

## 7.5.7 Rosedale-Rio Bravo Management Area – 2022 SGMA Report

As a Kern Groundwater Authority (KGA) member, Rosedale-Rio Bravo Water Storage District (RRBWSD) prepared a Groundwater Sustainability Plan (GSP) Chapter for the KGA GSP covering the Rosedale-Rio Bravo Management Area (RRBMA, Management Area).

### 1) Compliance with Sustainable Management Criteria

Progress towards compliance with sustainable management criteria in the RRBMA during water year (WY) 2022 is summarized as follows:

#### a) GSP Monitoring Activities

Chronic Lowering of Water Levels. Groundwater levels were monitored monthly in 19 representative monitoring wells within the Management Area. The wells are a combination of agricultural, domestic, and dedicated monitor wells of known well construction and offer reliable long-term data.

Reduction in Groundwater Storage. A sustainable yield was calculated for the water users in the RRBMA. RRBWSD also prepared an annual operations report including an updated groundwater checkbook balance for 1995-2021. Groundwater elevations for each Fall measurement cycle were also compared and groundwater storage volume was calculated using RRBWSD's numerical groundwater model.

Water Quality. Groundwater quality was monitored annually in 11 representative monitor wells within the Management Area. The wells are a combination of agricultural, domestic, and dedicated monitor wells of known well construction.

Land Subsidence. Subsidence data was gathered via publicly available InSAR data (provided by DWR for GSP development and implementation) at the five identified monitoring locations. Each monitoring location is near Management Area critical infrastructure throughout the RRBWSD.

Interconnected Surface Water. Not applicable.

#### b) Changes in GSP Monitoring Network

Chronic Lowering of Water Levels. Groundwater levels were monitored monthly in 19 representative monitoring wells within the management area, no changes were made in the GW levels monitoring network.

Reduction in Groundwater Storage. RRBWSD has no changes in the monitoring network for the Groundwater Storage Calculation.

Water Quality. Groundwater quality was monitored annually in 11 representative monitor wells within the management area. The wells were previously hyper-focused on one area of the District and mainly looked at District production wells. To be more representative of all beneficial users in the Management Area, RRBWSD added domestic and municipal wells to the Water Quality monitoring network and spaced the monitoring network uniformly across

the RRBMA boundary. The new list of Water Quality wells includes the following: RBG School, Frito-Lay #1, Mayer, Enos, Greeley, Schweikart, Clarisse #2, Brock North, Brock South, Shop, 32N.

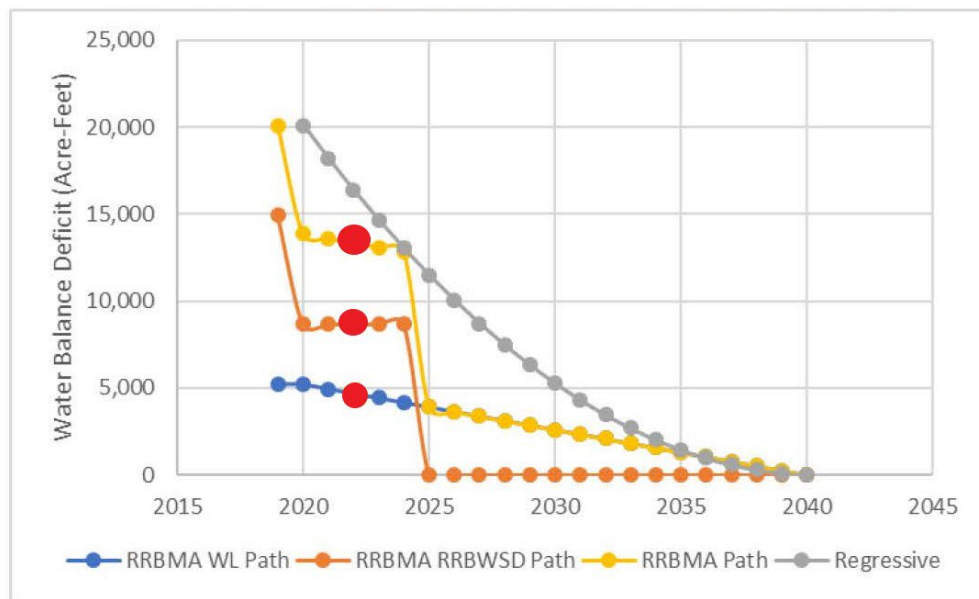
Land Subsidence. No change in the Land Subsidence monitoring network.

