

Projects and Management Actions to Achieve Sustainability Goal
Alternative Groundwater Sustainability Plan
Livermore Valley Groundwater Basin



PROJECTS AND MANAGEMENT ACTIONS TO ACHIEVE SUSTAINABILITY GOAL

(SUBTITLE PAGE)



15. PROJECTS AND MANAGEMENT ACTIONS

§ 354.42. Introduction to Projects and Management Actions

This Subarticle describes the criteria for projects and management actions to be included in a Plan to meet the sustainability goal for the basin in a manner that can be maintained over the planning and implementation horizon.

☑ 23 CCR § 354.42

§ 356.4 Periodic Evaluation by Agency

Each Agency shall evaluate its Plan at least every five years and whenever the Plan is amended, and provide a written assessment to the Department. The assessment shall describe whether the Plan implementation, including implementation of projects and management actions, are meeting the sustainability goal in the basin, and shall include the following:

(b) A description of the implementation of any projects or management actions, and the effect on groundwater conditions resulting from those projects or management actions.

...

(g) A description of relevant actions taken by the Agency, including a summary of regulations or ordinances related to the Plan.

(h) Information describing any enforcement or legal actions taken by the Agency in furtherance of the sustainability goal for the basin.

☑ 23 CCR § 356.4 (b)

☑ 23 CCR § 356.4 (g)

☑ 23 CCR § 356.4 (h)

This section presents the Projects and Management Actions (P/MAs) currently under implementation by The Alameda County Flood Control and Water Conservation District, Zone 7 (Zone 7 Water Agency or Zone 7) or otherwise proposed for future implementation to support continued achievement of the Sustainability Goal for the Livermore Valley Groundwater Basin (Basin). As described in **Section 5.2** and **Sections 8** through **13**, consistent with the approved 2016 Alternative Groundwater Sustainability Plan (Alt GSP) and the requirements of California Water Code (CWC) § 10733.6 (a)(3) and California Code of Regulations Title 23 (23 CCR) § 356.4, Zone 7 has been actively implementing specific plans, programs, and P/MAs for decades to sustainably manage groundwater resources for all beneficial uses and users of groundwater within the Basin. As demonstrated herein, Zone 7 has continued to sustainably manage the Basin to avoid Undesirable Results (URs) (as defined in **Section 13**) for at least 10 years.

A summary of the P/MAs currently being implemented by Zone 7 and their resulting effects on groundwater conditions and benefits to the Sustainability Indicators is provided below. These P/MAs currently being implemented, including ordinances and enforcement actions, help Zone 7 to continue to meet the Sustainability Goal for the Basin and adaptively manage its groundwater supply. In addition to continuing the monitoring programs that are critical to Zone 7's sustainable groundwater management, Zone 7 is also working to improve long-term surface water supply reliability, maximize conjunctive use



opportunities, provide watershed protection, support water recycling operations, and encourage water conservation. Also provided in this section is a description of additional P/MAs that have been proposed to foster continued sustainable management of the Basin over the 50-year Alt GSP planning and implementation horizon.

In addition to the P/MAs presented herein, Zone 7 Water Agency (Zone 7) will continue to conduct data gap filling activities as part of Alt GSP implementation that may include, but are not limited to: (1) collecting and analyzing additional data related to aquifer conditions and properties (e.g., aquifer tests, water level measurements, water quality data, subsidence measurements), (2) refining the Hydrologic Inventory parameters based on additional data and modeling to improve estimates of Basin water balance and storage, and (3) conducting additional analysis to refine the Sustainable Management Criteria and related Basin conditions to assess if Undesirable Results (URs) are occurring (e.g., improving the understanding of the relationship of relevant Sustainability Indicators to Zone 7's Sustainable Groundwater Management Act [SGMA] implementation efforts).

15.1. Goals and Objectives of Projects and Management Actions

☒ 23 CCR § 354.44(b)(1)

This section presents the goals and objectives of the P/MAs that are consistent with Zone 7's on-going sustainable management of the Basin, including the relevant Sustainability Indicators and the categories of benefits from P/MA implementation.

15.1.1. Relevant Sustainability Indicators

Per the California Code of Regulations Title 23 (23 CCR) § 354.44, P/MAs must address any existing or potential future URs for the identified relevant Sustainability Indicators. In Zone 7's case, the P/MAs will be utilized to meet Measurable Objectives (MOs) and avoid exceedance of Minimum Thresholds (MTs) for the relevant Sustainability Indicators. As described in **Section 13**, the following Sustainability Indicators are applicable to the Basin:

- 1) Chronic Lowering of Groundwater Levels
- 2) Reduction of Groundwater Storage
- 3) Degraded Water Quality
- 4) Land Subsidence
- 5) Depletions of Interconnected Surface Water

Consistent with other Zone 7 planning efforts (see **Section 5.2**), Zone 7 manages all its available water supplies—imported surface water from the State Water Project (SWP), local surface water, groundwater, and recycled water—by applying conjunctive use principles and adaptive management strategies. Recognizing the importance of sustainable management of the Basin, Zone 7 has long championed groundwater quality protection and worked to preserve access to high-quality groundwater supplies. As such, the P/MAs presented herein focus on the maintenance of high-quality imported surface water supplies to support the ongoing protection of groundwater levels, storage, and quality and to prevent the



occurrence of land subsidence and interconnected surface water depletions within the Basin. Therefore, the MOs for each of the Sustainability Indicators are expected to continue to be met with the benefit of the P/MAs.

15.1.2. Benefit Categories

The primary categories of realized or expected benefits from P/MAs include:

- 1) Water supply augmentation, including:
 - a. Expanded access to and reliability of imported surface water supplies
 - b. Expansion of groundwater recharge program
- 2) Water demand reduction, including
 - a. Expanded recycled water use
 - b. Water conservation measures
 - c. Continued management of groundwater extractions by groundwater pumping quotas
- 3) Improvement of groundwater quality
- 4) Data gap-filling activities
 - a. Monitoring well installation
 - b. Water level data collection (increased location and frequency in some instances)
 - c. Water quality data collection
 - d. Groundwater extraction data collection
 - e. Groundwater model update to improve Hydrologic Inventory and Basin storage estimates
 - f. Rockworks model update
 - g. Analysis of relationship of Sustainability Indicators trends with Zone 7 SGMA management activities to assess URs (e.g., Interconnected surface waters and groundwater dependent ecosystems, groundwater quality, etc.)



