Western Municipal Water District

Murrieta Service Area Water Cost of Service Study Appendix

Fiscal Year 2023-24 Cost of Service Tables
June 2, 2021 Version

WESTERN MUNICIPAL WATER DISTRICT
Securing your water supply

This document serves as an appendix to the Murrieta Service Area Water Cost of Service Study Report (Report). The reader may notice that table headings in this appendix may numerically skip ahead. This appendix is not meant as a stand-alone document, and therefore the table numbers correspond directly to the Report. The summary tables with Fiscal Year (FY) 2022 – FY 2025 information are omitted from this appendix. Only those tables corresponding to unique FY 2023-24 (FY 2024) rate analysis are presented.

Table 4-9: FY 2024 O&M Allocation (%)

Function	Water Supply	Delivery	Max Day	Max Hour	Efficiency	Elevation	Billing & CS	Meters & Service	General	Total
Water Pumping		24.7%	42.0%	33.3%						100.0%
Transmission & Distribution		24.7%	42.0%	33.3%						100.0%
Customer Accounts							100.0%			100.0%
Replacement Reserve		37.1%	32.6%	18.0%				5.9%	6.4%	100.0%
G&A Allocation									100.0%	100.0%
Other Operating Expenses									100.0%	100.0%
Prop Tax Collection									100.0%	100.0%
Purchased Water	100.0%									100.0%
Source of Supply	100.0%									100.0%
Treatment	100.0%									100.0%
Purchased Power						100.0%				100.0%
Water Use Efficiency					100.0%					100.0%
O&M Allocation %	***34.4%***	***13.3%***	***17.4%***	***12.5%***	***0.8%***	***0.5%***	***3.4%***	***1.0%***	***16.7%***	***100.0%***

Table 4-10: FY 2024 O&M Allocation ($)

Function	FY 2024 Budget	Water Supply	Delivery	Max Day	Max Hour	Efficiency	Elevation	Billing & CS	Meters & Service	General
Water Pumping	$251,219		$62,029	$105,450	$83,740					
Transmission & Distribution	$1,665,208		$411,162	$698,976	$555,069					
Customer Accounts	$232,109							$232,109		
Replacement Reserve	$1,133,885		$420,570	$369,270	$204,197				$67,441	$72,407
G&A Allocation	$876,882									$876,882
Other Operating Expenses	$174,676									$174,676
Prop Tax Collection	$10									$10
Purchased Water	$1,869,080	$1,869,080								
Source of Supply	$293,936	$293,936								
Treatment	$156,053	$156,053								
Purchased Power	$34,556						$34,556			
Water Use Efficiency	$55,436					$55,436				
Total	**$6,743,050**	**$2,319,069**	**$893,762**	**$1,173,697**	**$843,006**	**$55,436**	**$34,556**	**$232,109**	**$67,441**	**$1,123,975**
O&M Allocation %	***100.0%***	***34.4%***	***13.3%***	***17.4%***	***12.5%***	***0.8%***	***0.5%***	***3.4%***	***1.0%***	***16.7%***

Table 4-11: Other Available Revenues

Revenue Source	FY 2024 Revenue ($)
Property Tax	$5,000
Interest Income	$5,700
Delinquent Penalties	$50,000
Water Availability Charge Revenue	$131,000
New Service Set Up & Meter Repair	$7,500
Total	**$199,200**

Table 4-12: Adjusted General Costs

Description	$
General Costs	$1,123,975
Revenue Offsets	($199,200)
Adjusted General Costs	**$924,775**

Table 4-13: General Cost Reallocation

Line No.	Cost Causation Components	FY 2024 Requirements	Applicable Cost	Allocation %	General Requirement Reallocation	Net Revenue Requirements
		A	B	C = B ÷ B10	D = A9 × C	E = A + D
1	Water Supply	$2,319,069	N/A		$0	$2,319,069
2	Delivery	$893,762	$893,762	27.8%	$257,484	$1,151,246
3	Max Day	$1,173,697	$1,173,697	36.6%	$338,131	$1,511,828
4	Max Hour	$843,006	$843,006	26.3%	$242,862	$1,085,868
5	Efficiency	$55,436	N/A		$0	$55,436
6	Elevation	$34,556	N/A		$0	$34,556
7	Billing & CS	$232,109	$232,109	7.2%	$66,868	$298,977
8	Meters & Service	$67,441	$67,441	2.1%	$19,429	$86,870
9	Adjusted General Costs	$924,775	N/A		$0	N/A
10	**Total**	**$6,543,850**	**$3,210,014**	**100.0%**	**$924,775**	**$6,543,850**

