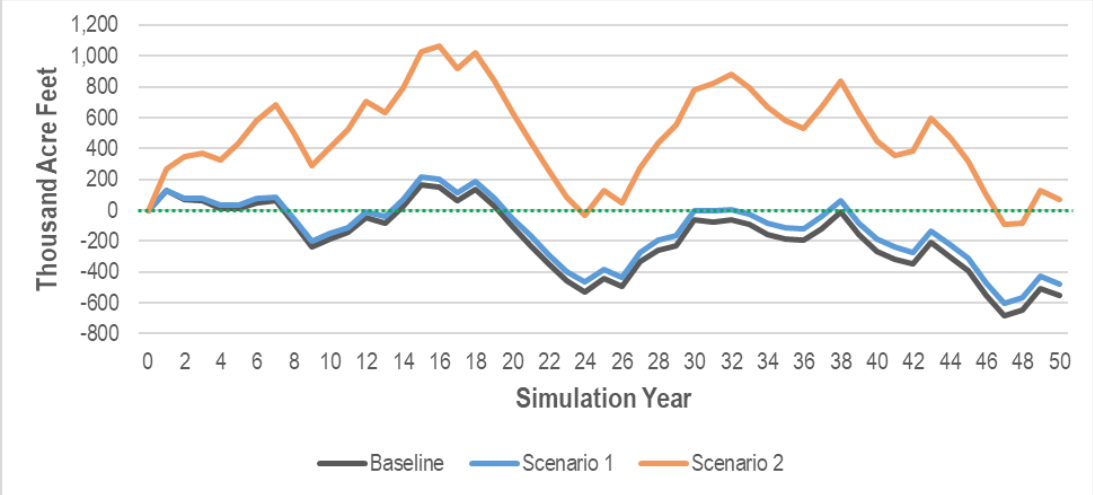
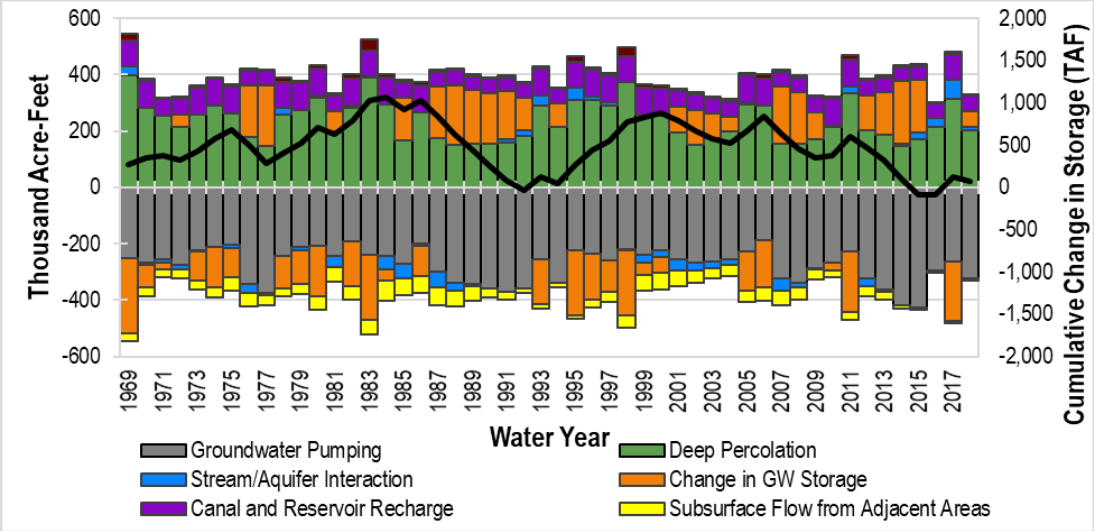