15.2. List of Projects and Management Actions

§ 354.44. Projects and Management Actions

- (a) *Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.*
- (b) *Each Plan shall include a description of the projects and management actions that include the following:*
 - (1) *A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent. The Plan shall include the following:*
 - (A) *A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management actions, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.*
 - (B) *The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.*
 - (2) *If overdraft conditions are identified through the analysis required by Section 354.18, the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.*
 - (3) *A summary of the permitting and regulatory process required for each project and management action.*
 - (4) *The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.*
 - (5) *An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.*
 - (6) *An explanation of how the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.*
 - (7) *A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.*



§ 354.44. *Projects and Management Actions*

- (8) *A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.*
- (9) *A description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.*
- (c) *Projects and management actions shall be supported by best available information and best available science.*
- (d) *An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.*

☒ **23 CCR § 354.44(b)(1)**

☒ **23 CCR § 354.44(c)**

☒ **23 CCR § 354.44(d)**

This section provides a list of the P/MAs currently implemented or otherwise proposed for future implementation by Zone 7. A more detailed description of P/MAs currently under implementation and proposed future P/MAs can be found in Zone 7's 2020 Urban Water Management Plan (UWMP) (*Zone 7, 2021; Appendix K*).

The P/MAs are developed or will be supported by the best available information and science. At this time, Zone 7 acknowledges that details pertaining to which future P/MAs will ultimately be initiated, P/MA timing, projected benefits, payments and cost allocations, etc. will be considered as part of P/MA and Alt GSP implementation. Each future P/MA will have a distinct implementation process and the details will be determined on a case-by-case basis and may differ depending upon observed conditions in the Basin, available opportunities, and the particulars of each P/MA.

Zone 7 further acknowledges uncertainty in the discussions of water supply reliability and water demand projections. With regard to the latter, uncertainty is inherent and the rate of increase of total demands and the ultimate demands will be affected by economic conditions, regulations (e.g., land use ordinances), technology (e.g., water efficiency of future appliances), behavior, and other factors. In response, Zone 7 continues to re-evaluate demand trends annually. With respect to supply, Zone 7 actively manages the Basin through extensive monitoring and other analysis as discussed in prior sections, and investment in multiple diverse supply sources and management actions as described below.

15.2.1. Water Supply Augmentation Projects

15.2.1.1. Existing Imported Water Supplies

As described in **Section 7.7.6**, Zone 7 ensures that local water supplies (e.g., groundwater) are not depleted by importing approximately 80% of the Basin's water supply (delivered to Zone 7's retailers and agricultural customers) and by recharging the Main Basin Management Area (Main Basin) with surplus



surface water when available (artificial recharge). As described in further detail in **Section 7.7.6**, imported surface water supplies secured by Zone 7 include:

- **State Water Project (SWP deliveries via the South Bay Aqueduct [SBA])** – As a SWP contractor, Zone 7 imports supplies from the SWP through the SBA. As of 1998, Zone 7 has had an annual maximum SWP contract amount of 80,619 acre-feet per year (AFY) referred to as the “Table A Contract Amount.” However, actual SWP deliveries are usually allocated in any given year by the California Department of Water Resources (DWR) at a lower level based on numerous factors, including hydrologic conditions. Currently, the long-term reliable yield of the SWP is approximately 60% of the Table A amount (48,370 AFY). This should increase if the California Water Fix is implemented by the State.
- **Arroyo Valle Water Rights (Lake Del Valle)** – Zone 7 has temporary water rights for a portion of the natural flows into Lake Del Valle. Accordingly, Zone 7 coordinates releases from the reservoir into the Arroyo Valle to maintain downstream flows and streambed recharge at the levels that would have occurred had the reservoir not been constructed. Additional releases of Arroyo Valle water can be made from the lake when such water is available for Zone 7. Maintaining minimum flows is a condition of Zone 7’s water rights permit for the Arroyo Valle water. Zone 7 can also use other portions of Arroyo Valle water for supply to its treatment plants and for supplemental aquifer recharge. Zone 7 is currently pursuing the permanent rights to this surface water source.
- **Kern County Subbasin (storage rights only)** – Zone 7 has purchased water storage rights in the Semitropic Water Storage District (78,000 acre-feet [AF]) and in the Cawelo Water District (120,000 AF) in Kern County. These rights give Zone 7 the ability to remotely store surplus SWP water when available. When Zone 7 is ready to use the water locally; it can import that quantity of SWP water through an exchange procedure within the SWP system.
- **Lover River Yuba Accord (Yuba Accord)** – In 2008, Zone 7 entered a contract with DWR to purchase additional water under the Yuba Accord. The contract was amended in 2020 to extend through 2025. There are four different Components (types) of water available; Zone 7 has the option to purchase Component 2 and Component 3 water during drought conditions, and Component 4 water when Yuba County Water Agency has determined that it has water supply available to sell. Zone 7 estimates the average yield from the Yuba Accord to be 850 AFY.
- **Dry Year Transfer Program** – The State Water Contractors, an organization composed of contractors of the SWP, facilitates the purchase of water from the Feather River Watershed for transfer to SWP contractors during dry years. This is an optional program that Zone 7 will utilize on an as-needed basis.
- **Other Transfers** – As part of Zone 7 ‘s long-term reliability program, Zone 7 actively seeks out transfers from other agencies or districts that have water available.

15.2.1.2. Future Water Supply Projects

As described in **Section 9.4**, Zone 7 anticipates future supply deficits as SWP reliability continues to decline and Zone 7’s service area population grows. As a result, Zone 7 is pursuing several water supply reliability



projects to obtain additional water storage and water supplies, address the need for alternative conveyance in the Delta, and improve access to groundwater and local emergency supplies. These future water supply projects are described in detail in the 2020 UWMP (**Appendix K**) and summarized below:

