Table 20. Enforcement Methods of Allocation Policies	
Enforcement Method	**Check if used**
Fines	
Water Shut-off	x
Other	
No specific policy	

Section III: Description of Quantity of Water Uses

Water year 2020 is chosen as the representative year for this plan (Table 21), because SWP allocation was 20% (which is close to long term expected SWP reliability). For planning purposes, data starts in January and ends December (to include a full year of historic data). This "water year" will be the basis to reference the water supplies and water uses that define the water budget in the sections that follow.

Table 21. Representative Year	
	Description
Representative year(s) based upon	2020
First month of representative year	Jan-20
Last month of representative year	Dec-20

A. Agriculture Water Use

BMWD provides only surface water (Table 22) for irrigation supplies of the many crops grown in the District as listed in Table 22. Because of the advent of SGMA, the District began collecting groundwater extraction data in 2020. Due to poor water quality, the quantity of groundwater extraction has been historically low, which is reflected in the very small amount in 2020. 2016-2019 shows "N/A" because quantity of groundwater extraction was not collected those years.

Table 22. Annual Agricultural Water Use (AF)					
Source	**2016**	**2017**	**2018**	**2019**	**2020**
Agricultural Water Supplier Delivered					
Surface Water	89,906	98,233	90,720	91,354	92,637
Groundwater	N/A	N/A	N/A	N/A	674
Subtotal	**89,906**	**98,233**	**90,720**	**91,354**	**93,311**

BMWD supplies irrigation water to many crops, as listed in Table 23. The primary products grown within the BMWD service area are from trees (mostly almonds, pistachios, carrots,

and pomegranates). The evolution of irrigation and changing economic conditions has brought many crop changes to the District. Extensive agricultural cropping patterns of thousands of acres planted to a single crop were replaced with intensive agriculture cropping patterns of numerous smaller parcels planted to a wide variety of high-value specialty crops. Nuts such as almonds and pistachios have been the fastest growing crop types in the District. As the land was converted, pressurized irrigation systems such as drip and micro sprinkler replaced flood irrigation as the predominant method of irrigation. Similarly, the on-farm irrigation efficiencies improved as the irrigation system conversions happened.

The overall crop requirement also takes into consideration the leaching requirements and the effective precipitation. The following assumptions were used in the estimates for table 23.

- Crop evapotranspiration (ETc) was derived from the Irrigation Training and Research Centers (ITRC) ETc Table for Irrigation District Water Balances, Zone 16 for Typical Year.
- Leaching requirement was developed from Journal of Irrigation and Drainage Division data to maintain 100% yield potential.
- Effective Precipitation was calculated using a 50% effectiveness coefficient for the months of December and January, and a 100% effectiveness coefficient for the remaining months.

23.1-23.5 (2016-2020) illustrates the estimated crop water needs in the District for the representative year 2020.

Table 23.1 2020 Agricutural Crop Water Needs Etc (in)

Crop	Area (acres)	ET Crop (ac-ft/ac)	Leaching Reqmnt LR (ac-ft/ac)	Effective Precip'n Pe (ac-ft/ac)	Total Crop Water Needs (AF/Ac)	Total Crop Water Needs (ac-ft)
Almonds	8,158	3.72	0.26	0.42	3.56	29,063
Citrus	3	3.42	0.24	0.42	3.25	10
Lavender	4	2.93	0.29	0.42	2.80	12
Pistachios	16,390	3.44	0.21	0.42	3.23	52,915
Totals	24,556	**86,752.87**	**5,509.27**	**10261.74**		82,000

Table 23.2 2019 Agricutural Crop Water Needs Etc (in)						
Crop	**Area (acres)**	**ET Crop (ac-ft/ac)**	**Leaching Reqmnt LR (ac-ft/ac)**	**Effective Precip'n Pe (ac-ft/ac)**	**Total Crop Water Needs (AF/Ac)**	**Total Crop Water Needs (ac-ft)**
Almonds	7,992	3.51	0.25	0.34	3.41	27,248
Citrus	3	3.22	0.23	0.34	3.10	10
Grains	2,023	1.41	0.13	0.34	1.20	2,422
Lavender	4	2.70	0.27	0.34	2.62	11
Pistachios	16,014	3.23	0.19	0.34	3.08	49,322
Safflower	2	2.09	0.25	0.34	2.00	3
Totals	26,038	**82,631.40**	**5,338.63**	**8954.46**		79,013

Table 23.3 2018 Agricutural Crop Water Needs Etc (in)						
Crop	**Area (acres)**	**ET Crop (ac-ft/ac)**	**Leaching Reqmnt LR (ac-ft/ac)**	**Effective Precip'n Pe (ac-ft/ac)**	**Total Crop Water Needs (AF/Ac)**	**Total Crop Water Needs (ac-ft)**
Almonds	7,992	3.77	0.26	0.23	3.81	30,449
Citrus	0	0.00	0.00	0.23	0.00	-
Grains	2,350	1.34	0.13	0.23	1.24	2,925
Grapes	83	2.85	0.26	0.23	2.88	239
Pistachios	15,663	3.44	0.21	0.23	3.42	53,564
Safflower	2	2.25	0.27	0.23	2.29	3
Totals	26,090	**87,427.02**	**5,665.20**	**5911.88**		87,177

