2025 AGRICULTURAL WATER MANAGEMENT PLAN

Prepared pursuant to Division 6, Part 2.8 of the California Water Code (Agricultural Water Management Planning Act), including Section 10826.

Wheeler Ridge-Maricopa Water Storage District

17 March 2026
EKI C50064.00

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2025 Agricultural Water Management Plan

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Prepared for:

Wheeler Ridge-Maricopa Water Storage District
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Wheeler Ridge-Maricopa Water Storage District

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ABBREVIATIONS AND ACRONYMS

2025 Guidebook	2025 Agricultural Water Management Plan Guidebook
2025 Plan	Kern County Subbasin GSP
AB 1668	Assembly Bill 1668
Act	Agricultural Water Management Planning Act
AW	Applied Water
AWMP	Agricultural Water Management Plan
Board	Board of Directors
CCR	California Code of Regulations
CGC	California Government Code
CIMIS	California Irrigation Management Information System
CWC	California Water Code
Delta	Sacramento-San Joaquin River Delta
DWR	Department of Water Resources
DYTP	Dry Year Transfer Program
ET	Evapotranspiration
ETAW	Evapotranspiration of Applied Water
ETc	Crop Evapotranspiration
EWMP	Efficient Water Management Practices
GDA	Groundwater Dependent Area
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
ITRC	Irrigation Training and Research Center
KCWA	Kern County Water Agency
Kern Subbasin	Kern County Subbasin
KRWCA	Kern River Watershed Coalition Authority
KWBA	Kern Water Bank Authority
MAR	Managed Aquifer Recharge
mg/L	milligrams per liter
MSL	Mean Sea Level
NMFS	National Marine Fisheries Services
PMA	Project and Management Action
Rules and Regulations	Rules and Regulations for Distribution and Use of Water
SB X7-7	Water Conservation Act of 2009
SCADA	Supervisory Control and Data Acquisition
SGMA	Sustainable Groundwater Management Act
SWP	State Water Project
SWRCB	State Water Resources Control Board
SWSA	Surface Water Surface Area

TDS	Total Dissolved Solids
TWUF	Total Wate Use Fraction
USWFS	U.S. Fish and Wildlife Service
WAKC	Water Associated of Kern County
WRM GSA	Wheeler Ridge-Maricopa Groundwater Sustainability Agency
WRMWSD	Wheeler Ridge-Maricopa Water Storage District
WW GSA	White Wolf Groundwater Sustainability Agency

AWMP COMPLIANCE CHECKLIST

The Wheeler Ridge-Maricopa Water Storage District (WRMWSD or District) has prepared this Agricultural Water Management Plan (AWMP) in general conformance with the framework presented in *A Guidebook to Assist Agricultural Water Suppliers to Prepare a 2025 Agricultural Water Management Plan* (2025 Guidebook), issued by the California Department of Water Resources (DWR) in September 2025. The 2025 Guidebook is intended to assist agricultural water suppliers in preparing AWMPs consistent with the requirements of the Agricultural Water Management Planning Act (California Water Code [CWC] §10800 *et seq.*), including amendments enacted through the Water Conservation Act of 2009 (SB X7-7) and Assembly Bill 1668 (AB 1668, Friedman, Statutes of 2018), as well as applicable agricultural water measurement regulations.

Relevant provisions of the CWC, California Government Code (CGC), and California Code of Regulations (CCR) are identified in checklist below, together with references to the corresponding sections of the 2025 Guidebook and this AWMP, to demonstrate how the statutory requirements are addressed.

WRMWSD 2025 AWMP Checklist
(Modeled after Section 2.0, Table 1 of 2025 Guidebook)

AWMP Location	Guidebook Location	Description	CWC Sections (or as identified)
1	1.4	AWMP Required?	10820, 10608.12
1	1.4	At least 25,000 irrigated acres.	10853
N/A	1.4	10,000 to 25,000 acres and funding provided.	10853
1.3	1.4	April 1, 2021 update.	10820 (a)
1.3.2	1.4 A.2	AWMP submitted to DWR no more than 30 days after adoption, AWMP submitted electronically.	10820(a)(2)(B)
1.3	1.4 B	5-year cycle update.	10820 (a)
N/A	1.4 B	New agricultural water supplier after December 31, 2012 – AWMP prepared and adopted within 1 year.	10820 (b)
N/A	1.6, 5	USBR water management/conservation plan.	10828(a)
N/A	1.6, 5.1	Adopted and submitted to USBR within the previous four years, AND	10828(a)(1)
N/A	1.6, 5.1	The USBR has accepted the water management/conservation plan as adequate.	10828(a)(2)
1.1	1.4 B	UWMP or participation in area wide, regional, watershed, or basin wide water management planning: does the plan meet requirements of SB X7-7 2.8.	10829
1.1	3.1 A	Description of previous water management activities.	10826(d)
1.2.1	3.1 B.1	Was each city or county within which supplier provides water supplies notified that the agricultural water supplier will be preparing or amending a plan?	10821(a)
1.3.1	3.2 B.2	Was the proposed plan available for public inspection prior to plan adoption?	10841

WRMWSD 2025 AWMP Checklist (Continued)

AWMP Location	Guidebook Location	Description	CWC Sections (or as identified)
1.3.3	3.1 B.2	Publicly-owned supplier: Prior to the hearing, was the notice of the time and place of hearing published within the jurisdiction of the publicly owned agricultural water supplier in accordance with [CGC] 6066?	10841
1.3.3	3.1 B.2	14 days notification for public hearing.	CGC 6066
1.3.3	3.1 B.2	Two publications in newspaper within those 14 days.	CGC 6066
1.3.3	3.1 B.2	At least 5 days between publications? (not including publication date).	CGC 6066
N/A	3.1 B.2	Privately-owned supplier: was equivalent notice within its service area and reasonably equivalent opportunity that would otherwise be afforded through a public hearing process provided?	10841
1.3.1	3.1 C.1	After hearing/equivalent notice, was the plan adopted as prepared or as modified during or after the hearing?	10841
1.3.2	3.1 C.2	Was a copy of the AWMP, amendments, or changes, submitted to the entities below, no later than 30 days after the adoption?	10843 (a)
1.2.1	3.1 C.2	The department.	10843(b)(1)
1.2.1	3.1 C.2	Any city, county, or city and county within which the agricultural water supplier provides water supplies.	10843(b)(2)
1.2.1	3.1 C.2	Any groundwater management entity within which jurisdiction the agricultural water supplier extracts or provides water supplies.	10843(b)(3)
1.3.3	3.1 C.3	Adopted AWMP availability.	10844
1.3.3	3.1 C.3	Was the AWMP available for public review on the agricultural water supplier's website within 30 days of adoption?	10844(a)
N/A	3.1 C.3	If no website, was an electronic copy of the AWMP submitted to DWR within 30 days of adoption?	10844(b)
1.4	3.1 D.1	Implement the AWMP in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.	10842
2	3.3	Description of the agricultural water supplier and service area including:	10826(a)
2.1	3.3 A.1	Size of the service area.	10826(a)(1)
2.2	3.3 A.2	Location of the service area and its water management facilities.	10826(a)(2)
2.3	3.3 A.3	Terrain and soils.	10826(a)(3)
2.4	3.3 A.4	Climate.	10826(a)(4)
2.5	3.3 B.1	Operating rules and regulations.	10826(a)(5)

WRMWSD 2025 AWMP Checklist (Continued)

AWMP Location	Guidebook Location	Description	CWC Sections (or as identified)
2.6	3.3 B.2	Water delivery measurements or calculations.	10826(a)(6)
2.7	3.3 B.3	Water rate schedules and billing.	10826(a)(7)
2.8	3.3 B.4	Water shortage allocation policies and detailed drought plan.	10826(a)(8) 10826.2
3	3.4	Water uses within the service area, including all of the following:	10826(b)(5)
3.1	3.4 A	Agricultural.	10826(b)(5)(A)
3.2	3.4 B	Environmental.	10826(b)(5)(B)
3.3	3.4 C	Recreational.	10826(b)(5)(C)
3.4	3.4 D	Municipal and industrial.	10826(b)(5)(D)
3.5	3.4 E	Groundwater recharge, including estimated flows from deep percolation from irrigation and see page.	10826(b)(5)(E)
4.1	3.5 A	Description of the quantity of the agricultural water supplier's water supplies as:	10826(b)
4.1.1	3.5 A.1	Surface water supply.	10826(b)(1)
4.1.2	3.5 A.2	Groundwater supply.	10826(b)(2)
4.1.3	3.5 A.3	Other water supplies, including recycled water.	10826(b)(3)
4.2	3.5 B	Description of the quality of the agricultural water supplier’s water supplies as:	10826(b)
4.2.1	3.5 B.1	Surface water supply.	10826(b)(1)
4.2.2	3.5 B.2	Groundwater supply.	10826(b)(2)
4.2.3	3.5 B.3	Other water supplies.	10826(b)(3)
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5	3.6	Annual water budget based on the quantification of all inflow and outflow components for the service area.	10826(c)
6	3.7 C	Identify water management objectives based on water budget to improve water system efficiency.	10826(f)
7		Quantify the efficiency of agricultural water use	10826(h)
8	3.9	Analysis of climate change effect on future water supplies.	10826(d)
9	4	Water use efficiency.	10826(h)
9		Information required pursuant to Section 10608.48.	
9.1	4.1	Implement efficient water management practices (EWMPs).	10608.48(a)
9.1	4.1 A	Implement Critical EWMP: 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).	10608.48(b)

WRMWSD 2025 AWMP Checklist (Continued)

AWMP Location	Guidebook Location	Description	CWC Sections (or as identified)
9.1	4.1 A	Implement Critical EWMP: Adopt a pricing structure for water customers based at least in part on quantity delivered.	10608.48(b)
9.1	4.1 B	Implement additional locally cost effective and technically feasible EWMPs.	10608.48(c)
9.3	4.1 C	If applicable, document (in the report) the determination that EWMPs are not locally cost effective or technically feasible.	10608.48(d)
9	4.1 C	Include a report on which EWMPs have been implemented and planned to be implemented.	10608.48(d)
9	4.1 C	Include (in the report) an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future.	10608.48(d)
N/A	5	USBR water management/conservation plan may meet requirements for EWMPs.	10608.48(f)
10.1	6 A	Lack of legal access certification (if water measuring not at farm gate or delivery point).	CCR 597.3(b)(2)(A)
10.1	6 B	Lack of technical feasibility (if water measuring not at farm gate or delivery point).	CCR 597.3(b)(1)(B), 597.3(b)(2)(B)
10.1	6 A, 6 B	Delivery apportioning methodology (if water measuring not at farm gate or delivery point).	CCR 597.3.b(2)(C),
10.2	6 C	Description of water measurement Best Professional Practices.	CCR 597.4(e)(2)
10.3	6 D	Conversion to measurement to volume.	CCR 597.4(e)(3)
10.4	6 E	Existing water measurement device corrective action plan? (if applicable, including schedule, budget and finance plan).	CCR 597.4(e)(4)

1 INTRODUCTION AND PURPOSE

This Agricultural Water Management Plan (AWMP) for the Wheeler Ridge-Maricopa Water Storage District (WRMWSD) has been prepared in accordance with the requirements of the Agricultural Water Management Planning Act (Act), including amendments enacted through SB X7-7 and AB 1668, as well as applicable agricultural water measurement regulations codified in CCR Title 23. Agricultural water suppliers subject to the Act are required to prepare and submit an AWMP to DWR every five years.

Under the Act, an agricultural water supplier is defined as a public or private entity that provides water to 10,000 or more irrigated acres, excluding acreage served with recycled water. The WRMWSD is a publicly owned agricultural water supplier formed to provide a reliable water supply to its landowners. The District encompasses approximately 152,000 acres in the southern portion of the San Joaquin Valley in Kern County, of which approximately 77,000 acres are irrigated.

The Act and related regulations are intended to encourage agricultural water suppliers to evaluate existing water management practices, identify opportunities to improve water use efficiency, support accurate measurement and pricing of water, and plan for drought and other water supply constraints. Consistent with these objectives, the AWMP describes the District's existing water management activities and documents programs and practices that support efficient and sustainable water use.

This AWMP includes a five-year planning horizon (2021 through 2025) and presents an annual water budget, identification of water management objectives, and planning-level quantification of water use and water use efficiency. Together, these elements provide a structured basis for documenting the District's stewardship of water resources and its ongoing efforts to plan for reliable agricultural water supplies under variable hydrologic conditions.

1.1 Description of Previous Water Management Activities

☑ ***CWC §10826(e)***

Describe previous water management activities.

Consistent with CWC §10826(e), the District has a long history of managing agricultural water supplies to support efficient and reliable water use within its service area. Since its formation in 1959, the District and its growers have implemented improvements in on-farm irrigation practices, District infrastructure, and surface water-groundwater use operations to increase water use efficiency and reliability.

WRMWSD has previously prepared AWMPs consistent with the Act and related DWR guidance, including submittals in 2015 and 2020 – the latter adopted by WRMWSD on 14 July 2021 and submitted to DWR for review. This 2025 AWMP builds upon the prior AWMPs and updates relevant data, programs, and practices to maintain compliance with current statutory and regulatory requirements.

Under the Sustainable Groundwater Management Act (SGMA), the District participates in groundwater management through two Groundwater Sustainability Agencies (GSAs):

- The Wheeler Ridge-Maricopa GSA (WRM GSA) manages the District's portion of the Kern County Subbasin and is one of 20 GSAs in the Kern County Subbasin (Kern Subbasin, DWR Basin No. 5-022.14). The WRM GSA adopted a management area plan that was included in the Kern Groundwater Authority Groundwater Sustainability Plan (GSP) in 2020, the South of Kern River GSP in 2022, the Kern County Subbasin GSP in 2024, and a revised Kern County Subbasin GSP in August 2025 (referred to herein as the "2025 Plan"). Following a continued probationary hearing on 17 September 2025, the State Water Resources Control Board (SWRCB) determined that the 2025 Plan substantially addressed prior deficiencies and directed staff to return the Kern Subbasin

to DWR oversight upon completion of a consistency review. As of 8 December 2025, the Kern Subbasin has been returned to DWR oversight, and DWR has initiated review of the 2025 Plan.

- The White Wolf GSA (WW GSA) manages the District's portion of the White Wolf Subbasin (DWR Basin No. 5-022.18) and is the sole GSA within the subbasin. The White Wolf GSP was adopted in 2021 and approved by DWR on 26 October 2023.

Key District water management programs and activities include:

- Preparation and adoption of the 2025 Plan and White Wolf GSP, which establish sustainable management criteria, including minimum thresholds and measurable objectives, and identify Projects and Management Actions (PMAs) necessary to achieve the sustainability goal for each subbasin. The PMAs relevant to WRMWSD's water management activities for both subbasins are provided in **Appendix A**.
- Delivery of State Water Project (SWP) imported surface water to District lands previously reliant solely on groundwater.
- Participation in groundwater banking and recovery programs (e.g., Mettler Recharge Project, Kern Water Bank, Pioneer Project, Berrenda Mesa Project, and on-farm recharge) to store wet-year water and supplement dry-year supplies.
- Local conjunctive management of surface water and groundwater to optimize supply reliability.
- Metered customer water use and tiered water pricing.
- Support of on-farm irrigation efficiency improvements through the North West Kern Resource Conservation District's Mobile Laboratory Program.
- Participation in regional water management forums, such as the Kern Integrated Regional Water Management Plan, the Kern River Watershed Coalition Authority (KRWCA), and the Water Association of Kern County (WAKC).
- Requirement for flow meters on private wells pumping into District facilities or reporting water use to the District.
- Groundwater service charge, in which landowners are charged a fee for groundwater pumped.

These programs and activities reflect the District's ongoing efforts to manage water resources efficiently and sustainably in accordance with statutory and regulatory requirements.

1.2 Coordination Activities

During preparation of this AWMP, the District conducted the coordination activities described in the following subsections per the Guidebook and in accordance with CWC and CGC requirements, as cited.

1.2.1 Notification of AWMP Preparation and Public Participation

☑ ***CWC §10821(a)***

An agricultural water supplier required to prepare a plan pursuant to this part shall notify each city or county within which the supplier provides water supplies that the agricultural water supplier will be preparing the plan or reviewing the plan and considering amendments or changes to the plan. The agricultural water supplier may consult with, and obtain comments from, each city or county that receives notice pursuant to this subdivision.

☑ ***CWC §10841***

Prior to adopting a plan, the agricultural water supplier shall make the proposed plan available for public inspection and shall hold a public hearing on the plan. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned agricultural water supplier pursuant to Section 6066 of the Government Code.

The District notified the entities listed in **Table 1-1** of its intent to prepare the AWMP in accordance with CWC §10821(a). The draft AWMP was made available for public inspection starting on February 24, 2026, including on the District's website[1] consistent with CWC §10821(a). Documentation of the notification of plan preparation and public availability is provided in **Appendix B**.

Table 1-1. Summary of Coordination, Adoption, and Submittal Activities

Potential Interested Parties	Notified of AWMP Preparation	Notified of Public Meetings	Attended Public Meetings	Copy of Adopted AWMP Sent
Local City (s)[1]				
Local County(s)				
County of Kern	X			
Water Management Entities				
Arvin GSA	X			
Kern County Water Agency	X			
Kern Non-Districted Land Authority GSA	X			
West Kern Water District GSA	X			
Wheeler Ridge-Maricopa GSA	X			
White Wolf GSA	X			
Other Entities				
DWR				
Local Newspaper *(Bakersfield Californian)*	X	X		
California State Library				
District Website[2]	X	X		

Notes:
[1] There are no incorporated cities or towns within the District boundaries.
[2] District's public website address is https://www.wrmwsd.com.

[1] District's public website address is https://www.wrmwsd.com.

1.3 AWMP Adoption and Submittal

Pursuant to CWC §10820 *et seq.*, AWMPs are prepared and submitted on a five-year cycle. For the 2025 planning cycle, AWMPs must be adopted by 1 April 2026, and submitted electronically to DWR within 30 days of adoption.

1.3.1 AWMP Adoption

☑ ***CWC §10841***

After the public hearing, the plan shall be adopted as prepared or as modified during or after the hearing.

☑ ***CWC §10821(b)***

Amendments to, or changes in the plan shall be adopted and submitted in the manner set forth in Article 3 (commencing with Section 10840)

The 2025 AWMP was adopted following a public hearing held on 11 March 2026, in accordance with CWC §10841. A copy of the WRMWSD Board of Director's (Board) Resolution of Adoption for this AWMP is included in **Appendix C**.

During the public hearing, District landowners and members of the public were provided an opportunity to provide comments on the AWMP. Following the hearing, the AWMP will be adopted as prepared, or as modified based on comments received, consistent with statutory requirements.

1.3.2 AWMP Submittal

☑ ***CWC §10820(a)(2)(A)***

An agricultural water supplier shall submit its plan to the department no later than 30 days after adoption of the plan. The plan shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

☑ ***CWC §10843(a)***

An agricultural water supplier shall submit to the entities identified in subdivision (b) a copy of its plan no later than 30 days after review of the plan pursuant to subdivision of Section 10820.

The 2025 AWMP will be submitted electronically to DWR within 30 days after adoption, in accordance with CWC §§10820(a)(2)(A) and 10843(a).

1.3.3 AWMP Availability

☑ ***CGC §6066***

Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient.

The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day."

☑ ***CWC §10844(a)***

Not later than 30 days after the date of adopting its plan, the agricultural water supplier shall make the plan available for public review on the agricultural water supplier's Internet Web site.

In accordance with CGC §6066 and CWC §10844(a), the 2025 AWMP was made available for public review 14 days prior to a public hearing, with notice published in the *Bakersfield Californian* on 24 February 2026 and 3 March 2026. Documentation of public noticing is provided in **Appendix B**. The adopted 2025 AWMP is available on the District's website[1], together with prior AWMPs and applicable GSPs.

1.4 AWMP Implementation

☑ ***CWC §10842***

An agricultural water supplier shall implement the plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan, as determined by the governing body of the agricultural water supplier.

The District will implement this plan, adopted pursuant to CWC §10842, in accordance with the implementation schedule set forth herein, as determined by the District's Board. Implementation of requirements under SGMA will also support and, where applicable, fulfill elements of this AWMP and will be coordinated accordingly.

2 DESCRIPTION OF AGRICULTURAL WATER SUPPLIER AND SERVICE AREA

☑ ***CWC §10826(a)***

(a) Describe the agricultural water supplier and the service area, including all of the following:

(1) Size of the service area

(2) Location of the service area and its water management facilities

(3) Terrain and soils

(4) Climate

(5) Operating rules and regulations

(6) Water delivery measurements or calculations

(7) Water rate schedules and billing

(8) Water shortage allocation policies

Pursuant to CWC §10826(a), this section describes the agricultural water supplier, including its service area, governance, water supply sources, and related operating practices addressed in this AWMP.

The WRMWSD was formed on 11 August 1959 pursuant to the Water Storage District Law (CWC §39000 *et seq.*), as a public water agency authorized to develop, acquire, and manage water supplies. The District was established to support agricultural water supply reliability, including securing supplemental surface water supplies for its landowners to reduce reliance on groundwater. The District is governed by a nine-member Board of Directors (Board), elected by landowners within the service area.

Since its formation, the District has developed an extensive distribution system and diversified water supply portfolio to serve its agricultural customers. District water supplies are derived from a combination of imported surface water, recovered water from participation in several Kern County groundwater banking and recovery projects,[2] local groundwater, and other supplemental supplies delivered through District facilities.

The District's primary imported water supply source is the SWP, a statewide system of storage, conveyance, and delivery facilities operated by DWR. The SWP conveys water from the Feather River Watershed captured at Lake Oroville in Northern California, through the Sacramento-San Joaquin River Delta (Delta) and Central Valley, and to service areas throughout California. As described later in this AWMP, WRMWSD receives annual SWP water allocations pursuant to a long-standing contract with the Kern County Water Agency (KCWA), which has been in effect since 14 November 1967.

The WRMWSD overlies portions of two groundwater subbasins – the Kern Subbasin and the White Wolf Subbasin – each managed by a separate GSA under SGMA. Consistent with its SGMA implementation and the adopted GSPs for each subbasin, information in this AWMP is presented, where appropriate, by District total and subbasin to reflect differing hydrologic conditions, management frameworks, and water supply considerations. This approach is intended to maintain consistency with ongoing groundwater management efforts and related planning documents.

[2] Groundwater banking and recovery projects generally refer to arrangements in which surface water available during wetter periods is intentionally recharged or stored in groundwater basins for later extraction and use during drier periods, subject to applicable agreements, operational constraints, and regulatory requirements.

2.1 Size of the Service Area

The District's jurisdictional area, or Total Acreage, encompasses approximately 152,000 acres, which is larger than the Gross Acreage at the time of formation due to subsequent landowner transfers, annexations, and other routine operational changes. Within this jurisdiction, approximately 98,000 acres currently utilize water supplies. Of this area, the District provides water supplies to approximately 72,200 acres, referred to as the Surface Water Service Area (SWSA), with the remaining irrigated acreage designated as the Groundwater-Dependent Area (GDA), as summarized in **Table 2-1.**

Table 2-1. Water Supplier Size

Service Area	Within Kern Subbasin (acres)	Within White Wolf Subbasin (acres)	District Total (acres)
District Gross Acreage (at Formation[1])	--	--	**134,190**
District Total Acreage (Current[2])	94,546	57,549	**152,095**
Surface Water Service Area[3]	50,407	21,750	**72,158**
Groundwater-Dependent Area[4] (approximate)	17,532	7,817	**25,169**

Notes:
[1] Kern County Water Agency Report 1969-1971, by KCWA
[2] District Acreage as provided in CROP shapefile by WRMWSD, dated 19 November 2025
[3] Contracted SWSA in 2025 as provided in CROP shapefile by WRMWSD, dated 19 November 2025
[4] Calculated as sum of irrigated acreage outside of the SWSA for 2021

2.1.1 Irrigated Acres

Total irrigated acreage within the District varies by year and is determined based on annual crop surveys conducted by District staff. **Table 2-2A** through **2-2C** summarizes the total irrigated acreage within the District, by groundwater subbasin, for each year 2021 through 2025,[3] corresponding to the period following adoption of the prior AWMP update. Irrigated acreage shown in the table is classified as "active cropped" land.

[3] For purposes of this AWMP, "year" refers to the Water Year, defined as the period from preceding 1 October through 30 September of the specified year, unless otherwise noted.

Table 2-2A. Kern Subbasin Sub-Total Acreages for Water Years 2021 to 2025

Land Type	2021	2022	2023	2024	2025
Active Cropped (Irrigated)[1]	59,091	57,818	53,014	50,435	45,666
Fallow or Non-Irrigated Cropped[2]	20,874	20,098	24,718	26,434	31,191
Other District Lands[3]	14,581	16,630	16,814	17,677	17,689
Subbasin Total	**94,546**	**94,546**	**94,546**	**94,546**	**94,546**

Notes:

1 Active cropped lands include those with crops reported during either the Spring or Fall crop surveys and are therefore considered irrigated acres for the purposes of this AWMP.

2 Fallow or non-irrigated cropped include those identified as fallow during both Spring and Fall crop surveys, or those identified as dry farmed wheat.

3 Other District lands are non-irrigated and include undeveloped lands, farmsteads, solar fields, and other idle land.

Table 2-2B. White Wolf Subbasin Sub-Total Acreages for Water Years 2021 to 2025

Land Type	2021	2022	2023	2024	2025
Active Cropped (Irrigated)	23,976	24,164	24,219	23,790	22,195
Fallow or Non-Irrigated Cropped	7,584	7,395	7,320	7,751	8,539
Other District Lands	25,989	25,990	26,010	26,008	26,815
Subbasin Total	**57,549**	**57,549**	**57,549**	**57,549**	**57,549**

See notes for Table 2-2A.

Table 2-2C. District Total Acreages for Water Years 2021 to 2025

Land Type	2021	2022	2023	2024	2025
Active Cropped (Irrigated)	83,067	81,982	77,233	74,225	67,861
Fallow or Non-Irrigated Cropped	28,458	27,493	32,038	34,185	39,730
Other District Lands	40,570	42,620	42,824	43,685	44,504
District Total	**152,095**	**152,095**	**152,095**	**152,095**	**152,095**

See notes for Table 2-2A.

2.1.2 Applicability to AWMP Requirement

Pursuant to the Act, agricultural water suppliers that provide water to 10,000 or more irrigated acres are required to prepare and submit an AWMP. As described in this section, WRMWSD provides water supplies to substantially more than 10,000 irrigated acres within its service area. Accordingly, the District qualifies as an agricultural water supplier subject to the AWMP requirements of the CWC.

2.1.3 Expected Changes to Land Use

The District is predominantly rural, with no incorporated cities or towns within its boundaries. Due to the distance between agricultural lands in the District and nearby urban areas, there has historically been limited pressure to convert agricultural lands to urban uses. Some development has occurred near Interstate 5 in portions of Kern County, resulting in localized conversion of agriculture lands to urban uses. In addition, there has been increased development of solar energy facilities on previously cropped or fallowed lands within the District. While little to no land was dedicated to solar development in 2015, approximately 6,600 acres were in solar use by 2025.

Although some undeveloped or non-irrigated lands within the District could potentially be brought into irrigated production, the District anticipates that future changes are more likely to involve a reduction in irrigated acreage. Factors influencing this trend include reduced reliability of imported SWP supplies, economic considerations such as crop pricing, and sustainable groundwater management requirements under the adopted GSPs for the Kern and White Wolf Subbasins. Expected changes to the service area are summarized in **Table 2-3.**

Table 2-3. Expected Changes to District Service Area

Change to Service Area	Estimated Magnitude of Change[1]	Cause(s) of Change	Estimated Effect on Water Supplier
Reduced Service Area	Minimal	Changes in District Contract Acres	No material impact
Increased Service Area	Minimal	Changes in District Contract Acres	None
Reduction in Irrigated Acreage	Moderate	Potential reductions in available water supply; conversion of agricultural lands to solar uses; increased groundwater pumping costs.	Decrease in total water demand
Increase in Irrigated Acreage	Minimal	Limited water supply availability constraining expansion of irrigated acreage.	None

Notes:

[1] Estimated magnitudes are qualitative and reflect planning-level expectations.

2.2 Location of Service Area and its Water Management Facilities

The following section details the location of the District's service area and its water management facilities.

2.2.1 Location of Service Area

The District is located in southern Kern County within California's San Joaquin Valley. The District's service area overlies portions of two groundwater basins: the western portion lies within the Kern Subbasin, while the eastern portion lies within the White Wolf Subbasin. The location of the District and its service area are shown on **Figure 1**, which depicts the District's boundaries, service area, and underlying groundwater subbasins.

The District's southern boundary generally coincides with the foothills of the Tehachapi Mountains, and its northern boundary aligns with jurisdictional boundaries shared with adjacent water districts. Neighboring water districts include West Kern Water District, Henry Miller Water District, Buena Vista Water Storage District, Kern Delta Water District, Arvin-Edison Water Storage District, and Tejon-Castac Water District.

The District's service area includes lands served by District surface water facilities as well as lands that rely on groundwater supplies. The SWSA generally follows the alignment of the California Aqueduct and the District's 850 Canal, which convey imported SWP supplies to District lands. Areas outside the SWSA are farmed primarily using groundwater and are identified in this AWMP as the GDA. These distinctions are used throughout this AWMP to describe water supplies, demands, and management practices in a manner consistent with adopted GSPs and ongoing groundwater management efforts.

2.2.2 Water Management Facilities

The District owns and operates water management facilities used to convey, distribute, and deliver water supplies within its service area. These facilities support the delivery of imported surface water and the management of groundwater supplies to agricultural lands served by the District. An overview of the District's water management facilities is shown on **Figure 2**.

District facilities include a system of canals, pipelines, pumping plants, turnouts, and wells used for conveyance and distribution of water supplies. The District's distribution system consists of approximately 310 miles of pipelines, 137 booster pumps, 14 active wells, and more than seven miles of concrete-lined canals. These facilities are operated to deliver water to agricultural customers throughout the service area.

Depending on annual land use and leasing patterns, the District serves between 100 and 150 customers. A summary of the District's current irrigation distribution facilities is provided in **Table 2-4**, with additional details provided below.

Table 2-4. Water Conveyance and Delivery System

System Type	Number of Miles[2]	Percentage of System
Unlined Canals	None	0%
Lined Canals[1]	7	2.2%
Pipelines	310	97.8%
Drains	None	0%
District Total	**317**	**100%**

Notes:
[1] Specifications No. WRM 620 for constructing 850 Canal, 1971.
[2] Based on WRMWSD GIS data dated 19 July 2024.

2.2.2.1 Surface Water Turnouts

The District receives SWP supplies through 15 turnouts located along Reaches 14, 15 and 16 of the California Aqueduct. Delivered water is then conveyed through District-owned lined canals and pressurized pipelines to farm delivery points (turnouts).

The District operates an automated delivery system consisting of pressurized pipelines serving approximately 796 farm turnouts. System operations are monitored and controlled through the District's Supervisory Control and Data Acquisition (SCADA) system. Each turnout is equipped with a totalizing and

indicating flow meter. Because SWP water is delivered directly into pressurized pipeline systems, regulating reservoirs are not required for routine system operation.

2.2.2.2 Canals and Spill Basins

The District owns and operates approximately seven miles of concrete-lined canal, including the 850 Canal, and a 12-acre spill basin located at the downstream end of the canal system. The spill basin is intended to capture operational flows when necessary and provide flexibility for system operations.

The District's service area is generally well drained, and irrigation practices within the District primarily rely on high-efficiency irrigation systems, which limits the generation of surface runoff. As a result, the need for surface tailwater recovery infrastructure within the District is limited.

2.3 Terrain and Soils

This section describes the general terrain and soil characteristics within the District that influence agricultural water management and land use.

2.3.1 Terrain

The District is primarily located on the valley floor of the southern San Joaquin Valley, with gently sloping foothills along its southern and eastern boundaries where the valley transitions to the Tehachapi Mountains and Coast Ranges. Ground surface elevations within the District range from approximately 295 feet above mean sea level (msl) near the northwesterly boundary to approximately 1,865 feet msl along its eastern boundary.

Land surface slopes generally decrease from the foothills toward lower elevations along the District's northern boundary, with most grades less than four percent, resulting in predominantly flat terrain suitable for agricultural production. The California Aqueduct traverses the District from west to east, crossing a range of ground surface elevations as it conveys imported surface water supplies through the area.

Higher elevations within the contributing watershed occur south of the District boundary in the San Emigdio Mountains, where elevations exceed 7,000 feet msl.

2.3.2 Soils

Soils within the District vary by location but are generally characteristic of the southern San Joaquin Valley. Valley floor soils are primarily derived from mixed granitic and sedimentary rocks and commonly exhibit saline-alkaline characteristics. Generalized soil texture classifications and soil hydrologic group units within the District are shown in **Figure 3** and **Figure 4**, respectively, based on soil surveys prepared by the U.S. Department of Agriculture Natural Resources Conservation Service. Soils are generally of intermediate texture, with the predominant type being loam and sandy loam. Hydrologic Soil Group identification provides an indication of the relative runoff and infiltration potential of the soils with Hydrologic Soil Group A having the lowest runoff potential and highest infiltration potential and Hydrologic Soil Group D having the highest runoff potential and the lowest infiltration potential. Soils in the Kern Subbasin are predominantly in the B Hydrologic Soil Group in the south and the C Hydrologic Soil Group in the north. Soils in the White Wolf Subbasin are predominantly in the A Hydrologic Soil Group in the central portion of the District, with the B Hydrologic Soil Group being predominant in the west and the Hydrologic Soil Group C being predominant in the east. These Hydrologic Soil Groups indicate moderate infiltration rates across a majority of the District. Overall, soil conditions within the District are suitable for irrigated agriculture and do not impose material constraints on District water delivery or management practices.

2.4 Climate

The District experiences a semi-arid climate typical of the southern San Joaquin Valley, characterized by hot, dry summers, mild winters, and low annual precipitation. The growing season is long, supporting intensive irrigated agriculture. Average annual precipitation is approximately seven inches, with the majority occurring during the winter and early spring months.

Climate conditions relevant to agricultural water demand are summarized using data from the California Irrigation Management Information System (CIMIS) Arvin-Edison Station (Station No. 125). As summarized in **Table 2-5**, mean monthly temperatures range from approximately 38°F in winter months to 98°F during peak summer months, contributing to high seasonal evapotranspiration demand. Detailed CIMIS climate data for the period 2005-2025 are provided in **Table 2-6**.

Table 2-5. Summary of Climate Characteristics (CIMIS Station No. 125)

Climate Characteristic	Value
Average Annual Precipitation	7.20 inches
Minimum Monthly Precipitation (Average July)	0.05 inches
Maximum Monthly Precipitation (Average December)	1.40 inches
Average Minimum Temperature (January)	38.1°F
Average Maximum Temperature (July)	98.3°F

Table 2-6. Monthly Climate and Reference Evapotranspiration Summary
(CIMIS Station No. 125)

Month	Average Precipitation (inches)	Average Reference ET (inches[1])	Average Minimum Temperature (°F)	Average Maximum Temperature (°F)
January	0.91	1.71	38.1	59.7
February	1.00	2.52	40.1	65.0
March	1.31	4.01	44.3	69.1
April	0.71	5.76	48.4	75.3
May	0.45	7.789	55.1	82.9
June	0.07	8.90	62.1	91.7
July	0.05	9.38	67.9	98.3
August	0.14	8.72	65.8	96.7
September	0.07	6.33	60.5	91.1
October	0.41	4.32	50.7	80.2
November	0.67	2.27	41.9	68.0
December	1.40	1.47	36.9	59.6
Wet Season[2]	1.06[4]	2.40[4]	40.3[4]	64.3[4]
Dry Season[2]	0.27[4]	7.31[4]	58.7[4]	88.0[4]
Annual	7.20[3]	63.17[3]	51.0[4]	78.1[4]

Notes:
[1] Obtained from DWR CIMIS Station No. 125 Kern County, California.
[2] "Wet Season" constitutes months of November through March, "Dry season" covers remaining months (April-October).
[3] Total seasonal and annual values.
[4] Average of seasonal and annual monthly values.

2.5 Operating Rules and Regulations

District operations are guided by the principles of efficient, flexible, and equitable water management to support agricultural water supply reliability and sustainable groundwater management under SGMA. Since its establishment, the District has implemented a range of programs and projects to enhance long-term water supply sustainability within its service area.

The District has adopted Rules and Regulations for Distribution and Use of Water (Rules and Regulations), which govern District operations and the delivery of water supplies. These Rules and Regulations establish procedures for distributing irrigation water in an orderly, efficient, and equitable manner. A copy of the current Rules and Regulations is included as **Appendix D.**

With adoption of the 2025 Plan and White Wolf GSP, the District has begun implementing applicable PMAs identified in those plans. The PMAs are intended to support achievement of sustainable groundwater management by 2040 in the Kern Subbasin and by 2042 in the White Wolf Subbasin, consistent with SGMA requirements.

In addition, the WRM GSA began development of a groundwater allocation policy in March 2024, which may inform future groundwater management in the Kern Subbasin. This policy is currently in draft form

and has not been adopted. A copy of the draft policy is included as **Appendix E** for informational purpose only.

2.6 Water Delivery Measurements or Calculations

All farm turnouts where water is delivered by the District are equipped with flow meters that measure instantaneous flow and record cumulative deliveries using totalizers. District staff regularly read and review meter data to track delivered volumes and identify potential anomalies.

Table 2-7 summarize the District's water delivery measurement methods, including the types of devices used and their typical levels of measurement accuracy. District policy is to repair or replace meters that are found to be operating outside acceptable performance ranges. To promote consistency in measurement, the District uses meters from a single manufacturer. In addition to District monitoring, landowners may request meter testing if questions arise regarding measured deliveries.

Table 2-7 . Water Delivery Measurement Methods

Measurement Device	Frequency of Measure	Frequency of Calibration	Frequency of Typical Maintenance	Est. Level of Accuracy
Propeller meters with totalizers[1]	Regular (weekly reads)	As needed	As needed	±2 percent
Venturi meters[2]	Continuous	As needed	As needed	±2 percent

Notes:
[1] Propeller meters are manufactured by McCrometer (Model MG900). Manufacturer specifications indicate ±2 percent accuracy over the full operating range (approximately 40 to 8,500 gallons per minute, depending on pipe size), with higher accuracy over reduced ranges.
[2] Venturi Meters are used for deliveries from the California Aqueduct to the District's conveyance system and are operated and maintained by DWR.

2.7 Water Rate Schedules and Billing

The District Board establishes water rates on an annual basis. Water rates vary among service areas to reflect differences in energy and pumping costs associated with delivering water to those areas.

The District's rate structure consists of two primary components: fixed charges and variable charges. Fixed charges are generally based on Contract Acres (acreage enrolled under a Water Service Contract) and are used to recover costs associated with District infrastructure, administration, and personnel. Variable charges are assessed on a per acre-foot basis and reflect the costs of water supply and power associated with water delivery. **Table 2-8** summarizes the basis of the District's water rate structure.

Under conditions of Contract Water Service, water users pay a Water Availability Charge (fixed) and a Water Use Charge (volumetric) in accordance with their Water Service Contracts. On or before 1 July of each year, the District provides Contract Water Users with a final accounting of water charges for the prior year, reconciling budgeted rates and deliveries with actual values.

On or before 1 December of each year, the District notifies water users in writing of the estimated total water charges for the upcoming year. Estimated charges are paid in eight equal installments, due on the tenth day of February through September, and include charges associated with water allocated for that year.

Table 2-8. 2025 District Water Rate Basis

Type of Billing Rate Basis	Type Used? Yes/No	Approx. % of Water Deliveries[1]	Description
Volume of Water Delivered	Yes	100%	A portion of each water bill is based on volume of water delivered.
Area (acres)	Yes	100%	A portion of each water bill is based on an acreage-based charge.
Land Assessment	Yes	-	Lands benefiting from the District's facilities that are outside the SWSA pay a fixed per-acre charge, regardless of surface water delivery.
Crop Type	No	-	Not applicable.

Notes:

[1] Percentages reflect planning-level characterization of billing structure and are not intended to represent allocation or prioritization of water deliveries.

2.8 Water Shortage Allocation Policies and Drought Plan

This section describes the District's general approach to preparing for drought conditions and managing water supplies and allocations during periods of reduced water availability. Certain actions may require periodic evaluation of hydrologic conditions, operational practices, or governing policies, as well as consideration of long-term capital improvements. As water supply conditions evolve and new information or technologies become available, the District's drought management approaches may be refined accordingly.

2.8.1 Water Shortage Allocation Policies

The District's Water Shortage Allocation Policy is set forth in Section 3(l) of the Water Service Contracts and Section 8 (Water Shortages) of the District's Rules and Regulations (see **Appendix D**). Required drought planning elements are addressed through this policy, in coordination with other planning documents, including the 2025 Plan and White Wolf GSP, which provide the framework for the drought management measures described in the following sections.

2.8.2 Drought Plan

☑ ***CWC §10826.2***

As part of its agricultural water management plan, each agricultural water supplier shall develop a drought plan for periods of limited water supply describing the actions of the agricultural water supplier for drought preparedness and management of water supplies and allocations during drought conditions.

(a) Resilience planning, including all of the following

(1) Data, indicators, and information needed to determine the water supply availability and levels of drought severity

(2) Analyses and identification of potential vulnerability to drought

(3) A description of the opportunities and constraints for improving drought resilience planning, including all of the following:

(A) The availability of new technology or information

(B) The ability of the agricultural water supplier to obtain or use additional supplies during drought conditions

(C) A description of other planned actions to improve drought resilience

(b) Drought response planning, including all of the following

(1) Policies and a process for declaring a water shortage and for implementing water shortage allocations and related response actions

(2) Methods and procedures for the enforcement or appeal of, or exemption from, triggered shortage response actions

(3) Methods and procedures for monitoring and evaluation of the effectiveness of the drought plan

(4) Communication protocols and procedures to inform and coordinate customers, the public, interested parties, and local, regional, and state government

(5) A description of the potential impacts on the revenues, financial condition, and planned expenditures of the agricultural water supplier during drought conditions that reduce water allocations, and proposed measures to overcome those impacts, including reserve-level policies

Pursuant to CWC §10826.2, this section describes the District's approach to drought preparedness and drought response during periods of limited water supply. The Drought Plan is intended to provide a planning-level framework that supports coordinated implementation of adopted District policies, Water Service Contracts, and applicable GSPs.

Consistent with the 2025 Guidebook, this Drought Plan relies on existing District authorities, contractual provisions, and regional water supply monitoring programs and does not duplicate or supersede those governing documents. This Drought Plan does not establish new operational requirements but rather describes how the District prepares for and responds to drought conditions using these existing authorities and planning documents.

2.8.2.1 Resilience Planning

Data, Indicators, and Information

The District's drought resilience planning relies primarily on external hydrologic data and forecasts that influence water supply availability within its service area. The District's principal source of imported surface water is its allocation of SWP supplies received through KCWA. Hydrologic conditions affecting

the SWP – including precipitation, snowpack, runoff, and reservoir operations – are regularly monitored and forecasted by DWR and used to determine annual SWP allocations to contractors.

The WRMWSD uses these forecasts to assess anticipated surface water availability and to inform planning and operational decision-making. Deliveries from the California Aqueduct into the District's system are measured and allocated in accordance with adopted District policies and Water Service Contracts.

In addition, the District participates in water purchase, transfer, and groundwater banking programs[2] that supplement SWP supplies during dry years and allow for storage of surplus water during wetter periods. The District also monitors groundwater elevations and conditions through programs implemented under SGMA, consistent with monitoring requirements and reporting obligations established in the adopted GSPs for the Kern Subbasin and White Wolf Subbasin. Collectively, these data sources inform the District's understanding of drought conditions and available response options.

Drought Vulnerability

Drought vulnerabilities reflect conditions that may reduce water supplies available to the District or increase the impacts of water shortages on agricultural users. The District's vulnerability assessment is informed by prior planning efforts, including the adopted GSPs.

Key drought-related vulnerabilities include:

- Reduced availability of imported surface water supplies during dry or critically dry years,
- Declining groundwater levels that may increase pumping costs or affect well performance,
- Impacts to permanent crops from prolonged or multi-year water shortages, and
- Potential land subsidence associated with groundwater level declines that could affect water conveyance infrastructure.

These vulnerabilities form the basis for the District's drought preparedness and response planning.

Opportunities and Constraints

The District's ability to improve drought resilience is influenced by both opportunities and constraints. Annual and long-term DWR forecasting of SWP allocations and delivery capacity is a critical input for identifying potential drought conditions and surplus opportunities. Because a substantial portion of the District's water supply portfolio is dependent on the SWP, variability in SWP availability represents both a constraint during drought and an opportunity to capture surplus supplies during wetter periods.

The District has pursued opportunities to enhance drought resilience through participation in the Delta Conveyance Project[4], Sites Reservoir, local groundwater banking and recovery programs,[2] water transfers, and other supplemental supply arrangements that allow surplus water to be stored during wet years for later use during dry years. Advances in monitoring, data availability, and operational coordination under SGMA also provide opportunities to improve drought preparedness.

Constraints on drought resilience include hydrologic variability, regulatory requirements, infrastructure limitations, and economic considerations. Planned actions to address these opportunities and constraints are described in the adopted GSPs and associated PMAs, which are implemented independently of this AWMP.

[4] The District continued to fund the planning phase of the Delta Conveyance Project (DCP) in 2025. Previously in 2020, The WRMWSD Board of Directors elected to participate in the planning phase of the Delta Conveyance Project at a level of 32% (63,100 acre-feet) of its State Water Project entitlement.

2.8.2.2 Drought Response Planning

Water Shortage Declaration

The District's policies and procedures for declaring a water shortage and implementing water shortage allocations are established in Section 3(l) of the Water Service Contracts and Section 8 (Water Shortages) of the District's Rules and Regulations (see **Appendix D**). These policies govern how available water supplies are allocated among water users when SWP allocations or other supplies are insufficient to meet total contract amounts.

During drought conditions, the District's response focuses on allocating available surface water supplies, supplemented as appropriate by recovery of previously stored water from groundwater banking programs and operation of District-owned wells, consistent with adopted policies.

Response Actions

When water shortages occur, the District may implement one or more response actions, as summarized in **Table 2-9**. These actions are implemented as needed to manage reduced water availability and are carried out in accordance with existing District policies and contract provisions.

Table 2-9. Drought Response Actions

Response Action	Description of Response Action
Prorated SWP Allocations	Allocation of available District supplies among water users on a prorated basis.
Pumping of District-owned Wells	Use of District-owned wells as part of conjunctive water management.
Demand Management	Operational flexibility provided through pressurized delivery systems to support efficient on-farm water management.
Operational Adjustments	Increased recovery of previously banked water or operational coordination with groundwater supplies.
Alternative Water Supplies	Allocation of supplies obtained through water purchases, transfer, or banking programs.

Enforcement, Appeals, and Exemptions

Procedures related to enforcement, appeals, or exemptions associated with water shortage response actions are addressed through the District's Rules and Regulations, Water Service Contracts, and applicable GSA authorities. This AWMP does not establish new enforcement mechanisms.

Monitoring and Evaluation

The District monitors drought conditions and response effectiveness through ongoing review of SWP allocation forecasts, delivery data, and groundwater monitoring conducted under SGMA. Information from these sources is used to evaluate water availability and inform future drought preparedness and response planning. This Drought Plan will be reviewed and updated as part of the District's regular AWMP update cycle.

Communication Protocols

The District communicates drought-related information to landowners and interested parties through direct mail, website postings,[1] and coordination with partner agencies, including KCWA and regional water management

entities. The District also participates in regional coordination efforts to enhance water supply reliability and drought response across the broader service area.

Financial Impacts

Drought conditions that reduce water allocations may affect District revenues, costs, and planned expenditures. The District's Board annually establishes water allocations and rates based on anticipated water availability, budget requirements, and adopted policy. Fixed costs associated with District infrastructure and operations are recovered through acreage-based charges, while variable costs reflect water supply and delivery conditions.

The SWP costs include fixed obligations through KCWA that are incurred regardless of annual allocation levels, which can result in higher per–acre-foot costs during dry years. The District seeks to mitigate these impacts through water banking, supply diversification, and rate-setting practices that consider the relative costs of available supplies. Financial management during drought conditions is addressed through existing rate policies and reserve practices and is not governed by this AWMP.

3 DESCRIPTION OF QUANTITY OF WATER USES

☑ ***CWC §10826(b)(5)***

Water uses within the agricultural water supplier's service area, including all of the following:
(A) Agricultural.

(B) Environmental.

(C) Recreational.

(D) Municipal and industrial.

(E) Groundwater recharge, including estimated flows from deep percolation and from irrigation and seepage

Pursuant to CWC §10826, this section describes the quantity of water uses within the District's service area. Total water demand within the District water is generally consistent from year to year and is primarily driven by agricultural water uses. The following subsections summarize the quantities of water used to meet these demands, based on available data and planning-level assumptions.

Consistent with the District's groundwater management framework under SGMA, water use information is presented by groundwater subbasin, where applicable, and summarized at the District-wide level. This approach maintains consistency with the adopted GSPs for the Kern and White Wolf Subbasins and reflects differences in water demands and management considerations across the District's service area.

3.1 Agricultural Water Use

The primary land use within the District's service area is agriculture. Agricultural development expanded significantly during the mid-20th century, reached peak irrigated acreage by the mid-1970s, and since the 1990s has transitioned from predominantly annual field crops to a greater proportion of permanent crops. During the 2021-2025 period[3], permanent crops - primarily almonds, citrus, and grapes - accounted for slightly more than 70 percent of the total planted acreage within the District.

This long-term shift toward permanent crops has altered the character of agricultural water demand within the District. Permanent crops generally require a consistent annual water supply to maintain orchard and vineyard viability, and provide limited flexibility for demand reduction during water shortage conditions. As a result, the District's overall agricultural water demand has become comparatively less variable year-to-year, even as the sources of supply may fluctuate.

Accurate estimation of agricultural water use is critical for planning and managing water resources within the District. Because growers rely on a combination of surface water deliveries at farm turnouts and groundwater pumping, agricultural water use is estimated using crop evapotranspiration (ETc) as a planning-level indicator of consumptive use. ETc represents the quantity of water required to meet crop water demand through the combined processes of soil evaporation and plant transpiration under standard growing conditions.

For the purposes of this AWMP, the District relies on satellite-based ETc datasets obtained as part of the GSP preparation and SGMA annual reporting for the Kern and White Wolf Subbasins. For 2021, ETc estimates were derived from Irrigation Training and Research Center (ITRC) METRIC raster datasets. Beginning in 2022, ETc data were obtained from LandIQ. Monthly ETc values for irrigated parcels[5] were

[5] Irrigated parcels are identified as those tabulated in Table 2-2 based on the District's CROP survey. In some instances, the District's land use classification does not match that reported by LandIQ.

multiplied by parcel acreage and summed over the Water Year to estimate total annual agricultural water use. Estimated annual ETc for 2021 through 2025 is summarized in **Table 3-1** by groundwater subbasin.