- **Capital Improvement Program (CIP)** – As part of its existing CIP, Zone 7 is planning to construct a reliability intertie with another major water agency (e.g., East Bay Municipal Utilities District [EBMUD] or San Francisco Public Utilities Commission [SFPUC]) to help mitigate some of the risk during a major water supply interruption from the Delta and to create opportunities for transfers/exchanges. This intertie could allow Zone 7 to acquire emergency water supplies to help meet minimum health and safety water supply needs during a major Delta outage, assuming the partnering agency has available supply and the transmission capacity available during the emergency period. The intertie is planned for completion around 2029/2030.
- **Bay Area Regional Desalination Project (BARDP)** – Brackish water desalination for Zone 7 would be accomplished through the BARDP. The project would involve constructing a regional brackish water treatment plant in eastern Contra Costa County producing 10-20 million gallons per day (MGD). Water would be diverted using Contra Costa Water District's (CCWD) Mallard Slough Pump Station. Using existing water right license and permit, both held by CCWD, and/or a new or modified water right, Zone 7 could potentially receive up to 5,000 AFY. Zone 7 could take delivery of this new water supply through a reliability intertie with EBMUD or through the Delta/SBA by exchanging water with CCWD. Furthermore, this project could potentially provide a new water supply component for the Los Vaqueros Reservoir Expansion (LVE) project and make use of LVE's additional storage and new conveyance facilities. A more detailed description of the LVE project is provided below.
- **Delta Conveyance Project (DCP)** – DWR's proposed DCP would install a new tunnel to convey freshwater from north of the Delta to a point south of the Delta. The DCP would likely increase SWP reliability and improve water quality. It would also serve to protect the reliability of SWP supplies from the effects of climate change and seismic events, among other risks. DWR's current schedule for the DCP environmental planning and permitting extends to 2024. The DCP will potentially be operational around 2040 following extensive planning, permitting, and construction. With permitting being completed over the next few years, quantitative information on the reliability associated with the DCP will be evaluated as part of the next Five-Year Update to the Alt GSP.
- **Potable Reuse** – In 2018, the Tri-Valley Water Agencies completed the Joint Tri-Valley Potable Reuse Technical Feasibility Study (Potable Reuse Study) (*Carollo Engineers, 2018*) to evaluate the feasibility of a wide range of potable reuse options for the Tri-Valley based on technical, financial, and regulatory considerations. The Potable Reuse Study investigated three potential end uses for purified water in detail: (1) groundwater augmentation or recharge via injection wells; (2) groundwater recharge via Chain of Lakes surficial recharge; and (3) raw water augmentation to Zone 7's Del Valle Water Treatment Plant. Looking at annual yields ranging from 5,500 to 10,000 AFY, the Potable Reuse Study concluded that potable reuse is technically feasible for the Tri-Valley,



with benefits to reliability and water quality. The lower yield would use only Livermore wastewater supply with year-round operations, while the higher yield would be achieved with seasonal availability of Dublin San Ramon Services District (DSRSD) wastewater supply. Water availability would increase over time as development occurs in the Tri-Valley and more wastewater is generated and collected. In Zone 7's 2019 Water Supply Evaluation (WSE) Update, raw water augmentation was modeled with the option for a two-phased project that initially produces a lower yield but increases to the maximum yield in 2035 (following a growth in available wastewater). Reflecting a more conservative estimate of future wastewater availability, the 2019 Water Supply Evaluation Update used a reduced yield of 4,000 AFY starting in 2027 and 7,000 AFY after 2035. Technical studies will be completed over the next few years to support continued evaluation of potable reuse options and their costs and benefits.

- **Sites Reservoir** – Sites Reservoir is a proposed 1.5 million AF off-stream storage reservoir in northern California near Maxwell. Sacramento River flows will be diverted during excess flow periods and stored in the off-stream reservoir and released for use in the drier periods. The Sites Reservoir aims to supplement and optimize use of the State's existing storage and conveyance systems. The participants in the Sites Reservoir project include 30 entities, including Zone 7 and several other SWP contractors. Sites Reservoir is currently undergoing environmental planning and permitting and is expected to provide over 200,000 AFY of additional deliveries on average to participating agencies. In December 2016, Zone 7 authorized participation in Phase 1 at a cost of \$850,000. In December 2019, the Board authorized participation in Phase 2 (2019 Sites Reservoir Project Agreement) at a cost of \$600,000. In July 2020, the Board authorized a Second Amendment to Phase 2 at a cost of \$1 million at a participation level of 10,000 AFY. Key work under these two phases includes planning, design, financial analysis, and environmental review and permitting. In the 2019 WSE Update, Zone 7 considered 5,000 to 10,000 AFY of average yield from Sites Reservoir, in combination with other water supply options.
- **Los Vaqueros Reservoir Expansion (LVE)** – Constructed in 1997, Los Vaqueros Reservoir is an off-stream reservoir owned by Contra Costa Water District (CCWD) and located in southeastern Contra Costa County. It currently has a capacity of 160,000 AF following its expansion (Phase 1) from 100,000 AF in 2012. CCWD is planning to further expand the reservoir to 275,000 AF (Phase 2) and construct the Transfer-Bethany Pipeline, which would connect the reservoir to the SBA and the California Aqueduct. Recognizing LVE's potential benefits as emergency conveyance and storage, the Zone 7 Board approved participation in the Los Vaqueros Reservoir Expansion Project Planning in September 2016, with a \$100,000 cash contribution. In January 2019, the Zone 7 Board approved continued participation in the project's planning activities through execution of the Multi-Party Agreement in an amount not-to-exceed \$355,000. In August 2020, the Zone 7 Board approved continued participation in the LVE Multi-Party Agreement through December 2021 at a cost up to \$1.014 million. While some new water supply may be available from LVE, Zone 7 is primarily evaluating the project as storage due to the uncertainty of the availability of such supplies given increasing Delta restrictions. The 2019 WSE Update assumed emergency storage in Los Vaqueros Reservoir at 10,000 AF.



15.2.1.3. Conjunctive Use

As described in **Section 5.2.3**, since the 1960s, Zone 7 has actively embraced a “conjunctive use” approach to Basin management by integrating management of local and imported surface water supplies with the management of local conveyance, storage, and groundwater recharge features. These features include local Arroyos (which are also used as flood protection facilities during wet seasons) and two former quarry pits (Lake I and Cope Lake). Zone 7’s “artificial recharge” operation involves releasing imported water supplies into the local “losing stream” arroyos to recharge the Basin. The volume of artificial recharge is dependent on Zone 7’s annual SWP allocations, precipitation captured locally, and water supply operations plans. Typically, Zone 7 will commence artificial recharge operations during times of surplus imported water availability.

15.2.1.4. Well Master Plan

In the early 2000s, Zone 7 identified the need to increase its groundwater production capacity to meet customer demands during projected droughts and water shortage emergencies. Zone 7’s Well Master Plan (WMP), adopted by the Zone 7 Board in 2005, estimated that Zone 7 would need to install seven to nine new municipal water supply wells over the next 30 years to maintain Zone 7’s potable water reliability goal. This estimate was based on Zone 7’s then-current goal of maintaining 100% reliability even during worse-case drought conditions. Additional benefits of these new wells would include providing Zone 7 with improved operational flexibility to pump its stored water resources, optimizing groundwater production while maintaining groundwater levels above localized historic lows, and removing dissolved salts from more of the Basin.