**Figure 8-2: Scenario 2 Groundwater Budget**



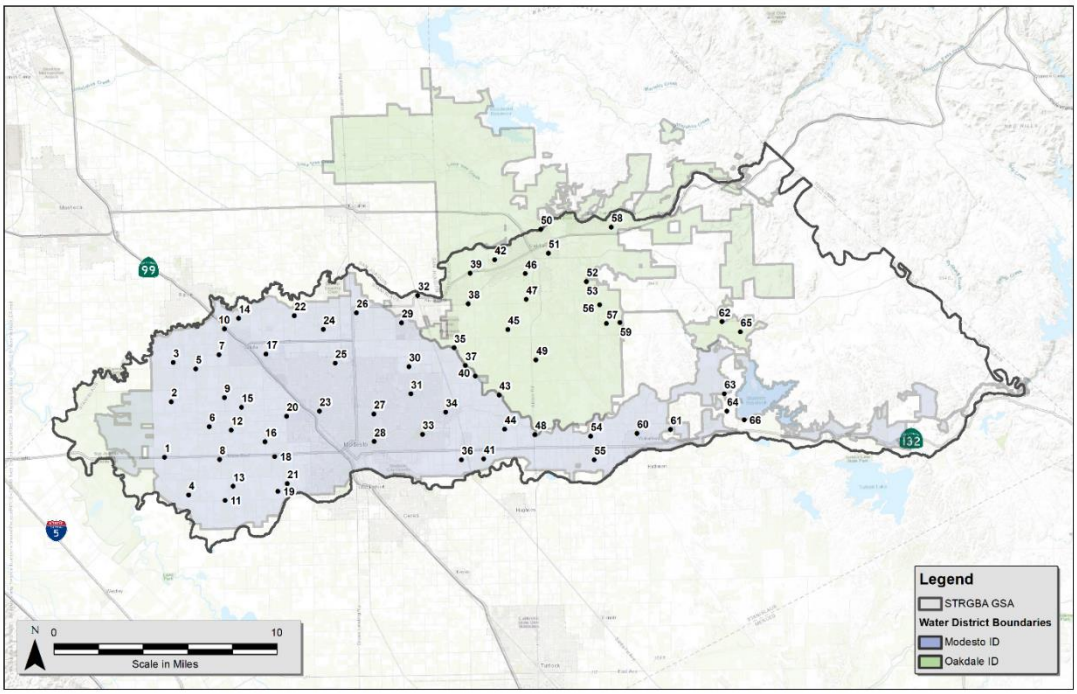

## Table 8-513: Scenarios 1-2 Groundwater Budgets

| | Baseline | Scenario 1 Urban & Municipal | Scenario 2 In-lieu and Direct Recharge Projects |
|---|---|---|---|
| **Deep Percolation** | 234,900 | 230,100 | 235,800 |
| **Canal, Res., & Direct Recharge** | 47,300 | 47,500 | 73,500 |
| **Net Stream Seepage** | 24,300 | 18,800 | -4,100 |
| **Inflow from Foothills** | 9,300 | 9,300 | 9,300 |
| **Net Subsurface Flow** | -5,900 | -7,600 | -36,500 |
| **Groundwater Pumping** | 321,000 | 307,600 | 276,600 |
| **Groundwater ~~in~~ Storage Deficit** | 11,000 | 9,500 | -1,400 |

### ~~8.6.2.~~8.5.2. Representative Hydrographs Scenarios 1-2

Figure 8-3~~Figure 8-3~~ shows the location of the representative monitoring wells that were used in the development and calibration of the Modesto Subbasin in C2VSimTM. As representative wells of simulated conditions, these wells were used to evaluate the performance of the PMAs in each of the different scenarios.

**Figure 8-3: Modesto Subbasin Representative Wells**




**Chapter 6: Sustainable Management Criteria** describes thresholds for representative monitoring network wells that protect the Subbasin from experiencing Undesirable Results from the chronic lowering of groundwater levels (SMC1), and depletions of interconnected surface water systems (SMC6). **Chapter 6** defines Undesirable Results such that at no more than 33% of the representative monitoring wells shall exceed the 2015-low for a period longer than 3 consecutive years. Under Scenario 2, SGMA compliance was predicted to be met throughout the simulation period. As shown in the figures below, simulated groundwater levels occasionally drop below the MT, but do not exceed the combination of drought-time spatial and temporal limitations.

Note, the twelve wells listed below (Figure 8-5~~Figure 8-5~~ though Figure 8-14~~Figure 8-14~~) are not inclusive of all monitoring locations, rather this subset was included as they are considered representative of RMS throughout the Subbasin. Locations of these example representative hydrographs are shown in ~~the following figure~~Figure 8-4~~Figure 8-4~~ below.

