

## **Appendix 4-A**

### Projects and Management Actions Matrix

**Appendix 4A.**

**Overview of Projects and Management Actions**

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## Introduction

Projects and management actions (PMAs) are included in the Groundwater Sustainability Plans (GSPs) for the Antelope, Bowman, Los Molinos, and Red Bluff Subbasins to achieve and maintain sustainable groundwater conditions in each Subbasin. In accordance with 23 CCR §354.44(a), these PMAs will support ongoing sustainability and adapt to potential future changes in conditions in each Subbasin. PMAs are categorized and presented in this appendix as follows:

- **Projects and Management Actions Developed for Implementation** are PMAs that the GSA or other project proponents are planning to implement or are currently implementing in the Subbasins. These PMAs have been developed to achieve and maintain groundwater sustainability while supporting other local goals.
- **Portfolio of Other Potential Projects and Management Actions** are PMAs that could be implemented, as needed, to achieve and maintain long-term sustainable groundwater management across the Subbasins. These potential PMAs would be further evaluated and selected for implementation depending on funding, interest among stakeholders, and whether Subbasin conditions have changed such that additional PMAs would be necessary to maintain groundwater sustainability. These PMAs may have been studied by the project proponent or in earlier regional water planning documents, but most project design, cost estimates, and planning work have yet to be completed, and would only be initiated if the project is eventually triggered for implementation as a result of continued monitoring of groundwater conditions.

The compilation of PMAS presented in this appendix are designed to support the long-term sustainability of groundwater resources in the Subbasins. The information currently available for each of these PMAs is provided in Tables 1 through 6 below. These tables summarize the following information:

- Table 1. Brief Description of all Projects and Management Actions
- Table 2. Project Type, Proponent, and Location for all Projects and Management Actions.
- Table 3. Implementation Criteria, Notice Process, Permitting and Regulatory Process, and Timeline for all Projects and Management Actions.
- Table 4. Anticipated Benefits of all Projects and Management Actions.
- Table 5. Benefit Evaluation and Water Source for all Projects and Management Actions.
- Table 6. Legal Authority Requirements, Estimated Cost, and Potential Funding Sources for all Projects and Management Actions.

The fields in these tables have been designed to meet the requirements for PMAs as described in the California Code of Regulations (CCR); when applicable, a reference to a specific location in the GSP regulations is provided as the first row of each table.

**Table 1. Brief Description of all Projects and Management Actions.**

	23 CCR § 354.44		23 CCR §354.44(a)
Subbasin	Project/ Management Action Name – Component	Proponent	Brief Project Description
<b>Projects and Management Actions Developed for Implementation</b>			
All	Grower Education	Northern Sacramento Valley Mobile Irrigation Lab	Grower education on topics that support groundwater sustainability is proposed for all areas of Tehama County. Grower education would be accomplished through onsite irrigation system evaluations, workshop education, and irrigation water management and scheduling assistance. This project will continue and expand the irrigation evaluation service that has been in place for ten years. In 2002, Tehama County Resource Conservation District began the operation of a Mobile Irrigation Lab (MIL) in Tehama County with funding from the California Department of Water Resources and the Bureau of Reclamation. Since then, the program has expanded to include other funding sources and the areas serviced by the Butte, Glenn and Western Shasta Resource Conservation Districts (RCDs), and it could be expanded to service the entire Northern Sacramento Valley Integrated Regional Water Management Plan (NSVIRWMP) area.
All	Multi-Benefit Recharge	Multi-Agency / Jurisdictions	The Nature Conservancy (TNC) has prepared guidance to assist GSAs in planning on-farm, multi-benefit groundwater recharge programs. A multi-benefit recharge program will provide groundwater recharge through normal farming operations while also providing critical wetland habitat for shorebirds migrating along the Pacific Flyway. Fields with soil and cropping conditions conducive to groundwater recharge will be flooded and maintained with shallow depths. Water will be sourced from existing water rights contracts, depending on availability. The GSA may also consider financial compensation for participating offsetting field preparation, irrigation, and water costs.
Bowman	Cottonwood Creek Invasives Control Follow Up	Tehama County Resource Conservation District	The objective of this project is to permanently control known invasive plant species occurrences within portions of Cottonwood Creek’s South Fork located in Tehama County. Through the control of these plants, the threat of their spreading into the Sacramento River’s main stem is reduced as is their impacts on those portions of the Creek’s riparian zone that now contain infestations. Project work entails the removal of giant reed ( <i>Arundo donax</i> ), salt cedar ( <i>Tamarisk</i> ), black locust, tree-of-heaven, pampas grass, and scotch broom. Herbicide and manual removal methods will be employed. It is anticipated that initial project work which has already been funded will begin in September 2012 and will continue for a total of five years. Due to the growth characteristics of <i>Arundo donax</i> and <i>Tamarisk</i> , in particular, follow up treatments would be required in order to attain control of infested sites and to treat missed areas of infestation. It is anticipated that three follow up treatments will be required over a five year period in order to assure control. Once formerly infested sites are free of infestations, native plants need to be reestablished in

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<b>Subbasin</b>	<b>Project/ Management Action Name – Component</b>	<b>Proponent</b>	<b>Brief Project Description</b>
			order to expedite the development of the Creek’s riparian corridor and to prevent erosion of creek banks where plants have been removed.
Bowman	Cottonwood Creek Riparian Habitat Restoration	Tehama County Resource Conservation District	This project would implement riparian restoration activities in the Cottonwood Creek Watershed. This project would enhance existing riparian habitat (fill in fragmented areas), implement riparian fencing, and/or obtain conservation easements to protect riparian resources.
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 1	Deer Creek Watershed Conservancy	<p>The overall Lower Deer Creek Project, as described in the 2011 feasibility study, is anticipated to include five (5) phases along Deer Creek from the Sacramento River to approximately River mile 8. This project includes the first phase that will result in a complete project that locally achieves the dual purposes of the Lower Deer Creek Restoration and Flood Management project to implement actions that lead to improved ecosystem health and reliable flood protection. The first phase of the Lower Deer Creek Project covers planning for floodplain habitat, improvements to fish passage and aquatic habitat, widening floodplains and enhancing natural flood channels, and enhancing fish passage at the Stanford Vina Irrigation Dam.</p> <p>Since there are five phases to the overall project, it is anticipated the USACE and State Regulatory Agencies will require one California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) document to support permitting. Anticipated permitting requirements include a 404 permit from the US Army Corps of Engineers (USACE), and a Central Valley Flood Protection Board (CVFPB) encroachment permit. USACE 408 authorization is also expected to address all phases of the project.</p>
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 3	Deer Creek Watershed Conservancy	This project covers Phase 3 of the Lower Deer Creek Levee Improvements and Habitat Restoration project, which will include the final design and construction of a new 4,620 linear foot (LF) levee. The new levee will be setback (566 LF at the largest point). The existing Deer Creek Project Levee 2 will be removed. The Levee setback will create approximately 40 acres of new floodway with floodway and migration easements, which will be contoured and improved to greatly assist fish passage (e.g. salmonids). The new floodway would be incorporated into the current DWR floodway maintenance program.
Los Molinos	Deer Creek Instream Flow Planning and Design Project	Trout Unlimited	This project would improve conjunctive use management at Deer Creek Irrigation District (DCID) by designing improved groundwater systems at Sheep Camp Ditch and Cone-Kimball Ditch and exploring opportunities to increase total water use efficiency within DCID and the Stanford-Vina Ranch Irrigation Company (SVRIC), including tailwater recovery and seasonal groundwater recharge.

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<b>Subbasin</b>	<b>Project/ Management Action Name – Component</b>	<b>Proponent</b>	<b>Brief Project Description</b>
Los Molinos	DCID Diversion Automation Project	Trout Unlimited	This project would improve the efficiency of water delivery within DCID by automating the main diversion and north main and south main ditch flow rates and provide real-time monitoring of spills.
Red Bluff	El Camino Restoration Project	El Camino Irrigation District	This project would identify and fix the most inefficient pumps in the El Camino Irrigation District system. Other improvements would include: replacement of concrete pipe with more durable PVC pipe, replacement of hub gates, and installation of flowmeters on each discharge pipe from every pump
Red Bluff	Expanded Use of CVP Contract Supplies in Proberta Water District and Thomes Creek Water District	Proberta Water District, Thomes Creek Water District	This project would incentivize expanded use of Central Valley Project (CVP) contract supply by irrigators in Proberta Water District (PWD) and Thomes Creek Water District (TCWD), with the goal of using the full contract supply available to each district. By encouraging irrigators to use more surface water, this project would offset groundwater demand and provide in-lieu recharge benefits to Red Bluff Subbasin
Red Bluff	Elder Creek Non-Native Invasive Species Plant Control	Tehama County Resource Conservation District	This project would identify and remove non-native invasive species (NIS) plants in the Elder Creek watershed, with a focus on <i>Arundo donax</i> and Tamarisk. Additional coordination and permitting work would be required of the USACE levee systems on Elder Creek.
Red Bluff	Tehama West Non-Native Invasive Species Plant Control	Tehama County Resource Conservation District	This project would identify and remove NIS plants in the Tehama County westside watersheds (excluding Elder Creek), with a focus on <i>Arundo donax</i> and Tamarisk.
Red Bluff	Thomes Creek and Elder Creek Diversion for Direct or In-Lieu Groundwater Recharge	Multi-Agency / Jurisdictions	Thomes and Elder Creek originate to the west of the Red Bluff Subbasin and flow eastward into the Red Bluff Subbasin. During periods of flow in the winter and spring, a portion of these flows could be diverted for either (1) off-stream storage and subsequent use for irrigation or (2) direct groundwater recharge through Flood-MAR, dedicated recharge basins, or modified stream beds.
<b>Portfolio of Other Potential Projects and Management Actions</b>			
All	Direct Groundwater Recharge of Stormwater and Flood Water – Groundwater Recharge of Stormwater through Unlined Canals, Natural Drainages, Recharge Basins, and ASR Wells	Multi-Agency / Jurisdictions	Supply groundwater recharge with excess surface water in wet years for use in dry years. Recharge may be done in conveyance structures such as unlined canal and laterals, natural drainages such as creek beds, recharge basins, agricultural fields, and aquifer storage and recovery (ASR) wells. Areas identified for recharge should have suitable recharge surficial geology, low enough water levels to support recharge, and access to surface water.