Interconnected Surface Water. Not applicable.

**c) Progress in Achieving Interim Milestones**

There are three identified interim milestone goals that RRBMA has set in their GSP.

Path to Sustainability. The RRBMA is on its regressive path to sustainability as shown by the red dots on the graph below.



Projects and Management Action Implementation. The RRBMA, as of the end of 2022, has successfully exceeded its 2020 Implementation Milestone by 1,500 AF and has implemented 86% of its 2025 16,800 AF Implementation Milestone goal (see Figure below).

RRBWSD - GSP Projected Project and Management Action Milestones									
Year	Projects (AFY)			Management Actions (AFY)			Total (AFY)		
	Actual	Milestone	Status	Actual	Milestone	Status	Actual	Milestone	Status
2020	6,500	5,000	Complete	1,250	1,250	Complete	7,750	6,250	Complete
<b>2022</b>	<b>10,500</b>		<b>Current</b>	<b>1,901</b>		<b>Current</b>	<b>14,401</b>		<b>Current</b>
2025	TBD	11,500	Not Met	TBD	5,300	Not Met	TBD	16,800	Not Met
2030	TBD	10,000	Not Met	TBD	1,300	Not Met	TBD	11,300	Not Met
2035	TBD	1,000	Not Met	TBD	1,300	Not Met	TBD	2,300	Not Met
2040	TBD	0	Not Met	TBD	1,300	Not Met	TBD	1,300	Not Met

White Land Demand Reduction.

White Lands Allowable Imbalance Calculation - As part of the White Land Demand reduction action implementation, demand (AF) is tracked monthly using ET data. Supplies are compared based on developed acres and a straight line reduction as seen on the blue line in the "Path to Sustainability" chart above. The District is actively monitoring water use by white land's but the first interim milestone occurs in 2024, when actions may be taken against White Land's using more than their allowable water during 2020-2024.

White Lands Allowable Imbalance Calculation						
Name	Developed Acres	2020	2021	2022	Sum 2020-2022	Interim Milestone
						2020-2024 Total (9.11 Ac-Ft/Ac.)
Landowner A1	118	97	86	154	337	1,074
Landowner A2	558	(104)	169	830	895	5,079
Landowner A3	60	82	92	138	312	548
Landowner A4	44	28	33	70	130	404
Landowner A5	315	795	996	1,049	2,839	2,867
Landowner A6	318	75	(14)	20	81	2,895
Landowner A7	318	244	315	500	1,060	2,899
Landowner A8	637	306	(76)	1,007	1,237	5,805
Landowner A9	208	(102)	211	(104)	5	1,899
Landowner A10	297	874	1,051	1,101	3,026	2,707
Landowner A11	371	925	1,034	751	2,710	3,381
Landowner A12	58	(9)	(20)	57	28	525
Landowner A13	139	110	22	41	174	1,264
Total Allowable Imbalance Used	3,441	3,321	3,901	5,614	12,835	
Total Allowable Imbalance (GSP)		6985	6606	6262	19,853	31,345

**d) Compliance with Additional Sustainable Management Criteria**

Chronic Lowering of Water Levels. RRBMA groundwater levels continued to decline as a result of three consecutive dry years. Water levels in the representative monitoring wells (RMWs) declined by 15-20 feet from Fall 2021 to Fall 2022. No exceedances occurred in 2022 within the Management Area. RRBMA will continue to monitor and report the RMWs in accordance with SGMA guidelines.

Reduction in Groundwater Storage.