**Figure 8-4: SMC1 Example Hydrographs**

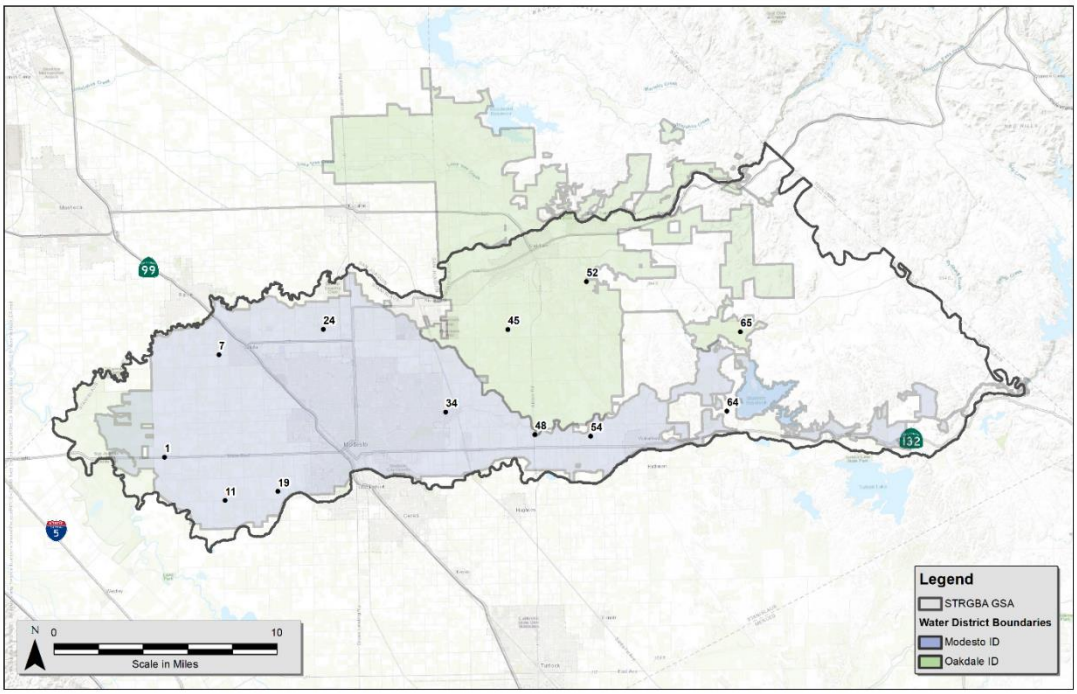


**Figure 8-5: SMC1 Hydrograph C2VSimTM 01**

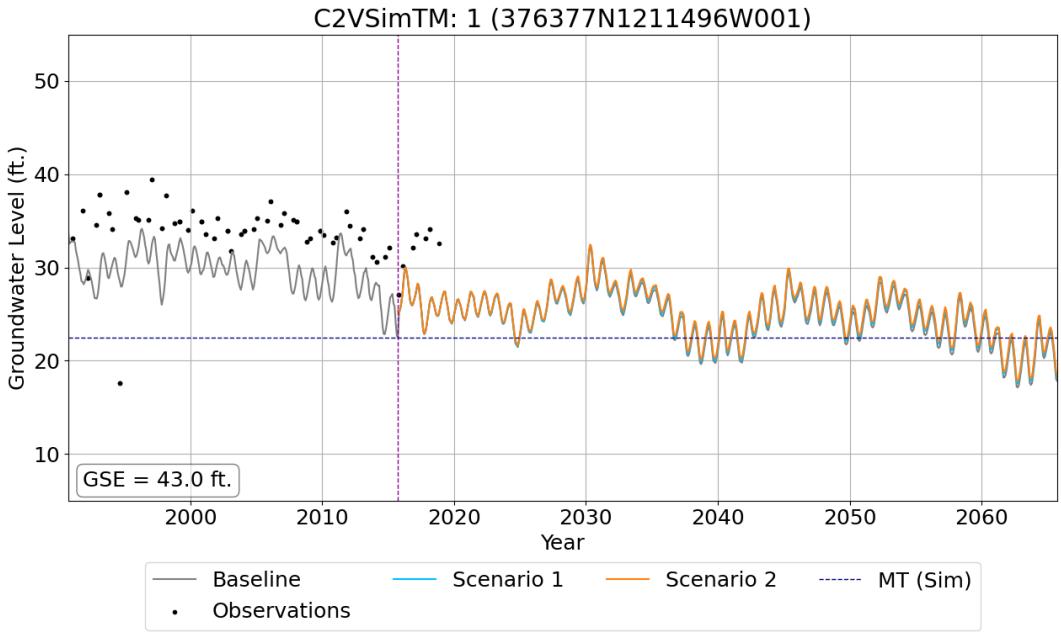


