

Table 21. Decreased Water Supplies Allocations	
Allocation Method	Check if used
By crop	
First come first served	
Area in district	
Other (% of contract x Available Supplies)	x
No specific policy	

Table 22. Enforcement Methods of Allocation Policies	
Enforcement Method	Check if used
Fines	
Water Shut-off	
Other (pro rata on the basis of each user's annual entitlement)	x
No specific policy	

Section III: Description of Quantity of Water Uses

Water year 2020 is chosen as the representative year for this plan (Table 23). For planning purposes, data starts in January 2020 and ends December 2020 (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 23. Representative Year	
	Description
Representative year(s) based upon	2020
First month of representative year	January 2020
Last month of representative year	December 2020

A. Agriculture Water Use

Table 24 illustrates the annual agricultural water use in the District. The District relies only on surface water sources.

Table 24. Annual Agricultural Water Use (AF)					
Source	2016	2017	2018	2019	2020
Agricultural Water Supplier Delivered					
Surface Water	82,958	89,235	85,445	89,333	83,781
Groundwater	N/A	N/A	N/A	N/A	8,415
Subtotal	82,958	89,235	85,445	89,333	92,196

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 25.

- Crop evapotranspiration (ET_c) was derived from the Irrigation Training and Research Centers (ITRC) ET_c 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.

Table 25 illustrates the estimated crop water needs in the District for the years 2016-2020.

Table 25.1 2020 Agricultural 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)
Alfalfa	240	5.21	0.21	0.42	4.99	1,198
Almonds	5,035	3.72	0.26	0.42	3.56	17,912
Figs	540	3.42	0.21	0.42	3.21	1,732
Grains	80	1.41	0.13	0.42	1.12	89
Grapes	320	2.00	0.08	0.42	1.66	531
Pistachios	16,380	3.44	0.21	0.42	3.22	52,801
Pomegranates	5,886	2.86	0.17	0.42	2.61	15,355
Totals	28,481	95,762.98	5,899.22	12,044.61		89,618

Table 25.2 2019 Agricultural 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)
Alfalfa	240	4.82	0.19	0.50	4.51	1,083
Almonds	5,035	3.51	0.25	0.50	3.26	16,399
Figs	540	3.22	0.19	0.50	2.92	1,576
Grains	2,111	1.19	0.11	0.50	0.81	1,708
Grapes	320	1.81	0.07	0.50	1.38	443
Pistachios	16,380	3.23	0.19	0.50	2.93	47,952
Pomegranates	5,886	2.70	0.16	0.50	2.37	13,925
Totals	30,512	92,454.07	5,777.26	15,143.11		83,088

Table 25.3 2018 Agricultural 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)
Alfalfa	240	5.18	0.21	0.33	5.06	1,215
Almonds	5,035	3.77	0.26	0.33	3.71	18,666
Figs	540	3.46	0.21	0.33	3.34	1,805
Grains	2,111	1.34	0.13	0.33	1.14	2,416
Grapes	320	2.00	0.08	0.33	1.76	562
Pistachios	16,380	3.44	0.21	0.33	3.32	54,377
Pomegranates	5,886	2.90	0.17	0.33	2.74	16,156
Totals	30,512	98,975.90	6,189.93	9,968.27	21.08	95,198

Table 25.4 2017 Agricultural 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)
Alfalfa	240	5.26	0.21	0.35	5.12	1,230
Almonds	4,850	3.86	0.27	0.35	3.77	18,306
Figs	520	3.54	0.21	0.35	3.40	1,770
Grapes	560	2.04	0.08	0.35	1.77	994
Pistachios	17,505	3.58	0.21	0.35	3.44	60,280
Pomegranates	5,960	2.96	0.18	0.35	2.79	16,637
Totals	29,635	103,287.79	6,336.11	10,407.81		99,216

Table 25.5 2016 Agricultural 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)
Alfalfa	240	5.50	0.25	0.30	5.44	1,306
Almonds	5,035	4.00	0.30	0.30	4.00	20,163
Figs	520	3.67	0.17	0.30	3.53	1,837
Grapes	560	2.12	0.17	0.30	1.99	1,113
Pistachios	13,765	3.70	0.34	0.30	3.74	51,443
Pomegranates	5,960	3.07	0.14	0.30	2.91	17,359
Totals	26,080	93,812.86	7,286.81	7,878.77		93,221

Table 26. Irrigated Acres					
Represented Year/District	2020	2019	2018	2017	2016
Total Irrigated Acres	28,481	30,512	30,512	29,635	26,080

Table 27. Multiple Crop Information					
Cropping System	2020	2019	2018	2017	2016
Single-Cropped Acres	28,481	30,512	30,512	29,635	26,080
Inter-cropping	0	0	0	0	0
Double Cropping	0	0	0	0	0

B. Environmental Water Use

A small amount of water is occasionally delivered to maintain mitigation ponds associated with the District's evaporation ponds for agricultural subsurface drainage water. The amount is insignificant to the District's overall supplies. Continued water management activities should eliminate the need for these deliveries in the future.

Table 28. Environmental Water Uses (AF)					
Environmental Resources	2016	2017	2018	2019	2020
From Supplier					
Vernal pools	0	0	0	0	0
Streams	0	0	0	0	0
Lakes or reservoirs	0	0	0	0	0
Riparian Vegetation	0	0	0	0	0
Other	0	0	0	0	0
Subtotal	0	0	0	0	0
All Sources					
Vernal pools	0	0	0	0	0
Streams	0	0	0	0	0
Lakes or reservoirs	0	0	0	0	0
Riparian Vegetation	0	0	0	0	0
Other (Mitigation Ponds)	0	0	0	0	0
Subtotal	0	0	0	0	0
Overall Totals (From Supplier and From All Sources)					
Vernal pools	0	0	0	0	0
Streams	0	0	0	0	0
Lakes or reservoirs	0	0	0	0	0
Wetlands Subtotal	0	0	0	0	0
Riparian Vegetation	0	0	0	0	0
Other	0	0	0	0	0
Total	0	0	0	0	0

C. Recreational Water Use

No recreational resources are supported by the District’s water supplies (Table 29).

Table 29. Recreational Water Uses (AF)					
Recreational Facility	2016	2017	2018	2019	2020
None	0	0	0	0	0
TOTAL	0	0	0	0	0

D. Municipal and Industrial Use

A small portion of the District’s water supply is delivered to oil production customers and agricultural processors (Table 30) and is termed “industrial water”.

Table 30. Municipal/Industrial Water Uses (AF)					
Municipal/ Industrial Entity	2016	2017	2018	2019	2020 LHWD
Municipal Entity					0
None	42	46	40	47	30
Subtotal					
Industrial Entity					
Oil Producers	1202	934	959	875	828
Ag Processing	142	451	353	349	404
Subtotal	1344	1385	1312	1224	1256
Total	1386	1431	1352	1271	1286

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 31. Groundwater Recharge Water Uses (AF)						
Groundwater Basin	Method of Recharge	2016	2017	2018	2019	2020
None	Recharge basins	0	0	0	0	0
Voluntary/Oppportunistic						
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.

G. Other Water Use

There are no other water uses in the District (Table 32).

Table 32. Other Water Uses (AF)					
Water Use	2016	2017	2018	2019	2020
None	0	0	0	0	0
TOTAL	0	0	0	0	0