BERRENDA MESA
WATER DISTRICT

2025 Agricultural Water Management Plan

Prepared Pursuant to Water Code Section 10826
and Executive Order B-29-15

Berrenda Mesa Water District (BMWD)
14823 CA-33
Lost Hills, CA 93249
Phone (661) 633-9022
Fax (661) 633-9026

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Abbreviations & Acronyms List

Abbreviation	Definition
AB	Assembly Bill
ACWA	Association of California Water Agencies
AF	Acre-feet
APEP	Advanced Pumping Efficiency Program
AWMP	Agricultural Water Management Plan
BMWD	Berrenda Mesa Water District
BMSG	Berrenda Mesa Spreading Grounds
BVWSD	Buena Vista Water Storage District
BWSD	Belridge Water Storage District
cfs	Cubic feet per second
CIMIS	California Irrigation Management Information System
CV-SALTS	Central Valley Salinity Alternatives for Long-Term Sustainability
CVP	Central Valley Project
DRWD	Dudley Ridge Water District
DWR	Department of Water Resources
EC	Electrical Conductivity
ETo	Reference Evapotranspiration
ETc	Crop Evapotranspiration
EWMP	Efficient Water Management Practice
gpm	Gallons per minute
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HDPE	High-density polyethylene
ILRP	Irrigated Lands Regulatory Program
ITRC	Irrigation Training & Research Center
JPA	Joint Powers Authority

Abbreviation	Definition
KCWA	Kern County Water Agency
LHWD	Lost Hills Water District
LOC	Level of Concern
MAF	Million Acre-Feet
NRCS	Natural Resource Conservation Service
NWKRCD	North West Kern Resource Conservation District
O&M	Operations and Maintenance
P&P	Provost & Pritchard Engineering Group
PG&E	Pacific Gas and Electric
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SGMA	Sustainable Groundwater Management Act
SWC	State Water Contractors, Inc.
SWP	State Water Project
TDS	Total Dissolved Solids
TWUE	Total Water Use Efficiency
USDA	United States Department of Agriculture
WDWA	Westside District Water Authority
WWA	Westside Water Authority
WWQC	Westside Water Quality Coalition

DISCLAIMER

Sections of this AWMP rely on information located in the Westside District Water Authority Groundwater Sustainability Agency's 2025 Groundwater Sustainability Plan (GSP) prepared pursuant to SGMA. Because the GSP represents the Kern County Subbasin's primary technical groundwater management document, any inconsistencies between this AWMP and the adopted GSP are unintended and the GSP shall be considered the controlling technical reference. Differences may arise due to variations in geographic scope, modeling assumptions, update schedules, and the need for basin-wide standardized methodologies under SGMA that may not fully reflect localized operational conditions within the BMWD service area.

1. Introduction

This Agricultural Water Management Plan (AWMP) for the year 2025 was prepared by the Westside Water Authority (WWA) on behalf of the Berrenda Mesa Water District (BMWD or District) to comply with the requirements of the 2018 Water Conservation Legislation (AB 1668 and SB 606). Past water management efforts undertaken by the District are itemized below.

1.1 Previous Water Management Activities

On October 12, 2004 the District Board of Directors (Board) adopted a Water Management Plan (WMP) prepared in compliance with AB 3616 Agricultural Water Suppliers Efficient Water Practices Act of 1990, in accordance with the January 1, 1999 Memorandum of Understanding Regarding Efficient Water Management Practices by Agricultural Water Suppliers in California. The WMP was endorsed by the Agricultural Water Management Counsel on August 17, 2005.

In 2012, the District prepared and submitted the "2012 Agricultural Water Management Plan" in compliance with SB X7-7. The objectives of the AWMP were to evaluate the District's current water management practices and identify areas where significant improvements have been made, identify areas to improve the efficiency of water use within the District, and consider past and future water management strategies to increase the reliability of water deliveries to the District. The 2012 report concluded that the District had fully implemented all the critical and the applicable conditional EWMPs.

In 2015, an update was made to the 2012 AWMP to incorporate the requirements from the Governor's April 1, 2015 Executive Order (B-29-15) to include in the AWMP a detailed drought management plan in addition to quantification of water supplies and demands for the 2013, 2014, and 2015 years to the extent data is available. The update also included information that identified areas to improve the efficiency of water use within the districts across California and to continue to evaluate the District's water management practices. The 2015 update also considered past and future water management strategies to increase the reliability of water deliveries to the District.

The Westside Water Authority (WWA or Authority) was officially formed in April of 2020 to aid the joint management of operations, contracts, administration, and water transactions for BMWD, Belridge Water Storage District (BWSD), Lost Hills Water District (LHWD), and the Dudley Ridge Water District (DRWD). Although WWA manages aspects of the districts, the four districts submitted individual AWMPs in 2020. These AWMPs were written in response to the 2018 Water Conservation Legislation (AB 1668 and SB 606), which updates the 2009 Water Management Planning Act to better address issues related to agricultural water management and evaluation. Furthermore, they provided updated information regarding water management practices in the districts.

Like the 2020 Plan, the 2025 iteration of the Plan was prepared by WWA using the guidance of the 2025 Agricultural Water Management Plan Guidebook developed and released by the Department of Water Resources (DWR).

1.2 Coordination Activities

1.2.1 Notification of AWMP Preparation

The Plan was prepared in cooperation with public entities including the BWSD, the LHWD, the DRWD, and the Westside District Water Authority Groundwater Sustainability Agency (WDWA GSA). **Table 1** summarizes the agencies and parties notified regarding the coordination, adoption, and submittal activities of the AWMP.

BMWD solicited public input by inviting oral and written comments prior to and during a public hearing on March 12, 2026. No comments were received during the public hearing.

Table 1. Summary of Coordination, Adoption, and Submittal Activities for BMWD

Potential Interested Parties	**Notified of Plan Preparation**	**Requested Copy of Draft *(Optional)***	**Commented on Draft/Action Taken by Supplier *(Optional)***	**Notified of Public Meetings**	**Attended Public Meetings *(Optional)***	**Copy of Adopted Plan/ Amendment Sent**
Bakersfield Californian	X			X		
Belridge Water Storage District	X			X		
Buena Vista Water Storage District	X			X		
Department of Water Resources						X
California State Library						X
Dudley Ridge Water District	X			X		
Kern County	X			X		X
Kern County Water Agency	X			X		
Kern Non-Districted Land Authority	X			X		
Lost Hills Water District	X			X		
Semitropic Water Storage District	X			X		
Westside District Water Authority GSA	X			X		
Westside Water Authority	X			X		
Website						Plan to post by April 1, 2026

1.2.2 Public Participation

The District provided notice of the public meeting to approve and adopt the AWMP to relevant agencies and published an advertisement in the Bakersfield Californian on February 20 and February 27, 2026 (**Appendix A & B**). This notice included the notification of preparation and the notification of the date of the public meeting to be held to review and consider adopting the AWMP.

1.3 AWMP Adoption, Submittal, and Availability

1.3.1 AWMP Adoption

The District is submitting the AWMP included in this document in accordance with AB 1668 and SB 606 requirements and which has been adopted by the Board of Directors on March 12th, 2026. Resolution of the Plan Adoption by the Board is included in **Appendix C**.

1.3.2 AWMP Submittal

Copies of the finalized AWMP have been sent to the following agencies:

1) DWR
2) Kern County
3) California State Library

1.3.3 AWMP Submittal

The AWMP will be posted on the District's website on or before April 1, 2026 and can be viewed by accessing the following link: Homepage Berrenda Mesa Water District.

1.4 AWMP Implementation

Plan implementation began with Board adoption on March 12th, 2026, and will continue until the next update. Further details on water use efficiency implementation schedule and documentation are described in Sections 7 and 8.

2. Service Area & Agricultural Water Supply

2.1 Physical Characteristics

2.1.1 History and Size of Service Area

The District was formed on September 3, 1963 pursuant to Division 13 of the California Water Code, for the purpose of providing irrigation water from the State Water Project (SWP) to land within the district. The water supply contract between the district and Kern County Water Agency (KCWA or Agency) was executed on March 9, 1967. After contract execution with KCWA, the district commenced water deliveries in 1968 (**Table 2**).

The District owns and operates an irrigation distribution system that encompasses 56,000 acres of land. The majority of land in the District is farmable, but not all this acreage is currently in production due to resource constraints.

At present, there are two categories of landowners with a water supply in the District—those landowners with contracts and those without (i.e., Contract and Non-Contract). Of the District's 92,600 AF of SWP Table A. These numbers represent the total amount of water available to the District from the SWP during a year with 100% allocation. In certain years, this amount is reduced in proportion to allocation (supply made available) from the

SWP. Nearly all water supplied within the district is sourced from the SWP as local groundwater is rarely used due to low yields and poor quality.

On February 19, 2025, the District completed the Kern County Local Agency Formation Commission (LAFCo) annexation process to formally incorporate approximately 360 acres of land owned by the District and utilized for surface water banking known as the "Berrenda Mesa Spreading Grounds" into the District's boundary. The District does not anticipate any further changes to its service area at this time.

Table 2. Water Supplier History and Size	
District	**BMWD**
Date of Formation	3-Sep-63
Source of Water	Applicable sources
Local Surface Water	
Local Groundwater	Limited
Wholesaler	Kern County Water Agency (KCWA)
USBR	
SWP	Via California Aqueduct
Service Area Gross Acreage	56,078 acres
Irrigated Acreage	18,467 acres

2.1.2 Location of the service area and water management facilities

BMWD is located within the southern San Joaquin Valley about 50 miles northwest of the City of Bakersfield (**Figure 1**). The District is in the northwestern corner of Kern County on the eastern edge of the Temblor Range. State Highways 46 and 33 traverse the District boundary. Adjacent districts include Devil's Den Water District to the north, BWSD to the south, LHWD to the east, and DRWD to the north in Kings County.

SWP water is conveyed from SWP facilities located north of the Delta at Lake Oroville. The water is pumped through the Banks Pumping Plant for delivery into the California Aqueduct, which diverts into San Luis Reservoir. From the reservoir, Dos Amigos Pumping Plant redirects water back into the California Aqueduct, which then routes water into the Coastal Branch of the Aqueduct for delivery to BMWD. Before the District receives delivery of the water, it must be lifted through a series of pump stations, the DWR's Las Perillas and Badger Hill Pumping Plants, and the District's own Pump Station A. Additionally, there is one turn-out off the CA Aqueduct that serves BMWD landowners. In summary, water operations that are affected by BMWD water use include Lake Oroville, Banks Pumping Plant, California Aqueduct, San Luis Reservoir, Dos Amigos Pumping Plant, Coastal Aqueduct, Las Perillas Pumping Plant, Badger Hill Pumping Plant, BMWD Pump Station A and the "Aqueduct" pumping plant (located at mile post 196.40 and referred to as "BM 2").

An overview of the SWP facilities is shown in **Figure 2**[1].

BMWD distributes SWP water via a network of storage facilities, a main canal, pipelines, pump stations, and control structures and was designed primarily for gravity flow (**Figure 3**). Where portions of BMWD are located at higher elevations than the canal, water is delivered to these lands using pump stations and other pipelines. Since 2012, the District has installed automatic gate controls at canal check structures on its main canal. This equipment allows operators to (1) adjust water levels in the canals remotely via an internet connection, (2) react more quickly to changes in water levels in the canals, and (3) reduce the number of trips necessary to adjust the gates manually. This leads to safer and more efficient water management. Further discussion on the District's Supervisory Control and Data Acquisition (SCADA) system can be found in Section 2.2.2.

The District's distribution system can be classified as a fixed duration-restricted arrangement system with deliveries arranged in advance and at a normal duration in 24-hour time intervals.

Growers within BMWD utilize sprinkler, micro-irrigation and solid-set sprinklers system types. Furrow irrigation is no longer used in the District because of the topography and water cost. In the early years of the District, sprinkler and furrow irrigation were the predominate irrigation types used to irrigate crops. As technology advanced, micro-irrigation systems were installed on some of the permanent crop acreage. By the 1980's, many of the permanent crops were converted from furrow or sprinkler systems to micro-irrigation systems, either drip or fan-jet irrigation. All the recent permanent crop plantings have been installed with micro-irrigation systems. Currently, pressurized micro-irrigation systems (drip and fan-jet systems) account for 100% of the irrigated permanent crop acreage.

BMWD's primary local surface storage is a 400 AF regulation reservoir—the Afterbay Reservoir. This reservoir is used for short-term regulation of the District's main pump station (Pump Station A) and is generally not available for long-term storage of surplus waters. The Afterbay Reservoir provides the District enough capacity to curtail pumping during the peak energy period (5 p.m. to 8 p.m.), to minimize the energy costs associated with pumping.

Other District facilities, located outside the BMWD boundary, are groundwater banks that include the Pioneer Project and the Berrenda Mesa Project. As a participant in these banking programs, BMWD has actively banked SWP water when supplies exceed demands or when other surplus water is made available. During drought years, when SWP allocations are minimal, the District can recover water from the groundwater banking facilities to supplement SWP supplies. The amount BMWD can extract from both banking projects annually fluctuates depending on hydrologic conditions and other factors.

[1] An overview of SWP facilities can be found here: SWP Facilities

2.1.3 Terrain and soil

BMWD is located on the eastern edge of the Temblor Range. Topography is gentle, with foothills lying at the western edge. The western portion of the District is known as Antelope Valley and is enclosed by the Temblor Range on three sides. The eastern portion of BMWD is known as Antelope Plain. Elevations range from 460 feet above sea level in the northeast to 1,200 feet in the southwest. Typical slopes range from 40 to 50 feet per mile in the central portion of BMWD.

BMWD is primarily underlain with Quaternary alluvium, which in turn is underlain with the Tulare Formation of Pliocene/Pleistocene age.

The United States Department of Agriculture, Natural Resource Conservation Service (NRCS) issued a soil survey of the northwestern portion of Kern County in the fall of 1988. This detailed soil survey included the area encompassed by the District. A general soils map of the District taken from the NRCS soil survey is shown in **Figure 4.**

In addition, **Table 3** provides the general characteristics of the major soil types within the District. The dominant soil types within BMWD are the Panoche clay loam, the Twisselman clay, the Milham sandy loam, and the Kimberlina sandy loam. These soils are predominantly formed in alluvium derived from sedimentary and granitic rock, and are well drained, which makes them conducive for agricultural activities.

Land use within BMWD consists of primarily agricultural land. Approximately 18,500 acres are in agricultural production with the vast majority of those acres being allocated for pistachios. The majority of non-irrigated land within the District is non-farmable consisting of oilfields, mountain slopes, and other low yield producing land. There are no intensified urban areas within BMWD.