**Figure 8-6: SMC1 Hydrograph C2VSimTM 07**

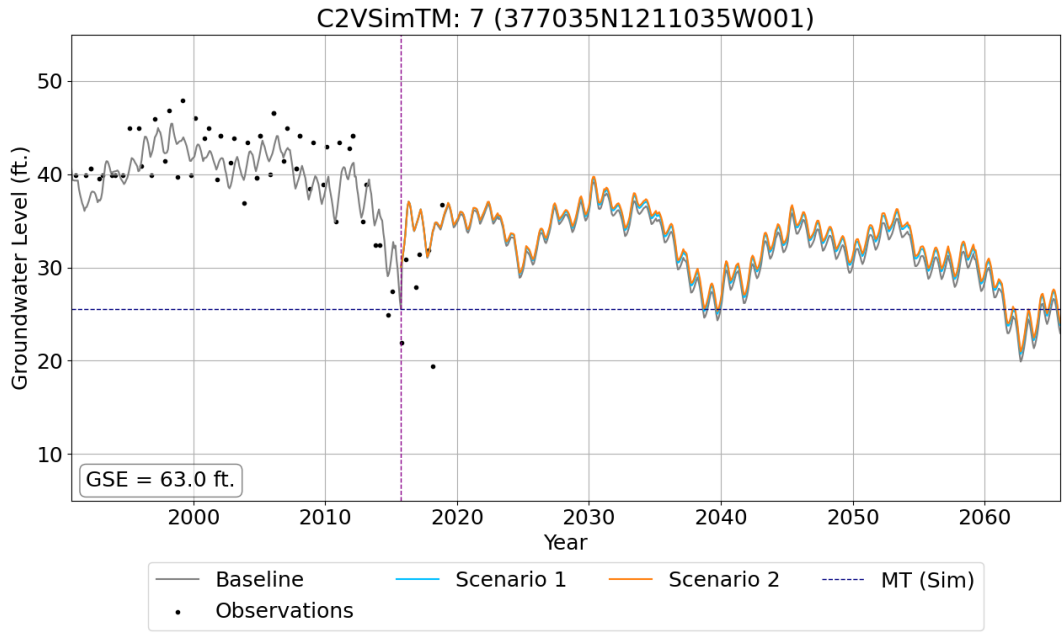



**Figure 8-7: SMC1 Hydrograph C2VSimTM 11**

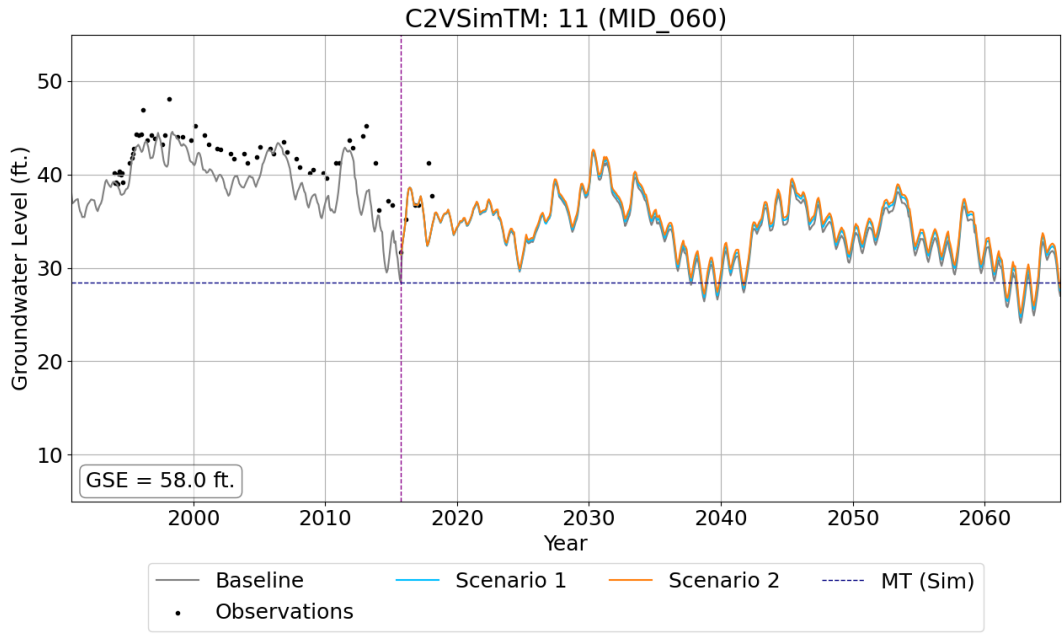