Consistent with the 2025 Guidebook, this AWMP does not provide crop-by-crop ET calculations. Instead, agricultural water use is presented in aggregate using accepted remote-sensing methods that provide a consistent and defensible estimate of consumptive use across the District while avoiding unnecessary detail.

The District's service area includes an overlap with AEWSD, which appears as a checkerboard pattern in **Figure 1**. Approximately 1,800 acres within the District are also located within the AEWSD surface water service area. This AWMP does not account for AEWSD surface water deliveries to these overlap lands. Agricultural water requirements are estimated for all WRMWSD acreage; however, only the WRMWSD water deliveries are tabulated and reported in this AWMP.

Table 3-1. Estimated District Agricultural Water Uses for Water Years 2021 to 2025 by Subbasin

Subbasin	Estimated Agricultural Uses by Year (AF)				
	2021	2022	2023	2024	2025
Kern County Subbasin	155,064	158,832	146,987	144,508	124,419
White Wolf Subbasin	56,563	66,012	66,947	66,604	58,868
District Total	**211,627**	**224,844**	**213,934**	**211,112**	**183,287**

Abbreviations:
AF = acre-feet
ETc = crop evapotranspiration

Notes:
1. ETc is estimated using ITRC-METRIC datasets for October 2020 to December 2021 and Land IQ for January 2022 to September 2025. Monthly ETc rasters are averaged over each irrigated parcel, summed over the Water Year, and converted to a volume based on parcel area.

3.2 Environmental Water Use

The District does not supply water for environmental purposes within its service area, as noted in **Table 3-2**.

The District participates as a member of the Kern Water Banking Authority, which provides incidental regional environmental benefits associated with managed groundwater recharge and storage activities, including benefits to upland terrestrial habitat and waterfowl. Water associated with these activities is not delivered by the District for environmental uses within its service area and is therefore not considered an environmental water use under this AWMP.

Table 3-2. District Environmental Water Uses for Water Years 2021 to 2025 by Subbasin

Subbasin	Environmental Uses by Year (AF)				
	2021	2022	2023	2024	2025
Kern County Subbasin	0	0	0	0	0
White Wolf Subbasin	0	0	0	0	0
District Total	**0**	**0**	**0**	**0**	**0**

Abbreviations:
AF = acre-feet

Notes:
[1] The District does not supply water to environmental uses.

3.3 Recreational Water Use

The District does not supply water to recreational uses within its service area, as noted in **Table 3-3.**

Table 3-3. District Recreational Water Uses for Water Years 2021 to 2025 by Subbasin

Subbasin	Recreational Uses by Year (AF)				
	2021	2022	2023	2024	2025
Kern County Subbasin	0	0	0	0	0
White Wolf Subbasin	0	0	0	0	0
District Total	**0**	**0**	**0**	**0**	**0**

Abbreviations:
AF = acre-feet

Notes:
[1] The District does not supply water to recreational uses.

3.4 Municipal and Industrial Water Use

The District does not provide municipal (domestic) water service. The District does deliver raw (non-potable) water for limited industrial water uses within its service area, including deliveries to facilities such as the Pastoria Energy Facility.

A portion of the District's jurisdictional area overlaps with TCWD, which provides water service – primarily for industrial uses - to the Tejon Ranch Commerce Center along the Interstate 5 corridor. The District does not supply water to TCWD, which operates independently using its own surface water supplies and groundwater banking facilities.

All District deliveries for industrial uses are metered. Annual volumes of municipal and industrial deliveries are summarized in **Table 3-4**.

Table 3-4. District M&I Water Uses for Water Years 2021 to 2025 by Subbasin

Subbasin	M&I Uses per Year (AF)				
	2021	2022	2023	2024	2025
Kern County Subbasin	3	92	105	106	23
White Wolf Subbasin	3,251	2,526	3,046	3,162	2,955
District Total	**3,254**	**2,618**	**3,151**	**3,268**	**2,978**

Abbreviations:
AF = acre-feet
M&I = municipal and industrial

Notes:
[1] Specific industrial entity receiving water supplies are documented in the District's annual surface water deliveries to land reports. Industrial water uses associated with the Tejon Ranch Commerce Center are served by the TCWD and are not included in the deliveries reported herein.

3.5 Groundwater Recharge Use

Groundwater recharge within the District occurs through a combination of indirect recharge, on-farm recharge, and direct recharge at regional groundwater banking[2] facilities.

Indirect groundwater recharge occurs when surface water deliveries offset groundwater pumping for irrigation. Each acre-foot of surface water delivered in lieu of pumping provides an immediate recharge benefit by reducing groundwater extractions.

In 2023, the District initiated a landowner on-farm recharge program as a new PMA under SGMA. This program provided financial incentives for landowners to intentionally infiltrate surplus surface water on agricultural lands to recharge the underlying aquifer during suitable conditions.

The District also participates in several long-term groundwater banking programs that provide direct recharge opportunities using spreading and percolation basins. These facilities allow surplus surface water to be stored during wetter periods for later recovery during dry years. Participating projects include the Kern Water Bank, the Pioneer Project, the Mettler Recharge Project, and the Berrenda Mesa Project facilities. These projects are located primarily on the Kern River alluvial fan, with the exception of the Mettler Recharge Project, which is located within the White Wolf Subbasin (**Figure 5**).

Recharge volumes for 2021-2025 are summarized in **Table 3-5**, which illustrates that the majority of recharge occurs during wet years when surplus surface water supplies are available and recharge facilities can operate at higher capacity.

Together, indirect recharge, on-farm recharge, and off-site groundwater banking provide the District with a flexible portfolio of recharge options that support groundwater sustainability objectives and improve water supply reliability during dry and critically dry conditions.

Table 3-5. District Groundwater Recharge Uses (including percolation and seepage) for Water Years 2021 to 2025 by Subbasin

Subbasin	Groundwater Recharge Uses per Year (AF)				
	2021	2022	2023	2024	2025
On-Farm Landowner Recharge and Percolation Estimate[2]	0	0	5,657	1,481	0
Sub-Total Kern County Subbasin	**0**	**0**	**5,657**	**1,481**	**0**
Mettler Recharge Facility[1]	0	0	11,077	1,014	0
On-Farm Landowner Recharge and Percolation Estimate[2]	0	0	11,694	743	0
Sub-Total White Wolf Subbasin	**0**	**0**	**22,771**	**1,757**	**0**
District Total	**0**	**0**	**28,428**	**3,238**	**0**

Abbreviations:
AF = acre-feet

Notes:
[1] Deliveries for managed groundwater recharge are documented in the District's annual surface water deliveries to land reports.
[2] On-farm landowner recharge and percolation represents the intentional infiltration of surplus surface water on agricultural lands conducted pursuant to District programs or incentives.

3.6 Evaporative Losses on Open Storage or Channels

Evaporative losses from the Mettler Recharge Facility and from the 850 Canal is estimated based on hook gage readings at District operated Greenlee's pasture climate station. At the Mettler Recharge Facility, the total daily wetted area of the recharge basin determined based on pond level height (in acres) is multiplied by the daily evaporation (in feet) to calculate a volumetric evaporation loss (in AF). Daily values are summed to annual over the water year. Similarly, for the 850 Canal, total surface area of the canal is multiplied by the monthly evaporation, and monthly values are summed over the water year. Both the 850 Canal and Mettler Recharge Facility are located in the White Wolf Subbasin. Evaporative loss estimates are provided in **Table 3-6** below.

Table 3-6. Evaporative Losses for Water Years 2021 to 2025 for the White Wolf Subbasin

Facility	Evaporative Losses by Year (AF)				
	2021	2022	2023	2024	2025
850 Canal	47	104	92	99	111
Mettler Recharge Facility	0	0	203	39	0
White Wolf Subbasin / District Total [1]	**47**	**104**	**295**	**138**	**111**

Abbreviations:
AF = acre-feet

Notes:
[1] Facilities are located in the White Wolf Subbasin and therefore totals also represent totals for the District.

3.7 Summary of District Water Uses

This subsection summarizes total water uses within the District's service area, based on the planning-level estimates and data described in the preceding subsections. Water use information is presented in **Tables 3-7A** through **3-7C**, with two tables summarizing water uses by subbasin (Kern County and White Wolf), and the last table providing a District-wide total.

Table 3-7A. Kern County Subbasin Sub-Total
Summarized Water Uses for Water Years 2021 to 2025

Water Uses (AWMP Table) [1]	Water Uses by Year (AF)				
	2021	2022	2023	2024	2025
Agricultural (3-1)	155,064	158,832	146,987	144,508	124,419
Environmental (3-2)	0	0	0	0	0
Recreational (3-3)	0	0	0	0	0
M&I (3-4)	3	92	105	106	23
Groundwater Recharge (3-5)	0	0	5,657	1,481	0
Subbasin Total	**155,067**	**158,924**	**152,749**	**146,095**	**124,442**

Abbreviations:
AF = acre-feet
M&I = municipal and industrial
Notes:
[1] Values summarized from Tables as cited.

Table 3-7B. White Wolf Subbasin Sub-Total
Summarized Water Uses for Water Years 2021 to 2025

Water Uses (AWMP Table) [1]	Water Uses by Year (AF)				
	2021	2022	2023	2024	2025
Agricultural (3-1)	56,563	66,012	66,947	66,604	58,868
Environmental (3-2)	0	0	0	0	0
Recreational (3-3)	0	0	0	0	0
M&I (3-4)	3,251	2,526	3,046	3,162	2,955
Groundwater Recharge (3-5)	0	0	22,771	1,757	0
Evaporative Losses (3-6)	47	104	295	138	111
Subbasin Total	**59,861**	**68,642**	**93,059**	**71,661**	**61,934**

See notes for Table 3-6A.

Table 3-7C. District Total Summarized Water Uses for Water Years 2021 to 2025

Water Uses (AWMP Table) [1]	Water Uses by Year (AF)				
	2021	2022	2023	2024	2025
Agricultural (3-1)	211,627	244,844	213,934	211,112	183,287
Environmental (3-2)	0	0	0	0	0
Recreational (3-3)	0	0	0	0	0
M&I (3-4)	3,254	2,618	3,151	3,268	2,979
Groundwater Recharge (3-5)	0	0	28,428	3,238	0
Evaporative Losses (3-6)	47	104	295	138	111
District Total	**214,928**	**227,566**	**245,808**	**217,756**	**186,376**

See notes for Table 3-6A.

4 DESCRIPTION OF WATER SUPPLY QUANTITY AND QUALITY

☑ ***CWC §10826(b)***

Describe the quantity and quality of water resources of the agricultural water supplier, including all of the following:
(1) Surface water supply.
(2) Groundwater supply.
(3) Other water supplies, including recycled water.
(4) Source water quality monitoring practices.
(5) Water uses within the agricultural water supplier's service area.

Pursuant to CWC §10826, this section describes the quantity and quality of water supplies available to the District. Section 4.1 summarizes the quantity of surface water, groundwater, and other water supplies available to meet District demands, while Section 4.2 describes the general quality characteristics of these water sources. Together, these sections provide a planning-level characterization of the water resources used by the District, including surface water, groundwater, and other supplies, where applicable.

Sections of this AWMP rely on information located in the WRM GSA's 2025 GSP and in the WW GSA's 2022 GSP prepared pursuant to SGMA. Because the GSPs represent the Kern County Subbasin's and White Wolf Subbasin's primary technical groundwater management document, any inconsistencies between this AWMP and the adopted GSPs are unintended and the GSPs 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 WRMWSD service area.

Consistent with the District's groundwater management framework under SGMA, information on water supply quantity and quality is presented, where applicable, by subbasin and summarized at the District-wide level. This approach maintains consistency with the adopted GSPs for the Kern and White Wolf Subbasins, and reflects differences in water supply sources, availability, and management considerations across the District's service area.

4.1 Water Supply Quantity

This section describes the quantity and sources of water supplies available to the District, including surface water, groundwater, and other supplemental supplies, as well as consideration of effective precipitation, consistent with CWC requirements and the 2025 Guidebook.

4.1.1 Surface Water Supply

Surface water deliveries to the District commenced in 1971. All surface water delivered by the District is raw, untreated water suitable for agricultural irrigation and is not treated for potable use. The District's primary surface water supply is imported SWP water delivered via the California Aqueduct. In addition to contracted SWP supplies, the District may receive supplemental surface water from other sources in certain years.

Table 4-1 summarizes surface water supplies delivered to the District, including contracted SWP deliveries, supplemental SWP supplies, transferred water, and water recovered from regional groundwater banking programs in which the District participates.

4.1.1.1 State Water Project Supplies

The District imports SWP pursuant to a 1967 contract with KCWA, which is subject to 15 November 1963 Water Supply Contract between the State of California, acting through DWR, and KCWA, as amended. The District's maximum SWP contract amount is 197,088 AFY (the "Table A" amount). Actual deliveries vary annually based on hydrologic conditions, regulatory and operational constraints affecting the SWP, and allocation determinations made by DWR, which are typically expressed as a percentage of the Table A amount.

In addition to annual allocations, SWP supplies available to the District may include the Dry Year Transfer Program, and Yuba Program. The Dry Year Transfer Program (DYTP) allows water to be temporarily and voluntarily sold from willing sellers to buyers—typically in central and southern California—during droughts. It serves as a flexible emergency supply, often delivering water between July and September through State Water Project facilities. The program was historically managed by the State Water Contractors. The Yuba Program, developed through the Yuba River Accord and coordinated by DWR and the Yuba County Water Agency (Yuba Water), enables Yuba Water to sell water that is already being released for fish habitat to other areas of the state that need it. The agreement includes surface water releases from New Bullards Bar Reservoir, along with voluntary groundwater substitution by Yuba Water's member agencies.

The District may also utilize "Carryover Water" stored in San Luis Reservoir, which allows unused allocated SWP water from a prior year to be retained for delivery in a subsequent year, subject to DWR rules, reservoir storage conditions, and operational constraints. Carryover supplies provide limited inter-annual flexibility but are dependent on available storage space and may be reduced or unavailable during extended dry periods.

From time to time, additional SWP supplies - commonly referred to as "Article 21" water, pursuant to contract provisions – may be made available purchase during periods of surplus conditions. Historically, the District has been able to receive Article 21 water in some years; however, increasing operational and regulatory constraints on SWP pumping have limited the availability of these supplies. Over the most recent five-year period, Article 21 water was available to the District only in 2023, a wet year with 100-percent SWP Table A allocation.

4.1.1.2 Kern River-Related Supplies

The District does not hold direct surface water diversion rights to the Kern River. However, pursuant to contractual and cooperative agreements facilitated through KCWA, Kern River water may be available to the District in some years through exchanges, transfers, or other regional water management arrangements. In September 2000, KCWA purchased undivided interest in the Kern River Lower River right, and then purchased the remaining undivided interest of the Lower River right and other interests from Olcese Water District and the Nickel Family in January 2001. In 2015, an agreement was executed between WRMWSD and KCWA for a portion of KCWA's Lower River right as stated in the *Contract for a Portion of Kern County Water Agency Kern River Lower River Rights and Obligations*. As Kern River water supplies received by the District are supplemental and are not relied upon as a primary water source. These supplies are typically limited to wet-year conditions and are not available on a regular or predictable basis.

4.1.1.3 Water Transfers

Surface water transfers represent a supplemental and non-contractual component of the District's overall water supply portfolio. In some years, the District may acquire water through short-term transfers or exchanges with other water agencies or landowners, including transfers involving SWP supplies, Central Valley Project Friant Division exchange water, or other regionally available supplies conveyed through

existing conveyance facilities. The District may also facilitate common landowner transfers,[6] whereby water associated with lands or rights held by the same landowner is moved or exchanged consistent with applicable contracts, regulations, and operational constraints.

Transferred and exchanged supplies are obtained in response to hydrologic conditions, market availability, and operational considerations, and are subject to conveyance capacity, regulatory approvals, and third-party agreements. These supplies are not guaranteed and may vary substantially from year to year.

4.1.1.4 Banking Recovery

Recovered banked water represents a supplemental surface water supply consisting of previously imported water that was stored in regional groundwater banking or managed aquifer recharge (MAR) programs during periods of surplus availability. In years when recovery is available, the District may recover a portion of its banked water pursuant to established agreements, subject to hydrologic conditions, conveyance availability, and applicable operational and recovery limitations. Banking recovery is not a guaranteed annual supply and is therefore considered a flexible resource that may augment primary SWP supplies and local groundwater use, particularly during dry or critically dry years.

The District participates in several regional groundwater banking and recharge programs that provide recharge and recovery opportunities outside the District's service area, as well as one facility located within the White Wolf Subbasin. These programs are summarized below.

Kern Water Bank Participation

The WRMWSD participates in the Kern Water Bank Authority (KWBA), a large regional groundwater banking program located on the Kern River alluvial fan north of the District and within the Kern Subbasin. The Kern Water Bank provides substantial interannual storage capacity through recharge during wet years and recovery during drier years. Water recovered through KWBA participation is considered a supplemental and non-guaranteed supply that enhances the District's ability to manage variability in SWP availability.

Pioneer Recharge Facility

The District also participates in the Pioneer Recharge Project, a MAR facility operated by KCWA on the Kern River alluvial fan and within the Kern Subbasin west of Bakersfield. The project includes recharge basins and conveyance facilities that allow surplus water from regional sources to be recharged during periods of excess availability. Participation in the Pioneer Recharge Project provides additional flexibility to store the District's surplus water during wet years for later recovery during dry periods, subject to project priorities and operational constraints.

Berrenda Mesa Project

The WRMWSD participates in the Berrenda Mesa Project, a MAR facility located in the Kern Subbasin. The project is designed to store surplus surface water in underlying aquifers during wet years through spreading and percolation, with stored water available for recovery during periods of drought or high demand. The District's participation in this project provides another supplemental groundwater banking option that supports regional groundwater sustainability and improves water supply reliability during dry and critically dry conditions.

[6] "Common landowner transfers" refer to the movement or exchange of water associated with lands or water rights held by the same landowner, and do not represent new water supplies and are not guaranteed in any given year.

4.1.1.5 Local Stream Diversions

Approximately 3,000 acres within the District are irrigated with surface water diverted from local stream diversions, including Tejon Creek, El Paso Creek, Tunis Creek, Pastoria Creek, and Live Oak Creek. These diversions are made by individual landowners pursuant to applicable water rights and are stored in on-site reservoirs for later use. In some cases, diverted water may also be conveyed through the District's 850 Canal for distribution to agricultural fields using District facilities. These local diversions represent a minor and localized component of the District's overall water supply.

Table 4-1. Breakdown of District Surface Water Supplies For Water Years 2021 to 2025

Source of Surface Water Supply	Type of Supply	Total Surface Water Supplies by Year[1] (AF)				
		2021	2022	2023	2024	2025
		Critical[2]	Critical	Wet	Above Normal	Above Normal
		5%[2]	5%	100%	40%	50%
SWP Surface Supplies[3]	Surface	36,979	1,391	110,968	77,089	130,041
Kern River Supplies	Surface	0	0	12,353	0	0
Water Transfers	Surface	24,243	20,187	37,859	58,544	10,537
Banking Project Recovery[4]	Bank Return	48,461	63,236	14,301	15,170	0
Local Stream Diversions[5]	Surface	2,334	2,387	2,912	3,008	2,521
District Total		**112,017**	**87,201**	**178,393**	**153,811**	**143,099**

Notes:
[1] Surface water supplies tabulated from Engineer-manager's monthly reports
[2] Reported San Joaquin Hydrologic Index and SWP Table A Allocation Percentage per DWR sources.
[3] Sub-total of Table A, Turnback Pool, Carryover Storage, and Article 21 SWP-based supplies.
[4] Sub-total of recovered water from the Kern Water Bank, Pioneer Recharge Project, Berrenda Mesa Project, and Mettler Recharge Project.
[5] Sub-total of Pastoria Creek/TRC.

For consistency with the tables above, and groundwater management and planning under SGMA, total surface water supplies provided to the District's service area are reported in **Table 4-2** below by subbasin.

Table 4-2. Surface Water Supplies for Water Years 2021 to 2025 by Subbasin

Subbasin	Surface Water Supplies by Year (AF)				
	2021	2022	2023	2024	2025
Kern County Subbasin	89,763	76,064	79,759	105,740	96,236
White Wolf Subbasin	22,254	11,137	98,634	48,071	46,863
District Total	**112,017**	**87,201**	**178,393**	**153,811**	**143,099**

Abbreviations:
AF = acre-feet

Notes:
1. Surface water supplies for White Wolf Subbasin from Annual Reports. Kern County Subbasin water supplies calculated as the difference between total district supplies and White Wolf Subbasin supplies.

4.1.1.6 Regulatory and Operational Limitations

This subsection describes regulatory and operational constraints that may affect the availability, timing, and reliability of the District's surface water supplies. **Table 4-3** summarizes the primary limitations applicable to the District's surface water sources.

Surface water supplies delivered through the SWP are subject to hydrologic conditions, regulatory requirements, regulatory requirements, and operational constraints that influence annual delivery volumes and timing. These constraints include requirements associated with the protection of listed species under state and federal law, actions of the SWRCB affecting Delta operations, and related judicial decisions. Collectively, these factors affect DWR's facilities operations within and upstream of the Delta, and contribute to variability in SWP deliveries.

The same regulatory and operational constraints may also limit the conveyance of transferred water through the Delta and the ability to move surplus supplies to or recover stored supplies from regional groundwater banking programs. As a result, the availability of transferred or banked surface water supplies may vary by year and hydrologic conditions.

Regulatory and operational limitations may also influence the cost of surface water supplies. Fixed costs associated with SWP participation are incurred regardless of annual delivery volumes, while supplemental supplies obtained through transfers or banking programs are subject to market availability, conveyance constraints, and operational feasibility.

Table 4-3. Regulatory and Operational Limitations Affecting Surface Water Supplies

Impacted Source	Restrictions or Imposed Limitations	Name of Agencies Imposing Restrictions	Operational Constraints
SWP Imported Water	Hydrologic conditions; Delta pumping and delivery constraints.	USFWS, NMFS, SWRCB, Federal Courts	Variability and reduced reliability of SWP deliveries conveyed through the Delta
Procured Water Transfers	Delta and SWP facilities conveyance limitations.	USFWS, NMFS, SWRCB, Federal Courts	Reduced opportunities or timing limitations for conveying transferred supplies through the Delta

Abbreviations:
NMFS = National Marine Fisheries Services
SWP = State Water Project
SWRCB = State Water Resources Control Board
USFWS = United States Fish and Wildlife Services

4.1.2 Groundwater Supply

The District overlies portion of two groundwater subbasins, the Kern Subbasin and the White Wolf Subbasin, both of which are part of the larger San Joaquin Valley Groundwater Basin within the Central Valley aquifer system. The relationship between the District's service area and the underlying groundwater subbasins is shown in **Figure 1**. Key characteristics of each subbasin are summarized in **Table 4-4.** Detailed descriptions of groundwater conditions, aquifer characteristics, and groundwater management approaches within the District's service area are provided in the adopted GSPs.

Groundwater management in the Kern Subbasin is addressed in the 2025 Plan, while groundwater management in the White Wolf Subbasin is addressed in the adopted White Wolf GSP.

Table 4-4 Kern County and White Wolf Subbasins - Size and Characteristics

Basin Name	Size (Sq. Mi.)	Estimated Capacity (AF)	Sustainable Yield (AFY)
Kern County Subbasin	2,834[1]	40,000,000[2]	1,312,200[1]
White Wolf Subbasin	168[3]	4,000,000[3]	38,200 to 47,200[3]

Abbreviations:
AF = acre-feet
AFY = acre-feet per year
Sq. Mi. = Square miles

Notes:
[1] *Source*: 2025 Kern County Subbasin GSP.
[2] *Source*: DWR California's Groundwater Bulletin 118 (Update 2025).
[3] *Source*: White Wolf GSP.

The District owns and operates 14 groundwater wells, of which two are located in the Kern Subbasin and 12 are located in the White Wolf Subbasin (**Figure 5**). Groundwater production from all District-owned wells is metered. Water produced from these wells is pumped into the District's distribution system and delivered to meet agricultural demands within the SWSA.

Although District-delivered water supplies meet most agricultural demands within the SWSA, some landowners supplement District deliveries with groundwater pumped from privately owned wells. Lands located outside the SWSA but within the District's jurisdiction rely primarily on privately pumped groundwater. In addition, the District has historically allowed a user-input program under which landowners may pump groundwater from private wells into the District's system during periods of low demand for credit and recover water during periods of higher demand, subject to District policies.

Accordingly, total groundwater extraction within the District consists of production from District-owned wells, groundwater pumped through the user-input program, and groundwater pumped from private wells serving lands within the District. While the District maintains accurate records of groundwater production from its own facilities and groundwater conveyed through the user-input program, direct metered data for privately pumped groundwater are not uniformly available.

As part of a groundwater service charge adopted in 2023, the District has begun estimating parcel-level groundwater use using remote-sensing–based ETc data. Landowners may elect to submit data from existing well meters, subject to District review, in lieu of ETc-based estimates. These estimates are used for planning and billing purposes and do not alter groundwater management authorities established under SGMA. **Table 4-5** summarizes the total groundwater supplies used within the District for the period 2021 through 2025.

Table 4-5. District Groundwater Supplies for Water Years 2021 to 2025 by Subbasin

	Groundwater Supplies by Year (AF)				
	2021	2022	2023	2024	2025
District-owned Wells[1]	848	1,532	171	18	0
Private Wells[2]	76,834	71,125	22,577	28,258	29,575
Sub-Total Kern County Subbasin	**77,682**	**72,657**	**22,748**	**28,276**	**29,575**
District-owned Wells[1]	5,038	6,816	1,099	132	3
Private Wells[2]	54,595	44,560	12,142	14,937	11,963
Sub-Total White Wolf Subbasin	**59,633**	**51,376**	**13,241**	**15,069**	**11,966**
District Total	**137,315**	**124,033**	**35,989**	**43,346**	**41,541**

Abbreviations:
AF = acre-feet

Notes:
[1] Metered data based on the District's *Summary of Deliveries.*
[2] Estimates based on White Wolf Groundwater Flow Model or as provided by the District on 21 October 2025 (2021) and on 28 January 2026 (2022-2025), as follows:
- Kern County Subbasin: 2021 is reported as calendar year and is estimated from delivered water, crop acres, and crop coefficients. 2022-2025 is a summation of private user input and as estimated by the groundwater service charge calculator. 2022 is reported as calendar year and 2023-2025 are reported as water year.
- White Wolf Subbasin: October 2020 to December 2021 is estimated by the White Wolf Groundwater Flow Model. January 2022 to September 2025 is a summation of private user input and as estimated by the groundwater service charge calculator.

4.1.3 Other Water Supplies (including Recycled Water)

The District does not utilize recycled water and does not rely on any additional water supply sources beyond those described in Section 4.1.1 and 4.1.2.

Precipitation is not considered a managed or deliverable water supply for District operations. However, consistent with the annual water budget requirements of CWC §10826(c), estimates of effective precipitation are included below for planning and accounting purposes.

4.1.3.1 Effective Precipitation

Effective precipitation within the District's service area is calculated as the total rainfall over the developed or irrigated acres of the District. It assumes that 100% of precipitation is effective and available to meet crop consumptive used due to several local conditions: (1) precipitation is rarely significant enough to cause runoff from developed fields; and (2) the volume of precipitation is assumed to remain in the shallow vadose zone and, therefore, is available for uptake by crops.

Precipitation data is monitored by the District at six locations within its service area: (1) Greenlee's Pasture, (2) District Headquarters, (3) WRM-2 Pumping Plant, (4) 5P-P2 Pumping Plant, (5) PA-2 Pumping Plant, and (6) Spillway Basin. The Thiessen average for precipitation can be calculated across the service area using these monitoring stations. **Table 4-6A** through **4-6C** provides the annual effective precipitation over the irrigated acres of the District for 2021 to 2025.

Table 4-6A. Kern County Subbasin Sub-Total Effective Precipitation for Water Years 2021 to 2025

	2021	2022	2023	2024	2025
Active Cropped (Irrigated, acres)[1]	59,091	57,818	53,014	50,435	45,666
Precipitation (inches)[2]	2.81	5.38	11.63	8.39	4.98
Subbasin Total Effective Precipitation Supply (AF)	**13,837**	**25,922**	**51,379**	**35,262**	**18,951**

Abbreviations:
AF = acre-feet
Notes:
[1] Active cropped irrigated acres as presented in Table 2-2.
[2] Precipitation calculated as the Thiessen Average using District rain gauge data.

Table 4-6B. White Wolf Subbasin Sub-Total Effective Precipitation for Water Years 2021 to 2025

	2021	2022	2023	2024	2025
Active Cropped (Irrigated, acres)	23,976	24,164	24,219	23,790	22,195
Precipitation (inches)	2.81	5.38	11.63	8.39	4.98
Subbasin Total Effective Precipitation Supply (AF)	**5,614**	**10,834**	**23,472**	**16,633**	**9,211**

See notes for Table 4-6A.

Table 4-6C. District Total Effective Precipitation for Water Years 2021 to 2025

	2021	2022	2023	2024	2025
Active Cropped (Irrigated, acres)	83,067	81,982	77,233	74,225	67,861
Precipitation (inches)	2.81	5.38	11.63	8.39	4.98
District Total Effective Precipitation Supply (AF)	**19,452**	**36,755**	**74,852**	**51,896**	**28,162**

See notes for Table 4-6A.

4.1.4 Summary of District Water Supplies

This subsection summarizes total water supplies within the District's service area, based on the planning-level estimates and data described in the preceding subsections. Water supply information is presented in **Table 4-7A** through **4-7C**, with two tables summarizing water supplies by subbasin (Kern and White Wolf), and the last table providing a District-wide total.

Table 4-7A. Kern County Subbasin Sub-Total Summarized Water Supplies for Water Years 2021 to 2025

Water Supplies (AWMP Table) [1]	Water Supplies by Year (AF)				
	2021	2022	2023	2024	2025
Surface Water (4-2)	89,763	76,064	79,759	105,740	96,236
Groundwater (4-5)	77,682	72,657	22,748	28,276	29,575
Effective Precipitation (4-6A)	13,837	25,922	51,379	35,262	18,951
Subbasin Total	**181,282**	**174,643**	**153,887**	**169,278**	**144,762**

Abbreviations:
AF = acre-feet

Notes:
[1] Values summarized from Tables as cited.

Table 4-7B. White Wolf Subbasin Sub-Total Summarized Water Supplies for Water Years 2021 to 2025

Water Supplies (AWMP Table) [1]	Water Supplies by Year (AF)				
	2021	2022	2023	2024	2025
Surface Water (4-2)	22,254	11,137	98,634	48,071	46,863
Groundwater (4-5)	59,633	51,376	13,241	15,069	11,966
Effective Precipitation (4-6B)	5,614	10,834	23,472	16,633	9,211
Subbasin Total	**87,501**	**73,346**	**135,347**	**79,773**	**68,040**

See notes for Table 4-7A.

Table 4-7C. District Total Summarized Water Supplies for Water Years 2021 to 2025

Water Supplies (AWMP Table) [1]	Water Supplies by Year (AF)				
	2021	2022	2023	2024	2025
Surface Water (4-2)	112,017	87,201	178,393	153,811	143,099
Groundwater (4-5)	137,315	124,033	35,989	43,345	41,541
Effective Precipitation (4-6C)	19,452	36,755	74,852	51,896	28,162
District Total	**268,784**	**247,989**	**289,234**	**249,052**	**212,802**

See notes for Table 4-7A.

4.2 Water Supply Quality

This section describes the quality of surface water and groundwater supplies available to the District and summarizes applicable source water quality monitoring practices, consistent with CWC §10826.

4.2.1 Surface Water Quality

The District's primary surface water supply is SWP water delivered via the California Aqueduct. Other supplemental and imported surface water supplies, when available, are conveyed through the same facilities. Based on available monitoring data and operational experience, SWP water delivered to the District is generally of good quality and suitable for agricultural irrigation, with no persistent water quality constraints affecting its use within the service area.

Surface water quality data are collected at the Teerink Pumping Plant on the California Aqueduct, located approximately 4.5 miles downstream of Maricopa Highway and 2 miles upstream of the District's WRM-10 Pumping Plant. Water quality samples are typically collected on a monthly basis. Representative water quality data for the 2021–2025 period are summarized in **Table 4-8.** Parameters monitored include major ions, nutrients, and total dissolved solids (TDS), which are commonly used indicators of irrigation suitability.

Table 4-8. Representative Surface Water Quality Breakdown for SWP Sources to District

Parameter	Units	Concentration	Irrigation Suitability Limit[1]
Boron	mg/L	0.16	0.7
Calcium	mg/L	22.0	--
Magnesium	mg/L	6.1	--
Sodium	mg/L	52.3	69
Chloride	mg/L	55.0	106
Sulfate	mg/L	42.7	--
Nitrate	mg/L	3.2	5
TDS	mg/L	248	450

Abbreviations:
mg/L = milligrams per liter
TDS = total dissolved solids
Notes:
[1] "None" degree of restriction on use, as presented in Table 1 of Ayers and Westcot, 1994. Sodium and chloride values translated from milliequivalents to mg/L.

4.2.2 Groundwater Quality

Groundwater quality conditions within the District's service area are documented in the adopted GSPs for the Kern Subbasin (including the South of Kern River area) and the White Wolf Subbasin. Under SGMA, groundwater quality is addressed as a sustainability indicator at the basin scale, and the GSPs summarize existing conditions, trends, and management considerations relevant to agricultural use.

The primary constituents of concern identified in both subbasins include salinity (TDS), nitrate, and arsenic. Groundwater quality varies spatially and reflects a combination of geologic conditions, recharge sources, and historic land use practices. Both GSPs indicate that observed groundwater quality impacts are largely attributable to non-point agricultural sources and historical conditions, rather than current District surface water delivery operations.

Delivery of surface water supplies by the District can provide incidental groundwater quality benefits by reducing reliance on groundwater pumping and, during wetter periods, facilitating recharge that may dilute existing groundwater constituents. Groundwater quality monitoring and management are conducted by the respective GSAs, and the District conducts monitoring consistent with that outlined in

the 2025 Plan and White Wolf GSP, including water quality monitoring at designated representative and supplemental monitoring wells.

4.2.3 Other Water Supplies (including Recycled Water)

The District does not utilize recycled water and does not rely on any other water supply sources beyond those described above. Surface water drainage is not used as a water supply source for District operations.

4.2.4 Source Water Quality Monitoring Practices

The District conducts limited and periodic water quality monitoring around it surface water infrastructure, groundwater wells, and customer turnouts to support agricultural water management and irrigation suitability. Analyses focus on parameters relevant to irrigation water quality, including general minerals, boron, sodium adsorption ratio, and indices used to evaluate irrigation suitability.

Water quality data are maintained in a District database and supplemented with historical data compiled from prior sampling efforts, including records dating back several decades. While some data are provided by private well owners under confidentiality agreements, these data are used internally to inform water management and coordination with basin-scale groundwater sustainability efforts.

4.2.5 Drainage Water and Irrigated Lands Regulatory Program

The District is a member of the KRWCA, which participates in the Southern San Joaquin Valley Water Quality Coalition and supports implementation of the Regional Water Quality Control Board's Irrigated Lands Regulatory Program. Through this participation, the District assists in facilitating compliance with applicable surface water and groundwater quality requirements associated with agricultural activities.

The District does not own or operate regional drainage facilities and does not manage on-farm subsurface drainage systems. Accordingly, limitations associated with drainage water reuse are not applicable to District operations.

5 WATER BUDGET

☑ ***CWC §10826(c)***

Include an annual water budget based on the quantification of all inflow and outflow components for the service area of the agricultural water supplier. Components of inflow shall include surface inflow, groundwater pumping in the service area, and effective precipitation. Components of outflow shall include surface outflow, deep percolation, and evapotranspiration. An agricultural water supplier shall report the annual water budget on a water-year basis. The department shall provide tools and resources to assist Suppliers in developing and quantifying components necessary to develop a water budget.

Pursuant to CWC §10826(c), this section presents an annual water budget for the District based on the quantification of inflow and outflow components within the District's service area. The water budget is reported on a water year basis and is intended to provide a planning-level accounting of water supplies and uses consistent with the requirements of the Act.

Inflow components quantified in the water budget include surface water deliveries, groundwater pumping within the service area, and estimates of effective precipitation. Outflow components include agricultural evapotranspiration (ET), deep percolation, and surface outflows where applicable. Quantification of these components is based on available data, planning-level assumptions, and analytical tools commonly used for water management planning, including tools and resources provided by DWR.

Consistent with the District's groundwater management framework under the applicable GSAs, water budget components are summarized, where applicable, by subbasin and at the District-wide level.

Sections of this AWMP rely on information located in the WRM GSA's 2025 GSP and in the WW GSA's 2022 GSP prepared pursuant to SGMA. Because the GSPs represent the Kern County Subbasin's and White Wolf Subbasin's primary technical groundwater management document, any inconsistencies between this AWMP and the adopted GSPs are unintended and the GSPs 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 WRMWSD service area.

5.1 Quantification of Water Budget Inflows

Consistent with, the District's annual water budget inflows are based on quantified surface water supplies, groundwater pumping within the service area, and effective precipitation. The sources and methods used to characterize these inflows are described in Section 4; this section summarizes how those components are incorporated into the annual water budget.

Water budget inflows include the following components:

- *Surface water supplies*, consisting of imported surface water supplies delivered to the District, as described in Section 4.1.1 and summarized in **Tables 4-1** and **4-2**.
- *Groundwater pumping within the service area*, including groundwater pumped from District-owned wells and groundwater pumped by private landowners within the District's service area, as described in Section 4.1.2 and summarized in **Table 4-5**.
- *Effective precipitation*, estimated for irrigated lands consistent with water budget requirements, and described in Section 4.1.3.1 and summarized in **Tables 4-6A** through **4-6C**.

The District does not utilize recycled water, and no other inflow components beyond those specified in CWC §10826(c) are applicable.

Each inflow component is quantified using the best available data for the reporting period, including delivery records, metered pumping data, remote-sensing-based estimates, and accounting records. Reported volumes represent water reasonably available to meet the demands within the District's service area during the applicable water year. Inflows are presented by subbasin and for the District as a whole in **Tables 5-1A** through **5-1C.**

Table 5-1A. Water Budget Inflows Kern County Subbasin Sub-Total for Water Years 2021 to 2025

Inflow Component	AWMP Location for Supporting Calculations	How Inflow was Quantified	Uncertainty Percent	Inflow Quantity (AF)				
				2021	2022	2023	2024	2025
Effective Precipitation	4.1.3.1, Table 4-6A	Calculated	15%	13,837	25,922	51,379	35,262	18,951
Water Supplier Surface Water	4.1.1, Table 4-2	Measured	10%	89,763	76,064	79,759	105,740	96,236
Water Supplier Groundwater Pumping	4.1.2, Table 4-5	Measured	5%	848	1,532	171	18	0
Private Groundwater Pumping	4.1.2, Table 4-5	Estimated	30%	76,834	71,125	22,577	28,258	29,575
Total	--	--		**181,282**	**174,643**	**153,887**	**169,278**	**144,762**

Abbreviations:
AF = acre-feet

Table 5-1B. Water Budget Inflows White Wolf Subbasin Sub-Total for Water Years 2021 to 2025

Inflow Component	AWMP Location for Supporting Calculations	How Inflow was Quantified	Uncertainty Percent	Inflow Quantity (AF)				
				2021	2022	2023	2024	2025
Effective Precipitation	4.1.3.1, Table 4-6B	Calculated	15%	5,614	10,834	23,472	16,633	9,211
Water Supplier Surface Water	4.1.1, Table 4-2	Measured	10%	22,254	11,137	98,634	48,071	46,863
Water Supplier Groundwater Pumping	4.1.2, Table 4-5	Measured	5%	5,038	6,816	1,099	132	3
Private Groundwater Pumping	4.1.2, Table 4-5	Estimated	30%	54,595	44,560	12,142	14,937	11,963
Total	--	--		**87,501**	**73,346**	**135,347**	**79,773**	**68,040**

Abbreviations:
AF = acre-feet

Table 5-1C. Water Budget Inflows District Total for Water Years 2021 to 2025

Inflow Component	AWMP Location for Supporting Calculations	How Inflow was Quantified	Uncertainty Percent	Inflow Quantity (AF)				
				2021	2022	2023	2024	2025
Effective Precipitation	4.1.3.1, Table 4-6C	Calculated	15%	19,452	36,755	74,852	51,896	28,162
Water Supplier Surface Water	4.1.1, Table 4-2	Measured	10%	112,017	87,201	178,393	153,811	143,099
Water Supplier Groundwater Pumping	4.1.2, Table 4-5	Measured	5%	5,886	8,348	1,270	150	3
Private Groundwater Pumping	4.1.2, Table 4-5	Estimated	30%	131,429	115,685	34,719	43,195	41,538
Total	--	--		**268,784**	**247,989**	**289,234**	**249,052**	**212,802**

Abbreviations:
AF = acre-feet

5.2 Quantification of Water Budget Outflows

Water budget outflows represent the disposition of water supplied to and used within the District's service area. Consistent with CWC §10826(c), components of outflow include evapotranspiration, deep percolation, and surface outflow. These components are quantified and summarized using the water use information presented in Section 3.

Water budget outflows include the following:

- *ET representing consumptive use of applied water*. For the District, ET consists primarily of agricultural crop consumptive use, estimated using satellite-based ETc data as described in Section 3.1 and summarized in **Table 3-1**.
- *Deep percolation*, defined as applied water in excess of consumptive use that percolates below the root zone and contributes to groundwater recharge. Deep percolation includes incidental recharge from irrigation, on-farm recharge activities, and managed recharge programs described in Section 3.5. Deep percolation is also estimated as part of the overall budget balance as a closure term, as described in Section 5.4
- *Surface outflow*, defined as surface water leaving the District's service area. Due to the District's largely flat terrain, highly efficient irrigation systems, and limited storm runoff, surface outflow from the service area is assumed to be negligible.

For completeness and transparency, water uses described in Section 3 are incorporated into the outflow components as follows:

- Agricultural water use contributes to evapotranspiration and deep percolation components.
- M&I water use, including metered industrial deliveries described in Section 3.4.
- Environmental and recreational water uses are not applicable, as the District does not supply water for these purposes within its service area. These uses are summarized in Sections 3.2 and 3.3, respectively.
- Evaporative losses on open storage or channels, including losses from the Mettler Recharge Facility and from the 850 Canal are summarized in Section 3.6.

Outflows are presented by subbasin and for the District in **Tables 5-2A** through **5-2C.**

Table 5-2A. Water Budget Outflows Kern Subbasin Sub-Total for Water Years 2021 to 2025

Outflow Component	AWMP Location for Supporting Calculations	How Outflow was Quantified	Percent Uncertainty	Outflow Quantity (AF)				
				2021	2022	2023	2024	2025
Crop Consumptive Use	3.1, Table 3-1	Measured	15%	155,064	158,832	146,987	144,508	124,419
Surface Outflows	5.2	Calculated	10%	0	0	0	0	0
Deep Percolations	3.5, Table 3-5, 5.4, Table 5-3A	Calculated	20%	26,215	15,719	6,795	24,664	20,320
Other - Industrial Use	3.4, Table 3-4	Measured	5%	3	92	105	106	23
Other – open channels	3.6, Table 3-6	Estimated	10%	0	0	0	0	0
Total	--	--		**181,282**	**174,643**	**153,887**	**169,278**	**144,762**

Table 5-2B. Water Budget Outflows White Wolf Subbasin Sub-Total for Water Years 2021 to 2025

Outflow Component	AWMP Location for Supporting Calculations	How Outflow was Quantified	Percent Uncertainty	Outflow Quantity (AF)				
				2021	2022	2023	2024	2025
Crop Consumptive Use	3.1, Table 3-1	Measured	15%	56,563	66,012	66,947	66,604	58,868
Surface Outflows	5.2	Calculated	10%	0	0	0	0	0
Deep Percolations	3.5, Table 3-5, 5.4, Table 5-3B	Calculated	20%	27,640	4,705	65,059	9,869	6,106
Other - Industrial Use	3.4, Table 3-4	Measured	5%	3,251	2,526	3,046	3,162	2,955
Other – open channels	3.6, Table 3-6	Estimated	10%	47	104	295	138	111
Total	--	--		**87,501**	**73,346**	**135,347**	**79,773**	**68,040**

Table 5-2C. Water Budget Outflows District Total for Water Years 2021 to 2025

Outflow Component	AWMP Location for Supporting Calculations	How Outflow was Quantified	Percent Uncertainty	Outflow Quantity (AF)				
				2021	2022	2023	2024	2025
Crop Consumptive Use	3.1, Table 3-1	Measured	15%	211,627	224,844	213,934	211,112	183,287
Surface Outflows	5.2	Calculated	10%	0	0	0	0	0
Deep Percolations	3.5, Table 3-5, 5.4, Table 5-3C	Calculated	20%	53,855	20,424	71,853	34,534	26,426
Other - Industrial Use	3.4, Table 3-4	Measured	5%	3,254	2,618	3,151	3,268	2,978
Other – open channels	3.6, Table 3-6	Estimated	10%	47	104	295	138	111
Total	--	--		**268,784**	**247,989**	**289,234**	**249,052**	**212,802**

5.3 Annual Water Budget Summary

This section presents the District's annual water budget for Water Years 2021 through 2025, based on the quantified inflow and outflow components described above. Together, these presented in **Tables 5-3A**. through **5-3C** provide a planning-level accounting of water supplies and uses within the District's service area consistent with the requirements of CWC §10826(c).

Table 5-3A. Kern Subbasin Sub-Total Summarized Water Budget for Water Years 2021 to 2025

Water Budget Item[1] (AWMP Table)	Water Volume by Year[2] (AF)				
	2021	2022	2023	2024	2025
Subbasin Total Water Uses (3-7A)	155,067	158,924	152,749	146,095	124,442
Subbasin Total Water Supplies (4-7A)	181,282	174,643	153,887	169,278	144,762
Budget Closure[3]	**26,215**	**15,719**	**1,138**	**23,183**	**20,320**

Abbreviations:
AF = acre-feet

Notes:
[1] Water budget components that are not applicable to the District (e.g., recycled water inflow, surface outflow, subsurface outflow) are reported as zero, consistent with CWC §10826(c) and the 2025 DWR Guidebook.
[2] Reported in Water Year (October 1 of the prior year through September 30 of the reported year).
[3] Represents difference between Supplies and Uses; positive indicates unaccounted supplies, and negative unaccounted demands for water budget.

Table 5-3B. White Wolf Subbasin Sub-Total Summarized Water Budget for Water Years 2021 to 2025

Water Budget Item (AWMP Table)	Water Volume by Year[1] (AF)				
	2021	2022	2023	2024	2025
Subbasin Total Water Uses (3-7B)	59,861	68,642	93,059	71,661	61,934
Subbasin Total Water Supplies (4-7B)	87,501	73,346	135,347	79,773	68,040
Budget Closure[2]	**27,640**	**4,705**	**42,288**	**8,112**	**6,106**

See notes for Table 5-1A.

Table 5-3C. District Total Summarized Water Budget for Water Years 2021 to 2025

Water Budget Item (AWMP Table)	Water Volume by Year[1] (AF)				
	2021	2022	2023	2024	2025
District Total Water Uses (3-7C)	214,928	227,566	245,808	217,756	186,376
District Total Water Supplies (4-7C)	268,784	247,989	289,234	249,052	212,802
Budget Closure[2]	**53,855**	**20,424**	**43,425**	**31,296**	**26,426**

See notes for Table 5-1A.

5.4 Budget Closure Term

The difference between total annual inflows and outflows represents estimated deep percolation within the District's service area, including applied irrigation water percolating below the crop root zone and incidental recharge associated with conveyance and operational losses. This residual is consistent with the hydrogeologic setting of the District and the use of surface water in lieu of groundwater pumping. The

resulting water budget is internally consistent and provides a reasonable planning-level representation of water movement within the District, consistent with CWC §10826(c) and the 2025 DWR Guidebook.

6 WATER MANAGEMENT OBJECTIVES

☑ ***CWC §10826(g)***

Identify water management objectives based on the water budget to improve water system efficiency or to meet other water management objectives. The agricultural water supplier shall identify, prioritize, and implement actions to reduce water loss, improve water system management, and meet other water management objectives identified in the plan.

Pursuant to CWC §10826(g), this section identifies the District's water management objectives and describes how those objectives are implemented to promote efficient agricultural water use and sustainable water resource management. The District's objectives are informed by adopted GSPs and related planning efforts and are achieved through a combination of facility improvements, management actions, and EWMPs described in subsequent sections of this AWMP. Implementation schedules and performance tracking for PMAs are governed through the GSPs and are not duplicated in this AWMP.

6.1 Identify Water Management Objectives

In the development of the White Wolf GSP and the 2025 Plan, the District identified a suite of PMAs intended to support efficient, reliable, and sustainable agricultural water management within the District's service area.

For purposes of this AWMP, the District's water management objectives are to improve agricultural water use efficiency, enhance supply reliability, and support sustainable management of surface water and groundwater resources across its service area. These objectives are implemented through PMAs adopted under SGMA, including facility improvements, conjunctive use and recharge projects, and management actions such as water budgets, groundwater service charges, and allocation frameworks.

In combination with EWMPs identified in Section 9, these objectives are intended to influence measurable indicators such as water deliveries, groundwater pumping, recharge volumes, and crop water use, which are tracked through existing District accounting systems and SGMA reporting processes.

Details regarding applicable PMAs are provided in **Appendix A**, as defined in the White Wolf GSP and the 2025 Plan.

6.2 Prioritization of the Water Management Objectives

The District prioritizes water management objectives that address near-term water supply reliability and groundwater sustainability concerns. Priority PMAs include those that increase recharge capacity (e.g., the Mettler Recharge Project and landowner recharge incentives), enhance delivery system flexibility (e.g., the South Canal–850 Canal Intertie), and manage demand through economic and administrative mechanisms (e.g., land conversion trends, groundwater service charges, and allocation frameworks).

Lower-priority objectives include management actions that may require additional regulatory development, coordination, or long-term implementation, such as basin-wide pumping limitations. Prioritization reflects current hydrologic conditions, regulatory requirements, operational feasibility, and consistency with adopted GSP implementation schedules.

7 QUANTIFY THE EFFICIENCY OF AGRICULTURAL WATER USE

☑ ***CWC §10826(h)***

Quantify the efficiency of agricultural water use within the service area of the agricultural water supplier using the appropriate method or methods from among the four water use efficiency quantification methods developed by the department in the May 8, 2012, report to the Legislature entitled "A Proposed Methodology for Quantifying the Efficiency of Agricultural Water Use." The agricultural water supplier shall account for all water uses, including crop water use, agronomic water use, environmental water use, and recoverable surface flows.

This section quantifies the efficiency of agricultural water use within the District in accordance with the 2025 Guidebook and CWC §10826. Agricultural water use efficiency may be quantified using one of four methods identified by DWR: (1) Crop Consumptive Use Fraction, (2) Agronomic Water Use Fraction, (3) Total Water Use Fraction, or (4) Water Management Fraction.

