

Table 1. List of projects from the MKGSA GSP (2019) and overall status as of August 2021.

	Project Name	Description	Capital Construction Cost	Mean Annual Water Supply Benefit [AF]	Environmental Review	Design	Construction Status	Overall Status
1	Cordeniz Recharge Basin	This 60-acre basin is located in the northwest corner of the TID service area, with an estimated maximum recharge capacity of 25 AF/day.	\$3.38M	1,610 AF	Complete	Complete	Complete	Complete
2	Okieville Recharge Basin	The Okieville recharge basin is a 20-acre recharge facility located up-gradient of a dis-advantaged community. The estimated maximum infiltration capacity here is 10 AF/day.	\$2.9M	630 AF	Complete	In Progress	DNS	DNS
3	TID/GSA Recharge Basin	From 2020-2030, Tulare Irrigation District and the MKGSA will look for up to 160 additional acres of recharge basin sites, depending on price, infiltration capacity, and proximity to conveyance facilities.	\$6.4M	5,100 AF	DNS	DNS	DNS	DNS
4	On-Farm Recharge Programs	Up to 600 acres of irrigated acreage may participate in TID's voluntary on-farm recharge program. TID will have a suite of incentive vehicles to encourage growers with the most permeable fields to participate.	\$0	19,080 AF	N/a	N/a	N/a	Complete
5	McKay Point Reservoir	The McKay Point is a 4,000 acre-foot off-stream storage reservoir jointly funded between Visalia, People's Ditch Company, Kaweah Water Co, and Tulare Irrigation District. Capital costs will be largely offset via gravel mining to dig the reservoir.	\$12-14M (minus aggregate royalties)	1,600*** AF	In Progress	In Progress	DNS	In Progress
6	Kaweah Subbasin Recharge Basin	The MKGSA intends to acquire at least 160 acres of land with good infiltration capacity. Parcels acquired must be near a TID feeder canal for re-diversion of Kaweah River in surplus years.	\$6.4M	1,908 AF	DNS	DNS	DNS	DNS
7	Vadose Zone Injection Wells	The number and maximum infiltration capacity of vadose zone injection wells specific to the MKGSA are currently unknown, but similar projects can infiltrate between 300-500 gallons per minute when wells are inserted 35-50 ft below the surface (bypassing clay layers).	TBD	TBD	In Progress	DNS	DNS	In Progress
8	TID River Siphon Rehabilitation Project	This project includes either resurfacing the inside of the siphons going underneath the Kaweah and St. John's Rivers for \$2M, or replacing the siphons for \$6M. In either scenario, the reduction in friction losses and leakage will increase siphon capacity by 100 cfs and 300 cfs, respectively.	Repair: \$2M Replace: \$6M	TBD	DNS	DNS	DNS	DNS
9	City of Visalia / TID Exchange Program	Tertiary treated water from the City of Visalia's new \$132M wastewater treatment plant delivers tertiary treated water to TID (>11KAF annually) in exchange for recharge water in surplus years.	\$132M	5,500 AF	Complete	Complete	Complete	Complete
10	Sun World Int'l./TID Exchange Program	TID and Sun World International agrees to exchange 2-3.5 acre-ft of their local Kaweah River supply for 1 acre-ft of TID's Central Valley Project (CVP) supply, the leveraged rate depends on the water year.	\$0	3,400 AF	N/a	N/a	N/a	Complete
11	TID/Friant Exchange Program	TID and the Friant Water Authority make exchange agreements intermittently that offer guaranteed dry-year water supplies in exchange for a leveraged (higher volume) rate to TID in surplus years. These exchange agreements frequent, ongoing, and variable in duration.	\$0	TBD	N/a	N/a	N/a	Complete
12	Temperance Flat Reservoir	California Water Commission's 1.26 MAF, \$2.6B reservoir (\$171M funded by the California Water Commission) to store excess water that would otherwise spill from Millerton Reservoir did not have the political or public support in 2020 to begin construction.	\$2,600 M	61,000 - 76,000* AF	Complete	Complete	DNS	On-hold
13	City of Tulare / TID Catron Basin	The City of Tulare owns a 100-acre agricultural parcel that can store up to 50 AF per day for excess storm water that cannot otherwise be conveyed in TID canals.	\$1M	1,600 AF	DNS	DNS	DNS	DNS
14	City of Visalia / TID Cameron Creek Recharge	Develop automated gates and check structures to create a linear recharge facility along this creek, with notoriously high infiltration rates. Cost and water benefits similar, but smaller than Packwood Ck (below)	<\$1.6M	<730 AF	DNS	DNS	DNS	DNS
15	Packwood Ck Water Conservation Project	This project involved four automated check structures with SCADA retrofits – allowing accurate and remote control of flows, and the ability to maintain higher water levels.	\$1.6M	730 AF	Complete	Complete	Complete	Complete
16	Visalia Eastside Regional Park & GW Recharge	The City of Visalia's construction of this 250-acre park will dedicate up to 50 acres to groundwater recharge. This site is northeast of the city, up-gradient the city's largest wells.	\$1.7M	315 AF	Complete	In Progress	DNS	In Progress
17	Groundwater Recharge Assessment Tool	This online tool, completed in 2019 (https://grat.earthgenome.org/) allows for assessment of on-farm recharge, fallowing, and recharge basin development based on various criteria, such as access to conveyance facilities, soil types, recharge potential, and retention for continued usage.	\$0	N/a	N/a	N/a	N/a	Complete
18	TID Existing Recharge Capacity	TID is considering alternative maintenance practices for its recharge basins amid its 15 basins (over 1,400 acres) in order to maximize infiltration rates.	\$0	TBD	N/a	N/a	DNS	In Progress
19	Seaborn Project	TID ad Consolidated Peoples Ditch Company purchased a 260-acre excavated aggregate mine. The proposed project will have a habitat restoration zone surrounding an 8,000 AF reservoir. Excess water from the Kaweah River can be pumped above McKay point, and released later for irrigation demand or recharge.	\$22M	3,300***	DNS	DNS	DNS	DNS