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<b>Subbasin</b>	<b>Project/ Management Action Name – Component</b>	<b>Proponent</b>	<b>Brief Project Description</b>
All	Direct Groundwater Recharge of Stormwater and Flood Water – Off-Stream Temporary Storage of Flood Water on Private Lands	Multi-Agency / Jurisdictions	Divert floodwater for off-stream temporary storage on private lands, providing direct recharge and potentially in-lieu recharge.
All	Stormwater Management Improvements	Multi-Agency / Jurisdictions	Improve stormwater management facilities to enhance groundwater recharge of stormwater. Maintain stormwater pumps and ensure stormwater holding basins are of adequate size for retention.
All	Stormwater Management Improvements – Watershed Restoration to Reduce Runoff	Multi-Agency / Jurisdictions	Restore watersheds burned in wildfires and restore unused grazing land to reduce runoff and improve recharge.
All	Levee Setback and Stream Channel Restoration	Multi-Agency / Jurisdictions	Restore stream channel and levee setback to increase groundwater recharge, provide wildlife habitat, lower water temperatures in the Sacramento River, and improve the overall riparian ecosystem.
All	Recycled Water Program	Multi-Agency / Jurisdictions	Facilitate use recycled water of suitable quality (e.g., treated wastewater) for groundwater recharge and for urban or agricultural irrigation.
All	Recycled Water Program – Treated Wastewater Recycling to Support Wetlands	Multi-Agency / Jurisdictions	Construct and operate wetlands as a discharge site for treated wastewater (e.g., the Rio Alto Water District Wastewater Treatment Plant & Constructed Wetlands Project). Creation of constructed wetlands would enhance the surrounding community by increasing natural habitat for waterfowl and wildlife, while offering educational and recreational opportunities for local schools and community residents through the development of walking trails and informational kiosks.
All	Recycled Water Program – Wastewater Treatment Facility Construction to Supply Recycled Water for Irrigation	Multi-Agency / Jurisdictions	Enhance wastewater treatment facilities to supply tertiary-treated Title-22 effluent for use as irrigation water.
All	Inter-Basin Surface Water Transfers or Exchanges – Increase Inter-Basin Surface Water Transfers or Exchanges to Promote Surface Water Use	Multi-Agency / Jurisdictions	Promote inter-basin surface water transfers or exchanges and potentially subsidize surface water costs so that it is less expensive than groundwater.

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<b>Subbasin</b>	<b>Project/ Management Action Name – Component</b>	<b>Proponent</b>	<b>Brief Project Description</b>
All	Inter-Basin Surface Water Transfers or Exchanges – Surface Water Imports from Other Tehama County Subbasins	Multi-Agency / Jurisdictions	Import underutilized surface water and other supplies from other subbasins in Tehama County, and use for direct recharge or in lieu of groundwater pumping. Potential opportunities include: 1. Treated wastewater from the City of Red Bluff 2. Trout Unlimited Groundwater substitution transfers 3. Groundwater substitution transfers.
All	Invasive Plant Removal from Creeks and Irrigation Conveyance Canals	Multi-Agency / Jurisdictions	Remove invasive plants from creeks and irrigation conveyance canals (e.g., <i>Arundo donax</i> , tamarisk, Himalayan blackberry). Many small tributaries in the watersheds of Tehama County have decreased conveyance, high levels of siltation, and diminished flood-carrying capacity due to invasive vegetation overgrowth. Debris-clearing is a challenge due to environmental permitting restrictions. Plant removal would reduce conveyance issues, reduce evapotranspiration (ET), and allow for more water in the shallow groundwater area, restoring conditions for GDEs and native riparian species.
All	Water Supply Reservoir Construction, Renovation, or Conversion	Multi-Agency / Jurisdictions	Construct, renovate, or convert flood control facilities to a water supply reservoir.
All	Enhanced Boundary Flow Measurement	Multi-Agency / Jurisdictions	Enhance measurement of boundary outflows resulting from precipitation runoff and irrigation return flows, which are believed to be a substantial component of the water budget. These outflows can vary substantially from year to year based on precipitation and (in critically dry years) surface water availability.
All	Well Metering	Multi-Agency / Jurisdictions	Meter larger agricultural wells to better assess the total volume of groundwater pumped in the Subbasin. Data will help to better manage continued sustainability of the Subbasin within its sustainable yield.
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Residential Water Use Efficiency Improvements	Multi-Agency / Jurisdictions	Offer incentives for urban, residential, and commercial projects that improve water use efficiency, such as high efficiency appliance rebates and incentives for lawn removal, low-water landscape installation, rain barrels, graywater reuse, etc.
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Municipal Water System Efficiency Improvements	Multi-Agency / Jurisdictions	Evaluate municipal water system operation and reduce losses to reduce municipal groundwater pumping demand.



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<b>Subbasin</b>	<b>Project/ Management Action Name – Component</b>	<b>Proponent</b>	<b>Brief Project Description</b>
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Irrigation Efficiency Improvements	Multi-Agency / Jurisdictions	Assist growers with conversion to efficient and dual-source irrigation systems. Related efforts may include soil mapping to customize irrigation timing and duration and grower education to encourage soil management to improve moisture retention.
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Surface Water Conveyance and Irrigation Infrastructure Improvements for Dual-Source Systems	Multi-Agency / Jurisdictions	Irrigation system improvements needed to utilize surface water for drip irrigation of orchards. Typical system components required for a dual source system are a surface water irrigation “turnout” or point of delivery to the field, a pipeline or ditch to convey water from the turnout to a pump station, a pump or pumps for pressurization, and filtration. Improvements in the Subbasin may include installation of regulating reservoirs, filters or treatment (for algae), and pressurize systems for drip irrigation. SCADA improvements and install VFDs on pumps to improve and maintain delivery pressures.
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Assistance for Capital Improvements	Multi-Agency / Jurisdictions	Assist growers with capital improvements to irrigation infrastructure, from use of groundwater to use of surface water or dual-source systems.
All	Water Market for Surface Water and Groundwater Exchange	Multi-Agency / Jurisdictions	Create a water market for exchanging surface water and groundwater, allowing for flexibility in water use to meet irrigation demands in the Subbasin while remaining within the overall sustainable yield.
All	Demand Management – Conversion to Less Water Intensive Crops	Multi-Agency / Jurisdictions	Promote conversion of agricultural lands to less water intensive crops to reduce water use while continuing to promote agriculture land use. Would be considered if other planned PMAs are insufficient to maintain sustainability.
All	Demand Management – Pumping Fees	Multi-Agency / Jurisdictions	Implement tiered fee structure for groundwater extractions to incentivize reduced groundwater use. Would be considered if other planned PMAs are insufficient to maintain sustainability.
All	Demand Management – Groundwater Extraction Allocation Program	Multi-Agency / Jurisdictions	Curtail and/or restrict groundwater extractions through a groundwater extraction allocation program. Would be considered if other planned PMAs are insufficient to maintain sustainability.
All	Demand Management – Land Fallowing Program	Multi-Agency / Jurisdictions	Curtail and/or restrict groundwater extractions through a land fallowing program. Would be considered if other planned PMAs are insufficient to maintain sustainability.
All	Demand Management – County Water Use Ordinance and Conservation Efforts	Multi-Agency / Jurisdictions	Coordinate with counties to develop policies that align with sustainable groundwater management goals. Possible ordinances include regulations and limits for groundwater use, export, and illegal diversion of surface water. Counties could create additional