Table 23.4 2017 Agricutural Crop Water Needs Etc (in)						
Crop	**Area (acres)**	**ET Crop (ac-ft/ac)**	**Leaching Reqmnt LR (ac-ft/ac)**	**Effective Precip'n Pe (ac-ft/ac)**	**Total Crop Water Needs (AF/Ac)**	**Total Crop Water Needs (ac-ft)**
Almonds	7,992	3.86	0.27	0.24	3.88	31,024
Citrus	0	0.00	0.00	0.24	0.00	-
Grains	2,350	1.27	0.12	0.24	1.15	2,695
Grapes	83	2.85	0.26	0.24	2.87	238
Pistachios	15,663	3.58	0.21	0.24	3.55	55,621
Safflower	2	2.35	0.28	0.24	2.38	4
Totals	26,090	**90,112.60**	**5,826.94**	**6358.01**		89,578

Table 23.5 2016 Agricutural Crop Water Needs Etc (in)						
Crop	**Area (acres)**	**ET Crop (ac-ft/ac)**	**Leaching Reqmnt LR (ac-ft/ac)**	**Effective Precip'n Pe (ac-ft/ac)**	**Total Crop Water Needs (AF/Ac)**	**Total Crop Water Needs (ac-ft)**
Almonds	7,992	4.00	0.28	0.21	4.07	32,531
Citrus	0	0.00	0.00	0.21	0.00	-
Grains	2,350	1.42	0.13	0.21	1.34	3,159
Grapes	83	2.85	0.26	0.21	2.90	241
Pistachios	15,663	3.70	0.22	0.21	3.71	58,149
Safflower	2	2.47	0.30	0.21	2.56	4
Totals	26,090	**93,495.46**	**6,053.71**	**5465.75**		94,080

The District's service area encompasses 55,440 acres. As shown on Table 24, surface water was delivered to approximately 24,556 acres Table 25. A majority of non-irrigated land (approximately 30,884 acres) could be attributed to landowners opting not to plant certain row-crops given low prices for crops versus cost to farm, limited water availability in 2020, and dry land farming. Other non-irrigated land (approximately 6,000 acres) in the service area is within non-farmable land (oilfields, mountain slopes). Note: Total irrigated acreage for 2016-2018 is unknown, so we've assumed it was constant for those years for water budget calculations.

Table 24. Irrigated Acres					
Represented Year/District	**2020**	**2019**	**2018**	**2017**	**2016**
Total Irrigated Acres	24,556	18,043	18,098	18,098	18,098

Table 25. Multiple Crop Information					
Cropping System	**2020**	**2019**	**2018**	**2017**	**2016**
Single-Cropped Acres	24,556	18043	18098	18098	18098
Inter-cropping	0	0	0	0	0
Double Cropping	0	0	0	0	0

B. Environmental Water Use

BMWD does not provide water to any environmental uses.

C. Recreational Water Use

BMWD does not provide any water to recreational uses.

D. Municipal and Industrial Use

A small portion of the District's water supply is delivered to agricultural processors (Table 26) and is termed "industrial water".

Table 26. Municipal/Industrial Water Uses (AF)

Municipal/ Industrial Entity	2016	2017	2018	2019	2020 BMWD
Municipal Entity	0	0	0	0	0
None	0	0	0	0	0
Subtotal					
Industrial Entity					
Oil Producers	0	0	0	0	0
Ag Processing	2149	1843	2862	1920	2879
Subtotal	2149	1843	2862	1920	2879
Total	2149	1843	2862	1920	2879

E. Groundwater Recharge Use

No groundwater recharge resources within the District are supported by the District's water supplies. However, the District participates in the Pioneer and the Berrenda Mesa banking projects. In addition one landowner participates in the Kern Water Bank Authority (all outside of the District on the Kern River alluvial fan).

Table 27. Groundwater Recharge Water Uses (AF)

Groundwater Basin	Method of Recharge	2016	2017	2018	2019	2020
None	Recharge basins	0	0	0	0	0
Voluntary/Opportunistic						
Other (non-District projects)	Recharge basins	0	0	0	0	0
Pioneer	Recharge basins	0	0	0	0	0
Berrenda Mesa	Recharge basins	0	0	0	0	0
Total		**0**	**0**	**0**	**0**	**0**
Notes:						
Amounts shown correlate to 2020 recovery. Recharge occurs opportunistically. A 10% factor is applied to recharge account for banking losses.						

F. Transfer and Exchange Use

The District relies on transfers and exchanges to supplement its annual water supply. In recent years, common landowner transfers into the District account for most of the activity in this section.