The District quantified agricultural water use efficiency using the Total Water Use Fraction (TWUF) method, as described in *A Proposed Methodology for Quantifying the Efficiency of Agricultural Water Use* (DWR, 2012). The TWUF method is appropriate for the District because agricultural water use is dominated by irrigation deliveries and groundwater pumping for crop production, with negligible agronomic and environmental uses, and because reliable estimates of applied water and crop evapotranspiration are available at the District scale.

7.1 Evapotranspiration of Applied Water

As a first step, the evapotranspiration of applied water (ETAW) was calculated using estimates of total crop evapotranspiration for irrigated agricultural lands and effective precipitation. The ETAW represents the portion of crop evapotranspiration attributable to applied water rather than precipitation and was calculated using the following equation:

$$ETAW = ET_{Total} - P_e$$

Where:
- ET_{Total} = total crop evapotranspiration of all irrigated agricultural lands within the District[7]
- P_e = effective precipitation on irrigated agricultural lands within the District[6]

As described in Section 4.1.3.1, due to the arid climate, limited magnitude of precipitation, relatively flat topography, and permeable soil conditions within the District, precipitation occurring on irrigated agricultural lands was assumed to be fully effective for purposes of estimating the ETAW. This assumption is consistent with DWR guidance for arid agricultural regions and is applied at a planning level.

Effective precipitation was calculated as the measured annual precipitation multiplied by the total irrigated agricultural acreage within the District. Annual ET, effective precipitation, and the calculated ETAW for Water Years 2021 through 2025 are presented in **Table 7-1**.

[7] Irrigated lands, as used herein, represent lands that were actively irrigated during the applicable water year. This differs from the District's developed agricultural lands, which are defined as lands subject to the General Project Service Charge. Differences between these two land classifications reflect year-to-year changes in cropping practices, temporary land fallowing, and other landowner management decisions.

Table 7-1. Evapotranspiration of Applied Water for Agricultural Lands

	Volume by Year (AF)				
	2021	**2022**	**2023**	**2024**	**2025**
Total ET (AF)[1]	211,627	224,844	213,934	211,112	183,287
Effective Precipitation (AF)[2]	19,452	36,755	74,852	51,896	28,162
ETAW (AF)	**192,175**	**188,089**	**139,082**	**159,216**	**155,125**

Abbreviations:
AF = acre-feet
ETAW = Evapotranspiration of applied water

Notes:
[1] Values for District Total from Table 3-1.
[2] Values for District Total from Table 4-7C.

7.2 Total Water Use Fraction

The Total Water Use Fraction (TWUF) was calculated using the following equation:

$$TWUF = \frac{ETAW + AU + EU}{AW}$$

Where:
- $ETAW$ = evapotranspiration of applied water
- AU = agronomic water use (e.g., salinity management, climate control, seed germination)
- EU = environmental water use
- AW = total applied water

Applied Water represents the total volume of surface water deliveries and groundwater pumping applied within the District's service area for agricultural use during the reporting year, consistent with inflows quantified in the annual water budget.

As documented in Sections 3.2, the District does not supply water for environmental or agronomic uses within its service area. Accordingly, AU and EU were set to zero for purposes of this analysis.

The calculated TWUF values for Water Years 2021 through 2025 are presented in **Table 7-2**. TWUF is a dimensionless ratio.

Table 7-2. Total Water Use Fraction

	Volume by Water Year (AF)				
	2021	2022	2023	2024	2025
ETAW (AF)[1]	192,175	188,089	139,082	159,216	155,125
AU (AF)[2]	0	0	0	0	0
EU (AF)[2]	0	0	0	0	0
AW (AF)[3]	249,332	211,234	214,382	197,156	184,640
TWUF	**0.77**	**0.89**	**0.65**	**0.81**	**0.84**

Abbreviations:
AF = acre-feet
AU = agronomic water use
AW = total applied water
EU = environmental water use
ETAW = evapotranspiration of applied water
TWUF = total water use fraction

Notes:
[1] Values from Table 7-1.
[2] District does not supply water for environmental or agronomic uses within its service area.
[3] Values from Table 4-7C.

7.3 Interpretation and Limitations

The calculated TWUF represents a planning-level estimate of agricultural water use efficiency at the District scale. Annual variation in TWUF reflects changes in hydrologic conditions, surface water availability, precipitation, and irrigation demand. These values are intended to support evaluation of relative efficiency trends over time rather than parcel-level or operational decision-making.

Overall, the results indicate a high level of agricultural water use efficiency within the District, consistent with the predominance of permanent crops, widespread use of high-efficiency irrigation systems, and long-standing conjunctive use and water management practices.

8 CLIMATE CHANGE

☑ ***CWC §10826(d)***

Include an analysis, based upon available information, of the effect of climate change on future water supplies.

CWC §10826(2) requires agricultural water suppliers to assess the potential effects of climate change on future water supplies. Consistent with the 2025 Guidebook, this section describes the anticipated effects of climate variability and long-term climate trends on the District's water supply reliability and agricultural water demands, and summarizes how those considerations are incorporated into the District's planning framework.

This analysis is intended to provide a planning-level assessment based on best available state and regional information and does not establish independent regulatory requirements or forecasts beyond those reflected in adopted planning documents.

8.1 Effects of Climate Change on Water Supply

State and regional climate assessments indicate that California has experienced measurable warming over recent decades and is expected to continue warming under a range of future climate scenarios (Bedsworth et al, 2018). These changes are associated with shifts in precipitation timing, form, and intensity that directly affect surface water availability.

A historically critical component of California's water supply has been the Sierra Nevada snowpack, which functions as a natural reservoir by storing winter precipitation and releasing runoff during the spring and summer. Climate projections indicate a continued decline in snowpack and an increasing proportion of winter precipitation falling as rain rather than snow (PPIC, 2013). This shift is expected to result in earlier runoff, increased winter flows, and reduced late-season water availability.

These changes are particularly relevant to the District because the SWP - the District's primary surface water source - relies on runoff from the Feather River Watershed and storage in Lake Oroville (in Northern California), and conveyance through the Delta. Increased hydrologic variability, combined with existing regulatory and operational constraints in the Delta, may further reduce the reliability and predictability of SWP deliveries, as reflected in recent DWR planning guidance and allocation forecasting (DWR, 2025).

Climate-driven increases in the frequency and intensity of atmospheric river events may increase flood risk and challenge reservoir operations, potentially limiting opportunities to capture and store surplus runoff for later use. Together, these factors may increase reliance on groundwater supplies, previously banked water, and supplemental transfers during dry and critically dry periods (Schwarz *et al*., 2018; Bedsworth *et al*., 2018).

8.2 Effects of Climate Change on Water Demand

Projected increases in temperature and heat extremes are expected to increase crop evapotranspiration rates and extend irrigation seasons, resulting in higher agricultural water demands. Warmer conditions may also increase the frequency and severity of drought years, further elevating irrigation requirements during extended dry periods.

As surface water deliveries become more variable, agricultural producers may increase reliance on groundwater pumping to meet crop water needs (Escriva-Bou *et al.*, 2023; UCLA, 2024). This shift could

contribute to declining groundwater levels, increased pumping costs, and localized land subsidence if not managed within the framework established by SGMA.

Permanent crops, which constitute a substantial portion of irrigated acreage within the District, are particularly sensitive to water supply variability due to their continuous annual water requirements and limited flexibility for fallowing. In addition, some permanent crops require adequate winter chill for economically viable production, and rising winter temperatures may adversely affect yields over time.

8.3 Regional Climate Change Vulnerability Assessment

The WRMWSD participates in regional water management efforts through the Kern Regional Water Management Group. As part of these efforts, the District contributed to a regional climate change vulnerability assessment using the *Vulnerability Assessment Checklist* presented in the DWR *Climate Change Handbook for Regional Water Planning* (DWR, 2011).

The results of this assessment, summarized in **Appendix F**, identify relative vulnerabilities across multiple sectors, including water supply, water demand, flooding, ecosystem and habitat, water quality, sea level rise, and hydropower. Based on this evaluation, water supply and water demand were identified as the highest-priority vulnerabilities for the District, reflecting reliance on imported surface water supplies, increasing hydrologic variability, and projected increases in irrigation demand (UCLA, 2024).

8.4 Response to Climate Change Effects

The District addresses climate-related risks through ongoing planning, monitoring, and implementation of adopted management actions. Key elements of the District's response include:

- Continued participation in regional and statewide water management planning efforts;
- Use of groundwater banking, recharge, and conjunctive use programs to buffer variability in surface water supplies;
- Monitoring hydrologic conditions, SWP allocation forecasts, and groundwater conditions to inform operational decisions;
- Implementation of water management objectives and EWMPs identified in Sections 6 and 9 of this AWMP; and
- Incentivizing on-farm recharge during wet years when surplus surface water supplies are available.

Climate change considerations are also incorporated into the 2025 Plan and White Wolf GSP, which evaluate climate scenarios and their potential effects on groundwater sustainability and SWP supplies under future conditions. Implementation of PMAs under those plans provides the primary mechanism for addressing long-term climate-related risks within the District. These climate-related considerations are reflected in the District's drought preparedness and response framework described in Section 2.8 and do not establish separate operational triggers.

9 EFFICIENT WATER MANGEMENT PRACTICES

☑ ***CWC §10608.48(d)***

A report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

Pursuant to CWC §10608.48, agricultural water suppliers are required to implement EWMPs and report on their implementation as part of the AWMP. The EWMPs represent best management practices intended to improve agricultural water use efficiency and support effective water resource management.

For WRMWSD, EWMPs serve as the primary operational mechanisms through which the water management objectives identified in Section 6 are implemented. The EWMP implementation complements PMAs adopted under the GSPs and does not establish separate or duplicative requirements.

Consistent with the 2025 Guidebook, EWMPs are categorized as:

- *Critical EWMPs*, which are required for all agricultural water suppliers; and
- *Conditional EWMPs*, which are required only if locally cost-effective and technically feasible.

9.1 Implemented and Planned EWMPs

Table 9-1 summarizes the District's implementation status for each critical and conditional EWMP identified in CWC §10608.48(c). For each EWMP, the table describes actions already implemented and, where applicable, actions planned or under consideration. Where EWMPs overlap with PMAs adopted under SGMA, implementation is coordinated through the GSPs and is not duplicated in this AWMP.

Critical EWMPs identified by statute have been implemented by the District. Conditional EWMPs are implemented where locally cost-effective and technically feasible, consistent with statutory requirements.

Table 9-1. Description of Implemented EWMPs and Additional Actions, if Applicable

EWMP No.[1]	Description of EWMP Implemented	Additional Actions Planned (if applicable)
Critical 1	District water delivery points to farm gates or turnouts are metered using McCrometer propeller meters (±2% accuracy and ±0.25% repeatability) and actively monitored by District staff. Delivery points from the California Aqueduct into the District are metered by DWR.	None
Critical 2	The District charges water uses based on the volume of water delivered, as described in Section 2.2.3.	None
Conditional 1	The District does not facilitate alternate land uses, which is beyond its jurisdiction. Changes in land use have occurred due to economic conditions and water availability rather than District programs.	Not applicable

Table 9-1. Description of Implemented EWMPs and Additional Actions, if Applicable (Continued)

EWMP No.	Description of EWMP Implemented	Additional Actions Planned (if applicable)
Conditional 2	This EWMP is not applicable because the District's existing conveyance and delivery system configuration already achieves the functional objective of this practice, and no additional action would result in measurable water use efficiency improvements. As such, no separate implementation is warranted.	None identified
Conditional 3	The District is not a provider of on-farm capital. The District supports irrigation efficiency through funding on-farm irrigation evaluations (e.g., on-farm mobile lab) and providing information on grants, loans, and energy-efficiency programs.	Continue existing support and information sharing
Conditional 4	The District does not apply tiered or seasonal pricing. Efficient water use is encouraged through volumetric pricing and contract provisions, as described in Section 2.2.3.	None
Conditional 5	The District's conveyance system is predominantly a piped network. Infrastructure investments focus on maintenance and continued operation of this system, as described in Section 2.1.2.	None
Conditional 6	On-demand water delivery and operational flexibility are governed by the Rules and Regulations (Section 2.2.1). The California Aqueduct functions as a regulating reservoir enabling flexible timing and flows.	None
Conditional 7	Irrigated lands are primarily permanent crops using high-efficiency irrigation methods. Tail-water systems are minimal and managed by individual growers. Operational spills are minimized through system design and operations.	None
Conditional 8	Due to deep groundwater levels and high pumping costs, the District participates in groundwater recharge and banking projects (e.g., Mettler Recharge Project, Kern Water Bank, Pioneer Project, Berrenda Mesa Project) and has initiated an on-farm recharge program. The District has practiced conjunctive use since 1971.	Continue implementation through adopted GSPs
Conditional 9	The conveyance system is largely automated and monitored via SCADA. Opportunities for additional automation are limited given the predominately piped network and existing automation.	None
Conditional 10	Pump efficiency testing is conducted by utilities or pump companies at the request of landowners.	None
Conditional 11	The Water Conservation Coordinator role is fulfilled by the Manager/Assistant Engineer-Manager, who is responsible for implementing water management plans and progress reporting.	None

Table 9-1. Description of Implemented EWMPs and Additional Actions, if Applicable (Continued)

EWMP No.	Description of EWMP Implemented	Additional Actions Planned (if applicable)
Conditional 12	The District funds irrigation efficiency evaluations and maintains weather stations. Climate data are available on the District website for irrigation scheduling. District obtained LandIQ ET data.	Continue existing programs
Conditional 13	The District receives SWP supplies through KCWA and participates in turn-in and point-of-delivery agreements with DWR. Regulatory and judicial constraints on Delta pumping affect delivery reliability.	None
Conditional 14	District pump testing and efficiency monitoring are conducted as needed. Routine maintenance is performed by District staff; non-routine work is contracted.	None
Notes: 1. EWMP numbers correspond to Water Code Section 10608.48(c*)*		

9.2 Estimate of Water Use Efficiency Improvements

CWC §§10608.48(d) and 10608.48(e) require agricultural water suppliers to estimate water use efficiency improvements associated with EWMP implementation. Where available, efficiency outcomes are tracked through District accounting, groundwater service charge reporting, and SGMA annual reports; however, isolating incremental changes attributable to individual EWMPs is not practicable.

For the District, quantitative estimation of incremental efficiency improvements attributable to individual EWMPs is not practicable, due to overlapping influences from crop type, climate variability, groundwater conditions, and SGMA implementation. Therefore, water use efficiency improvements are described qualitatively, consistent with the 2025 Guidebook.

Table 9-2 summarizes observed and anticipated water use efficiency improvements since the previous AWMP and over the next five- and ten-year planning horizons, expressed descriptively where quantitative estimates are not available.

Table 9-2. Report of EWMPs Efficiency Improvements

EWMP No.[1]	Estimate of Water Use Efficiency Improvements that Occurred Since Last Report (Quantitative or Descriptive)	Estimated Water Use Efficiency Improvements 5 and 10 Years in the Future (Quantitative or Descriptive)
Conditional 8	The District recharged surface water in the Mettler Recharge Facility in WY 2023 and 2024. The District initiated financial compensation for landowner recharge pilot program in 2023. The District initiated planning and construction for additional turnouts in the White Wolf Subbasin in 2025.	The District will complete construction of additional turnouts in the White Wolf Subbasin in 2026.
Conditional 12	The District obtained monthly parcel-level ET data from LandIQ starting in 2022. The District uses ET data to calculate parcel-level ETc and associated groundwater use to support implementation of the	The District will continue to obtain monthly ET data, estimate groundwater use and implement the

EWMP No.[1]	Estimate of Water Use Efficiency Improvements that Occurred Since Last Report (Quantitative or Descriptive)	Estimated Water Use Efficiency Improvements 5 and 10 Years in the Future (Quantitative or Descriptive)
	groundwater service charge.	groundwater service charge.

Notes:
1. EWMP numbers correspond to Water Code Section 10608.48(c)

9.3 Non-Implemented Conditional EWMPs

Consistent with CWC §10608.48(d), conditional EWMPs may be omitted if they are not locally cost-effective or technically feasible. Determinations that certain conditional EWMPs are not locally cost-effective are based on the definition provided in CWC §10608.12(k), under which a practice is not locally cost-effective if the present value of local benefits does not exceed the present value of local implementation costs. **Table 9-3** documents the conditional EWMPs not implemented by the District, including the basis for each determination. Non-implemented conditional EWMPs do not affect the District's ability to meet its water management objectives identified in Section 6.

Table 9-3. Non-Implemented Conditional EWMP Documentation

EWMP No.	Description	Technically Infeasible	Not Locally Cost-Effective	Justification
Conditional 1	Alternate Land Use		X	Land use decisions are driven by agricultural economics and water availability and are beyond the District's jurisdiction. The District does not provide capital for alternate land uses.
Conditional 3	On-Farm Irrigation Capital Improvements		X	The District is not a provider of on-farm capital. All on-farm irrigation systems are owned and operated by landowners; District facilities end at farm turnouts.
Conditional 4	Incentive Pricing Structure		X	The District does not apply tiered pricing. Efficient water use is encouraged through volumetric pricing and contractual arrangements with water users.
Conditional 7	Supplier Operational Outflow and Tail-water Systems		X	Permanent crops and high-efficiency irrigation methods result in minimal tail-water and drainage needs; on-farm systems are managed by growers.
Conditional 10	Customer Pump Test/Evaluations		X	Pump efficiency testing is conducted by landowners through utilities or pump service providers; District policy does not include funding on-farm pump testing.

Notes:
[1] EWMP numbers correspond to Water Code Section 10608.48(c)

10 SUPPORTING DOCUMENTATION

This section provides supporting documentation required under the Agricultural Water Measurement Regulation (Title 23, CCR, §597 et seq.), as applicable, and supplemental information recommended by the 2025 Guidebook. The WRMWSD serves more than 25,000 irrigated acres and therefore includes documentation demonstrating compliance with measurement access, technical feasibility, best professional practices, volumetric conversion (as applicable), and corrective action procedures, as required by 23 CCR §§597.3 and 597.4.

10.1 Description of Access and Technical Feasibility

The WRMWSD measures agricultural water deliveries at individual customer delivery points, including farm gates and turnouts, using installed flow measurement devices that meet the accuracy standards specified in 23 CCR §597.3(a). The District has legal authority and physical access to install, operate, maintain, and monitor these devices as part of routine District operations.

Because water deliveries are measured at the delivery point for individual customers, WRMWSD is not subject to the alternative documentation pathways for lack of legal access or technical infeasibility described in 23 CCR §597.3(b)(1)(A) or §597.3(b)(1)(B). Measurement at upstream laterals and apportionment of deliveries among multiple customers is not required, and engineer certification under 23 CCR §597.3(b)(2)(B) or §597.3(b)(2)(C) is therefore not applicable.

10.2 Description of Water Measurement Best Professional Practices

Consistent with 23 CCR §597.4(e)(2) and the 2025 Guidebook, this subsection describes the District's best professional practices for agricultural water measurement, including data collection, frequency of measurement, determination of irrigated acres, and quality control and quality assurance procedures.

10.2.1 Collection of Water Measurement Data

The WRMWSD collects agricultural water delivery data at:

- Fifteen (15) delivery points from the California Aqueduct, which are equipped with DWR-owned and maintained Venturi meters; and
- Individual customer farm gates and turnouts, which are equipped with propeller-type flowmeters (McCrometer MW800 vertical and MG900 horizontal meters) with totalizers.

These devices directly measure flow rate and cumulative volume delivered. Manufacturer-certified accuracy for District-owned delivery meters is ±2 percent by volume, with repeatability of ±0.25 percent, ensuring reliable volumetric accounting.

10.2.2 Frequency of Measurement

Flow measurements are recorded continuously through totalizer-equipped meters. District Operations and Maintenance staff manually read all customer delivery meters at least once per week and visually screen for abnormal or unexpected readings based on operational conditions and prior data.

Aggregated farm-gate delivery data are compiled and summarized on a monthly basis for annual reporting, consistent with the Agricultural Water Measurement Regulation (23 CCR §597.4) and the 2025 Guidebook. Delivery data are made available to water users upon request.

10.2.3 Method for Determining Irrigated Acres

The District conducts crop surveys in the spring and fall of each year to identify irrigated acreage and crop types by parcel. These surveys are used for water management, reporting, and estimation of agricultural water use, including evapotranspiration-based analyses presented elsewhere in this AWMP.

10.2.4 Quality Control and Quality Assurance Procedures

As a quality control measure, the District compares total volumes delivered into the District (as measured by DWR meters at California Aqueduct turnouts) with the aggregated volumes delivered to customers at farm gates and turnouts. These comparisons are evaluated by lateral and system-wide totals and are presented in **Tables 10-1** through **10-5** for Water Years 2021 through 2025.

Where comparisons indicate discrepancies outside expected ranges, the District investigates the cause, which may include meter malfunction, data gaps, accounting timing differences, or operational conditions. Corrective actions may include field verification, meter testing, repair, replacement, or data correction, as appropriate. Differences observed in the comparisons are generally within the accuracy ranges allowed under 23 CCR §597.3(a).

Table 10-1. Comparison of DWR and District Inflow Measurements at SWP Turnouts for Water Year 2021

2021 Water Year Total				
Turnout/ Meter Name	**DWR Measured Turnout Inflow (AF)**	**WRM Measured Turnout Inflow (AF)**	**Difference between Measures (AF)**	**% Difference**
WRM 2	3,078.0	3,141.0	63.0	-2.0%
WRM 3	5,720.0	5,806.0	86.0	-1.5%
WRM 4	16,471.0	16,469.0	(2.0)	0.0%
WRM 5	32,545.0	32,271.0	(274.0)	0.8%
WRM 6	2,728.0	3,712.0	984.0	-26.5%
WRM 7	17,213.0	15,415.0	(1,798.0)	11.7%
WRM 8	13,688.0	12,434.0	(1,254.0)	10.1%
WRM 9	8,234.0	8,109.0	(125.0)	1.5%
WRM 9A	2,652.0	2,837.0	185.0	-6.5%
WRM 10	7,842.0	8,744.0	902.0	-10.3%
WRM 11	-	20.0	20.0	-100.0%
WRM 13A	2.0	-	(2.0)	0.0%
WRM 13B	843.0	722.0	(121.0)	16.8%
WRM 14	11,707.0	10,527.0	(1,180.0)	11.2%
WRM 15	2,486.0	2,445.0	(41.0)	1.7%
Total	**125,209.0**	**122,652.0**	**(2,557.0)**	**2.1%**
Average	8,347.3	8,176.8	(170.5)	-6.2%

Table 10-2. Comparison of DWR and District Inflow Measurements at SWP Turnouts for Water Year 2022

2022 Water Year Total				
Turnout/ Meter Name	DWR Measured Turnout Inflow (AF)	WRM Measured Turnout Inflow (AF)	Difference between Measures (AF)	% Difference
WRM 2	1,929.0	2,002.0	73.0	-3.6%
WRM 3	4,025.0	3,577.0	(448.0)	12.5%
WRM 4	15,266.0	15,310.0	44.0	-0.3%
WRM 5	29,718.0	30,515.0	797.0	-2.6%
WRM 6	2,449.0	3,395.0	946.0	-27.9%
WRM 7	16,422.0	14,987.0	(1,435.0)	9.6%
WRM 8	14,294.0	14,428.0	134.0	-0.9%
WRM 9	6,841.0	7,281.0	440.0	-6.0%
WRM 9A	2,662.0	2,520.0	(142.0)	5.6%
WRM 10	7,213.0	6,962.0	(251.0)	3.6%
WRM 11	-	7.0	7.0	-100.0%
WRM 13A	22.0	-	(22.0)	0.0%
WRM 13B	477.0	461.0	(16.0)	3.5%
WRM 14	11,123.0	10,260.0	(863.0)	8.4%
WRM 15	2,206.0	2,152.0	(54.0)	2.5%
Total	**114,647.0**	**113,857.0**	**(790.0)**	**0.7%**
Average	7,643.1	7,590.5	(52.7)	-6.4%

Table 10-3. Comparison of DWR and District Inflow Measurements at SWP Turnouts for Water Year 2023

2023 Water Year Total				
Turnout/ Meter Name	DWR Measured Turnout Inflow (AF)	WRM Measured Turnout Inflow (AF)	Difference between Measures (AF)	% Difference
WRM 2	1,139.0	1,122.0	(17.0)	1.5%
WRM 3	2,251.0	1,981.0	(270.0)	13.6%
WRM 4	12,660.0	12,384.0	(276.0)	2.2%
WRM 5	33,451.0	33,166.0	(285.0)	0.9%
WRM 6	3,852.0	4,856.0	1,004.0	-20.7%
WRM 7	18,500.0	16,913.0	(1,587.0)	9.4%
WRM 8	20,509.0	21,498.0	989.0	-4.6%
WRM 9	10,163.0	10,670.0	507.0	-4.8%
WRM 9A	7,218.0	7,691.0	473.0	-6.2%
WRM 10	48,745.0	52,687.0	3,942.0	-7.5%
WRM 11	-	6.0	6.0	-100.0%
WRM 13A	4,709.0	5,326.0	617.0	-11.6%
WRM 13B	1,246.0	1,105.0	(141.0)	12.8%
WRM 14	14,803.0	12,731.0	(2,072.0)	16.3%
WRM 15	1,687.0	1,472.0	(215.0)	14.6%
Total	**180,933.0**	**183,608.0**	**2,675.0**	**-1.5%**
Average	12,062.2	12,240.5	178.3	-5.6%

Table 10-4. Comparison of DWR and District Inflow Measurements at SWP Turnouts for Water Year 2024

2024 Water Year Total				
Turnout/ Meter Name	DWR Measured Turnout Inflow (AF)	WRM Measured Turnout Inflow (AF)	Difference between Measures (AF)	% Difference
WRM 2	1,120.0	1,118.0	(2.0)	0.2%
WRM 3	2,411.0	2,111.0	(300.0)	14.2%
WRM 4	14,045.0	13,502.0	(543.0)	4.0%
WRM 5	30,543.0	31,224.0	681.0	-2.2%
WRM 6	5,233.0	6,282.0	1,049.0	-16.7%
WRM 7	16,981.0	15,130.0	(1,851.0)	12.2%
WRM 8	16,545.0	17,694.0	1,149.0	-6.5%
WRM 9	7,161.0	7,189.0	28.0	-0.4%
WRM 9A	4,466.0	4,431.0	(35.0)	0.8%
WRM 10	24,432.0	25,514.0	1,082.0	-4.2%
WRM 11	-	12.0	12.0	-100.0%
WRM 13A	253.0	-	(253.0)	0.0%
WRM 13B	2,001.0	1,860.0	(141.0)	7.6%
WRM 14	11,206.0	11,092.0	(114.0)	1.0%
WRM 15	2,900.0	2,220.0	(680.0)	30.6%
Total	**139,297.0**	**139,379.0**	**82.0**	**-0.1%**
Average	9,286.5	9,291.9	5.5	-4.0%

Table 10-5. Comparison of DWR and District Inflow Measurements at SWP Turnouts for Water Year 2025

2025 Water Year Total				
Turnout/ Meter Name	DWR Measured Turnout Inflow (AF)	WRM Measured Turnout Inflow (AF)	Difference between Measures (AF)	% Difference
WRM 2	998.0	1,039.0	41.0	-3.9%
WRM 3	2,578.0	2,146.0	(432.0)	20.1%
WRM 4	12,259.0	12,333.0	74.0	-0.6%
WRM 5	28,310.0	28,260.0	(50.0)	0.2%
WRM 6	5,284.0	6,117.0	833.0	-13.6%
WRM 7	14,574.0	12,835.0	(1,739.0)	13.5%
WRM 8	12,390.0	12,578.0	188.0	-1.5%
WRM 9	6,335.0	6,656.0	321.0	-4.8%
WRM 9A	4,921.0	4,838.0	(83.0)	1.7%
WRM 10	27,352.0	28,526.0	1,174.0	-4.1%
WRM 11	-	11.0	11.0	-100.0%
WRM 13A	464.0	-	(464.0)	0.0%
WRM 13B	1,939.0	1,791.0	(148.0)	8.3%
WRM 14	10,792.0	10,484.0	(308.0)	2.9%
WRM 15	3,393.0	2,521.0	(872.0)	34.6%
Total	**131,589.0**	**130,135.0**	**(1,454.0)**	**1.1%**
Average	8,772.6	8,675.7	(96.9)	-3.1%

10.3 Documentation of Water Measurement Conversion to Volume

Under 23 CCR §597.4(e)(3), agricultural water suppliers must document how measured values are converted to volumetric deliveries if measurement devices do not directly record volume. All customer delivery meters used by the District are equipped with totalizers that directly record cumulative volumetric deliveries. Accordingly, additional conversion documentation is not applicable.

10.4 Device Corrective Action Plan Required for Water Measurement

The WRMWSD maintains procedures to ensure that agricultural water measurement devices meet the accuracy standards specified in 23 CCR §597.3(a), including ±12 percent by volume for existing devices and ±5 percent laboratory-certified accuracy for new or replacement devices.

Corrective action is initiated when meter readings indicate abnormal performance, discrepancies are identified through quality control comparisons, or upon customer request. District staff perform field verification, testing, repair, or replacement as necessary. Replacement meters are manufacturer-certified prior to installation and meet applicable accuracy standards.

Records of meter maintenance, testing, repair, and replacement are maintained by the District as part of routine operations.

10.5 Delta Plan Consistency

Under the Delta Plan consistency requirements of 23 CCR §5003(c), including Policy WR-P1, agricultural water suppliers that plan to propose approve, or implement any covered action within the legal Delta should consider providing possible approaches to demonstrate reduced Delta reliance.

The District has provided a self-certification of consistency, see **Appendix G**.

10.6 Other Supporting Documentation

Additional supporting documentation, including notices, certifications, and reference materials, is provided in the appendices where applicable. The District's completed AWMP compliance checklist is included at the front of this AWMP for reference.

11 REFERENCES

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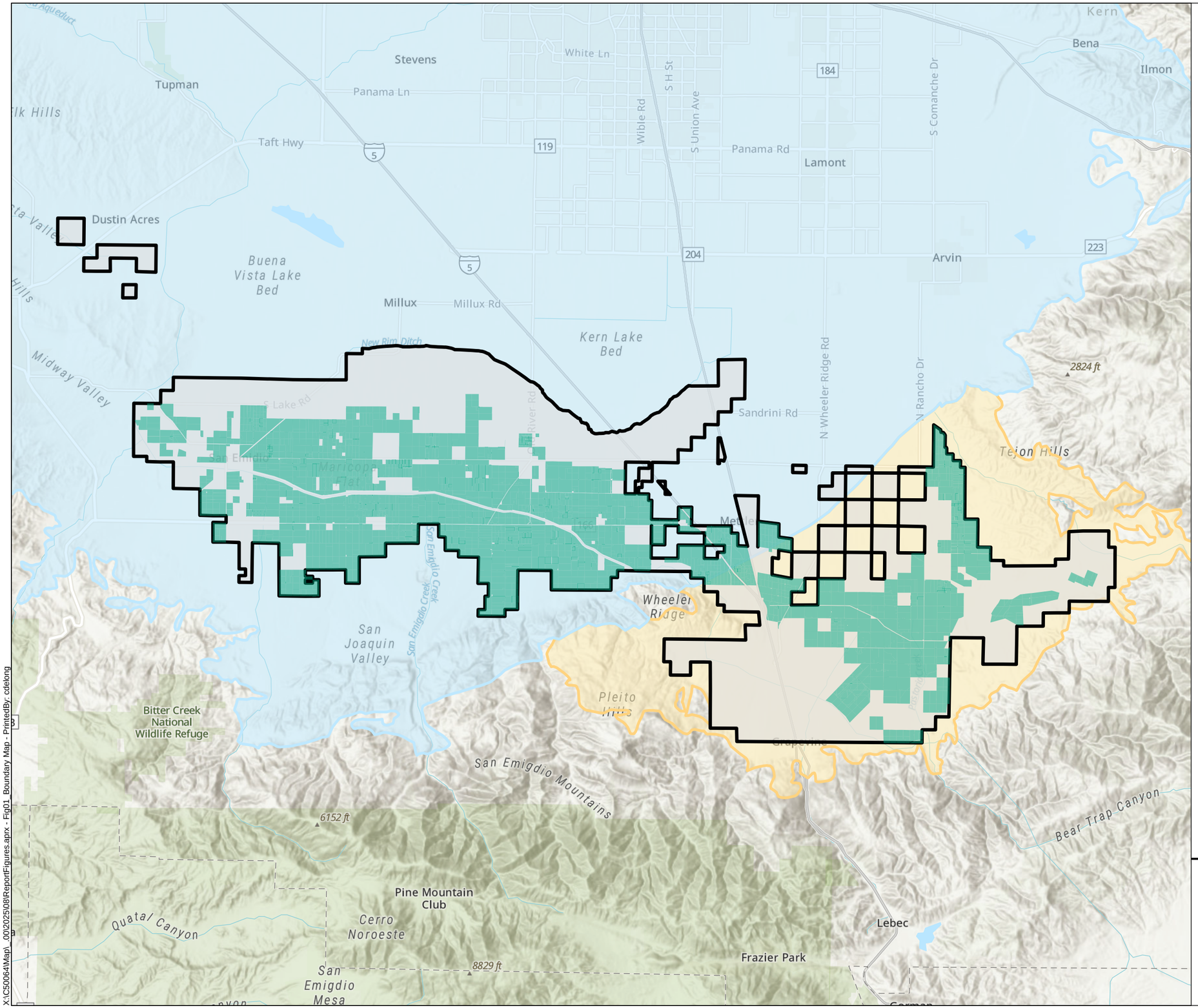

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Legend

- Wheeler Ridge-Maricopa Water District
- Surface Water Service Area

Groundwater Basins

- KERN COUNTY SUBBASIN
- WHITE WOLF SUBBASIN

Sources

1. Basemap is ESRI's ArcGIS Online world aerial map, obtained 10 February 2026.

2. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - Final

3. District boundary and surface water service area provided by District Staff.

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District Boundary Map

WRMWSD AWMP
12109 Highway 166
Bakersfield CA, 933113
January 2026
C50064.00

Figure 1

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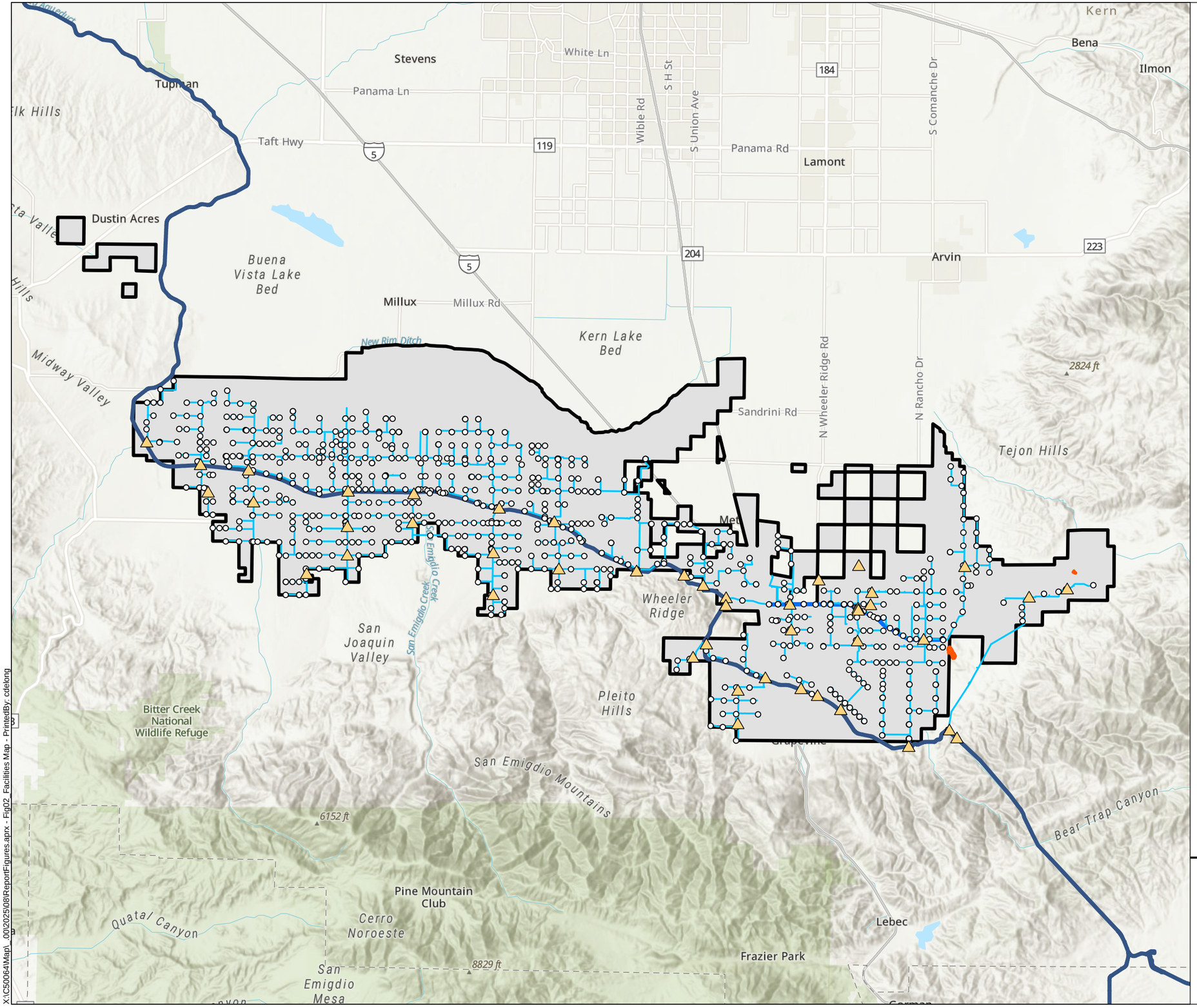

Legend

- 850 Canal
- Pumping Plant
- Wheeler Ridge-Maricopa Water District
- TCWD Operated Reservoirs in the District
- Turnout
- Pipeline
- California Aqueduct

Abbreviations

1. TCWD = Tejon-Castac Water District

Sources

1. Basemap is ESRI's ArcGIS Online world aerial map, obtained 11 February 2026.

2. WRMWSD facility locations provided by WW GSP on 21 November, 2017

3. Reservoir locations provided by TCWD.

4. California Aqueduct from National Hydrography Dataset.

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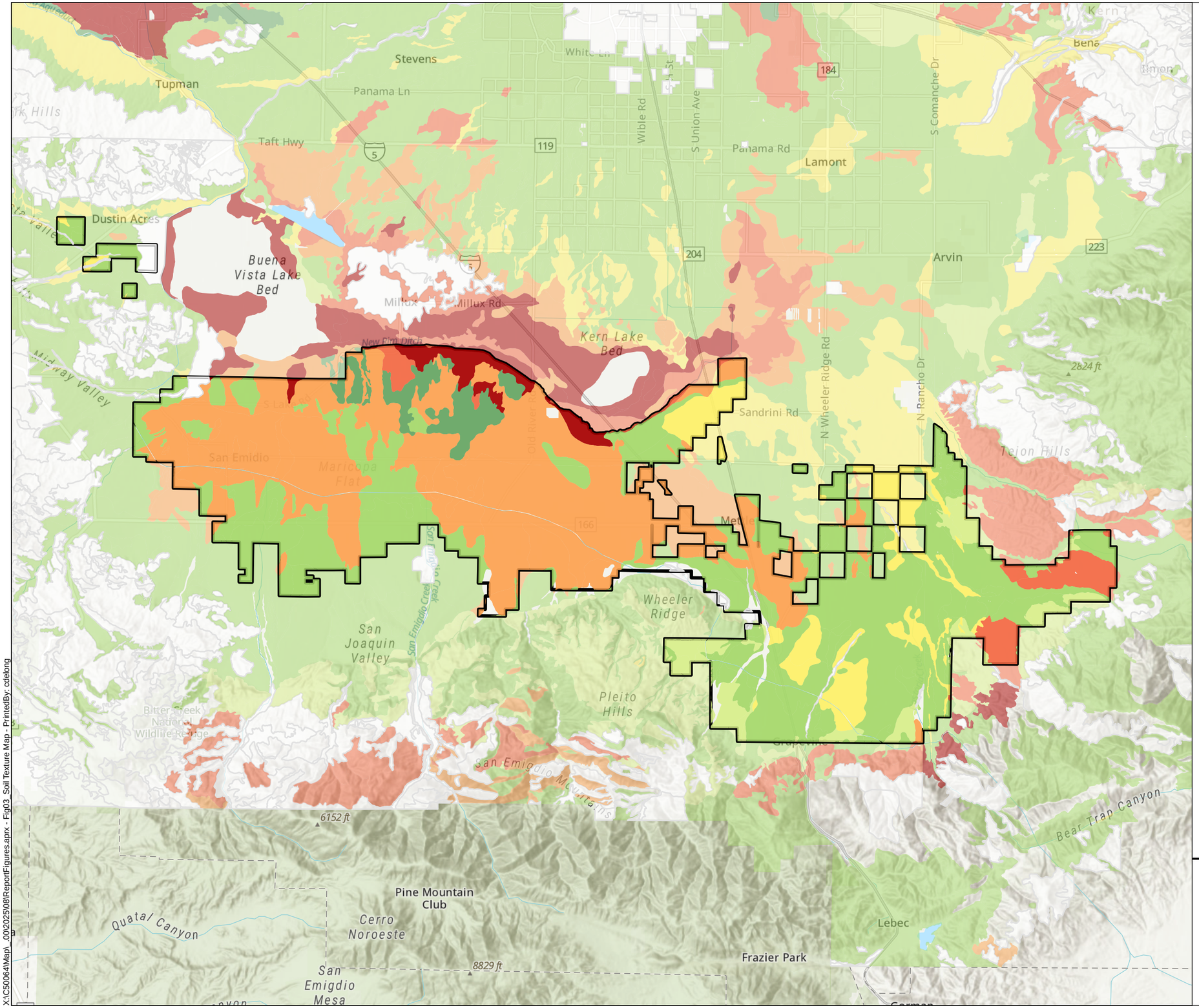
Water Facilities Map

WRMWSD AWMP
Address12109 Highway 166
Bakersfield, CA 93313
January 2026
C50064.00

Figure 2



Legend

Water Districts
- Wheeler Ridge-Maricopa Water District

Soil Texture Type
- Clay
- Clay Loam
- Loam
- Loamy Sand
- Not Identified
- Sandy Clay Loam
- Sandy Loam
- Silty Loam

Sources
1. Basemap is ESRI's ArcGIS Online world aerial map, obtained 11 February 2026
2. Soil texture classifications from Soil Survey Geographic Database

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Soil Texture Map

WRMWSD AWMP
12109 Highway 166
Bakersfield, CA 93313
January 2026
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Figure 3

eki environment & water

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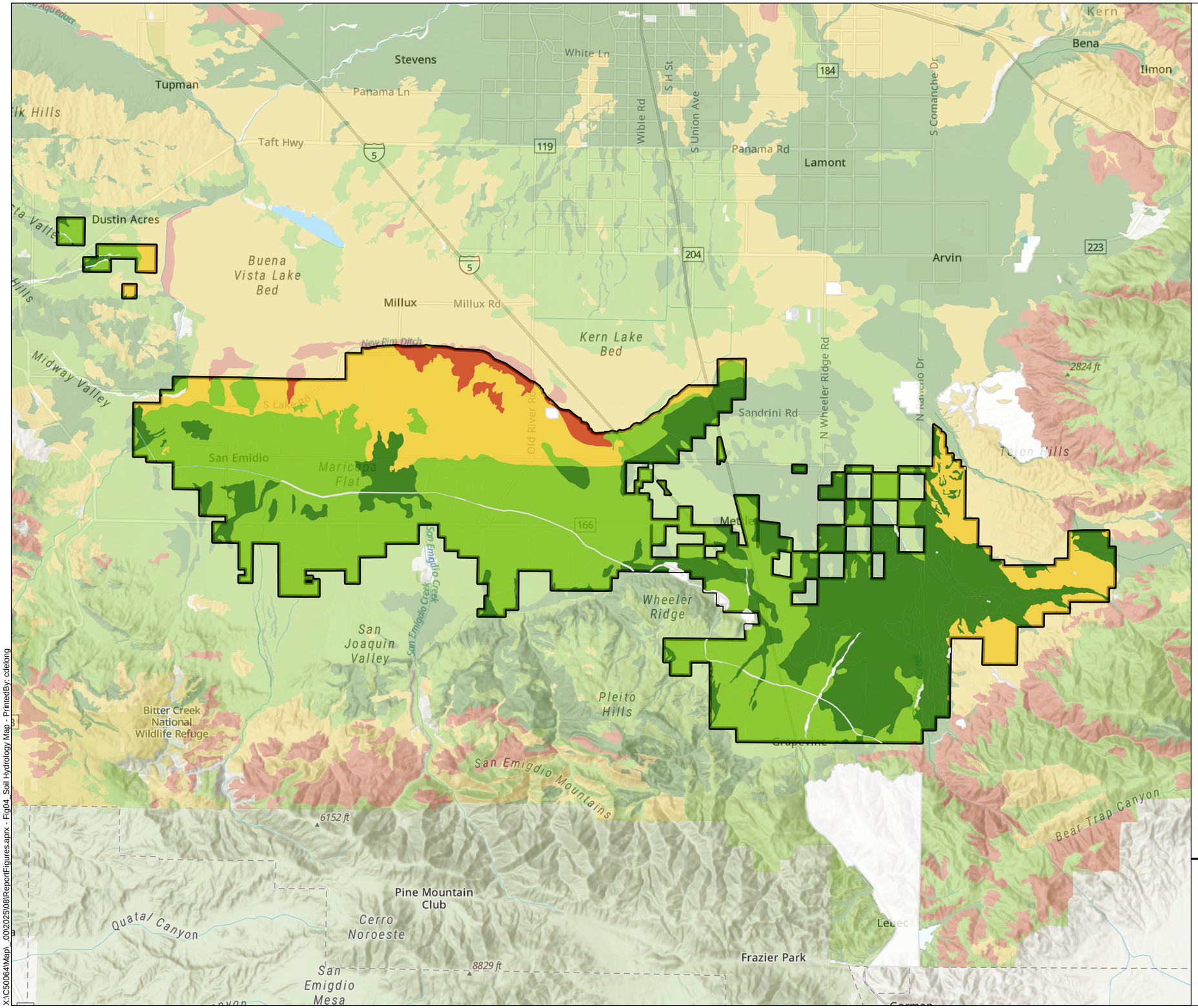

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Legend

Wheeler Ridge-Maricopa Water District

Hydrologic Soil Group

- A
- B
- C
- D
- Not Designated

Sources

1. Basemap is ESRI's ArcGIS Online world aerial map, obtained 11 February 2026.
2. Soil hydrologic groups from Soil Survey Geographic Database.

N

0 4 8

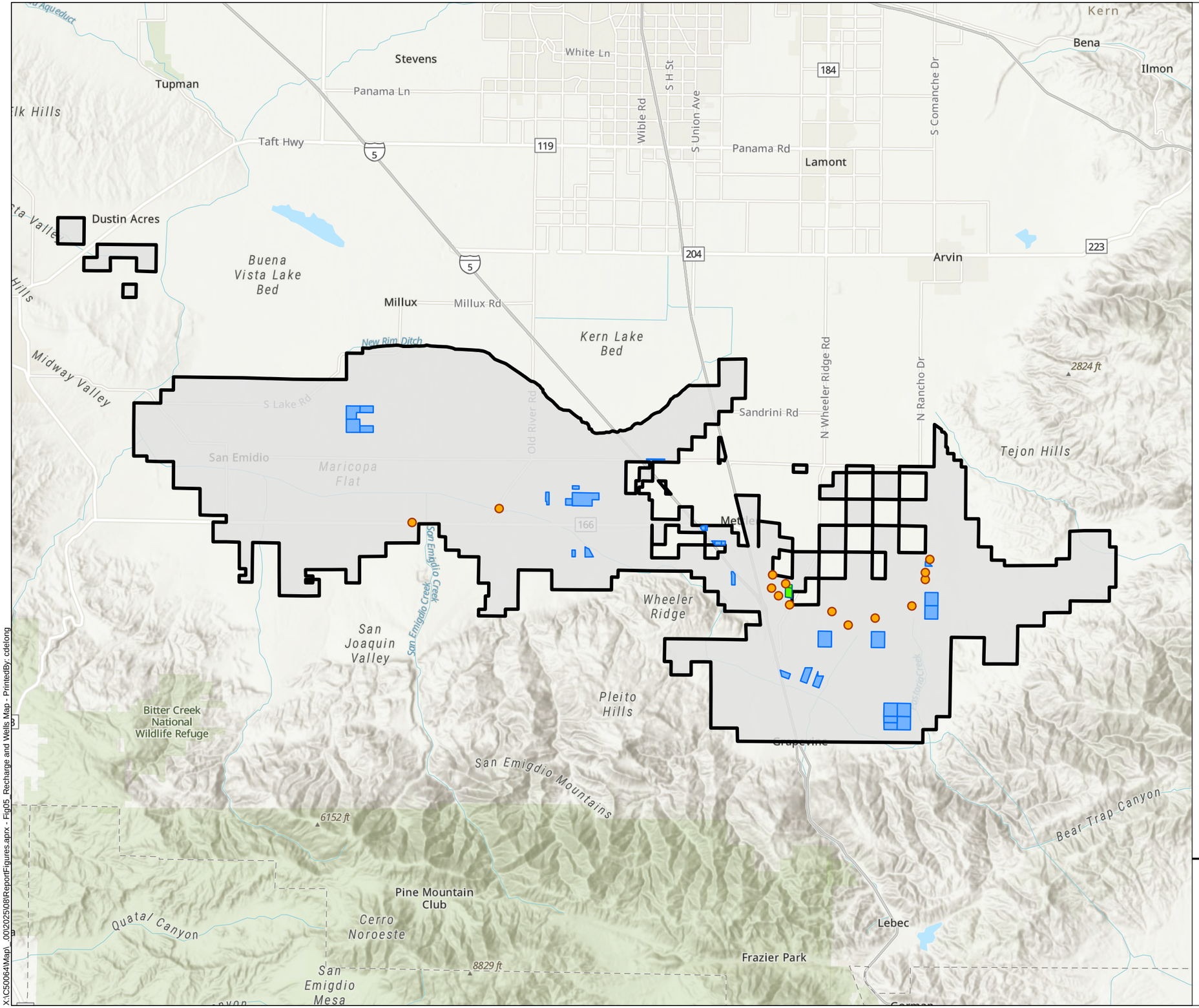
Miles

Soil Hydrology Map

WRMWSD AWMP
12109 Highway 166
Bakersfield, CA 93313
January 2026
C50064.00

Figure 4

eki environment & water



Legend

- District Production Wells
- Mettler Recharge Facility
- On-Farm Recharge Parcels
- Wheeler Ridge-Maricopa Water District

Sources

1. Basemap is ESRI's ArcGIS Online world aerial map, obtained 11 February 2026
2. District production wells, Mettler Recharge Facility, and On-Farm Recharge Parcels provided by District staff.