The WMP provides a road map to guide construction of new Zone 7 wells in the Basin. Preparation of the WMP included development of hydrogeologic cross sections, compilation of aquifer test data, groundwater modeling, review of water quality data, field inspection of existing wells, and discussions with operations staff. Several levels of impact analysis were performed for potential well sites. Potential basin-wide water level impacts were assessed by comparing simulated drought water levels with historic lows. Potential impacts of Zone 7’s planned drought operations on individual municipal wells were evaluated by comparing simulated water level lows to well construction information. Instances where simulated water levels fall below either the pump setting or top of well screen were noted and potential impacts to the well assessed.

The WMP recommended that Zone 7 install several municipal water supply wells in the Chain of Lakes (COL) and Gravel Pit Wellfields. The first two wells (COL 1 and 2) were completed in 2008, and the next well (COL 5) was completed in 2014. Another well (BV 1) is being planned for a site near Boulder Street and Valley Avenue in Pleasanton.

In November 2012, Zone 7’s Board adopted the Water Supply Reliability Policy⁵⁵ which may change the quantity and urgency of new supply wells needed by Zone 7 as development occurs in the Basin (see

⁵⁵ As per board resolution: <https://zone7.docsonthecloud.com/WebLink/DocView.aspx?id=14999&dbid=0&repo=Zone7>



Section 3.2). With the adoption of the new reliability goals, implementation of additional water conservation measures, and expansion of recycled water use over the past ten years by Retailers the need for new wells has changed. Accordingly, the need for new supply wells and the timing of their construction will be further explored during future water supply planning efforts.

15.2.1.5. Chain of Lakes Recharge Projects

The coarse-grained alluvium in the center of the Main Basin has been mined for aggregate since the 19th century. Continued mining has impacts on the local water budget, groundwater levels and groundwater flow conditions (see **Sections 8 and 9**). Most notably, many of the quarry pits have been dug deep into the Upper Aquifer and some have been mined into the Lower Aquifer. This mining activity has removed aquifer material, created “windows” into the Basin, and exposed groundwater to large evaporative losses. Groundwater is also pumped from some of the pits and transferred to others or discharged to Cope Lake to facilitate gravel extraction. In the past the quarry operators discharged to the Arroyos which resulted in loss of water from the Basin. The quarries still maintain the permits which allow discharges to the arroyos but they haven’t exercised it since 2013. In addition, interruption of groundwater movement can result from the mining of aggregate resources and occasional placement of less permeable material in former pits.

Accordingly, Zone 7 has worked and is working closely with the mining companies and Alameda County Community Development Agency (the administrative representative of the State for mining operations and reclamation) to develop a reclamation plan whereby ownership of ten quarry lakes (“Chain of Lakes” A through I and Cope Lake) is to be transferred to Zone 7 for water resources management purposes. Two of the lakes have already been transferred to Zone 7 (Lake I and Cope Lake) and are currently operated and maintained by Zone 7 for storage and groundwater replenishment.

Full implementation of the Chain of Lakes use by Zone 7 is not expected before 2050 according to mining estimates and completion projections. However, Zone 7 is working on several interim projects that are designed to convey, capture, and recharge imported SWP water and captured mining releases, and/or detain peak stormwater flows.

In 2013, a water discharge pipeline was extended from the existing Arroyo Mocho discharge point to Cope Lake so that groundwater pumped during quarry operations could be captured in Cope Lake. Later in 2014, Zone 7 installed a pipeline between Cope Lake and Lake I to convey the discharge water to Lake I, where there is a much higher capacity for storage and ability for aquifer recharge.

Zone 7 continues working closely with Hanson, Inc. and Alameda County Community Development Agency to help complete final reclamation of Lake H. When reclamation is complete, Lake H will be deeded over to Zone 7 for water management.

In 2012, CEMEX, the current mining company primarily operating in the southern part of the Chain of Lakes area (Lakes A and B), started the amendment process for their surface mining permit due to anticipated changes in their planned mining. These proposed changes include realigning the Arroyo



Mocho and changing the shape and size of Lakes A and B. Zone 7 staff reviewed and accepted the CEMEX conceptual design. The Supplemental Environmental Impact Report and Eliot Plant Reclamation Plan Amendment were approved by the Alameda County Planning Commission in June 2021.

15.2.2. Water Demand Reduction Management Actions

15.2.2.1. Existing and Future Non-Potable Recycled Water Use

Zone 7 views recycled water as a valuable component of the local water portfolio, when managed appropriately under a Salt/Nutrient Management Plan. Recycled water can reduce the demand for surface water imports and pumped groundwater and contribute to groundwater storage when incidental percolation occurs during irrigation of landscapes and crops.

Currently, the City of Livermore and DSRSD treat over 99% of the wastewater in the Basin and produce about 5,600 AFY of tertiary-treated (non-potable) recycled water. Initially the recycled water use was permitted under a Master Water Recycling Permit authorized by the California Regional Water Quality Control Board-San Francisco Bay Region (*RWQCB Order No. 93-159*) and jointly held by Zone 7, DSRSD and the City of Livermore. Livermore and DSRSD's recycled water production and distribution are now operating independently under *RWQCB's Order 96-011*, General Water Reuse Requirements for: Municipal Wastewater and Water Agencies. The General Order includes requirements for self-monitoring and reporting to the RWQCB on at least an annual basis.

Most of this recycled water is used for landscape irrigation, with a minor amount used for dust suppression, grading projects, and crop irrigation. Only a small portion of the recycled water applied as irrigation percolates to the groundwater supply; most of the applied water is evaporated, taken up by plant roots, lost through plant transpiration, or retained as moisture in the unsaturated zone. In general, less than about three percent of the groundwater inflow comes from incidental recharge of recycled water. Currently, none of the recycled water is used for groundwater replenishment projects; however the use of purified recycled water as a future potable water supply is currently under consideration as a joint effort by Zone 7 and the four Retailers (California Water Company [Cal Water], DSRSD, Livermore, and Pleasanton) (see **Section 15.2.1.2**).

Both City of Livermore and DSRSD plan to expand the use of recycled water for turf and landscape irrigation projects over the next few years. Similarly, Pleasanton is planning to use recycled water from DSRSD and/or Livermore for irrigation of city parks and landscapes located over the Main Basin. In 2020, the City of Pleasanton supplied its customers approximately 1,224 AF of recycled water (*West Yost, 2021*). While recycled water is currently only a minor contributor to salt accumulation in the Main Basin, the average Total Dissolved Solid (TDS) concentration of the applied recycled water tends to be over twice the average TDS concentration of the potable water served by Zone 7. Mitigation of the water quality concerns related to salt and nutrient loading from recycled water use is addressed in Zone 7's Salt Management Plan and Zone 7's Nutrient Management Plan. Together, these reports meet the requirements of the State Water Board's Recycled Water Policy (*State Water Board, Resolution No. 2009-0011, adopted February*



2009). Zone 7 is collaborating with Livermore, DSRSD, and Pleasanton to mitigate for additional potential impact to groundwater quality from the future planned recycled water use (see **Section 5.1.2**).