Table 4-14: Fire Flow Demand

Line No.	Description	Connection Size (inches) A	Fire Demand B = A^2.63	# of Connections C	Fire Demand Units D = B x C	% of Total E = D / D16
1	**Public Hydrants**					
2	2-inch	2.00	6	0	0	
3	4-inch	4.00	38	6	230	
4	6-inch	6.00	111	690	76,804	
5	8-inch	8.00	237	2	474	
6	**Total Public**			**698**	**77,508**	**76%**
7						
8	**Private Fire**					
9	3-inch	3.00	17.98	0	0	
10	4-inch	4.00	38.32	5	192	
11	6-inch	6.00	111.31	26	2,894	
12	8-inch	8.00	237.21	78	18,502	
13	10-inch	10.00	426.58	6	2,559	
14	12-inch	12.00	689.04	1	689	
15	**Total Private**			**116**	**24,837**	**24%**
16	**Total**				**102,345**	**100%**

Table 4-15: Fire Capacity Costs

Line No.	Fire Capacity Costs	Units A	% Fire Capacity B	Max Day C	Max Hour D	Total E = C + D
1	Allocated Costs			$1,173,697	$843,006	
2	Extra Capacity Demand	hcf / day		$5,195	$4,126	
3	Unit Cost of Service	per hcf		$226	$204	
4						
5	Fire Capacity Demand	hcf		401	4,412	
6	Fire Capacity Costs			**$90,605**	**$901,439**	**$992,044**
7	Public Fire Protection		75.7%	$68,617	$682,682	$751,299
8	Private Fire Protection		24.3%	$21,988	$218,757	$240,745

Table 4-16: Reallocation of Public Fire Protection

Line No.	Cost Causation Components	FY 2024 Requirements A	Applicable Cost B	Public Fire Allocation % C = B ÷ B10	Public Fire Reallocation D = $726,128 x C	Less Public Fire Capacity Costs E	Subtotal F = A + D + E
1	Water Supply	$2,319,069	N/A				$2,319,069
2	Delivery	$1,151,246	$1,151,246	27.8%	$209,184		$1,360,430
3	Max Day	$1,511,828	$1,511,828	36.6%	$274,702	($68,617)	$1,717,912
4	Max Hour	$1,085,868	$1,085,868	26.3%	$197,304	($682,682)	$600,490
5	Efficiency	$55,436	N/A				$55,436
6	Elevation	$34,556	N/A				$34,556
7	Billing & CS	$298,977	$298,977	7.2%	$54,325		$353,302
8	Meters & Service	$86,870	$86,870	2.1%	$15,785		$102,655
9	**Total**	**$6,543,850**	**$4,134,789**	**100.0%**	**$751,299**	**($751,299)**	**$6,543,850**

Table 4-17: Reallocation of Private Fire

Line No.	Cost Causation Components	Adjusted FY 2024 Requirements A	Private Fire Capacity Cost Adjustment B	Subtotal C = A + B
1	Water Supply	$2,319,069		$2,319,069
2	Delivery	$1,360,430		$1,360,430
3	Max Day	$1,717,912	($21,988)	$1,695,924
4	Max Hour	$600,490	($218,757)	$381,733
5	Efficiency	$55,436		$55,436
6	Elevation	$34,556		$34,556
7	Billing & CS	$353,302		$353,302
8	Meters & Service	$102,655		$102,655
9	Private Fire		$240,745	$240,745
10	**Total**	**$6,543,850**	**$0**	**$6,543,850**

Table 4-19: Reallocation of Extra Capacity

		VARIABLE CHARGE COMPONENTS				FIXED CHARGE COMPONENTS			
Cost Categories	FY 2024 Revenue Requirements A	Water Supply B	Delivery C	Efficiency D	Elevation E	Billing & CS F	Meters & Service G	Capacity H	Private Fire I
Water Supply	$2,319,069	$2,319,069							
Delivery	$1,360,430		$1,360,430						
Extra Capacity	$2,077,657		$415,531					$1,662,126	
Efficiency	$55,436			$55,436					
Elevation	$34,556				$34,556				
Billing & CS	$353,302					$353,302			
Meters & Service	$102,655						$102,655		
Private Fire	$240,745								$240,745
Total	**$6,543,850**	**$2,319,069**	**$1,775,961**	**$55,436**	**$34,556**	**$353,302**	**$102,655**	**$1,662,126**	**$240,745**

Table 4-20: Summary of Revenue Requirements by Cost Components

Cost Categories	FY 2024 Revenue Requirements	Variable	Fixed
Water Supply	$2,319,069	✓	
Delivery	$1,775,961	✓	
Extra Capacity	$1,662,126		✓
Efficiency	$55,436	✓	
Elevation	$34,556	✓	
Billing & CS	$353,302		✓
Meters & Service	$102,655		✓
Private Fire	$240,745		✓
Total	**$6,543,850**	**$4,185,022**	**$2,358,828**
Variable / Fixed Split		***64%***	***36%***