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Miles

District Wells and Recharge Parcels Map

WRMWSD AWMP
12109 Highway 166
Bakersfield CA, 933113
January 2026
C50064.00

Figure 5

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APPENDIX A

Relevant Projects and Management Actions

Wheeler Ridge-Maricopa GSA
Projects and Management Actions

Goals and Objectives of Projects and Management Actions

☑ 23 CCR § 354.44(a)
☑ 23 CCR § 354.44 (b)(1)(A) and (B)

The objectives of Projects and Management Actions (P/MAs) are to achieve the Kern County Subbasin's (Subbasin) Sustainability Goal through implementation of a glide path that will result in closing the estimated Subbasin groundwater storage deficit of 372,120 acre-feet per year (AFY) under the 2030 Climate Change Scenario by the January 2040 GSP implementation deadline, as well as address data gaps and provide for mitigation measures to protect beneficial users.

Each Groundwater Sustainability Agency (GSA) developed P/MA's individually and collectively as a Subbasin. Evaluation of components such as costs, viability, and benefits, was all completed at a GSA level. The coordinated goal of the P/MA Planned Deficit Reduction for each GSA is to meet (with some flexibility) each interim milestone and to eliminate their respective deficit reduction goal by 2040.

The Subbasin GSAs, as it relates to this planning document, have agreed to use a historical supply and demand analysis using a checkbook approach to determine the minimum target P/MA goal for each individual GSA. This is for P/MA planning purposes only, as these values are not considered final, and will be revised during the Basin Study KSB-4. Minimum target P/MA goals for each GSA were calculated using this historical checkbook surface water supply and demand analysis for the 1995-2014 period, then applying an adjustment for estimated climate change which results in increased minimum target P/MA goal above historical levels. These estimates are for P/MA planning purposes only and will be updated in subsequent planning cycles, informed by Basin Study management action KSB-4.

(a) Implementation Glide Path Kern County Subbasin

☑ 23 CCR § 354.42(d)

As stated above, the goals and objectives of the P/MAs presented herein are to address existing overdraft conditions that could trigger Undesirable Results as P/MAs are incrementally implemented to achieve the sustainability goal. While the exact schedule and timetable for implementation of the individual P/MAs is not known at this time, general implementation schedules, also known as a glide path, have been developed as summarized in Table 1 and illustrated on Figure 1. This glide path is aimed to address

25 percent (93,000 AFY) of the projected deficit of 372,000 AFY during each five-year milestone through 2040, which in turn will affect conditions of the relevant Sustainability Indicators based on the assumption that those conditions are directly related to the balance of supplies and demands within the Subbasin as shown in Table 1. The anticipated P/MA implementation schedule is forecasted to exceed the target deficit reduction by 2030 and exceed the 2040 milestone with a safety factor of 2.2, illustrating an extremely high degree of P/MA redundancy. A sensitivity analysis is illustrated on Figure 1 for both 50 percent and 75 percent actual realized benefits from P/MAs. Even if only 50 percent of P/MA benefits are realized, 109 percent of the projected deficit would be eliminated by 2040. Figure 1 and Figure 2 depicts that the Subbasin will rely on 387,000 AFY of demand reduction to mitigate the 372,000 AFY deficit and has identified as-needed projects available for development that would provide an additional estimated 71,000 AFY of deficit reduction capacity, bringing the total safety factor to 2.3 times the planned goal.

Table 1. (Glide Path – Target Deficit Reduction)

Project and Management Action Implementation Schedule (AFY)

Kern County Subbasin Projected-Future Scenario Deficit Reduction "Glide Path" 354.44 (b)(2)		**2020**	**2025**	**2030**	**2035**	**2040**
Projected Deficit			**-372,000**			
Target Deficit Reduction (%)		0	25%	50%	75%	100%
Projected Deficit No P/MA's		**372,000**	**372,000**	**372,000**	**372,000**	**372,000**
Deficit Reduction "Glide Path" Milestones		**-372,000**	**-279,000**	**-186,000**	**-93,000**	**0**
Project and Management Action, by Type (AFY)						
Planned Demand Reduction	Land Retirement	14,964	28,772	36,835	43,835	45,835
	Demand Reduction	86	61,964	124,714	189,343	258,983
	Ag to Urban Conversion	389	9,189	18,378	26,817	35,256
	Water Conservation-Efficiency	25,099	28,690	28,690	28,690	28,690
	Subtotal	**40,538**	**128,614**	**208,617**	**288,684**	**368,764**
Planned Water Supply Augmentation	Supplemental Water Recharge	34,156	51,887	86,548	89,768	89,768
	Supplemental Water Use	33,060	48,050	55,450	62,350	70,150
	Third-Party Banking	13,713	27,473	28,013	28,013	29,263
	New Local Supply	0	8,000	25,557	114,557	120,107
	Exercise of Rights	104,539	131,308	135,890	135,890	135,890
	Subtotal	**185,468**	**266,718**	**331,458**	**430,578**	**445,178**
P/MA Implementation Schedule*		**226,006**	**395,332**	**540,075**	**719,262**	**813,942**
As-Needed PMA Deficit Benefits		*0*	*550*	*4,800*	*51,826*	*71,645*
Planned P/MA Deficit Reduction Schedule*		**-145,994**	**23,332**	**168,075**	**347,262**	**441,942**

* Implementation Date includes estimated time to start accruing benefits

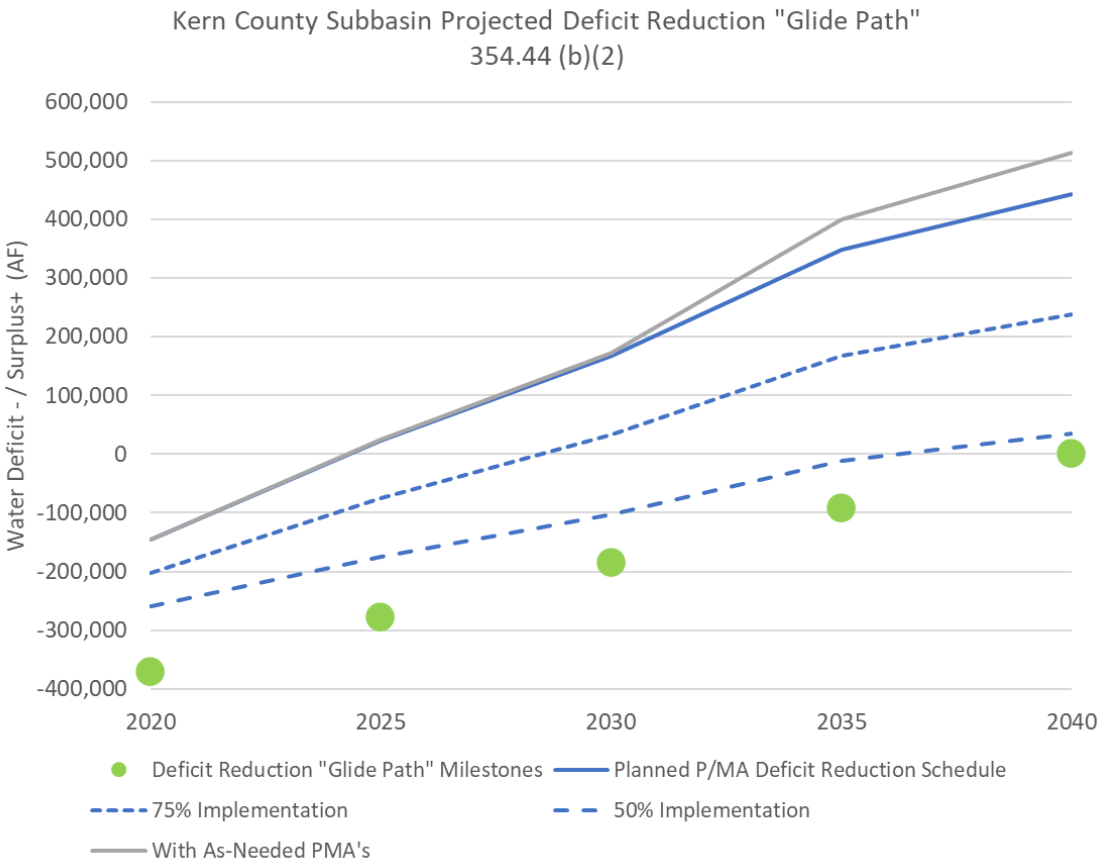


Figure 1. (Glide Path – P/MA Planned Deficit Reduction vs. Milestones)

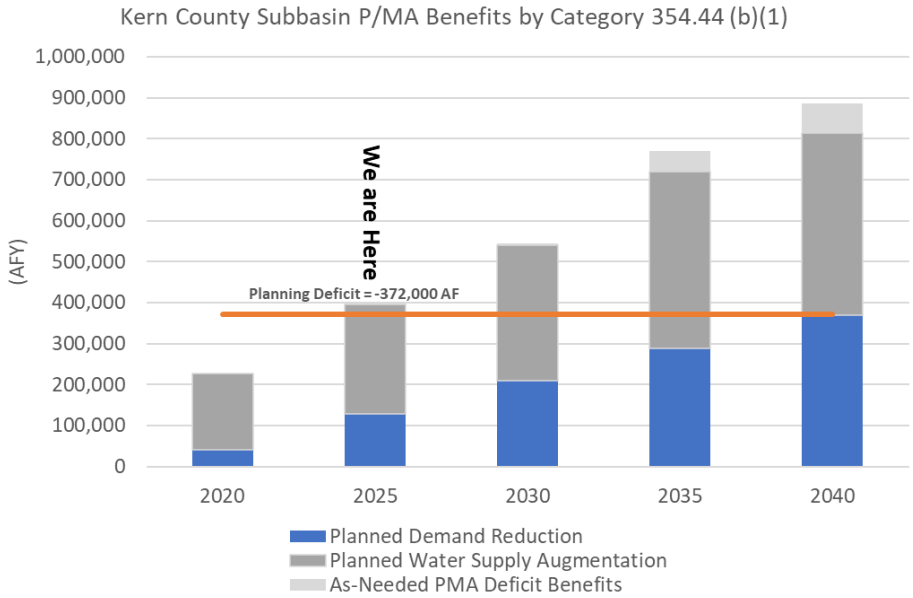


Figure 2. (P/MA by Category)

(b) Implementation Glide Path – Wheeler Ridge-Maricopa GSA

☑ 23 CCR § 354.42(d)

As stated above, the goals and objectives of the P/MAs presented herein are to address any existing or potential Undesirable Results by the GSP implementation deadline for Kern County Subbasin (i.e., by January 2040). As such, P/MAs will be implemented incrementally to achieve this goal. While the schedule and timetable for implementation of all individual P/MAs is not exactly known at this time, general implementation schedules, also known as a "Glide Path," have been developed as summarized for Wheeler-Ridge Maricopa GSA Table 2 below and illustrated on Figure 3. This "Glide Path" is aimed to address 25 percent (3,590 AFY) of the projected deficit of 14,360 AFY during each five-year milestone through 2040, which in turn will affect conditions of the relevant Sustainability Indicators based on the assumption that those conditions are directly related to the balance of supplies and demands within the GSA. The anticipated P/MA implementation schedule is forecasted to exceed the target deficit reduction as early as 2025.

Table 2. (Glide Path – Target Deficit Reduction)

Project and Management Action Implementation Schedule (AFY)						
Wheeler Ridge-Maricopa WSD GSA Projected-Future Scenario Deficit Reduction "Glide Path" 354.44 (b)(2)		**2020**	**2025**	**2030**	**2035**	**2040**
Projected Deficit			-14,360			
Target Deficit Reduction (%)		0	25%	50%	75%	100%
Target Deficit Reduction		**0**	**-3,590**	**-7,180**	**-10,770**	**-14,360**
Deficit Reduction "Glide Path" Milestones		**-14,360**	**-10,770**	**-7,180**	**-3,590**	**0**
Project and Management Action, by Type (AFY)						
Planned Demand Reduction	Land Retirement		10,000	12,500	12,500	12,500
	Demand Reduction		2,000	2,000	2,000	2,000
	Ag to Urban Conversion					
	Water Conservation-Efficiency					
	Subtotal	**0**	**12,000**	**14,500**	**14,500**	**14,500**
Planned Water Supply Augmentation	Supplemental Water Recharge		3,600	5,600	5,600	5,600
	Supplemental Water Use	5,000	5,000	5,000	5,000	5,000
	Third-Party Banking	6,730	6,730	6,730	6,730	6,730
	New Local Supply					
	Exercise of Rights		4,500	4,500	4,500	4,500
	Subtotal	**11,730**	**19,830**	**21,830**	**21,830**	**21,830**
P/MA Implementation Schedule*		**11,730**	**31,830**	**36,330**	**36,330**	**36,330**
Total As-Needed P/MA Deficit Benefits		*0*	*0*	*0*	*31,000*	*31,000*
Planned P/MA Deficit Reduction Schedule*		**-2,630**	**17,470**	**21,970**	**21,970**	**21,970**

* Implementation Date includes estimated time to start accruing benefits

Target = 0

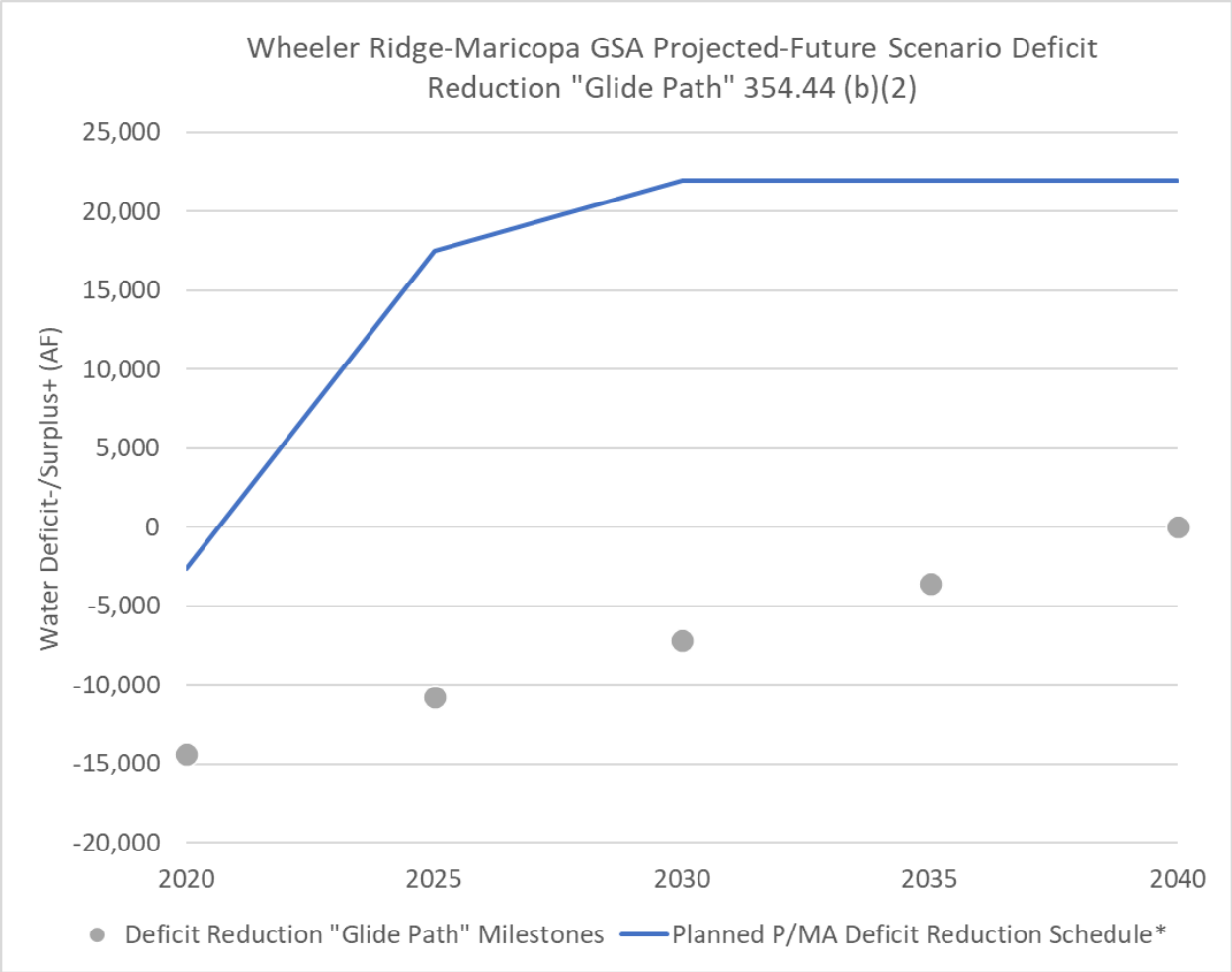


Figure 3. P/MA-5 (Glide Path – P/MA Planned Deficit Reduction vs. Milestones)

List of Projects and Management Actions

§ 354.44. *Projects and Management Actions*

(a) Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent. The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management actions, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

(2) If overdraft conditions are identified through the analysis required by Section 354.18, the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.

(3) A summary of the permitting and regulatory process required for each project and management action.

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

(6) An explanation of how the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

(9) A description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.

(c) Projects and management actions shall be supported by best available science.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

P/MAs are numbered with the acronym of the GSA (example WRM-1) if the P/MA is specific to the individual GSA. Subbasin-wide P/MAs are labeled with “KSB-#” which represents P/MAs that all – or nearly all - GSAs are participating in to achieve the Subbasin’s Sustainability Goal. All P/MAs are described in detail on the tables below.

Table 3. (GSA P/MAs)

P/MA Number	P/MA Name	Summary Description	Relevant Sustainability Indicators Affected			Overdraft Correction Description Category	Circumstances for Implementation	Public Noticing Process	Permitting and Regulatory Process Requirements	Status	Timetable / Circumstances for Initiation	Timetable for Completion	Timetable for Accrual of Expected Benefits	Expected Benefits							Source(s) of Water, if applicable	Legal Authority Required	Estimated Costs		
														Primary (AFY)		Secondary									
			Groundwater Levels & Storage	Groundwater Quality	Land Subsidence									Water Supply Augmentation	Demand Reduction	Water Quality Improvement	Flood Control	Water Management Flexibility / Efficiency	Mitigation Programs	Data Gap Filling/ Monitoring			One-time Costs	Ongoing Costs (per year)	Potential Funding Source(s)
Projects		Implemented / Functional / In-Process	As-Needed										Implemented	Functional		In-Process			As-Needed						
WRM-1	**Increase Out-of-District Banking Operations**	Increase size/participation in out-of-District banking facilities (i.e., Kern Water Bank and Pioneer Project). Increased banking of wet year supplies outside of the District would support deliveries of imported water into the District in normal/dry years.	✓	✓		Third-Party Banking	Underway	Regular District Board meetings	CEQA	**Implemented**	Complete	Complete	2020-	**6730**	**0**	✓		✓			Combination of lower Kern River water supplies and article 21	None	$1,000,000	$100,000	District water charges
WRM-2	**Purchase Additional Supplies**	Continue purchase of additional supplies, as available, for banking outside of the District or direct delivery within the District.	✓	✓	✓	Supplemental Water Use	Underway	Regular District Board meetings	CEQA	**Implemented**	Complete	Complete	2020-	**5000**	**0**	✓		✓			Combination of lower Kern River water supplies and article 21	District authority as a Water Storage District	NA	$2,500,000	District water charges
WRM-3	**On-Farm Recharge**	A Landowner Recharge Program was established in April 2023 and pays participating landowners $75/AF to spread certain low-cost water supplies available to WRMWSD on private lands.	✓	✓		Supplemental Water Recharge	Underway	Regular District Board meetings	CEQA	**Implemented**	Complete	Complete	2023-	**3600**	**0**	✓		✓			Combination of lower Kern River water supplies and article 21	None	$0	$1,350,000	District water charges
KSB-1	**Friant-Kern Canal Capacity Mitigation**	1) Collaborate with FWA to develop costs estimates for the Lower Reach Capacity Correction, 2) develop an attribution analysis of post-2020 subsidence impacts, 3) participate in developing a value of water analysis in cooperation with FWA and 4) develop and implement a funding mechanism to pay for post-2020 conveyance impacts on the FKC attributable to subsidence.	✓		✓		Completion of Design and Impact Analysis	Stakeholder Meetings Board Meetings	NA	**Feasibility Study**	NA	2030	2030-	**0**	**0**			✓	✓	✓	NA	None	Unknown	Unknown	GSA Admin Charge
WRM-4	**"Thru Delta" Facility**	Participation in a "Thru Delta" Facility to increase access to contracted (SWP) supplies.	✓	✓	✓	Exercise of Rights	State-led effort underway	Prop 218	CEQA	**Design & Permitting**	Underway	2045	2045-	**5000**	**0**	✓					State Water Project	None	$311,000,000	TBD	District water charges
WRM-5	**In-District Recharge Facilities**	Program to promote private and/or District-owned recharge facilities within the District.	✓	✓		Supplemental Water Recharge	To be implemented upon adoption of GSP	Regular District Board meetings	CEQA	**Feasibility Study**	2023	2030	2030-	**2000**	**0**	✓		✓			Combination of lower Kern River water supplies and article 21	None	$3,200,000	$100,000	District water charges; GSA Admin Charge

WRM-13	**Capture of Imported Water Return Flows from White Wolf Subbasin**	WRMWSD has provided imported water deliveries to landowners within the White Wolf Subbasin. Return flows of imported water flow across the White Wolf Fault into Wheeler-Ridge Maricopa GSA. Wheeler-Ridge Maricopa GSA would capture the proportion of Subbasin inflows attributed to WRMSD's imported water return flows for distribution and use within the surface water service area.	✓			Exercise of Rights	Underway	GSA Board meetings	NA	**Wheeler-Ridge Maricopa GSA has initiated discussions and negotiations with Subbasin GSAs and White Wolf GSA**	2024	2025	2025-	**4500**	**0**						Imported water return flows	None	$0	$0	NA
WRM-6	**Expand District Distribution System**	Project to expand District distribution system into area currently using only private groundwater.	✓	✓	✓	Supplemental Water Use	Upon modification of water service contracts	Regular District Board meetings	CEQA	**Not yet Initiated**	TBD	TBD	TBD	**2000**	**0**	✓		✓			Additional wet-year imported water supplies	District as a water storage authority	$18,000,000	$100,000	District water charges; grants
WRM-7	**Desalination Facilities**	Desalination facilities to allow for use of additional poor quality groundwater for agricultural use, easing demand on principal aquifer.	✓	✓	✓	New Local Supply	Localized pumping lowering GW levels near MT	Regular District Board meetings	CEQA	**Feasibility Study**	TBD	TBD	TBD	**0**	**0**	✓					poor-quality (currently unused) groundwater	None	NA	$2,400,000	District water charges; GSA Admin Charge

P/MA Number	P/MA Name	Summary Description	Relevant Sustainability Indicators Affected			Overdraft Correction Description Category	Circumstances for Implementation	Public Noticing Process	Permitting and Regulatory Process Requirements	Status	Timetable / Circumstances for Initiation	Timetable for Completion	Timetable for Accrual of Expected Benefits	Expected Benefits							Source(s) of Water, if applicable	Legal Authority Required	Estimated Costs		
														Primary (AFY)		Secondary									
			Groundwater Levels & Storage	Groundwater Quality	Land Subsidence									Water Supply Augmentation	Demand Reduction	Water Quality Improvement	Flood Control	Water Management Flexibility / Efficiency	Mitigation Programs	Data Gap Filling/ Monitoring			One-time Costs	Ongoing Costs (per year)	Potential Funding Source(s)
Management Actions		**Implemented** **Functional** **In-Process**	**As-Needed**										**Implemented**	**Functional**		**In-Process**				**As-Needed**					
WRM-8	**Pumping Assessment**	Set policy to implement a pumping assessment to fund purchase of additional supplies, purchase of land for fallowing, and other investments to support SGMA compliance.	✓		✓	Demand Reduction	To be implemented upon adoption of GSP	Prop 218	CEQA	**Implemented**	Complete	Complete	2024-	**0**	**2000**						NA	District authority as a Water Storage District	$200,000	$50,000	District water charges
KSB-2	**Coordination with Groundwater Regulatory Programs**	Coordination with various water quality regulatory programs by local, state, and federal agencies. Some of these programs include the Irrigated Lands Regulatory Program, Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS), as well as local Groundwater Banking MOUs.	✓	✓			When domestic or small community wells require assistance maintaining access to safe and reliable water supplies.	Refer to Subbasin Outreach and Engagement Plan	NA	**Implemented**	NA	2020	2020-	**0**	**0**	✓				✓	NA	NA	$0	$25,000	GSA Admin Charge
KSB-3	**Exceedance Policy**	Subbasin-wide policy to outline what measures are taken if an MT is exceeded (levels, quality, or subsidence). This policy involves the implementation of action plans and notifications to beneficial users.	✓	✓	✓		When an MT exceedance occurs for any sustainability indicator.	NA	NA	**Implemented**	NA	2024	2024-	**0**	**0**				✓	✓	NA		$0	$25,000	GSA Admin Charge
WRM-14	**Well Registry within Close Proximity to the California Aqueduct**	Well registration program that will require all currently existing and future groundwater extraction wells located proximate to the California Aqueduct to be reported to the WRM GSA	✓	✓	✓				NA	**Implemented - Included within the WRMWSD Groundwater Service Charge**	NA	2025-	2025-	**0**	**0**				✓	✓	NA	Authority of a GSA under SGMA to develop and implement a GSP	$0	$25,000	GSA Admin Charge
WRM-15	**Well Extraction Volume Reporting Within Close Proximity to the California Aqueduct**	Well extraction volume reporting program for groundwater extraction wells located proximate to the California Aqueduct. Extractions will need to be metered using either the District's adopted well meter standards or an ET based methodology.	✓	✓	✓				NA	**Implemented Through WRMWSD Groundwater Service Charge**	NA	2025-	2025-	**0**	**0**				✓	✓	NA	Authority of a GSA under SGMA to develop and implement a GSP	$0	$25,000	GSA Admin Charge

KSB-5	**Well Mitigation Program**	Implementation of a well mitigation program to address water level and quality impacts on drinking water. The program provides emergency bottled water, well assessments, hauled water, and well improvements or replacements.	✓				When groundwater management activities impact domestic wells.	Refer to Subbasin Outreach and Engagement Plan	NA	**With the adoption of the GSP in December, the Well Mitigation Plan will be adopted and implemented beginning on January 1, 2025.**	NA	2026	2025-	**0**	**0**				✓		NA	NA	$0	$45,000	GSA Admin Charge
KSB-4	**Coordination with Basin Study**	Coordination with local GSA's to gain a better understanding of the Kern Subbasin and how best to manage for sustainability, native yield, subsurface flow, and evapotranspiration. The further development of the data management system to improve data access and transparency.	✓	✓	✓		Supporting data collection, reviewing and validating results with GSA-specific data.	NA	NA	**Ongoing**	NA	2025	2025-	**0**	**0**					✓	NA	NA	$25,000	$0	GSA Admin Charge
KSB-6	**White Land Demand Management**	Development of governance structure and demand reduction action for Subbasin white lands (lands not within a district or management area). Correct the water supply imbalance by setting water budgets and a linear reduction of 10% per year over the planning period of 2030-2040.	✓	✓	✓	Demand Reduction	Subbasin-wide overdraft correction.	Stakeholder Meetings Board Meetings Hearings Public Outreach & Engagement	NA	**Initiating Development**	NA	2030	2030-	**0**	**20,410**	✓				✓	NA	None	$0	$10,000	GSA Admin Charge
KSB-7	**Well Registry**	An ongoing effort to update and maintain the Subbasin well inventory and translate it into a well registry. Information will be updated and housed within the Subbasin data management system.	✓	✓	✓			Refer to Subbasin Outreach and Engagement Plan	NA	**Ongoing**	NA	2024-	2024-	**0**	**0**				✓	✓	NA	NA	$0	$25,000	GSA Admin Charge
KSB-8	**Consumptive-Use Study**	Maintain and improve existing Subbasin consumptive-use study (ITRC Metric/LandIQ) for accurate estimates of water use by parcel within GSA's.	✓	✓	✓			Refer to Subbasin Outreach and Engagement Plan	NA	**Ongoing**	NA	2020-	2020-	**0**	**0**				✓	✓	NA	NA	$0	$25,000	GSA Admin Charge
KSB-9	**California Aqueduct Subsidence Action Plan**	Subbasin has developed an Action Plan for Subsidence Interim Milestone (IM) & Minimum Threshold (MT) Exceedances which requires GSAs to evaluate and initiate targeted P/MAs to reduce GSA-related subsidence. As part of this P/MA, GSAs located within or proximate to the CASP 5-mile wide Monitoring Corridor to the California Aqueduct may initiate targeted P/MAs should future observed subsidence rates exceed IMs and MTs.	✓		✓		When an subsidence IM/ MT exceedance occurs.	NA	NA	**Ongoing**	In-process	Ongoing													
KSB-10	**RMW Data Gaps**	An assessment of level and quality data gaps identified RMN data gaps for water levels and quality. Identified data gaps will be evaluated and addressed by the end of 2026 as specified in Section 15.	✓	✓	✓	NA	NA	NA	Permitting will be required if new wells need to be drilled	**Ongoing**	NA	2026	2026-	**0**	**0**					✓	NA	NA	Unknown at this time	Unknown at this time	Unknown at this time

WRM-16	**Net Zero Well Drilling Moratorium within Close Proximity to the California Aqueduct**	Net zero well drilling moratorium that would allow for replacement wells, but no new wells (excluding de minimums use) to be installed proximate to the California Aqueduct, resulting in no new groundwater extractions proximate to the California Aqueduct.	✓	✓	✓				NA	**Initiating Development**	NA	2025-	2025-	**0**	**0**				✓	✓	NA	Authority of a GSA under SGMA to develop and implement a GSP	$0	$25,000	GSA Admin Charge
WRM-9	**Groundwater Allocation and Market**	Develop a groundwater pumping allocation methodology, including a market system for trading and/or transferring of allocations.	✓		✓	Demand Reduction	To be implemented upon adoption of GSP	Regular District Board Meetings	CEQA	**By end of WY 2023, allocation policy in early stages of development**	2023	TBD	2035-	**0**	**21000**			✓			NA	Authority of a GSA under SGMA to develop and implement a GSP	$50,000	$50,000	GSA Admin Charge
WRM-10	**Voluntary Pumping Limitation**	Set non-binding pumping limitations in conjunction with a fee for pumping above limits.	✓		✓	Demand Reduction	To be implemented upon adoption of GSP	Prop 218	CEQA	**In coordination with WRM-9**	2023	TBD	2035-	**0**	**0**						NA	Authority of a GSA under SGMA to develop and implement a GSP	$200,000	$50,000	GSA Admin Charge
WRM-11	**Mandatory Pumping Limitation**	Set binding pumping limitations in conjunction with a fee for pumping above limits.	✓		✓	Demand Reduction	if other P/MAs are insufficient	Prop 218	CEQA	**In coordination with WRM-9**	2023	TBD	2035-		**5000**					✓	NA	Authority of a GSA under SGMA to develop and implement a GSP	$200,000	$50,000	GSA Admin Charge
WRM-12	**Land Retirement**	Conversion of ag lands to solar. Purchase and permanently fallow previously irrigated acreage within District to reduce overall water demand and groundwater extractions.	✓		✓	Land Retirement	if other P/MAs are insufficient	Prop 218	CEQA	**Feasibility Study**	2030	TBD	2030-	**0**	**10000 (increase by 2500 after 2030)**						NA	Authority of a GSA under SGMA to develop and implement a GSP	$0	$10,000	GSA Admin Charge

☑ 23 CCR § 354.44(b)(1)

Demand Reduction P/MAs

Demand Reduction P/MAs are the primary means of implementation of a "Glide Path" that will result in closing the currently identified "deficit" of 18,910 AFY under the 2030 Climate Change Scenario by the January 2040 GSP implementation deadline.

GSA Specific P/MAs either currently being implemented or which have been implemented or in-process that contribute to water demand reduction include:

WRM-8 Pumping Assessment - Through a recently approved Groundwater Service Charge (GWSC) to be levied on each acre-foot of groundwater extracted for consumptive use within Wheeler Ridge Maricopa Water Storage District (WRMWSD) boundaries, with some exceptions, beginning as early as 2024, an approximately 2,000 AFY demand reduction benefit is expected.

WRM-12 Land Retirement - Through either District or landowner actions, by purchasing and permanently fallowing previously irrigated acreage within District to reduce overall water demand and groundwater extractions, a 10,000 AFY reduction in demand is anticipated, with an increase by 2,500 AFY after 2030.

KSB-9 Targeted P/MAs within Close Proximity to the California Aqueduct - The Subbasin has developed an Action Plan for Subsidence IM & MT Exceedance which requires GSAs to evaluate and initiate targeted P/MAs to reduce GSA-related subsidence. WRM GSA has initiated the following management actions in response to measured subsidence along Pools 31 through 35 of the California Aqueduct:

WRM-14 Well Registry within Close Proximity to the California Aqueduct – Implemented through the WRMWSD GSWC to further supplement the Kern County Subbasin Well Registry management action (KSB-7), the WRM GSA will implement a well registration program that will require all currently existing and future groundwater extraction wells located proximate to the California Aqueduct to be reported to the WRM GSA.

WRM-15 Well Extraction Volume Reporting Within Close Proximity to the California Aqueduct - Implemented through the WRMWSD GSWC a well extraction volume reporting program for groundwater extraction wells located proximate to the California Aqueduct. The District has also adopted well meter standards.

WRM-16 Net Zero Well Drilling Moratorium within Close Proximity to the California Aqueduct - The WRM GSA will implement a net zero well drilling moratorium that would allow for replacement wells, but no new wells (excluding de minimums use) to be installed proximate to the California Aqueduct. This management action results in no new groundwater extractions proximate to the California Aqueduct.

KSB-6 White Land Demand Management – The Subbasin is developing a governance structure and demand reduction action for Subbasin white lands (lands not within a

district). As part of the implementation of KSB-6 there would be another round of public outreach to include remaining white land landowners. Previous stakeholder outreach efforts accomplished GSA management of over 150,000 acres of white lands that were absorbed via agreement with various GSAs and managed for sustainability. Approximately 7,200 acres of white lands (less than 1% of the Subbasin) remain currently using groundwater (irrigated agriculture and urban) to have management actions assigned. KSB-5 Basin Study will provide added technical data to support setting water budgets necessary to implement a linear white lands demand reduction schedule of 10 percent per year, estimated at a total of 23,920 AF over the planning period of 2030-2040. Additional details are provided in the Kern Non-District Lands Authority Joint Powers Agreement governance document in **Appendix C-2**. Due to the white land's relatively small groundwater demand, implementing white land demand management in the 2025-2030 period will not preclude the Subbasin's ability to meet its sustainability goal.

Water Supply Augmentation P/MA's

Water Supply Augmentation P/MAs are the secondary means of implementation of a "Glide Path" that will result in closing the balance of the currently identified "deficit" of 18,910 AFY under the 2030 Climate Change Scenario by the January 2040 GSP implementation deadline.

GSA-specific Projects either currently being implemented or have been implemented or in-process that contribute to supply augmentation include:

WRM-1 Increase Out-of-District Banking Operations - Through increasing size and/ or participation in out-of-District banking facilities (i.e., Kern Water Bank and Pioneer Project), the associated increase in banking of wet year supplies outside of the District would support deliveries of imported water into the District in normal/dry years. The estimated average recharge benefit from this project is 9,225 AF/month, or 6,730 AFY.

WRM-2 Purchase Additional Supplies - By continuing to purchase additional supplies, as available, for banking outside of the District or direct delivery within the District, an estimated 5,000 AFY benefit is expected.

WRM-3 On-Farm Recharge - Through establishing the Landowner Recharge Program in April 2023, WRMWSD pays participating landowners $75/AF to spread certain low-cost water supplies available to WRMWSD on private lands not subject to perched water or overlying poor quality groundwater. Through this program, up to an estimated 18,000 AFY of WRMWSD's supply will be recharged through this project in wet years, or 3,600 AFY on average when considering non-wet years.

WRM-4 "Thru Delta" Facility - Participation in a "Thru Delta" Facility will increase access to contracted (SWP) supplies. Participation in the Delta Conveyance Project (DCP) will allow the District to firm up its existing SWP entitlement and may also enable participants to gain access to additional non-firm supplies that can be conveyed through

the Delta. It is estimated that this project could provide up to 25,000 AF of surplus supply upon completion in wet years, or 5,000 AFY on average when considering non-wet years. However, because of delays associated with the DCP, the anticipated benefits from this project are not anticipated to start until at least 2045, and therefore are not currently included in the implementation "Glide Path".

WRM-5 In-District Banking Facilities - Through a program to promote private and/or WRMWSD-owned banking facilities within the District, the District estimates it could recharge up to 10,000 AF in wet years through this program, or 2,000 AFY on average when considering non-wet years.

WRM-13 Capture of Imported Water Return Flows from White Wolf Subbasin - Inflows from the White Wolf Subbasin can be attributed to return flows of imported surface water deliveries by Arvin-Edison Water Storage District (AEWSD) and WRMWSD to landowners within the White Wolf Subbasin. The average benefit of 9,000 AFY will be split equally between AEWSD and WRMWSD (4,500 AFY).

Data-Gap Filling and Mitigation Efforts

To address identified data-gaps, Management Actions either currently being implemented or have been implemented that contribute to data-gap filling and mitigation efforts include:

KSB-1 Friant-Kern Canal Capacity Mitigation – The Kern Subbasin is working to implement this project. Conveyance conditions of the Friant-Kern Canal (FKC) have been impacted by historical subsidence and will potentially be impacted by future subsidence. The Friant Water Authority (FWA) position regarding subsidence along the FKC is that "any unmitigated conveyance loss due to subsidence beyond 2020 would lead to undesirable results." Sustainable management criteria (SMCs) have been established for the FKC that limit subsidence with target average MT rates no more than of 0.1 feet per year (ft/yr) with a maximum 3 feet of cumulative subsidence from 2015 to 2040. Beyond 2040, subsidence is to be minimized with zero inelastic subsidence (including residual subsidence) attributable to groundwater pumping under GSA jurisdiction. To address post-2020 subsidence along the FKC, a mitigation program consisting of raising the sides (liner) of the canal and upgrading associated facilities/infrastructure such as bridge crossings, check structures, wasteways, turnouts, inlet drains, siphons/underdrains, power and telephone and various size pipelines is proposed. The mitigation program will be partially funded by GSAs within the Kern Subbasin, based on the relative impact of post-2020 pumping and groundwater overdraft on subsidence along the FKC. To date, the Kern Subbasin has performed one-dimensional (1D) numerical modeling at selected sites near the FKC in the Kern Subbasin. Results from the 1D numerical modeling will be used jointly with the updated IWFM-Kern model to explore a range of scenarios for establishing the FKC subsidence mitigation cost-sharing framework as part of ongoing work in collaboration with FWA. Separately, FWA is evaluating several Lower Reach Capacity Correction alternatives

including achieving the original design conveyance capacity of 2,500 cubic feet per second (cfs). FWA has performed their own forecast of future subsidence in a reconnaissance-level study (Note: the FWA future subsidence forecast is less than historical rate from 2015 to 2023 used to develop the FKC subsidence minimum threshold and assumes groundwater levels stabilizing quickly during implementation of the 2025 Plan). FWA's position is that the Kern Subbasin GSAs should minimize and mitigate lost conveyance capacity post-2020 due to ongoing subsidence attributable to groundwater pumping under GSA jurisdiction.

As part of this P/MA, the Kern Subbasin would implement the following: (1) participate in a program that monitors and tracks ongoing subsidence regionally within the Kern Subbasin and locally along the FKC, (2) compare observed rates of subsidence to established SMCs along the FKC and take action (i.e. pumping reductions) should future observed subsidence rates exceed interim milestones and the minimum threshold, (3) collaborate with FWA to develop cost estimates for the Lower Reach Capacity Correction and evaluate the degree of post-2020 lost capacity attributable to subsidence, (4) develop an attribution analysis of post-2020 subsidence impacts using either a numerical model to perform predictive analysis or other suitable tool, and (5) develop and implement a funding mechanism based on the subsidence attribution analysis to pay for post-2020 conveyance impacts on the FKC attributable to subsidence. See Appendix G-2 for additional details on the preliminary FKC mitigation assessment, cost-sharing agreement by GSAs for additional data collection and modeling; and progress on subsidence modeling to support FKC mitigation assessments. Appendix G-3 contains a letter of support for the FKC mitigation framework from the FWA.

KSB-2 Coordination with Groundwater Regulatory Programs – The Subbasin will continue to coordinate with various water quality regulatory programs by local, state, and federal agencies. Some of these programs include the Irrigated Lands Regulatory Program, Central Valley Salinity Alternatives for Long-term Sustainability (CV-SALTS), as well as local Groundwater Banking Memorandums of Understanding (MOUs), which mandates the sampling of monitoring wells and adherence to mitigation measures to protect groundwater quality.

KSB-3 Kern Subbasin Exceedance Policy – The Kern Subbasin has prepared the Kern Subbasin Exceedance Policy and Action Plans (Appendix K-1) to outline what measures are taken if an MT is exceeded for groundwater levels, groundwater quality, and/or land subsidence. This P/MA involves the implementation of action plans surrounding investigation into the exceedance, notifications to nearby beneficial users, as appropriate, and the documentation of those activities.

KSB-4 Coordination with Basin Study – The Subbasin has coordinated to perform an updated Basin Study. The work will address data and information gaps and recalibrate the Subbasin model. The update will:

a. Improve the understanding of the groundwater response to the implementation of P/MAs.
b. Develop an improved determination of the input data to address data gaps for Subbasin-wide and local water budgets.
c. Incorporate locally derived hydrogeologic conceptual model data from the Subbasin Plan into the model to better represent subsurface groundwater flow within and out of the Subbasin.
d. Improve model calibration to better simulate groundwater levels with respect to minimum thresholds and measurable objectives.

KSB-5 Well Mitigation Program – The Kern Subbasin has developed and adopted a comprehensive Well Mitigation Program (Appendix G-1) to fund and implement a Subbasin-wide mitigation program starting January 1, 2025. As part of the 2025 Plan, the Well Mitigation Program was further revised to include a specific mitigation program track that applies to Degraded Water Quality. Additional implementation details related to groundwater quality public notification and mitigation are discussed in Appendices K-1 (Action Plan for Degraded Groundwater Quality) and K-2 (Part IV).

In summary, the Well Mitigation Program includes three tracks for mitigation: Track 1 – Dry Well Mitigation; Track 2 – Dry Well Technical Assistance; and, Track 3 - Degraded Water Quality Mitigation. Currently, the GSAs implement Track 1 – Dry Well Mitigation through an agreement with Self-Help Enterprises (SHE), which allows the Kern Subbasin and SHE to coordinate as follows for that Track:

a. Emergency Bottled Water – Upon notice that a domestic well user has lost access to water, SHE distributes 2 weeks worth of bottled drinking water to the household within 24-hours.
b. Well Assessment – SHE staff conduct on-site assessments which includes review of well reports/documentation, confirming water source, checking for running water/water pressure, assessing well depth and water level, inspecting electrical and above-ground components, inspecting any existing tank systems, identifying locations for new tank system placement, and developing a site map.
c. Temporary Tanks and Hauled Water – If necessary, SHE arranges for installation of a tank system and routine delivery of hauled potable water to the site. Repair and maintenance services are provided to the system until removal.
d. Ongoing Bottled Water – SHE coordinates deliveries of ongoing bottled drinking water until a long-term solution is in place.
e. Long-Term Solutions – SHE finances, as provided by the GSAs, well repairs, well replacement, and service connections to nearby water systems (whenever feasible) to restore long-term water access to the home.

For the Degraded Water Quality Mitigation Track, the Kern Subbasin is committed to engage qualified professionals and/or an appropriate contractor/entity (e.g., Self-Help Enterprises) for implementation of the Degraded Water Quality Mitigation Track. The Kern Subbasin is committed to providing financial support for implementation of services such as providing short-term alternative water supplies and implementing long-term solutions for eligible domestic well owners. In the case of nitrate, the Kern Subbasin will seek to work with the Kern Water Collaborative to address interim and long-term solutions for nitrate impacts, as determined appropriate.

KSB-7 Well Registry - In late 2023, the GSAs initiated a Subbasin-wide well inventory that reconciles records from multiple databases to develop an accurate well inventory with verified well uses that is based on available records and field verification surveys (refer to the detailed process description in Section 5.6.1). The completed well inventory will be translated into a well registry based on district records of property owner information. This management action will be an ongoing effort as GSAs continue to update and maintain their well inventory/registry, which will be housed within the Kern Subbasin data management system. At least annually, the Kern Subbasin will update the system using DWR/County well permit information and well surveys.

KSB-8 Consumptive-Use Study – The Subbasin has annually contracted with either Cal Poly's Irrigation Training Research Center and/or LandIQ for monthly evapotranspiration data of the Subbasin for both planning and, in some GSAs, for groundwater extraction fee calculation purposes. The Subbasin will continue this effort and invest in improved technology and processes for improved accuracy.

KSB-9 California Aqueduct Subsidence Action Plan - Targeted P/MAs within or proximate to the CASP 5-mile wide Monitoring Corridor to the California Aqueduct – The Kern Subbasin has developed an Action Plan for Subsidence Interim Milestone (IM) & Minimum Threshold (MT) Exceedances which requires GSAs to evaluate and initiate targeted P/MAs to reduce GSA-related subsidence (see Sections 8.5 ;13.5.2 and Appendix K). As part of this P/MA, GSAs located within or proximate to the CASP 5-mile wide Monitoring Corridor to the California Aqueduct may initiate targeted P/MAs should future observed subsidence rates exceed IMs and MTs. These targeted P/MAs located within or proximate to the CASP Monitoring Corridor to the California Aqueduct may include: (1) well registry, (2) metered well extraction volume reporting, (3) net zero well drilling moratorium, (4) targeted pumping reductions, and (5) pumping limitations, among others deemed necessary informed by GSA analysis undertaken from the five-step Kern Subbasin Subsidence Action Plan (Appendix K).

KSB-10 RMW Data Gaps - In Section 15, an assessment of the Groundwater Level and Groundwater Quality RMN was conducted to ensure the network was monitoring beneficial users located at different depths. For the Groundwater Level RMN, this analysis yielded representative monitoring network data gaps in three grid hexagons for domestic beneficial users. The groundwater level monitoring assessment also identified seven additional grid hexagons as potential data gaps where GSAs propose to conduct

supplemental monitoring to further assess localized shallow groundwater conditions. The groundwater quality assessment yielded representative monitoring network data gaps in 30 grid hexagons. To address the three Groundwater Level RMN data gaps, the Kern Subbasin will augment the groundwater level monitoring network with one additional well. To address the 30 Groundwater Quality RMN data gaps, the Kern Subbasin anticipates augmenting the groundwater quality monitoring network with up to an additional 30 wells. The timeline for addressing these data gaps with existing wells is one year (end of calendar year 2025). The timeline for addressing these data gaps with a newly constructed well is two years (end of calendar year 2026). This timeframe is required to provide GSAs with adequate time to identify and field vet potential monitoring wells. In cases where no existing wells can be identified or access secured, new monitoring wells will be drilled to address these data gaps. See Section 15.5 for additional details regarding the data gap analysis and filling implementation plan.

Adaptive Management Efforts

To the extent that projects and management actions are unable to prevent Minimum Threshold Exceedances that are caused by Wheeler-Ridge Maricopa GSA activities, further actions will be evaluated and considered as directed by KSB-3 Exceedance Policy attached in Appendix K-1. If either the projects or management actions are unable to produce the projected supplies or other better options are found that prove more cost-effective the GSA may deviate from the actions as described above. At each 5-year planning window, each previously described project and action will be evaluated as well as new ones possibly included. The GSA will enact P/MAs to accomplish at least a linear path to sustainability. Progress on the glide path's implementation will be presented annually via the Kern County Subbasin Annual Report and inform adaptive management efforts.

Several P/MAs have been identified and listed "**As Needed**" on Table 3. (GSA P/MAs) and could reduce the deficit by up to 31,000 AFY if needed, as summarized below:

WRM-6 Expand District Distribution System – The Wheeler-Ridge Maricopa Water Storage District could expand their distribution system to include areas currently using only private groundwater. This expansion could augment supply by 2,000 AFY.

WRM-7 Desalination Facilities – By construction desalinization facilities, additional poor-quality groundwater could be processed and later used for agriculture thereby easing demand from the Primary Alluvial Principal Aquifer. Exact demand reduction is unknown.

WRM-9 Groundwater Allocation and Market – Through development of a groundwater pumping allocation methodology, including a system for trading and transferring allocations, a 21,000 AFY reduction in demand could be realized.

WRM-10 Voluntary Pumping Limitation – By setting a non-binding pumping limitation in conjunction with a fee for pumping above prescribed limits demand could be reduced.

At this time the exact demand reduction quantity is unknown and would be dependent on participation.

WRM-11 Mandatory Pumping Limitation – Through setting a mandatory, binding pumping limitation in conjunction with a fee for pumping above limit, a demand reduction of up to 5,000 AFY could be realized. Mandatory pumping limitations may be initiated along the California Aqueduct within a buffer zone to be determined based on technical analysis as a result of an MT exceedance.

Circumstances for Implementation

☑ 23 CCR § 354.44(b)(1)(A)

As discussed above, an overall P/MA implementation schedule, or preliminary "Glide Path" has been developed as a framework to guide the level of benefits that are planned to be achieved over the GSP implementation period (i.e., until 2040), and further through the SGMA planning and implementation horizon (i.e., through 2070). P/MAs will be implemented in such a way as to meet the "Glide Path" Milestones as a minimum requirement.

P/MAs have been categorized on Table 3 as: **Implemented**, **Functional**, **In-Process**, **or As-Needed**.

Implemented – In anticipation of SGMA several P/MAs had been initiated pre-2020 and have since been completed. Several other P/MAs were developed in response to SGMA and have since been completed and are accruing benefits.

Functional – In response to SGMA several P/MAs had been initiated and have since been completed. Several other P/MAs were developed in response to SGMA and have since been completed but are not yet accruing benefits.

In-Process – Other P/MAs are In-Process somewhere between Feasibility and Construction/Implementation. All of the In-Process P/MAs will be implemented except for circumstances such as litigation, failed funding, failed ballot initiatives, or environmental constraints.

As-Needed – As part of the Adaptive Management efforts several P/MAs have been identified in response to Minimum Threshold Exceedances, Failed or diminished P/MA's, new Opportunities, or other unforeseen issues. At each 5-year planning window, these and other P/MAs will be formally evaluated for implementation.