**Figure 8-8: SMC1 Hydrograph C2VSimTM 19**

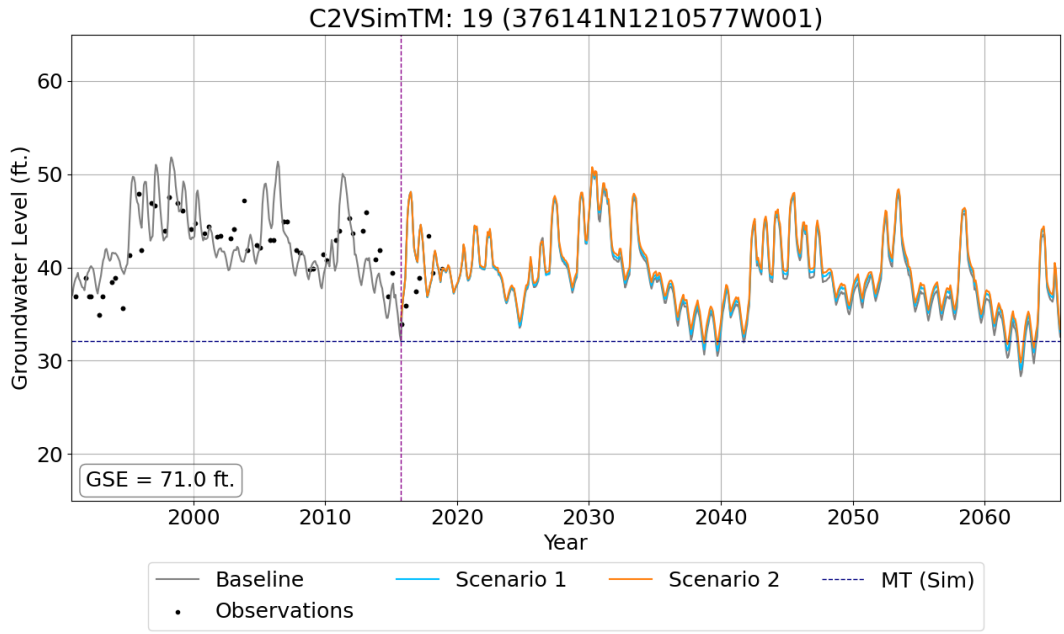



**Figure 8-9: SMC1 Hydrograph C2VSimTM 24**

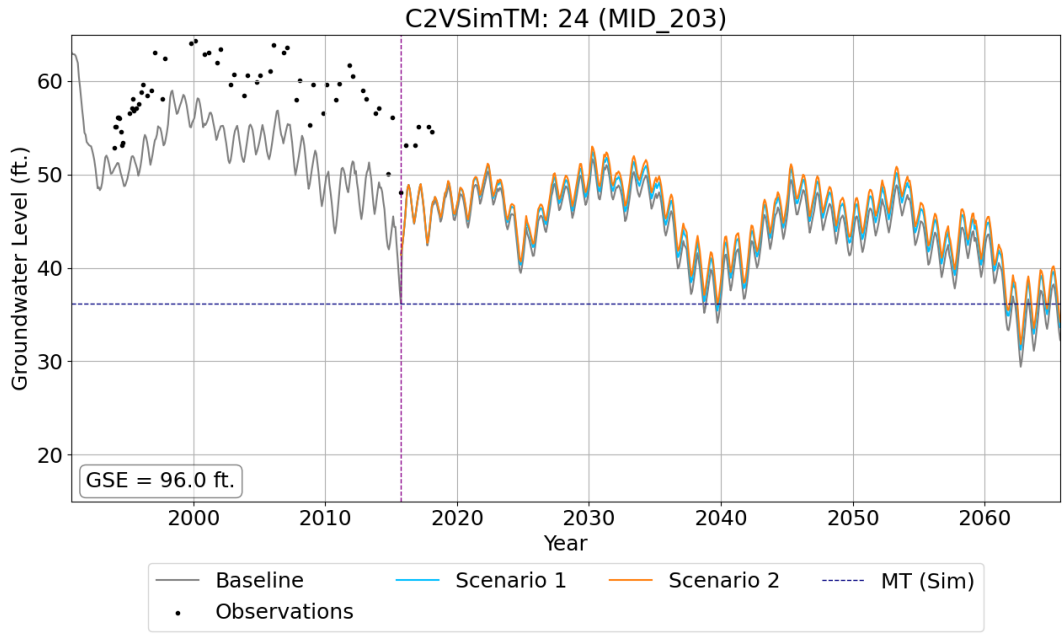


