FINAL WATER RATE STUDY

B&V PROJECT NO. 403440.0100

PREPARED FOR

City of Menlo Park

MARCH 17, 2021

BLACK & VEATCH
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Acronyms

ADD	Average Daily Demand
AWWA	American Water Works Association
BAWSCA	Bay Area Water Supply & Conservation Agency
Black & Veatch	Black & Veatch Management Consulting
Cal Water	California Water Service
CCF	Centum Cubic Feet or Hundred Cubic Feet
CIP	Capital Improvement Program
City	City of Menlo Park
CIS	Customer Information System
ENR CCI	Engineering News Record Construction Cost Index
FY	Fiscal Year (July 1 to June 30)
gpdc	gallons per day per capita
gpm	gallons per minute
M1	Principles of Water Rates, Fees, and Charges
Max Day	Maximum Day
Max Hour	Maximum Hour
MPMW	Menlo Park Municipal Water
O&M	Operation and Maintenance
OC	Original Cost
OCLD	Original Cost Less Depreciation
RC	Replacement Cost
RCLD	Replacement Cost Less Depreciation
SBx7-7	Senate Bill X7-7 (State of California in the Water Conservation Act of 2009)
SDC	System Development Charge
SFPUC	San Francisco Public Utilities Commission
SRF	State Revolving Fund
SWRCB	State Water Resources Control Board
Study	Water Rate Study
UWMP	Urban Water Management Plan

Executive Summary

The City of Menlo Park (City) commissioned Black & Veatch Management Consulting, LLC (Black & Veatch) to conduct a Water Rate Study (Study) for Menlo Park Municipal Water (MPMW). MPMW is a water utility wholly-owned by the City. The Study incorporated the development of a five-year financial plan, a cost of service analysis, the design of rates, and capacity fees. The specific objectives of the Study were to:

- Evaluate the adequacy of projected revenues under existing rates to meet projected revenue requirements;
- Develop sound financial plans for MPMW covering a five-year study period for both ongoing operations and planned capital improvements;
- Allocate MPMW's projected revenue requirements to the customer classes in accordance with the respective service requirements;
- Design a suitable rate schedule that produces revenues adequate to meet financial needs while recognizing customer costs of service and regulatory considerations such as Proposition 218 and applicable judicial decisions; and
- Develop capacity fees that allow new users to pay their fair share of the costs associated with existing capacity within the system while meeting regulatory requirements stated in the California Mitigation Fee Act.