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			guidelines during the well permitting process to reduce nearby competition between wells (i.e. well spacing or suggestions regarding total well depth, depth of well perforations, and location of a new well relation to existing wells). Efforts could be designed to be protective of domestic wells. Would be considered if other planned PMAs are insufficient to maintain sustainability.
All	Demand Management – Management and Restrictions of Land Use Changes	Multi-Agency / Jurisdictions	Coordinate with counties to restrict land use changes that increase water demand in the Subbasin. Management would primarily focus on development of new agricultural land, and to restrict growth in areas with no surface water supply. Would be considered if other planned PMAs are insufficient to maintain sustainability.
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Surface Water	Multi-Agency / Jurisdictions	Incentivize use of surface water for irrigation when available to allow groundwater levels to recover in between drought years when surface water is not available.
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Recycled Water	Multi-Agency / Jurisdictions	Provide incentives for use of recycled water of suitable quality (e.g., treated wastewater) for groundwater recharge and for urban or agricultural irrigation to decrease groundwater demand.
All	Tehama County Domestic Well Tracking and Outreach Program – Provide Information and Resources for Protection of Domestic Wells	Multi-Agency / Jurisdictions	Provide domestic well owners with resources and funding for well testing, inspection, and replacement. Target well owners in locations where domestic wells are known to go dry or have water quality impacts.
All	Tehama County Domestic Well Tracking and Outreach Program – Tehama County Dry Domestic Well Tracking System	Multi-Agency / Jurisdictions	Create county-wide system to track dry domestic wells. Information will allow Tehama County to better manage assistance to domestic well owners when water levels drop and wells go dry, identify if wells need to be replaced, and provide information on well replacement
All	Well Deepening or Replacement Program	Multi-Agency / Jurisdictions	Create program to deepen or replace shallow wells and/or wells that go dry. Fewer shallow domestic and irrigation wells allows for deeper acceptable water levels in some parts of Subbasin.
All	Review of County Well Permitting Ordinances	Multi-Agency / Jurisdictions	Review existing ordinances and assess if additional well permitting requirements are warranted. Follow updated DWR well construction recommendations (Bulletin 74), as

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			needed. Improve the well permitting and installation program to help protect water quality, allow for better screening, and avoid interference or impacts on neighboring wells.
All	Coordination and Development of Public Data Portals	Multi-Agency / Jurisdictions	Continue coordination with member units and other water purveyors to develop shared public data portals. Coordination would determine the types of data and data formats available, and establish standard methods for receiving, storing, and sharing data with the public, DWR, other agencies.
All	Coordination and Development of Public Data Portals – Ongoing Coordination and Information Sharing	Multi-Agency / Jurisdictions	Continue coordination and information sharing among agencies in Tehama County and with agencies in neighboring subbasins. Coordination would include holding regular public meetings, attending meetings in neighboring subbasin, coordination with land use planning entities, and fostering relationships with relevant agencies and organizations.
All	Coordination and Development of Public Data Portals – Data Sharing for Monitoring Contaminant Plumes	Multi-Agency / Jurisdictions	Continue and improve sharing of contaminant data across organizations, including data to track and monitor contaminant plumes.
All	Tehama County Well Inventory and Registration Program – Well Registration Program	Multi-Agency / Jurisdictions	Create well registration program to collect well locations, screening information, and pumping data for use in GSP updates.
All	Tehama County Well Inventory and Registration Program – Tehama County Well Inventory	Multi-Agency / Jurisdictions	Create county-wide well inventory to compile all available information on active wells in Tehama County and improve understanding of well distribution, construction, and hydrogeology. Inventory will potentially be useful for filling monitoring data gaps.
All	Maintain and Expand Groundwater Level Monitoring Network	Multi-Agency / Jurisdictions	Maintain existing monitoring network to improve the understanding of aquifer conditions and dynamics and to monitor groundwater conditions related to sustainable management criteria.
All	Maintain and Expand Groundwater Level Monitoring Network – Maintain Coordination with Other Monitoring Entities	Multi-Agency / Jurisdictions	Maintain existing coordination with other monitoring entities to support the use of identified monitoring locations as part of the monitoring network and to share relevant collected data.
All	Maintain and Expand Groundwater Level	Multi-Agency / Jurisdictions	Identify existing wells that may be incorporated into the groundwater level monitoring network. Wells may be used to fill data gaps and improve understanding of aquifer

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<b>Subbasin</b>	<b>Project/ Management Action Name – Component</b>	<b>Proponent</b>	<b>Brief Project Description</b>
	Monitoring Network – Identify Existing Wells for Incorporation into the Groundwater Level Monitoring Network		conditions and dynamics, and groundwater conditions related to GDEs and surface water depletions.
All	Maintain and Expand Groundwater Level Monitoring Network – Identify New Wells for Incorporation into the Groundwater Level Monitoring Network	Multi-Agency / Jurisdictions	Identify new monitoring sites that may be added to the groundwater level monitoring network. Wells may be used to fill data gaps and improve understanding of aquifer conditions and dynamics, and groundwater conditions related to GDEs and surface water depletions.
All	One-Time Groundwater Quality Snapshot and Evaluation – One-Time Groundwater Quality Snapshot	Multi-Agency / Jurisdictions	Conduct a one-time sampling of groundwater quality parameters over a wide range of wells in Tehama County. Data will improve understanding of groundwater quality conditions and provide a basis for refinement of monitoring networks.
All	One-Time Groundwater Quality Snapshot and Evaluation – Evaluation of Groundwater Quality Monitoring Options	Multi-Agency / Jurisdictions	Evaluate groundwater quality monitoring options, potentially informed by the one-time groundwater quality snapshot. Consider options to better characterize widespread groundwater quality conditions and address localized groundwater quality concerns.
All	Install Additional Agroclimate Stations	Multi-Agency / Jurisdictions	Install additional stations that monitor agriculture-related weather and climate parameters. Improved data will inform agricultural water use practices and potentially enhance water conservation. Data can also improve the accuracy of the Tehama Integrated Hydrologic Model (Tehama IHM).
All	Expanded Subbasin Monitoring and Aquifer Testing – Aquifer Testing	Multi-Agency / Jurisdictions	Aquifer testing will improve the understanding of aquifer conditions, particularly the level of confinement, connectivity between depths, connectivity with surface water bodies, and the understanding of hydraulic properties needed for simulation within the Tehama IHM and an estimation of recharge entering the Subbasin.
All	Expanded Subbasin Monitoring and Aquifer Testing – Identify Locations Vulnerable to Damage from Subsidence	Multi-Agency / Jurisdictions	Identify locations in the Subbasin that are potentially vulnerable to damage from subsidence, should subsidence become considered more of a threat in the future .

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<b>Subbasin</b>	<b>Project/ Management Action Name – Component</b>	<b>Proponent</b>	<b>Brief Project Description</b>
All	Expanded Subbasin Monitoring and Aquifer Testing – Groundwater Subbasin LIDAR	Multi-Agency / Jurisdictions	Collect LIDAR (Light Detection and Ranging) data across the Subbasin to supports monitoring all sustainability indicators.
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze the Relationship between Groundwater Levels and GDE Health	Multi-Agency / Jurisdictions	Analyze the relationship between groundwater levels and GDE health to improve the understanding of how GDEs are affected by conditions in the groundwater aquifer accessed by pumping.
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze Water Supplies Accessed by Potential GDEs	Multi-Agency / Jurisdictions	Analyze the water supplies accessed by potential GDEs, potentially using a combination of surface water data, shallow groundwater level data, and remote sensing data related to vegetative cover.
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Evaluate the Need for Additional Groundwater - Surface Water Interaction Studies or Monitoring	Multi-Agency / Jurisdictions	Evaluate the need for additional studies or monitoring of groundwater-surface water interactions. Additional information would improve the understanding of how GDEs relate to the groundwater aquifer accessed by pumping, and may allow for refinement of how GDEs and their water supply needs are monitored.

**Table 2. Project Type, Proponent, and Location for all Projects and Management Actions.**

<b>23 CCR § 354.44</b>				
<b>Subbasin</b>	<b>Project/ Management Action Name</b>	<b>Project Proponent</b>	<b>Project Type</b>	<b>Project Location</b>
<b>Projects and Management Actions Developed for Implementation</b>				
All	Grower Education	Northern Sacramento Valley Mobile Irrigation Lab	Management Action	Subbasin-wide
All	Multi-Benefit Recharge	Multi-Agency / Jurisdictions	Direct Groundwater Recharge	Lands suitable for spreading and recharge
Bowman	Cottonwood Creek Invasives Control Follow Up	Tehama County Resource Conservation District	Groundwater Demand Reduction	Cottonwood Creek
Bowman	Cottonwood Creek Riparian Habitat Restoration	Tehama County Resource Conservation District	Groundwater Demand Reduction	Cottonwood Creek
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 1	Deer Creek Watershed Conservancy	Direct Groundwater Recharge	Deer Creek
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 3	Deer Creek Watershed Conservancy	Direct Groundwater Recharge	Deer Creek
Los Molinos	Deer Creek Instream Flow Planning and Design Project	Trout Unlimited	Surface Water Conveyance Improvements	Deer Creek
Los Molinos	DCID Diversion Automation Project	Trout Unlimited	Surface Water Conveyance Improvements	Deer Creek Irrigation District
Red Bluff	El Camino Restoration Project	El Camino Irrigation District	System Modernization	El Camino Irrigation District
Red Bluff	Expanded Use of CVP Contract Supplies in Proberta Water District and Thomes Creek Water District	Proberta Water District, Thomes Creek Water District	In-lieu Groundwater Recharge	Proberta Water District, Thomes Creek Water District
Red Bluff	Elder Creek Non-Native Invasive Species Plant Control	Tehama County Resource Conservation District	Surface Water Conveyance Improvements	Elder Creek