Table 3. Soil Characteristics				
Map Symbol	**Soil Name**	**% of District**	**Hydrologic Soil Group**	**Drainage Class**
101	Aido clay, 9 to 30% slopes	<1	D	Well drained
102	Aido clay, 30 to 50% slopes	<1	D	Somewhat excessively drained
115	Bitterwater sandy loam, 9 to 15% slopes	<1	A	Well drained
118	Bitterwater-Delgado association, 9 to 30% slopes	<1	A	Well drained
119	Bitterwater-Delgado association, 30 to 75% slopes	<1	A	Well drained
129	Carollo-Twisselman saline alkali association, 2 to 15% slopes	<1	D	Well drained
144	Delgado sandy loam, 5 to 30% slopes	<1	D	Well drained
163	Hillbrick-Rock outcrop complex, 50 to 75% slopes	<1	D	Well drained
166	Kecksroad silty clay loam, 5 to 15% slopes	<1	D	Well drained
167	Kecksroad silty clay loam, 15 to 50% slopes	<1	D	Well drained
168	Kettleman loam, 9 to 15% slopes	<1	C	Well drained
169	Kettleman loam, 15 to 50% slopes	<1	C	Well drained
171	Kettleman-Delgado-Rock outcrop complex, 15 to 50% slopes	<1	C	Well drained
172	Kilmer-Hillbrick complex, 15 to 50% slopes	<1	C	Well drained
174	Kimberlina fine sandy loam, 0 to 2% slopes	8.6	A	Well drained
175	Kimberlina sandy loam, 2 to 5% slopes	1.1	B	Well drained
177	Kimberlina gravelly sandy loam, 2 to 5% slopes	<1	A	Well drained
185	Lewkalb, saline alkali-Milham-Kimberlina complex, 0 to 5% slopes	2.8	C	Well drained
186	Lodo variant clay loam, 15 to 50% slopes	<1	D	Somewhat excessively drained
196	Milham sandy loam, 0 to 2% slopes	11.9	C	Well drained
197	Milham sandy loam, 2 to 5% slopes	2.3	C	Well drained
206	Nacimiento-Kilmer complex, 30 to 50% slopes	<1	C	Well drained
211	Panoche clay loam, 0 to 2% slopes	44.4	C	Well drained
212	Panoche clay loam, 2 to 5% slopes	7.5	B	Well drained
213	Panoche clay loam, 5 to 9% slopes	<1	B	Well drained
217	Pits	<1	-	-
219	Polonio loam, 2 to 9 percent slopes	<1	C	Well drained
220	Pottinger very shaly clay loam, 2 to 9% slopes	<1	C	Well drained
235	Twisselman clay, 0 to 2% slopes	13.6	C	Well drained
236	Twisselman clay, 2 to 5% slopes	1.3	C	Well drained
239	Typic Gypsiorthids-Kimberlina association, 0 to 5% slopes	<1	-	Somewhat poorly drained
251	Yribarren loam, 0 to 2% slopes	<1	D	Well drained
252	Yribarren clay loam, 0 to 2% slopes	<1	D	Well drained
253	Yribarren clay loam, 2 to 5% slopes	2.1	D	Well drained
257	Water	<1	-	Well drained

2.1.4 Climate

The District's service area is characterized by a Mediterranean-type climate with dry, hot summers and mild, semi-arid winters with little rainfall and normally low humidity. To provide an overview of the local climate, relevant climate data was pulled from the most proximal California Irrigation Management Information System (CIMIS) station—#146 Belridge[2]. While this approach is generalized, it provides a good summary of the conditions within the District.

As reported by CIMIS, the average daily maximum temperature in the District ranges from 80 to 97 degrees Fahrenheit in the dry season (May to October), and from 59 to 76 degrees in the wet season (November to April). The area is classified as a hot desert where precipitation is less than half of the potential evaporation. The rainy season typically occurs from November to April, experiencing a monthly average of 0.95 inches between 2005 to 2024. Average annual precipitation across this period was 6.51 inches, with a minimum value of 1.61 inches in 2013 and a maximum of 21.94 in 2019. The rainfall is sufficient for grazing purposes, but not sufficient for intensive agricultural purposes.

The growing season runs from May through October, although various crops are grown year-round. Reference evapotranspiration during the 20-year period ranged from a low of 52.38 in 2011 to a high of 63.32 inches per year in 2022, with an average of 57.91 inches per year. The length of the growing season (frost-free period) is about nine months, or around 250 days per year that are available for growing most agricultural crops. The crops must be sustained by irrigation during the hot, dry summers. **Tables 4 and 5** contain additional climatology data for the representative period.

Table 4. Summary Climate Characteristics

	#146 Belridge, 2005-2024
Climate Characteristic	**Value**
Average Annual Evapotranspiration (inches)	57.91
Average Monthly Evapotranspiration (inches)	4.83
Average Annual Precipitation (inches)	6.51
Average Monthly Precipitation (inches)	0.54
Annual Minimum Total Precipitation (inches) – 2013	1.61
Annual Maximum Total Precipitation (inches)* – 2019	21.94
Average Annual Minimum Temperature (°F)	49.20
Average Annual Maximum Temperature (°F)	78.33

[2] More information on the California Irrigation Management System can be found online at: CIMIS

Table 4. Summary Climate Characteristics	
Average Minimum Temperature (°F) (January)	37.07
Average Maximum Temperature (°F) (July)	98.07
Average Minimum Temperature Monthly Range (°F) (November-April)	40.76
Average Maximum Temperature Monthly Range (°F) (May-October)	90.16
Note: ** Annual minimum and maximum total precipitation correspond to the total annual precipitation for the driest and wettest years, respectively*	

Table 5. Detailed Climate Characteristics				
CIMIS Station #146 - Belridge, 2005-2024				
Month/Time	**Average Precipitation, Inches**	**Average Reference Evapotranspiration (ET_o), Inches**	**Average Minimum Temperature, °F**	**Average Maximum Temperature, °F**
January	1.10	1.56	37.07	59.39
February	0.92	2.47	39.87	65.26
March	0.79	4.05	43.17	69.75
April	0.65	5.61	46.95	76.03
May	0.29	7.35	52.49	83.36
June	0.10	8.03	58.82	91.52
July	0.17	8.28	63.75	98.07
August	0.08	7.45	62.24	96.78
September	0.11	5.62	58.19	90.94
October	0.15	3.88	49.99	80.29
November	1.25	2.17	41.11	68.43
December	0.96	1.44	36.40	59.52
Wet Season* (Nov-Apr)	0.95	2.83	40.76	66.40
Dry Season* (May-Oct)	0.15	6.77	57.58	90.16
Extreme Conditions (if applicable) [e.g., 100-year event]	NA	NA	NA	NA
**Wet season is defined for November through April. Dry season is defined for May through October.*				
NA = Not applicable				

2.2 Operational characteristics

2.2.1 Operating rules and regulations

The District Board of Directors has adopted policies for allocation and delivery of water for agricultural use to land within the District. BMWD Operating Rules and Regulations (April 5, 2000 revision) are used as a guideline for the operation and delivery of water to the water

users (**Appendix D**). The rules contain procedures to distribute irrigation water in a fair and equitable manner to the water users.

As a Member Unit of the KCWA, a State Water Contractor, the District can only be as flexible with deliveries as the DWR allows. Irrigation deliveries within the District can be classified as a fixed duration-restricted arranged schedule. Most of the constraints on the District by DWR are passed on to the water user. BMWD is a member of the Westside District Water Authority Groundwater Sustainability Agency (WDWA GSA), which manages the District's compliance with the Sustainable Groundwater Management Act (SGMA). In addition, landowners with irrigated acreage within BMWD receive coverage under the Irrigated Lands Regulatory Program (ILRP) and the Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) Salt and Nitrate Control Programs through participation with the Westside Water Quality Coalition (WWQC). Both WDWA GSA and WWQC are managed by Westside Water Authority (WWA), which is a Joint Powers Authority (JPA) formed by BMWD, Belridge Water Storage District (BWSD), Lost Hills Water District (LHWD), and Dudley Ridge Water District (DRWD).

BMWD follows the same procedure for water ordering with its landowners that KCWA requires of its Member Units, as well as what the DWR requires of KCWA. Annual applications for a water supply must be submitted no later than September 1 of the preceding year. After reviewing all landowner applications, the District allocates to each based on total amount requested for the year, amount requested during any given month of the peak season, and the maximum pumping rate requested during the peak months of June, July, and August, if there is limited peaking capacity available. Applications may be submitted after the September 1 deadline; however, an allocation will be made to fill the late order only after satisfying all water requests submitted prior to September 1.

Water users are required to submit weekly orders showing the delivery rate (a 24-hour continuous uniform flow in cfs), required at each of the designated turnouts. Landowners schedule their own water. For example, a particular farmer requests water on Friday and needs his turnout to be open (2.5 cfs) from Monday to Friday (the following week); on Monday between 6 am to 8 am the turnout is opened and on Saturday between 6 am to 8 am the turnout must be closed. Change orders must be requested 48 hours in advance.

Water users with pressurized irrigation systems (drip/micro) may request irrigation water on an arranged demand (availability of water on request as consumed by the crop - typically from daily to every 2-3 days). Therefore, water order lead times may vary depending on the time of year, system capacity to move the water, and where water is needed in the system.

BMWD operates a decentralized water ordering and shut-off system**.** The Water Operators (personnel who manage the water delivery to the water users) convert water orders into deliveries based on demand and water flow capacity of the distribution system.

2.2.2 Water delivery measurements or calculations

BMWD employs a variety of water measurement methods. DWR maintains the flow measurement devices at each of District's three SWP delivery points, which are used to record daily measurements. In addition, DWR has meters installed on the District's Pump Station A, Coastal Pump Station, and Aqueduct Pump Station. Deliveries from District facilities are metered at each lateral and measured at each individual turnout. For quality control, the District owned flowmeters are read regularly and compared to the monthly total measured by DWR for the same time period.

The District has utilized and continued to improve water orders and billing software since 2003 that helps calculate water costs and provide for a standardized billing process. The software has a database of landowner information including cropping patterns, water transfers, water usage, property ownership, water contract information, and historical water use.

The District has installed and continues to upgrade a SCADA system on its pump stations, turnouts, and at various locations along its distribution canals. This system is used to remotely monitor and control a plant or equipment. The SCADA system gathers information (such as if a motor failure occurs on a pump), transfers the information back to a central site, alerts the home station that a failure has occurred. The current system requires manual efforts to analyze the collected data, but the District is in the process of upgrading the SCADA system to automate any necessary analysis, which will then be displayed in a logical and organized fashion to District staff. The SCADA system also allows district staff to view water levels in forebays and afterbays. Once the system is fully upgraded, it will have the added benefit of collecting, displaying, and storing real time pump efficiency (kwh/AF) and motor information (temperature, vibration, etc). At present, this feature is limited to certain locations within BMWD.

The DWR-owned California Irrigation Management Information System (CIMIS) weather station located in Belridge (CIMIS station #146), gives landowners real time and historical data reports. Data is retrieved each day including reference Evapotranspiration (ETo), solar radiation, net radiation, air temperature, soil temperature, vapor pressure/relative humidity, precipitation, and wind speed which can be viewed at any time. CIMIS has helped farmers with irrigation scheduling, duration, quantity and other important factors since its development.

A grower's water use to date and remaining allocation is calculated and maintained using the District's water management software (Latis). Currently, the District is working on upgrading this platform to add features and functions that will improve staff collaboration across all internal team functions. In addition, DWR maintains records of daily diversions to the District and records of all diversions, water quality, and storage operations related to the SWP. Operational reports are distributed weekly and monthly to the District and published annually in the DWR Bulletin 132.

2.2.3 Water rate schedules and billing

As discussed in Section 2.1.1, the BMWD Board of Directors has established two categories of water rates: (1) a base rate and (2) an incremental rate.

The Base Water Toll is assessed on each acre-foot of water under landowner contract, as well as on water reserved for lands not under contract, regardless of location within the District. Revenue generated from the Base Water Toll funds the State Water Project (SWP) fixed costs and all other District costs other than District power.
An "incremental" water rate is charged for each acre-foot of water ordered annually and covers In-District Pumping Charges as well as SWP variable costs (Dos Amigos, Las Perillas, Badger Hill).

In addition to the two water rate categories described above, a Standby Charge is assessed on standby acres within the Service Area. Revenue generated from this charge is used to support the operation and maintenance of the banking projects (Pioneer, Berrenda Mesa Spreading Grounds), as well as associated capital costs. Adjustments related to prior-year deliveries and related charges are performed independently of the annual billings. **Table 6** shows BMWD has a uniform water allocation followed by an incremental water rate pricing structure.

No later than November of each year, the District shall issue to each landowner a statement setting forth the total annual obligation. The annual obligation shall be payable in two installments. The first installment, equal to sixty percent (60%) of the total obligation, shall be due and payable no later than December. The second installment, representing the remaining forty percent (40%) of the total charges, shall be due and payable no later than June.

Concurrent with the issuance of the November statement, the District shall provide a deferral election notice, pursuant to which landowners may elect to defer a portion of their annual obligation to a later date subject to Kern County Water Agency (KCWA) deferral availability.

Each year, KCWA establishes the allowable deferral amount for its member units and typically communicates the allocation by the first week of December. Upon receipt of the confirmed deferral amount, District staff issue a revised invoice to those landowners who have elected to defer, reflecting the first installment reduced by the deferral amount. The deferred amount shall be due and payable no later than March.

Adjustments related to prior years deliveries and Water Charges are performed independently of the annual billings.

Table 6. 2025 BMWD Water/Pumping Rates

2025 Water Rates					
DWR Fixed	DWR	154.32			
	BMWD	75.99			
	Base Water Rate	**230.31**			
	Dos Amigos	25.66			
	Total	**255.97**			
In-District Pumping Charges		**Main Aqueduct**			**Total**
		Aqueduct	178.36		**434.33**
	Incremental Charges	Aqueduct Booster	148.42	178.36	**582.75**
		Coastal Branch			
		Las Perillas/Badger Hill	16.05	Incremental Charges	**Total**
		Coastal	14.12	Incremental Pumping / Incremental Rate Total	**286.14**
		Station A	73.59		**345.62**
		Sec. 17		- / -	**-**
		SC 700		77.77 / 151.37	**423.39**
		SC 600		144.68 / 218.27	**490.29**
		Sec. 35		- / -	**-**
		Still		133.16 / 206.75	**478.77**

2024 Standby Charge =	**$ 26.25**
Water Rate through Station A	**$ 345.62**

2.2.4 Water Shortage Allocation Policy and Drought Management Plan

The District relies on water transfers, supplemental water purchases, and groundwater banking programs as its primary mechanism for enduring periods of drought. Unlike farmers in other areas who can fallow land during periods of drought, farmers in BMWD have permanent plantings (e.g., trees and vines) that require a minimum water supply to keep alive. In water short years these farmers use deficit irrigation (the application of water below full crop-water requirements) to reduce irrigation water use or provide supplies from the aforementioned water banks. Use of deficit irrigation can result in reduced crop yields and, if taken to the extreme, no crop yield as well as long-term damage to the crop.

Determining Drought Severity

The District's primary source of water is imported surface water via the SWP. In the fall of each year, DWR operations' staff review current Project storage and projected deliveries through the end of the year and develop allocation projections for the following year based on a range of forecasted hydrology. DWR declares the initial allocation forecast for the following year pn December 1st. This allocation is adjusted as the hydrology dictates.

District management maintains a close relationship with KCWA and DWR operations' staff and uses these projections to determine water supply availability and level of drought severity. These projections are conveyed to District landowners for use in planning their farming operations and estimating supplemental water needs

Water Shortage Allocation
In a **water-short year** –defined as a calendar year within which the total water supply of the District, exclusive of any carryover supply or storage, is *equal to or less than* the product of 1.5 acre feet per acre multiplied by the gross acreage within said service area of all holders of title to land who have made timely application for water to be delivered in said calendar year – landowners are allocated water in the following order:

1. 1.5 AF/acre for permanent crops
2. 1.5 AF/acre for non-permanent crops

Alternative Water Supplies
When SWP water allocations are reduced, the District is proactive in seeking and securing supplemental water supplies. Since 2009, the District has collaborated in securing additional water with four other agricultural water districts that also rely heavily on the SWP for its water supplies: (1) Belridge Water Storage District, (2) Dudley Ridge Water District, (3) Lost Hills Water District, and (4) Wheeler Ridge-Maricopa Water Storage District. Due to their common location on the west side of the southern San Joaquin Valley, as mentioned, the five districts are informally referred to as the Westside Districts or Westside 5.

Revenues and Expenditures
The majority of the District's expenses are DWR SWP charges that are fixed costs regardless of the amount of water delivered by SWP. As the SWP allocation gets reduced, the actual cost of water to the water users proportionally increases. For example, the District was expected to spend $17.5 million for its 2025 SWP water supply. At 100% allocation, this would equate to approximately $189/AF, but at the 2025 allocation of 50%, the unit charge rises to over $378/AF. In addition, at lower SWP allocations, demand for supplemental water increases, which results in higher unit costs for water users within that market.

Enforcement Methods of Allocation Policies
BMWD has not had to enforce any wasteful water practices. The price of water to BMWD landowners is among the highest anywhere in the state. Landowners are aware of this and use the water wisely. If necessary, the District would shut off service to any landowner deemed to be wasting water.