A Sustainable Yield for the Rosedale-Rio Bravo District Lands within the RRBMA is calculated as the sum of Native Yield, Precipitation, and Project Water. A 20-year average is used as a representative long-term average for Management Action implementation purposes. For the 2002-2021 period, Project Water supplies were approximately 66,976 AFY. District Assessed Acres total 39,468 acres, resulting in Project Water of 1.70 AF/acre/yr. The Shafter #5 CIMIS Station's annual average precipitation is 5.04 inches (0.42 ft) or 16,577 AFY. The KGA has allocated a value of 0.15 AF per acre to all developed lands, or 5,920 AFY. The total 20-year average Sustainable Yield for RRBWSD calculates to be 89,473 AFY or 2.27 AF/acre/yr.

RRBWSD prepares an annual operations report including an updated checkbook groundwater balance. For the period of 1995-2021, RRBWSD has a cumulative storage

balance of 300,058 AF. In 2021 the overall balance was reduced by about 58,000 AF due to dry hydrology.

Groundwater elevations for each Fall measurement cycle were also compared and groundwater storage volume was calculated using RRBWSD's numerical groundwater model. The model area includes the RRBMA and portions of other neighboring management areas and GSA's. In the model area, based on the Fall 2022 measurement, there was 990,000 AF estimated to be in storage above the RRBMA Minimum Thresholds. The amount of water estimated in storage decreased by 370,000 AF between Fall 2021 and Fall 2022.

Water Quality. The current monitoring wells offer reliable long-term data. Data collection continues but results have not yet been analyzed. Per the GSP, the baseline calculations for the Minimum Thresholds (MT's) and Measurable Objectives (MO's) are complete, with RRBWSD set to collect samples in 2023. To streamline the semiannual data reporting, KGA developed the web-based Data Management System (DMS) for accessing groundwater level and water quality data. Water Quality is a feature that is currently being developed within the DMS.

Land Subsidence. No exceedances occurred in 2022 within the management area. The annual subsidence rate for the five locations (2017-2022) ranged from 0.009 feet to 0.018 feet (or 0.05-0.11 feet in total over six years), which is well below the Minimum Threshold of 0.6 feet over the six-year period.

Interconnected surface water. Not applicable.

## **2) Implementation of Projects and Management Actions**

### **Project Implementation:**

The RRBMA made progress towards implementing several of its planned GSP Projects in Water Year 2022 as summarized by the following:

**Enns Basins Improvement Project (McCaslin Ponds):** This project was added in 2019 as an adaptive management action and includes a 195-acre project west of Bakersfield to recharge, store, and recover water. RRBWSD completed relevant environmental analysis and applied for grant funding. Subsequent addenda to a previous conjunctive-use EIR were adopted. WaterSmart grants were awarded in 2020 and 2021 towards development and construction. Almond trees were removed from the property in 2021 and construction of recharge ponds and intake was completed in 2022. The design of two Conjunctive-Use banking wells is scheduled for construction in 2022-2023.

**Onyx Ranch Project:** This project is connected to RRBWSD-owned lands and water rights in the Kern River Valley. The project involves a change in the point of diversion that would bring water supplies to the Kern Subbasin. A Draft EIR was completed and circulated and the FEIR was certified in January 2021. During 2021, RRBWSD coordinated with the Kern River Interests and initiated a Pilot Project in early 2022 where approximately 1100 AF was delivered for

groundwater storage in the Kern Subbasin. Severe drought conditions limited supplies from May through December of 2022. RRBWSD anticipates deliveries will recommence during the winter of 2023.

**James Groundwater Storage and Recovery Project:** This project is a proposed 2,070-acre project in southwest Bakersfield designed to recharge, store, and recover water to provide a cost-effective and reliable water supply for landowners within RRBWSD. A conceptual design and feasibility analysis was completed in 2019 and awarded grant funding is tentative. The environmental analysis was re-initiated with the distribution of a Notice of Preparation of an EIR in June 2020, distribution of the DEIR in 2022, and certification of the FEIR expected in 2023. The design of an intake from the Kern River to the James Project across the Pioneer Project stands at 30% status.