15.2.2.2. Water Conservation

By managing water demands, water conservation is basic to ongoing achievement the Sustainability Goal for the Basin, including management of groundwater levels and storage, avoidance of land subsidence, maintenance of groundwater quality, and protection of environmental benefits associated with interconnected surface water.

Water conservation by Zone 7 and the Retailers is ongoing and will be maintained over the implementation horizon. Responsive to the Urban Water Management Planning Act, all of the urban Retailers in the Basin (Cal Water, DSRSD, Livermore, and Pleasanton) have prepared at least 2010, 2015, and 2020 UWMPs. Zone 7 adopted its first UWMP in 1985, and then prepared an updated UWMP in 1991 in cooperation with Livermore, Pleasanton, and DSRSD. Zone 7 has prepared and adopted UWMPs for 1995, 2000, 2005, 2010, 2015, and 2020. Agency outreach and public noticing is included in the UWMP process, and public information is part of the ongoing implementation of water demand management measures. These water demand management measures are described in detail in the 2020 UWMP (**Appendix K**) and summarized below:

- **Metering** – Zone 7’s wholesale water deliveries are fully metered, and calibration is verified on an annual basis. All facilities except for three wholesale meters (Cal Water Turnout #7, Cal Water Turnout #8, and Livermore Turnout #8) are fully equipped with Supervisory Control and Data Acquisition (SCADA) and security alarms and are maintained by Zone 7 mechanical, electrical, and instrumentation staff. Maintenance is performed per contract with the receiving wholesale customer. Zone 7 has metered its water deliveries over the past five years and plans to continue this effort into the future.
- **Public education and outreach** –Zone 7 promotes water conservation both independently and in coordination with its Retailers. Zone 7 collaborates on water conservation programs, including public education and outreach, with its Retailers through the Tri-Valley Water Conservation Task Force (Task Force). Zone 7’s outreach is conducted mainly through events/workshops and its website, which contains links to educational resources on water conservation, calendar of upcoming workshops and events, rebate programs, landscaping and gardening tips, and profiles of Tri-Valley residents saving water.
- **Water Conservation Program coordination and staffing support** – The Task Force meets about six to eight times a year, as needed, to discuss and coordinate on current and future conservation programs, legislative activities related to conservation and water use efficiency, and public outreach and training activities. With Zone 7’s Conservation Coordinator active in state-wide and regional organizations and committees, the Task Force also serves as a main venue for information/knowledge exchange among the agencies. During the recent drought, the Task Force led the coordination of drought response activities, with more active participation from



management. Zone 7 has designated staff to actively develop, promote, enforce, and maintain water conservation programs. Zone 7 has a full-time Water Conservation Coordinator position, supported by administrative staff as needed on rebate processing and customer inquiries. A full-time Communications Specialist currently leads public outreach and education activities, including administration of the Schools Program and media campaigns.

- **Wholesale Supplier Assistance Programs** – Zone 7 offers several rebate programs in cooperation with three of its Retailers (Livermore, Pleasanton, and DSRSD). In recent years, Cal Water has administered its own statewide rebate conservation program. Zone 7 provides funding for the rebates and assists with the Retailers’ rebate administration, including follow-up with applicants. Zone 7 coordinates with its Retailers to offer rebate programs to promote water efficiency. Along with three of its Retailers (DSRSD, Livermore, and Pleasanton), Zone 7 currently jointly offers three rebate programs to encourage indoor and outdoor water savings: Water-Efficient Lawn Conversion, Weather-Based Irrigation Controllers, and High-Efficiency Clothes Washers. Cal Water oversees their own statewide conservation program. These programs can reduce the cost for customers to increase water efficiency, thereby reducing water demand.
- **Asset Management** – As water infrastructure assets age, renewal and replacement become critical. Zone 7 utilizes an asset management process that systematically prioritizes rehabilitation and replacement and ensures long-term infrastructure sustainability. To maintain a reliable and high-quality water supply, Zone 7’s asset management strategy focuses on core framework areas such as long-range planning, life-cycle costing, proactive operations and maintenance, long-term funding strategies, and capital replacement plans. Zone 7’s Asset Management Plan (AMP) formally summarizes its asset management process and strategy by forecasting near-term renewal needs and long-term funding requirements through fiscal year (FY) 2057/2058. The AMP is updated regularly, with the most recent update in 2017.

The Zone 7 2020 UWMP also documents the Water Shortage Contingency Plan (WSCP), which provides a response to drought and other shortages. The WSCP presents six stages of action that Zone 7 established with the Retailers. The stages of action (from up to 10% to greater than 50% shortage) are linked to demand reduction targets, specified voluntary and/or mandatory actions, and triggers for implementation. Zone 7 works with the Retailers to monitor daily water production rates and water deliveries, and thereby allow the Retailers to evaluate the effectiveness of reduction efforts.

15.2.2.3. Groundwater Pumping Quota Program

As described in **Section 5.1.4** and **Section 9.3.6**, Zone 7 manages a Groundwater Pumping Quota (GPQ) program to limit groundwater pumping from the four Retailers (Cal Water, DSRSD, Livermore, and Pleasanton) to the “natural sustainable yield” of the Basin. In 1992, Zone 7 Water Agency calculated the natural sustainable yield for the basin at 13,400 AFY and collaborated with the Retailers to allocate the yield. As a result, each retailer is limited to an annual independent GPQ, which is generally based on average historical uses and is pro-rated based on the agreed upon natural sustainable yield. Together, the retailers are permitted to pump a total average of 7,214 AF annually per calendar year without paying



recharge fees to Zone 7. Averages are maintained with a process of carry-overs (limited to 20% of the GPQ) and recharge fees for all groundwater pumping exceeding the GPQ and carry-over credit.

15.2.3. Projects to Improve Drinking Water Quality in Zone 7 Service Area

15.2.3.1. Well Ordinance Program

The construction, repair, reconstruction, destruction or abandonment of wells within Zone 7's service area is currently regulated by *Alameda County General Ordinance Code, Chapter 6.88*. As described in **Section 15.2.1**, Zone 7 administers the associated well permit program within its service area and the three incorporated cities (Dublin, Livermore, and Pleasanton) pursuant to a Memorandum of Understanding (MOU) with Alameda County. As a result, any planned new well construction, soil-boring construction, or well destruction must be permitted by Zone 7 before the work is started. Additionally, all unused or abandoned wells must be properly destroyed; or, if there are plans to use the well in the future, a signed statement of future intent must be filed at Zone 7. The program is transparent to the public; a copy of the current Zone 7 drilling permit application is available for download from the Zone 7 website. Well construction and destruction permit requirements are determined on a case-by-case basis, but generally follow DWR's *California Well Standards (Bulletins 74-81 and 74-90)*.