**Figure 8-10: SMC1 Hydrograph C2VSimTM 34**

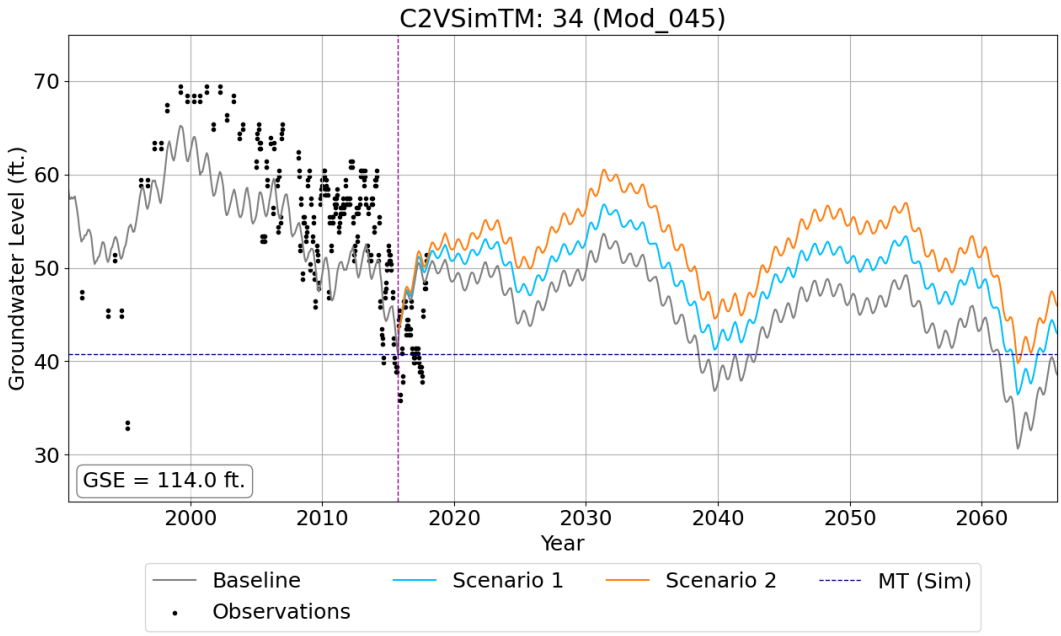



**Figure 8-11: SMC1 Hydrograph C2VSimTM 45**

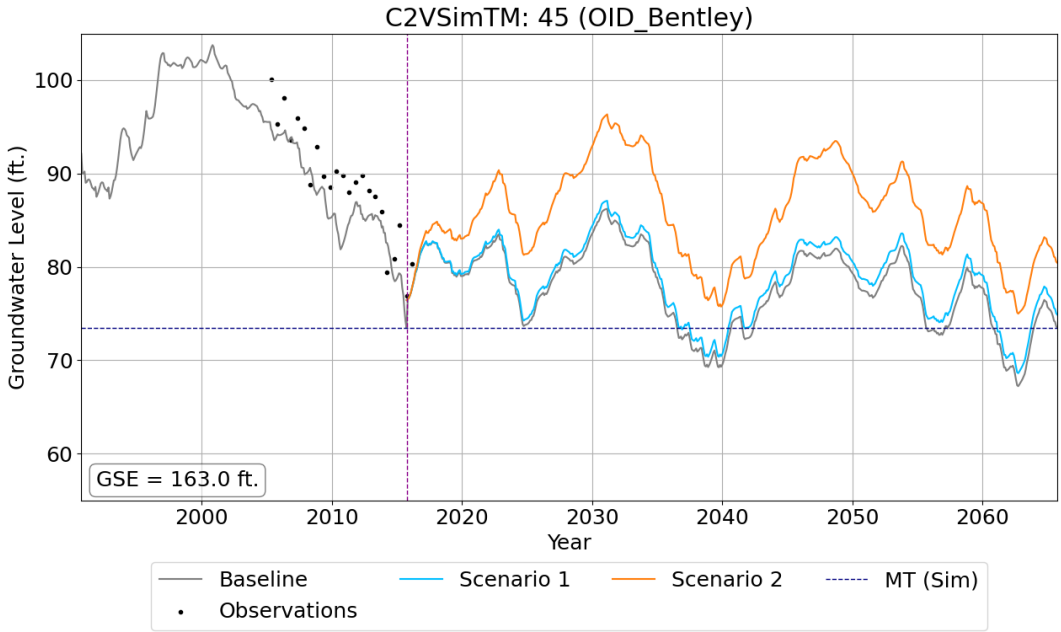


**Figure 8-12: SMC1 Hydrograph