Public Notice Process

☑ 23 CCR § 354.44(b)(1)(B)

Public notice requirements vary for the different P/MAs listed above. Some projects' infrastructure improvements may not require specific public noticing (other than that

related to construction), whereas other management actions that involve, for example, imposition of fees by the GSA, may require public noticing pursuant to Proposition 218 or Proposition 26. In general, GSA meetings are open to the public. In some instances, the P/MAs will also each be subject to California Environmental Quality Act (CEQA) review and other permitting processes that are subject to public notice and review. Additional stakeholder outreach efforts will be conducted prior to and during P/MA implementation, as required by law.

Overdraft Conditions

☑ 23 CCR § 354.44(b)(2)

As discussed in **Section 9**, **Appendix N**, the WRM GSA has a Pre-SGMA net water budget deficit of 14,990 AFY over a 20-year historical period (1995-2014) based on the developed water budget model. This budget model nets out water in storage for other parties and includes groundwater transfers from other, adjacent GSA's areas. For the Post-SGMA period between 2015-2023, the WRM GSA has reduced the deficit by the implementation of several early P/MA's. These efforts resulted in a net water budget deficit of 4,340 AFY for 2015-2023. The P/MA combined portfolio represented herein is expected to result in benefits that will help avoid Undesirable Results and maintain sustainability.

Permitting and Regulatory Process

☑ 23 CCR § 354.44(b)(3)

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

Federal

- National Environmental Policy Act (NEPA) documentation if federal grant funds are used.
- National Pollution Discharge Elimination System (NPDES) stormwater program permit (administered by the California State Water Resources Control Board).

State

- CEQA documentation, including one or more of the following: Initial Study (IS), Categorical Exemption (CE), Negative Declaration (ND), Mitigated Negative Declaration (MND).
- Environmental Impact Report (EIR).

- California State Water Resources Control Board permits and regulations regarding recycled water use, waste discharge, and stormwater capture for recharge.
- California Surface Mining and Reclamation Act (SMARA) regulations.
- California Division of Safety of Dams regulations.

Regional

- San Joaquin Valley Air Pollution Control District (SJVAPCD) permit and regulations.
- Power and Water Resources Pooling Authority (PWRPA).

County/Local

- Encroachment permits – Kern County, local agencies, CalTrans, and others.
- Kern County grading permit.
- Kern County well construction permit.

Specific currently identified permitting and regulatory requirements for each P/MA are listed in Table 3**.** Upon implementation of any P/MA, the regulatory and permitting requirements of the P/MA will be reexamined.

Status and Implementation Timetable

☑ 23 CCR § 354.44(b)(4)

As discussed above in ***Circumstances for Implementation***, P/MAs related to water quantity will be initiated in a manner and sequence that achieves the "Glide Path" level of expected benefits shown in Table 3.

Expected Benefits

☑ 23 CCR § 354.44(b)(5)

The P/MAs have expected benefits related to water quantity. Once a P/MA is implemented, there needs to be a way to evaluate, ideally to quantify, the benefits resulting from that P/MA. How P/MA benefits are evaluated/quantified depends on the P/MA type. For those P/MAs that involve direct supply augmentation, the benefit is quantified directly through the measurement of those flows and corresponding response in water levels. For P/MAs that involve indirect supply augmentation through, for example, increased surface water storage capacity and delivery flexibility, quantification of the benefit will require tracking a comparison of the observed water supply condition (e.g. total imported water) against a hypothetical condition where the P/MA was not in place. For P/MAs that involve water demand reduction, the benefit will be evaluated by

comparison of the observed water demand condition (e.g., irrigated acreage) against a hypothetical condition where the P/MA was not in place. Because it is not possible to determine with certainty what the condition without the P/MA would be like, the quantification of the benefits is inherently uncertain.

As discussed above, although the P/MAs described herein are laid out along a general timetable defined by incremental elimination of water budget deficits (i.e., the "Glide Path"), the goals and objectives of P/MA implementation are informed by a water budget outcome with the hope to ensure that Undesirable Results for relevant Sustainability Indicators are avoided by the end of the SGMA implementation period (i.e., by 2040). For this reason, ultimately the success of the collective implementation of P/MAs will be determined by whether the Sustainability Goal is achieved.

Source and Reliability of Water from Outside the Basin

☑ 23 CCR § 354.44(b)(6)

Potential water supplies that feed water recharge P/MAs (WRM-1, WRM-2, WRM-3, WRM-4, and WRM-5) could come from the following sources:

Central Valley Project

The Central Valley Project (CVP) is a network of dams, power plants, and canals that provides water supply reliability to the Central Valley in periods of drought. The Bureau of Reclamation makes excess non-storable CVP Section 215 flood water available during wet years. Although WRMWSD does not have a contract for CVP, through transfer agreements, WRMWSD has received CVP water in the past.

State Water Project

DWR delivers water to 29 State Water Contractors, including 21 south of the Sacramento River Delta, that are served from the California Aqueduct. State Water Contractors can order water up to their Table A allocation under a given allocation set by DWR, even if the water is not needed in that year, and this excess water can be stored outside the contractor's place of service for future use. WRMWSD has a contract for 197,088 AFY of Table A water from the SWP through the Kern County Water Agency (KCWA), one of the State Water Contractors. During wet hydrologic years, DWR may declare Article 21 water available, which is uncontrolled water that cannot be stored in State reservoirs. Article 21 supplies are available in short duration, and, if conveyance capacity exists, can be purchased, and stored for future use. WRMWSD also purchases excess Article 21 water through its State Water Contractor.

Appropriative Water Rights

Surface water rights, including pre-1914 and post-1914 water rights, are held by water districts and parties throughout California, including Kern River water rights. These

water rights can be transferred to other parties as long as legal users of water are not injured (per Water Code Sections 1706 and 1702). The SWRCB supervises changes to post-1914 water rights, but not pre-1914 water rights. Unregulated Kern River flows are available during wet years when the U.S. Army Corps of Engineers (USACE) conducts mandatory releases of water from Isabella Reservoir for flood control purposes. The Kern River Watermaster records the amount of water released daily from the Isabella Reservoir into the Kern River. During these periods of flooding, releases from the Isabella Reservoir may be available for diversion. WRMWSD has received considerable Kern River supplies through transfers from Kern River water right holders.

The Delta Conveyance Project (WRM-4) relies on pursuing a water right permit and/or amendment from the State Water Resources Control Board (SWRCB), which will provide them legal authority to divert water within certain conditions, for a specific purpose, and use within a specified area.

3rd Party Programs

WRMWSD participates in various water banks including: the Kern Water Bank, Pioneer Project, and the Berrenda Mesa Project, along with several Kern County and outside of Kern County agencies. These supplies come from the above three identified sources and have provided drought protection for WRMWSD.

P/MA Annual Water Benefit Estimate for Groundwater Recharge/Storage Projects

Water banking recharge projects have been designed assuming a wet year occurs every 5 years, with a maximum benefit over 100 days. Water supply augmentation benefits have been calculated as follows:

Annual Water Benefit = estimated infiltration rate ft/day * wetted acres * 100 days operation per year * 20 percent of years being wet.

Legal Authority Required

☑ 23 CCR § 354.44(b)(7)

The WRMWSD is a water storage district, that possesses the legal authority to implement the P/MAs discussed herein. The WRMWSD, with participation by Kern County, is also designated the Wheeler Ridge-Maricopa GSA, per California Water Code (CWC) § 10725 through 10726.8. Wheeler Ridge-Maricopa GSA possesses the legal authority necessary to implement the demand management P/MAs described herein.

Estimated Costs and Plans to Meet Them

☑ 23 CCR § 354.44(b)(8)

Estimated costs for each P/MA are presented in Table 4. The costs are approximate and subject to refinement. These costs include "one-time" costs and ongoing costs. The one-time costs may include capital costs associated with construction, feasibility studies, permitting, environmental (CEQA) compliance, or any other costs required to initiate a given P/MA. The ongoing costs are associated with O&M and/or costs to otherwise continue implementing a given P/MA. It should be noted that depending on the source and nature of funding for the P/MAs, the one-time costs may or may not be incurred entirely at the beginning of the P/MA; in some instances, loans or other financing options may allow for spreading out of "one-time" costs over time.

Potential sources of funding for the various P/MAs are also presented in Table 4, and include the following:

- WRMWSD funds, generally supported by fees charged to landowners within WRMWSD, including potentially the following:
  - General fund
  - GSA Administrative Charge (implemented in 2024)
  - GSA Pumping Penalties (to be created)
- Grant funding from sources including DWR and others
- Other

Estimated costs for Wheeler-Ridge Maricopa GSA P/MAs by implementation status are summarized in Table 4. The costs are approximate and subject to refinement. These costs include "one-time" costs and ongoing costs. The one-time costs may include capital costs associated with construction, feasibility studies, permitting, environmental (CEQA) compliance, or any other costs required to initiate a given P/MA.

Table 4. (P/MA Cost by Implementation Status)

Wheeler Ridge-Maricopa GSA	Estimated Costs	
	One-time	Annual
Implemented	$1,200,000	$4,145,000
Functional	$0	$0
In-Process	$314,225,000	$185,000
As-Needed	$18,450,000	$2,660,000
Total	**$333,875,000**	**$6,990,000**

Management of Recharge and Groundwater Extractions

☑ 23 CCR § 354.44(b)(9)

As discussed above, one primary means by which deficits will be addressed is through implementing P/MAs that reduce demand and augment supplies from additional outside sources of water, particularly during normal to wet years. Many of the projects discussed herein take advantage of additional wet-year supplies that are assumed to be available as capacity increases. These P/MAs include various direct recharge projects and projects that increase storage capacity and delivery flexibility.

In addition to these supply augmentation projects; the portfolio also includes policy-based management actions aimed at demand reduction. Some of these management actions aim to reduce overall water demand through newly implemented water charges, and others are more specifically focused on reducing groundwater pumping by land retirement and imposed water budgets. The formation of an as-needed groundwater budget program (e.g., WRM-9, WRM-10, WRM-11) would likely include mechanisms to allow for trading or exchange of pumping allocations within designated areas, subject to constraints dictated by groundwater conditions observed within the Monitoring Network and policies developed by the respective Board of Directors. Through this combination of increased recharge during wet years and demand reduction, the Wheeler Ridge-Maricopa GSAs' P/MA efforts will ensure that chronic lowering of groundwater levels and reduction in storage during drought will be offset by increases in groundwater levels and storage during other periods.

PROJECTS AND MANAGEMENT ACTIONS

18. PROJECTS AND MANAGEMENT ACTIONS

> *§ 354.42. Introduction to Projects and Management Actions*
> *This Subarticle describes the criteria for projects and management actions to be included in a Plan to meet the sustainability goal for the basin in a manner that can be maintained over the planning and implementation horizon.*

This section presents the Projects and Management Actions (P/MAs) proposed to support achievement of the Sustainability Goal within the White Wolf Subbasin (Basin). The P/MAs were developed using a portfolio approach whereby individual P/MAs were identified and grouped into categories based on their expected benefits. Implementation of P/MAs within those benefit categories is estimated to occur along a "glide path" that will result in closing of the currently identified storage deficit under the 2030 Climate Change Scenario by the January 2042 Groundwater Sustainability Plan (GSP) implementation deadline (see ***Section 9.4.4 Projected Water Budget Results***). The proposed P/MAs thus represent a path to achieve the Sustainability Goal for the Basin, as further demonstrated by results from the White Wolf Groundwater Flow Model (WWGFM) that projects that groundwater levels will be stable to increasing when the P/MAs are implemented. This approach allows for the flexible implementation of P/MAs as needed to address future conditions throughout the 50-year GSP planning and implementation horizon (i.e., out to 2072).

To the extent that information was available, the P/MAs presented herein were developed with consideration of costs, benefits, and feasibility; however, each P/MA will require significant further evaluation (i.e., engineering, economic, environmental, legal, etc.) as part of implementation. In addition to the P/MAs presented herein, the White Wolf Groundwater Sustainability Agency (GSA) will continue to conduct data gap filling activities as part of Plan Implementation that may include, but are not limited to: (1) collecting and analyzing additional data related to aquifer conditions and properties (e.g., aquifer tests, water level measurements, and water quality data), (2) refining the water budget parameters based on additional data and modeling, and (3) conducting additional data compilation and analysis of relevant Basin information (see ***Section 19 Plan Implementation***).

This section presents the goals and objectives of the P/MAs, including the relevant Sustainability Indicators and the categories of expected benefits from P/MA implementation. A list of specific P/MAs grouped by benefit category and type is presented and summarized in **Table PMA-1** (detailed P/MA Information Forms are included in ***Appendix N***). Finally, an explanation is provided for how the P/MAs address the following:

- Sustainability Indicators and Undesirable Results (e.g., water levels or water quality);
- Potentially applicable permitting and regulatory requirements;

- P/MA status and implementation timeline;
- Expected benefits and how benefits will be evaluated;
- Sources of outside water that will be relied upon for P/MA implementation;
- Legal authority required to implement the P/MAs; and
- Summary of estimated costs and how the GSA plans to fund P/MA implementation.

18.1. Goals and Objectives of Projects and Management Actions

18.1.1. Relevant Sustainability Indicators

Per the California Code of Regulations Title 23 (23 CCR) § 354.44, GSPs must include P/MAs to address any existing or potential future Undesirable Results for the identified relevant Sustainability Indicators. Projected conditions for the Basin suggest that Sustainable Management Criteria (SMCs) may be exceeded for the Chronic Lowering of Groundwater Levels Sustainability Indicator. Accordingly, the P/MAs are currently directed towards avoiding projected Undesirable Results from the Chronic Lowering of Groundwater Levels.

Additionally, as discussed in ***Sections 13*** *to* ***15***, the other relevant Sustainability Indicators in the Basin also include: Reduction of Groundwater Storage, Land Subsidence, Degraded Water Quality, and Depletions of Interconnected Surface Waters. The SMCs for Reduction of Groundwater Storage and Land Subsidence utilize groundwater levels as proxy, and therefore are also protected by avoiding Chronic Lowering of Groundwater Levels. Furthermore, the SMCs for Depletions of Interconnected Surface Waters utilize groundwater levels from a shallow monitoring network as proxy for avoiding Undesirable Results. While not used as a direct proxy, avoiding Undesirable Results from Chronic Lowering of Groundwater Levels likely supports efforts to avoid Undesirable Results related to Degraded Water Quality. For example, avoiding Undesirable Results from lower water levels may also protect against water quality changes that might occur due to alterations in vertical and horizontal groundwater-flow gradients. As summarized in **Table PMA-1**, each P/MA addresses one or more of these applicable Sustainability Indicators.

18.1.2. Benefit Categories

The primary water management "tools" by which GSAs can address conditions that may lead to Undesirable Results associated with water quantity (e.g., Chronic Lowering of Groundwater Levels and Reduction of Groundwater Storage) pertain to management of water inflows (supplies) and outflows (demands). Therefore, the primary categories of expected benefits from P/MAs include:

1) Water supply augmentation, including
    a. Develop or obtain new and/or wet year supplies
    b. Recapture cross-boundary flows
    c. Expand in-lieu recharge

d. Increase surface storage capacity and/or delivery flexibility

2) Water demand reduction, and

3) "Other" P/MAs

In addition, some of the P/MAs also have secondary benefits, such as flood control, water management flexibility/efficiency, environmental benefits, and data gap filling.

18.2. List of Projects and Management Actions

> *§ 354.44. Projects and Management Actions*
>
> *(b) Each Plan shall include a description of the projects and management actions that include the following:*
>
> *(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent. The Plan shall include the following:*
>
> *(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management actions, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.*
>
> *(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.*

This section provides a list of the P/MAs preliminarily identified by the White Wolf GSA. Specific details of the P/MAs are provided in **Table PMA-1** and in the P/MA information forms included in ***Appendix N.*** **Figure PMA-1** shows the approximate locations of these P/MAs.

Each GSA member district has identified P/MAs, some combination of which will be implemented. At this time, the White Wolf GSA acknowledges that details pertaining to which P/MAs will ultimately be initiated, P/MA timing, projected benefits, payments and cost allocations, etc. will be negotiated as part of P/MA and GSP implementation. Each P/MA will have a distinct implementation process depending on lead agency and the details will be determined on a case-by-case basis and may differ depending upon observed conditions in the Basin, available opportunities, and the particulars of each district.

18.2.1. Water Supply Augmentation Projects

18.2.1.1. Projects to Develop or Obtain New and/or Wet Year Supplies

P/MA #1. Recharge from Grapevine Development

The Grapevine Development will be annexed into and receive water and wastewater treatment service from Tejon-Castac Water District (TCWD). Water sources for the development include up to 6,693 acre-feet per year (AFY) of Nickel Agreement water from the Kern River which will be imported through the Tupman Turnout on the California Aqueduct (EKI, 2015). The imported surface water will primarily be used for potable demand, but will also supplement non-potable outdoor demand that exceeds the available recycled water supply. It is anticipated there will be approximately 2,000 AFY of recycled water available for use to meet outdoor water demand (EKI, 2015). Some of this water is expected to recharge the groundwater system from distribution system leakage and infiltration from outdoor watering applications.

Modeling of the Grapevine Development assumes a break-ground date of October 2026 and six phases of build-out, with full build-out completed by 2046. It is estimated that P/MA #1, if implemented as modeled (see ***Section 9.4.3.4 Projected 2030 Climate Change with Grapevine Development P/MA Scenario*** for details), could increase groundwater recharge to the Basin by an average of 600 AFY through 2072.

P/MA #2. Oilfield Reclaimed Water from the Tejon Oil Field

Reclaiming water from oil production facilities ("produced water") is currently an untapped water source in the TCWD service area. Tejon Oil Field has a yield of approximately 20,000 barrels per day of produced water, or approximately 940 AFY (1.3 cubic feet per second [cfs]). In cooperation with California Resources Corporation (CRC), TCWD conducted a Phase 1 pilot study in 2015 to assess the feasibility of treating produced water to applicable water quality standards for pumping into the California Aqueduct. The Phase 1 study results indicated that treated produced water was able to meet drinking water standards for the constituents analyzed; however, a few constituents exceeded the background quality of the California Aqueduct (e.g., bromide). A Phase 2 Pilot Treatment Plant Study is recommended to further refine the treatment process to meet all current drinking water standards and agricultural water quality objectives (e.g., for boron).

A major benefit of produced water is that it is available year-round irrespective of climatic conditions. Treated produced water could be pumped into existing water conveyance and distribution system infrastructure (e.g., 850 Canal for blending and distribution by Wheeler Ridge-Maricopa Water Storage District [WRMWSD] or pumped into the California Aqueduct) and either delivered to serve irrigation demands in-lieu of groundwater pumping or utilized for recharge projects (e.g., at the Mettler recharge facility, see P/MA #7, or along El Paso Creek, see P/MA #9). After treatment, it is estimated that P/MA #2 could increase total available supplies by 940 AFY. Furthermore, as a secondary benefit, recharging groundwater with the treated, high-quality produced water would potentially improve water quality within the 850 Canal and/or beneath the recharge area.

P/MA #3. Oilfield Reclaimed Water in AEWSD

Reclaiming water from oil production facilities ("produced water") for irrigation purposes is currently an untapped water source in Arvin-Edison Water Storage District (AEWSD). After treatment and cooling, water could be pumped into AEWSD facilities to serve irrigation demands in-lieu of groundwater pumping. It is estimated that P/MA #3 could increase total available AEWSD supplies by 1,000 AFY, some of which would be utilized to meet demands in the Basin. For the purposes of this GSP, it is assumed that approximately 300 AFY could be distributed to the Basin between 2042 and 2070.

P/MA #4. Purchase Additional Surface Water Supplies

All White Wolf GSA member districts continually seek to purchase additional surface water supplies, as available, including unused allocations of wet year Central Valley Project (CVP) water, SWP water, or high flow Kern River supplies or transfer/exchange agreements with out-of-basin entities. For example, TCWD, WRMWSD, and others have recently signed an agreement with Patterson Irrigation District in which approximately 500 AFY of water will be available to supplement existing surface water supplies. The exact amount of available increased surface water supplies varies by water year. In general, these surface water supplies would most likely be available during wet years. Expected benefits would be increases in deliveries to growers during wet years to minimize reliance on groundwater pumping (e.g., in-lieu recharge) or storage in existing or planned recharge basins for later use.

P/MA #5. WRMWSD "Thru Delta" Facility

WRMWSD is actively participating in planning efforts surrounding a "Thru Delta" Facility. This is a State-led effort to increase SWP water reliability with a projected supply benefit for WRMWSD of up to 25,000 AFY upon Cal WaterFix Project completion (anticipated 2035).

P/MA #6. WRMWSD Desalination Facility

WRMWSD is planning to develop a facility whereby poor-quality groundwater (i.e., high in total dissolved solids) that is encountered in areas of poor water quality for beneficial use will be treated to a point where it is usable for agricultural use. This previously unused groundwater source will be used to supplement irrigation supply.

18.2.1.2. Projects to Recapture Cross-Boundary Flows

P/MA #7. Recapture of Basin Groundwater

As discussed in ***Section 8.2.2 Long-Term Groundwater Elevation Trends***, the work that the White Wolf GSA member districts have done to import surface water into the Basin has caused water levels to increase and stabilize relative to historical lows. These elevated water levels have resulted in an outflow across the Basin boundary of approximately 9,000 AFY. To recapture this water that has been added to the Basin, the GSA will consider either installing a line of pumping wells along the White Wolf Fault (WWF) or increasing the use of existing private pumping wells along the WWF. Details on the utilization and/or installation of wells will need to be assessed and selected during P/MA planning.

18.2.1.3. Project to Expand In-Lieu Recharge

P/MA #8. WRMWSD Mettler Recharge Project

The Mettler Recharge Project would entail the operation and maintenance of a 60-acre groundwater recharge facility for the artificial recharge of available surface water to groundwater for later use by WRMWSD. The Metter recharge facility was constructed in 2019 and is connected to the 850 Canal near the existing PA-1 pumping plant. The project would deliver surface water imported from unused allocations of CVP and SWP water, as well as high flow Kern River supplies that may become available, to the recharge basin via gravity flow from the 850 Canal (Provost & Prichard, 2018). Another potential source of water for recharge is treated produced water (P/MA #2), recaptured water (P/MA #7), or other unused allocations of wet year CVP water, SWP water, or high flow Kern River supplies (P/MA #4). According to the Mitigated Negative Declaration (MND), the Project is anticipated to recharge up to 36,000 AFY into the aquifer, assuming that the water supply was available (Provost & Prichard, 2018).

P/MA #9. WRMWSD El Paso Creek Recharge Project

The El Paso Creek Recharge Project is an artificial recharge project along El Paso Creek in which water would be gravity fed through mostly existing conveyance pipelines to conduct in-stream and off-stream recharge on adjacent native vegetation lands. Phase 1 would entail utilizing check structures to encourage in-stream recharge through the permeable stream bed sediments. Phase 1 infiltration rates are estimated at approximately 145 AF per day (up to 17,400 AFY if enough supplies are available). Phase 2 would entail utilizing off-stream recharge ponds developed on existing native lands adjacent to El Paso Creek. Phase 2 infiltration rates are estimated at approximately 125 AF per day (up to 15,000 AFY if enough supplies are available). Potential water supplies include recaptured water (P/MA #7), treated produced water (P/MA #2), and other unused allocations of wet year CVP water, SWP water, or high flow Kern River supplies (P/MA #4).

Upon completion of both phases, the total recharge capacity is estimated to be up to 32,400 AFY. Additional potential benefits of the project include: (a) utilizing the recaptured for direct recharge into the Basin, (b) minimizing new facilities, (c) to the extent in-stream recharge can replenish Basin groundwater, irrigated lands taken out of production are minimized, and (d) except for lifting water into the 850 Canal and pumping groundwater to the surface, the conveyance system works by gravity thereby minimizing energy consumption and operational expenses.

P/MA #10. AEWSD In-Lieu Banking Program

With the In-lieu Banking Program, AEWSD will supply surface water when available through new facilities to the Groundwater Service Area within AEWSD with the intent of reducing AEWSD-wide groundwater use. However, when surface water is in short supply and under agreement, the landowners could recover and return groundwater from their own wells to the AEWSD canal system through new pipelines once they have satisfied their own water needs. As a part of the program, District landowners could provide their wells for overall AEWSD operations and in return AEWSD would provide the landowners surface water during times of available supplies.

The total expected benefits of P/MA #10 are dependent upon the service area. The approximate yield would be 1.2 acre-feet per acre (AF/acre). Assuming an approximate total District-wide service area of 5,000 acres could provide 15,000 AF, resulting in a yield of 6,000 AFY; however, it is unknown how many of these acres will fall within the Basin. As a secondary benefit, considering AEWSD is a participant in the Power and Water Resources Pooling Authority (PWRPA), there is potential for a landowner to be eligible to receive PWRPA power instead of current PG&E service. Connections to WRMWSD may also allow for use of other local recharge facilities.

P/MA #11. AEWSD Private & Caltrans Basin Connections

There are multiple on-farm private basins and some Caltrans sumps near AEWSD facilities that could be connected by gravity pipeline and utilized for groundwater recharge and floodwater capture. Depending on number of basin connections, the expected total benefits range from approximately 50 to 500 AFY across the entire AEWSD service area.

18.2.1.4. Projects to Increase Surface Storage Capacity/Delivery Flexibility

P/MA #12. AEWSD South Canal WRMWSD 850 Canal Intertie

To facilitate water exchanges between AEWSD and WRMWSD, P/MA #12 would either improve existing interties and/or construct new interties between AEWSD's South Canal and WRMWSD's 850 Canal. Many existing and potential future water exchange and banking programs benefiting the two districts and their banking and exchange partners in Kern County and Southern California depend upon successful construction and operation of the project. Primary benefits of the project are improved water supplies and operational efficiency. Ancillary benefits include water quality improvements for SWP customers, floodplain management in Kern County and other areas in the San Joaquin Valley, and assisting in exchanges between other conveyance facilities in the near vicinity (i.e., California Aqueduct). The expected benefit would be increased delivery flexibility and transfer/exchange potential of up to approximately 24,000 AF across the entire AEWSD service area.

P/MA #13. AEWSD South Canal Balancing Reservoir Project

AEWSD is in need of additional infrastructure to allow water storage and regulation of flow mismatches in its canal system during operation or emergencies (e.g., a local/global power outage in one or more pumping plants). This infrastructure is most needed in the lower third of the canal system. Additional storage may also allow AEWSD to better match available surface water supply to its peak irrigation season demands and groundwater supply (i.e., well capacity) to demands any time of year, both of which will increase water supply for the year. Additional in-District storage will also provide delivery flexibility to on-farm users and may allow increased water ordering and delivery flexibility (more variable rate and duration allowed with shorter notice vs. now). This will benefit customers District-wide and result in improved water use efficiency and increased crop yields and quality. Ancillary floodplain management benefits would result from additional ability to capture and store floodwaters. Depending on the selected location, the expected benefit is approximately 500 AF across the entire AEWSD service area.

18.2.2. Water Demand Reduction Management Actions

The Management Actions listed below have water demand reduction as their primary expected benefit and include Management Actions / Policies to Reduce Overall Water Demand and Management Actions / Policies to Reduce Groundwater Pumping.

P/MA #14. AEWSD Groundwater Subsidies for Land Conversion

AEWSD may adopt a management action to provide subsidies to incentivize groundwater users to convert land to alternative land uses and reduce groundwater extractions. The subsidy program would be voluntary, and subsidies could be provided to growers willing to implement one or more of the following:

- Change crop type to one with lower water demand;
- Rotate crops and temporarily fallow portions of their irrigated acreage to reduce water demand;
- Retire, or permanently fallow, land for alternative uses such as solar arrays or upland habitat creation; and/or
- Recharge/regulation basin infrastructure for increased surface water use and recharge.

Expected benefits are based on land use conversion, where fallowed lands (either temporary or permanent) would yield approximately 2.75 AF/ac, agricultural lands converted to a recharge/regulation basin would yield approximately 2.75 AF/ac, and permanent crops converted to annual crops would yield approximately 0.5-1.0 AF/ac. However, currently the number of willing participates are unknown and therefore the expected benefits to the groundwater system would need to be quantified once a better estimate of willing participates is available. A secondary benefit is potential renewable energy and habitat creation.

P/MA #15. WRMWSD Land Retirement and/or Conversion

WRMWSD may purchase and permanently fallow previously irrigated acreage within the WRMWSD service area to reduce overall water demand and groundwater extractions. Expected water saving benefits are approximately 2.75 AF/ac. The number of irrigated parcels in which landowners would be willing to sell is currently unknown.

P/MA #16. AEWSD Groundwater Allocation per Acre

AEWSD may adopt a program which provides a finite groundwater allocation on a per acre basis. The policy would identify and forecast the demands associated with prior rights, domestic and environmental uses. AEWSD, through collaboration with its users and beneficial users, may consider whether an equal-, reduced-, or zero-allocation is given to lands with unexercised groundwater rights. The goals of the groundwater allocation are to ensure a fair groundwater allocation and extract groundwater in a sustainable manner. See detailed P/MA information form in ***Appendix N*** for more details. P/MA #16 alone may not generate a quantifiable demand reduction. However, it would serve other management actions and encourage growers to implement water conservation Best Management Practices (BMPs).

P/MA #17. AEWSD Groundwater Fee Increase

AEWSD may adopt a management action to increase Groundwater Service Area costs to incentivize groundwater users to reduce groundwater extractions and take surface water when available. The potential fee structures would affect groundwater users differently, so a composite fee structure may also be considered. The expected benefits would be tied to P/MA #16 and P/MA #23. This P/MA can potentially mitigate local overdraft by incentivizing groundwater extractors to reduce pumping or pump groundwater supplies in a sustainable fashion. Ancillary benefits include additional funds for investment in other P/MAs.

P/MA #18. AEWSD Groundwater Marketing & Trading

Once P/MA #16 and P/MA #23 have been adopted, AEWSD would pursue a groundwater market and trading program to provide users and beneficial users more flexibility in utilizing their allocation. AEWSD may also adopt a policy to define a groundwater banking program. The banking program would consider using surface water supplies when available in lieu of groundwater pumping. Though not feasible for all users, growers capable of surface water recharge on-farm may be able to percolate floodwater, or other transferred water, for recharge credits. There are many complexities and considerations required to initiate and successfully manage a banking program; see detailed P/MA information form in ***Appendix N*** for AEWSD considerations. Trading may be executed through short-and long-term leases, permanent transfers, inter-annual water exchanges, or dry-year option contracts. Expected benefits of P/MA #18 include improved flexibility to groundwater users when other management actions are adopted, such as groundwater fees and pumping restrictions.

P/MA #19. WRMWSD Groundwater Allocation and Market

WRMWSD may develop a groundwater pumping allocation methodology, including a market system for trading and/or transferring of allocations between water users.

P/MA #20. WRMWSD Voluntary Pumping Limitations

WRMWSD may set non-binding pumping limitations in conjunction with a fee for pumping above limits. P/MA #20 has the capacity to reduce water demand across WRMWSD's service area by up to 21,000 AFY.

P/MA #21. WRMWSD Mandatory Pumping Limitations

WRMWSD may set binding pumping limitations in conjunction with a fee for pumping above limits. P/MA #21 has the capacity to reduce water demand across WRMWSD's service area by up to 21,000 AFY.

18.2.3. "Other" P/MAs

As mentioned above, other GSA member District specific P/MAs are included below. Detailed information for each P/MA can be found in **Table PMA-1** and ***Appendix N***.

P/MA #22. Improved Stormwater Management and Flood Control in AEWSD

AEWSD's canal system requires modifications/improvements to comply with storm runoff pollution prevention. Additionally, there is a need to modify old and build new facilities for flood protection from intermittent creeks (e.g., Tejon Creek, El Paso Creek, their tributaries and others).

P/MA #23. AEWSD Groundwater Extraction Quantification Method

AEWSD may adopt a policy to specify the approved method or methods to quantify the individual and aggregate groundwater extractions for the required Sustainable Groundwater Management Act (SGMA) annual reporting. AEWSD may consider a variety or combination of quantification methods; see detailed P/MA information form in ***Appendix N*** for details. Expected benefits would be better quantification of groundwater extractions, thereby allowing the GSA to make more informed decisions about current groundwater conditions and water management in future GSP updates.

P/MA #24. WRMWSD Acreage Assessment

WRMWSD may set a policy to implement an acreage assessment to fund purchases of additional supplies, purchase of land for fallowing, and other investments to support SGMA compliance. The funds generated from could be used to finance other P/MAs.

Table PMA-1. Details of Projects and Management Actions

P/MA Number	P/MA Name	Summary Description	Relevant Sustainability Indicators Affected				Circumstances for Implementation	Public Noticing Process	Permitting and Regulatory Process Requirements	Status	Timetable / Circumstances for Initiation
			Groundwater Levels & Storage	Groundwater Quality	Land Subsidence	Depletions of Interconnected Surface Water					
Projects to Develop or Obtain New and/or Wet Year Supplies											
1	**Recharge from Grapevine Development**	The Grapevine Development will consist of approximately 4,778 acres at full build out and will include a combination of residential, commercial, industrial, agricultural, grazing, and open space land uses. Nickel Agreement SWP and Kern River water will be imported to supply the potable demand incurred by the Grapevine Development. Treated recycled water will be available for meeting most non-potable landscape irrigation demands.	x				To be implemented upon initiation of Grapevine construction	Public meetings	CEQA (completed); SWRCB Waste Discharge Requirements; coordination with Kern County and the State	CEQA completed	Estimated to initiate around 2026-2027
2	**Oilfield Reclaimed Water from the Tejon Oil Field**	Tejon Oil Field has a yield of approximately 20,000 barrels per day of produced water, or approximately 940 AFY (1.3 cubic feet per second [cfs]). In cooperation with California Resources Corporation (CRC), TCWD conducted a Phase 1 pilot study in 2015 to assess the feasibility of treating produced water to applicable water quality standards for pumping into the California Aqueduct. The treatment system initially included filtration, activated carbon and reverse osmosis, but mid-way through the pilot test, a walnut shell filter was added as a pretreatment step. The Phase 1 study results indicated that treated produced water was able to meet drinking water standards for the constituents analyzed; however, a few constituents exceeded the background quality of the California Aqueduct (e.g., bromide). A Phase 2 Pilot Treatment Plant Study is recommended to further refine the treatment process to meet all current drinking water standards and agricultural water quality objectives (e.g., for boron).	x	x			Upon completion of Pilot test, approximately by 2024	Public meetings	TBD	Not yet initiated	Upon grant funding & upon completion of Pilot test by 2024
3	**Oilfield Reclaimed Water in AEWSD**	Reclaiming water from oil production facilities for irrigation purposes is currently an untapped water source in AEWSD. After treatment and cooling, produced water could be pumped into AEWSD facilities to serve irrigation demands in-lieu of groundwater pumping.	x	x			To be implemented upon agreement with partnering oil field	Public meetings	TBD	Not yet initiated	Upon agreement with oil field producers
4	**Purchase Additional Surface Water Supplies**	Continual pursuit of additional surface water supplies via transfers, exchanges, and/or purchases with out-of-Basin entities. Supplies would generally be available during wet years.	x				Ongoing	Regular District Board meetings		Ongoing	Ongoing
5	**WRMWSD "Thru Delta" Facility**	WRMWSD is participating in planning efforts surrounding a “Thru Delta” Facility to increase access to contracted SWP water supplies.	x	x	x		State-led effort underway	Prop 218	CEQA	State-led effort underway	Underway
6	**WRMWSD Desalination Facility**	Desalination facilities to allow for use of additional poor quality groundwater for agricultural use, thereby easing demand on the principal aquifer.	x	x	x		Localized pumping lowering GW levels near MT	Regular District Board meetings	CEQA	Not yet initiated	TBD

Table PMA-1. Details of Projects and Management Actions

P/MA Number	P/MA Name	Timetable for Completion	Timetable for Accrual of Expected Benefits	Expected Benefits						Source(s) of Water, if applicable	Legal Authority Required	Estimated Costs		
				Primary		Secondary								
				Water Supply Augmentation	Water Demand Reduction	Water Quality Improvement	Flood Control	Water Management Flexibility / Efficiency	Data Gap Filling/ Monitoring			One-time Costs	Ongoing Costs (per year)	Potential Funding Source(s)
Projects to Develop or Obtain New and/or Wet Year Supplies														
1	**Recharge from Grapevine Development**	Phased over at least 19 years	Immediately upon project initiation	Approximately 630 AFY of recharge at full build out						SWP and Kern River	None	NA - Costs integrated into development and funded by developer	TBD	TCWD and project developer
2	**Oilfield Reclaimed Water from the Tejon Oil Field**	TBD	Upon project initiation	Approximately 1,000 AFY		x				Oil field produced and treated water	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	TBD	TBD	TRC, grants
3	**Oilfield Reclaimed Water in AEWSD**	TBD	1 year after construction	300 AFY assumed available for White Wolf Subbasin		x				Oil field produced water	Consistent with GSA authority pursuant to CWC Section 10726.2(b)	TBD	TBD	AEWSD and partnering oil field
4	**Purchase Additional Surface Water Supplies**	Ongoing	Immediately	Increase water supplies by up to 5,000 AFY		x				Additional imported water supplies from sources like SWP, CVP, and others	Pursuant to AEWSD and WRMWSD's authority as a water storage district; Pursuant to TCWD's authority as a water district	NA	TBD: average costs are approximately $500/AF	AEWSD; TCWD; WRMWSD
5	**WRMWSD "Thru Delta" Facility**	2035	1 year after completion	Up to 25,000 AFY		x				State Water Project	None	NA; as this project would be bundled through SWP, costs would occur on annual bills	TBD; estimates of CalWaterFix Project were >$600/AF	WRMWSD
6	**WRMWSD Desalination Facility**	Construction duration: 1-3 years	immediately upon completion of construction			x				poor quality (currently unused) groundwater	None	NA	Annual costs approx. $600/AF	WRMWSD; grants

Table PMA-1. Details of Projects and Management Actions

P/MA Number	P/MA Name	Summary Description	Relevant Sustainability Indicators Affected				Circumstances for Implementation	Public Noticing Process	Permitting and Regulatory Process Requirements	Status	Timetable / Circumstances for Initiation
			Groundwater Levels & Storage	Groundwater Quality	Land Subsidence	Depletions of Interconnected Surface Water					
Projects to Recapture Cross-Boundary Flows											
7	**Recapture of Basin Groundwater**	The GSA is considering either installation of a line of pumping wells along the WWF or increased use of existing private pumping wells along the WWF to recapture the water that would otherwise flow out of the Basin. As part of P/MA planning, the GSA will work to quantify the amount of flow across the WWF that is attributed to imported water. Pumped water would be available for distribution and/or use within existing surface water service areas.	x				Interbasin negotiations with Kern County Subbasin	Infrastructure improvement; no public noticing necessary	CEQA; If new wells installed, well permits from Kern County	Not yet initiated	2025
Projects to Expand In-Lieu Recharge											
8	**WRMWSD Mettler Recharge Project**	Operation and maintenance of a 60-acre groundwater recharge facility for the artificial recharge of available surface water to groundwater for later use by WRMWSD.	x				Availability of excess water supplies	Regular District Board meetings	CEQA	Ongoing	Ongoing
9	**WRMWSD El Paso Creek Recharge Project**	The project is an artificial recharge project that uses El Paso Creek, existing and planned pipeline, and planned recharging ponds. The project consists of two phases. Phase 1 will utilize the existing 850D Lateral pipeline to direct water into the El Paso Creek for in-stream recharge with check structures. Phase 2 will involve construction of new recharge pipeline parallel to 850D Lateral and off-stream ponds for recharge. Recharged water can be recovered using existing wells near the recovery pipeline.	x			x	To be implemented upon participant interest, grant funding, and permitting	Regular District Board meetings	CEQA; RWQCB, SWRCB Waste Discharge Requirements	Not yet initiated	
10	**AEWSD In-Lieu Banking Program**	Suppling surface water to landowners that previously relied only on groundwater (GWSA). New infrastructure would have to be built to facilitate the implementation of this program.	x	x			Grant funding	Infrastructure improvement; no public noticing necessary	CEQA; NEPA if federal grant funds are used; SJVAPCD dust control; PWRPA; possible Kern County encroachment permits	Not yet initiated	Upon grant funding
11	**AEWSD Private & Caltrans Basin Connections**	Construction of pipelines to connect several on-farm private basins and Caltrans sumps near AEWSD to utilize for groundwater recharge.	x				To be implemented upon participant interest, grant funding, and permitting	Infrastructure improvement; no public noticing necessary	Caltrans encroachment permitting; CEQA if longer pipeline connections are required; NEPA if federal grant funds are used	Not yet initiated	Upon grant funding
Projects to Increase Surface Storage Capacity / Delivery Flexibility											
12	**AEWSD South Canal WRMWSD 850 Canal Intertie**	Improving existing interties and/or constructing new interties between AEWSD's South Canal and WRMWSD's 850 Canal to facilitate water exchanges between the two districts.	x	x			Completion of feasibility study and design	Infrastructure improvement; no public noticing necessary	CEQA	Not yet initiated	TBD
13	**AEWSD South Canal Balancing Reservoir Project**	Creation of a reservoir to allow water storage and regulation of flow mismatches in the AEWSD canal system during operation or emergencies. Depending on the location, this reservoir would increase storage capacity by ~500 AF.	x				Grant funding, South County flooding response	Infrastructure improvement; no public noticing necessary	CEQA	Not yet initiated	TBD

Table PMA-1. Details of Projects and Management Actions

P/MA Number	P/MA Name	Timetable for Completion	Timetable for Accrual of Expected Benefits	Expected Benefits						Source(s) of Water, if applicable	Legal Authority Required	Estimated Costs		
				Primary		Secondary								
				Water Supply Augmentation	Water Demand Reduction	Water Quality Improvement	Flood Control	Water Management Flexibility / Efficiency	Data Gap Filling/ Monitoring			One-time Costs	Ongoing Costs (per year)	Potential Funding Source(s)
Projects to Recapture Cross-Boundary Flows														
7	**Recapture of Basin Groundwater**	TBD	Immediately upon completion	Recapture an average of 8000 AFY					x	Imported surface water that has infiltrated into the Basin	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	TBD	TBD	GSA, grants
Projects to Expand In-Lieu Recharge														
8	**WRMWSD Mettler Recharge Project**	Completed in 2019	First wet year after application	Up to 36,000 AFY of recharge						Unused imported water supplies, high flow Kern River supplies, or treated oil field produced water (P/MA #2)	None			WRMWSD
9	**WRMWSD El Paso Creek Recharge Project**		Upon project initiation	Dependent on operating days, approximately 32,400 AFY (17,400 AFY from Phase 1 and 15,000 AFY from Phase 2)			x			Recaptured groundwater (P/MA #4)	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)			
10	**AEWSD In-Lieu Banking Program**	TBD	1-3 years after completion	Dependent on service area; approximate yield of 1.2 AFY/ac		x				Additional wet-year imported water supplies	None	$1M - $10M	$5k	AEWSD
11	**AEWSD Private & Caltrans Basin Connections**	Construction duration: within 5 years	1-3 years after construction	50 - 500 AFY of recharge						Additional wet-year imported water supplies; Local stormwater	None	$100K - $500K	Not applicable	AEWSD, grants
Projects to Increase Surface Storage Capacity / Delivery Flexibility														
12	**AEWSD South Canal WRMWSD 850 Canal Intertie**	TBD	1 year after construction	Transfer/exchange potential of up to approximately 24,000 AF		x		x		Existing sources	None	$15M	$40K	AEWSD and WRMWSD
13	**AEWSD South Canal Balancing Reservoir Project**	TBD	1-3 years after construction	500 AF of increased storage capacity			x	x		Additional wet-year imported water supplies	None	$1M - $10M	~$5k	AEWSD and partnering agencies

Table PMA-1. Details of Projects and Management Actions

P/MA Number	P/MA Name	Summary Description	Relevant Sustainability Indicators Affected				Circumstances for Implementation	Public Noticing Process	Permitting and Regulatory Process Requirements	Status	Timetable / Circumstances for Initiation
			Groundwater Levels & Storage	Groundwater Quality	Land Subsidence	Depletions of Interconnected Surface Water					
Water Demand Reduction Management Actions											
14	**AEWSD Groundwater Subsidies for Land Conversion**	The District may adopt a management action to provide subsidies to incentivize groundwater users to convert land to alternative land uses and reduce groundwater extractions. The District may consider a subsidy structure study to determine which subsidies would result in the greatest expected annual benefit in acre-feet per year.	x		x		As needed to meet milestones, if other new supplies are not developed as anticipated	District flyers, direct mail, public meetings	None	Not yet initiated	3-5 years after GSP adoption
15	**WRMWSD Land Retirement and/or Conversion**	Purchase and permanently fallow previously irrigated acreage to reduce overall water demand and groundwater extractions.	x		x		If other P/MAs are insufficient	Prop 218	CEQA	Not yet initiated	2035
16	**AEWSD Groundwater Allocation per Acre**	The District may adopt a program which provides a finite groundwater allocation on a per acre basis. The policy would identify and forecast the demands associated with prior rights, domestic, and environmental uses. The sustainable yield and ultimate groundwater allocation would take into consideration the existing water rights holders and applicable beneficial uses and users of groundwater. Once an individual groundwater allocation is determined, the District may adopt a policy which provides a gradual “ramp-down” allocation decrease over time to arrive at the actual groundwater allocation to allow growers time to adjust to the concept of an allocation and, for some growers, a reduction in groundwater use. The policy would detail the number of years and amount of reduction each year. The District may adopt a policy which describes an "adaptive management" approach, whereby the groundwater allocation may be reviewed, changed, and reestablished every 5 years or during extreme drought as necessary to achieve long term sustainability.	x		x		As needed to meet milestones, if other new supplies are not developed as anticipated	District flyers, direct mail, public meetings	GSA adoption of resolution	Not yet initiated	3-5 years after GSP adoption
17	**AEWSD Groundwater Fee Increase**	The District may adopt a management action to increase GWSA costs to incentivize groundwater users to reduce groundwater extractions and take surface water when available. The District may consider modifying its fee structure study to determine the best strategy for curbing groundwater overdraft without causing inequitable economic impact. The potential fee structures would affect groundwater users differently, so a composite fee structure may also be considered.	x		x		As needed to meet milestones, if other new supplies are not developed as anticipated	District flyers, direct mail, public meetings	GSA adoption of resolution	Not yet initiated	3-5 years after GSP adoption
18	**AEWSD Groundwater Market and Trading**	Contingent on the groundwater extraction quantification and allocation programs, AEWSD would pursue a groundwater market and trading program to provide uses and beneficial users more flexibility in utilizing a groundwater allocation. The District may adopt a policy to define groundwater trading program, acknowledging that many complexities and considerations required to successfully initiate and manage a trading program may arise. The District may adopt a policy to define a groundwater banking program, which would consider using surface water supplies when available in lieu of groundwater pumping. The District should discuss any other water bank/credit systems in existence. The District may adopt a groundwater trading structure and consider a variety of structures including: (1) Bilateral contracts or "coffee shop" markets; (2) Brokerage; (3) Bulletin boards; (4) Auctions and reverse auctions; (5) Electronic clearing-houses or "smart markets"; and (6) Other trade structures.	x		x		Contingent on P/MAs 16 and 23	District flyers, direct mail, public meetings	GSA adoption of resolution	Not yet initiated	3-5 years after GSP adoption

Table PMA-1. Details of Projects and Management Actions

P/MA Number	P/MA Name	Timetable for Completion	Timetable for Accrual of Expected Benefits	Expected Benefits						Source(s) of Water, if applicable	Legal Authority Required	Estimated Costs		
				Primary		Secondary								
				Water Supply Augmentation	Water Demand Reduction	Water Quality Improvement	Flood Control	Water Management Flexibility / Efficiency	Data Gap Filling/ Monitoring			One-time Costs	Ongoing Costs (per year)	Potential Funding Source(s)
Water Demand Reduction Management Actions														
14	**AEWSD Groundwater Subsidies for Land Conversion**	TBD	1 year after implementation		2.75 AFY/acre of land fallowed or converted to basin, 0.5 - 1.0 AFY/acre of land converted from permanent to annual crop					NA	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	$15K - $30K, or around $500 per AF	~$10k - $1M	AEWSD; grants
15	**WRMWSD Land Retirement and/or Conversion**	TBD; Depending on landowner interest	1 year after completion		Up to 21,000 AFY					NA	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	Approx. $40K per acre for land purchase (inc. interest); 30 yrs of water savings at 2.75 AFY/ac gives net cost of ~$500 per AF	$250/yr per acre for maintenance	WRMWSD; grants
16	**AEWSD Groundwater Allocation per Acre**	TBD	1-3 years after implementation		Quantity TBD			x		mandatory reduction in district-wide groundwater pumping	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	$25K - $100K	Not applicable	AEWSD
17	**AEWSD Groundwater Fee Increase**	Remain indefinitely after implementation or until other programs are enacted	1-3 years after implementation		~2.75 AF/ac fallowed (temporary or permanent), ~2.75 AF/ac converted to basin, ~0.5-1.0 AF/ac permanent to annual crop						Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	$15K - $30K	Approx. $25k	AEWSD
18	**AEWSD Groundwater Market and Trading**	Remain indefinitely after implementation or until other programs are enacted	1-3 years after implementation					x		NA	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	$25K - $100K	Approx. $25k	AEWSD

Table PMA-1. Details of Projects and Management Actions

P/MA Number	P/MA Name	Summary Description	Relevant Sustainability Indicators Affected				Circumstances for Implementation	Public Noticing Process	Permitting and Regulatory Process Requirements	Status	Timetable / Circumstances for Initiation
			Groundwater Levels & Storage	Groundwater Quality	Land Subsidence	Depletions of Interconnected Surface Water					
19	**WRMWSD Groundwater Allocation and Market**	Develop a groundwater pumping allocation methodology, including a market system for the trading and/or transferring of allocations	x		x		GSP adoption	Regular District Board Meetings	CEQA	Not yet initiated	2022
20	**WRMWSD Voluntary Pumping Limitations**	Set non-binding pumping limitations in conjunction with a fee for pumping above limits.	x		x		GSP adoption	Prop 218	CEQA	Not yet initiated	2030
21	**WRMWSD Mandatory Pumping Limitations**	Set binding pumping limitations in conjunction with a fee for pumping above limits.	x		x		If other P/MAs are insufficient	Prop 218	CEQA	Not yet initiated	2035
"Other" P/MAs											
22	**Improved Stormwater Management and Flood Control in AEWSD**	Potential construction of new sedimentation/detention basins, flood ditch erosion protection, Spillway Basin expansion, lengthening the South Canal's siphon under David Road or extension of the South Canal liner through designated floodplain reaches.	x	x			Grant funding	Infrastructure improvement; no public noticing necessary	CEQA; NEPA if federal grant funds are used; SMARA exemption	Not yet initiated	TBD upon available funding; excessive flooding or further damages may expedite initiation
23	**AEWSD Groundwater Extraction Quantification Method**	Application of a new policy to specify an approved method to quantify the individual and aggregated groundwater extractions for the required SGMA annual reporting. Some methods to consider (or a combination of them) are the following: (1) Irrigated acreage determined by aerial imagery; (2) Irrigated area hybrid determined by annual crop survey alongside aerial imagery; (3) Calibrated energy records; (4) Volumetric flow measurement; (5) Remote sensing of evapotranspiration; (6) Other.	x		x		GSP adoption	District flyers, direct mail, public meetings	GSA adoption of resolution	Not yet initiated	Shortly after GSP adoption
24	**WRMWSD Acreage Assessment**	Set policy to implement an acreage assessment to fund purchase of additional supplies, purchase of land for fallowing, and other investments to support SGMA compliance	x		x		GSP adoption	Prop 218	CEQA	Not yet initiated	2022

Table PMA-1. Details of Projects and Management Actions

P/MA Number	P/MA Name	Timetable for Completion	Timetable for Accrual of Expected Benefits	Expected Benefits						Source(s) of Water, if applicable	Legal Authority Required	Estimated Costs		
				Primary		Secondary								
				Water Supply Augmentation	Water Demand Reduction	Water Quality Improvement	Flood Control	Water Management Flexibility / Efficiency	Data Gap Filling/ Monitoring			One-time Costs	Ongoing Costs (per year)	Potential Funding Source(s)
19	**WRMWSD Groundwater Allocation and Market**	Upon modification of water service contracts	1 year after completion					x		NA	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	approx. $50K	Minimal	WRMWSD; grants
20	**WRMWSD Voluntary Pumping Limitations**	Upon modification of water service contracts	1-3 years after completion		Up to 21,000 AFY					NA	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	approx. $100K	approx. $100,000/yr for monitoring costs; this management action would be used to fund other P/MAs	WRMWSD; grants
21	**WRMWSD Mandatory Pumping Limitations**	2030	1-3 years after completion		Up to 21,000 AFY					NA	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	Minimal additional cost beyond Voluntary Pumping Limitations P/MA	Minimal additional cost beyond Voluntary Pumping Limitations P/MA	WRMWSD; grants
"Other" P/MAs														
22	**Improved Stormwater Management and Flood Control in AEWSD**	Construction duration: approx. 1 year	1-3 years after construction	TBD		x	x			Local stormwater	None	$1M - $10M	TBD	AEWSD and partnering agencies
23	**AEWSD Groundwater Extraction Quantification Method**	Remain indefinitely after implementation or until other programs are enacted	1 year after implementation		x			x	x	NA	Consistent with White Wolf GSA authority pursuant to CWC Section 10726.2(b)	$25K - $1M	~$25k	AEWSD
24	**WRMWSD Acreage Assessment**	Upon modification of water service contracts	1-3 years after completion		x					NA	WRMWSD authority as a Water Storage District	approx. $50,000	This management action would be used to fund other P/MAs	WRMWSD; grants

Abbreviations:

AEWSD = Arvin-Edison Water Storage District
AFY = acre-feet per year
AFY/ac = acre-feet per year per acre
CEQA = California Environmental Quality Act
CVP = Central Valley Project
CWC = California Water Code
GSA = Groundwater Sustainability Agency
GSP = Groundwater Sustainability Plan
GWSA = Groundwater Only Service Area
NA = Not Applicable
NEPA = National Environmental Protection Act
P/MA = Project/Management Action
PWRPA = Power and Water Resources Pooling Authority
SGMA = Sustainable Groundwater Management Act
SMARA = Surface Mining and Reclamation Act
SJVAPCD = San Joaquin Valley Air Pollution Control District
SWP = State Water Project
SWRCB = State Water Resources Control Board
TBD = to be determined
TCWD = Tejon-Castac Water District
WRMWSD = Wheeler Ridge-Maricopa Water Storage District
WWF = White Wolf Fault

Notes:

(a) Summary table developed based off information provided by AEWSD, WRMWSD, and TCWD.