Table 4-21: Billing & Customer Service Cost Component – Units of Service

Meter Size	Number of Accounts	# of Billing Periods	Units of Service (# of Bills)
	A	B	C = A x B
5/8"	378	12	4,536
3/4"	2,197	12	26,364
1"	173	12	2,076
1.5"	78	12	936
2"	165	12	1,980
3"	5	12	60
4"	4	12	48
6"	0	12	0
8"	0	12	0
10"	0	12	0
Total	**3,000**	**120**	**36,000**

Note: The total number of bills in Table 4-21 includes private fire accounts.

Table 4-22: Billing & Customer Service Costs Component

Billing and Customer Service Component	
Billing & CS Revenue Requirements	$353,302
÷ # of Bills	36,000
Monthly Unit Rate	**$9.814**

Table 4-23: Meter and Service Costs Component - Units of Service

Line No.	Meter Size	Meter Replacement Cost	Meter Cost Ratio	# of Bills	Units of Service (EMUs)
		A	B = A ÷ A2	C	D = B x C
1	**5/8"**	$280.15	0.93	4,536	4,218
2	**3/4"**	$299.65	1.00	26,364	26,364
3	**1"**	$366.24	1.22	2,076	2,533
4	**1.5"**	$593.76	1.98	936	1,853
5	**2"**	$815.72	2.72	1,980	5,386
6	**3"**	$1,592.60	5.31	60	319
7	**4"**	$1,792.37	5.98	48	287
8	**6"**	$3,189.64	10.64	0	0
9	**8"**	$4,640.18	15.49	0	0
10	**10"**	$7,160.59	23.90	0	0
11	**Total**			**36,000**	**40,960**

Note: The total number of bills in Table 4-23 includes private fire accounts.

Table 4-24: Meters & Service Costs Component - Unit Rate

Meter & Service Component	
Meters & Service Revenue Requirements	$102,655
÷ Meter Cost EMUs	40,960
Monthly Unit Rate	**$2.506**

Table 4-25: Extra Capacity Costs Component - Units of Service

Line No.	Meter Size	Meter Type	AWWA Standards (gpm) A	AWWA Ratio B = A ÷ A2	# of Bills C	Units of Service (EMUs) D = B x C
1	**5/8"**	C713-15 Fluidic-Oscillator Type	20	1	4,536	3,024
2	**3/4"**	C701-12 Turbine Type, Class I, Vertical Shaft Type	30	1	24,972	24,972
3	**1"**	C701-12 Turbine Type, Class I, Vertical Shaft Type	50	2	2,076	3,460
4	**1.5"**	C701-12 Turbine Type, Class I, Vertical Shaft Type	100	3	936	3,120
5	**2"**	C704-15 Propeller Type	120	4	1,980	7,920
6	**3"**	C704-15 Propeller Type	300	10	60	600
7	**4"**	C704-15 Propeller Type	600	20	48	960
8	**6"**	C704-15 Propeller Type	1,350	45	0	0
9	**8"**	C704-15 Propeller Type	1,800	60	0	0
10	**10"**	C704-15 Propeller Type	2,400	80	0	0
11	**Total**				**34,608**	**44,056**

Note: The total number of bills in Table 4-25 does not include private fire accounts.

Table 4-26: Extra Capacity Costs Component - Unit Rate

Peaking/Capacity Component	
Extra Capacity Revenue Requirement	$1,662,126
÷ Capacity EMUs	44,056
Monthly Unit Rate	**$37.728**

Table 4-27: Private Fire Extra Capacity Charges

Line No.	Private Fire Service Charges	Peaking
1	Revenue Requirements	$240,745
2	Fire Demand Units	24,837
3	Annual Fire Demand Units ([2] x 12)	298,039
4	**Monthly Unit Cost of Service ([1] / [3])**	**$0.808**

Table 4-28: Water Supply Sources - Quantity and Effective Rate

Water Source	Available for Purchase (AF) A	Available Supply (AF) After 5% Water Loss B = A x (1-5%)	Unit Cost ($/AF) C	Available Supply (HCF) D = B * 435.6	Effective Unit Cost ($/AF) E = A x C ÷ B	Effective Unit Cost ($/HCF) F = E ÷ 435.6
Wells	1,452	1,379	$309.91	600,867	$326.22	$0.749
Eastern MWD	1,244	1,181	$1,502.97	514,623	$1,582.07	$3.632