As provided in the Alameda County Water Wells Ordinance, Special Requirement Areas have been defined within Zone 7's jurisdiction where soil boring permits are required for boreholes at 10 feet or greater depth, regardless of groundwater depth; supply wells are prohibited; and special well construction techniques are required for boreholes and monitoring wells to prevent vertical spreading of contamination. In addition, five Special Requirement Areas are clearly identified on the Zone 7 website; these are contamination sites where additional protection measures are required.

This program is active and ongoing and will be continued to the planning horizon. It provides benefits to several Basin management objectives, most notably protection of the Basin from any negative impacts that would be threatened by poorly constructed wells. Implementation of the Well Ordinance Program allows identification and compilation of data on all pumping wells in the basin; this indirectly supports the monitoring program (whereby wells may be identified for potential monitoring) and potential management of groundwater pumping, with potential future benefits to management of groundwater levels, storage, and subsidence.

15.2.3.2. Toxic Site Surveillance Program

As described in **Section 15.2.1** and **Section 8.6.7**, Zone 7 documents and tracks polluted sites that pose a potential threat to drinking water through its Toxic Sites Surveillance (TSS) Program.

15.2.3.3. Salt Management

As described in **Section 15.2.1**, Zone 7 prepared a Salt Management Plan (SMP) in 2004 to protect the long-term water quality of the Main Basin while expanding the area's use of recycled water. Recycled water is a critical part of the diverse water supply portfolio for the Livermore-Amador Valley (Basin). The SMP was a permit condition of the Master Water Recycling Permit, *RWQCB Order No. 93-159*, issued



jointly to Zone 7, the City of Livermore, and DSRSD. The SMP was approved by the RWQCB in October 2004 and then incorporated into Zone 7's Groundwater Management Plan (GWMP) in 2005.

15.2.3.4. Groundwater Demineralization Program

The Mocho Groundwater Demineralization Plant (MGDP) has operated since 2009 to remove salts from the Basin while improving delivered drinking water quality. Zone 7 has used its groundwater model to evaluate salt loading impacts from the MGDP and the effects of a second Zone 7 groundwater demineralization plant planned for construction in the future. Since its construction, the MGDP has exported 18,631 tons of salt from the Basin (see **Table 15-A** below).

Table 15-A: Salts Removed by Zone 7's Mocho Groundwater Demineralization Plant Operations

Water Year	Brine Volume Exported from Valley (AF)	Average Brine TDS Concentration (mg/L)	Salt Mass Exported (Tons)	Salt Removed per AF of Brine Export (Tons/AF)
2009	192	3,059	798	4.16
2010	675	3,010	2,760	4.09
2011	429	3,445	2,008	4.68
2012	935	3,198	4,062	4.34
2013	518	3,522	2,478	4.78
2014	214	3,607	1,049	4.9
2015	16	3,474	76	4.75
2016	51	2,662	184	3.61
2017	244	2,863	949	3.89
2018	268	3,209	1,168	4.36
2019	480	2,867	1,869	3.89
2020	344	2,633	1,230	3.58
TOTAL	4,366	3,141	18,631	4.27

AF = acre-feet

TDS = total dissolved solids

mg/L = milligrams per liter

15.2.3.5. Nutrient Management

As described in **Section 15.2.1**, Zone 7 adopted its NMP in June 2015, and by resolution the RWQCB concurred with the findings and measures of the NMP in March 2016. The NMP assesses the existing and projected future groundwater nutrient concentrations relative to the current and planned expansion of recycled water projects and future development in the Basin and outlined plans to minimize nitrogen



loading from existing sources. The NMP also presented planned actions for addressing positive nutrient loads and high groundwater nitrate concentrations in localized Areas of Concern (AOCs) where onsite wastewater treatment systems (OWTS, e.g., septic systems) use is the typical method for sewage disposal (which can be a contributor to nitrate contamination). To minimize nitrogen loading, the NMP called for the continued use of Best Management Practices (BMPs) for such facilities as horse boarding facilities, vineyards, irrigated turf/landscapes, and wineries. The NMP also recommended implementing additional OWTS performance measures for new and replacement OWTS in the AOCs (see **Section 15.2.3.5** below). The NMP included an implementation schedule that recognized the ongoing monitoring and BMPs and presented a specific schedule for AOC investigations. Zone 7 continues to actively work with Alameda County Environmental Health (ACEH) to implement the NMP measures.

15.2.3.6. OWTS Management

As described in **Section 8.6.1.2**, there is a small, but quantifiable amount (estimated) of untreated wastewater that percolate to the Main Basin from OWTS and leaky sewer pipes discharges. In 1982, the Zone 7 Board of Directors adopted the “*Wastewater Management Plan for the Unsewered, Unincorporated Area of Alameda Creek Watershed above Niles (WWMP)*” and its recommended policies (*Resolution No. 1037*). A separate policy was established in 1985 that prohibits the use of septic tanks for new developments zoned for commercial or industrial uses (*Resolution No. 1165*). As a result of these policies, currently ACEH issues permits for the operation, installation, alteration, and repair of OWTS in Alameda County, while Zone 7 approval is required for the following types of OWTS projects located within the Upper Alameda Creek Watershed.

- New septic systems constructed partially or fully for a commercial or industrial use;
- Conversion or expansion of existing septic systems to a commercial or industrial use; or
- New residential septic systems that discharge greater than one Rural Residential Equivalence (RRE) of wastewater per five acres (one RRE per 10 acres inside the NMP nitrate Areas-of-Concern).

The Zone 7 NMP recommends that ACEH implement additional performance measures for new and replacement OWTS in the AOCs. No new performance measures were recommended for properly-working existing OWTS. These measures were designed to prevent nitrogen loading from increasing, and in the long term, to help decrease the loading in these nitrate “hot spots”. Currently, Zone 7 is cooperating with ACEH in its development of a Local Agency Management Program (LAMP) for OWTS.

15.2.4. Data Gap-Filling and Other Alternative GSP Implementation Projects

Pending future available internal and grant funding, Zone 7 may conduct the following data gap filling activities and/or projects as part of Alt GSP implementation:

- **Refinement and update of numerical groundwater flow model:** the current groundwater model domain mostly covers the Main Basin and only extends into a portion of the Fringe Area. With the expansion of active sustainable groundwater management to the Fringe and Upland Areas, it is imperative to update the model domain to cover all Management Areas and refine the model to



reflect better understanding of hydrogeology and Basin characteristics. The updated model will become an essential tool to sustainably manage all applicable Sustainability Indicators for the entire Basin and render key management decisions as well as to determine more accurate Basin storage volume. Additionally, the updated model may be used to directly account for future climate change impacts to local hydrology using DWR's Climate Change Factors dataset (DWR, 2018) and to evaluate the efficacy of proposed P/MAs in mitigating climate change impacts.