**Kern Fan Groundwater Storage Project:** This project would develop a regional water bank in the Kern Fan area to store State Water Project (SWP) Article 21 water when surface water is abundant. The Kern Fan Project's feasibility analysis was completed in March 2020 and an FEIR was certified in December 2020. RRBWSD has commenced permitting and design efforts, now having acquired 350 acres of property for new recharge and recovery. On these properties, recharge improvement plans and specifications stand at 60% with construction expected in 2023-2025. Alternative conveyance routes were also analyzed.

**Western Rosedale Lands In-Lieu Service Area Project:** This project includes the construction and operation of up to ten miles of water conveyance pipelines, including appurtenant facilities, to provide surface water to agricultural users within a portion of RRBWSD's service area located west of Interstate 5. Project status is shovel ready; feasibility and environmental analysis are complete. No implementation date is known at this time.

**Ten Section Project:** This project is located in the South of the River Monitoring Area within the RRBMA. A feasibility study of 200+ acre groundwater recharge, storage, and recovery projects is currently underway. No implementation date is known at this time.

The RRBMA made progress toward implementing several of its planned GSP Management Actions in Water Year 2022 as summarized by the following:

**Water Charge Demand Reduction:** This action is being developed that would be imposed on landowners for the use of water over Native Yield, precipitation, and Project Water. A web-based water budget platform was completed in 2020 and real-time evapotranspiration (ET) data was incorporated in 2021 allowing users the ability to track their water usage for background information. The RRBWSD Board directed staff to change implementation from 2023 to 2024.

**RRBWL (White Land) Water Supplies and Demand Imbalance Reduction:** This action has been implemented for demand reduction on a linear basis over the planning period of 2020-2040. It is expected that Rosedale-Rio Bravo White Lands would seek to acquire water supplies for in-lieu and direct groundwater recharge via banking agreements with RRBWSD, or others to offset demands. A web-based water budget platform was completed in 2020 to

allow users to begin tracking water usage for initial 2020-2024 reduction requirements. Landowners are being regularly updated as to their demands and remaining balances requiring balance by the end of 2024.

**RRBWS D 3rd Party Recharge and Storage Program:** This action will be developed by RRBWS D for 3rd-party recharge for use in the RRBMA or other downgradient areas in the Kern Subbasin. RRBWS D would offer existing conveyance and recharge facilities in exchange for a portion of the imported water supply and payments of yet-to-be-developed costs and/or fees. RRBWS D executed one such program in 2022 for up to 50,000 AF of groundwater recharge of which RRBWS D would retain 1 AF for every 2 AF stored.

The RRBMA made progress towards implementing several of its planned GSP **Adaptive Management** in Water Year 2022 as summarized by the following:

- To the extent that projects and management actions are unable to prevent undesirable effects that are caused by RRBMA activities, further actions will be evaluated and considered. For example, if either the projects or management actions are unable to produce the projected supplies, or other more cost-effective options are found, the RRBMA may deviate from the actions as described above.
- Because the White Lands are located outside of the political boundaries of RRBWS D, assessment, and water charges are not likely to be imposed unless voluntarily created by those landowners. Currently, there is a contractual relationship where RRBWS D provides certain landowners with SGMA compliance methodology. Compliance with demand reduction management action(s) will initially be voluntary in nature. However, to the extent that a landowner refuses to comply, RRBWS D may terminate the contractual relationship that provides the landowner with SGMA compliance and remove the landowner from the RRBMA. During 2020 and 2022, RRBWS D offered groundwater for transfer from a potential land fallow program. No Rosedale-Rio Bravo White Land participants opted to participate.

### **3) Coordination with Stakeholders**

RRBWS D held monthly Board meetings during all of 2022 which included briefing the Board on SGMA-related activities. Five stakeholder meetings were also held in person at the District's office with a virtual option. RRBWS D provided updates on groundwater monitoring results, plan revisions associated with DWR comments, and implementation of projects and management actions.

### **4) Summary of Other GSP-related Special Studies or Activities**

RRBMA did not engage in any additional GSP-related studies or activities in 2022, beyond the normal operation and management of groundwater and surface water supplies for the benefit of landowners.