DNS = Did Not Start N/a = Not Applicable TBD = To Be Decided *** = Preliminary estimate

*United States Department of the Interior (2014), "Draft Feasibility Report: Upper San Joaquin River Basin Storage Investigation," Klamath Falls, OR.

Table 2. List of Management Actions from the MKGSA GSP (2019) and overall status as of August 2021.

	Project Name	Description	Implementation Cost	Status comments	Overall Status
1	Extraction Measurement Program	The City of Tulare and City of Visalia are fully metered to measure pumping. However, TID extractions often are unmeasured or owned privately (unreported). Therefore, TID will launch a program to determine the most feasible method to measure groundwater extraction.	\$200K - \$4M	Pilot program should be complete December 2021. TID will convert LandIQ ET measurements to pumping.	In Progress
2	Groundwater Extraction Allocation Implementation	Develop a regulatory framework to limit excessive groundwater extractions and impose an allocation mechanism. A measurement program will need to be sufficiently accurate to enforce the allocation prior to allocation implementation	Unknown, depends on enforcement	Due to the extreme dry conditions in 2018, 2020, & 2021, an allocation will be implemented by October 2021.	In Progress
3	Groundwater Marketing Program	After a groundwater allocation and sufficiently accurate measurement program is in place, a marketing program can be implemented. After an exhaustive stakeholder engagement program, the water market allows trading of physical water (not credits).	\$350,000	Stantec selected as the consultant to develop the groundwater marketing strategy.	In Progress
4	Subbasin Geophysical Data Survey Project	In partnership with Stanford University, TID will split the ownership and cost to purchase a towable transient groundbased electromagnetic system (tTEM). The tTEM unit will image the the soil characteristics up to 250ft deep to site the best recharge basins & on-farm recharge locations.	\$150,000	TID purchased all the equipment as of late August 2021 and is currently collecting and processing data in-house for the Southern San Joaquin Valley.	In Progress
5	Well Characterization Project	Collect data on agricultural wells with limited or no information on depth, casing characteristics, and screen intervals. This project entails video and spinner logging to determine local lithography and productive depths of the aquifer.	Unknown cost and project scope		In Progress
6	Urban Water Conservation	Transition the current urban residential water use cap from 55 gallons per capita per day (gpcd) to 50 gpcd by the year 2030 (indoor use only). Outdoor use may vary more frequently and more abruptly depending on water availability.	Unknown cost and project scope		In Progress
7	Agricultural Water Conservation and Management	Tulare Irrigation District currently complies with all the provisions of SB 7, AB 1668, and SB 606. All provisions are related to water conservation and management practices. TID will continue to encourage more efficient water use by the agricultural sector and its suppliers.	Unknown cost and project scope	TID already complies with SB 7, but will continue to adapt conservation and management plans for more efficient use of water.	Ongoing
8	Assistance for Small Water Systems, Domestic Wells	Small wells may experience a reduction in efficiency or dry up in response to lowered groundwater levels. The MKGSA will consider programs such funds to school or small community wells, following well characterization studies and registration programs.	Unknown cost and project scope	Coordinating with Self-Help on a fair way to fund dry or impaired wells in DACs	In Progress
9	Collaboration with Other Agencies	MKGSA will provide education and information on funding opportunities, share ideas and resources with other GSAs, and pursue partnerships with other agencies (including grant opportunities).	Unknown cost and project scope	Numerous collaborations have been established, including NASA's Airborne Snow Observatory, Stanford Geophysics Group, and College of the Sequoias	In Progress

DNS = Did Not Start.