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Red Bluff	Tehama West Non-Native Invasive Species Plant Control	Tehama County Resource Conservation District	Surface Water Conveyance Improvements	Tehama West watersheds
Red Bluff	Thomes Creek and Elder Creek Diversion for Direct or In-Lieu Groundwater Recharge	Multi-Agency / Jurisdictions	Direct or In-Lieu Groundwater Recharge	Lands adjacent to creeks suitable for recharge
<b>Portfolio of Other Potential Projects and Management Actions</b>				
All	Direct Groundwater Recharge of Stormwater and Flood Water – Groundwater Recharge of Stormwater through Unlined Canals, Natural Drainages, Recharge Basins, and ASR Wells	Multi-Agency / Jurisdictions	Project	Subbasin-wide
All	Direct Groundwater Recharge of Stormwater and Flood Water – Off-Stream Temporary Storage of Flood Water on Private Lands	Multi-Agency / Jurisdictions	Project	Lands adjacent to channels that convey flood water
All	Stormwater Management Improvements	Multi-Agency / Jurisdictions	Project	Subbasin-wide
All	Stormwater Management Improvements – Watershed Restoration to Reduce Runoff	Multi-Agency / Jurisdictions	Project	Subbasin-wide
All	Levee Setback and Stream Channel Restoration	Multi-Agency / Jurisdictions	Project	Stream channels
All	Recycled Water Program	Multi-Agency / Jurisdictions	Project	Subbasin-wide
All	Recycled Water Program – Treated Wastewater Recycling to Support Wetlands	Multi-Agency / Jurisdictions	Project	Rio Alto Water District
All	Recycled Water Program – Wastewater Treatment Facility Construction to Supply Recycled Water for Irrigation	Multi-Agency / Jurisdictions	Project	Wastewater treatment facilities
All	Inter-Basin Surface Water Transfers or Exchanges – Increase Inter-Basin Surface Water Transfers or Exchanges to Promote Surface Water Use	Multi-Agency / Jurisdictions	Project	Subbasin-wide

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<b>Subbasin</b>	<b>Project/ Management Action Name</b>	<b>Project Proponent</b>	<b>Project Type</b>	<b>Project Location</b>
All	Inter-Basin Surface Water Transfers or Exchanges – Surface Water Imports from Other Tehama County Subbasins	Multi-Agency / Jurisdictions	Project	Subbasin-wide
All	Invasive Plant Removal from Creeks and Irrigation Conveyance Canals	Multi-Agency / Jurisdictions	Project	Subbasin-wide
All	Water Supply Reservoir Construction, Renovation, or Conversion	Multi-Agency / Jurisdictions	Project	TBD
All	Enhanced Boundary Flow Measurement	Multi-Agency / Jurisdictions	Project	Subbasin-wide
All	Well Metering	Multi-Agency / Jurisdictions	Project	Subbasin-wide
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Residential Water Use Efficiency Improvements	Multi-Agency / Jurisdictions	Management Action	Residential areas
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Municipal Water System Efficiency Improvements	Multi-Agency / Jurisdictions	Management Action	Municipal service areas
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Irrigation Efficiency Improvements	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Surface Water Conveyance and Irrigation Infrastructure Improvements for Dual-Source Systems	Multi-Agency / Jurisdictions	Management Action	Surface Water Supplier Service Areas
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Assistance for Capital Improvements	Multi-Agency / Jurisdictions	Management Action	Lands with access to surface water
All	Water Market for Surface Water and Groundwater Exchange	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Demand Management – Conversion to Less Water Intensive Crops	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide



	<b>23 CCR § 354.44</b>			
<b>Subbasin</b>	<b>Project/ Management Action Name</b>	<b>Project Proponent</b>	<b>Project Type</b>	<b>Project Location</b>
All	Demand Management – Pumping Fees	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Demand Management – Groundwater Extraction Allocation Program	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Demand Management – Land Fallowing Program	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Demand Management – County Water Use Ordinance and Conservation Efforts	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Demand Management – Management and Restrictions of Land Use Changes	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Surface Water	Multi-Agency / Jurisdictions	Management Action	Surface Water Supplier Service Areas
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Recycled Water	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Tehama County Domestic Well Tracking and Outreach Program – Provide Information and Resources for Protection of Domestic Wells	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Tehama County Domestic Well Tracking and Outreach Program – Tehama County Dry Domestic Well Tracking System	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Well Deepening or Replacement Program	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Review of County Well Permitting Ordinances	Multi-Agency / Jurisdictions	Management Action	Subbasin-wide
All	Coordination and Development of Public Data Portals	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Coordination and Development of Public Data Portals – Ongoing Coordination and Information Sharing	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide

	<b>23 CCR § 354.44</b>			
<b>Subbasin</b>	<b>Project/ Management Action Name</b>	<b>Project Proponent</b>	<b>Project Type</b>	<b>Project Location</b>
All	Coordination and Development of Public Data Portals – Data Sharing for Monitoring Contaminant Plumes	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Tehama County Well Inventory and Registration Program – Well Registration Program	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Tehama County Well Inventory and Registration Program – Tehama County Well Inventory	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Maintain and Expand Groundwater Level Monitoring Network	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Maintain and Expand Groundwater Level Monitoring Network – Maintain Coordination with Other Monitoring Entities	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Maintain and Expand Groundwater Level Monitoring Network – Identify Existing Wells for Incorporation into the Groundwater Level Monitoring Network	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Maintain and Expand Groundwater Level Monitoring Network – Identify New Wells for Incorporation into the Groundwater Level Monitoring Network	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	One-Time Groundwater Quality Snapshot and Evaluation – One-Time Groundwater Quality Snapshot	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	One-Time Groundwater Quality Snapshot and Evaluation – Evaluation of Groundwater Quality Monitoring Options	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Install Additional Agroclimate Stations	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Expanded Subbasin Monitoring and Aquifer Testing – Aquifer Testing	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide

	<b>23 CCR § 354.44</b>			
<b>Subbasin</b>	<b>Project/ Management Action Name</b>	<b>Project Proponent</b>	<b>Project Type</b>	<b>Project Location</b>
All	Expanded Subbasin Monitoring and Aquifer Testing – Identify Locations Vulnerable to Damage from Subsidence	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Expanded Subbasin Monitoring and Aquifer Testing – Groundwater Subbasin LIDAR	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Subbasin-wide
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze the Relationship between Groundwater Levels and GDE Health	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Stream channels near GDEs
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze Water Supplies Accessed by Potential GDEs	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Stream channels near GDEs
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Evaluate the Need for Additional Groundwater - Surface Water Interaction Studies or Monitoring	Multi-Agency / Jurisdictions	Other (Monitoring/Studies)	Stream channels near GDEs

**Table 3. Implementation Criteria, Notice Process, Permitting and Regulatory Process, and Timeline for all Projects and Management Actions.**

	23 CCR § 354.44	23 CCR §354.44(b)(1)(A)	23 CCR §354.44(b)(1)(B)	23 CCR §354.44(b)(3)	23 CCR §354.44(b)(4)		
Subbasin	Project/Management Action Name	Implementation and Termination Timing/ Criteria for Implementation	Public and/or Inter-Agency Notice Process	Required Permitting and Regulatory Process or Status of Permitting	Current Status	Anticipated Start Date (Year)	Anticipated Completion Date (Year)
<b>Projects and Management Actions Developed for Implementation</b>							
All	Grower Education	Currently in implementation / construction phase	See Note 2	None anticipated	Ongoing	Ongoing	Ongoing
All	Multi-Benefit Recharge	See Note 1	See Note 2	See Note 3	Planned	See Note 4	See Note 4
Bowman	Cottonwood Creek Invasives Control Follow Up	Currently in implementation / construction, maintenance, monitoring phase	See Note 2	See Note 3	Ongoing	Ongoing	Not indicated
Bowman	Cottonwood Creek Riparian Habitat Restoration	See Note 1	See Note 2	See Note 3	Potential	See Note 4	See Note 4
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 1	Currently in Environmental Documentation & CEQA, Permitting, Implementation / Construction	See Note 2	CEQA and NEPA process, 404 permit, CVFPB encroachment permit, USACE 408 authorization that addresses all phases of the project.	Ongoing	Ongoing	Not indicated
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 3	Currently in implementation/const ruction phase	See Note 2	Same as phase 1, above	Ongoing	Ongoing	Not indicated
Los Molinos	Deer Creek Instream Flow Planning and Design Project	See Note 1	See Note 2	See Note 3	Potential	See Note 4	See Note 4
Los Molinos	DCID Diversion Automation Project	See Note 1	See Note 2	See Note 3	Potential	See Note 4	See Note 4
Red Bluff	El Camino Restoration Project	See Note 1	See Note 2	See Note 3	Potential	See Note 4	See Note 4