3. Quantity of Water Uses

3.1 Agriculture Water Use

The primary use of the applied water within BMWD is to meet the evapotranspiration rates of the planted crops. The overall crop requirement also takes into consideration the leaching requirements (how much water leaches into the soil from the root zone) and the effective precipitation (how much precipitation is used by the crops). For consistency across years, this report makes use of DWR's Statewide Crop Mapping dataset for 2021-2024[3], which utilizes Land IQ satellite imagery for its base dataset. For 2025, to remain as consistent as possible with the previous years, Land IQ data was used to calculate crop estimates. **Table 7** provides estimates for crop water use within the District. The following methodology and related assumptions were used in calculating these estimates:

- Crop evapotranspiration (ETc) was derived from the Irrigation Training & Research Center's (ITRC) ETc Table for Irrigation District Water Balances[4], Zone 16. ETc estimates for 2021 and 2022 utilized Typical Year values from Zone 16, 2023, 2024, and 2025 utilized Wet Year values.
- Satellite imagery tends to over classify fields, leading to an excessive amount of crop categories. To account for staff and budget constraints, a Pareto-style cumulative sum with a 95% threshold was used. This allowed staff to account for over 95% of irrigated acreage in the District without having to use additional resources to account for all the outliers.
- To account for local climate variations and determine whether a year was categorized as "Dry", "Typical", or "Wet", total precipitation was calculated for the years 2000 to 2025, ranked in ascending order from driest to wettest year, divided into three equal bins (0-33%, 33-66%, 66-100%), and assigned a relevant category of "Dry", "Typical", or "Wet".
- Where specific crop types were not represented within the ITRC ETc data, a proxy was used instead. These proxies are noted in **Table 7** where applicable.
- Leaching requirements vary significantly by crop, soil type, water salinity, and other factors. For the purposes of these estimates, a leaching requirement of 10 percent of the crop water requirement was assigned District-wide.
- Effective precipitation was calculated using data from CIMIS station #146 Belridge, and using relationships described in the DWR's Effective Precipitation, 1989, MacGillivray and Jones[5].

[3] More information on the DWR State Crop Mapping dataset can be found online at: Statewide Crop Mapping - Dataset - California Natural Resources Agency Open Data.
[4] More information on the ITRC data can be found online at: Cal Poly - ITRC - Evapotranspiration Data
[5] More information on how effective precipitation was calculated can be found on page 31 of the following document: Microsoft Word - CA Report XVII.doc

Calculating the overall crop water requirement in the District is a highly complex task that requires substantial work to be done accurately. Much of the data to calculate crop water requirements can even vary on a field-to-field basis. In addition to the simplified approach to determining leaching requirements for the crops, other sources of error stem from using ETc proxies, using precipitation data from a single station, and any error/assumptions embedded in the equations used. To this end, the values provided below should be understood as *estimates*. Furthermore, these crop usage values may diverge from those reported in the WDWA GSA Groundwater Sustainability Plan (GSP) due to differences in geographic scope, distinct modeling assumptions, and standardized regional datasets required for Kern County Subbasin-wide coordination.

Table 7. Agricultural Crop Water Needs

2021 (Typical Year)

Crop	Area (acres)	ET Crop (ft)	Effective Precipitation (ft)	Crop Water Requirement (AF)	Leaching Percentage (%)	Estimated Leaching Requirement (AF)	Total Crop Water Requirement (AF)
Pistachios	15,856	3.19	0.17	47,913	10	4,791	52,704
Almonds	7,228	3.65	0.17	25,111	10	2,511	27,622
Totals	**23,084**	-	-	**73,023**	-	**7,302**	**80,325**

2022 (Typical Year)

Crop	Area (acres)	ET Crop (ft)	Effective Precipitation (ft)	Crop Water Requirement (AF)	Leaching Percentage (%)	Estimated Leaching Requirement (AF)	Total Crop Water Requirement (AF)
Pistachios	15,844	3.19	0.13	48,458	10	4,848	53,304
Almonds	6,536	3.65	0.13	22,947	10	2,295	25,242
Totals	**22,379**	-	-	**71,405**	-	**7,140**	**78,545**

2023 (Wet Year)

Crop	Area (acres)	ET Crop (ft)	Effective Precipitation (ft)	Crop Water Requirement (AF)	Leaching Percentage (%)	Estimated Leaching Requirement (AF)	Total Crop Water Requirement (AF)
Pistachios	15,795	3.25	0.68	40,656	10	4,066	44,722
Almonds	2,003	3.37	0.68	5,402	10	540	5,942
Totals	**17,797**	-	-	**46,058**	-	**4,606**	**50,663**

2024 (Wet Year)

Crop	Area (acres)	ET Crop (ft)	Effective Precipitation (ft)	Crop Water Requirement (AF)	Leaching Percentage (%)	Estimated Leaching Requirement (AF)	Total Crop Water Requirement (AF)
Pistachios	16,614	3.25	0.35	48,128	10	4,813	52,940
Almonds	1,852	3.37	0.35	5,593	10	559	6,152
Totals	**18,467**	-	-	**53,721**	-	**5,372**	**59,093**

2025 (Wet Year)

Crop	Area (acres)	ET Crop (ft)	Effective Precipitation (ft)	Crop Water Requirement (AF)	Leaching Percentage (%)	Estimated Leaching Requirement (AF)	Total Crop Water Requirement (AF)
Pistachios	16,615	3.25	0.03	53,436	10	5,344	58,780

Table 7. Agricultural Crop Water Needs							
Almonds	1,852	3.37	0.03	6,185	10	619	6,803
Totals	**18,467**	**-**	**-**	**59,621**	**-**	**5,962**	**65,583**

3.2 Environmental Water Use

BMWD does not provide water for any environmental uses.

3.3 Recreational Water Use

BMWD does not provide water for any recreational uses.

3.4 Municipal and Industrial Use

A small portion of the District's water supply delivered to agricultural users is used for the processing of agricultural products and, subsequently, can be categorized as "industrial." However, the District does not make this distinction when providing water to the users as the amount of water is nominal.

3.5 Groundwater Recharge Use

No groundwater recharge resources within the contiguous western Kern County portion of the District are supported by the District's water supplies; however, the District participates in the Pioneer and Berrenda Mesa Spreading Grounds banking projects located in the Kern River alluvial fan. In addition, one landowner participates in the Kern Water Bank Authority. On February 19, 2025, the District completed the Kern County Local Agency Formation Commission (LAFCo) annexation process to formally incorporate approximately 360 acres of land utilized for surface water banking known as the "Berrenda Mesa Spreading Grounds" into the District's boundary. While the Berrenda Mesa Spreading Grounds is owned by the District, the project is managed by the KCWA and operates as a surface water banking facility that stores imported surface water supplies underground in the aquifer for later recovery in dry years.

3.6 Transfer and Exchange Use

As mentioned in Section 2.2.4 Water Shortage Allocation Policy and Drought Management Plan, the District relies on transfers and exchanges to supplement its annual water supply. When SWP water allocations are reduced, the District is proactive in seeking and securing supplemental water supplies. Since 2009, the District has collaborated in securing additional water with four other agricultural water districts that also rely heavily on the SWP for its water supplies: (1) Belridge Water Storage District, (2) Dudley Ridge Water District, (3) Lost Hills Water District, and (4) Wheeler Ridge-Maricopa Water Storage District.

3.7 Other Water Use

There are no other water uses in the District.

4. Quantity and Quality of the Water Resources of the Agricultural Water Supplier

4.1 Water Supply Quantity

4.1.1 Surface Water Supply

Under its enabling legislation, KCWA was granted the primary power to acquire and contract water supplies, control stormwater, reclaim water, reclaim land, and protect groundwater quality in Kern County. The Agency is a State Water Contractor and obtains water from the SWP for delivery to its 13 member agencies (Member Units), of which BMWD is one. BMWD's original 1967 Table A water supply contract with KCWA provided for an annual contract of 105,100 AF of water. In 1970, BMWD purchased an additional annual Table A water supply contract of 50,000 AF raising the annual Table A water supply contract to 155,100 AF. Since then, BMWD has transferred a total of 62,500 AF of Table A contract water to other agencies. BMWD chose to transfer a portion of its Table A contract to reduce SWP costs as the contracted supply exceeded demand in BMWD. BMWD's annual Table A contract water presently stands at 92,600 AF. The current water demands are range from approximately 70,000-90,000 AF per year depending on hydrologic conditions.

The District further can purchase water through various State and locally operated markets, several of which serve as important supplies for groundwater banking; however, the availability of these supplies has diminished over time. A summary of the District's water supplies can be found in **Table 8**.

Table 8. Surface Water Supplies					
Source	**2021**	**2022**	**2023**	**2024**	**2025**
CVP Class 1 Contracts	0	0	0	0	0
Pre-1914 Rights	0	0	0	0	0
SWP Water Contract	4,630	4,630	92,600	37,040	46,300
SWP Supplemental Water	4,663	12,591	57,288	19,530	36,128
CVP Supplemental	0	1,389	2,089	6,759	0
Kern River	3,693	2,000	76,450	0	0
Banked Water Recharge	0	0	-140,785	-8,239	-1,386
Banked Water Recovery	73,196	65,113	925	2152	0
*Carryover**	*21,573*	*16,093*	*13,898*	*24,167*	*16,508*
Total Supply	**86,182**	**85,723**	**88,567**	**57,242**	**81,042**
**Carryover water represents unused portions of prior-year SWP allocations that may be available for delivery in subsequent years, subject to project operations and hydrologic conditions. Carryover does not increase the District's long-term average water supply but provides limited interannual operational flexibility. To this end, Carryover is included for its importance in mitigating drought conditions but is not included in the Total Supply value.*					

4.1.2 Groundwater Supply

Due to naturally occurring poor groundwater quality due to elevated salinity, only a few private groundwater wells exist within the District. These wells have historically supplied limited amounts of water for blending with SWP water, usually during shortage years. Due to the limited amount of groundwater used, the District does not track groundwater pumping. Furthermore, satellite imagery resources such as Land IQ or OpenET are unable to effectively delineate how much groundwater is used within the District due to the quantity of surface water imports exceeding the modeled evapotranspiration demand within BMWD. Additional information regarding the District's groundwater supply and water quality can be found within WDWA GSA's 2025 Groundwater Sustainability Plan (Sections 8.4 Basin Setting: Groundwater Conditions)[6].

Deep percolation amounts are unknown in BMWD. Estimates of District wide deep percolation from water balance calculations included later show negative deep percolation for some years (in error as discussed later). Deep percolation estimates from USDA soil moisture monitoring demonstration projects in the District historically show a very low percentage of applied water. BMWD, via its membership in WDWA GSA, is incorporated into a sophisticated Kern County Subbasin-wide groundwater model

[6] A copy of the WDWA GSA 2025 GSP can be found online at: https://www.westsidedwa.org/2025-westside-district-water-authority-gsa-groundwater-sustainability-plan.

(C2VSimFG-Kern) which provides modeled results for groundwater pumping, natural return flows, and agricultural return flow fractions. Additional information on the Kern County Subbasin water budget and model can be found within the WDWA GSA 2025 GSP in Section 9: Water Budget and Appendix H: Model and Water budget Supplemental and Supporting Documentation.

As mentioned, the District participates in the Berrenda Mesa Spreading Grounds and Pioneer groundwater banking projects to supplement water supplies during dry years. The amount BMWD can recover from both banking projects varies annually depending on demand downstream in the California Aqueduct, hydrologic conditions, and other factors. Currently, the District has banked a little over 100,000 AF in these projects on behalf of water users. Both banking projects are operated and maintained by KCWA.

4.1.3 Sustainable Groundwater Management Act (SGMA)

BMWD is located within the Kern Subbasin as delineated under California's Groundwater Bulletin 118 (**Figure 5**). The District's compliance under SGMA, passed in 2014, is managed through the Westside District Water Authority Groundwater Sustainability Agency (WDWA GSA).

Groundwater conditions, sustainability objectives, monitoring networks, water budgets, and management actions applicable to lands served by the District are comprehensively addressed in the WDWA GSA 2025 Groundwater Sustainability Plan. The District relies on the GSP as the controlling technical and regulatory document for groundwater management within the District. For detailed information regarding BMWD's compliance with SGMA, please reference the WDWA GSA 2025 GSP.

4.1.4 Delta Plan Consistency

To demonstrate a measurable reduction in reliance on Delta exports, in compliance with Policy WR P1 in the Delta Reform Act, historical and projected water supplies were analyzed using a consistent baseline and comparative framework. Baseline supplies were defined as the average annual water supplies sourced from the Delta over the 1996-2015 period. This baseline represents long-term observed conditions and serves as the reference point for evaluating changes over time.

To illustrate recent trends, five-year average water supplies were calculated for the reporting periods corresponding to prior AWMPs (2011-2015, 2016-2020, and 2021-2025). These averages reflect operational and hydrologic variability while demonstrating changes in supply composition and reliance on Delta exports over successive planning cycles. Future conditions were evaluated using scenarios from the DWR's *The State Water Project Draft Delivery Capability Report 2025*[7] specifically the 2043 50 percent Level of Concern

[7] A copy of The State Water Project Draft Delivery Capability Report 2025 can be found online at: State Water Project Delivery Capability Report (DCR) 2025 - Draft DCR 2025 Main Report - California Natural Resources Agency Open Data.

(LOC) and 2043 95 percent LOC scenarios. To ensure consistency between modeled and observed data, modeled deliveries for the District during the 1996-2015 period were first extracted and compared to observed baseline supplies. These data were then used to develop a scaling factor based on the ratio between modeled and observed deliveries for that baseline period. Once calculated, the scaling factor was applied to the baseline supplies' value to project future supplies to 2043 under the 50 percent LOC and 95 percent LOC conditions.

The results show that the District has continued to reduce reliance on Delta water supplies with a downward trend across the past 30 years (**Figure 6**). For this most recent AWMP update (2021-2025), average Delta supplies were lower than both the 50 percent and 95 percent LOC projections for 2043 (**Table 9**).

Table 9. Comparison of Historic Average Annual Delta Supplies vs. Average Annual Delta Supplies

Value	Baseline Delta Supply (1996-2015)	2020 AWMP Average Delta Supply	2025 AWMP Average Delta Supply	2043 50% LOC Projected Delta Supply	2043 95% LOC Projected Delta Supply
Average Annual Supply (AF)	87,354	80,060	63,082	77,314	67,236
Percent of Baseline Supply	100%	92%	72%	89%	77%
Percent Reduction in Supply	0%	8%	28%	11%	23%

4.1.5 Other Water Supplies

The District does not have other water supplies outside those previously outlined.

4.1.6 Drainage from the Water Supplier's Service Area

The land serviced by BMWD does not have issues with subsurface drainage water.

4.2 Water Supply Quality

4.2.1 Surface Water Supply

BMWD has not had any water quality problems that have limited the use of the SWP water within the District. The District does not monitor the surface water quality of its imported water as the water used within the District is sourced from the SWP and other agencies hold responsibility for analyzing this water. The DWR has an on-going monitoring program that analyzes the water within the SWP monthly. This water is sampled at several locations along the Aqueduct and tested for electrical conductivity, standard minerals, selected trace elements, and chemical residue. **Table 10** presents recent water quality data that has been averaged across each year for a selection of representative analytes for the years

2021 through 2025. Where data was insufficient, either due to values falling below the respective analyte's reporting limit, or due to a lack of sampling, "NA" is reported for that year and analyte. These results stem from the Kettleman CK-21 Station (ID: KA017226) upstream of the District.

The water quality from the SWP is generally very good for irrigation purposes, but even good quality water often contains some salt. The ET process returns water to the atmosphere but leaves the salt behind in the soil. To avoid damaging buildup of salt in the crop root zone, water more than the crops' ET is required. The amount of excess water needed, known as the leaching requirement, varies with the crop, soil, climate, and quality of the applied water and is used as an indicator of the minimum amount of water needed to flush salt from the root zone.