18.3. Circumstances for Implementation

This section describes the circumstances under which P/MAs shall be implemented, the criteria that would trigger implementation and termination of P/MAs, and the process by which the GSA determines conditions requiring the implementation of P/MAs have occurred.

As stated above, the goals and objectives of the P/MAs presented herein are to address any existing or potential Undesirable Results by the GSP implementation deadline (i.e., by January 2042). At this time, the White Wolf GSA anticipates that implementation of P/MAs will be necessary to ensure sustainability of the Basin under the uncertainty of future climate and land use conditions. Construction of the Grapevine Development (P/MA #1) is anticipated to break ground around 2026-2027. Other P/MAs will be implemented incrementally on an as-needed basis to achieve this goal. For example, P/MAs will be selected for implementation based on observed Basin conditions (i.e., if Minimum Thresholds are exceeded in Representative Monitoring Wells, as discussed in steps 4 and 5 of the Action Plan Related to Minimum Threshold Exceedances, see ***Section 16***), further consideration of the magnitude of expected P/MA benefit, the relative cost and ease of implementation, and other factors (e.g., when grant funds are obtained or upon completion of feasibility studies, economic evaluations, and/or other necessary planning studies). More details regarding a general implementation schedule ("glide path") are provided in ***Section 18.7 Status and Implementation Timetable*** below. The planning of P/MAs will be supported by the best available information and science. Should Undesirable Results for Degraded Water Quality occur (as defined in ***Section 13.4.2 Criteria Used to Define Undesirable Results***) or Depletion of Interconnected Surface Water (as defined in ***Section 13.6.2 Criteria Used to Define Undesirable Results***) after any P/MA's implementation, the GSA will follow the actions stated in ***Section 16 Action Plan Related to Minimum Threshold Exceedances*** above to evaluate the impact of the P/MAs and mitigate such impacts accordingly.

18.4. Public Notice Process

Public notice requirements vary for each P/MA (see **Table PMA-1**). Some P/MAs that involve infrastructure improvements may not require specific public noticing other than that related to construction or permitting. Certain other management actions that involve, for example, imposition of fees, may require public noticing pursuant to Proposition 218 or Proposition 26. In general, the P/MAs being considered for implementation will be discussed during regular White Wolf GSA Board Meetings or the respective lead District's Board Meeting which are open to the public. In many instances, the P/MAs will also each be subject to California Environmental Quality Act (CEQA) review and other permitting process that are subject to public notice and review. Additional stakeholder outreach efforts will be conducted prior to and during P/MA implementation by the project proponent(s), as needed and as required by law.

18.5. Addressing Overdraft Conditions

> *§ 354.44. Projects and Management Actions*
>
> *(b) Each Plan shall include a description of the projects and management actions that include the following:*
>
> *…*
>
> *(2) If overdraft conditions are identified through the analysis required by Section 354.18, the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.*

As discussed in ***Section 9.3.4 Change in Groundwater Storage***, the Basin shows a net storage surplus over the historical period (i.e., Water Year [WY] 1995-2014), however the Basin has a storage deficit under current conditions (WY 2015-2019). Future projections without P/MAs show groundwater levels and storage changes continue to steadily decrease over the 50-year implementation horizon.

The WWGFM was employed to evaluate the uncertainty in future Basin storage conditions due to near and longer-term climate uncertainty. Specifically, the WWGFM was employed to project future storage conditions under a Baseline Scenario, the 2030 Climate Change Scenario, and the 2070 Climate Change Scenario (Central Tendency) using climate change factors provided by the California Department of Water Resources (DWR, 2018). The model results indicated that projected groundwater storage declines increased under the Climate Change Scenarios (see **Table WB-11** and **Figure WB-21**); however, only the 2070 Climate Change Scenario projected the potential occurrence of Undesirable Results based on the definition established in ***Section 13.1.2 Criteria Used to Define Undesirable Results*** and the absence of P/MAs.

The P/MAs presented herein were designed to meet the projected deficits under the 2030 Climate Change Scenario, as there is much greater uncertainty when projecting 2070 conditions. The GSAs plan to implement the P/MAs, as needed, to achieve the Basin Sustainability Goal in even under projected climate change conditions (see ***Section 18.7 Status and Implementation Timetable***).

18.6. Permitting and Regulatory Process

> *§ 354.44. Projects and Management Actions*
>
> *(b) Each Plan shall include a description of the projects and management actions that include the following:*
>
> *…*
>
> *(3) A summary of the permitting and regulatory process required for each project and management action.*

As shown in **Table PMA-1**, the permitting and regulatory requirements vary for the different P/MAs depending on whether they are infrastructure projects, recharge projects, management actions, and so forth. The various types of permitting and regulatory requirements (not all applicable to every P/MA)

include the following:

- Federal
  - National Environmental Policy Act (NEPA) documentation, if federal grant funds are used;
  - National Pollution Discharge Elimination System (NPDES) stormwater program permit (administered by the California State Water Resources Control Board [SWRCB]);
- State
  - CEQA documentation, including one or more of the following: Initial Study (IS), Categorical Exemption (CE), Negative Declaration (ND), Mitigated Negative Declaration (MND), Environmental Impact Report (EIR);
  - SWRCB permits and regulations regarding recycled water use, waste discharge, and stormwater capture for recharge;
  - California Surface Mining and Reclamation Act (SMARA) regulations;
  - California Division of Safety of Dams regulations;
- Regional
  - San Joaquin Valley Air Pollution Control District (SJVAPCD) permit and regulations;
  - Power and Water Resources Pooling Authority (PWRPA);
- County/Local
  - Encroachment permits – Kern County, CalTrans, and others;
  - Kern County grading permit;
  - Kern County well construction permit.

Specific currently-identified permitting and regulatory requirements for each P/MA are listed in **Table PMA-1**. Upon initiation of each P/MA, the regulatory and permitting requirements of the P/MA will be re-examined. As with any P/MA planned or implemented under the SGMA, actions undertaken will remain in compliance with existing water rights constraints and processes under California and Federal law.

18.7. Status and Implementation Timetable

> *§ 354.44. Projects and Management Actions*
>
> *(b) Each Plan shall include a description of the projects and management actions that include the following:*
>
> *…*
>
> *(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.*

With a few exceptions, the current status of P/MAs listed in **Table PMA-1** is "not yet initiated".[98] While the exact schedule and timetable for implementation of individual P/MAs is not known at this time, a general implementation schedule, also known as a "glide path", has been developed and is summarized in **Table PMA-2** below. This preliminary "glide path" aims to address a certain percentage of the projected deficit during each five-year period through 2042, which in turn will increase Basin groundwater levels. The P/MAs will be initiated in a manner and sequence that achieves the "glide path" level of expected benefits shown in **Table PMA-2**, with accelerated implementation if Minimum Thresholds (MTs) begin to be exceeded in the Basin, as discussed in steps 4 and 5 of the Action Plan Related to Minimum Threshold Exceedances (see ***Section 16***). **Table PMA-1** presents preliminary estimates of the time required to complete/implement each P/MA and a timetable for accrual of expected benefits. These estimates will be refined, as necessary, upon further evaluation of the P/MAs.

Table PMA-2. General Project and Management Action Implementation Schedule ("Glide Path")

Year	2027	2032	2037	2042
P/MA Contributions	**(AFY)**			
Grapevine Development	1,000	1,400	1,900	2,400
Wet Year Supplies	0	1,500	3,500	5,000
Other New Supplies	0	0	1,000	1,000
Pumping Reduction	2,700	5,000	7,200	9,500
P/MA Total Contributions	**3,700**	**7,900**	**13,600**	**17,900**

Abbreviations:
P/MA = Project and/or Management Action
AFY = acre-feet per year

18.8. Expected Benefits

> *§ 354.44. Projects and Management Actions*
>
> *(b) Each Plan shall include a description of the projects and management actions that include the following:*
>
> *…*
>
> *(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.*

The different categories of expected benefits are presented above in ***Section 18.1.2 Benefit Categories***, and the specific expected benefits of each P/MA are presented in **Table PMA-1** and in ***Section 18.2 List of Projects and Management Actions***. Most P/MAs have expected benefits related to water quantity, with

[98] WRMWSD has completed construction of the Mettler recharge facility (P/MA #7) and AEWSD has begun expanding the in-lieu service area (P/MA #10).

a direct or indirect benefit to the other Sustainability Indicators. Once a P/MA is implemented, it is important to evaluate, ideally to quantify, the benefits resulting from that P/MA as part of monitoring and data collection activities. The specific way in which P/MA benefits are evaluated and/or quantified depends on the P/MA.

The goals and objectives of P/MA implementation are not necessarily to achieve a certain water budget outcome, but rather to ensure that Undesirable Results for relevant Sustainability Indicators are avoided by the end of the SGMA implementation period (i.e., by 2042). For this reason, while the relative effectiveness of each P/MA is assessed based on benefits to the water budget, ultimately the success of the collective implementation of P/MAs will be determined by whether the Sustainability Goal for the Basin is achieved.

As discussed in ***Section 9.4.3.5 Projected 2030 Climate Change with Combined P/MAs Scenario***, to quantify the expected benefits from P/MA implementation, various P/MAs were integrated into the WWGFM Projected 2030 Climate Change Scenario. As a key indicator of Basin sustainability, the projected groundwater storage change and water level responses at each RMW-WL was assessed relative to the Projected 2030 Climate Change Scenario and the proposed Chronic Lowering of Groundwater Levels Sustainable Management Criteria (SMCs). As demonstrated in **Figure PMA-2**, for each of the RMW-WLs, groundwater elevations are expected to remain above their MTs under P/MA implementation. Furthermore, water levels also begin trending toward or surpassing their MOs under P/MA implementation (i.e., 64% of RMW-WLs meet or exceed their MO by Spring 2042).

For those P/MAs that involve direct supply augmentation, the benefit is quantified directly through measurement of those flows. For P/MAs that involve indirect supply augmentation through, for example, increased surface water storage capacity and delivery flexibility, quantification of the benefit will require a comparison of the observed water supply condition (e.g., total imported water) against a hypothetical condition where the P/MA was not in place. For the P/MA that involves recapture of cross-boundary flows, the benefit would be quantified through modeling of reduced cross-boundary flows, simultaneously with water level response in Basin RMW-WLs. For the P/MAs that involve water demand reduction the benefit will be evaluated by comparison of the water demand before and after the P/MA was in place. Because it is not possible to determine with certainty what the condition without the P/MA would be like, quantification of the benefits is inherently uncertain.

18.9. Source and Reliability of Water from Outside the Basin

> *§ 354.44. Projects and Management Actions*
>
> *(b) Each Plan shall include a description of the projects and management actions that include the following:*
>
> *…*
>
> *(6) An explanation of how the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.*

Several of the PMAs discussed below and shown in **Table PMA-1** rely on additional water supplies from outside the Basin. Water supply for each applicable P/MA is discussed below.

P/MA #1 relies on the availability of imported surface water (Nickel Water) and the associated availability of recycled water. Because of the nature of the water supply contracts, Nickel Water is considered 100% reliable and delivery is not subject to hydrological variability, regulatory requirements, or supply constraints that may affect other water sources (TCWD, 2016). The anticipated imported water supply and the associated recycled water is projected to fully meet or exceed total projected demand of the Grapevine Development (EKI, 2015). In addition, TCWD has various management options (e.g., water banking operations) and access to other water sources that can be purchased outside of its contracts.

P/MA #4 (and several of the potential recharge projects) relies on the ability of the GSA member districts to obtain additional and/or wet year supplies to supplement their contractual CVP and SWP allocations. Certain P/MAs rely on the availability of water during wet years to fill surface storage, conduct managed recharge, and offset groundwater pumping. P/MA #7 assumes additional wet year supplies may be available from SWP, CVP, or Kern River for recharge. P/MA #10 assumes a certain level of AEWSD CVP Paragraph 16(b) water will be available to meet the additional demand for wet year supplies created by implementation of this P/MA.

All GSA member districts will continue efforts to refine modeling results but also continue to secure additional water supplies for importation into the Basin through transfers, exchanges, and purchases, as necessary and possible given pricing and timing constraints.

18.10. Legal Authority Required

> *§ 354.44. Projects and Management Actions*
>
> *(b) Each Plan shall include a description of the projects and management actions that include the following:*
>
> *…*
>
> *(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.*

Per California Water Code (CWC) § 10725 through 10726.8, the White Wolf GSA possesses the legal authority necessary to implement the supply augmentation and demand management P/MAs described herein and will enforce these P/MAs as necessary to enforce the GSP. Legal authority for each of the P/MAs is detailed in **Table PMA-1**. It should be noted that, pending P/MA implementation, authority may switch dependent on which districts are involved. Furthermore, as mentioned above, each GSA member district has identified P/MAs. The White Wolf GSA is organized as a Joint Powers Authority (JPA). All three GSA member districts possess the legal authority to implement the supply augmentation P/MAs discussed herein.

18.11. Estimated Costs and Plans to Meet Them

> *§ 354.44. Projects and Management Actions*
>
> *(b) Each Plan shall include a description of the projects and management actions that include the following:*
>
> *…*
>
> *(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.*

Estimated costs for each P/MA are presented in **Table PMA-1**. Given the uncertainty in the scope and timing of these P/MAs, the costs are presented as ranges. These costs include "one-time" costs and ongoing costs. The one-time costs may include capital costs associated with construction, feasibility studies, permitting, environmental compliance (e.g., CEQA), or any other costs required to initiate a given P/MA. The ongoing costs are associated with operations & maintenance (O&M), water purchases, and/or costs to otherwise continue implementing a given P/MA. It should be noted that depending on the source and nature of funding for the P/MAs, the one-time costs may or may not be incurred entirely at the beginning of the P/MA; in some instances, grants or other financing options may allow for spreading out of "one-time" costs over time.

As mentioned above, each GSA member district has identified P/MAs. At this time, the GSA acknowledges that details pertaining to cost allocations needs to be negotiated as part of P/MA and GSP implementation. Potential sources of funding for P/MAs one-time costs and ongoing costs are presented in **Table PMA-1**, and include the following:

- AEWSD, WRMWSD, or TCWD funds, generally supported by fees charged to landowners within each district, including potentially the following:
    - General fund
    - SGMA compliance subaccount (to be created)
- Partnering agencies for certain P/MAs (e.g., project developer, oil field producers)
- Grant funding from sources including but not limited to DWR, United States Bureau of Reclamation (USBR), or the Federal Emergency Management Agency (FEMA)
- Other

The lead district proposing the P/MA will be responsible for securing funding for the P/MA. Upon implementation of any given P/MA, the available funding sources for that P/MA will be re-examined and confirmed.

18.12. Management of Recharge and Groundwater Extractions

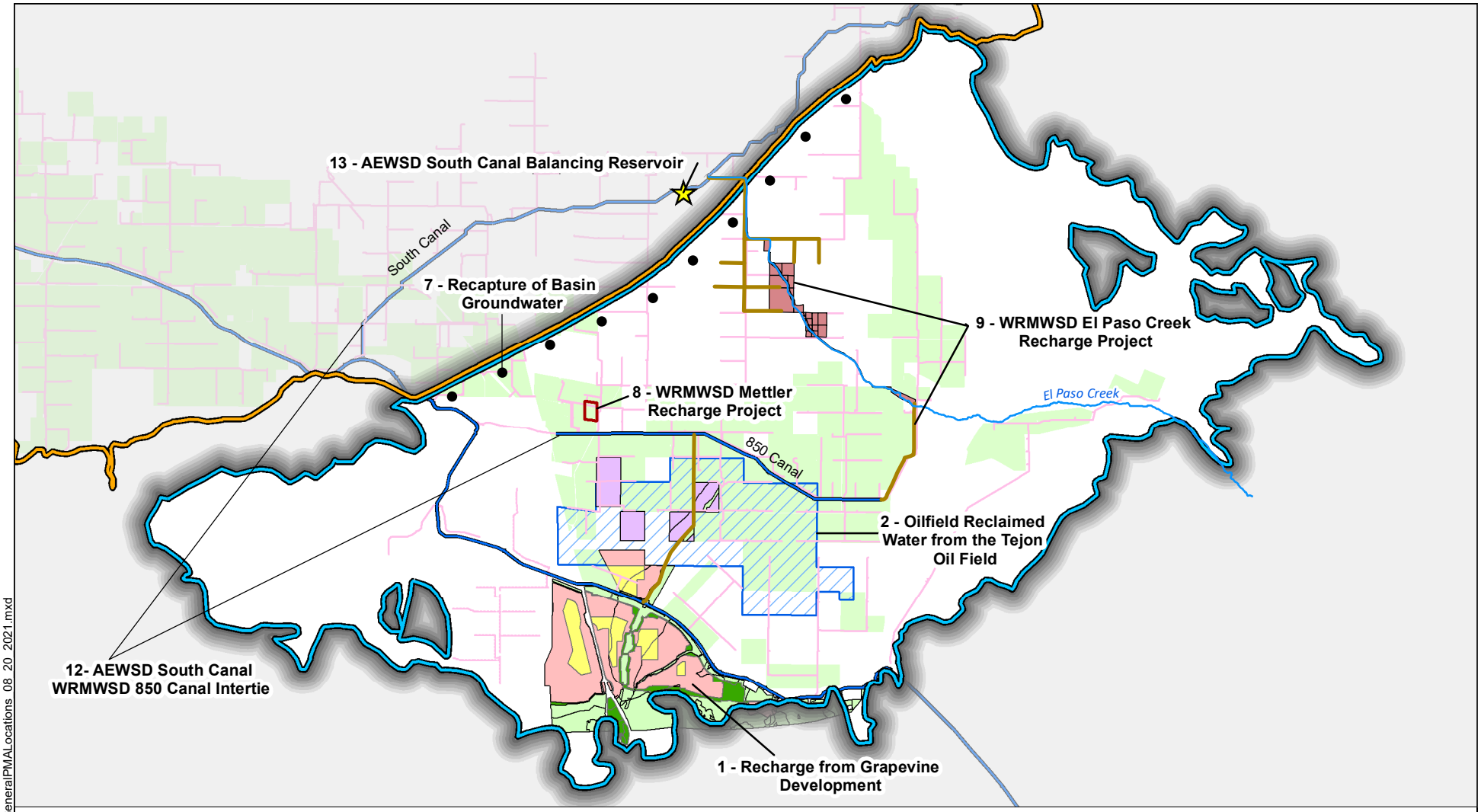
> *§ 354.44. Projects and Management Actions*
>
> *(b) Each Plan shall include a description of the projects and management actions that include the following:*
>
> *…*
>
> *(9) A description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.*

As stated previously in Section *9 Water Budget Information*, under historical conditions (WY 1995–2014), the Basin was in a state of approximate water supply/demand balance (i.e., a net surplus of 3,200 AFY). Historical trends in Basin groundwater levels and storage were driven primarily by the extraction of groundwater and availability of surface water. After the Wanger decision of 2008 and especially during drought years, as was seen during the extreme Statewide drought of 2012-2016 and in 2021, surface water reliability decreased and therefore more groundwater extraction occurred. Furthermore, since the 1990s, there has been an increase in irrigated planted acreage in the Basin. This combination of reduced surface water supply and increased demand resulted in a decrease in groundwater levels and therefore groundwater storage, as was seen during current conditions (WY 2015-2019) where there was a groundwater storage deficit of approximately 20,200 AFY. Under the Projected Baseline, 2030, and 2070 Central Tendency Climate Change Scenarios, a net groundwater storage deficit is projected to continue to occur (approximately 4,600 to 15,500 AFY). The projected deficit is due to an irrigated water demand consistent with WY 2019, and a projected inconsistent supply of imported water supplemented by an increase in groundwater pumping. Modeling scenarios indicate that some combination of both supply augmentation and demand reduction will be required for the Basin to avoid Undesirable Results.

The supply augmentation P/MAs described above are designed to increase the likelihood that

groundwater levels and storage declines during future drought periods will be offset, to the extent possible, by increases in groundwater levels and storage during other periods, especially during wet years. For example, P/MA #7 takes advantage of additional supplies that are assumed to be available during wet years to enhance recharge. P/MA #12 will help to increase storage capacity and delivery flexibility. Furthermore, the potential for utilizing produced water (P/MA #2 and P/MA #3), which is available year-round irrespective of climatic conditions, will allow for increased groundwater recharge and/or supplemental non-potable supply to offset drought period demands.

In addition to these supply augmentation P/MAs, the portfolio also includes policy-based management actions aimed at demand reduction. Some of these management actions aim to reduce overall water demand, and others are more specifically focused on reducing groundwater pumping. These management actions will rely initially on financial incentives (e.g., tiered pricing and/or fees) to drive voluntary demand reduction, but also may include establishing groundwater pumping allocations, if necessary. A groundwater allocation program would likely include mechanisms to allow for trading or exchange of pumping allocations within designated areas, subject to constraints dictated by groundwater conditions observed within the Monitoring Network. Through this combination of increased recharge during wet years and demand reduction, the P/MA efforts will ensure that chronic lowering of groundwater levels and storage during drought will be offset by increases in groundwater levels and storage during other periods.



Legend

Groundwater Subbasin

- White Wolf (DWR 5-022.18)
- Kern County (DWR 5-022.14)

Grapevine Development Zoning

- Exclusive Agriculture District
- Industrial District
- Mixed Use District
- Open Area District
- Village Mixed Use District

- Mettler Recharge Project
- Tejon Oil Field
- Surface Water Service Area
- Aqueduct or Canal
- Distribution Pipeline
- Conceptual Wells along White Wolf Fault
- Proposed El Paso Project Pipelines
- Proposed El Paso Spreading Basins

Abbreviations

AEWSD	= Arvin-Edison Water Storage District
DWR	= California Department of Water Resources
NHD	= National Hydrography Dataset
P/MA	= Projects and Management Actions
WRMWSD	= Wheeler Ridge- Maricopa Water Storage District

Notes

1. All locations are approximate.
2. P/MAs outside the extent of the map include:
   - **3 - Oilfield Reclaimed Water in AEWSD**
   - **5 - WRMWSD "Thru Delta" Facility**
   - **6 - WRMWSD Desalination Facility**
   - **10 - AEWSD In-Lieu Banking Program**
3. Additional P/MAs not displayed on map include:
   - **4 - Purchase Additional Surface Water Supplies**
   - **11- AEWSD Private & Caltrans Basin Connections**
   - **22 - Improved Stormwater Management and Flood Control**
   - **23 - AEWSD Groundwater Extraction Quantification Method**
   - **24 - WRMWSD Acreage Assessment**
4. Projects 14-21 are water demand reduction management actions.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 20 January 2022.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - Final Prioritization, dated February 2019.
3. Grapevine zoning provided by Tejon Ranch Company on 3 December 2018.
4. Surface Water Service Area provided by AEWSD and WRMWSD.
5. Surface water features and California Aqueduct location from NHD (https://viewer.nationalmap.gov/basic/).

N

0 3 6

(Scale in Miles)

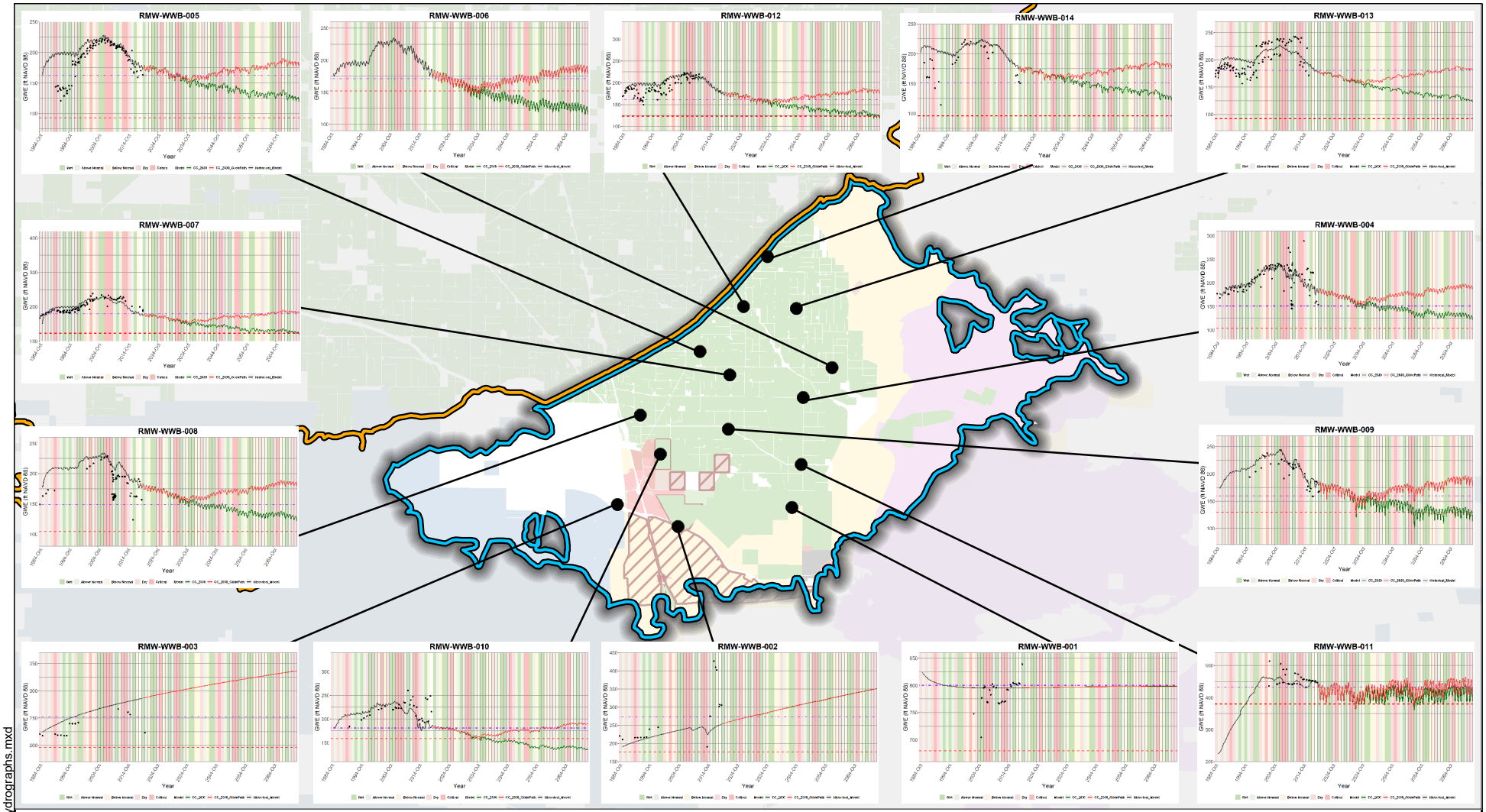
Locations of Proposed Projects and Management Actions

White Wolf GSA
Kern County, California
December 2021
B50001.05

Figure PMA-1

eki environment & water

Path: X:\B50001.05\Maps\GSP\2022\01\FigPMA-1_GeneralPMALocations_08_20_2021.mxd



Path: X:\B50001.05\Maps\GSP\202201\FigPMA-2_Hydrographs.mxd

Legend

Groundwater Subbasin

- White Wolf (DWR 5-022.18)
- Kern County (DWR 5-022.14)
- RMW-WL
- Measurable Objective
- Minimum Threshold

WWGFM-calculated Groundwater Elevations

- Historical
- Projected 2030 Climate Change
- Projected 2030 Climate Change with Combined P/MAs

Land Use

- Agricultural Land
- Developed
- Grazing
- Mining
- Oil Field
- Conservation Easement Area
- California Protected Areas
- Proposed Grapevine Development

Abbreviations

DWR	= California Department of Water Resources
ft msl	= feet above mean sea level
MO	= Measurable Objective
MT	= Minimum Threshold
P/MAs	= Projects and/or Management Actions
RMW-WL	= Representative Monitoring Well for Water Level
WWGFM	= White Wolf Groundwater Flow Model

Notes

1. All locations are approximate.

Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 19 January 2022.
2. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - Final Prioritization, dated February 2019.
3. Land Use simplified from Figure PA-3 and Figure PA-8.

N

0 5 10

(Scale in Miles)

WWGFM Projected 2030 Climate Change Scenario Hydrographs with and without P/MA Implementation

eki environment & water

White Wolf GSA
Kern County, California
December 2021
B50001.05

Figure PMA-2

WHITE WOLF GROUNDWATER SUSTAINABILITY AGENCY
PROJECT / MANAGEMENT ACTION
INFORMATION FORM

P/MA ID: 09	BASIN/MANAGEMENT AREA (if any): White Wolf Subbasin

TITLE: El Paso Creek Recharge Project

DESCRIPTION[1]:

The project is an artificial recharge project that uses El Paso Creek, existing and planned pipeline, and planned recharging ponds. The project consists of two phases. Phase 1 will utilize the existing 850D Lateral pipeline to direct water into the El Paso Creek for in-stream recharge with check structures. Total recharge area along the El Paso Creek is 221 gross acres, which is equivalent to 145 net pond acres. Phase 2 will involve construction of new recharge pipeline parallel to 850D Lateral and off-stream ponds for recharge. Additional 335 gross acres (250 net pond acres) will be added to the recharge area. Recharged water can be recovered using existing wells near the recovery pipeline. Assuming the project will be operating 120 days per year, and the infiltration rate is 145 AF/day for Phase 1 and 125 AF/day for Phase 2, total recharge capacity is estimated to be 32,400 AFY (Phase 1: 17,400 AFY and Phase 2: 15,000 AFY).

EXPECTED ANNUAL BENEFIT (demand reduction or supply augmentation, in acre-feet per year):

Depends on operating days, approximately 32,400 AFY (17,400 AFY from Phase 1 and 15,000 AFY from Phase 2)

AGENCY(s):

Primary/Lead: WRMWSD

Supporting: _____

LOCATION: ☐ Check here if Basin-wide

Township / Range: 11N18W, 11N19W, and 12N19W

Coordinates (Latitude / Longitude): 35°03'10.5"N 118°51'03.8"W

Description: Along and in the vicinity of El Paso Creek

AFFECTED SUSTAINABILITY INDICATOR (check all that apply):

- ■ Chronic Lowering of Groundwater Levels
- ■ Reduction of Groundwater Storage
- ☐ Seawater Intrusion
- ☐ Degraded Water Quality
- ☐ Land Subsidence
- ☐ Depletions of Interconnected Surface Water

TYPE (check all that apply):

- ■ Water Supply Augmentation
  - ☐ Surface Water
  - ■ Groundwater (Recharge)
  - ☐ Recycled Water
  - ☐ Transfer
  - ☐ Stormwater
  - ☐ Other
  - Source of Outside Water (if applicable): _____
- ☐ Water Demand Reduction
  - ☐ Conservation
  - ☐ Land / Water Use Changes
- ☐ Infrastructure / Capital Project
- ☐ Policy Project
- ☐ Data Gap Filling / Monitoring
- ☐ Water Quality Improvement
- ☐ Other: _____

[1] *Please continue to next page or attach additional pages to this form as necessary*

COSTS & FUNDING SOURCE(s):

Capital / Up-front ($): _____

Source(s): _____

O&M / On-going ($ per year): _____

Source(s): _____

REGULATORY / LEGAL AUTHORITY REQUIREMENTS (describe all that apply):

Permits (name of authority, type of permit): RWQCB, SWRCB, WDR

CEQA: _____

Other: _____

SCHEDULE / TIMING:

Implementation Trigger(s): _____

_____

Termination Trigger(s): N/A

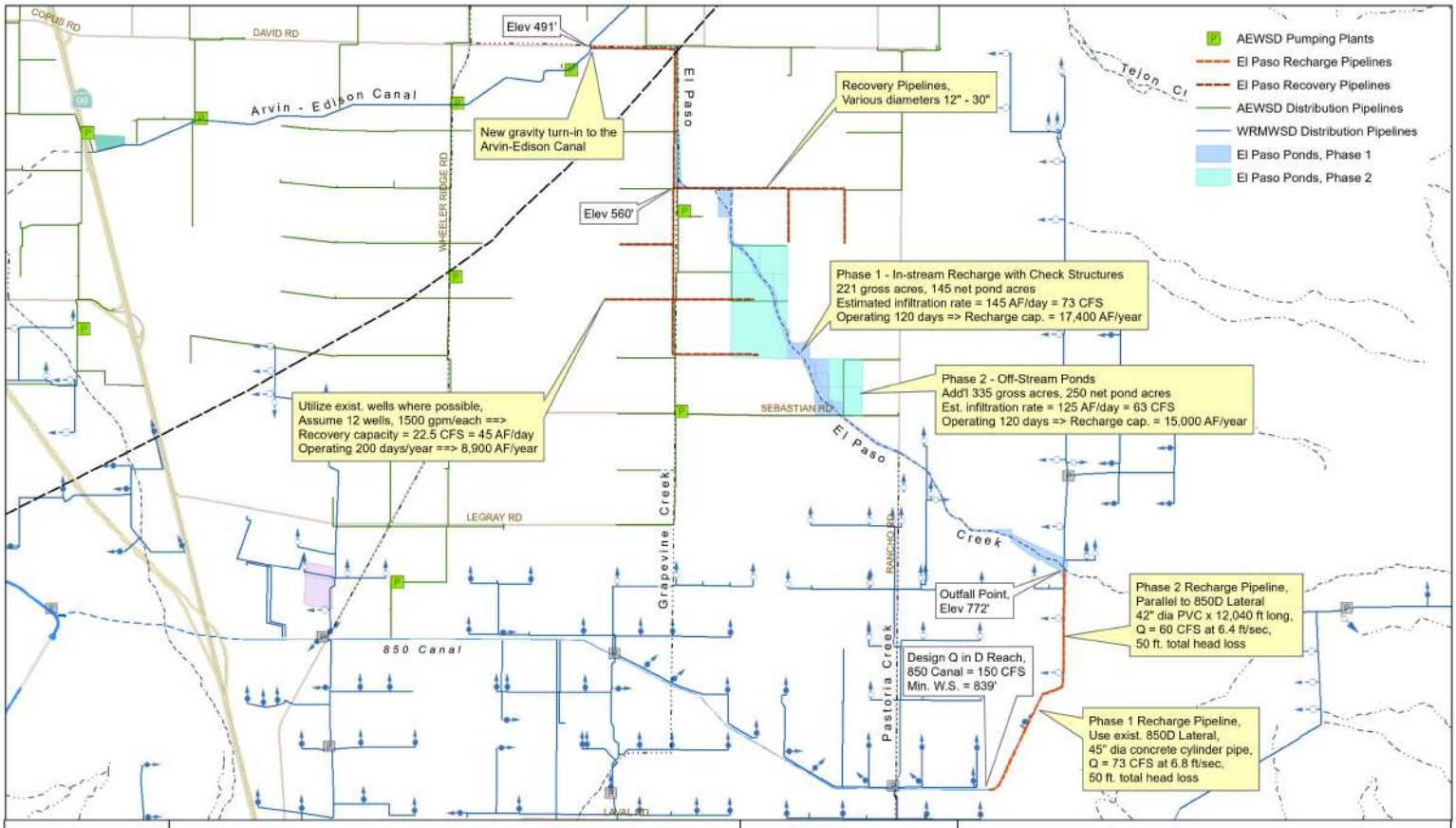
_____

Timeframe to Accrue Expected Benefits: Upon project initiation

ADDITIONAL DETAILS (as necessary):

Please see attached map for more details about the project.

Additional benefits of the project include: a) subsurface flows across the White Wolf fault are captured, b) new facilities are minimized, c) to the extent in-stream recharge is used, land is not taken out of production, and d) except for lifting water into the 850 Canal and pumping groundwater to the surface, it all works by gravity.



Date: June 2021
Author: Thomas Suggs
Name: WRM_B_Size_2021-06-15_El_Paso_Ponds

N

0 0.25 0.5 1 Miles

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT
BAKERSFIELD, CA

EL PASO CREEK PONDS AND CONVEYANCE PIPELINES LOCATION MAP

WHITE WOLF GROUNDWATER SUSTAINABILITY AGENCY
PROJECT / MANAGEMENT ACTION
INFORMATION FORM

P/MA ID: 12	**BASIN/MANAGEMENT AREA** (if any): AEWSD

TITLE: AEWSD South Canal WRMWSD 850 Canal Intertie

DESCRIPTION[1]:

There is a need to improve existing interties and/or construct new interties between AEWSD's South Canal and WRMWSD's 850 canal to facilitate water exchanges between the two districts. Many existing and potential future water exchange and banking programs benefiting the two districts, their banking and exchange partners in Kern County and Southern California depend upon successful construction and operation of the Project. Primary benefits of the Project are improved water supplies and operational efficiency. Ancillary benefits include water quality improvements for SWP customers and floodplain management in Kern County and other areas in the San Joaquin Valley. Project location could benefit other conveyance facilities in the near vicinity (CA Aqueduct) and assist in exchanges. The 850 is owned and operated by Wheeler Ridge-Maricopa WSD. .

EXPECTED ANNUAL BENEFIT (demand reduction or supply augmentation, in acre-feet per year):

Increased delivery flexibility and transfer/exchange potential, ~24,000 AF

AGENCY(s):

Primary/Lead: AEWSD

Supporting: WRMWSD

LOCATION: □ Check here if Basin-wide

Township / Range: N/A

Coordinates (Latitude / Longitude): 35° 5'14.87"N 118°54'39.73"W

Description: On South Canal approximately at Station 72+00

AFFECTED SUSTAINABILITY INDICATOR (check all that apply):

- ■ Chronic Lowering of Groundwater Levels
- □ Seawater Intrusion
- □ Land Subsidence
- ■ Reduction of Groundwater Storage
- ■ Degraded Water Quality
- □ Depletions of Interconnected Surface Water

TYPE (check all that apply):

- ■ Water Supply Augmentation
  - ■ Surface Water
  - ■ Transfer
  - ■ Groundwater (Recharge)
  - □ Stormwater
  - ■ Recycled Water
  - □ Other
  - Source of Outside Water (if applicable): _____
- ■ Water Demand Reduction
  - □ Conservation
  - □ Land / Water Use Changes
- ■ Infrastructure / Capital Project
- □ Policy Project
- □ Data Gap Filling / Monitoring
- □ Water Quality Improvement
- □ Other: _____

[1] *Please continue to next page or attach additional pages to this form as necessary*

COSTS & FUNDING SOURCE(s):

Capital / Up-front ($): ~$15M

Source(s): AEWSD, WRMWSD

O&M / On-going ($ per year): $40,000

Source(s): AEWSD, WRMWSD

REGULATORY / LEGAL AUTHORITY REQUIREMENTS (describe all that apply):

Permits (name of authority, type of permit):

CEQA:

Other:

SCHEDULE / TIMING:

Implementation Trigger(s): Completion of feasibility study and design drawings

Termination Trigger(s): Project completion

Timeframe to Accrue Expected Benefits: 1 year post construction

ADDITIONAL DETAILS (as necessary)**:**

APPENDIX B

Public Notice of Plan Preparation

Proof of Publication

THE BAKERSFIELD CALIFORNIAN
4900 CALIFORNIA AVE STE 100A
BAKERSFIELD, CA 93309

Ad Number: 566909 PO #: WRMWSD
Edition: CALC Run Times 2
Class Code LEGAL NOTICES

Start Date 02/24/2026 Stop Date 03/03/2026

WHEELER RIDGE-MARICOPA WATER
12109 HIGHWAY 166
BAKERSFIELD CA 93313-9630
US

Billing Lines 37.00 Inches 3.7274984
Total Cost $ 655.42 Account 92511
Billing Address WHEELER RIDGE-MARICOPA WATER
12109 HIGHWAY 166
BAKERSFIELD CA 93313-9630
US

STATE OF CALIFORNIA
COUNTY OF KERN

Solicitor I.D.: 0

I AM A CITIZEN OF THE UNITED STATES AND A RESIDENT OF THE COUNTY AFORESAID: I AM OVER THE AGE OF EIGHTEEN YEARS, AND NOT A PARTY OR INTERESTED IN THE ABOVE ENTITLED MATTER. I AM THE ASSISTANT PRINCIPAL CLERK OF THE PRINTER OF THE BAKERSFIELD CALIFORNIAN, A NEWSPAPER OF GENERAL CIRCULATION, PRINTED AND PUBLISHED DAILY IN THE CITY OF BAKERSFIELD COUNTY OF KERN,

AND WHICH NEWSPAPER HAS BEEN ADJUDGED A NEWSPAPER OF GENERAL CIRCULATION BY THE SUPERIOR COURT OF THE COUNTY OF KERN, STATE OF CALIFORNIA, UNDER DATE OF FEBRUARY 5, 1952, CASE NUMBER 57610; THAT THE NOTICE, OF WHICH THE ANNEXED IS A PRINTED COPY, HAS BEEN PUBLISHED IN EACH REGULAR AND ENTIRE ISSUE OF SAID NEWSPAPER
AND NOT IN ANY SUPPLEMENT THEREOF ON THE FOLLOWING DATES, TO WIT:

02/24/2026 03/03/2026

ALL IN YEAR 2026

I CERTIFY (OR DECLARE) UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT.

Teri Brady

DATED AT BAKERSFIELD CALIFORNIA

3 - 3 - 2026

First Text
PUBLIC HEARING NOTICE NOT

Ad Number 566909

PUBLIC HEARING NOTICE

Notice is hereby given that the
Wheeler Ridge-Maricopa Water Storage District (WRMWSD)

Will hold a public meeting on:
March 11, 2026 at 10:00 A.M.

Regarding:
2025 Agricultural Water Management Plan

The Water Conservation Act of 2009 requires certain agricultural water suppliers in California to prepare an Agricultural Water Management Plan (AWMP). Executive Order B-29-15 requires an AWMP to include detailed drought management plans, as well as the quantification of water supplies and demand for 2021, 2022, 2023, 2024, and 2025. To meet the requirements of this legislation, WRMWSD is updating its AWMP. The AWMP includes a discussion of WRMWSD and its irrigation facilities, water supply and demand, and various planning in the coming years. The WRMWSD Board of Directors will hold a public hearing to consider public comments on the proposed 2025 AWMP.

A copy of the 2025 AWMP may be reviewed at the WRMWSD office (12109 Highway 166, Bakersfield, CA 93313) or on the District website (www.wrmwsd.com). Written comments, submitted prior to the hearing, should be directed to:

Eric McDaris
Wheeler Ridge-Maricopa Water Storage District
12109 Highway 166, Bakersfield, CA 93313

Comments may also be provided at the hearing.

If you have any questions regarding the AWMP, please contact Eric McDaris at (661) 527-6069

February 24, March 3, 2026
566909

APPENDIX C

Board Resolution of Adoption

BEFORE THE BOARD OF DIRECTORS OF
WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT

IN THE MATTER OF: **RESOLUTION NO. 2026-04**

ADOPTION OF 2025 AGRICULTURAL WATER MANAGEMENT PLAN UPDATE

WHEREAS, the Wheeler Ridge-Maricopa Water Storage District has prepared a 2025 Agricultural Water Management Plan Update in accordance with the requirements of the Water Conservation Bill of 2009 (SBx7-7) and approved by the California Department of Water Resources (DWR); and

WHEREAS, the Wheeler Ridge-Maricopa Water Storage District previously prepared and adopted a 2015 and a 2020 Agricultural Water Management Plan to comply with the Water Conservation Bill of 2009 (SBx7-7); and

WHEREAS, this Agricultural Water Management Plan Update conforms to the framework presented in *2025 Agricultural Water Management Plan Guidebook* issued by the California Department of Water Resources (DWR) to aid water suppliers in preparing Agricultural Water Management Plans; and

WHEREAS, the requirements in SBx7-7 are intended to encourage agricultural water suppliers to assess current efficient water management practices, to evaluate additional practices that may conserve water, and to require a certain level of accurate measurement of water. As such the Agricultural Water Management Plan Update process presents an opportunity for water suppliers to demonstrate existing and planned activities and programs designed to improve the effective use of water and water use efficiency; and

WHEREAS, included in Section IX of this plan is a listing of the efficient management practices which have been implemented or planned to be implemented and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future; and

WHEREAS, the District is an agricultural water supplier and may therefore adopt and implement such an agricultural water management plan; and

WHEREAS, the District's consultant prepared a 2025 Agricultural Water Management Plan Update at the direction of the District Board; and

WHEREAS, the Agricultural Water Management Plan has been made available for public inspection, notice of the time and place of a public hearing was published as required by law, and a public hearing was held on March 11, 2026, to consider adoption of the proposed 2025 Agricultural Water Management Plan Update and no comments were submitted nor formal protests were submitted on such proposal; and

WHEREAS, the Board believes that the adoption of the proposed 2025 Agricultural Water Management Plan Update is in the best interests of the District and its landowners;

NOW, THEREFORE, BE IT RESOLVED that:

(1) The foregoing findings, and each of them, are true and correct.

(2) The District approves and adopts the 2025 Agricultural Water Management Plan Update in accordance with SBx7-7, as prepared by the District's consultant.

(3) The Board hereby authorizes the officers and staff of the District to execute all documents and take any other action necessary or advisable to carry out the purpose of this resolution.

All the foregoing being on motion of Director Martin, seconded by Director Mettler, and authorized by the following vote, to wit:

AYES: Atkinson, Blaine, Fry, Marin, Martin, Mettler, Reiter, Richardson, Valpredo.

NOES: None.

ABSTAIN: None.

ABSENT: None.

I HEREBY CERTIFY that the foregoing resolution is the resolution of said District as duly passed and adopted by said Board of Directors on the 11th day of March, 2026.

WITNESS my hand and seal of said Board of Directors this 11th day of March, 2026.

[SEAL]

Secretary of the Board of Directors

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT ORGANIZED AUG. 28 1959 CALIFORNIA

APPENDIX D

Rules and Regulations for Distribution and Use of Water

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT

RULES AND REGULATIONS FOR DISTRIBUTION OF WATER

RULES AND REGULATIONS
FOR
DISTRIBUTION OF WATER

Adopted by Resolution No. 70-89	July 8, 1970
Revised by Resolution No. 72-10	February 9, 1971
Amended by Resolution No. 73-40	September 12, 1973
Amended by Resolution No. 75-05	May 12, 1976
Amended by Resolution No. 76-14	June 9, 1976
Amended by Resolution No. 76-22	September 29, 1976
Amended by Resolution No. 76-23	September 29, 1976
Amended by Resolution No. 78-18	June 14, 1978
Amended by Resolution No. 79-35	October 10, 1979
Amended by Resolution No. 79-38	November 14, 1979
Amended by Resolution No. 81-25	October 14, 1981
Amended by Resolution No. 84-04	June 13, 1984
Amended by Resolution No. 85-03	January 9, 1985
Amended by Resolution No. 86-21	November 12, 1986
Amended by Resolution No. 88-10	April 13, 1988
Amended by Resolution No. 88-21	November 9, 1988
Interim Amend. Resolution No. 91-10	April 12, 1991
Interim Amend. Resolution No. 92-03	March 11, 1992
Interim Amend. Resolution No. 93-04	February 10, 1993
Amended by Resolution No. 93-13	June 9, 1993
Amended by Resolution No. 93-18	July 14, 1993
Amended by Resolution No. 2000-07	April 12, 2000
Amended by Resolution No. 2001-08	March 14, 2001
Amended by Resolution No. 2001-10	April 11, 2001
Amended by Resolution No. 2001-18	August 18, 2001
Amended by Resolution No. 2004-19	November 10, 2004
Amended by Resolution No. 2012-04	March 14, 2012
Amended by Resolution No. 2015-07	May 13, 2015
Amended by Resolution No. 2016-14	November 9, 2016
Amended by Resolution No. 2017-16	December 13, 2017
Amended and Restated by Resolution No. 2018-16	December 12, 2018

TABLE OF CONTENTS

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT

RULES AND REGULATIONS FOR DISTRIBUTION OF WATER

These Rules and Regulations are established pursuant to the requirements of the California Water Code by the Board of Directors of the Wheeler Ridge-Maricopa Water Storage District for the distribution and use of water within the District to enable the District to perform its functions most efficiently and to deliver water to Water Users at the least possible cost and are the Rules and Regulations mentioned in those certain water service contracts between the District and various landowners within the District. These Rules and Regulations were first adopted July 8, 1970, and have been amended from time to time. **This edition of the Rules and Regulations supersedes all Rules and Regulations previously adopted by the Board of Directors, and is recorded with the Official Records of Kern County pursuant to Water Code §43003.5.**

1. DEFINITIONS

Terms and expressions employed in these Rules and Regulations are as defined in the Water Service Contracts executed by the District and its landowners with the exception of certain terms or expressions used herein which do not appear in said contracts but which terms or expressions are defined or explained at the point where they are introduced in these Rules and Regulations. Where appropriate in these Rules and Regulations, words used in the singular shall include the plural and words used in the masculine shall include the feminine or an entity.