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(1)(A)</b>	<b>23 CCR §354.44(b)(1)(B)</b>	<b>23 CCR §354.44(b)(3)</b>	<b>23 CCR §354.44(b)(4)</b>		
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Implementation and Termination Timing/ Criteria for Implementation</b>	<b>Public and/or Inter-Agency Notice Process</b>	<b>Required Permitting and Regulatory Process or Status of Permitting</b>	<b>Current Status</b>	<b>Anticipated Start Date (Year)</b>	<b>Anticipated Completion Date (Year)</b>
Red Bluff	Expanded Use of CVP Contract Supplies in Proberta Water District and Thomes Creek Water District	See Note 1	See Note 2	See Note 3	Potential	See Note 4	See Note 4
Red Bluff	Elder Creek Non-Native Invasive Species Plant Control	See Note 1	See Note 2	See Note 3	Potential	See Note 4	See Note 4
Red Bluff	Tehama West Non-Native Invasive Species Plant Control	See Note 1	See Note 2	See Note 3	Potential	See Note 4	See Note 4
Red Bluff	Thomes Creek and Elder Creek Diversion for Direct or In-Lieu Groundwater Recharge	See Note 1	See Note 2	See Note 3	Potential	See Note 4	See Note 4
<b>Portfolio of Other Potential Projects and Management Actions</b>							
All	Direct Groundwater Recharge of Stormwater and Flood Water – Groundwater Recharge of Stormwater through Unlined Canals, Natural Drainages, Recharge Basins, and ASR Wells	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Direct Groundwater Recharge of Stormwater and Flood Water – Off-Stream Temporary Storage of Flood Water on Private Lands	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Stormwater Management Improvements	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Stormwater Management Improvements – Watershed Restoration to Reduce Runoff	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Levee Setback and Stream Channel Restoration	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Recycled Water Program	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(1)(A)</b>	<b>23 CCR §354.44(b)(1)(B)</b>	<b>23 CCR §354.44(b)(3)</b>	<b>23 CCR §354.44(b)(4)</b>		
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Implementation and Termination Timing/ Criteria for Implementation</b>	<b>Public and/or Inter-Agency Notice Process</b>	<b>Required Permitting and Regulatory Process or Status of Permitting</b>	<b>Current Status</b>	<b>Anticipated Start Date (Year)</b>	<b>Anticipated Completion Date (Year)</b>
All	Recycled Water Program – Treated Wastewater Recycling to Support Wetlands	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Recycled Water Program – Wastewater Treatment Facility Construction to Supply Recycled Water for Irrigation	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Inter-Basin Surface Water Transfers or Exchanges – Increase Inter-Basin Surface Water Transfers or Exchanges to Promote Surface Water Use	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Inter-Basin Surface Water Transfers or Exchanges – Surface Water Imports from Other Tehama County Subbasins	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Invasive Plant Removal from Creeks and Irrigation Conveyance Canals	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Water Supply Reservoir Construction, Renovation, or Conversion	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Enhanced Boundary Flow Measurement	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Well Metering	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Residential Water Use Efficiency Improvements	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Municipal Water System Efficiency Improvements	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Irrigation Efficiency Improvements	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(1)(A)</b>	<b>23 CCR §354.44(b)(1)(B)</b>	<b>23 CCR §354.44(b)(3)</b>	<b>23 CCR §354.44(b)(4)</b>		
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Implementation and Termination Timing/ Criteria for Implementation</b>	<b>Public and/or Inter-Agency Notice Process</b>	<b>Required Permitting and Regulatory Process or Status of Permitting</b>	<b>Current Status</b>	<b>Anticipated Start Date (Year)</b>	<b>Anticipated Completion Date (Year)</b>
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Surface Water Conveyance and Irrigation Infrastructure Improvements for Dual-Source Systems	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Assistance for Capital Improvements	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Water Market for Surface Water and Groundwater Exchange	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Demand Management – Conversion to Less Water Intensive Crops	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Demand Management – Pumping Fees	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Demand Management – Groundwater Extraction Allocation Program	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Demand Management – Land Fallowing Program	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Demand Management – County Water Use Ordinance and Conservation Efforts	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Demand Management – Management and Restrictions of Land Use Changes	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Surface Water	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Recycled Water	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Tehama County Domestic Well Tracking and Outreach Program –	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(1)(A)</b>	<b>23 CCR §354.44(b)(1)(B)</b>	<b>23 CCR §354.44(b)(3)</b>	<b>23 CCR §354.44(b)(4)</b>		
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Implementation and Termination Timing/ Criteria for Implementation</b>	<b>Public and/or Inter-Agency Notice Process</b>	<b>Required Permitting and Regulatory Process or Status of Permitting</b>	<b>Current Status</b>	<b>Anticipated Start Date (Year)</b>	<b>Anticipated Completion Date (Year)</b>
	Provide Information and Resources for Protection of Domestic Wells						
All	Tehama County Domestic Well Tracking and Outreach Program – Tehama County Dry Domestic Well Tracking System	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Well Deepening or Replacement Program	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Review of County Well Permitting Ordinances	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Coordination and Development of Public Data Portals	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Coordination and Development of Public Data Portals – Ongoing Coordination and Information Sharing	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Coordination and Development of Public Data Portals – Data Sharing for Monitoring Contaminant Plumes	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Tehama County Well Inventory and Registration Program – Well Registration Program	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Tehama County Well Inventory and Registration Program – Tehama County Well Inventory	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Maintain and Expand Groundwater Level Monitoring Network	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Maintain and Expand Groundwater Level Monitoring Network – Maintain Coordination with Other Monitoring Entities	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4



	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(1)(A)</b>	<b>23 CCR §354.44(b)(1)(B)</b>	<b>23 CCR §354.44(b)(3)</b>	<b>23 CCR §354.44(b)(4)</b>		
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Implementation and Termination Timing/ Criteria for Implementation</b>	<b>Public and/or Inter-Agency Notice Process</b>	<b>Required Permitting and Regulatory Process or Status of Permitting</b>	<b>Current Status</b>	<b>Anticipated Start Date (Year)</b>	<b>Anticipated Completion Date (Year)</b>
All	Maintain and Expand Groundwater Level Monitoring Network – Identify Existing Wells for Incorporation into the Groundwater Level Monitoring Network	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Maintain and Expand Groundwater Level Monitoring Network – Identify New Wells for Incorporation into the Groundwater Level Monitoring Network	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	One-Time Groundwater Quality Snapshot and Evaluation – One-Time Groundwater Quality Snapshot	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	One-Time Groundwater Quality Snapshot and Evaluation – Evaluation of Groundwater Quality Monitoring Options	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Install Additional Agroclimate Stations	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Expanded Subbasin Monitoring and Aquifer Testing – Aquifer Testing	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Expanded Subbasin Monitoring and Aquifer Testing – Identify Locations Vulnerable to Damage from Subsidence	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Expanded Subbasin Monitoring and Aquifer Testing – Groundwater Subbasin LIDAR	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze the Relationship between Groundwater Levels and GDE Health	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(1)(A)</b>	<b>23 CCR §354.44(b)(1)(B)</b>	<b>23 CCR §354.44(b)(3)</b>	<b>23 CCR §354.44(b)(4)</b>		
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Implementation and Termination Timing/ Criteria for Implementation</b>	<b>Public and/or Inter-Agency Notice Process</b>	<b>Required Permitting and Regulatory Process or Status of Permitting</b>	<b>Current Status</b>	<b>Anticipated Start Date (Year)</b>	<b>Anticipated Completion Date (Year)</b>
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze Water Supplies Accessed by Potential GDEs	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Evaluate the Need for Additional Groundwater - Surface Water Interaction Studies or Monitoring	See Note 1	See Note 2	See Note 3	Concept	See Note 4	See Note 4

**Notes:**

1. This PMA is currently in the early planning or conceptual stage. Thus the implementation and termination dates have yet to be determined. Criteria for implementation may, among other factors, be linked to the sustainability indicators and will be provided in GSP annual reports and five-year updates when known.
2. Public and/or Inter-Agency Noticing will be facilitated through GSA board meetings, GSA and/or cooperating agency website(s), GSA and/or cooperating agency newsletters, inter-basin coordination meetings, agency governing body public meetings, GSP annual reports and five-year updates, public scoping meetings and environmental/regulatory permitting notification.
3. 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 are not limited to: DWR, SWRCB, CDFW, Flood Board, Regional Water Boards, USFWS, NMFS, LAFCO, Tehama County, and CARB.
4. This PMA is currently in the early planning or conceptual stage. Thus, the start and completion dates for this activity have yet to be determined and will be provided in GSP annual reports and five-year updates when known.