Table 10. Average Water Quality Measurements

Parameter	Units	2021	2022	2023	2024	2025
Alkalinity (Total)	mg/L as CaCO3	92.8	89.8	63.0	69.3	80.9
Aluminum (Total)	mg/L	79.8	86.6	520	179	97.6
Ammonia (Total)	mg/L as N	NA	NA	NA	NA	NA
Antimony (Total)	mg/L	NA	NA	NA	NA	NA
Arsenic (Total)	mg/L	2.96	2.97	1.95	1.60	1.45
Barium (Total)	mg/L	42.4	40.6	38.5	35.9	34.3
Boron (Dissolved)	mg/L	0.19	0.17	NA	NA	0.14
Bromide (Dissolved)	mg/L	0.28	0.28	NA	NA	0.19
Calcium (Dissolved)	mg/L	23.7	23.9	17.2	18.5	21.5
Chloride (Dissolved)	mg/L	91.4	82.9	38.9	62.4	62.1
Chromium (Total)	mg/L	NA	NA	NA	NA	NA
Conductance (EC)	uS/cm	607	573	561	427	441
Copper (Total)	mg/L	2.74	1.87	2.67	2.15	1.97
Hardness (Dissolved)	mg/L as CACO3	122	120	82	93	105
Iron (Total)	mg/L	91.7	86.1	754	266	179
Parameter	**Units**	**2021**	**2022**	**2023**	**2024**	**2025**
Magnesium (Dissolved)	mg/L	15.2	14.5	9.17	11.2	12.4
Manganese (Total)	mg/L	31	NA	58	24	10.1
Nickel (Total)	mg/L	1.79	1.67	3.81	NA	1.46
Nitrate + Nitrite (Dissolved)	mg/L as N	NA	NA	0.59	NA	0.87
Organic Carbon (Dissolved)	mg/L as C	3.98	5.41	4.94	3.54	3.65
Organic Carbon (Total)	mg/L as C	3.90	5.48	4.63	3.46	3.65
pH	-	8.46	8.56	7.78	7.92	7.85
Phosphate, Ortho (Dissolved)	mg/L as P	0.10	NA	0.10	0.10	0.08
Phosphorus (Total)	mg/L	0.11	0.12	0.18	0.11	0.07
Selenium (Total)	mg/L	1.61	NA	NA	NA	NA
Sodium (Dissolved)	mg/L	69.8	65.5	31.6	46.8	46.9
Sulfate (Dissolved)	mg/L	38.7	37.0	34.9	35.4	38.0
Total Dissolved Solids	mg/L	330	314	203	241	256
Zinc (Total)	mg/L	NA	NA	NA	NA	NA

4.2.2 Source Water Quality Monitoring Practices

BMWD's primary water supply comes from the SWP. DWR maintains records of all water diversions, water quality, and storage operations related to the SWP. Operational reports are distributed weekly and monthly to the District and published annually in Bulletin 132. DWR maintains water quality standards for its downstream urban users (Metropolitan Water District of Southern California and Central Coast Water Authority). DWR maintains an automated sampling station at Check 21 (just upstream from the District turnouts) that records electrical conductivity, water temperature, and turbidity daily. Moreover, grab samples are taken monthly. BMWD is located at the terminus of the Coastal Aqueduct and thus there are no potential downstream agencies. Total Dissolved Solid concentrations in the SWP water provided to the District generally range from 200 to 500 mg/L, which is suitable for agricultural use. **Table 11** provides a summary of the constituents sampled by DWR.

Table 11. Constituents sampled by DWR at the Check-21 Station between 2020-2025

Constituent	**Units**	**Standard**
Total Alkalinity	mg/L as CaCO3	Std Method 2320 B (Filtered)
Dissolved Aluminum	mg/L	EPA 200.8 (D)
Total Aluminum	mg/L	EPA 200.8 (T)
Dissolved Ammonia	mg/L as N	EPA 350.1 (DWR Modified)
Dissolved Antimony	mg/L	EPA 200.8 (D)
Total Antimony	mg/L	EPA 200.8 (T)
Dissolved Arsenic	mg/L	EPA 200.8 (D)
Total Arsenic	mg/L	EPA 200.8 (T)
Total Barium	mg/L	EPA 200.8 (T)
Dissolved Beryllium	mg/L	EPA 200.8 (D)
Total Beryllium	mg/L	EPA 200.8 (T)
Dissolved Boron	mg/L	EPA 200.7 (D)
Dissolved Bromide	mg/L	EPA 300.0 28d Hold
Dissolved Cadmium	mg/L	EPA 200.8 (D)
Constituent	**Units**	**Standard**
Total Cadmium	mg/L	EPA 200.8 (T)
Dissolved Calcium	mg/L	EPA 200.7 (D)
Dissolved Chloride	mg/L	EPA 300.0 28d Hold
Dissolved Chromium	mg/L	EPA 200.8 (D)
Total Chromium	mg/L	EPA 200.8 (T)
Specific Conductance	µS/cm @ 25 °C	Std Method 2510 B (Filtered)
Dissolved Copper	mg/L	EPA 200.8 (D)
Total Copper	mg/L	EPA 200.8 (T)
Dissolved Hardness	mg/L as CaCO3	Std Method 2340 B (D)
Dissolved Iron	mg/L	EPA 200.8 (D)
Total Iron	mg/L	EPA 200.8 (T)
Dissolved Lead	mg/L	EPA 200.8 (D)
Total Lead	mg/L	EPA 200.8 (T)

Table 11. Constituents sampled by DWR at the Check-21 Station between 2020-2025		
Dissolved Magnesium	mg/L	EPA 200.7 (D)
Dissolved Manganese	mg/L	EPA 200.8 (D)
Total Manganese	mg/L	EPA 200.8 (T)
Dissolved Mercury	mg/L	EPA 200.8 (Hg Dissolved)
Dissolved Nickel	mg/L	EPA 200.8 (D)
Total Nickel	mg/L	EPA 200.8 (T)
Dissolved Nitrate	mg/L	EPA 300.0 28d Hold
Dissolved Nitrate + Nitrite	mg/L as N	Std Method 4500-NO3-F (DWR Modified)
Dissolved Organic Carbon	mg/L as C	EPA 415.3 (D)
Total Organic Carbon	mg/L as C	EPA 415.3 (T)
Total Phosphorus	mg/L as P	EPA 365.4 (DWR Modified)
Dissolved Selenium	mg/L	EPA 200.8 (D)
Total Selenium	mg/L	EPA 200.8 (T)
Dissolved Silver	mg/L	EPA 200.8 (D)
Total Silver	mg/L	EPA 200.8 (T)
Dissolved Sodium	mg/L	EPA 200.7 (D)
Total Dissolved Solids	mg/L	Std Method 2540 C
Total Suspended Solids	mg/L	EPA 160.2
Volatile Suspended Solids	mg/L	EPA 160.4
Dissolved Sulfate	mg/L	EPA 300.0 28d Hold
Total Kjeldahl Nitrogen	mg/L as N	EPA 351.2 (DWR Modified)
Dissolved Zinc	mg/L	EPA 200.8 (D)
Total Zinc	mg/L	EPA 200.8 (T)

4.2.3 Groundwater Supply

Groundwater resources within the District are characterized by naturally occurring poor water quality, specifically high salinity and Total Dissolved Solids (TDS) levels. Due to these naturally degraded conditions, the underlying groundwater is generally unsuitable for agricultural beneficial use without blending or prohibitively expensive treatment. Consequently, groundwater extraction for irrigation is minimal, and landowners rely primarily on imported surface water supplies.

For a comprehensive technical description of groundwater quality conditions, constituents of concern, and specific management strategies, please refer to Section 8.4 (Groundwater Conditions) of the WDWA GSA 2025 GSP.

4.2.4 Other Water Supplies

BMWD relies on surface water and highly limited groundwater supplies. There are no other water supplies used within the District. Effective precipitation values are estimated later in this document.

4.2.5 Drainage from the Water Supplier's Service Area

BMWD has no drainage water and therefore does not have any drainage reuse projects.

5. Water Accounting and Water Supply Reliability

5.1 Quantifying Inflows

5.1.1 Water Quantities

Table 12 provides information on the surface water supplies to the district from the CA Aqueduct from 2021-2025.

Table 12. Surface Water Supplies (AF)

Source	Diversion Restriction	2021	2022	2023	2024	2025
SWP Water Contract	ESA & Delta BIOps	4,630	4,630	92,600	37,040	46,300
SWP Supplemental	ESA & Delta BIOps	4,633	12,591	57,288	19,530	36,128
CVP Supplemental	ESA & Delta BIOps	0	1,389	2,089	6,759	0
Kern River	NA	3,693	2,000	76,450	0	0
Banked water recovery	NA	73,196	65,113	925	2,152	0
Total		**86,182**	**85,723**	**229,352**	**65,481**	**82,428**

Notes:
ESA = Endangered Species Act
NA = Not Applicable
BiOps = Smelt and Salmon Biological Opinions

5.1.2 Other Water Sources Quantities

Effective precipitation is the only additional water source accounted for within the District (**Table 13**). Effective precipitation is calculated using empirically based methods and incorporated directly into the crop consumptive use estimates previously outlined in this document. It is shown here as an additional water source quantity for informational purposes only and is not additive to other water sources to avoid double-counting.

Table 13. Effective Precipitation Summary (AF)

Month	2021		2022		2023		2024		2025	
	Gross (in)	Effective (AF)*	Gross (in)	Effective (AF)*	Gross (in)	Effective (AF)*	Gross (in)	Effective (AF)*	Gross (in)	Effective (AF)*
January	1.37	1,438	0.12	0	2.96	3,326	2.41	2,655	0.38	0
February	0	0	0.2	0	4.95	6,100	3.26	3,885	0.28	0
March	0.43	0	1.2	0	2.03	933	0.87	0	1.26	0
April	0.12	0	0.22	0	0	0	0.78	0	0.44	0
May	0	0	0	0	0.34	0	0.19	0	0	0
June	0	0	0	0	0.8	0	0.71	0	0	0
July	0.07	0	0	0	0.85	0	0.71	0	0	0
August	0	0	0	0	1.37	0	0.04	0	0	0
September	0	0	1.57	0	0.02	0	0.01	0	0.41	0
October	0.73	776	0.31	255	0.1	0	0.06	0	0.73	621
November	0.09	0	0.49	0	0.22	0	0.46	0	3.58	4,348
December	1.54	1,746	2.15	2,762	1.78	1,681	0.34	0	2.04	2,120
Total	**4.35**	**3,961**	**6.26**	**3,017**	**15.42**	**12,044**	**4.25**	**6,540**	**4.61**	**7,089**

Note:
**Effective precipitation was calculated using data from CIMIS station #146 Belridge, and using relationships described in DWR's Effective Precipitation, 1989, MacGillivray and Jones.*

5.2 Quantifying Outflows

Table 14 summarizes all water uses in the District. The primary water use within BMWD is agriculture and demand is split between the crop water requirement and the leaching requirement. In years where water is plentiful, BMWD engages in groundwater banking to hedge against drought and provide a more sustainable water source for its landowners. Groundwater banking values, although not technically a demand, are provided in this table to summarize all outflows over the past 5-year period.

Table 14. Quantify Water Use (AF)					
Water Use	**2021**	**2022**	**2023**	**2024**	**2025**
Crop Water Use					
1. Crop Water Requirement	73,023	71,405	46,058	53,721	59,621
2. Leaching Requirement	7,302	7,140	4,606	5,372	5,962
3. Cultural practices	0	0	0	0	0
Conveyance & Storage System					
4. Conveyance seepage	0	0	0	0	0
5. Conveyance evaporation	0	0	0	0	0
6. Conveyance operational spills	0	0	0	0	0
7. Reservoir evaporation	0	0	0	0	0
8. Reservoir seepage	0	0	0	0	0
Municipal and Industrial					
13. Municipal	0	0	0	0	0
14. Industrial	0	0	0	0	0
Groundwater Banking					
15. Groundwater Banking	0	0	140,785	8,239	1,386
Outside the District					
16. Transfers or Exchanges out of the service area (not included)	0	0	0	0	0
Conjunctive Use					
17. In-District Groundwater recharge	0	0	0	0	0
Other	0	0	0	0	0
Subtotal	**80,325**	**78,545**	**191,449**	**67,332**	**66,969**
Note: ** Recharge outside District boundary is not accounted here.*					

5.3 Overall Water Budget

Table 15 provides a summary of all water supplies in the District over the 5-year period, and **Table 16** provides an overall budget summary comparing water inflows and outflows within BMWD.

Table 15. Quantify Water Supplies (AF)					
Water Supplies	**2021**	**2022**	**2023**	**2024**	**2025**
1. Surface Water	86,182	85,723	229,352	65,481	82,428
2. Groundwater	0	0	0	0	0
Subtotal	86,182	85,723	229,352	65,481	82,428

Table 16. Budget Summary (AF)					
Water Accounting	**2021**	**2022**	**2023**	**2024**	**2025**
1. Subtotal of Water Supplies	86,182	85,723	229,352	65,481	82,428
2. Subtotal of Water Uses*	80,325	78,545	191,449	67,332	66,969
3. Drain Water Leaving Service Area	-	-	-	-	-
Excess Deep Percolation** / **(Deficit Irrigation)**	5,857	7,178	37,903	-1,851	15,459

**Effective precipitation is incorporated directly into crop consumptive use values, and therefore is not included in the subtotal of water supplies to avoid double counting*
***Calculated from lines 2 and 3 subtracted from line 1*

The District appears to be efficient with its water supply with the data suggesting an average Total Water Use Efficiency (TWUE) of approximately 91% between 2021 and 2025. Excess deep percolation and TWUE values vary across the years. Discrepancies between crop consumptive use and observed water supplies are due to a variety of factors ranging from using ETc proxies for crop calculations, using precipitation data from a single station, relying on satellite imagery for crop acreage estimates, human error, and more. To this end, as mentioned prior, all results should be understood as *estimates* calculated under the constraints of limited resources.

5.4 Water Supply Reliability

BMWD's uses water from groundwater banking projects located in the Kern River alluvial fan to supplement SWP supplies, primarily in years of SWP delivery deficiencies. The amount BMWD can recover from both banking projects varies annually depending on demand downstream in the California Aqueduct, hydrologic conditions, and other factors. Currently, the District has banked a little over 100,000 AF in these projects. Both banking projects are operated and maintained by KCWA. Additional storage would further increase water supply reliability, either via increased allocations for these projects or through access to other groundwater banking projects located outside the District's boundaries.

Given most of the water in BMWD is sourced via the SWP, water supply reliability for the District is tied to that of the SWP and is best described in DWR's report: *The State Water Project Draft Delivery Reliability Report 2025* dated December 2025[8].

[8] A copy of The State Water Project Draft Delivery Capability Report 2025 can be found online at: State Water Project Delivery Capability Report (DCR) 2025 - Draft DCR 2025 Main Report - California Natural Resources Agency Open Data.

6. Climate Change

Within the five-year horizon of this Plan, the District is more concerned about the reliability of the SWP water supply than it is about climate change, although it recognizes the two are connected. The potential effects of climate change, which DWR projects to impact both BMWD's service area and result in statewide changes that could affect the SWP and its water supplies in the longer term, are a substantial concern beyond the planning horizon of this Plan.

DWR estimates indicate that California's Sierra Nevada snowpack, which has historically contained about 70% as much water[9], on average, as all the state's reservoirs combined, will experience a 48-65% loss from the historical April 1 average by the end of the century[10]. Much of the precipitation is expected to fall as rain instead of snow during winter and cannot be stored in our current water systems for later use. The climate is also expected to become more variable and extreme, bringing additional, intensified droughts and floods. Thus, the District will need to prepare to adapt to greater variability and severity in weather patterns.

6.1 Potential Climate Change Effects

Within the next 20 years, DWR projects that climate change will affect water supplies, water demand, sea level rise, and the frequency and severity of flood events. The District must consider these projected impacts—many of which are already being observed in California and are evaluated in the most recent SWP Delivery Capability Report prepared by the DWR.

Projected Climate Change Impacts

1. **Water Demand** - Shorter winters, more frequent hot days and warm nights, and a longer irrigation season are expected to increase irrigation demand within the District. These conditions may also intensify competition for limited water supplies among SWP contractors and other users.
2. **Water Supply and Water Quality** - Reduced Sierra Nevada snowpack and earlier spring runoff are projected to decrease the reliability of surface water supplies. Earlier runoff timing may also affect reservoir operations and degrade water quality due to altered flow patterns and higher water temperatures.
3. **Sea Level Rise** - The Sacramento–San Joaquin River Delta, through which the District's SWP supplies are conveyed, is increasingly vulnerable to sea level rise. Rising ocean levels are expected to increase salinity intrusion, place additional stress on Delta levees in low-lying areas, and heighten flood risk. These impacts may reduce the reliability and quality of water exports delivered to the District.