C2VSimTM 48**

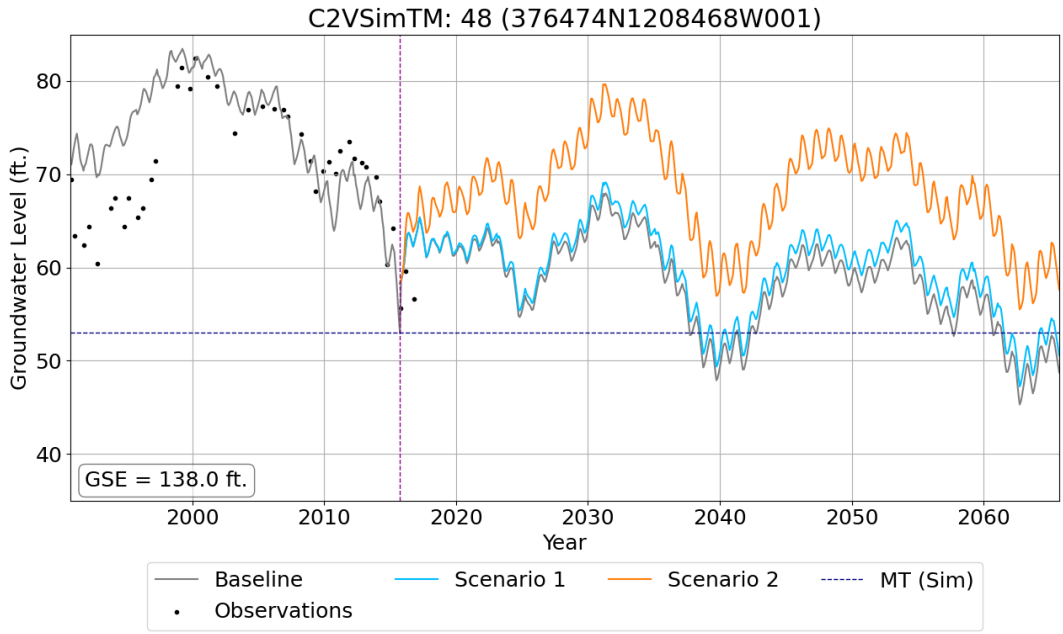



**Figure 8-13: SMC1 Hydrograph C2VSimTM 52**

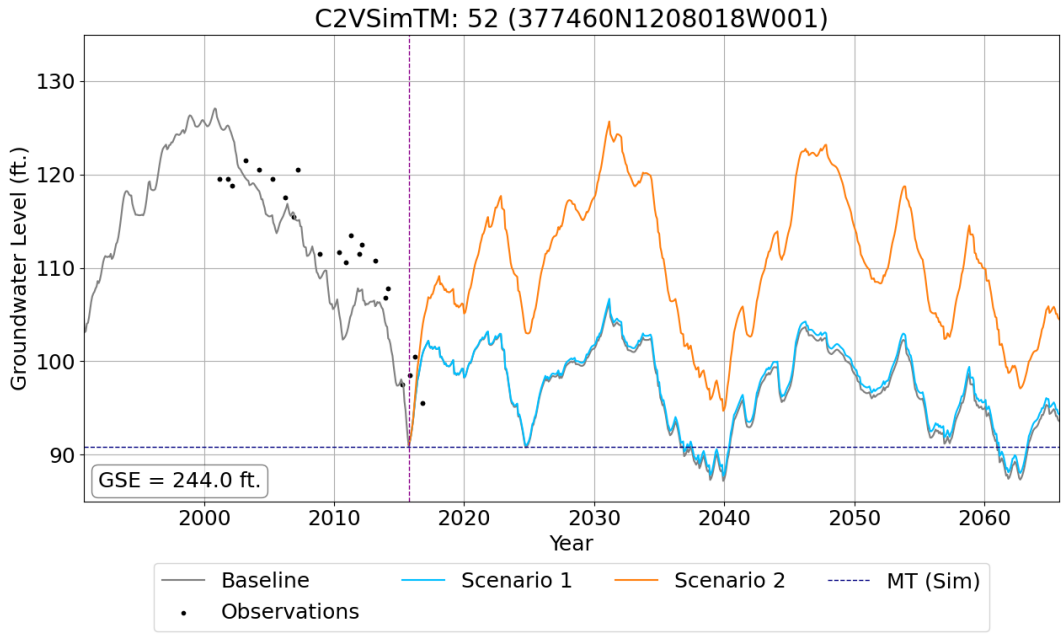


**Figure 8-14: SMC1 Hydrograph C2VSimTM 