**Table 4. Anticipated Benefits of all Projects and Management Actions.**

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>			
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Sustainability Indicators Expected to Benefit</b>	<b>Specific Multi-Benefits Expected</b>	<b>Serves Disadvantaged Community (If so, which one?)</b>	<b>Expected Yield</b>
<b>Projects and Management Actions Developed for Implementation</b>					
All	Grower Education	Groundwater levels, groundwater storage, depletions of interconnected surface water, water quality		See Note 2	See Note 4
All	Multi-Benefit Recharge	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Wildlife habitat	See Note 2	See Note 4
Bowman	Cottonwood Creek Invasives Control Follow Up	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Increased native vegetation / habitat; decreased sediment trapping	See Note 2	See Note 4
Bowman	Cottonwood Creek Riparian Habitat Restoration	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Increased native vegetation / habitat; decreased sediment trapping	See Note 2	See Note 3
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 1	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 4
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 3	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Fish passage; riparian habitat	See Note 2	See Note 4
Los Molinos	Deer Creek Instream Flow Planning and Design Project	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
Los Molinos	DCID Diversion Automation Project	Groundwater levels, groundwater storage, and		See Note 2	See Note 3

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>			
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Sustainability Indicators Expected to Benefit</b>	<b>Specific Multi-Benefits Expected</b>	<b>Serves Disadvantaged Community (If so, which one?)</b>	<b>Expected Yield</b>
		depletions of interconnected surface water			
Red Bluff	El Camino Restoration Project	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
Red Bluff	Expanded Use of CVP Contract Supplies in Proberta Water District and Thomes Creek Water District	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
Red Bluff	Elder Creek Non-Native Invasive Species Plant Control	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Increased native vegetation / habitat; decreased sediment trapping	See Note 2	See Note 3
Red Bluff	Tehama West Non-Native Invasive Species Plant Control	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Increased native vegetation / habitat; decreased sediment trapping	See Note 2	See Note 3
Red Bluff	Thomes Creek and Elder Creek Diversion for Direct or In-Lieu Groundwater Recharge	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
<b>Portfolio of Other Potential Projects and Management Actions</b>					
All	Direct Groundwater Recharge of Stormwater and Flood Water – Groundwater Recharge of Stormwater through Unlined Canals, Natural Drainages, Recharge Basins, and ASR Wells	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Direct Groundwater Recharge of Stormwater and Flood Water – Off-	Groundwater levels, groundwater storage, and		See Note 2	See Note 3

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>			
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Sustainability Indicators Expected to Benefit</b>	<b>Specific Multi-Benefits Expected</b>	<b>Serves Disadvantaged Community (If so, which one?)</b>	<b>Expected Yield</b>
	Stream Temporary Storage of Flood Water on Private Lands	depletions of interconnected surface water			
All	Stormwater Management Improvements	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Stormwater Management Improvements – Watershed Restoration to Reduce Runoff	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Reduced runoff and erosion	See Note 2	See Note 3
All	Levee Setback and Stream Channel Restoration	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Wildlife habitat creation	See Note 2	See Note 3
All	Recycled Water Program	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Recycled Water Program – Treated Wastewater Recycling to Support Wetlands	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Wetland habitat creation; recreation; Sacramento River water quality improvement	See Note 2	See Note 3
All	Recycled Water Program – Wastewater Treatment Facility Construction to Supply Recycled Water for Irrigation	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Inter-Basin Surface Water Transfers or Exchanges – Increase Inter-Basin Surface Water Transfers or Exchanges to Promote Surface Water Use	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>			
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Sustainability Indicators Expected to Benefit</b>	<b>Specific Multi-Benefits Expected</b>	<b>Serves Disadvantaged Community (If so, which one?)</b>	<b>Expected Yield</b>
All	Inter-Basin Surface Water Transfers or Exchanges – Surface Water Imports from Other Tehama County Subbasins	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Invasive Plant Removal from Creeks and Irrigation Conveyance Canals	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Increased native vegetation / habitat; decreased sediment trapping	See Note 2	See Note 3
All	Water Supply Reservoir Construction, Renovation, or Conversion	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Enhanced Boundary Flow Measurement	See Note 1		See Note 2	See Note 3
All	Well Metering	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Residential Water Use Efficiency Improvements	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Municipal Water System Efficiency Improvements	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Irrigation Efficiency Improvements	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Assistance and Incentives for On-Farm Irrigation Infrastructure	Groundwater levels, groundwater storage, and		See Note 2	See Note 3

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>			
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Sustainability Indicators Expected to Benefit</b>	<b>Specific Multi-Benefits Expected</b>	<b>Serves Disadvantaged Community (If so, which one?)</b>	<b>Expected Yield</b>
	Improvements – Surface Water Conveyance and Irrigation Infrastructure Improvements for Dual-Source Systems	depletions of interconnected surface water			
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Assistance for Capital Improvements	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Water Market for Surface Water and Groundwater Exchange	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Demand Management – Conversion to Less Water Intensive Crops	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Demand Management – Pumping Fees	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Demand Management – Groundwater Extraction Allocation Program	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Demand Management – Land Fallowing Program	Groundwater levels, groundwater storage, and depletions of interconnected surface water	Potential for multi-benefits on temporarily idled lands, depending on program design	See Note 2	See Note 3
All	Demand Management – County Water Use Ordinance and Conservation Efforts	Groundwater levels, groundwater storage, and		See Note 2	See Note 3

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>			
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Sustainability Indicators Expected to Benefit</b>	<b>Specific Multi-Benefits Expected</b>	<b>Serves Disadvantaged Community (If so, which one?)</b>	<b>Expected Yield</b>
		depletions of interconnected surface water			
All	Demand Management – Management and Restrictions of Land Use Changes	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Surface Water	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Recycled Water	Groundwater levels, groundwater storage, and depletions of interconnected surface water		See Note 2	See Note 3
All	Tehama County Domestic Well Tracking and Outreach Program – Provide Information and Resources for Protection of Domestic Wells	Water quality		See Note 2	See Note 3
All	Tehama County Domestic Well Tracking and Outreach Program – Tehama County Dry Domestic Well Tracking System	See Note 1		See Note 2	See Note 3
All	Well Deepening or Replacement Program	See Note 1		See Note 2	See Note 3
All	Review of County Well Permitting Ordinances	Groundwater levels, groundwater storage, depletions of interconnected surface water, water quality		See Note 2	See Note 3
All	Coordination and Development of Public Data Portals	See Note 1		See Note 2	See Note 3



	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>			
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Sustainability Indicators Expected to Benefit</b>	<b>Specific Multi-Benefits Expected</b>	<b>Serves Disadvantaged Community (If so, which one?)</b>	<b>Expected Yield</b>
All	Coordination and Development of Public Data Portals – Ongoing Coordination and Information Sharing	See Note 1		See Note 2	See Note 3
All	Coordination and Development of Public Data Portals – Data Sharing for Monitoring Contaminant Plumes	See Note 1		See Note 2	See Note 3
All	Tehama County Well Inventory and Registration Program – Well Registration Program	See Note 1		See Note 2	See Note 3
All	Tehama County Well Inventory and Registration Program – Tehama County Well Inventory	See Note 1		See Note 2	See Note 3
All	Maintain and Expand Groundwater Level Monitoring Network	See Note 1		See Note 2	See Note 3
All	Maintain and Expand Groundwater Level Monitoring Network – Maintain Coordination with Other Monitoring Entities	See Note 1		See Note 2	See Note 3
All	Maintain and Expand Groundwater Level Monitoring Network – Identify Existing Wells for Incorporation into the Groundwater Level Monitoring Network	See Note 1		See Note 2	See Note 3
All	Maintain and Expand Groundwater Level Monitoring Network – Identify New Wells for Incorporation into the Groundwater Level Monitoring Network	See Note 1		See Note 2	See Note 3
All	One-Time Groundwater Quality Snapshot and Evaluation – One-Time Groundwater Quality Snapshot	See Note 1		See Note 2	See Note 3

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>			
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Sustainability Indicators Expected to Benefit</b>	<b>Specific Multi-Benefits Expected</b>	<b>Serves Disadvantaged Community (If so, which one?)</b>	<b>Expected Yield</b>
All	One-Time Groundwater Quality Snapshot and Evaluation – Evaluation of Groundwater Quality Monitoring Options	See Note 1		See Note 2	See Note 3
All	Install Additional Agroclimate Stations	See Note 1		See Note 2	See Note 3
All	Expanded Subbasin Monitoring and Aquifer Testing – Aquifer Testing	See Note 1		See Note 2	See Note 3
All	Expanded Subbasin Monitoring and Aquifer Testing – Identify Locations Vulnerable to Damage from Subsidence	See Note 1		See Note 2	See Note 3
All	Expanded Subbasin Monitoring and Aquifer Testing – Groundwater Subbasin LIDAR	See Note 1		See Note 2	See Note 3
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze the Relationship between Groundwater Levels and GDE Health	See Note 1		See Note 2	See Note 3
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze Water Supplies Accessed by Potential GDEs	See Note 1		See Note 2	See Note 3
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Evaluate the Need for Additional Groundwater - Surface Water Interaction Studies or Monitoring	See Note 1		See Note 2	See Note 3

**Notes**

1. Coordination, data sharing, and additional monitoring are beneficial to GSP implementation and tracking progress toward the Subbasin sustainability goal. However, there are no anticipated direct benefits to specific sustainability indicators.

2. The majority of areas, especially population centers, within the Subbasins are classified as either Severely Disadvantaged Communities, Disadvantaged Communities, or Economically Distressed Areas (based on 2018 census block groups, tracts, and places).
3. This PMA is currently in the early planning or conceptual stage. Thus the expected yield of this PMA has yet to be determined and will be reported in GSP annual reports and five-year updates when known. Benefits are generally expected to accrue in all years beginning the first year of implementation for most PMAs.
4. All available information is provided in the corresponding Subbasin GSP chapter.