[9] Reported by the Public Policy Institute of California here: California's Snowpack Is the State's Biggest Reservoir—and It's Declining - Public Policy Institute of California

[10] More information on this statistic can be found on DWR's website here: Climate Change and Water

4. **Increased Frequency and Severity of Disasters** - Greater climate variability is expected to increase the frequency and intensity of extreme events, including prolonged droughts and major flood events. These conditions may disrupt water supply reliability, damage infrastructure, and increase operational and emergency response costs.

6.2 Specific Points to Consider

Out of prudence, as the District continues to address near-term periods of water deficiency from the SWP during this planning cycle, it also must incorporate the following climate change impacts projected by DWR in its long-term planning efforts and coordination with DWR and the SWC:

1. **Increased irrigation demand.** Rising temperatures and more variable precipitation patterns are expected to increase crop water demands.
2. **Shifts in cropping patterns.** Some acreage may transition from permanent crops to annual or more flexible crop types in response to changing water availability and economic conditions.
3. **Reduced flexibility due to permanent crops.** Permanent crops, which currently comprise the majority of acreage within the District, are long-term investments that are difficult to fallow or replace. This reduces the District's ability to adapt quickly to water supply variability and changing climatic conditions.
4. **Increased flood risk.** More intense storm events and warmer winter rainfall are expected to increase flood risk, potentially affecting water supply reliability and damaging State and local water conveyance infrastructure.
5. **Declining snowpack.** Continued warming is projected to significantly reduce Sierra Neva snowpack and cause earlier runoff, resulting in decreased SWP supplies and reduced water availability for snowpack-dependent sources.
6. **Delta vulnerability.** The Sacramento-San Joaquin River Delta is vulnerable to climate change impacts, particularly sea level rise. Higher sea levels may reduce the ability to export water using existing infrastructure, potentially decreasing water deliveries over time.

7. Water Use Efficiency Information

7.1 EWMP Implementation and Reporting

7.1.1 Critical EWMPs

(1) Water Measurement (Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).)

All turnout deliveries within the District are fully metered with propeller flowmeters which

register both instantaneous and totalized flows. Meters are repaired and/or replaced as necessary. The District staff can repair these meters when required.

The District maintains daily delivery records for each turnout being used and maintains records of daily water orders from the SWP. A grower's water use to date and remaining allocation is maintained by the District's comprehensive database system (Latis) that the District has used for nearly ten years. The system helps manage water orders, water use, water supply, water contract information, and water delivery system information.

Staff measure all flow meters located at turnouts along distribution laterals from the canals. The operations superintendent generates a monthly Water Transaction Report from Latis for Water Users to view. This report shows deliveries and any other water-related activity (i.e., transfers, exchanges, recharge, etc.) for water users to view.

The District's obligation to measure water deliveries ends at the meter. The Latis system is proving to be very effective in assisting staff manage and analyze a variety of water-related data with the goal of efficiently managing District water supplies.

BMWD's existing water measurement devices meet the ±12% accuracy standard, and replacement meters meet the ±5% accuracy standard.

In addition, the District is working on upgrading Latis to add features and functions that will improve staff collaboration across all internal team functions. Staff are actively working on this upgrade and will continue to do so throughout 2026 and beyond helping to further improve efficiencies, reduce redundancy, and improve landowner satisfaction.

This EWMP is being implemented at a satisfactory level.

(2) Volume-Based Pricing (Adopt a pricing structure for water customers based at least in part on quantity delivered.)

BMWD currently implements this EWMP, and will continue to implement it as follows:

Volumetric Rate Structure

BMWD's contracts with their landowners establish a fixed unit pricing (Volumetric Rate Structure - $/AF) payment structure for SWP water supplies. SWP fixed costs are charged on a contract basis (i.e. assuming that full contract amount is available in any year), while variable costs are based on volumetric ($/AF) deliveries. This methodology mirrors the payment structure which KCWA uses to charge its Member Units and which DWR uses to charge its contractors. Full costs (unsubsidized) are recovered for SWP water supplies. In addition, any supplemental water acquired by the District to meet landowner needs is charged on a per acre-foot basis (volumetric).

The District has implemented volume-based pricing and plans to continue that practice.

This EWMP is being implemented at a satisfactory level.

7.1.2 Conditional EWMPs

(1) Alternate Land Use (Facilitation of alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including problem drainage.)

BMWD will consider requests for alternative land uses. Marginal land that was uneconomical to farm (high water cost) was permanently retired and the water entitlement from the land was transferred to other agencies. BMWD has agreed to allow the transfer of water entitlements from low producing lands to more productive lands.

The District has also participated in groundwater banking facilities that use land in a different alternative manner. This allows the District to support landowners in dry years by augmenting limited SWP water supplies.

Permanent transfers of SWP Table A contract water have occurred within Kern County. Generally, KCWA does not object to transfers of SWP Table A contract water among Member Units.

This EWMP has been implemented and will continue to be implemented through the practices described in this section.

(2) Recycled Water Use (Facilitation of use of available recycled water that otherwise would not be used beneficially, meets health and safety criteria, and does not harm crops or soils.)

BMWD does not have access to any municipal recycled water sources.

A considerable amount of oilfield-waste water is produced from petroleum production in neighboring BWSD. This water generally contains high total dissolved solids (TDS) and high concentrations of other constituents of concern including boron and selenium. BMWD, in coordination with BWSD and other WWA entities, commissioned a brackish oil-field water reuse project to investigate the viability of developing a recycled water system for the District. Unfortunately, the cost associated with treating this water to a quality acceptable for agriculture is prohibitive at this time. Adequate funds are currently not available, and are not expected to become available, for this EWMP to be locally cost-effective or technically feasible during the term of the AWMP. The District may reconsider this EWMP if grant funding (such as that made available via Proposition 4[11]), additional project partners, and/or treatment technology advancements improve the economic viability of the project.

[11] More information on Proposition 4 can be found at the Legislative Analyst's Office website: The 2025-26 California Spending Plan: Proposition 4

This EWMP is being implemented at a satisfactory level.

(3) On-Farm Irrigation Capital Improvements (Facilitate financing of capital improvements for on-farm irrigation systems)

BMWD is a progressive district and along with its landowners already have implemented the best available technology for conveying water to crops. The District could help farmers secure financing of new irrigation systems from a lending institution; however, most are already efficient in applying water to their fields. However, as a result of high water costs and reduced SWP supplies, District landowners have already invested millions of dollars installing and managing state of the art micro-irrigation systems at the highest attainable efficiency on all the permanent crop acreage in the District, which accounts for >99% of the irrigated land in the District.

This EWMP is being implemented at a satisfactory level.

(4) Incentive Pricing Structure (Implement an incentive pricing structure that promotes one or more of the following goals: A. "More efficient water use at the farm level such that it reduces waste"; B. "Conjunctive use of groundwater"; D. "Reduction in problem drainage".)

To provide water to its agricultural and industrial water users in an efficient and cost-effective manner, the District has a Policy for the Exchange and Transfer of Water, which it often revisits at routine board meetings to elicit feedback and best serve landowners. The purpose of the policy is to facilitate and encourage water marketing and transfers among District landowners to provide water users with the highest economic value for the water they receive via entitlement, while protecting the District as a whole from adverse impacts of potential water deals.

To this end, water marketing, transfers and exchanges offer an opportunity to achieve both the reliability of the water supply and costs at levels economically viable for District water users. For example, through water transfers and/or exchanges, row crop farmers may release their water entitlement in dry years to permanent crop needs.

In addition, the District utilizes groundwater banking projects as mentioned to provide flexibility to its water users.

This EWMP has been implemented and will be continued with current practices.

(5) Infrastructure Improvements (Expand line or pipe distribution systems, construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage)

BMWD's entire main canal is concrete lined. The entire District has lined canal or pipelines and utilized regulation reservoirs. Within the past year, operations staff improved the

Afterbay reservoir by removing sediment and lining the reservoir.

The District performed pond drop tests to determine the amount of seepage from the unlined reservoirs. The results indicated that the reservoir bottoms have sealed up because of the silts and clays deposited over time.

In addition, the District has seen a number of improvements to infrastructure over the past 5 years, including, but not limited to:

- Pump Station A penstock repair
- Still Reservoir sediment removal
- Pipeline repairs on the Coastal, Tieline, and Mendiburu pipelines
- Flowmeter replacements for active turnouts
- Canal structure and gate rehabilitation work at multiple locations
- Traveling screen replacement and rehabilitation work at multiple locations

This EWMP has been implemented at a satisfactory level.

(6) Order/Delivery Flexibility (Increase flexibility in water ordering by, and delivered to, water customers within operational limits)

BMWD already has flexibility in water ordering and delivery. Most water orders and deliveries are based on an arranged demand system where the frequency and duration is flexible. The rate of flow is flexible to the extent that the delivery system allows. The storage capacities inherent in the Afterbay Reservoir, Coastal Aqueduct as well as the California Aqueduct allow BMWD to provide significant flexibility in water ordering and delivery.

As stated in previously, the Afterbay Reservoir storage provides freedom to some landowners, within the scope of the District rules and regulations, to operate their own turnouts thus giving flexibility to the landowner.

The Afterbay Reservoir also provides the District enough capacity to curtail pumping during the peak energy period (five to eight), to minimize pumping costs and energy bills. If demands increase, BMWD is interested in additional regulation storage to expand load-shifting capability.

In 2003, the Dudley Ridge Water District (DRWD), with State grant funding and BMWD's cooperation, performed a reservoir feasibility study and found a prime location for a surface reservoir just upstream of Pump Station A, and near the terminus of the Coastal Aqueduct. BMWD had previously considered this property for potential storage given the area's topography and surveyed the site in 2001. DRWD and BMWD have discussed the project with Central Coastal Water Authority (CCWA) (given their proximity to the reservoir) and KCWA. If built, BMWD believes this reservoir (Forebay Reservoir) could bring tremendous benefits to the District, CCWA and KCWA. The Forebay Reservoir could be

utilized to store available excess water such as Article 21 and carryover water, additional regulation storage (for operational variations and off-peak pumping curtailment), water quality enhancement, emergency storage, watershed runoff, and other more complex scenarios.

Currently, adequate funds (including funds from other beneficiaries of the AWMP) are not available, and cannot reasonably be expected to be made available, for implementation of the EWMP during the term of the AWMP.

This EWMP has been implemented at a satisfactory level and will continue to be implemented by continuing the practices discussed in this section.

(7) Supplier Spill and Tailwater Systems (Construct and operate supplier spill and tail-water systems)

Except in case of emergencies, BMWD does not experience operational spills from their main canal. Daily deliveries are matched with the ordered demand, utilizing the manual gate at the main canal headworks. In the worst case, such a spill may be gravity fed back into the distribution system for beneficial use.

A Net Benefit Analysis performed in the 2015 AWMP (Exhibit E) showed the implementation of the EWMP would not provide any significant financial benefits.

This EWMP has been implemented and will continue to be implemented with current practices.

(8) Conjunctive Use (Increase planned conjunctive use of surface water and groundwater with the supplier service area)

BMWD currently has an active conjunctive use program through groundwater banking occurring in the Pioneer Project and Berrenda Mesa Spreading Grounds within the Kern River alluvial fan. In dry years, the District can recover significant quantities of banked water (excluding capacity in the Kern Water Bank) to supplement SWP shortages.

The District has practiced conjunctive use of water for many years. Since the majority of crops planted are permanent, demand within BMWD remains relatively constant from year to year. In dry years, when supplies from the SWP are low, supply deficits are augmented with banked supplies and/or through purchases and transfers.

This EWMP has been implemented at a satisfactory level and will continue to be implemented by the practices described in this section.

(9) Automated Canal Controls (Automate canal control devices)

As the water is lifted from Pump Station A, it is discharged into the Afterbay canal, which

leads into the Afterbay reservoir. Between the Afterbay reservoir and the main canal there is a canal gate that isolates the reservoir and canal. Just downstream of this gate is a canal gate that sets the flow delivered into the canal. This canal gate is manually operated to match the desired deliveries for each day. Each revolution on the handle constitutes an appropriate flow rate. This main canal gate has been operational since its construction in 1963, and the District automated it using SCADA telemetry under the prior AWMP. This was the most important gate to automate, as it regulates flows for the entire distribution system.

All gates downstream from the canal headworks are manually operated. Each revolution on the handle constitutes an appropriate flow rate. Each gate's calibration is different from one another. The District has been getting quotes from automated gates companies to replace the manual gates and evaluating benefits versus costs.

The benefits of automating the gates are very difficult to quantify. In theory, yields could increase due to a flexible supply. However, this increase is likely very small. From a manpower perspective, automated gates would eliminate the need to manually change gate openings. The current canal fluctuations during operations could result in water losses on farms due to changing flow rates, but this loss is likely small and difficult to quantify.

The benefit to cost ratio for replacing manually operated gates with automated gates has thus far been difficult to quantify. The District will continue to explore whether there are cost effective canal gate automation alternatives, and seek funding if alternatives are cost effective.

This EWMP has previously been implemented at a satisfactory level.

(10) Customer Pump Test/Evaluation (Facilitate or promote customer pump testing and evaluation)

The District encourages the proper maintenance and operation of wells, pumps and other landowner owned equipment.

Customers do have many booster pumps on pressurized irrigation systems supplied with power by Pacific Gas and Electric (PG&E). In the past, the District has encouraged landowners to receive subsidized pump tests through programs such as Fresno State's Advanced Pumping Efficiency Program (APEP).

The District will implement this EWMP by continuing to encourage landowners to properly maintain their wells. The District will advertise any new programs that are developed to assist landowners with pump test subsidies, such as it did in the past with the APEP.

(11) Water Conservation Coordinator (Designate a water conservation coordinator)

BMWD has designated the General Manager of the Westside Water Authority as water conservation coordinator for the purposes of the Memorandum of Understanding for Agricultural Water Suppliers, and this AWMP.

Justin Rowe
Westside Water Authority
Berrenda Mesa Water District

8501 Brimhall Road, STE 202
Bakersfield, CA 93312
Email: jrowe@westsidewa.org
Office: (661) 633-9022
Fax: (661) 633-9026

BMWD considers that it has adequately implemented this EWMP and will continue to implement it with Justin Rowe serving as water conservation coordinator.

(12) Water Management Services to Customers (Provide for the availability of water management services to water users)

On-farm irrigation and drainage system evaluations
BMWD has historically contributed to the North West Kern Resource Conservation District's (NWKRCD), formerly the Pond-Shafter-Wasco Resource Conservation District's (PSWRCD) Mobile Lab program, contributing at least ~$5,000 annually to the program. This contribution supports the cost to perform numerous irrigation evaluations per year. This program is designed to evaluate irrigation systems on-farm, offering recommendations to improve distribution uniformity and overall system improvements. BMWD will cooperate with NWKRCD to perform system evaluations in their District.

Many of the District's landowners already perform system evaluations in-house, along with irrigation scheduling and other management techniques for water conservation. Other landowners, if interested, would be guided to the NWKRCD or an equivalent agency.

This EWMP has been implemented at a satisfactory level and will continue to be implemented through support of NWKRCD activities.

Agricultural water management educational programs and materials for farmers, staff, and the public
KCWA has conducted an in-school water education program for 15 years. The program has been approved by Kern County's Superintendent of Schools as meeting classroom science and history criteria. This program targets children in grades 1-6.

BMWD individually contributes and/or pays annual dues to the following organizations that

target water awareness both locally and State-wide:

- Water Education Foundation
- Water Association of Kern County

This EWMP has been implemented at a satisfactory level and will continue to implement it through activities described in this section.

(13) Identify Institutional Changes (Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional change to allow more flexible water deliveries and storage)

As previously noted, the District is nearly entirely dependent on the State Water Project (SWP) for its water supply. The SWP has historically been, and is expected to continue to be, subject to delivery deficiencies. As environmental and urban water demands continue to increase, the reliability of the SWP decreases for all SWP contractors. Delivery deficiencies are related to both the reduced quantity of water available and the increased frequency that shortages are imposed. The District continues to look at ways to further stabilize, or firm up, the reliability of the water supply so that production agriculture can continue to flourish in the District.

One method of stabilizing the water supply that the District has initiated is groundwater banking. The District participates in the following groundwater banking/recovery programs:

- KCWA Pioneer Project
- Berrenda Mesa Spreading Grounds

BMWD has initiated and will continue efforts to develop programs with other agencies that would alleviate the aforementioned problems regarding water supply stability.