Table 4-29: Allocation of Water Supplies & Unit Rate ($/HCF)

Line No.	Tier	Projected Sales (HCF)	Wells (HCF)	EMWD (HCF)	Total Tier Use (HCF)	Unit Rate ($/HCF)
1	Tier 1 (Essential Use)	439,214	439,214	0	439,214	$0.749
2	Tier 2 (Efficient Use)	578,846	161,652	417,193	578,846	$2.827
3	Tier 3 (Inefficient Use)	50,951	0	50,951	50,951	$3.632
4	Tier 4 (Unsustainable Use)	46,478	0	46,478	46,478	$3.632
5	**Total**	**1,115,490**	**600,867**	**514,623**	**1,115,490**	
6	**Total Available Supply**	**1,115,490**	**600,867**	**514,623**	**1,115,490**	

Table 4-30: Projected Water Supply Costs

Line No.	Tier	Projected Sales (HCF) A	Water Supply Unit Rate ($/HCF) B	Revenue Requirements C = (A ÷ A5) x Delivery RR from Table 4-20
1	Tier 1 (Essential Use)	439,214	$0.749	$699,269
2	Tier 2 (Efficient Use)	578,846	$2.827	$921,575
3	Tier 3 (Inefficient Use)	50,951	$3.632	$81,119
4	Tier 4 (Unsustainable Use)	46,478	$3.632	$73,998
5	**Total**	**1,115,490**		**$1,775,961**

Table 4-31: Delivery Component - Unit Rates

Delivery Component	
Delivery Revenue Requirement	$1,775,961
÷ Projected Sales	1,115,490
Monthly Unit Rate	**$1.592**

Table 4-32: Efficiency Component - Unit Rates

Line No.	Tier	Projected Use	Unit Rate ($/HCF)
1	Tier 1 (Essential Use)	439,214	
2	Tier 2 (Efficient Use)	578,846	
3	Tier 3 (Inefficient Use)	50,951	$0.34
4	Tier 4 (Unsustainable Use)	46,478	$0.82

Table 4-33: Pumping Charge - Unit Rate ($/HCF)

Pumping Charge	
Pumping Charge Revenue Requirement	$34,556
÷ Projected Sales	147,580
Monthly Unit Rate	**$0.234**

Table 4-34: FY 2024 Rates for Fixed System Charge ($/Meter Size)

Meter Size	Meter Cost Ratio	AWWA Ratio	Billing & Customer Service	Meters & Service	Extra Capacity	Total Fixed System Charge
	A	B	C	D= $2.51 x A	E = $37.73 x B	F = C + D + E
5/8"	0.93	0.67	$9.81	$2.33	$25.15	$37.30
3/4"	1.00	1.00	$9.81	$2.51	$37.73	$50.05
1"	1.22	1.67	$9.81	$3.06	$62.88	$75.75
1.5"	1.98	3.33	$9.81	$4.96	$125.76	$140.53
2"	2.72	4.00	$9.81	$6.82	$150.91	$167.54
3"	5.31	10.00	$9.81	$13.31	$377.28	$400.40
4"	5.98	20.00	$9.81	$14.99	$754.55	$779.35
6"	10.64	45.00	$9.81	$26.67	$1,697.74	$1,734.22
8"	15.49	60.00	$9.81	$38.82	$2,263.65	$2,312.29
10"	23.90	80.00	$9.81	$59.90	$3,018.21	$3,087.92

Table 4-36: FY 2024 Rates for Private Fire Fixed System Charges ($/Meter Size)

Meter Size	No of Meters	Fire Demand Ratio	Billing & CS	Meter Service	Peaking	Monthly FSC
	A	B	C = $9.81	D = $2.51	E = $0.808 x B	F = C + D + E
3"	0	17.98	$9.81	$2.51	$14.53	$26.85
4"	5	38.32	$9.81	$2.51	$30.96	$43.28
6"	26	111.31	$9.81	$2.51	$89.94	$102.26
8"	78	237.21	$9.81	$2.51	$191.67	$203.99
10"	6	426.58	$9.81	$2.51	$344.68	$357.00
12"	1	689.04	$9.81	$2.51	$556.74	$569.06

Table 4-38: Proposed FY 2024 Commodity Rates ($/HCF)

Tiers	Water Supply	Delivery	Efficiency	Total FY 2024 Rate
Tier 1 (Essential Use)	$0.75	$1.59	$0.00	$2.342
Tier 2 (Efficient Use)	$2.83	$1.59	$0.00	$4.420
Tier 3 (Inefficient Use)	$3.63	$1.59	$0.34	$5.565
Tier 4 (Unsustainable Use)	$3.63	$1.59	$0.82	$6.045