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**Table 5. Benefit Evaluation and Water Source for all Projects and Management Actions.**

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>	<b>23 CCR §354.44(b)(6)</b>	
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Benefit Evaluation Methodology</b>	<b>Water Source</b>	<b>Water Source Reliability</b>
<b>Projects and Management Actions Developed for Implementation</b>				
All	Grower Education	See Note 1	See Note 2	See Note 2
All	Multi-Benefit Recharge	See Note 1	See Note 3	See Note 3
Bowman	Cottonwood Creek Invasives Control Follow Up	See Note 1	See Note 2	See Note 2
Bowman	Cottonwood Creek Riparian Habitat Restoration	See Note 1	See Note 2	See Note 2
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 1	See Note 1	See Note 2	See Note 2
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 3	See Note 1	See Note 2	See Note 2
Los Molinos	Deer Creek Instream Flow Planning and Design Project	See Note 1	See Note 2	See Note 2
Los Molinos	DCID Diversion Automation Project	See Note 1	See Note 2	See Note 2
Red Bluff	El Camino Restoration Project	See Note 1	See Note 2	See Note 2
Red Bluff	Expanded Use of CVP Contract Supplies in Proberta Water District and Thomes Creek Water District	See Note 1	See Note 3	See Note 3
Red Bluff	Elder Creek Non-Native Invasive Species Plant Control	See Note 1	See Note 2	See Note 2
Red Bluff	Tehama West Non-Native Invasive Species Plant Control	See Note 1	See Note 2	See Note 2
Red Bluff	Thomes Creek and Elder Creek Diversion for Direct or In-Lieu Groundwater Recharge	See Note 1	See Note 3	See Note 3
<b>Portfolio of Other Potential Projects and Management Actions</b>				
All	Direct Groundwater Recharge of Stormwater and Flood Water – Groundwater Recharge of Stormwater through Unlined Canals, Natural Drainages, Recharge Basins, and ASR Wells	See Note 1	See Note 3	See Note 3
All	Direct Groundwater Recharge of Stormwater and Flood Water – Off-Stream Temporary Storage of Flood Water on Private Lands	See Note 1	See Note 3	See Note 3
All	Stormwater Management Improvements	See Note 1	See Note 2	See Note 2

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>	<b>23 CCR §354.44(b)(6)</b>	
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Benefit Evaluation Methodology</b>	<b>Water Source</b>	<b>Water Source Reliability</b>
All	Stormwater Management Improvements – Watershed Restoration to Reduce Runoff	See Note 1	See Note 2	See Note 2
All	Levee Setback and Stream Channel Restoration	See Note 1	See Note 2	See Note 2
All	Recycled Water Program	See Note 1	See Note 3	See Note 3
All	Recycled Water Program – Treated Wastewater Recycling to Support Wetlands	See Note 1	See Note 3	See Note 3
All	Recycled Water Program – Wastewater Treatment Facility Construction to Supply Recycled Water for Irrigation	See Note 1	See Note 3	See Note 3
All	Inter-Basin Surface Water Transfers or Exchanges – Increase Inter-Basin Surface Water Transfers or Exchanges to Promote Surface Water Use	See Note 1	See Note 3	See Note 3
All	Inter-Basin Surface Water Transfers or Exchanges – Surface Water Imports from Other Tehama County Subbasins	See Note 1	See Note 3	See Note 3
All	Invasive Plant Removal from Creeks and Irrigation Conveyance Canals	See Note 1	See Note 2	See Note 2
All	Water Supply Reservoir Construction, Renovation, or Conversion	See Note 1	See Note 2	See Note 2
All	Enhanced Boundary Flow Measurement	See Note 1	See Note 2	See Note 2
All	Well Metering	See Note 1	See Note 2	See Note 2
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Residential Water Use Efficiency Improvements	See Note 1	See Note 2	See Note 2
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Municipal Water System Efficiency Improvements	See Note 1	See Note 2	See Note 2
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Irrigation Efficiency Improvements	See Note 1	See Note 2	See Note 2
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Surface Water	See Note 1	See Note 2	See Note 2

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>	<b>23 CCR §354.44(b)(6)</b>	
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Benefit Evaluation Methodology</b>	<b>Water Source</b>	<b>Water Source Reliability</b>
	Conveyance and Irrigation Infrastructure Improvements for Dual-Source Systems			
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Assistance for Capital Improvements	See Note 1	See Note 2	See Note 2
All	Water Market for Surface Water and Groundwater Exchange	See Note 1	See Note 2	See Note 2
All	Demand Management – Conversion to Less Water Intensive Crops	See Note 1	See Note 2	See Note 2
All	Demand Management – Pumping Fees	See Note 1	See Note 2	See Note 2
All	Demand Management – Groundwater Extraction Allocation Program	See Note 1	See Note 2	See Note 2
All	Demand Management – Land Fallowing Program	See Note 1	See Note 2	See Note 2
All	Demand Management – County Water Use Ordinance and Conservation Efforts	See Note 1	See Note 2	See Note 2
All	Demand Management – Management and Restrictions of Land Use Changes	See Note 1	See Note 2	See Note 2
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Surface Water	See Note 1	See Note 2	See Note 2
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Recycled Water	See Note 1	See Note 3	See Note 3
All	Tehama County Domestic Well Tracking and Outreach Program – Provide Information and Resources for Protection of Domestic Wells	See Note 1	See Note 2	See Note 2
All	Tehama County Domestic Well Tracking and Outreach Program – Tehama County Dry Domestic Well Tracking System	See Note 1	See Note 2	See Note 2
All	Well Deepening or Replacement Program	See Note 1	See Note 2	See Note 2
All	Review of County Well Permitting Ordinances	See Note 1	See Note 2	See Note 2
All	Coordination and Development of Public Data Portals	See Note 1	See Note 2	See Note 2

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>	<b>23 CCR §354.44(b)(6)</b>	
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Benefit Evaluation Methodology</b>	<b>Water Source</b>	<b>Water Source Reliability</b>
All	Coordination and Development of Public Data Portals – Ongoing Coordination and Information Sharing	See Note 1	See Note 2	See Note 2
All	Coordination and Development of Public Data Portals – Data Sharing for Monitoring Contaminant Plumes	See Note 1	See Note 2	See Note 2
All	Tehama County Well Inventory and Registration Program – Well Registration Program	See Note 1	See Note 2	See Note 2
All	Tehama County Well Inventory and Registration Program – Tehama County Well Inventory	See Note 1	See Note 2	See Note 2
All	Maintain and Expand Groundwater Level Monitoring Network	See Note 1	See Note 2	See Note 2
All	Maintain and Expand Groundwater Level Monitoring Network – Maintain Coordination with Other Monitoring Entities	See Note 1	See Note 2	See Note 2
All	Maintain and Expand Groundwater Level Monitoring Network – Identify Existing Wells for Incorporation into the Groundwater Level Monitoring Network	See Note 1	See Note 2	See Note 2
All	Maintain and Expand Groundwater Level Monitoring Network – Identify New Wells for Incorporation into the Groundwater Level Monitoring Network	See Note 1	See Note 2	See Note 2
All	One-Time Groundwater Quality Snapshot and Evaluation – One-Time Groundwater Quality Snapshot	See Note 1	See Note 2	See Note 2
All	One-Time Groundwater Quality Snapshot and Evaluation – Evaluation of Groundwater Quality Monitoring Options	See Note 1	See Note 2	See Note 2
All	Install Additional Agroclimate Stations	See Note 1	See Note 2	See Note 2
All	Expanded Subbasin Monitoring and Aquifer Testing – Aquifer Testing	See Note 1	See Note 2	See Note 2
All	Expanded Subbasin Monitoring and Aquifer Testing – Identify Locations Vulnerable to Damage from Subsidence	See Note 1	See Note 2	See Note 2
All	Expanded Subbasin Monitoring and Aquifer Testing – Groundwater Subbasin LIDAR	See Note 1	See Note 2	See Note 2

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(5)</b>	<b>23 CCR §354.44(b)(6)</b>	
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Benefit Evaluation Methodology</b>	<b>Water Source</b>	<b>Water Source Reliability</b>
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze the Relationship between Groundwater Levels and GDE Health	See Note 1	See Note 2	See Note 2
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze Water Supplies Accessed by Potential GDEs	See Note 1	See Note 2	See Note 2
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Evaluate the Need for Additional Groundwater - Surface Water Interaction Studies or Monitoring	See Note 1	See Note 2	See Note 2

**Notes:**

1. Evaluation of benefits may be quantified through with-project monitoring. With-project monitoring would be compared to without-project data as a means of quantifying the PMA benefit. With-project monitoring may include, but is not limited to; flow measurement consistent with state regulations, consumptive use analysis, reductions in GW use, well monitoring, determination of infiltration rates, water balance analysis, as-built drawings and stream gaging.
2. This PMA does not rely on a particular water source from outside the Subbasin, but may be useful for managing existing water resources.
3. The water source and reliability is described in the corresponding Subbasin GSP chapter.