In addition, as shown below, this EWMP has previously been implemented at a satisfactory level with the following practices, which will be continued:

Regular District Meetings

BMWD holds monthly meetings and distributes a meeting notice to each landowner.

Other Meetings

In addition to the monthly meetings, other meetings include:

- The District manager also attends monthly KCWA Member Unit Managers meetings, to discuss topics and issues.
- The General Manager, Legal Counsel, Key District Personnel and/or Board Members attend the semi-annual ACWA conferences.
- The District also holds meetings to discuss policies on an as needed basis.

- Any meeting (monthly, policy, others) can be translated for farmers that wish to hear information in Spanish.

BMWD Website
BMWD has a website and staff will be updating it as needed. The web address is http://www.bmwd.org/

Links to KCWA and DWR
Contractually, the only institution to which BMWD is subject to is the KCWA. Similarly, contractually, the only institution to which KCWA is subject to is DWR. Nevertheless, policy differences arise nearly every year with respect to water supply and operations of the SWP. Generally, as policy issues arise, they are discussed among the State Water Contractors, Inc. (SWC), a non-profit organization of SWP contractors. Once agreement is reached by the SWC as a whole then DWR is engaged to seek changes in the subject policies.

SWC holds an annual retreat at which DWR and Contractor policies and issues are reviewed in depth. DWR management staff are invited to these retreats and participate in the discussions. This has been a valuable forum for resolution of issues.

BMWD, along with KCWA, considers the existing arrangement for resolution of policy issues to be successful. DWR and SWC policies are discussed and resolved as they arise, leading to a dynamic resolution process.

This EWMP will continue to be implemented by continuing current practices.

(14) Supplier Pump Improved Efficiency (Evaluate and improve the efficiencies of the supplier's pumps)

In 2001 and 2010, BMWD utilized State grant and PG&E rebates to assist in funding pump efficiency tests on all District-owned pumps and repair of selected pumps. The District intends to keep testing pumps periodically to ensure that these units are operating at peak efficiency. Pumps with low efficiencies will be re-evaluated to determine if newer more efficient units would replace existing less efficient units.

The District has sensors in Pump Station "A" for remote control utilizing the SCADA system. BMWD is currently migrating from a legacy SCADA platform to a modernized technology system designed to improve operational stability, enhance real-time monitoring and control, and strengthen data collection and reporting capabilities. The upgraded system supports distributed communications, localized operational continuity, and integrated metering technologies to ensure accurate water delivery and accountability.

This EWMP has been implemented at a satisfactory level and will be continued as described in this section.

7.2 Summary of EWMP Implementation

Table 17 summarizes the EWMPs implemented and planned and **Table 18** includes estimates of Water Use Efficiency (WUE) Improvements that occurred since adoption of the prior Water Management Plan. In most cases data was not available to allow quantification and the prior Plan's water balance calculations indicated very high overall District WUE had been attained by 2020, with little room for improvement.

The schedule of future and current EWMPs for implementation is highlighted in **Table 19.** Given the District's current WUE estimate of nearly 91%, little improvement is expected over the next 5-10 years. Rather, maintenance of high WUE is the expectation.

Table 17. Report of EWMPs Implemented/Planned (Water Code §10608.48(d), §10608.48 (e), and §10826 (e))

EWMP No.*	Description of EWMP Implemented	Description of EWMPs Planned
Critical EWMPs		
1	Water Measurement	Continue current practices
2	Volume-Based Pricing	Continue current practices
Conditionally Required EWMPs (locally cost-effective and technically feasible EWMPs)		
1	Alternate Land Use	Continue current practices
2	Recycled Water Use	No plans to implement but will continue to evaluate
3	On-Farm Irrigation Capital Improvements	Continue current practices
4	Incentive Pricing Structure	Continue current practices
5	Infrastructure Improvements	No further improvements planned
6	Order/Delivery Flexibility	Continue current practices
7	Supplier Spill and Tailwater Systems	Operate current systems. No plans for further improvements
8	Conjunctive Use	Continue current practices
9	Automated Canal Controls	No further plans to automate
10	Customer Pump Test/Eval.	Continue current practices
11	Water Conservation Coordinator	Continue current practices
12	Water Management Services to Customers	Continue current practices
13	Identify Institutional Changes	Continue current practices
14	Supplier Pump Improved Efficiency	Continue current practices
Other Optional EWMPs (as applicable)		

Notes:
**EWMP numbers correspond to (Water Code §10608.48(c)*

Table 18. Report of EWMPs Efficiency Improvements (Water Code §10608.48(d), §10608.48 (e), and §10826 (e))			
Corresponding EWMP No.(s)*	**EWMP**	**Estimate of Water Use Efficiency Improvements That Occurred Since Last Report** ***(Quantitative or Descriptive)***	**Estimated Water Use Efficiency Improvements 5 and 10 years in future** ***(Quantitative or Descriptive)***
Critical 1	Water Measurement	No data available to estimate	0%
Critical 2	Volume-Based Pricing	No data available to estimate	0%
Conditional 1	Alternate Land Use	No data available to estimate	0%
Conditional 2	Recycled Water Use	No data available to estimate	0%
Conditional 3	On-Farm Irrigation Capital Improvements	No data available to estimate	0%
Conditional 4	Incentive Pricing Structure	No data available to estimate	No data available to estimate
Conditional 5	Infrastructure Improvements	No data available to estimate	No data available to estimate
Conditional 6	Order/Delivery Flexibility	No data available to estimate	0%
Conditional 7	Supplier Spill and Tailwater Systems	No data available to estimate	0%
Conditional 8	Conjunctive Use	No data available to estimate	0%
Conditional 9	Automated Canal Controls	No data available to estimate	No data available to estimate
Conditional 10	Customer Pump Test/Eval.	Not applicable (new EWMP)	No data available to estimate
Conditional 11	Water Conservation Coordinator	No data available to estimate	0%
Conditional 12	Water Management Services to Customers	No data available to estimate	No data available to estimate
Conditional 13	Identify Institutional Changes	No data available to estimate	No data available to estimate
Conditional 14	Supplier Pump Improved Efficiency	No data available to estimate	No data available to estimate
Notes: **EWMP numbers correspond to (Water Code §10608.48(c).*			

Table 19. Schedule to Implement EWMPs (Water Code §10608.56 (d))			
EWMP	**Implementation Schedule**	**Finance Plan**	**Budget Allotment**
Critical			
1. Water Measurement	NA	NA	(1)
2. Volume-Based Pricing	NA	NA	(1)
Conditional			
1. Alternate Land Use	Continue as necessary	NA	
2. Recycled Water Use	NA	NA	
3. On-Farm Irrigation Capital Improvements	NA	NA	
4. Incentive Pricing Structure	NA	NA	(1)
5. Infrastructure Improvements	Continue as necessary	NA	(1,2)
6. Order/Delivery Flexibility	NA	NA	(1)
7. Supplier Spill and Tailwater Systems	NA	NA	
8. Conjunctive Use	Continue groundwater banking program as necessary	NA	(1)
9. Automated Canal Controls	Continue over the next 5-year period	NA	(1,2)
10. Customer Pump Test/Evaluation	NA	NA	
11. Water Conservation Coordinator	NA	NA	(1)
12. Water Management Services to Customers	NA	NA	(1)
13. Identify Institutional Changes	NA	NA	(1)
14. Supplier Pump Improved Efficiency	NA	NA	(1)
Grand Total all EWMPs			

NA = Not Applicable
(1) Budget allocation within District's operation budget
(2) Budget allocation can benefit from grant funding and partnering opportunities

7.3 Documentation for non-implemented EWMPs

The District has considered but rejected two conditional EWMPs. The remainder have either been previously implemented, are continuing to be implemented, or will be implemented. Non-implemented EWMP justification/documentation was described previously and is summarized in **Table 20.**

Table 20. Non-Implemented EWMP Documentation (Water Code §10608.48(d), §10608.48 (e), and §10826 (e))				
		(check one or both)		
EWMP #	**Description**	**Technically Infeasible**	**Not Locally Cost-Effective**	**Justification/Documentation***
2	Recycled Water Use	x	x	Salinity of industrial wastewater exceeds safe re-use limit and treatment is cost prohibitive for customers at this time.
3	On Farm Irrigation Capital Improvements	x		Current on-farm efficiencies (>95%). Any further improvement unlikely with current technology.
Notes: **Justification/Documentation can include summary cost-benefit analysis or engineering determination with reference to the specific study/agency/engineer responsible for making that determination.*				

8. Supporting Documentation

8.1 Agricultural Water Measurement Regulation Documentation

The District receives its water deliveries through eight DWR turnouts off of the California Aqueduct. These turnouts have meters which record instantaneous flow rates as well as total quantities delivered. The duration and flow rates for all deliveries are scheduled in advance so that DWR can coordinate water flows to the District.

In addition to the DWR metered turnouts, all in-District deliveries are metered daily during use at individual Water User turnouts. These Water User meters are located at turnouts throughout the District. These turnouts include meter facilities that were originally designed by District consulting engineers who also oversaw construction of the facilities. District Water Users also schedule their deliveries (duration and flow rates) in advance so the District can accurately schedule deliveries from DWR.

District System Operators measure deliveries to individual turnouts daily when they are operating. The System Operators know the requested flow rate at various turnouts as well as the normal flow rate. If there is any variance in these rates or if there is any problem with the meter the O&M Superintendent is immediately notified and repair work is scheduled. The District primarily uses McCrometer flow meters and District maintenance staff have received training at McCrometer's facility. Replacement meters are purchased from McCrometer and include a Certified Test Report (**Appendix E**).

District staff compares DWR daily flow rates and deliveries with the sum of individual in-District flow rates and deliveries as another check of meter accuracy. This process enables District staff to document meter accuracy daily and to quickly identify variances and schedule repairs. In addition, DWR total monthly deliveries are compared to the sum of

individual in-District deliveries as another check of meter accuracy. During 2012 the sum of individual in-District meters was within about 1% of DWR meter readings.

8.1.1 Legal Certification and Apportionment Required for Water Measurement

Legal certification is not applicable.

8.1.2 Engineer Certification and Apportionment Required for Water Measurement

An engineer's certification is not provided because BMWD's water measurement practices as described above demonstrate compliance with accuracy standards.

8.1.3 Description of Water Measurement Best Professional Practices

Best Professional Practices refer to:

- Collection of water measurement data: Conducted by staff members trained and supervised by the superintendent.
- Frequency of measurements: Daily while in use. All meters read monthly at a minimum.
- Method for determining irrigated acres: Determined via satellite imagery or provided by landowners.
- Quality control and quality assurance procedures:
  - Cross check daily flowrate versus customer order. Sum all turnout reading monthly. Investigate and attempt to correct identified differences.
  - Sum all running meters daily and compare versus DWR meters by Service Area. Investigate and attempt to correct identified differences. Repair all meters found not functioning properly per manufacturer's recommendations.

All the turnout deliveries within the District are fully metered with propeller flowmeters which register both instantaneous and totalized flows.

The District maintains daily delivery records for each turnout being used and maintains records of daily water orders from the SWP. A grower's water use to date and remaining allocation is maintained by the District's comprehensive database system (Latis). The system helps manage water orders, water use, water supply, water contract information, and water delivery system information.

8.1.4 Documentation of Water Measurement Conversion to Volume

All flowmeters used by BMWD register both instantaneous and totalized flows (volume accrued during a period of time).

8.1.5 Device Corrective Action Plan Required for Water Measurement

BMWD is confident its existing water measurement devices meet the ±12% accuracy standard, and replacement meters meet the ±6% accuracy standard. No corrective actions

are planned.

8.2 Other Documents (as applicable)

Tables and appendices have been included as needed to support this AWMP document. Additional tables and appendices provide complementary information where needed.

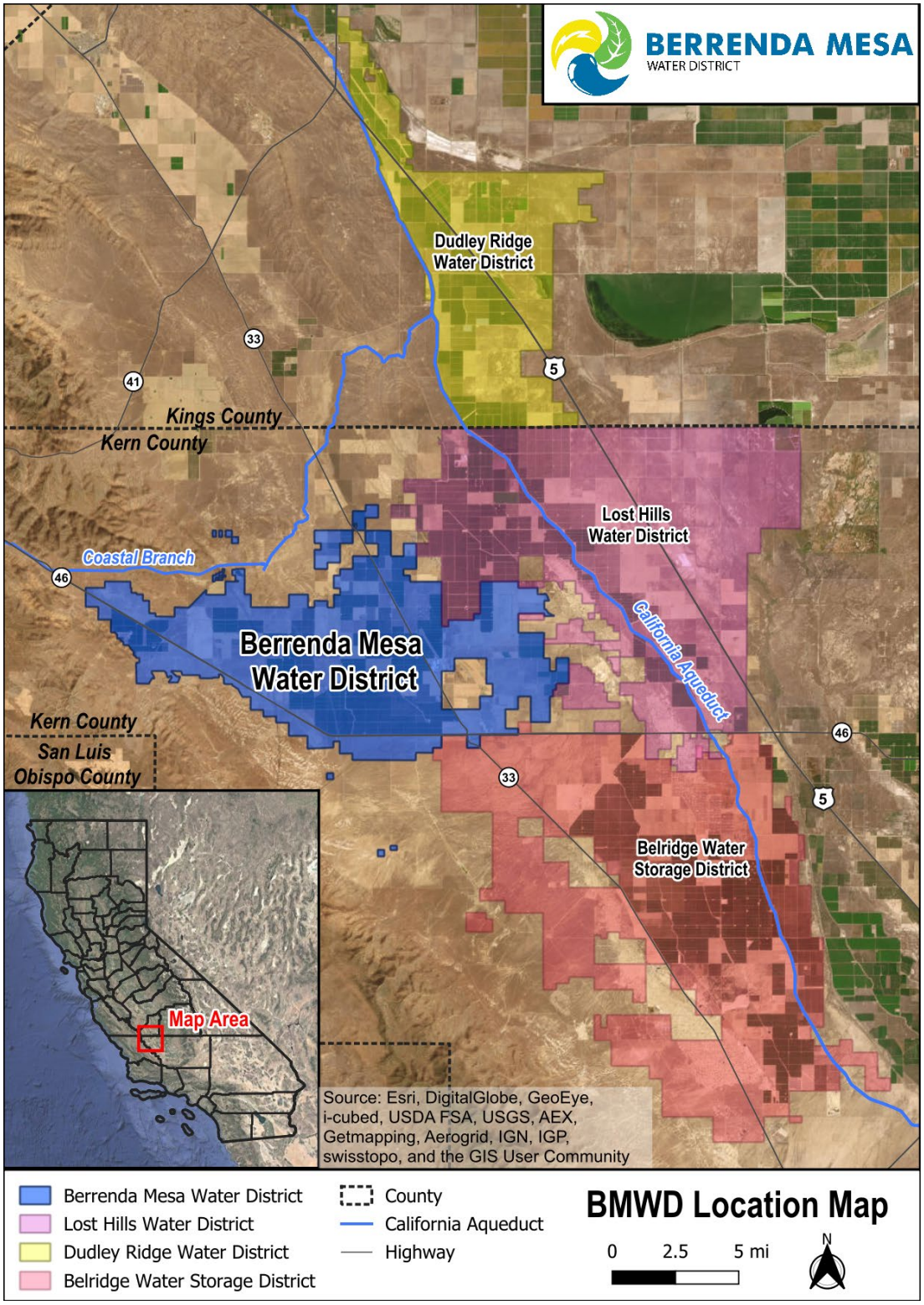

Figure 1. Map of BMWD and adjacent water districts.

Figure 2. Overview of SWP facilities throughout California.