2. AUTHORITY OF THE ENGINEER-MANAGER AND EMPLOYEES

a. **Engineer-Manager**: The District's Distribution System is under the exclusive management and control of the Engineer-Manager, who is the person appointed by the Board of Directors of the District to manage the affairs of the District pursuant to its direction. No other person except the Engineer-Manager or his designee shall operate any of the facilities of the District's Distribution System.

b. **District Employees**: The Engineer-Manager shall supervise the activities of all District employees in connection with operation and maintenance of the District's Distribution System and all other activities of the District. The authority of the employees of the District shall be designated by the Engineer-Manager and any controversy between a Water User and a District employee that cannot be settled directly shall be appealed to the Engineer-Manager. In the event the Engineer-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 and conclusive.

c. **Right of Access:** District employees authorized by the Engineer-Manager shall have reasonable access to lands and irrigation facilities within the District for the purpose of conducting District business, which may include the following:

(1) Inspection of the lands upon which water delivered from the Project is being applied for the purpose of determining Water User's compliance with the terms of the Water Service Contract or other conditions of service provided by the District.

(2) Operation, maintenance inspection, repair or modification of facilities of the District's water supply, conveyance and Distribution System.

(3) Determination of improper use or wasting of water.

(4) Measurement of ground water levels and obtaining water quality samples from wells.

(5) Determination of the type and area of specific crops grown.

Except in cases of emergency or where otherwise considered impracticable by the Engineer-Manager, the landowner, lessee or person in possession shall first be contacted before entering landowner's property other than upon District easements.

3. WATER SERVICE

a. **Surface Water Service Area:** Contract Water Service will be provided only to lands in the District's Surface Water Service, which service area has been amended by the Board of Directors from time to time. The lands included in said Surface Water Service Area at any given time are those certain parcels of real property described in the Exhibits A of those certain water service contracts, which have been executed by the District and landowners and are on file in the District office. Lands within the Surface Water Service Area are shown on a map on file at the District office designated as "Surface Water Service Area," as amended from time to time. In case of a conflict between the lands described in Exhibit "A" to said certain water service contracts and said map, the description contained in said Exhibits shall govern. Pursuant to provisions of Division 14 of the California Water Code, an Original Project Assessment in the amount of the estimated costs of the District's project for providing water service to the affected lands was levied upon the lands in the Surface Water Service Area as contemplated by Resolution No. 349 and upon certain other benefitted lands in the District and said assessment became final on October 18, 1968.

b. **Additions of lands to Surface Water Service Area**: Lands may be added to the Surface Water Service Area pursuant to an application filed with the Board therefor by the owner or owners of said lands, only if: (1) such addition is determined by the Board to be feasible and in the best interests of the District and in accordance with the criteria established in Board Resolution No. 349; (2) the owner or owners of said lands execute a contract with the District for water service for said lands generally in the form established by Board Resolution No. 69-60; (3) the owner or owners of said lands pay a charge equal to the sum of all charges which would have been paid to the District if said lands had been included within the originally adopted Surface Water Service Area unless said charges have been paid by another parcel of land; and (4) the owner or owners of said lands agree in writing to pay any special charges at such time as calls might be made as hereinafter described, which special charges would be in lieu of calls on the Original Project Assessment on said lands, which charge will be the same as the amount which would be due if the lands subject hereto had received an Original Project Assessment by the same procedures whereby the Assessment was levied on all lands in the District's Adopted Surface Water Service Area and that, at such time as the project may be reassessed, the lands would receive the same treatment as all lands within the District's Adopted Surface Water Service Area.

Lands may also be added to the Surface Water Service Area by amendment of a Water Service Contract so as to increase the area described in Exhibit "A" therein provided the Contract Amount of Water is not increased and provided further that it is determined by the Board that such additions are: (1) in the best interest of the District, and (2) are not detrimental to other District Water Users. Any such additions shall be pursuant to an application filed with the Board of Directors by the owner or owners of said lands and each such application will be considered on a case-by-case basis. Such applications will not be approved unless it is determined that the proposed change does not unduly reduce the effective return flow to the ground water basin and unless it is demonstrated that the final amount of water will be sufficient for the type of crop involved. In the event of the approval of such an application *where exclusion of lands from the SWSA is involved, the original acreage of the excluded lan*ds shall be the acreage used in determining the allocation of water pursuant to Rule 8 of these Rules and Regulations.

c. **Exclusion of Lands From the Surface Water Service Area**: Lands may be excluded from the Surface Water Service Area pursuant to an application filed with the Board therefor only if: (1) the Board of Directors determines that such exclusion will not be detrimental to the best interests of the District, and (2) the obligations of the contract for water service, if any, binding said lands are assumed by other lands within the District which are added to the Surface Water Service Area as provided in Section 3(b) above. Assumption of said obligations must be under terms and conditions, which will result in no financial loss to the District.

d. **Concurrent Additions/Exclusions:** To facilitate the addition of lands to the SWSA and exclusion of lands therefrom, the District will receive and maintain applications for the addition of lands to or exclusion of lands from the SWSA. Applications for exclusion of land from the SWSA will only be processed to the extent that there are applications for an equal area of land to be added to the SWSA, and applications for addition of land to the SWSA will only be processed to the extent that there are applications for an equal area of land to be excluded from the SWSA. Requests to add land to the SWSA will only be considered involving a minimum of 40 acres and all requests to exclude land from the SWSA will be considered.

Contracts for the addition of lands to the SWSA or exclusion of land therefrom will be processed for execution with an effective date of January 1 of the year following the Board's approval of the application. Applications for addition or exclusion to the SWSA which meet all the applicable criteria herein provided will be given priority in the order in which they are received, and said priority for unfulfilled applications shall carry over from year to year. Provided, however, the Board may consider applications for lands of similar acreage independent of said priority when landowner(s) wish to transfer contract(s) from one property to another, and have agreed to all the District's terms and conditions of addition/exclusion as prescribed by the Board and including Sections 3(b) and (c) above.

The addition of land to the SWSA will be subject to the criteria set forth in Rule 3(b) and the exclusion of land will be subject to the criteria set forth in Rule 3(c). The District's costs of evaluating and preparing documents for said additions and exclusions shall be paid by the applicants.

To prevent adverse water supply impacts on other Water Users, the area of excluded land and related Contract Amount of Water (CAW) must be equal to the area of added contract land and related CAW. Provided however, that minor differences between the areas of land excluded and added will be permitted if the owner of land added agrees to accept use of the area of excluded land as the basis for allocation of water in years of water shortage as set forth in Rule 3(a).

To prevent adverse financial impacts on other Water Users, a new "NAL" category of service (Non-Sprinkler Added Land) shall be established. The bond debt obligation and the OM&R obligation from all lands excluded from the SWSA pursuant to this Rule 3(d) will be melded into this category. This category shall have separate components for bond debt and OM&R obligations in general conformance to Exhibit A of the Contracts. The bond debt obligation and the OM&R obligation of the lands added to the SWSA pursuant to this Rule 3(d) shall be equal to the melded obligation of the excluded lands, and rates applicable to the added lands shall be determined in general conformance to Exhibit A of the Contracts. From time to time, as lands are excluded under this Rule 3(d), the obligations and acreage of the "NAL" category of service will increase, and the unit rates applicable to this category of service may increase or decrease accordingly.

The Board will evaluate each request to confirm such requested addition or exclusion or concurrent addition/exclusion to the SWSA will not adversely affect, *or unequally benefit*, the District or its landowners, and may from time to time adopt further policies to implement Rules *3.b., 3.c.* and 3.d.

e. **Unscheduled Water Service**: Unscheduled water is water made available to a contract Water User in any year in excess of the Contract Amount of Water, delivered through Water User's turnout, as provided in Section 2(f) of the Contract. Such water may be made available at the request of Water User and is delivered on an interruptible and non-dependable basis. Such service will be made available if the Board determines that it is in the best interest of the District and will only be made if it does not interfere with the obligations of the District under its Water Service Contracts.

f. **Temporary or In-Lieu Water Service:** Temporary or In-Lieu Water Service means the delivery of water on an interruptible and non-dependable basis for agricultural use to lands outside the Surface Water Service Area or a Farming Unit Operation, under conditions established by the Board. Such Temporary or In-Lieu service will be made available if the Board determines that it is in the best interest of the District, will be for a limited period of time and will only be made if it does not interfere with the obligations of the District under its Water Service Contracts.

g. **Industrial Water Service**: Industrial Water Service means the delivery of water on an interruptible and non-dependable basis for industrial use, including construction work, and shall be made under conditions established by the Board. Industrial water service may be made pursuant to provisions for temporary water deliveries or pursuant to long-term contracts for Industrial Water Service. Such industrial water is not a potable water supply and shall not be used for domestic purposes or for human consumption unless specifically authorized by all agencies responsible for administering the Safe Drinking Water Act(s). It will be made available upon such terms as the Board determines is in the best interest of the District, will be for a limited period of time and will only be made if it does not interfere with the obligations of the District under its Water Service Contracts.

Subject to the foregoing, the District may also enter into long-term contracts to provide Industrial Water Service and/or to reserve system capacity which contracts shall be substantially uniform, which contractors are hereinafter referred to as "Industrial Water Users." Water Service pursuant to said contracts shall be subject to water being made available from the District pool established pursuant to Section 9 hereof. Upon finding that sufficient capacity exists within the District distribution system, the District may by contract reserve a portion of such capacity for the conveyance of water for industrial use, whether from supplies available to the District or supplies made available to the Industrial Water User.

Water Service Contracts may be amended to provide for delivery of water for Municipal and Industrial Use as further described in Rule 21 hereto.

h. **Supplemental Water**: Supplemental water means the water supplies acquired in addition to the water supply available under the Agency contract and includes district wells, Banking programs and water purchases. Supplemental water will be allocated pursuant to these Rules and Regulations up to the Contract Amount of Water in Water Users Water Service Contract. The quantities of Supplemental Water allocated to Water User shall only be available after Water User has submitted a signed order in a form provided by the District for such purposes in which the Water User agrees to the terms and conditions of delivery and payment for Supplemental Water.

4. DELIVERY, USE AND MEASUREMENT OF WATER

a. **Annual Water Deliveries**: Unless formally advised by Water User to the contrary, it will be assumed that Water User will desire delivery of his full contract amount of water each year. The District will make every effort to provide said contract amount of water on a demand basis as requested by Water User but does not assume any obligation if it is unable to do so. It should be recognized that the District's delivery capability is limited in the month or months of maximum demand by the capacity of the District's distribution facilities and such limitations must be considered in meeting Water User's request.

If Water User wishes to dispose of a portion of his contract amount of water, the District will attempt to do so in accordance with Article 5(k) of the Water Service Contract. If the allocation of the Contract Amount of Water in any year includes Supplemental Water and the District has not yet acquired or produced the Supplemental Water, it shall be the first water returned to the District for disposal. To the extent Supplemental Water has not already been acquired or produced the Water User shall receive full credit for the cost of the Supplemental Water so returned. To the extent the Supplemental Water has already been acquired or produced said Supplemental Water shall be pooled in accordance with paragraph 9 hereof. If Water User wishes more than his contract amount of water, the District will attempt to meet Water User's request to the extent water can be made available.

The District will notify Water User as to the availability of water and the ability of the District to meet Water User's request from time to time, as information is available to the District to do so.

b. **Daily Water Orders**: Orders to turn on or to turn off water, or orders to increase or decrease the rate of water delivery, shall be made at the District office through telephone communication, facsimile transmission, e-mail or personal communication from Water User or his designee as provided in these Rules and Regulations. Water orders shall be placed before 8:00 AM for water service for the following day, and water orders placed after 8:00 AM will be for water service the second succeeding day. In the event of an emergency, or when a change is in the delivery point within the service area of the same lateral, or when it may otherwise be practical to do so, changes in deliveries may be approved on lesser notice but the District assumes no obligation to do so. Although the District will make every reasonable effort to comply with the requested water orders, there may be times when, because of system capacity limitations, or limitations in the amount of water available from the Agency, such compliance may not be possible, and the

District assumes no obligation therefor. Orders shall normally be made based on continuous use of water during the 24-hour period commencing between 7:00 AM and 9:00 AM. **Provided however**, that the Board may establish special conditions for short-run deliveries and/or for deliveries at lower flow rates than for normal irrigation practices.

c. **Authorization of Agent**: In the case of leased land, or for any other reason, Water User shall provide District written notice as to its primary contact, billing address and additional contact information, if applicable, of who is authorized to place water orders; said notice shall be construed to be the consent of the Water User to all charges and the collection thereof, in any manner authorized under the Water Service Contract and by Sections 47181 to 47185 inclusive of the California Water Code. Said notice may authorize agent to receive copies of District billings and water data arising from the affected Water Service Contract. This authorization shall remain in effect until the date of termination stated thereon, or until superseded, or until revoked in writing by Water User.

d. **Interruptions in Service**: Attention is directed to Section 3(h) of the Water Service Contracts which provides as follows: "District may temporarily discontinue or reduce the amount of water to be furnished to Water User as herein provided, for the purpose of investigation, inspection, maintenance, repair or replacement, as may be reasonably necessary, of any of the Project facilities for the furnishing of water to Water User, or of the facilities of the State Water Project, but so far as feasible, District will give Water User due notice in advance of such temporary discontinuance or reduction, except in case of emergency, in which case no notice need be given. In no event shall any liability accrue against District or any of its directors, officers, agents or employees, for any damage, direct or indirect, arising from such temporary discontinuance or reduction of water deliveries." In case of emergency shut-off by the District, an effort will be made to notify Water User as soon as possible.

e. **Emergency Turnoffs by Water User**: Water User may in an emergency, including but not limited to Acts of God, turn off the supply of water at Water User's turnout. If Water User effects such emergency turnoff, he must notify the District office immediately by telephone or in person. Water User and anyone affecting such an emergency turnoff does thereby agree to assume the defense of and hold harmless the District and its directors, officers, agents and employees from any and all loss, damage, liability, claims or causes of action of every nature whatsoever, for damage to or destruction of property including District's property, or for injury to or death of persons, in any manner, arising out of or incidental to such emergency turnoff.

f. **Use of Other Water Supplies**: Water User may use water furnished by District concurrently with water from other sources, provided that Water User can demonstrate to the satisfaction of the Engineer-Manager or his designee that project water is not being used on land other than that for which it is intended, as set forth in the Water Service Contracts and provided in these Rules and Regulations.

g. **Waste of Water**: Water delivery may be discontinued by the District for any Water User found to be wasting water either willfully, carelessly, or on account of, but not limited to, defective or inadequate ditches, pipelines, inadequate tailwater facilities, inadequately prepared land or improper management; said water delivery will not be resumed until such conditions are corrected.

h. **Farm Turnouts**: Except as hereinafter provided for temporary deliveries of water and as provided in Sections 3(c) and 3(d) of the Water Service Contracts, all deliveries will be made only through District owned and operated turnouts.

i. **Connections**: All connections to District's system shall be made in a manner so as to prevent damage from occurring to District's system resulting from operation of Water User's system and so as to prevent water from Water User's system from entering District's system. Plans for the connection of Water User's system to District's system shall be submitted to the Engineer-Manager or his designee for approval, and no such connection will be permitted until such approval has been given.

j. **Combined Turnouts**: In accordance with District's design criteria, water service will be provided to parcels less than twenty acres in size within the Surface Water Service Area only in conjunction with service to an adjacent larger parcel or several adjacent smaller parcels where the total combined area is twenty acres or more. Such service will be made through a single turnout designated a "Combined Turnout." Water will be furnished through such a Combined Turnout to a group of Water Users only upon condition that said group of Water Users first files with District an agreement in a form approved by the District, executed by each and every Water User in said group, and providing, among other things, the following:

(1) Acceptance of delivery of water through the combined turnout.

(2) Granting of an easement to the other Water Users as necessary to convey water from the combined turnout to their respective lands.

(3) Authorization for one individual to represent said group in all matters relating to delivery of water by District through said combined turnout.

In the event a parcel served by a single turnout is conveyed to two or more different parties, and each of the parcels is larger than 20 acres, the new owner(s) of the parcel(s) upon which the turnout is not located shall pay for the cost of constructing a new turnout, and any pipeline necessary to serve such turnout, and shall provide to the District a permanent easement in a form acceptable to the District to accommodate such new turnout and pipeline, unless the Board of Directors approves some other arrangement to serve said parcel.

k. **Temporary Water Service Deliveries**: As a condition of temporary water service, the owner of lands to be served shall have executed an agreement establishing a covenant running with the land, in a form provided by the District, wherein the landowner expressly acknowledges that the affected lands have no right to firm water service from the District. Delivery of temporary water service to lands for which such an agreement has been properly executed and recorded will be made in such a manner as may be approved by the Engineer-Manager or his designee.

l. **Industrial Water Service Deliveries**: For Industrial Water Users with long-term contracts, the District will attempt to provide the full contract amount of water each year from water supplies excess to the needs of the Surface Water Service Area from the District pool established pursuant to Section 9 hereof. To the extent such excess water supplies are not available the District shall be under no obligation to supply water for Industrial Water Service users. However, at such times water is not available from the pool, the District will make District system capacity reserved under the terms of the long-term Industrial Water Service Contract to wheel water

supplied to Industrial Water Users from other sources and conveyed to District turnouts from the California Aqueduct. The District will also make its unused California Aqueduct capacity available for conveyance of water supplied by the District or by Industrial Water User under the terms of the long-term Industrial Water Service Contract to the extent such capacity is not being used for other District water deliveries.

However, at times when unused California Aqueduct capacity is not available from the District, the Industrial Water User shall be responsible for the delivery of water from the California Aqueduct into District facilities.

In the event an Industrial Water User wants to receive more or less than the quantity of water specified by the contract, it shall notify the District in writing of the difference by January 1, of the year of delivery.

If Industrial Water User orders less than the Contract Amount of Water, the District will reserve a correspondingly lower quantity of excess pool water for Industrial Water User for that year. If Industrial Water User orders more than the Contract Amount of Water the District will attempt to meet Industrial Water User's additional request to the extent water can be made available.

The District will notify Industrial Water User as to the availability of water and the ability of the District to meet Industrial Water User's request from time to time as information is available to the District. From January 1 through May 31 of the year of delivery Water Users request for water will be provided from the monthly pools to the extent of availability. If the District is unable to provide for the balance of Industrial Water Users annual request on or before May 31 of the year of delivery Industrial Water Users may secure water from alternate sources for the balance of the year and will not be required to purchase water from subsequent pools.

Absent a long-term contract, delivery of Industrial water will be made in such a manner as may be approved by the Engineer-Manager or his designee.

m. Farming Unit Operation:

(1) General. Water User may assign all or part of his water entitlement through designated turnouts to a Farming Unit Operation. A Farming Unit Operation is a grouping of two or more parcels of land which is under the ownership or control (by lease or otherwise) of a single Water User which includes Contract Land and may include Non-contract Land. Such assignment authorizes the Farming Unit Operator or his designee to file water schedules and order water, and authorizes District to deliver said water through, and assign water charges to, any of the several turnouts, which have been designated by all Water Users similarly assigning water to said Farming Unit Operation. Such assignment shall be made on a Farming Unit Operation Agreement provided by the District.

(2) Non-Contract Lands. If a Farming Unit Operation includes Non-contract Lands, the owner of the Non-contract Lands shall have executed an agreement establishing a covenant running with the land, in a form provided by the District, wherein the landowner expressly acknowledges that the Non-contract Lands have no right to firm water service from the District. The Farming Unit Operation Agreement shall reference the lower priority for purchase of Unscheduled Water for Non-contract Lands as set forth at 4.n.(2) of the Rules and Regulations, and acknowledge that allocation of water and/or system capacity will be based only on the area

of Contract Land. Water delivered to Non-contract Land prior to the completion or modification of Farming Unit Operation Agreements shall be made pursuant to conditions for Temporary Water Service.

(3) Term. The assignment shall remain in effect from year to year until superseded or revoked in writing by Contributing Water User, Farming Unit Operator, or the District. Revocations and modifications made after July 1 (or other date established by the Board) in any given year shall not take effect until the following calendar year.

n. **Priority of Requests**: In the event the District is not able to meet all requests for water, and without detracting from the provisions of Section 3(b) of the Water Service Contracts, priority of requests shall be considered on the following basis:

(1) Contract Water Service for the Contract Amount of Water in the Agricultural Water Service Contract of Water User, for use upon contract lands and lands within the Water User's Farming Unit Operation, shall receive the first priority.

(2) Unscheduled water for the amount of unscheduled water requested by a Water User with the priority of such requests in the order as follows:

(a) Unscheduled water for that portion of the requested Contract Amount of Water not allocated to Water User because of shortage of water supply provided the total water supply allocated under each of the Water Service Contracts will be in accordance with the provisions of Section 3.(1) of said Water Service Contracts.

(b) Additional Unscheduled Water for use in a Farming Unit Operation up to an aggregate quantity of water, including both the Contract Amount of Water and Unscheduled Water, equal to 4.0 acre-feet per acre on the contract lands within the Farming Unit Operation. Any additional water shall be prioritized as Temporary Water.

(3) Industrial Water Service under long-term contracts for the Contract Amount of Water requested in the annual delivery schedule submitted by an Industrial Water User.

(4) Temporary water service for the amount of water requested by temporary Water Users, including temporary industrial water service.

(5) Temporary water service for areas annexed after October 9, 1975 (other than where the annexation was coupled with a detachment of an equal number of acres) for the amount of water requested by the landowner in said area.

The above priorities are applicable to the allocation of available water at any point in time when the demand exceeds the available water supply. The water supply once allocated in accordance with the above priorities shall remain so allocated notwithstanding any subsequent increase in demand of a higher priority.

o. **Supplemental Water:** Supplemental Water allocated to Water Users as part of the Contract Amount of Water may be delivered by Water User through Water Users' turnout(s) pursuant to water orders submitted by Water User. Provided, however, that the Board may establish special

conditions, which limit the quantities of Supplemental Water available to Water User on a monthly or seasonal basis including, but not limited to, limitation of groundwater withdrawals from District banking projects or District wells for District Water Users as a whole.

p. **Intra District Water Transfers:** In Any Year, Water User may transfer all or portions of his water supplies to a designated Water User (and designated turnouts) by completing information required on a District approved transfer form. Supplies developed through the User Input Program may not be transferred. Such transfer authorizes the District to deliver said water through, and assign appropriate Water Use charges to, any of the turnouts, which have been designated. If Water User transfers supplies to Non-contract Lands, the owner of the Noncontract Lands shall have executed an agreement establishing a covenant running with the land, in a form provided by the District, wherein the landowner expressly acknowledges that the Non-contract Lands have no right to firm water service from the District, and that the landowner of the Non-contract Lands shall pay all appropriate Water Use charges associated with the transfer. Intra District Water Transfers provides an alternate option to Water Users to dispose of excess supplies other than those provided in Rule 9:"DISPOSAL OF WATER", and Section 5(k) of the Contract.

q. **Intra Kern Water Transfers:** In any year when the District has made an additional Supplemental Water supply available to Water Users and that supply is undersubscribed (total demands are less than the supply available) and the District otherwise elects not to obtain such unsubscribed supply, Water User may transfer all or portions of that Supplemental Water supply to other districts in Kern County subject to appropriate approvals. Such a request authorizes the District to deliver said Water, and furthermore authorizes the District to assign any appropriate charges pertaining to the transfer to the Water User.

5. PAYMENTS FOR WATER

a. **Contract Water Service**: Under conditions of Contract Water Service, Water User shall pay the Water Availability Charge and Water Use Charge as provided in the Water Service Contract. On or before December 1 of each year, District will notify Water User in writing of the estimated total amount of these charges for the following year, and said total amount shall be paid by Water User in eight equal installments, said installments to become due and payable on the tenth day of the months of February through September. **Provided however**, the Board of Directors may elect to delay and/or consolidate the payment schedule if information for computing rates is not timely available. On or before July 1 of each year or as soon thereafter as practical, District will mail to Water User a final accounting of water charges for the previous year. District will include with said final accounting either (1) a statement of credit owing to Water User for overpayment, or (2) a statement of Water User's additional payment obligation, which shall be due and payable on August 1. Any credit owing to the Water User for overpayment shall first be applied to cure any delinquency outstanding and then may be deducted from the Water User's next installment of Water User's payment obligation to the District. In the event such credit exceeds the amount of the next installment, then upon written request of Water User, the excess amount may be remitted to Water User. In the event of a change of ownership, the Board of Directors, upon written request by the then current and previous Water User, may authorize that the amount of such credit, refund, or additional payment due, as applicable, be remitted to or paid by the immediately previous Water User; otherwise, the credit, refund or any additional payment due shall apply to or be paid by the current Water User. If the final accounting adjustment reveals that an additional payment is due, and the previous Water User fails to timely pay such additional payment due, that obligation shall be assessed against the then current Water User.

b. **Unscheduled Water Service**: Payments for unscheduled water service shall be made at the rate or rates established therefor by the Board. If the request for unscheduled water service has been made before the Statement of Estimated Annual charges has been completed, the charges for said service will be included in said Statement of Estimated Charges for the year. If the request is made subsequent thereto, payments shall be made monthly. Advance payment or establishment of credit may be required.

c. **Temporary or In-Lieu Water Service**: Under conditions of temporary or in-lieu water service, payment shall be made each month at the rate or rates and under conditions established by the Board of Directors for such temporary or in-lieu water service. Advance payment or the establishment of credit by the Water User may be required.

d. **Industrial Water Service:** (i) Payment for temporary Industrial Water Service shall be made at the rate or rates and under conditions established by the Board of Directors for such service. Advance payment or the establishment of credit may be required. (ii) In such cases where Industrial Water Service is provided under a water service contract entered pursuant to Section 3(g) hereof in which capacity is made available, then the contract for Industrial Water Service shall provide, in addition to other customary terms, that the Water User annually pay a wheeling fee based on the Contract Amount of Water as provided in the Water Service Contract. In years and at times in which Industrial Water is furnished by the District, Industrial Water User shall also pay the Fixed Obligation (F.O.) component of the Water Availability Charge (WAC) and the Water Use Charge (WUC) for water ordered and delivered as provided in the Industrial Water Service contract. Payment for water furnished in excess of the Contract Amount of Water shall be at rates for Temporary Industrial Water Service.

In those years and at times in which Industrial Water is not furnished by District the Industrial Water User shall pay only the wheeling fee for water service. The contract may provide that should the F.O. and WUC exceed an indexed water cost that the Industrial Water User may secure its own water supply and the District deliver same upon paying the wheeling fee. Such wheeling fee shall, commencing in 2000, be the higher of $100 per acre-foot of Contract Amount of Water each year of the long-term obligation to make capacity available, or $50 per day of water delivery, adjusted annually by the Consumer Price Index, All Urban Consumers, All Items Index, Western Cities with populations of less than 1,500,000, for December of the calendar year immediately preceding utilizing the index for December 2000 as a base to determine adjustments.

On or before December 1 of each year, District will notify Industrial Water User under long-term water contract in writing of the estimated total amount of these charges for the following year and said total amount shall be paid by Industrial Water Users in four equal quarterly installments. Each installment is to become due and payable on the last day of the first month of each quarter. **Provided however** that in the event the District is unable to provide water for Industrial Water User or other credits are due to the Industrial Water User the second and subsequent quarterly installment payment for the Water Availability and Water Use Charges will be recomputed by the District and Industrial Water User will be notified of the change. On or before July 1 of each year following the first year of Industrial Water Service, District will mail to Water User a final accounting of water charges for the previous year. District will include with said final accounting either (1) a statement of credit owing to Industrial Water User for overpayment, or (2) a statement of Water User's additional payment obligation, which shall

be due and payable on August 1. Any credit owing to the Industrial Water User for overpayment may be deducted from the Industrial Water User's next installment of Water User's payment obligation to the District. In the event such credit exceeds the amount of the next installment, then, upon written request of Industrial Water User, it may authorize that the remaining amount of such credit be remitted to the Water User.

e. **Supplemental Water**: Payments for Supplemental Water shall be made at the rate or rates established therefore by the Board. Payment for Supplemental Water, either allocated as part of the Contract Amount of Water or in addition thereto, for Water User and ordered by Water User shall be spread over the remaining regular monthly payments set forth in the Water Service Contract. Payment for Supplemental Water shall be subject to and a part of a final accounting of costs in the same manner as set forth in paragraph 5(a) of these Rules and Regulations. Water User shall be entitled to any credit due for overpayment and shall be responsible for any additional payment obligation as a result of underpayment identified in said final accounting adjustment.

f. Delinquency in Payments: Pursuant to Section 5(g) or 5(f), as applicable, of the Water Service Contract the total amount of water charges of Water User is divided into eight equal installments, which are due and payable on the tenth day of each of the months of February through September. If there is a delinquency in payments for water service for any turnout, the District shall impose penalties for such delinquency as follows:

(1) If the payment for any turnout which Water User is required to make to District is not received by the District by 5:00 PM 30 days after the date it becomes due and payable, said payment is delinquent within the meaning of Section 5(j) or 5(i), as applicable, of the Water Service Contract, and delivery of water to said Water User will be discontinued. No further water deliveries will be made to said Water User until all delinquencies, plus penalties and interest if applicable, are paid, except as provided at subparagraph (3) hereof.

(2) Any payment remaining unpaid for a period of 30 days after the date it becomes due and payable (the 10th of the month) is delinquent as provided in Section 5(j) or 5(i), as applicable, of said Contract, and a penalty of 10% of the payment will be charged plus interest at 12% per year until all payments are brought up-to-date. On the 10th of the month the District will deposit the remaining allocation of water from delinquent accounts in the current monthly pool and apply the credits therefrom to the Water Users account. Said credits will be applied before the assessment of penalty or interest on the delinquent account. In the event Water Users subsequently cures the delinquency, District will give Water User first priority upon any water in the pool remaining unsold, or water from other sources, which may be available to the District, up to that quantity of water originally placed in the pool from the delinquent account. Should a Water User be delinquent on October 10, the District will commence proceedings to collect the charges as provided in Sections 47181 to 47185, inclusive, of the Water Code. Provided, however, the District may commence such proceedings at an earlier date if the Board determines it is in the best interest of the District to do so. This may lead to a sale of the property affected by the Water Service Contract, or any other remedies available to the District, and to continued refusal of water service, all as provided in the Water User's Water Service Contract and these Rules and Regulations. Nothing herein contained shall be construed to limit in any manner of enforcing any remedy, either at law or in

equity, for any breech by Water User in failing to timely pay any assessments, tolls or charges.

(3) If the District is in possession of a Certificate of Sale (executed by the County Treasurer pursuant to Water Code §46761) for delinquent charges for Contract Water Service, and Water User demonstrates that he has no available means to satisfy the charges which are covered by the Certificate of Sale, water service may be provided to Water User so long as the Water User is otherwise entitled to Contract Water Service, and the Water User (and his tenant in the event Water User leases his land) enter into a form of agreement approved by the Board. Said agreement shall include the following provisions: (a) The Water User acknowledges the existence and priority of the Certificate of Sale; (b) The term of the agreement shall only be for one year and there shall be no automatic right of renewal; and (c) The Water User (and/or the tenant if the tenant as Operating Agent is paying water bills) must pay in advance contract water charges as determined by the District during the term of the agreement. Said agreement may also, at the discretion of the Board, provide for repayment of prior delinquent charges, which are the subject of the Certificate of Sale. Service to such lands subject to a Certificate of Sale shall only be provided in accordance with terms and conditions of such agreement.

6. PAYMENT OF SPECIAL SERVICE CHARGES

Special Service Charges, as provided by law and as set forth in the Water Service Contracts will be collected periodically as provided by law. Such charges may include the Administrative and General Service Charges, Project Service Charge and Deferred Service Charge, all as set forth in the contracts, and such other tolls and charges as may be provided for under Water Storage District Law.

7. PROCEDURE FOR FIXING TOLLS AND CHARGES NOT ESTABLISHED BY CONTRACT

In accordance with Section 43003 of the Water Code, the following procedures are established for fixing Tolls and Charges authorized by Sections 43006 and 47180 other than those established by the Water Service Contract. Before fixing any such Toll and Charges, the Board shall pass a resolution declaring its intent to do so and in the resolution fix a time not less than two weeks from the date of the resolution as the time when the Board will meet to consider the matter of fixing such Tolls and Charges. A copy of the Resolution of Intention shall be published in a newspaper of general circulation in Kern County once a week for at least two weeks before the time appointed by the Board for the open meeting. At the time appointed for the open meeting, the Board shall consider the matter of fixing the Tolls and Charges, hear any objections thereto and may adjourn the matter from time to time.

8. WATER SHORTAGES

Pursuant to powers granted by Section 43003 et seq., of the California Water Code, the Board has established the following policy to provide for the sharing of the burden of any shortages in the quantity of water available for distribution to Water Users and the cost thereof during any year.

a. **Allocation of Water**: The water supplies available to the District will be allocated to the District's Agricultural Contract Water Users as follows:

i. If the District's available water supply in any year is less than the total of Contract Amount of Water for all Water Users, but more than two acre-feet per acre when averaged for all lands in the Surface Water Service Area, the available supply will be apportioned to all Water Users in the proportion that each Water User's Contract Amount of Water for that year bears to the total of Contract Amount of Water for all Water Users.

ii. If the District's available supply in any year, averaged for all lands in the Surface Water Service Area, is less than two acre-feet per acre, the available supply will be apportioned among all Surface Water Service Area lands on an equal acre-feet per acre basis provided that Water User shall not be apportioned more water under this paragraph (ii) than Water User would receive under paragraph (i) above. Notwithstanding the above, in the event of a severe long-term water shortage, the Board reserves the right to make such other allocations as it deems appropriate, taking into consideration the type of crop, critical water needs, and the economic effect of losses which may occur as a result of such allocations and may provide for adjustments of charges as a result of such allocations.

b. **Supplemental Water:** The District during years of short supply may obtain water supplies in addition to that available under the Agency Contract, including District wells, Banking Programs and water purchases. Such water supplies shall be allocated first to provide the full Contract Amount of Water provided for in the contracts for Agricultural Water Service under terms as the Board then determines appropriate and the costs thereof borne by the beneficiaries of such supplies, Provided, however, in any year the Board may determine and limit the amount of water made available for Supplemental Water from District wells and banking programs. The method of allocation of Supplemental Water shall be as set forth in the contracts for Agricultural Water Service and recited in paragraph 8(a) above.

c. **Industrial Water**: Apportionment of water under an Industrial Water Service Contract shall be governed by the terms of that Contract.

d. **Conveyance of Groundwater (or User Input Program):** In any year the District declares a water shortage exists, District facilities may be used to convey ground water for use upon land within the District for agricultural purposes so long as the lands to be served are within the common ownership or Farming Operation of the land from which the water is pumped, provided the affected parties enter into an Agreement in a form provided by the District which shall include but not be limited to the following provisions:

i. Nothing therein contained shall be interpreted as a waiver, relinquishment, and/or abandonment of the District’s title to water stored in the underground as a result of the District’s project.

ii. The District shall not involve itself with any disputes regarding the right of a landowner/Water User or others, nor any disputes regarding continuation of such service, nor any dispute regarding payment for such a ground water conveyed, and any landowner/Water User desiring to utilize the District’s facilities for such purposes shall hold the District harmless from any such claims.

iii. Wheeling from one system to another generally is only possible if the water being delivered to the District system is of sufficient quality to discharge into the California Aqueduct as determined by the State. Only to the extent the District is taking delivery of surface water, may ground water be delivered to the District and "banked" for later uses with the District at times when the District would be taking delivery of surface water. Such restriction must be applied on a system by system basis unless water quality of the ground water is sufficient to discharge it into the California Aqueduct.

iv. The wheeling charge shall be sufficient to recover all costs to the District associated with the Storage, conveyance and delivery of ground water. The wheeling charge shall be estimated based on available information on costs and estimated quantities of ground water production. The estimated wheeling charge shall be paid by Water User within 30 days of notice. When the final costs are determined by the District, any overpayment will be credited to the Water User, and any additional charge will be paid by Water User within 30 days of notice. The cost of power and energy for pumping shall not be included in the wheeling charge and shall be charged separately based on the unit rate for transferring water between pump zones.

v. Water User shall indemnify and hold the District harmless from any damages resulting from loss of pumped ground water due to causes beyond the control of the District.

vi. The cost of providing connections to District systems, including any protective devices required by District as a condition of such connection, shall be paid from funds deposited by Water User for this purpose in advance of construction.

9. DISPOSAL OF WATER

As provided in Section 5(k) of the Contract, the District will make reasonable efforts to dispose of any water made available to but not required by Water User, and to the extent of Water User's obligation, any net revenue from such disposal shall be credited to Water User. In disposing of any such water, District will make reasonable effort to obtain the maximum amount of credit for Water User. If in the event such water is made available to the District by Water Users in accordance with Section 5(k) of the contract, over a period of time covering two or more calendar months, then such water will be accumulated into monthly pools which may be established by the District, and all the water from the first such pool will be sold and credits applied to its contributors before any sales are made from the second pool, and all water from the second pool will be sold before any sales are made from the third pool, etc., thus following a "first-in-first-out" policy in increments of monthly pools. **Provided however**, if any water in the second or subsequent monthly pools is sold at rates higher than any individual rate for water sold from the first pool, then the pool sales shall be adjusted so that the highest rates for water sold are credited to the first pool and successively lower rates are applied to the second and subsequent pools.

10. CONTROL, USE AND RECAPTURE OF WATER

a. District will not be responsible for the control, carriage, handling, use, disposal or distribution of water delivered to Water User hereunder outside the facilities then being operated and maintained by District. Water User shall indemnify and shall assume the defense of and hold harmless the District and its directors, officers, agents and employees for any and all loss, damage, liability, claims or causes of action of every nature whatsoever for damage to or

destruction of property, including the District's property, for injury to or death of persons, in any manner arising out of or incidental to the control, carriage, handling, use, disposal or distribution of water outside such facilities.

b. Pursuant to the provisions of Section 3 of the Contract dealing with conditions of delivery, place of use of project water, and Water User's liability and indemnification, water delivery may be discontinued by the District for any Water User who permits water delivered by District to escape beyond the boundary of the lands described in said contract whether willfully, carelessly, or on account of defective or inadequate ditches or pipelines, or inadequate tailwater facilities, or inadequately prepared land or improper management, and said water delivery will not be resumed until such conditions are corrected. For the purposes of administration of this section, for lands included in a Farming Unit Operation as described in Section 4(m) of these Rules and Regulations, the contract lands shall be deemed to include all lands within said Farming Unit Operation; provided, however, that nothing herein contained shall limit or detract from the obligations assumed by Water User.

c. Without obligating District to assume any responsibility therefor, District shall have the right to the use of all waste, seepage, and return flow resulting from water supplied by the District, including but not limited to Project Water, which escapes or is discharged beyond Water User's recovery facilities, if any, and nothing herein contained shall be construed as an abandonment or relinquishment of District of the right to recapture and the use of any such water; **Provided however**, that nothing herein contained shall limit or detract from the obligations assumed by Water User.

11. CARRYOVER

Carryover is the ability to use undelivered State Water Project entitlement in the year following its allocation as part of the Contract Amount of Water. Water Users are permitted to carry over undelivered State Water Project Entitlement allocated to them as part of their Contract Amount of Water and not pooled as of December 31 of the year of allocation. Water from the District's supplemental water programs and previous year carryover supplies may be carried over by Water Users. Water derived from the User Input Program may not be carried over by Water Users. In administering this rule, the first water delivered during the year will be counted as SWP entitlement up to the quantity of entitlement allocated to Water User. Other water supplies including supplemental water and pool purchases will be the last water supplies delivered to Water Users. Payment for Carryover shall be at rates or rates established by the Board, to recover the costs associated with delivery of carryover water. Carryover water is subject to loss without notice, and the District shall not be responsible for losses or damages from the loss of Carryover water.

12. SECOND PRIORITY USE OF KERN WATER BANK

It is the policy of the District to manage the Kern Water Bank (KWB) for the benefit of all Water Users on a first priority basis. To the extent the District is not using KWB recharge or recovery capacity for said benefit, the District's rights and access to the KWB may be used by Water Users, on a second priority basis, to recharge and recover supplies for use upon land within the District for agricultural purposes, provided that Water User(s) enter into an agreement in a form provided by the District which shall include but not be limited to the following provisions:

a. Water User priority to use of the KWB is secondary to the District. Use of the KWB by Water User may be superseded by the District at anytime.

b. Water User may request to recharge and recover supplies, at District's discretion, within the KWB for in-District use only. District's consideration of requests shall take into account what is feasible and practical. Such requests shall be in writing in a form acceptable to the District. Recovery of supplies in excess of Water User's Second Priority Bank Account balance are not allowed.

Water User shall submit request for recharge/recovery to District, which has the discretion to refuse such request provided such request shall not be unreasonably refused. In certain circumstances, the District may deny requests due to reasons beyond the District's control, including but not limited to reasons of maintenance of the KWB, or due to scale, e.g. the Water User order is too small for recharge/recovery, or there is not enough time to perform the request. In some cases, it may possible or desirable to accomplish said request by exchange rather than direct recharge or recovery.

c. Water User may recharge specific water types as established by the Board. User Input supplies may not be banked. The Board shall from time to time establish which water types and quantities are eligible for second priority recharge to mitigate local groundwater impacts or for other purposes. It is the District's intent to manage second priority use to avoid increasing local groundwater overdraft consistent with the District Project purposes and the Sustainable Groundwater Management Act.

d. District shall record all second priority use by Water User, maintain an accounting thereof, make adjustments thereto for losses due to conveyance, recharge, recovery, mitigation, overdraft correction, and such other losses as may occur, and provide an accounting to Water User from time to time. Such accounting shall identify the quantity of water available to Water User for second priority recovery (the Second PriorityBank Account).

e. Water User may transfer all or part of its Second Priority Bank Account to other Water Users; provided such transfer shall not be made until Water User provides written notice thereof to the District on a form provided therefor, and further provided the District shall not involve itself with any disputes regarding the right of a landowner/Water User or others, nor any disputes regarding continuation of such service, nor any disputeregarding payment of accounts conveyed, and any landowner/Water User desiring to utilize the District's facilities for such purposes shall defend, indemnify and hold the District harmless from any such claim. Transferred Accounts must still be delivered in-District.

f. Water User payment for second priority use of the Kern Water Bank shall include anyand all conveyance, mitigation, delivery, recharge and/or recovery costs, plus any additional fees as established by the Board. Payment of all fees and charges due under the agreement, including delinquencies under the agreement, would be on the same terms and conditions, as the Water User Water Service Contract. The Board may establish a procedure for forfeiture of the Second Priority Bank Account to cure delinquency in payments not timely made and due under the agreement.

g. Water User is subject to all the same restrictions and obligations to which the District is subject in the KWB Joint Powers Agreement, KWB Memorandum Of Understanding, and the policies of the Kern Water Bank Authority, including but not limited to water banking losses.

h. Water User Second Priority Bank Accounts may be limited as established by the Board. Such Accounts are subject to partial or complete loss in favor of the District due to Kern Water Bank Authority policy, or because of the District's loss of recharge capability due to Water User(s) second priority recharge. Water User loss of Second Priority Bank Accounts to the District may receive some compensation at rates established by the Board, which rates may be less than Water User's costs. The District shall

periodically notify Water Users of the quantities of water stored in the KWB so Water Users can periodically assess their risk of loss of said Accounts.

i. Second priority use of recharge and recovery capacity of the Kern Water Bank by Water Users shall be allocated in proportion to Water Users' Contract Amounts of Water.

j. The initial term of the agreement shall be until December 31, 2020, with 5-year renewals thereafter. The District reserves the right to modify the agreement during the renewal period. If a Water User finds the modified contract unacceptable, the Water User has a five-year period to either recover their Second Priority Bank Account or transfer said Account to another Water User. Until such time as that Account has been recovered or transferred, the Water User would be subject to the terms of the current agreement. If the Account has not been transferred or recovered, the Account will forfeit to the District.

13. PRESERVATION OF PUMPING RIGHTS

In order that no Water User be prejudiced by utilizing Project Water in lieu of exercising whatever rights he may have to pump ground water and in recognition of the anticipated benefit to the District's underground water supply arising from the implementation of the District's project, the Board of Directors has adopted the following policies:

a. All Water User's contracts with the District for water service shall include a Section 3(m), which is quoted following:

"In the interest of preserving to Water User his rights to pump ground water for use on his lands which will be served with water under this contract, it is agreed that, during all the years that District delivers water to Water User, to the extent that Water User shall reduce his pumping of ground water and shall make use of water so delivered to him by District, Water User's said use of water so delivered to him by the District shall be deemed the same as if he had pumped from the underground a quantity of water equal to the quantity of water so delivered to him by District. Water User also agrees to recognize and be bound by the pumping rights similarly preserved to other Water Users in the District pursuant to water service contracts heretofore and hereafter executed. It is further agreed that, in the event District were to carry out a program for spreading of water and percolation thereof to underground storage, District shall have the right to use of the underground storage for spreading and recovery of water in connection with supplying water service to Water User and to all other Water Users, and it is further agreed that, to the extent that District may pump water from underground supplies for furnishing to Water Users, District shall be deemed to be exercising said Water User's rights to pump water from underground water supplies; ***Provided however****, that nothing herein contained shall prevent or hinder Water User from exercising his rights to pump ground water."*

b. During the lifetime of District's adopted project, District will maintain records of ground water level and quality, and, in accordance with Water Storage District Law, if future conditions should indicate the need therefor, will levy a service charge on lands irrigated from ground water and/or seek to have an Assessment Commission appointed to readjust the Original Project Assessment to reflect project benefits to lands within District irrigated from ground water; and such action will be taken in a timely manner in order to maintain financial equity between the Water Users and ground water users in District.

In effecting this policy it is declared that without obligating District to assume any responsibility therefor and without limiting or detracting from the obligations assumed by Water Users in this regard, District shall have the right to the use of all waste, seepage and return flow resulting from Project Water which escapes, percolates or is discharged beyond Water User's recovery facilities, if any, and nothing herein contained shall be construed as an abandonment or relinquishment by District of the right to the recapture, use and benefit of all such water, and any use made of any resultant benefit to ground water conditions arising from project water is made with the consent of the District, which consent is revocable at any time, and such use is not to be considered a use adverse to District's rights nor shall any such use under any circumstances create an estoppel in asserting such rights at any time.

Further in effecting this policy, it is declared that, during all the years that District delivers water to a Water User, to the extent that such Water User shall have reduced his pumping of ground water and shall make use of water so delivered to him by District, any use made of the resultant benefit to ground water conditions is made with the consent of said Water User, which consent is revocable at any time, and such use is not to be considered a use adverse to his right to the continued exercise of his rights to pump and utilize ground water nor shall any use under any circumstances create an estoppel in asserting any such right at any time.

14. PROTECTION OF DISTRICT FACILITIES

Without limiting rights otherwise reserved and except for drains and waterways built by the District expressly for the conveyance of drainage water, no persons will be allowed to drain irrigation water upon District-owned property, and any person doing so will be subject to fine and damages, will be in violation of these Rules and Regulations and water service may be terminated.

It is the duty of Water User to furnish reasonable protection for the individual Farm Turnout to prevent damage to said turnout. In the event that damage occurs to Farm Turnout as a result of failure by Water User to provide such protection, the repair of such damage will be made by the District, the expense of such repair will be charged to Water User and no water will be furnished through the affected turnout until such repairs are made and the charges therefor paid to the District.

15. SUBSIDENCE

It is known that portions of the District to be served with project water consist of soil which, with continued application of water, may consolidate to a considerable degree. It is also reasonable to assume that this phenomenon may result in damage to District's facilities. This factor is recognized in the District's Project Report, which contains estimates of an amount of money necessary to pay the added cost of construction required to minimize danger and an estimate of the cost of increased maintenance on facilities in said subsidence areas. Such factors were again considered during final design of project facilities and in connection with the District's right of way program. It is also recognized that the use of water in such areas for normal agricultural purposes may nevertheless result in unforeseen damage to District's facilities arising from this natural phenomenon. It has been suggested that paragraph 3(e) of the Water Service Contract and various portions of these Rules, particularly Rule 13, can be interpreted as rendering a Water User liable for any and all damage occurring to District's facilities by reason of the ordinary use of his lands for agricultural purposes. It is to be noted that nothing contemplated in the Water Service Contracts or these Rules and Regulations is intended to make any Water User strictly liable for damage to District's facilities attributable to subsidence; that the philosophy of the Project Report is such that the Water Users will pay the estimated cost of minimizing such damage and the

increased maintenance attributable thereto as a District expense, and that the consideration paid, or to be paid, to Water Users for the acquisition of District's rights-of-way has not included an element of damage for assumption of any liability arising from such risk.

In this regard, and notwithstanding anything contained in the Water Service Contract and/or these Rules and Regulations, District will repair, at District's own expense, damage to District facilities due to subsidence occasioned by the normal, ordinary and reasonable use of land of Water User related to application of Contract Water, provided that Water User's uses incorporate every reasonable precaution to prevent, eliminate or minimize such damage; **Provided however**, nothing herein contained shall modify in any manner the provisions of Paragraph 3(h) of the Water Service Contract or in any manner render District liable for any damage to a Water User occasioned by disruption of Water Service.