54**

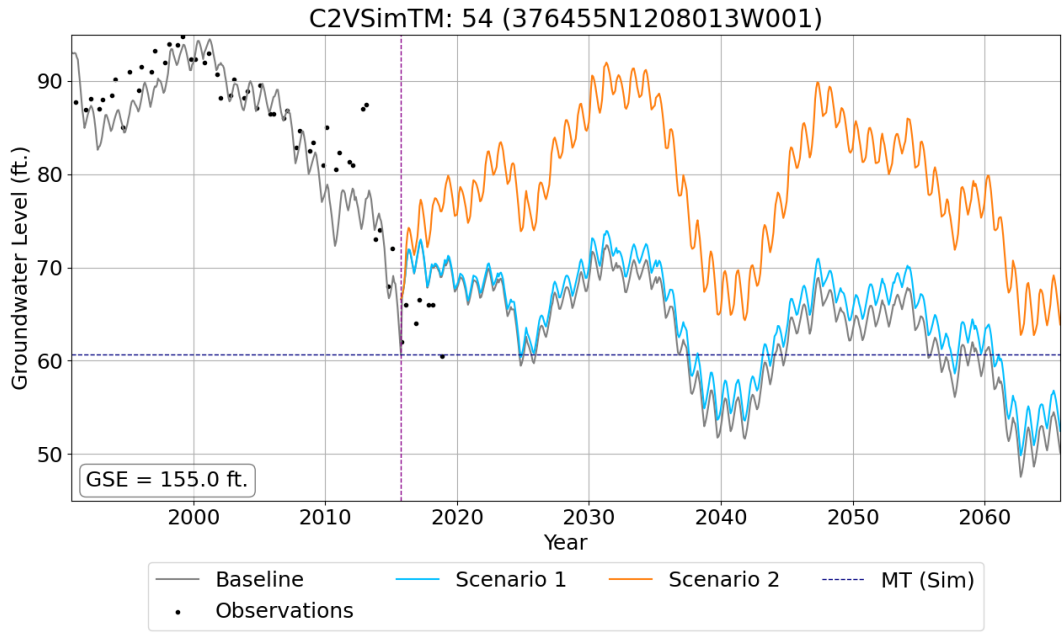



**Figure 8-15: SMC1 Hydrograph C2VSimTM 64**

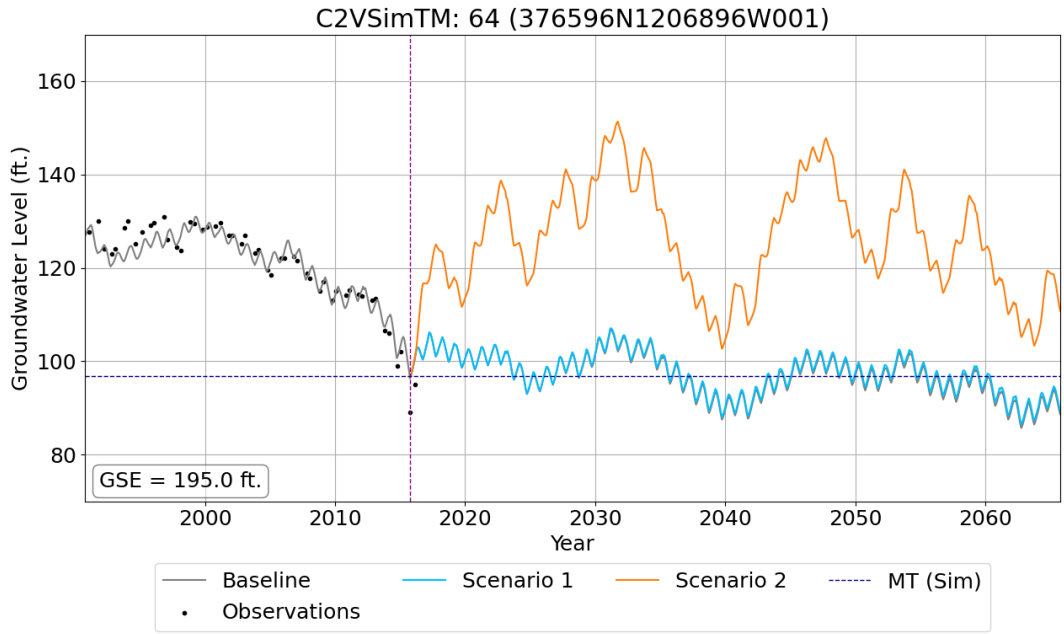


**Figure 8-16: SMC1 Hydrograph C2VSimTM 65**