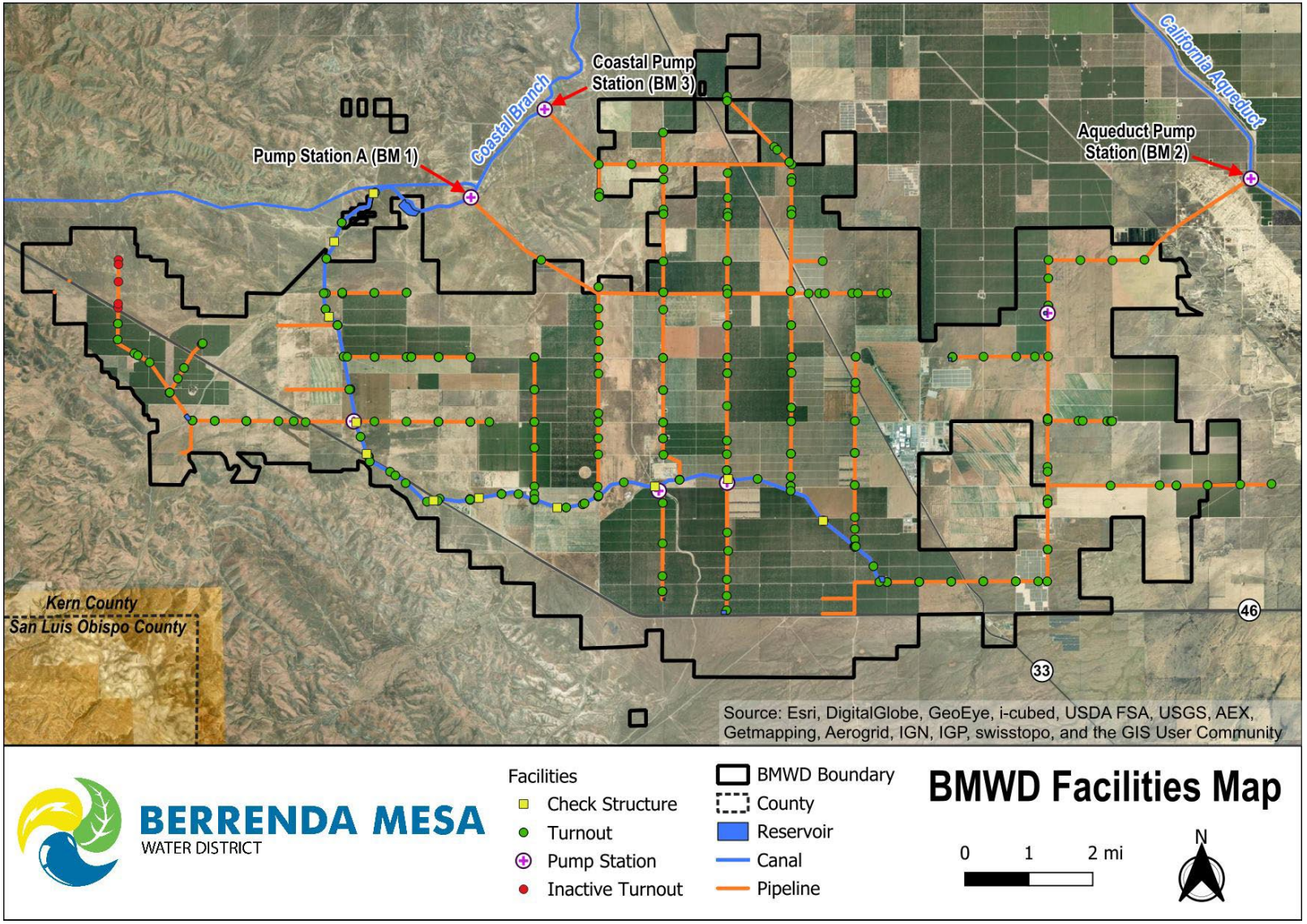

Figure 3. Map of BMWD's facilities.

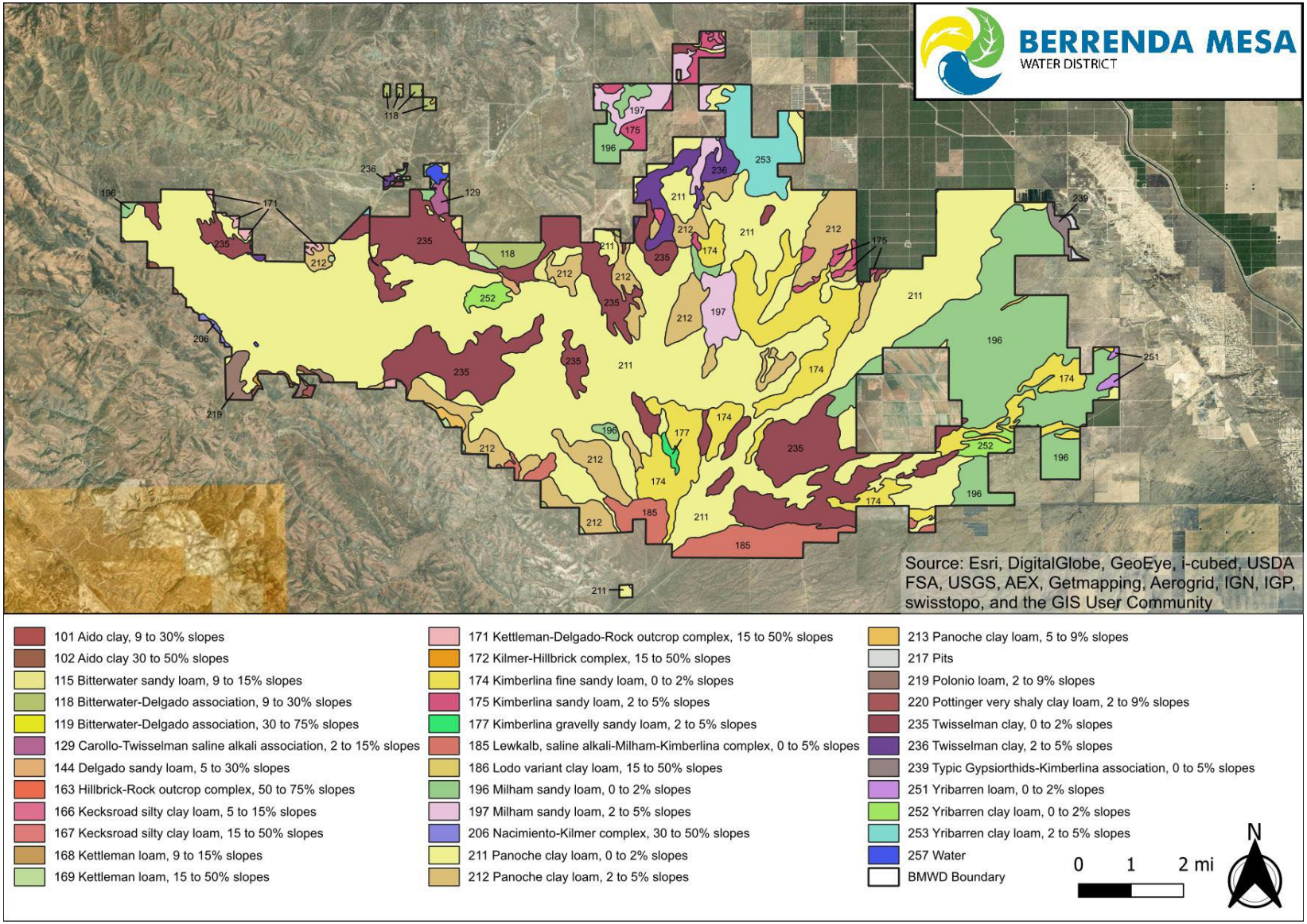

Figure 4. Map of soil types within BMWD.

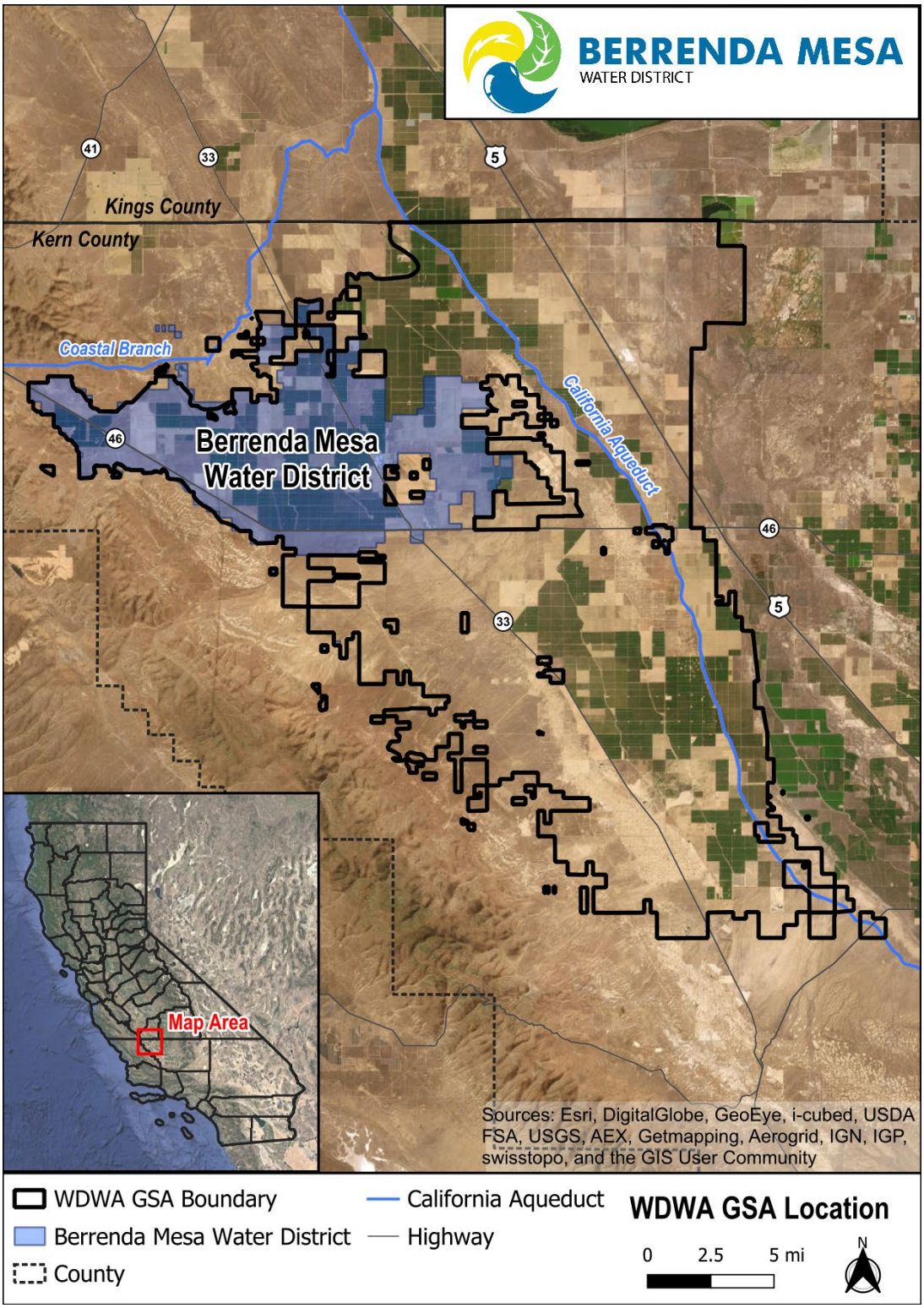

Figure 5. Map of BMWD located within WDWA GSA.

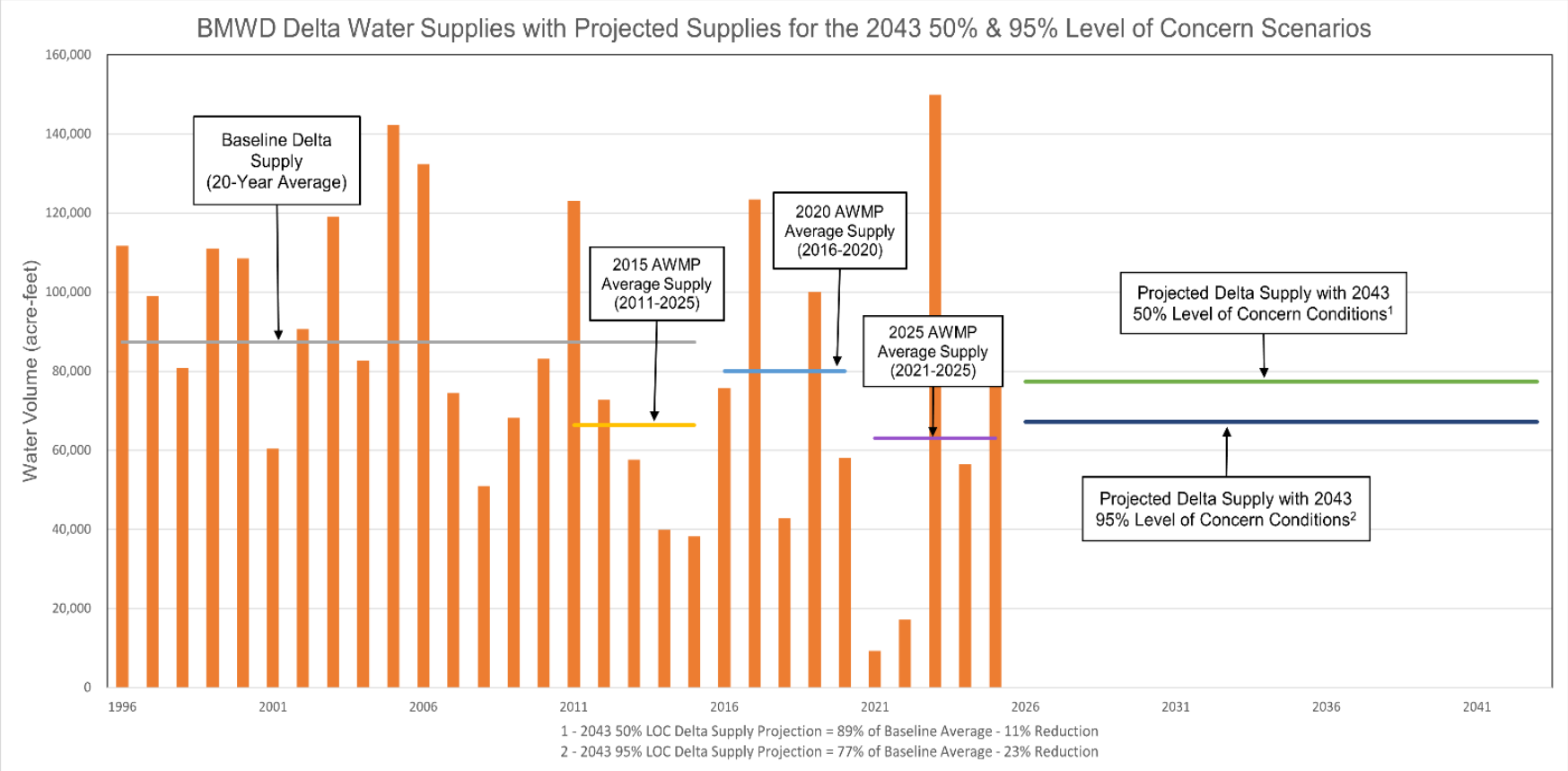

Figure 6. BMWD delta water supplies for the 2043 50% & 95% Level of Concern scenarios.

Appendix A: Email with an attached Notice of Preparation sent to relevant Agencies listed in Table 1 on February 20th, 2026

Good afternoon,

Please be advised that the Berrenda Mesa Water District has prepared a draft of its 2025 Agricultural Water Management Plan (the "Plan"). Any person wishing to review a copy of the Plan may request a copy by contacting Trevor Maggart, Senior Regulatory Specialist, at (661) 633-9022.

The District will hold a public hearing regarding the Plan at its regularly scheduled Board meeting located at 14823 CA-33, Lost Hills, CA 93249 on March 12, 2026, at 8:30 a.m. After the hearing, the District may adopt the Plan as presented or modified to reflect public comment.

In addition, please find attached the notice of preparation to be posted in the Bakersfield Californian for two consecutive weeks on February 20, 2026 and February 27, 2026.

Respectfully,

Trevor Maggart
Senior Regulatory Specialist

Appendix B: Notice of Preparation published in the Bakersfield Californian on February 20th, 2026 and sent to relevant agencies

NOTICE OF PREPARATION OF AND HEARING ON

BERRENDA MESA WATER DISTRICT

2025 AGRICULTURAL WATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that Berrenda Mesa Water District's (the "District") proposed 2025 Agricultural Water Management Plan (the "Plan"), prepared pursuant to Water Code, section 10820 et. seq., is available for public review and comment.