16. ENCROACHMENT ON DISTRICT PROPERTY

Without limiting rights otherwise reserved, consent for encroachment will be required from the District before any drains, fences, pipelines or other encroachments from private sources will be permitted to be used upon the District's property. Consent forms will be furnished by the District to the applicant and must first be approved by the Engineer-Manager or his designee before any construction begins. Where District rights in any property are an easement, no encroachments will be permitted which will in any manner interfere with the rights under said easement, and the District's consent must first be obtained before any pipelines or other encroachments are constructed in any easement area. The work shall be constructed to specifications approved by the District at the sole expense of the permittee and maintained to the satisfaction of the District. If such consent is granted, then the permittee shall be solely responsible for and shall indemnify and shall assume the defense of and hold harmless the District and its directors, officers, agents and employees from any and all loss, damage, liability, claims or cause of action of every nature whatsoever, for damage to or destruction of property, including the District's property, or for injury to or death of persons, in any manner, arising out of permittee's exercise of the rights and privileges given in the granting of such consent. Issuance of consent does in no way grant a permanent right, and if the District determines at a future date that said works do in fact interfere with its operations, said works shall be removed and the District's property restored to its original state at the sole expense of the permittee. Granting of such consent does in no way and in no extent surrender or subordinate the District's control or supervision over the encroachment. Any person or his authorized agent who uses the property of District for the movement of equipment shall be responsible to District for any damage to District property. No livestock will be allowed to enter upon or graze on District's fee property without the specific written approval of the District. Any persons using a District rights-of-way for any purpose assumes all risks associated therewith and assumes the responsibility for any damage to District property resulting therefrom and also for any damage to private property caused by such damage to District property.

17. MODIFICATION OF THE PROJECT FACILITIES

No changes shall be made in the constructed project facilities except by District personnel or its contractors and in accordance with the District's specifications. If a modification is made at the request of a Water User, and for his benefit, the cost thereof shall be paid in advance by the Water User requesting said modification. The advance payment shall be determined by the Engineer-Manager based upon an estimate of the costs including but not limited to reasonable charges for engineering performed by the District and overhead, and after completion of the work a final accounting shall be submitted to the Water User. Within thirty (30) days after submission of said final accounting, the Water User will pay the difference between the actual cost and the estimate thereof, or the District will make a refund if the

actual cost is less than the advance payment. Any additions to project facilities so constructed shall become the property of the District.

18. SALE OR TRANSFER OF TITLE TO LANDS

a. Without limiting the provisions of Paragraph 10 of the Water Service Contracts, when land affected by a Water Service Contract is sold or title otherwise transferred to another party, District will be under no obligation to deliver water to such lands until the Water Service Contract is assumed by the new landowner. Such assumption shall be on forms provided by the District, executed and completed timely in a manner satisfactory to the District. In the event of a transfer of ownership as to a portion of the lands described in an Exhibit "A" to a Water Service Contract and in the absence of written instructions from the affected landowner, the Assumption Agreement will be prepared so as to allocate the rights and obligations under said Water Service Contract on an acreage basis.

b. Notwithstanding any transfer or change of ownership, the District shall be entitled to administer a Water Service Contract in reliance upon and in accordance with matters in the files at the District office including but not limited to matters regarding title to land, address of Water User, authorizations, appointments, designations, credits and refunds and the like, until or unless District has received actual notice in writing that any or all of such matters are changed, modified or revoked.

19. MISCELLANEOUS PROVISIONS REGARDING ASSIGNMENTS AND TRANSFERS

a. The execution by the District of any assignment and/or the giving of its consent to transfer of the rights of a Water User under a Water Service Contract or to a disposal of water by the District pursuant to Rule 10 hereof, shall be without any warranty of title on the part of the District and shall not be interpreted as any representation, express or implied, by or on behalf of District, that such assignment, transfer or disposal is free and clear of outstanding encumbrances.

b. Without attempting to establish or in any manner affect the rights of any person arising from a deed of trust, any person or entity having any interest in a deed of trust on property subject to a Water Service Contract, may file with the District a written request for notice of failure to make the payments required by such Water Service Contract or a request for notice of any specific act that the District may be requested to undertake or to consent to under the Water Service Contract or these Rules and Regulations that such person alleges will detrimentally affect its interest, including but not limited to (1) a request for exclusion from the Surface Water Service Area; (2) a request for written permission to utilize water on lands other than those described in Exhibit "A" to a Water Service Contract for a period in excess of a year; or (3) a request for assignment of rights under Water Service Contract for a period in excess of a year. Upon receipt of such notice, District shall give such person written notice of default or of any request that it take such action as is set forth in the request for notice, at least fifteen (15) days prior to foreclosure proceedings or prior to such other specified act by the District, unless such person has given written consent to the requested action. In addition to setting forth the matters as to which notice by the District is requested, the request for such notice shall set forth a legal description of the land affected; the name of the current owner of the fee; the name and address where the requested notice is to be sent and a copy of the deed of trust showing the recording information. Any notice from the District shall be effective when deposited in the mail, postage prepaid, directed to the address shown in the notice. **Provided however**, District may disregard

any request for notice which has not been re-filed within fifteen (15) days of a written demand therefor by the District mailed in the same manner and with the same effect as herein above provided for the notice by the District; **Provided further, however**, nothing herein provided shall render District liable to any person under any circumstances.

20. REAPPORTIONMENT OF ASSESSMENTS

The provisions hereof are supplementary to the provisions of Article 8 (commencing with Section 46325) of Chapter 2 or Part 9 of the Water Code.

When any tract of land upon which an assessment has been levied, has been subdivided into smaller parcels of land, the Board may, in the absence of any application being filed therefor, prior to a call on said assessment or prior to closing of the County Assessment Rolls if the alternative procedure for collecting District assessments is utilized, order that such assessments be reapportioned in the same manner as utilized in establishing the assessments on the entire tract being reapportioned without notice and hearing unless a person interested shall have filed with the Board a request for notice of hearing of reapportionment of assessments to be made pursuant to Section 46325.

Applications for reapportionment of assessments on tracts of land in the District shall be in such form as is approved by the Board; landowners' signatures shall be acknowledged in the same form as a conveyance of real property and the application shall be accompanied by certified copies of recorded deeds showing the current ownership of the entire tract to be reapportioned. If the application be signed by less than all the landowners within the subdivided tract, a hearing will be held and notice of hearing shall be by mail directed to landowners affected at the address shown on District records and only to such other persons as are interested who have filed with the Board a request for notice of reapportionment, mailed at least ten (10) days prior to the day of hearing. District may require a report as to status of title of said reapportionment tract and may require a payment of such fees and costs by the applicant as the Board may establish.

21. MUNICIPAL AND INDUSTRIAL WATER

a. These Rules and Regulations are applicable to water served for agricultural, industrial, and municipal and industrial uses. Water will be furnished for industrial use, or municipal and industrial use, only with the written permission of the District and subject to specific terms and conditions to be imposed for the particular service involved or pursuant to contracts for Industrial Water Service. Water is in a raw, untreated condition and is considered to be unfit for human consumption without treatment. Insofar as is practicable the basic rules and regulations governing the delivery of agricultural water shall apply to delivery of water for industrial use and municipal and industrial use.

b. **Conditions Under Which Water May be used for Municipal and Industrial Use:** Paragraph 3(a) of the District's Water Service Contracts with individual landowners provides in part "Water furnished under this Contract shall be used by Water User for Agricultural Use only, Provided, However, that, with the written permission of District, Water User may use said water for Municipal and Industrial Use (M&I) subject to terms and Conditions imposed by District." The terms and conditions that the District will consent to such a conversion, which would be implemented through a Contract Amendment including the affected landowner and water purveyor as parties, ("Implementation Contract"), would incorporate the following principles into such contact amendment:

(1) Water Treatment Entity. There must be a responsible water purveyor that would be fully responsible for treatment of wholesale supplies provided by the District and distribution of those supplies. The purveyor would have to have demonstrated the technical and financial ability to perform those functions. The purveyor would most likely be another district, a County service area, or a regulated public utility.

(2) Return Flows to Groundwater. The M&I development must be designed and implemented in such a manner so as to not unduly reduce effective return flows to the groundwater basin, as compared to continued use for irrigation under then current conditions.

(3) M&I Development / Ag Land Use Conflicts. The M&I development must be designed and implemented in such a manner so as to not adversely impact adjacent agricultural operations, as provided for on a case by case basis.

(4) Safe Drinking Water Act. It must be confirmed that as a result of the conversion and the activities of the water purveyor, the District will not become subject to additional regulatory constraints, such as the Safe Drinking Water Act, which would adversely affect other landowners and the District's costs.

(5) Isolation of Delivery Systems. The delivery system from the California Aqueduct to the water purveyor would be isolated from District facilities, unless other arrangements are made.

(6) Additional Institutional Costs. Any added costs, such as any additional charges from Department of water Resources and/or the Kern County Water Agency (KCWA), or any increase in KCWA zones of benefit assessments, will have to be paid by the converting landowner and/or water purveyor.

(7) Additional O&M Costs. Arrangements must be made to avoid any facility conflicts, such that the M&I development does not make it more difficult or expensive for the District to access, maintain and repair and replace its facilities.

(8) Other Cost Impacts. To the extent the Implementation Contract may adversely affect costs or unit water rates to other Water Users, such adverse impact must be mitigated to the extent deemed appropriate by the Board.

(9) Security for Water Charges. The District's security for payment of contract water charges and any non-contract assessments and charges must be maintained, particularly upon subdivision of lands. Among other things, if the water purveyor defaults in payment of charges or assessment (for instance if the development is a failure), that notwithstanding the land may have been subdivided, that the District's security is not compromised as compared to what would be the case if the land was still in agriculture. This may take the form of an equivalent recorded contract and/or lien by the water purveyor (if it is a public agency) with similar lien rights and providing for the district being a third party beneficiary, or a security enhancement arrangement, such as a letter of credit.

(10) No Increase in Demands. The Implementation Contact will include provisions, as necessary on a case by case basis, to ensure that, as a result of the conversion to M&I use, demands for water in the District and areas immediately adjoining the District, whether from surface water or groundwater, do not increase as a result of the conversion.

(11) No Domestic Priority for Water Allocations. The Implementation Contract will include language that, notwithstanding Water Code Section 106 and any other provisions of law, the Water User and water purveyor, and their successors and customers, waive and will not assert any priority to water provided for M&I use, including domestic use, and that the allocation of water supplies under the Contract Amendment in any given year will not exceed that which would have been allocated if the water was used exclusively for Agricultural Uses.

(12) Notice to Water Purveyor Customers. A mechanism will be included in the Implementation Contract to ensure that future customers of the water purveyor are provided notice of those provisions of the Implementation Contract that the District deems appropriate on a case-by-case basis.

22. SECTION 592 OF THE PENAL CODE OF THE STATE OF CALIFORNIA

Attention is directed to the provisions of Section 592 of California Penal Code as follows:
" (a) Every person who shall, without authority of the owner or managing agent, and with intent to defraud, take water from any canal, ditch, flume or reservoir used for the purpose of holding or conveying water for manufacturing, agricultural, mining, irrigating or generation of power, or domestic uses, or who shall without like authority raise, lower or otherwise disturb any gate or other apparatus thereof, used for the control of measurement of water, or who shall empty or place or cause to be emptied or placed, into any such canal, ditch, flume or reservoir, any rubbish, filth or obstruction to the free flow of the water, is guilty of a misdemeanor.

(b) If the total retail value of all the water taken is more than nine hundred fifty dollars ($950), or of the defendant has previously been convicted of an offense under this section, or any former section that would be an offense under this section, or of an offense under the laws of another state, or of the United States that would have been an offense under this section if committed in this state, then the violation is punishable by imprisonment in a county jail for not more than one year, or in the state prison."

23. AUTHORITY OF CONTRACTS

This District entered into a contract with the Kern County Water Agency and contracts between the District and Water Users for water service. In case of an inconsistency between these Rules and Regulations and the Water Users Contract, the Agency Contract, the Master Contract, Industrial Water Service Contract and any amendments thereto, the Contracts shall govern.

24. ENFORCEMENT OF RULES AND REGULATIONS

The Engineer-Manager of the District is authorized to do all acts necessary and proper to enforce these Rules and Regulations. Failure of a Water User 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 to such Water User until full compliance has been made with all the requirements as herein set forth; Provided however, that Water User shall in no way be relieved of any responsibility for payment of any

charges or obligations by reason of such termination of water service. When it is practicable to do so, advance notice of any such termination of water service will be furnished to Water User. In no event shall any liability accrue against District or any of its directors, officers, agents or employees, for damage, direct or indirect, arising from such terminations of water service. Non-enforcement of any provision of these Rules and Regulations does not constitute a waiver of the District's right of enforcement at any time.

25. APPEAL OF DECISION OF ENGINEER-MANAGER

In the event a Water User disagrees with a decision made by the Engineer-Manager in carrying out the enforcement of these Rules and Regulations, he shall have the right of appeal to the Board of Directors. Appeals shall be submitted in writing no less than five (5) days prior to a regular meeting of the Board in order to be considered at that meeting, shall specifically set forth the decision being appealed and shall give the reasons for said appeal. Decisions of the Board of Directors shall be final and conclusive.

26. CHANGES IN RULES AND REGULATIONS

The Rules and Regulations shall become effective immediately and may be added to, amended or repealed at any time by resolution of the Board of Directors of the District.

27. SEVERABILITY OF PROVISIONS

If any provision of these Rules, or the application thereof to any person or circumstance, is held invalid, the remainder of these Rules, and the application of its provisions to other persons or circumstances, shall not be affected thereby.

APPENDIX E

Draft Groundwater Allocation Policy

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Eric McDaris

DATE: February 9, 2024

SUBJECT: Preliminary and Draft Groundwater Allocation Policy

The WRMGSA formed its Project and Management Action committee (P/MA committee) in 2023 to explore various project and management options available to the GSA, to include considering a groundwater allocation policy. Staff and the committee made it very clear that this policy was, and remains, in draft form and is not intended to be implemented in the near future. The GSA elected to begin developing a groundwater allocation policy for implementation in the event that the GSA needs to rapidly enact demand reduction actions. The process has been intentionally iterative, focusing on maximizing landowner engagement and feedback.

The P/MA committee met on October 12th, October 31st, and December 7th, 2023, as well as January 18th, 2024, to discuss a groundwater allocation policy. The first meetings were to review aspects of how other GSAs across the valley are addressing groundwater allocations and policies, and to determine if any concepts from those policies could be usefully applied in the WRMGSA. A draft groundwater allocation policy document, based largely on that of Westlands Water District/GSA, was circulated to landowners leading up to the December 7th meeting, with subsequent meetings focused on reviewing and modifying the policy to better suit the WRMGSA. Staff received written and in-person feedback from various stakeholders in attendance at the P/MA committee meetings, and those comments were integrated into the draft policy where appropriate.

Key points of the draft policy that were generally agreeable include all acres in the WRMGSA being eligible to receive a groundwater allocation; annually allocated groundwater credits can be pooled across farming units within the GSA; transfers are allowed to and from other users within the GSA; unused allocated groundwater will be carried over, and; landowners will be allowed to offset pumping of allocated groundwater by substituting credits generated from the recharge of eligible surface supplies, consistent with the District recharge policy.

Various sections within the policy are intentionally marked ‘In Progress’. Some of these items are ministerial in nature and can be further developed as implementation gets closer, e.g. year-end procedures, etc. Other sections are pending additional information from staff or consultants, such as the sustainable yield data, which is pending the results of the Todd Groundwater basin study, and the subsidence section, which is pending additional information from E.K.I.

Points of contention have centered around possible deferred impacts of pumping groundwater allocation, carryover, and stored surface water. Staff have included three options that the P/MA committee has discussed in the attachments. Following the February Board meeting, the P/MA committee has directed staff to circulate the draft policy to all WRMGSA landowners by mail, soliciting comments and

feedback. An additional P/MA committee meeting will be scheduled to review any comments received from landowners and to discuss any recommendations from the Board.

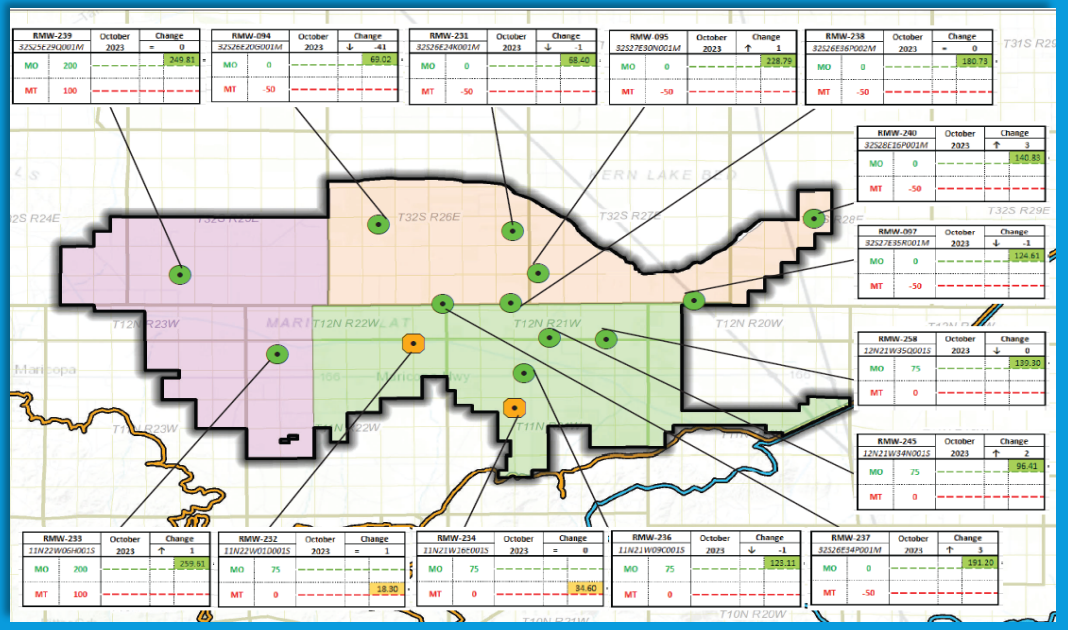
Recommendation. None. This memorandum is for discussion only.

Attachments: GW Allocation Slide
Groundwater Allocation Policy – *Draft*
Filename: 8.10.a Preliminary and Draft Groundwater Allocation Policy

LOCALIZED CONCERNS: IMPACTS OF DEFERRED RECOVERY/PUMPING

- Maximum Allowable Pumping Limit.
  - Annual pumping would be limited to 200% of a Water User's annually allocated groundwater volume.
  - *I.e.,* if a water user is allocated 50 AF in 2024, their Maximum Allowable Pumping would be 100 AF.
- Diminishing Carryover and Recharge Credits.
  - No Maximum Allowable Pumping limit, or other volumetric limit, applied. Water users can pump up to their available groundwater balance
  - Carryover and recharge would be subject to annual loss factor, reducing the available balance in those accounts over time.

- Maximum Allowable Pumping – by Zone.
  - Maximum Allowable Pumping would vary by zone, as opposed to a single volumetric limit applied uniformly across the GSA.
  - Based on analysis, zones would be characterized by the amount of pumping areas of the GSA could sustainably support.



I. PURPOSE

IN PROGRESS

These rules and regulations are established by the Board of Directors of the Wheeler Ridge – Maricopa Groundwater Sustainability Agency ("WRMGSA") in order to provide for the sustainable management of groundwater within the WRMGSA.

In any instance where the policy of the Wheeler Ridge – Maricopa Water Storage District ("WRMWSD" or "District"), or its Rules and Regulations For The Distribution Of Water, and the WRMGSA policy conflict as it pertains to a Groundwater Allocation, the WRMGSA policy shall supersede and control.

II. GLOSSARY OF TERMS AND DEFINITIONS

A. Groundwater Carryover – the amount of unused annual groundwater allocation that is carried forward and available for use in a future year.

B. Contract Year - each 12-month period that begins on January 1 and ends on the last day of December 31.

C. Delinquent Groundwater User - a Groundwater User who failed to pay any charges, assessments, land-based charges, or any other money owed to the WRMGSA by the due day.

D. De Minimis User –a Groundwater User who extracts, for domestic purposes, two acre-feet or less per year.

E. Groundwater Account - is a record or statement of the total amount of groundwater available to a Groundwater User pursuant to the Groundwater User's allocation and adjusted for all authorized transactions (including applicable Losses), inclusive of Recharge Credits, transfer credits, Groundwater Carryover, in-lieu delivery of surface water, and groundwater pumped by the Groundwater User.

F. Groundwater Allocation – the volume of groundwater allocated by the WRMGSA to a Groundwater User for the Contract Year. Groundwater

Allocations may also include, but are not limited to, Sustainable Yield, Transitional Water, and other water types allocated by the WRMGSA.

G. Groundwater User – a landowner or lessee of land who utilizes groundwater.

H. Losses – expressed as a percentage of the quantity of the water available or recharged, that is left stored within the Subbasin and not available to the Groundwater User for recovery.

I. Negative Balance – the circumstance when a Groundwater User pumps more groundwater than available from groundwater allocation(s), recharge, transfer, and carried over.

J. Recharge Credit – a credit available to the Groundwater User which is generated from the recharge of eligible Surface Water within WRMGSA.

K. Subsidence Prone Areas – areas that have experienced subsidence or have been identified by the WRMGSA as high risk for subsidence to occur.

L. Sustainable Yield – consistent with Water Code section 10721(w), the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result.

III. SUSTAINABLE YIELD OF THE KERN SUBBASIN/ WRMGSA

IN PROGRESS

Subject to the results of the ongoing Todd Groundwater Basin Study.

IV. GROUNDWATER ALLOCATION

A. *Table PMA-4* from the SOKR GSP [GSP pg. 291] outlines a draft demand reduction implementation schedule, or "Glide Path", which identifies annual reduction milestones. This Glide Path, along with the results of the pending Kern Subbasin native yield study, may be used to determine the annual groundwater allocations.

Table PMA-4. General Project and Management Actions Implementation Schedule ("Glide Path")

Wheeler Ridge-Maricopa Management Area

		P/MA Implementation Schedule				
Total WRMGSA Acres **91,430**		**By 2025**	**By 2030**	**By 2035**	**By 2040**	**By 2070**
Projected Deficit (1) (AFY)		21,400				33,300
Target Deficit Reduction (%)		15%	45%	75%	100%	100%
Target Deficit Reduction (AFY)		3,200	9,600	16,100	21,400	33,300
Target Deficit Reduction (AF/Ac)		0.0350	0.1050	0.1761	0.2341	0.3642
P/MA Benefits, by Type (AFY)						
Water Supply Augmentation	Wet Year Supplies	896	2,688	4,508	5,992	5,992
	Other New Supplies	1,024	3,072	5,452	6,848	12,798
Demand Reduction (AFY)		1,280	3,840	6,440	8,560	14,510
Demand Reduction (AF/Ac)		0.0140	0.0420	0.0704	0.0936	0.1587
Total P/MA Benefits		3,200	9,600	16,400	21,400	33,300

Abbreviations:
AFY= acre-feet per year
P/MA= Project and Management Actions
AF/Ac= acre-feet per acre

B. All lands withing the WRMGSA will receive an allocation of groundwater based on gross acres ("tax acres") as assessed by the Kern County Assessor. Allocations will be made annually in the Contract Year.

1. Groundwater allocations may be pooled across lands under common ownership, or lands which have entered into common agreement in a form provided by the WRMGSA.
2. A Groundwater User may extract any/or all of its Groundwater Allocation at any eligible extraction location, subject to those restrictions set forth in Section VI.
    a. If a Groundwater User pumps in excess of its Groundwater Allocation, the Groundwater User may be subject to fees, penalties or charges, as established by the WRMGSA.

C. The WRMGSA makes no representations as to the availability, quantity, condition, or quality of groundwater which may be available to the Groundwater User by issuance of an allocation. Further, no allocation made by the WRMGSA is a determination of water rights.

V. GROUNDWATER FLOW METER

A. It is the intent of the WRMGSA to utilize well flow meters to calculate total annual groundwater extraction. As the WRMGSA is in the process of developing meter standards, remote sensing will be utilized for calculating groundwater use in the interim.

1. Groundwater Users who wish to have their current well flow meter used in the calculation of total groundwater use in -lieu of remote sensing, may submit an application to the WRMGSA using the *Application To Use A Meter In Lieu Of Remote Sensing To Calculate Groundwater Service Charges* [Attachment 1].

VI. GROUNDWATER PUMPING LIMITATIONS

A. In October of the prior year, Groundwater Users will be notified of their total available Groundwater Account balance and the maximum allowable pumping for the upcoming Contract Year.

B. All pumping will be subject to applicable WRMGSA policies and Board direction. Pumping may be further restricted, beyond what is provided in this policy, as necessary so as to meet the sustainability goals of the GSP.

C. Any Groundwater User Account which has a negative balance will not be eligible to pump groundwater. Groundwater User may resume pumping when the Groundwater Account has a positive balance, and all fees, penalties, or charges, if any, have been paid current.

D. Consistent with Section VIII, the WRMGSA anticipates Groundwater Users will continue to implement projects to augment their Groundwater Account balances through recharge of eligible Surface Water for Recharge Credits. Therefore, it is foreseeable that some Groundwater Users will have higher quantities of groundwater available than what is allocated annually. All groundwater extraction will be limited to a maximum of 200% of the current Contract Year Groundwater Allocation, provided the Groundwater User has a sufficient Groundwater Account balance.

1. In calculating this volumetric extraction limitation, all ratably allocated Sustainable Yield, Carryover Credits, and Recharge Credits will be considered.
2. The maximum allowable pumping in any Contract Year will be twice the Groundwater Users annual Groundwater Allocation, calculated as shown below:

Calculating Maximum Allowable Pumping: Water User 'A'	
Existing Groundwater Account Balance: (including carryover, trasnfers, and recharge credits)	100 AF
Contract Year Groundwater Allocation:	68.8 AF
Total Groundwater Available: (Contract Year Groundwater + carryover, transfers, recharge credits)	**168.8 AF**
Maximum Allowable Pumping: (Contract Year Groundwater Allocation x 200%)	137.6 AF
Maximum Available Pumping:	137.6 AF

Calculating Maximum Allowable Pumping: Water User 'B'	
Existing Groundwater Account Balance: (including carryover, trasnfers, and recharge credits)	25 AF
Contract Year Groundwater Allocation:	68.8 AF
Total Groundwater Available: (Contract Year Groundwater + carryover, transfers, recharge credits)	**93.8 AF**
Maximum Allowable Pumping: (Contract Year Groundwater Allocation x 200%)	137.6 AF
Maximum Available Pumping:	93.8 AF

3. This maximum allowable pumping may be adjusted by the WRMGSA as necessary to mitigate Undesirable Results or other impacts of deferred recovery.

E. A Groundwater User **may not** pump future Groundwater Credits (i.e., a Groundwater User cannot 'borrow' against future Groundwater Allocations).

VII. USE, CARRYOVER, AND TRANSFER OF GROUNDWATER

A. A Groundwater User that receives a Groundwater Allocation may use it on any eligible land within the WRMGSA.

B. The priority of groundwater use (considered the first water pumped) shall be as follows:

1. Carryover credits.
2. Landowner developed recharge credits.
3. Current Contract Year Groundwater Allocation.

Groundwater Users may request alternative priority of use by written notice to WRMGSA staff, subject to approval of the WRMGSA Board of Directors and/or final approval of the Engineer-Manager.

C. Subject to the then available and ratably allocated Sustainable Yield, Groundwater Users may carryover unused Groundwater Allocation credits from one Contract Year to the next.

D. Carryover credits may be earned when the Contract Year quantity of Groundwater Allocation in the Groundwater User's account exceeds the amount of the actual volume pumped.

1. *GW Allocation – calculated/measured GW Extraction – remaining Transitional Pumping Credits (if any) = Groundwater Carryover*
2. The WRMGSA will make final determinations on the actual volumes pumped, as well as all available balances for carryover.

E. Except as limited herein, a Groundwater User may- pump groundwater for use on eligible land in each Contract Year, carryover for future use, and/or transfer any unused portion of the Groundwater Allocation.

1. Only the Groundwater User's ratably allocated portion of the Sustainable Yield, Carryover, and Recharge Credits are eligible for transfer.
2. If the total groundwater allocated to the Groundwater Account exceeds the amount pumped, then the unused Groundwater Allocation will remain on the Groundwater Account and be available to the Groundwater User in the

following year (Carryover). Carryover may be pumped or transferred in any subsequent Contract Year, subject to any WRMGSA restrictions.

3. If the total groundwater pumped exceeds the amount allocated, inclusive of Carryover, transfers, and Groundwater Credits, then the Groundwater Account will have a Negative Balance. A Groundwater User with a Negative Balance may not transfer any portion of its Allocation or future Allocation to a third party; provided that the Groundwater User with a Negative Balance may procure a Groundwater Allocation from a third party to balance its Groundwater Account and thereafter may continue to trade any portion of the groundwater in its Groundwater Account.
4. A Groundwater User may transfer any portion of their Groundwater Allocation, including Carryover, to another Groundwater User for use in the current and a subsequent Contract Year, provided that the transfer of an aquifer specific allocation is expressly limited to the transferee Groundwater User pumping groundwater from the same aquifer for which the Allocation was approved.

F. All requests to transfer a Groundwater Allocation, including Carryover and Groundwater Credits, must be submitted in writing and approved in advance by the Engineer- Manager. *Figure 1* details the general transfer approval process. Transfers shall generally be approved if the following conditions are satisfied:

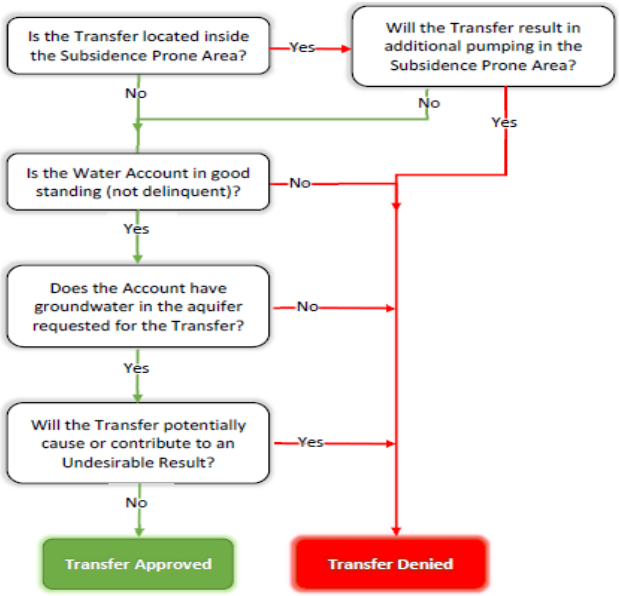
1. The Groundwater User making the groundwater available for transfer has sufficient groundwater supplies in its Groundwater Account;
2. The Groundwater User approved the transfer of groundwater from its Groundwater Account to another Groundwater User; and
3. The transfer of groundwater would not violate any other provisions of this policy.
4. The transfer of groundwater would not cause Undesirable Results.

G. The WRMGSA Board of Directors may prohibit or impose additional limitations on the transfer of a Groundwater Allocation, including Carryover, Recharge Credits, and Groundwater Credits, into the Subsidence Prone Areas.

H. The Engineer- Manager may impose reasonable conditions on a transfer if necessary to support the findings required under paragraph F above.

I. The Engineer- Manager may not re-assign during the Contract Year unused groundwater from a Groundwater Account to another Groundwater Account based on a change in ownership or lease of land, except where the transferor, upon the transfer of land through a change in ownership or lease, would no longer owns or leases any land in the WRMGSA, the transferor may request that the unused Groundwater Allocation be assigned to the successor in interest. In that circumstance, the unused Groundwater Allocation shall be assigned to the successor in interest upon the successor's completion of any and all necessary applications/documents with the WRMGSA and/or District to retain the groundwater available previously available to the transferor.

Figure 1 Groundwater Transfer Process



VIII. GROUNDWATER RECHARGE PROJECTS

A. The WRMGSA anticipates that Groundwater Users will continue to implement projects to augment groundwater through recharge of eligible Surface Water and will request that the WRMGSA provide landowner developed Groundwater Credits to support or offset the Groundwater User's future groundwater pumping.

1. All recharge projects will require WRMGSA approval.
    a. The WRMGSA will approve/deny proposed landowner recharge projects in its full discretion. Proposed projects may be denied for various reasons, including but not limited to:
        i. Groundwater quality considerations,
        ii. Geologic considerations,
        iii. Distribution system capacity limitations.
2. Interim landowner developed groundwater recharge projects will be subject to the District's *Policy for Landowner Groundwater Banking Projects* [Attachment 2], as approved by the Board of Directors January 11th, 2023, or its most recent version as amended and approved by the Board of Directors. In any case where the WRMWSD policy conflicts with that of the WRMGSA, the WRMGSA policy will supersede and control.

B. Groundwater Users who wish to develop recharge projects within the GSA will be responsible for obtaining all permits and approvals necessary for such recharge projects. This may include, but is not limited to, approvals/permits from the State Water Resources Control Board, Department of Water Resources, and Kern County Water Agency, etc.

C. All eligible Surface Water that is recharged will be subject to Losses as determined by the WRMGSA.

IX. SUBSIDENCE PRONE AREAS

IN PROGRESS

Subject to further study and development by WRMGSA staff and consultants.

X. USER INPUT

IN PROGRESS

XI. FEES, PENALTIES AND REMEDIES

A. Groundwater extraction within the WRMGSA may be subject to groundwater extraction fees established by the WRMGSA Board of Directors as authorized by Water Code Section 10732.

XII. DOMESTIC USERS

A. Domestic users that are De Minimis Users are exempt from the requirements of this policy. The WRMGSA, however, may reassess the De Minimis User requirements as necessary.

XIII. MUNICIPAL AND INDUSTRIAL USERS

A. All wells that serve Municipal and Industrial (M&I) users will be subject to Section V. If the M&I User pumps more than two acre-feet a year, then the M&I user will not be a De Minimis User and will be subject to all other applicable requirements of this policy.

XIV. YEAR END PROCEDURES

IN PROGRESS

XV. VARIANCE PROCEDURES

IN PROGRESS

XVI. APPEAL

IN PROGRESS

XVII. MISCELLANEOUS

A. The General Manager is authorized and directed to do any and all things necessary to implement and effectuate these rules and regulations.

B. The Board of Directors shall consider any changes or revisions to these rules and regulations at a public meeting.

C. The General Manager shall provide notice of any Board of Director's approved changes or revision to these rules and regulations to all District landowners and Groundwater Users.

D. These rules and regulations implement the GSP and are intended to avoid Undesirable Results within the WRMGSA. As such, the rules and regulations shall not be construed to authorize or direct action, of any kind, that would cause Undesirable Results.

APPENDIX F

Regional Climate Change Vulnerability Assessment

List No.[1]	Check List Item	Regional Conditions
I. Water Demand Assessment		
I.A	Are there major industries that require cooling/process water in your planning region?	Process water is required in packing plants and other locations for processing crops harvested from the field. However, requirements for cooling/process water are insignificant for the District.
I.B	Does water use vary by more than 50% seasonally in parts of your region?	Yes. The majority of water in the District is used for agricultural purposes, the demand for which fluctuates greatly in the summer compared to the winter.
I.C	Are crops grown in your region climate-sensitive? Would shifts in daily heat patterns, such as long heat lingers before night-time cooling, be prohibitive for some crops?	Yes. All crops grown in the District service area are climate-sensitive and several important crops could be prohibitively affected by shifts in daily heat patterns.
I.D	Do groundwater supplies in your region lack resiliency after drought years?	Groundwater is necessary to maintain a sufficient water supply for the District. The resiliency of the District's groundwater resource is directly related to the reliability of surface water supplies, primarily the availability of water from the SWP since groundwater is used to meet demands that are not fulfilled by surface water supplies. To this extent, "resiliency" has been reduced.
I.E	Are water use curtailment measures effective in your region?	The District may refuse to deliver water to irrigators as a consequence for wasting water, either willfully, carelessly, or on account of defective ditches or pipelines. The District may also refuse to deliver water to inadequately prepared land or to users who flood certain portions of their land to an unreasonable depth in order to properly irrigate other portions. Water service may be resumed when these conditions have been remedied.
I.F	Are some in-stream flow requirements in your region either currently insufficient to support aquatic life, or occasionally unmet?	No. All surface water flows are seasonal with the canals and drains dry most of the year. While there are no in-stream flow requirements within the District, SWP supplies which are available to the District may be

		affected by such requirements at the sources of these supplies.
II. Water Supply Assessment		
II.A	Does a portion of the water supply in your region come from snowmelt?	Yes. Both the SWP and the Kern River are fed by annual snowmelt from the Sierra Nevada.
II.B	Does part of your region rely on water diverted from the Delta, imported from the Colorado River, or imported from other climate-sensitive systems outside your region?	Yes. The District's primary source of imported surface water is the SWP, delivered through the Delta. As explained above, the SWP is vulnerable to climate change.
II.C	Does part of your region rely on coastal aquifers? Has salt intrusion been a problem in the past?	The District does not rely on coastal aquifers. While salt intrusion from coastal aquifers is not applicable, salt management is still an issue in the region with regard to increasing salinity in groundwater. Salt in imported water supplies such as the SWP is the major source of salt which circulates throughout the groundwater in Kern County.
II.D	Would your region have difficulty in storing carryover surpluses from year to year?	There is limited carryover available for the District's SWP water in San Luis Reservoir. Within the region, carryover of Kern River water in Isabella Reservoir is limited by the Reservoir's flood control purpose and US Army Corps of Engineer's regulations. However, there are opportunities to expand the Region's2 groundwater storage capabilities.
II.E	Has your region faced a drought in the past during which it failed to meet local water demands?	No. Water demands have been met through the use of groundwater which, during drought, can result in significant declines in groundwater levels. To the extent that surface water supplies are reduced in the future (as a result of climate change and/or regulatory constraints), recharge will be reduced, which will affect the availability of groundwater for meeting local water demands.
II.F	Does your region have invasive species management issues at your facilities, along conveyance structure, or in habitat areas?	Yes. The District in particular has very little invasive species to manage. Within the region, aquatic pests, including invasive plants have been fought on the Kern River for decades. Prevention and control of invasive species is an ongoing battle by many resource agencies such as the Kern River Preserve Audubon Society, and the Kern River Ranger District.
III. Water Quality Assessment		

III.A	Are increased wildfires a threat in your region? If so, does your region include reservoirs with fire-susceptible vegetation nearby which could pose a water quality concern from increased erosion?	Wildfires are not a threat within the District; however, parts of the Kern Region are prone to wildfires, which impact water quality when rain washes fire debris into waterways.
III.B	Does part of your region rely on surface water bodies with current or recurrent water quality issues related to eutrophication, such as low dissolved oxygen or algal blooms? Are there other water quality constituents potentially exacerbated by climate change?	Not within the District, however, yes within the region. The Kern River, a primary native surface supply to the region, is generally considered a high quality supply. However, Isabella Lake is listed on the 303(D) list for dissolved oxygen and pH. Climate change could exacerbate these water quality conditions from increased temperatures.
III.C	Are seasonal flows decreasing for some water-bodies in your region? If so, are the reduced low flows limiting the water-bodies' assimilative capacity?	Within the region, annual Kern River flows and flows in local ephemeral streams could be decreasing through time.
III.D	Are there beneficial uses designated for some water bodies in your region that cannot always be met due to water quality issues?	No. Water is intended for many beneficial uses including agricultural water supplies, groundwater recharge, water replenishment, recreation, wildlife habitat, rare and endangered species, and wetland ecosystems. Most of these are met within the District; however, outside of the District and within the region, there are two TMDLs for Lake Isabella with regard to DO and pH.
III.E	Does part of your region currently observe water quality shifts during rain events that impact treatment facility operation?	No.
IV. Sea Level Rise Assessment		
IV.A	Has coastal erosion already been observed in your region?	The District is located in the Southern San Joaquin Valley, and concerns regarding coastal regions are not applicable.
IV.B	Are there coastal structures, such as levees or breakwaters, in your region?	
IV.C	Is there significant coastal infrastructure, such as residences, recreation, water and wastewater treatment, tourism, and transportation at less	

	than six feet above mean sea level in your region?	
IV.D	Are there climate-sensitive low-lying coastal habitats in your region?	
IV.E	Are there areas in your region that currently flood during high tides or storm surges?	
IV.F	Do tidal gauges along the coastal parts of your region show an increase over the past several decades?	
V. Flooding Assessment		
V.A	Does critical infrastructure in your region lie within the 200-year floodplain?	Yes for the region. The FEMA Flood Insurance Rate Map for the Kern Region designates multiple areas as "High Risk" areas with a 1 percent or greater risk of flooding in any year and a 26 percent chance of flooding over the life of a 30-year mortgage. Some parts of the region lie within these areas. Flooding can result in the inundation of structures, as well as impact damage to structures, roads, bridges, culverts, and other features from high velocity flows and from debris carried by floodwaters.
V.B	Does part of your region lie within the Sacramento-San Joaquin Drainage District?	No.
V.C	Does aging critical flood protection infrastructure exist in your region?	No.
V.D	Have flood control facilities (such as impoundment structures) been insufficient in the past?	Yes for the region. The primary flood control facility to the region is Isabella Dam on the Kern River. Kern River had an unregulated flow until 1954 when the Isabella Dam and Reservoir were constructed by the Army Corps of Engineers. Due to seepage and earthquake concerns, storage restrictions have been in place on Isabella Reservoir since 2006 and will remain in place until dam safety concerns are adequately addressed.
V.E	Are wildfires a concern in parts of your region?	As noted in III.A (above), wildfires are not a concern in the District service area; however, wildfires are a concern in other parts of the Kern Region and the watersheds that provide the region with its surface water supplies.

VI. Ecosystem and Habitat Vulnerability Assessment		
VI.A	Does your region include inland or coastal aquatic habitats vulnerable to erosion and sedimentation issues?	Coastal aquatic habitats are not applicable to the District. However, aquatic pests, including invasive plants have been fought on the Kern River for decades.
VI.B	Does your region include estuarine habitats which rely on seasonal freshwater flow patterns?	No.
VI.C	Do climate-sensitive fauna or flora populations live in your region?	No.
VI.D	Do endangered or threatened species exist in your region? Are changes in species distribution already being observed in parts of your region?	Yes for the region. There are many threatened and endangered species in the Kern Region including the bald eagle, burrowing owl, California condor, California red-legged frog, least bell's vireo, and the San Joaquin kit fox. Whether or not changes in species distribution have occurred is unknown.
VI.E	Does the region rely on aquatic or water-dependent habitats for recreation or other economic activities?	Yes. Water-dependent recreation includes a wide variety of outdoor activities that can be divided into two (2) categories. The first category includes fishing, boating, swimming, and rafting, which occur on lakes, reservoirs, and rivers. The second category includes recreation that is enhanced by water features but does not require actual use of the water, such as wildlife viewing, picnicking, camping, and hiking.
VI.F	Are there rivers in your region with quantified environmental flow requirements or known water quality/quantity stressors to aquatic life?	No.
VI.G	Do estuaries, coastal dunes, wetlands, marshes, or exposed beaches exist in your region? If so, are coastal storms possible/frequent in your region?	No.
VI.H	Does your region include one or more of the habitats described in the Endangered Species Coalition's Top 10 habitats vulnerable to climate change?	No. The Central Valley of California, where the District is located, is not listed as one of the 'Top 10' habitats vulnerable to Climate Change according to the 'It's Getting Hot Out There: Top 10 Places to Save for Endangered Species in a Warming World' Report (Endangered Species Coalition, 2010).

VI.I	Are there areas of fragmented estuarine, aquatic, or wetland wildlife habitat within your region? Are there movement corridors for species to naturally migrate? Is there infrastructure projects planned that might preclude species movement?	Yes. There are many wildlife habitats in the Kern Region. However, there are no infrastructure projects planned in the District service area that are known to preclude species movement.
VII. Hydropower Reliance Assessment		
VII.A	Is hydropower a source of electricity in your region?	Yes for the region. Within the Kern Region is the Rio Bravo Hydro Project Hydro Power Plant which has a design capacity of 14 megawatts (MWe). However, most of the energy provided in the Kern Region comes from its 37 high-efficiency cogeneration facilities that produce two sources of energy in the form of steam and electricity.
VII.B	Are energy needs in your region expected to increase in the future? If so, are there future plans for hydropower generation facilities or conditions for hydropower generation in your region?	Yes. Energy needs to the District may increase in the future as a result of increasing population and increases in groundwater pumping lifts. However, the Kern Region has a variety of efforts planned to reduce energy use, and to develop local energy supply sources. These efforts include utilization of renewable resources, such as WWTP digester gas recovery, hydropower, and solar power.

Notes:

[1] Numbers based on checklist shown in Section 4.3 of the 'Climate Change Handbook for Regional Water Planning (DWR, 2011).

[2] Table is a modified IRWMP Climate Change Vulnerability Assessments Matrix

APPENDIX G

Demonstration of Reduced Reliance on the Delta

DEMONSTRATION OF REDUCED RELIANCE ON THE DELTA

The Delta Plan provides a regulatory process for activities that qualify as "covered actions." The Delta Reform Act established a self-certification process for demonstrating consistency of "covered actions" with the Delta Plan. State and local agencies proposing "covered actions," prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and must submit that certification to the Delta Stewardship Council (DSC).

As the Wheeler Ridge-Maricopa Water District (WRMWSD, District) is anticipating participating in various projects that would be considered "covered actions", including multi-year water transfers, conveyance facilities, or new diversions that involve transferring water through or exporting water from the Delta, it has elected to prepare a demonstration of its consistency with the Delta Plan and Delta Reform Act. The data and information provided herein is consistent with Section (c)(1) of Policy WR P1, Reduced Reliance on the Delta Through Improved Regional Water Self-Reliance.

The following information provides "self-certification" of the District's compliance with Delta Reform Act and each of the three criteria listed above from WR P1.

1.1 Completion of an Agricultural Water Management Plan

☑ ***23 CCR §5003 (c)(1)(A)***

Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8.

The District has prepared this 2025 Agricultural Water Management Plan (AWMP) update, in compliance with Water Code §10800 – 10853, which requires agricultural water suppliers to submit to the Department of Water Resources (DWR) an AWMP that addresses the elements listed in Water Code §10826. An agricultural water supplier is defined as a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding the acreage that receives recycled water. The AWMP has been approved by the District's Board of Directors and submitted to DWR as stated in Section 1.3.1 and 1.3.2.

1.2 Implementation of Locally Cost-Effective Projects

☑ ***23 CCR §5003 (c)(1)(B)***

Identified, evaluated and commenced implementation, consistent with the implementation schedule set forth in the management Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta.

This update to the District's AWMP demonstrates the District's implementation of cost-effective programs and actions to maximize its efficient use of all available water supplies. This program and projects are listed and described in Section 6 (Water Management Objectives) and in Section 9 (Efficient Water Management Practices Information).

As demonstrated in this AWMP, the District is proactive in improving the efficient operation of its own water delivery and conveyance facilities, it also supports numerous programs that assist local landowners in improving their own efficient water management practices. Since the District's formation in 1959 it has continually developed projects and programs to promote best water management. The District has

actively participated in groundwater banking and conjunctive use programs to improve the management of local and state-wide water supplies. Through the years the District has continued to make improvements to its conveyance and distribution facilities to increase the capacity of its conjunctive use program and interconnection with neighboring districts. The District has supported increased efficiencies in its distribution facilities and in landowner irrigation systems.

1.3 Reduction in Delta Reliance and Improved Regional Self Reliance

☑ ***23 CCR §5003 (c)(1)(C)***

Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code Section 1011(a)

The information presented in this AWMP demonstrates the District's progress toward reducing reliance on Delta supplies and improving regional self-reliance. This progress is illustrated using the metric of acreage of active cropped lands. Decreases in this metric over time indicate that a smaller proportion of Delta water is being used to support agricultural production.

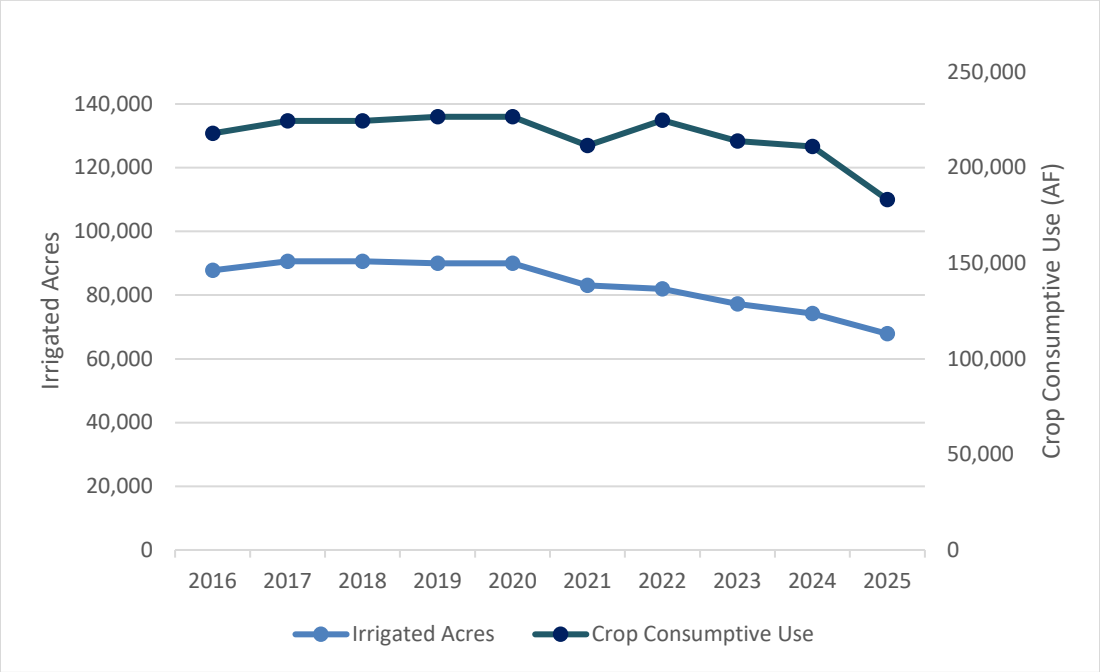
As shown in Tables 2-2A through 2-2C, the acreage of actively irrigated cropland declined between 2021 and 2025. Within this trend, the acreage of permanent crops has also decreased, reducing overall irrigation water demand. Additionally, as discussed in Section 2.1.3, land conversion and retirement have increased, resulting in more fallowed acreage and the conversion of some formerly irrigated lands to solar energy development. These land use changes indicate a reduction in water used as presented in **Table 1** and **Figure 1**.

Table 1. Agricultural Land and Water Use from Water Year 2016 to 2025

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Irrigated Acres	87,772	90,624	90,624	89,976	89,976	83,067	81,982	77,233	74,225	67,861
Crop Consumptive Use (AF)	217,908	224,519	224,519	226,642	226,642	211,627	224,844	213,934	211,112	183,287

Notes:
2016 to 2020 data from the 2020 AWMP
Reduction in Irrigated Acres from 2016 to 2025: 19,991 acres
Reduction in Crop Consumptive Use from 2016 to 2025: 34,621 AF

Figure 1 Agricultural Land and Water Use from Water Year 2016 to 2025



As documented in Section 4.1.1 (Surface Water Supply) and Section 5 (Water Budget), the District has increased and will continue to pursue water supplies from local and other non-SWP sources. These include Kern River supplies available during wet years and executing long-term water transfer agreements with entities located south of the Delta. However, even with expanded use of these alternative supplies, the District must continue to maximize deliveries of its State Water Project (SWP) contract water when available in order to opportunistically store surplus wet-year supplies through local groundwater banking programs.