- **Expansion of Water Quality Monitoring Program:** As described in **Section 14**, Zone 7 currently operates an ongoing robust Water Quality Monitoring Program. However, the expansion of the scope is warranted to address emerging contaminants such as PFAS compounds which could become threats to Basin water quality and viability of drinking water supply. Once implemented, the expanded Water Quality Monitoring Program will become a cornerstone to manage Basin water quality, wellhead protection and contaminant mobilization and aid operational decision making.
- **Expansion of Groundwater Level and Water Quality Monitoring Network in the Fringe and Upland Management Area:** Historically, Zone 7 focused groundwater level and quality monitoring in the Main Basin. With the expansion of active sustainable groundwater management to the Fringe and Upland Areas additional data gaps have been identified for both water level and quality, and the current monitoring network needs to be expanded (or measurement frequency increased) to cover data gap areas particularly in the Fringe and Upland Areas. Further, a refined understanding of the relationship, if any, of water quality to groundwater levels and Zone 7's groundwater management efforts need to be better understood so that the Sustainable Management Criteria (SMCs) can continue to be met and/or refined as appropriate. Similarly, a refined understanding of the relationship, if any, of groundwater dependent ecosystems to groundwater management efforts needs to be better understood so that the SMCs can continue to be met and/or refined as appropriate.
- **Groundwater Contaminant Mobilization Study:** To develop management strategies for constituents of concerns, Zone 7 plans to perform and update integrated water quality fate and transport simulations to evaluate existing and future groundwater operations, and the impact of constituents that pose existing and/or anticipated challenges. A specific scenario that this model can also be used for is the evaluation of whether introducing purified water into the Main Basin will mobilize any contaminants of concern.
- **Well Master Plan Update:** To account for sustainable management needs and the latest available data, Zone 7 plans to update the Well Master Plan in coming years.
- **Salt and Nutrient Management Plans Update:** Updates to the current SMP and NMP are planned.
- **Well Metering and Pumping Record:** To accurately track groundwater extraction data, Zone 7 plans to assess needs for well metering and groundwater pumping data collection. Based on this assessment, a pumping data collection program may be implemented.
- **Address and Resolve the Groundwater Storage Differences:** Moving forward, Zone 7 plans to continue to address and resolve the groundwater storage differences between those calculated from the Hydrologic Inventory (HI), Nodal / Rockworks Groundwater Elevation (GWE), and cross



section methods and make revisions as appropriate (**Sections 8.4** and **9**). Zone 7 also plans on expanding on the focus area of the Rockworks model beyond the areas focused on for this update for developing the three cross sections. In the long run Zone 7 is planning on using the cross sections, the expanded Rockworks model, and the updated IDC model to update Zone 7's groundwater model.

- **Water Supply Risk Model:** Zone 7 maintains and utilizes a risk model to assess the reliability of its existing and planned water supplies. The risk model evaluates Zone 7's operations under various hydrologic conditions. The current excel-based risk model runs on an annual time step, and thus produces a simplified representation of water supply operations. Zone 7 is currently developing a robust risk model using RiverWare software. This model will run on a monthly time step, and it will be able to represent the seasonal availability of supplies including local runoff, imported surface water, recovered water from groundwater banks and local groundwater in an integrated manner. The new risk model will also be able to account for the risks associated with 2030 and 2070 climate change scenarios on water supply. The risk model can be used to conduct various long-term planning studies and reports, as well as short-term planning and operating decisions. Additionally, the risk model can be used in conjunction with the groundwater model to analyze sustainable management of the groundwater basin.

15.3. Circumstances for Implementation

☒ 23 CCR § 354.44(b)(1)(A)

As stated above, the goals and objectives of the P/MAs presented herein are to avoid and/or address any potential URs and to meet the MOs for the relevant Sustainability Indicators. While many existing P/MAs are already in place, future P/MAs will be implemented incrementally on an as-needed basis to achieve this goal. For example, P/MAs will be selected for implementation based on observed Basin conditions (i.e., if MTs are exceeded in Representative Monitoring Sites [RMS], see **Section 13**), further consideration of the magnitude of expected P/MA benefit, the relative cost and ease of implementation, and other factors (e.g., when grant funds are obtained or upon completion of feasibility studies, economic evaluations, and/or other necessary planning studies). The planning and implementation of P/MAs will be supported by the best available information and science.

15.4. Public Notice Process

☒ 23 CCR § 354.44(b)(1)(B)

Zone 7 involves the public, stakeholders and local agencies in its planning and programs through meetings, data sharing, and online media and has memorialized this approach as an operational policy in the Agency's 1987 Statement on Groundwater Management (*Zone 7, 2016a*) and through development of a Stakeholder Communications and Engagement Plan (SCEP) as part of this Five-Year Update to the Alt GSP (see **Section 5.5** and **Appendix H**).



15.5. Addressing Overdraft Conditions

☑ 23 CCR § 354.44(b)(2)

As demonstrated in **Sections 8** and **9**, the Basin is not in a condition of overdraft. The P/MAs presented herein are designed to maintain ongoing compliance with the Sustainability Goal for the Basin and to prevent the occurrence of URs throughout the 50-year Alt GSP planning and implementation horizon.

15.6. Permitting and Regulatory Process

☑ 23 CCR § 354.44(b)(3)

The permitting and regulatory requirements vary for the different P/MAs depending on whether they are infrastructure projects, recharge projects, management actions, and so forth. The various types of permitting and regulatory requirements (not all applicable to every P/MA) may include the following:

- Federal
 - National Environmental Policy Act (NEPA) documentation, if federal grant funds are used;
 - National Pollution Discharge Elimination System (NPDES) stormwater program permit (administered by the California State Water Resources Control Board [SWRCB]);
- State
 - CEQA documentation, including one or more of the following: Initial Study (IS), Categorical Exemption (CE), Negative Declaration (ND), Mitigated Negative Declaration (MND), Environmental Impact Report (EIR);
 - SWRCB permits and regulations regarding recycled water use, waste discharge, and stormwater capture for recharge;
 - California Surface Mining and Reclamation Act (SMARA) regulations;
 - California Division of Safety of Dams regulations;
- Regional
 - RWQCB permits for work involving waters of the state or work in channels/arroyos
- County/Local
 - Encroachment or enter to do work permits

Upon initiation of any new P/MA, the regulatory and permitting requirements of the P/MA will be re-examined. As with any P/MA planned or implemented under the SGMA, actions undertaken will remain in compliance with existing water rights constraints and processes under California and Federal law.