**Table 6. Legal Authority Requirements, Estimated Cost, and Potential Funding Sources for all Projects and Management Actions.**

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(7)</b>	<b>23 CCR §354.44(b)(8)</b>	
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Legal Authority Required</b>	<b>Estimated Cost</b>	<b>Potential Funding Sources</b>
<b>Projects and Management Actions Developed for Implementation</b>				
All	Grower Education	See Note 1	See Note 3	See Note 4
All	Multi-Benefit Recharge	See Note 1	See Note 3	See Note 4
Bowman	Cottonwood Creek Invasives Control Follow Up	See Note 1	See Note 3	See Note 4
Bowman	Cottonwood Creek Riparian Habitat Restoration	See Note 1	See Note 2	See Note 4
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 1	See Note 1	See Note 3	See Note 4
Los Molinos	Lower Deer Creek Levee Improvements & Habitat Restoration Phase 3	See Note 1	See Note 3	See Note 4
Los Molinos	Deer Creek Instream Flow Planning and Design Project	See Note 1	See Note 2	See Note 4
Los Molinos	DCID Diversion Automation Project	See Note 1	See Note 2	See Note 4
Red Bluff	El Camino Restoration Project	See Note 1	See Note 2	See Note 4
Red Bluff	Expanded Use of CVP Contract Supplies in Proberta Water District and Thomes Creek Water District	See Note 1	See Note 2	See Note 4
Red Bluff	Elder Creek Non-Native Invasive Species Plant Control	See Note 1	See Note 2	See Note 4
Red Bluff	Tehama West Non-Native Invasive Species Plant Control	See Note 1	See Note 2	See Note 4
Red Bluff	Thomes Creek and Elder Creek Diversion for Direct or In-Lieu Groundwater Recharge	See Note 1	See Note 2	See Note 4
<b>Portfolio of Other Potential Projects and Management Actions</b>				
All	Direct Groundwater Recharge of Stormwater and Flood Water – Groundwater Recharge of Stormwater through Unlined Canals, Natural Drainages, Recharge Basins, and ASR Wells	See Note 1	See Note 2	See Note 4
All	Direct Groundwater Recharge of Stormwater and Flood Water – Off-Stream Temporary Storage of Flood Water on Private Lands	See Note 1	See Note 2	See Note 4
All	Stormwater Management Improvements	See Note 1	See Note 2	See Note 4
All	Stormwater Management Improvements – Watershed Restoration to Reduce Runoff	See Note 1	See Note 2	See Note 4

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(7)</b>	<b>23 CCR §354.44(b)(8)</b>	
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Legal Authority Required</b>	<b>Estimated Cost</b>	<b>Potential Funding Sources</b>
All	Levee Setback and Stream Channel Restoration	See Note 1	See Note 2	See Note 4
All	Recycled Water Program	See Note 1	See Note 2	See Note 4
All	Recycled Water Program – Treated Wastewater Recycling to Support Wetlands	See Note 1	See Note 2	See Note 4
All	Recycled Water Program – Wastewater Treatment Facility Construction to Supply Recycled Water for Irrigation	See Note 1	See Note 2	See Note 4
All	Inter-Basin Surface Water Transfers or Exchanges – Increase Inter-Basin Surface Water Transfers or Exchanges to Promote Surface Water Use	See Note 1	See Note 2	See Note 4
All	Inter-Basin Surface Water Transfers or Exchanges – Surface Water Imports from Other Tehama County Subbasins	See Note 1	See Note 2	See Note 4
All	Invasive Plant Removal from Creeks and Irrigation Conveyance Canals	See Note 1	See Note 2	See Note 4
All	Water Supply Reservoir Construction, Renovation, or Conversion	See Note 1	See Note 2	See Note 4
All	Enhanced Boundary Flow Measurement	See Note 1	See Note 2	See Note 4
All	Well Metering	See Note 1	See Note 2	See Note 4
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Residential Water Use Efficiency Improvements	See Note 1	See Note 2	See Note 4
All	Incentivize Residential and Municipal Water Use Efficiency Improvements – Municipal Water System Efficiency Improvements	See Note 1	See Note 2	See Note 4
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Irrigation Efficiency Improvements	See Note 1	See Note 2	See Note 4
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Surface Water Conveyance and Irrigation Infrastructure Improvements for Dual-Source Systems	See Note 1	See Note 2	See Note 4
All	Assistance and Incentives for On-Farm Irrigation Infrastructure Improvements – Assistance for Capital Improvements	See Note 1	See Note 2	See Note 4
All	Water Market for Surface Water and Groundwater Exchange	See Note 1	See Note 2	See Note 4

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(7)</b>	<b>23 CCR §354.44(b)(8)</b>	
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Legal Authority Required</b>	<b>Estimated Cost</b>	<b>Potential Funding Sources</b>
All	Demand Management – Conversion to Less Water Intensive Crops	See Note 1	See Note 2	See Note 4
All	Demand Management – Pumping Fees	See Note 1	See Note 2	See Note 4
All	Demand Management – Groundwater Extraction Allocation Program	See Note 1	See Note 2	See Note 4
All	Demand Management – Land Fallowing Program	See Note 1	See Note 2	See Note 4
All	Demand Management – County Water Use Ordinance and Conservation Efforts	See Note 1	See Note 2	See Note 4
All	Demand Management – Management and Restrictions of Land Use Changes	See Note 1	See Note 2	See Note 4
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Surface Water	See Note 1	See Note 2	See Note 4
All	Incentivize Use of Available Surface Water and Recycled Water – Incentivize Use of Recycled Water	See Note 1	See Note 2	See Note 4
All	Tehama County Domestic Well Tracking and Outreach Program – Provide Information and Resources for Protection of Domestic Wells	See Note 1	See Note 2	See Note 4
All	Tehama County Domestic Well Tracking and Outreach Program – Tehama County Dry Domestic Well Tracking System	See Note 1	See Note 2	See Note 4
All	Well Deepening or Replacement Program	See Note 1	See Note 2	See Note 4
All	Review of County Well Permitting Ordinances	See Note 1	See Note 2	See Note 4
All	Coordination and Development of Public Data Portals	See Note 1	See Note 2	See Note 4
All	Coordination and Development of Public Data Portals – Ongoing Coordination and Information Sharing	See Note 1	See Note 2	See Note 4
All	Coordination and Development of Public Data Portals – Data Sharing for Monitoring Contaminant Plumes	See Note 1	See Note 2	See Note 4
All	Tehama County Well Inventory and Registration Program – Well Registration Program	See Note 1	See Note 2	See Note 4
All	Tehama County Well Inventory and Registration Program – Tehama County Well Inventory	See Note 1	See Note 2	See Note 4
All	Maintain and Expand Groundwater Level Monitoring Network	See Note 1	See Note 2	See Note 4

	<b>23 CCR § 354.44</b>	<b>23 CCR §354.44(b)(7)</b>	<b>23 CCR §354.44(b)(8)</b>	
<b>Subbasin</b>	<b>Project/Management Action Name</b>	<b>Legal Authority Required</b>	<b>Estimated Cost</b>	<b>Potential Funding Sources</b>
All	Maintain and Expand Groundwater Level Monitoring Network – Maintain Coordination with Other Monitoring Entities	See Note 1	See Note 2	See Note 4
All	Maintain and Expand Groundwater Level Monitoring Network – Identify Existing Wells for Incorporation into the Groundwater Level Monitoring Network	See Note 1	See Note 2	See Note 4
All	Maintain and Expand Groundwater Level Monitoring Network – Identify New Wells for Incorporation into the Groundwater Level Monitoring Network	See Note 1	See Note 2	See Note 4
All	One-Time Groundwater Quality Snapshot and Evaluation – One-Time Groundwater Quality Snapshot	See Note 1	See Note 2	See Note 4
All	One-Time Groundwater Quality Snapshot and Evaluation – Evaluation of Groundwater Quality Monitoring Options	See Note 1	See Note 2	See Note 4
All	Install Additional Agroclimate Stations	See Note 1	See Note 2	See Note 4
All	Expanded Subbasin Monitoring and Aquifer Testing – Aquifer Testing	See Note 1	See Note 2	See Note 4
All	Expanded Subbasin Monitoring and Aquifer Testing – Identify Locations Vulnerable to Damage from Subsidence	See Note 1	See Note 2	See Note 4
All	Expanded Subbasin Monitoring and Aquifer Testing – Groundwater Subbasin LIDAR	See Note 1	See Note 2	See Note 4
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze the Relationship between Groundwater Levels and GDE Health	See Note 1	See Note 2	See Note 4
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Analyze Water Supplies Accessed by Potential GDEs	See Note 1	See Note 2	See Note 4
All	Additional Studies of GDEs and Groundwater - Surface Water Interactions – Evaluate the Need for Additional Groundwater - Surface Water Interaction Studies or Monitoring	See Note 1	See Note 2	See Note 4

**Notes:**

1. GSAs, Districts and individual proponents have the authority to plan and implement projects, including surveys, studies, and other monitoring efforts.
2. This PMA is currently in the early planning or conceptual stage. Thus the anticipated costs of this PMA have yet to be determined and will be reported in GSP annual reports and five-year updates when known.

3. Available information on estimated costs is provided in the corresponding Subbasin GSP chapter.
4. Potential funding sources are being evaluated as PMA planning continues; they include, but are not limited to, the following: grants, loans, bonds, assessment fees, and cost-sharing programs. Potential funding sources will be reported in GSP annual reports and five-year updates when known.

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