Any person who desires to review the Plan may request a copy by contacting Trevor Maggart, Senior Regulatory Specialist, at (661) 633-9022. In addition, the District will hold a public hearing regarding the Plan as part of its regularly scheduled Board meeting located at 14823 CA-33, Lost Hills, CA 93249 on March 12, 2026 at 8:30 a.m. After the hearing, the District may adopt the Plan as presented or modified to reflect public comment.

Trevor Maggart, Senior Regulatory Specialist
Berrenda Mesa Water District

Appendix C: Resolution of the Plan adoption by the Board on March 12, 2026

BERRENDA MESA WATER DISTRICT

RESOLUTION 716

A RESOLUTION OF THE BOARD OF DIRECTORS OF BERRENDA MESA WATER DISTRICT ADOPTING THE 2025 UPDATE TO THE AGRICULTURAL WATER MANAGEMENT PLAN

WHEREAS, pursuant to the Agricultural Water Management Planning Act and the Water Conservation Act of 2009, agricultural water suppliers, such as the Berrenda Mesa Water District (the "District"), were required to prepare and adopt an Agricultural Water Management Plan by December 31, 2012; and

WHEREAS, the District prepared and adopted its original Agricultural Water Management Plan (the "Plan") on April 4th, 2013; and

WHEREAS, agricultural water suppliers are required to update their respective Agricultural Water Management Plans every five years; and

WHEREAS, the District updated its original Plan and adopted its 2015 Plan Update on December 3rd, 2015; and

WHEREAS, the District subsequently updated its 2015 Plan Update and adopted its 2020 Plan Update on April 8th, 2021; and

WHEREAS, the District must now update its 2020 Plan Update, adopt a 2025 Plan Update, and submit such updated plan to the California Department of Water Resources within 30 days of adoption; and

WHEREAS, the District's proposed 2025 Plan Update is attached hereto and incorporated herein as Exhibit A; and

WHEREAS, in preparing its 2025 Plan Update, the District scheduled and held a public hearing on March 12th, 2026, to provide the public with an opportunity to offer comments to the District's Board of Directors on the proposed 2025 Plan Update; and

WHEREAS, the District provided notice of such public hearing as follows:

1. By publishing notice in the Bakersfield Californian on February 20th, 2026, and February 27th, 2026.

2. By posting a notice in a freely accessible location at the District's Bakersfield office located at 8501 Brimhall Road, Suite 202, Bakersfield, CA 93312 on February 20th, 2026.

3. By sending notices to local government agencies and other interested parties.

WHEREAS, the Board reviewed and considered all public comments received and incorporated those comments into the 2025 Plan Update, as deemed appropriate by the Board; and

WHEREAS, the Board reviewed the 2025 Plan Update and considers its adoption to be in the best interest of the District and its landowners.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Berrenda Mesa Water District as follows:

1. The Board of Directors of the Berrenda Mesa Water District hereby adopt the 2025 Plan Update.

2. The General Manager, or designee, is hereby authorized and directed to prepare and submit the approved 2025 Update to the Agricultural Water Management Plan to the California Department of Water Resources.

_____

Rob Goff, Board President

Appendix D: Rules and Regulations for the Distribution and Use of Water

BERRENDA MESA WATER DISTRICT
OPERATING RULES AND REGULATIONS

Revised April 5, 2000

BERRENDA MESA WATER DISTRICT
OPERATING RULES AND REGULATIONS

Revised April 5, 2000

BERRENDA MESA WATER DISTRICT

OPERATING RULES AND REGULATIONS

It is the policy of the Board of Directors of the Berrenda Mesa Water District to make every effort to satisfy the water requirements of each and every landowner within the District, in a fair and equitable manner. In order to carry out this policy, it is necessary that certain rules and regulations be adopted to control the distribution and sales of water to all of the District's landowners.

1. **Ordering Project Water**

   a. Applications: In order to receive project water for any given year, a landowner must submit an application to the District for an annual water supply on fully completed forms, to be provided by the District, no later than September 1 of the preceding year. After reviewing all landowner applications for water, the District will make an allocation to each landowner showing: a) the total amount of water that he may take during the given year; b) the amount of water that he may take during any given month of the peak season; and c) the maximum pumping rate at which he may take delivery of water during the peak season months of June, July, and August if there is limited peaking capacity available. Other details of the method of allocation and the payment requirements for project water are included in the District's policy Resolution No. 612, copies of which are available at the District Administrative Office.

Landowners may submit water applications after the September 1 cut-off date, however, an allocation will be made to fill the late order only after satisfying all water requests submitted prior to September 1. Any additional allocation shall be paid for in full before delivery.

b. Weekly Orders: Water users will be required to submit a weekly water order showing the delivery rate for water, in c.f.s., required at each of the users' turnouts for each day of the week from Friday to Friday. This order shall be made on forms provided by the District and delivered or faxed to the District Operations and Maintenance Center by 2:00 p.m., each Tuesday. All water orders shall be for continuous, uniform flow for a minimum of 24 hours unless special arrangements can be made with the District's Dispatcher or System Operator. Special arrangements will only be made to meet extremely difficult or emergency conditions and must be approved by the District's Dispatcher or System Operator.

c. Change Orders: Any changes to the weekly water order must be requested 48 hours in advance of the desired change. Change orders must be delivered or faxed to the Operations and Maintenance Center during normal working hours (6:30 a.m. to 3:00 p.m.), Monday through Friday. In the event of an emergency change order, after hours and on weekends, the District's System Operator (Radio Call Sign #111) must be contacted by radio or telephone to explain the emergency change followed by a written request for the change order delivered to the District Mail Box or faxed to the District's Operations and Maintenance Center. All changes

must have the approval of the District's Dispatcher or System Operator before becoming effective.

2. **Authority of the District Superintendent and Employees**

   a. Superintendent. Under the general supervision of the District Manager. The Operation and Maintenance of the District's distribution system is under the management and control of the Superintendent of the District. No other person except the Superintendent or his designee shall operate any of the facilities of the distribution system.

   b. District Employees. The Superintendent shall supervise the activities of all District field employees in connection with the operation and maintenance of the distribution system. The authority of all the employees of the District, including the Superintendent, shall be designated by the Manager, and any controversy between a water user and a District employee that cannot be settled directly or by the Superintendent, shall be appealed to the District Manager. In the event the Manager is unable to reach a satisfactory decision, an appeal may be made to the Board of Directors. The decision of the Board of Directors shall be final.

3. **Turn-Ons and Turn-Offs.**

   All water turn-ons and turn-offs will be made between 6:00 a.m. and 8:00 a.m. on the date specified in the weekly water order. Changes at turnouts at other times will only be permitted in an emergency or by prior approval of the District's Dispatcher or System Operator.

Water users may operate their own turnout valves after first receiving instructions from the Superintendent on the proper operation of the valves. It is extremely important that valves be operated slowly to avoid pipe damage. The privilege of operating turnouts will be withdrawn from any water user who: Makes unauthorized turn-ons or turn-offs; sets the delivery rate at turnouts different from that approved by the dispatcher or System Operator; or makes changes, turn-ons or turn-offs, at times other than specified in these regulations. Improper operation of turnouts will result in the turnout being locked and operated only by District personnel. Water users should notify the District as soon as possible of any malfunctions of the District's valves or meters at the turnouts so that repairs may be made. Emergency turn-offs of water deliveries in excess of two hours will remain off until the following morning when normal turnout changes are made.

Change in schedules for chemical application on the various crops or other normal field operations does not constitute an emergency for which an emergency turn-on or turn-off will be approved. If it is necessary to make late changes in water orders due to changes in farming activities, water is to be rescheduled for another turn-out on the same lateral. The District Dispatcher or System Operator is to be notified of any late changes required due to changes in farming activities.

4. **Contacting the District**

During normal working hours, Monday-Friday, 6:30 a.m. to 3:00 p.m., District operating personnel may be contacted by telephone at (661) 797-2671. At other than normal hours, the District System operator can be reached on a mobile phone by

calling (661) 747-5984, or calling (661) 797-2671 and leaving a message on the answering machine.

Two-way radios are located within the District for the convenience of water users in contacting District personnel. Locations of the radio stations are:

1. Booster Pumping Plant
2. Paramount Farming Headquarters Office
3. Canal Terminal Reservoir
4. Blackwell Land Company Office

The radio call numbers for key District personnel are:

109 Superintendent

106 Dispatcher

111 System Operator

The District Operations personnel may also be contacted by Fax at (661) 797-2849.

The System Operator generally will patrol the canal and Pumping Plants between the hours of 6:00 a.m. to 8:00 a.m., 11:00 a.m. to 1:00 p.m., 3:00 p.m. to 5:00 p.m., 7:00p.m. to 9:00 p.m., 11:00 p.m. to 1:00 a.m., and 3:00 a.m. to 5:00 a.m.

An emergency notification list is attached to these regulations for use in contacting District personnel during normal off duty hours.

5. **Limitation of Turnout Capacity**

All turnouts are designed to serve 160 acres at a flow rate of two and one-half cubic feet per second or eleven hundred and twenty-five gallons per minute at a minimum head of five feet. The system is not designed to serve all lands along a lateral simultaneously. The lateral turnouts will deliver water at a higher rate of up to five cfs or twenty-two hundred and fifty gallons per minute, but only during periods of low total demand. If any of the water users on a given lateral are unable to receive the minimum design delivery rate out of a turnout, the flow rate of each turnout operating in excess of the minimum design delivery rate will be adjusted to the minimum design rate.

6. **Meter Reading**

All meters will be read on the first day of each month to determine the water use for the prior month. By the tenth of each month the District will mail a water use statement to each water user showing the amount of water used out of each turnout for the previous month. Any water user wishing to contest the amounts of water shown on the statement must do so in writing to the District within ten calendar days of the statement date. Monthly meter use figures will be considered correct unless such written notice is received. In addition, all meters at turnouts scheduled to be operating may be read daily to assure proper delivery rates are set by water users.

7. **Emergency Conditions**

An emergency condition is defined as any situation where there is risk of damage to the District's distribution system, life, or property. Since the District operating staff has the responsibility for protecting the District's distribution system, any actions taken to control or regulate the flow of water in the District's system during an

emergency condition, shall be under the direction of the District's Superintendent. No one shall be authorized to open, close, or regulate any of the District's valves or gates unless so directed by the District's Superintendent as outlined in 3 above. The District reserves the right to terminate water service to any water user during an emergency condition.

8. **Power Failures**

Power failures of varying magnitude and duration occur periodically in the District and do not generally result in emergency conditions. The District will generally have sufficient water stored in the regulating reservoirs to sustain operations for a maximum of two hours without any power at the District's pump stations. The District will not generally restrict the delivery of water or turn off water at turnouts, unless it appears that the duration of the power failure will exceed one hour. Water users are encouraged to restart pumping units as soon as possible after a power failure of less than one hour duration after first notifying the District.

If the outage exceeds one hour, it will generally be necessary for the District to shut down the entire system and shut off all water to users. When power is restored after being shut off for more than one hour, users are not to restart pumps or turnouts again until so advised by the District.

9. **Water Leaks**

When water users detect water leaks at District pipelines or turnouts, they are requested to notify the District as soon as possible. If a water user develops a serious leak in his own distribution system and is unable to take the water which has been

ordered, he should contact the District to make arrangements to take delivery of the water elsewhere in the District.

10. **Quality of Water**

The District assumes no responsibility with respect to the quality of project water. All water users are advised that project water as delivered by the District, is unfit for human consumption. All complaints concerning the quality of water should be referred to the District Superintendent or Manager.

11. **Storm Water Drainage**

Drainage control structures have been constructed along the District's canal to provide for the passage of flood waters across the District's right-of-way in the natural channels in which flood water historically flowed. These facilities include the canal protective dike, training dikes, pipe overchutes, and siphons. All of these facilities must be kept free from obstruction to protect the District's distribution system from flood damage.

12. **Irrigation Tail Water**

Each water user will be responsible for controlling and disposing of his own "tail water". Tail water must not be allowed to collect upon the District right-of-way. Storm water drainage facilities will not be diked off to prevent the flow of tail water across canal drainage facilities. Tail water will not be drained into the District's canal or distribution facilities under any circumstances.

13. **District Roads**

The District owns, operates, and maintains a service road along its canal for access to canal check gates, distribution laterals, and mainline valves. This road shall not be

used for anything but pickup trucks and automotive-type traffic. Landowners and water users are requested to refrain from using the service road during rainy periods when excessive traffic may make the road impassable. In addition to the canal service road, the District has obtained a right-of-way for a road along each of the District's pipelines and distribution laterals. Access to District facilities on pipelines and laterals is essential. All rights-of-way along District pipelines shall be kept open and free of obstructions, fences, or buildings. Water users shall also insure that irrigation water and tail water is not applied or allowed to collect on the District's pipeline and lateral access roads.

14. **Tampering with District Facilities**

No person shall tamper, modify, or interfere with any of the District's facilities, structures, or devices used for the delivery of water with the exception of minor adjustments to turnout valves as previously mentioned. No filtering devices or modifications to canal turnout trash racks will be permitted in the District's canal.

15. **Liability for Damage to District Facilities**

Any damage done to District facilities or property by the water users shall be the responsibility of the water user or landowner making such use of the property or facilities. If repairs are not made promptly by the responsible individuals, the District will make the necessary repairs and charge the responsible individual.

16. **Application of Fertilizers, Pesticides, and Chemicals**

The facilities of the District distribution system shall not be used for the application of fertilizers, pesticides, or chemicals. All water users shall use utmost caution in

applying airborne pesticides and chemicals to lands adjacent to the District's open canal to insure that the materials being applied by air do not drift into the canal.

17. **Disposal of Trash, Refuse or Foreign Material on District Rights-of-way or Facilities**

No rubbish, garbage, manure, refuse, waste excavation, or foreign material of any type shall be placed or allowed to be placed in any District canal or along any of the District's rights-of-way.

18. **Request for New or Additional Water Service**

Landowners desiring new or additional water service or modifications to existing service, must notify the District in writing of the exact location where service is desired, the capacity of the pump to be installed, the description of the parcel of property to be serviced, and the date when water service is required. A minimum of three months lead time will be required to purchase and install all materials for the turnouts. All of the costs for materials and installation for new turnouts not included in the original design of the project facilities, will be paid by the water user requesting service. The District is to be provided with a copy of the plans of the on-farm distribution system so that adequate records of location of the various pipelines can be maintained in the District office.

19. **Change in Rules and Regulations**

These rules and regulations shall become effective immediately and may be changed by resolution or minute order of the Board of Directors of the District from time to time.

20. **Enforcement of Rules and Regulations**

The Manager of the District shall be responsible for the enforcement of the rules and regulations. Refusal to comply with any of the rules and regulations shall be sufficient cause for the termination of water service, and water service will not again be furnished until full compliance has been made with all the requirements herein set forth. In no event shall any liability accrue against the District or any of its officers, agents or employees, for damage, direct or indirect, arising from such temporary discontinuance or reduction of water deliveries.

Appendix E: Certified Test Report

Propeller Meter

CERTIFIED TEST REPORT

CUSTOMER: MCCALLS METER SALES SERVICE
MODEL NO: M0306
METER SERIAL NO: 11-04485

CONFIGURATION

METER INSIDE DIAMETER: 6.065
METER OUTSIDE DIAMETER: 6.625
TEST DATE: 6/16/2011
TEST FACILITY: Volumetric
IDEAL TEST CONSTANT: 6738

CALIBRATION DATA

	Tested TC	GPM	Accuracy
1	6741	1257	100.0

CERTIFIED BY: Paul Hobbs **DATE:** 6/20/2011

This calibration was performed on a gravimetric or volumetric test facility, traceable to the National Institute of Standards and Technology, USA. The estimated flow measurement uncertainty of the calibration facilities are: Gravimetric +/- 0.15% Volumetric +/- 0.5%

McCROMETER
3255 WEST STETSON AVENUE
HEMET, CA 92545 USA
PHONE (951) 652-6811 / FAX (951) 652-3078
WEB SITE: http://www.mccrometer.com E-MAIL: info@mccrometer.com

11-04485

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