15.7. Status and Implementation Timetable

☒ 23 CCR § 354.44(b)(4)

As mentioned previously, most of the P/MAs discussed herein have already been implemented as part of Zone 7's on-going sustainable management of the Basin or are currently in the planning and permitting stages. Any future P/MAs that have not been implemented will be initiated in a manner and sequence that supports continued compliance with the Sustainability Goal for the Basin and ensures that SMCs are being met for each applicable Sustainability Indicator within the Basin throughout the 50-year Alt GSP planning and implementation horizon.

15.8. Expected Benefits

☒ 23 CCR § 354.44(b)(5)

The different categories of expected benefits are presented above in **Section 15.1.2**. Most P/MAs have expected benefits related to water quantity and/or water quality, with a direct or indirect benefit to the other Sustainability Indicators. Once a P/MA is implemented, it is important to evaluate, ideally to quantify, the benefits resulting from that P/MA as part of monitoring and data collection activities. The specific way in which P/MA benefits are evaluated and/or quantified depends on the P/MA. Ultimately the success of the collective implementation of P/MAs will be determined by whether the Sustainability Goal for the Basin continues to be achieved.

For those P/MAs that involve direct supply augmentation, the benefit is quantified directly through measurement of those supply augmentation volumes and groundwater levels. For the P/MAs that involve water demand reduction the benefit will be evaluated by comparison of the water demand before and after the P/MA was in place. For the P/MAs that involve water quality improvement, the benefit will be evaluated by continued monitoring of groundwater constituents of concern (COCs) before and after the P/MA was in place. Because it is not possible to determine with certainty what the condition without the P/MA would be like, quantification of the benefits is inherently uncertain.

15.9. Source and Reliability of Water from Outside the Basin

☒ 23 CCR § 354.44(b)(6)

As described in **Section 9.4**, Zone 7 anticipates future supply deficits as SWP reliability continues to decline and Zone 7's service area population grows. As a result, Zone 7 is pursuing several water supply reliability projects to obtain additional water storage and water supplies, address the need for alternative conveyance in the Delta, and improve access to groundwater and local emergency supplies. These future water supply projects are described in detail in the 2020 UWMP (**Appendix K**) and summarized above.



15.10. Legal Authority Required

☑ 23 CCR § 354.44(b)(7)

Per California Water Code (CWC) § 10725 through 10726.8, as the exclusive Groundwater Sustainability Agency (GSA) for the Basin, Zone 7 possesses the legal authority necessary to implement the supply augmentation and demand management P/MAs described herein and will enforce these P/MAs as necessary to enforce the Alt GSP.

15.11. Estimated Costs and Plans to Meet Them

☑ 23 CCR § 354.44(b)(8)

Zone 7 invests in long-term financial planning and fiscal organizational sustainability in order to ensure all areas of Zone 7 are ready and resilient for any economic storms. It's accomplished by maintaining tight budgetary controls, embodied in the two-year budget approved by Zone 7's Board of Directors. The annual appropriated budget is made up of the operating budget (consisting of total operations and operating projects) and the capital budget (consisting of capital project expenditures). The most recent budget supports the adopted 2020-2024 strategic plan, which was adopted on June 17, 2020, and subsequently amended FY 2021-22 on June 16, 2021.

The funding for SGMA compliance is an integral part of Zone 7 budget. As such, funding mechanisms for P/MA implementation will be formulated and planned in upcoming budget cycles in accordance with their priorities and implementation schedules. Funding sources will include water rate, connection fees, and State/Federal grants. **Table 15-B** shows projected budget for next five years.

Table 15-B: Five-Year Projected Budget

Livermore Basin Alternative Groundwater Sustainability Plan Implementation Costs							
Account	Fiscal Year 2021 Actual Amount	Fiscal Year 2022 Amended Budget	Fiscal Year 2023 Projected Budget	Fiscal Year 2024 Projected Budget	Fiscal Year 2025 Projected Budget	Fiscal Year 2026 Projected Budget	Funding Sources
Labor	982,208.78	1,344,565.00	1,384,901.95	1,426,449.01	1,469,242.48	1,513,319.75	Water Rates
Professional Services	304,247.69	308,200.00	317,446.00	326,969.38	336,778.46	346,881.82	Water Rates
Communications	3,255.76	5,850.00	6,025.50	6,206.27	6,392.45	6,584.23	Water Rates
Repairs and Maintenance	3,560.62	8,600.00	8,858.00	9,123.74	9,397.45	9,679.38	Water Rates
Rental Services	-	500.00	515.00	530.45	546.36	562.75	Water Rates
General Office Services/ Supplies	15,677.07	34,450.00	35,483.50	36,548.01	37,644.45	38,773.78	Water Rates
Organizational Membership/ Participation	1,850.00	1,900.00	1,957.00	2,015.71	2,076.18	2,138.47	Water Rates
Other Services/ Supplies	2,010.20	6,250.00	6,437.50	6,630.63	6,829.54	7,034.43	Water Rates
Training and Travel	757.50	3,650.00	3,759.50	3,872.29	3,988.45	4,108.11	Water Rates
Other Planning Efforts and Capital Projects							
Well Master Plan update			180,000.00	180,000.00			Water Rates, Connection Fees, and grants
Groundwater Model Upgrade		90,000.00	90,000.00				Grant Funds
Salts and Nutrients Management Plan update					330,000.00		Grant Funds
PFAs Management Program		60,000.00	60,000.00	60,000.00	60,000.00	60,000.00	Grant Funds
Total Other Planning Efforts and Capital Projects	-	150,000.00	330,000.00	240,000.00	390,000.00	60,000.00	
EXPENSES Total	1,313,567.62	1,863,965.00	2,095,383.95	2,058,345.47	2,262,895.83	1,989,082.71	



15.12. Management of Recharge and Groundwater Extractions during Periods of Drought

☒ 23 CCR § 354.44(b)(9)

The supply augmentation P/MAs are designed and to be implemented to recover groundwater levels and storage declines during future drought periods by increasing groundwater levels and storage during other normal and wet years. In addition to these supply augmentation P/MAs, the portfolio also includes policy-based management actions aimed at demand reduction. Through this combination of increased recharge during wet years and demand reduction, Zone 7's P/MA efforts have and will ensure that lowering of groundwater levels and storage during drought is offset by increases in groundwater levels and storage during other periods (see **Section 8.3.3**).