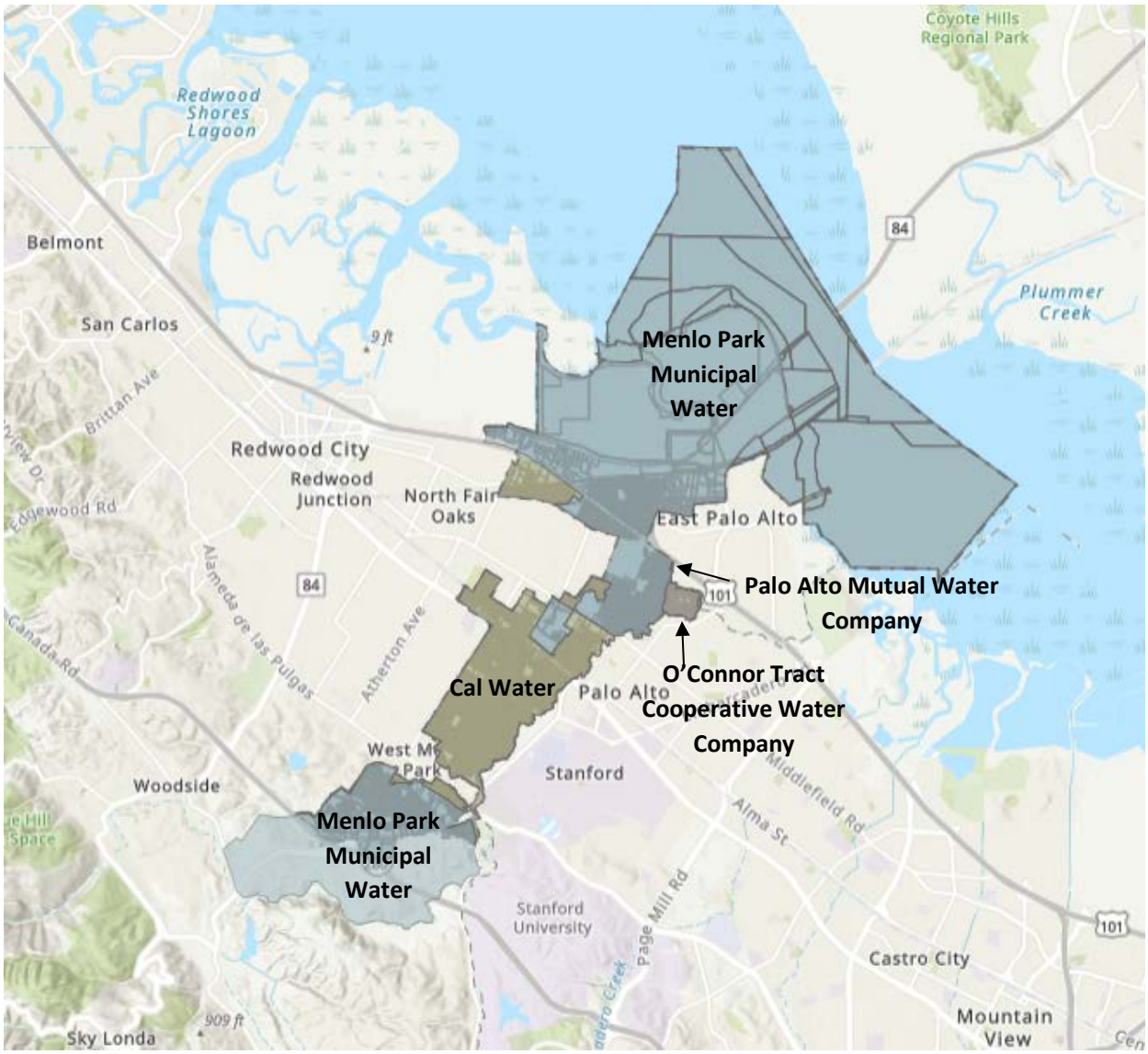
MENLO PARK MUNICIPAL WATER

The City owns and operates Menlo Park Municipal Water to provide water service to about 19,000 residents. The City serves approximately 4,400 residential, commercial, industrial, institutional, irrigation, hydrant construction, and fire connections. California Water Service (Cal Water), an investor-owned water purveyor, serves the majority of the remainder of the City's population. Cal Water serves the City's center, while MPMW serves the northeast and southwest ends of the City, as shown in Figure ES-1. There are small portions of the City served by the O'Connor Tract Cooperative Water Company, the City of East Palo Alto, and Palo Alto Park Mutual Water Company.

MPMW has two service areas: 1) the northeast area, which is located east of El Camino Real and serves the High-Pressure Zone and Lower Zone, and 2) the southeast area in Sharon Heights, serving the Upper Zone. Both areas are physically isolated from each other and have emergency interconnections with neighboring water agencies.

MPMW's sole source of water supply is surface water purchased from the San Francisco Public Utilities Commission (SFPUC). There are five turnouts throughout the service areas that feed into MPMW's water system. The water system comprises 58 miles of distribution mains, three pressure reducing stations, two water storage facilities, one pump station, and one emergency well that is under construction. MPMW is also developing other emergency storage/supplies as an emergency backup to SFPUC.

Figure ES-1 Water System Map



Source: https://menlopark.maps.arcgis.com

FINANCIAL PLAN

MPMW operates as a self-supporting enterprise fund. As such, it must develop a financial plan, also known as revenue requirements, which provides enough level of revenue to meet all operation and maintenance expenses, debt service requirements, capital improvements, transfers, and other revenue requirements independent of the City.

The Study develops a financial plan that projects operating revenue, expenses, and capital financing costs for MPMW over a five-year planning period beginning July 1, 2021, and ending June 30, 2026. A fiscal year (FY) is between July 1 of the prior year and June 30 of the subsequent year.

Financial Plan Scenarios

In conducting the Study, Black & Veatch examined different financial planning scenarios. Excluding the status quo scenario (Scenario 0), each scenario generates sufficient revenues to meet obligations while satisfying reserve targets and minimizing rate impacts to customers. Table ES-1 shows a summary of the different scenarios analyzed. Through discussions with City Council and staff, the 3-tier rate structure and keeping the capital surcharge associated with Scenario 2, Option B (Scenario 2B) was selected. Scenario 2B is derived in the body of this report.

Table ES-1 Matrix of Scenarios

SCENARIO	CONSUMPTION RATE STRUCTURE	REVENUE ADJUSTMENTS[1]	CAPITAL SURCHARGE[2]	LONG-TERM DEBT[3]	CIP[4]	RESERVE BALANCE IN YEAR 5[5]
0 Status Quo	2-tier rates for all customers	0.0% all years	Yes, range of $2.0M to $2.3M per year	No	$60.4M	($6.9M)
1	2-tier rates for all customers	5.0% all years	Option A: No Option B: Yes, range of $2.1M to $2.9M per year	$23.0M in Year 5	$60.4M	$6.8M
2	3-tier rates for all customers					
3	2-tier rates for all customers	12.2% all years	Option A: No Option B: Yes, range of $2.2M to $4.1M per year	No	$60.4M	$6.8M
4	3-tier rates for all customers					

Legend:

1. Revenue Adjustments: Identifies the percent of revenue adjustment needed in FY 2022 to FY 2026 to meet all obligations. The existing rate structure consists of a fixed meter charge; unmetered fire fixed charge, consumption charge, and capital facility surcharge, a consumption-based surcharge.
2. Capital Surcharge: Identifies if the capital facility surcharge will be an independent component within the rate structure. If independent, the revenues per year are directed for capital expenditures.
3. Long-Term Debt: Identifies if MPMW will obtain a long-term loan to assist in executing the CIP.
4. CIP: Identifies the capital improvement program amount used in the evaluation.
5. Reserve Balance in Year 5: Identifies the amount of cash remaining in the operating and capital fund. The goal is to have about the same reserve balance in all scenarios after adjustments are made to revenues, capital surcharge, debt, and CIP.

Summary of Scenarios:

- Scenario 0 represents the status quo in which obligations would occur, but no corresponding revenue adjustments are enacted.
- Scenario 1 and 2 are identical. They both incorporate an issuance of long-term debt, fund all capital improvement projects, and meet reserve requirements. The difference is in the consumption charge. Scenario 1 represents a two-tier consumption charge, while Scenario 2 represents a three-tier consumption charge. In addition, both scenarios have two distinct options for the capital facility charge: Option A consolidates the capital facility surcharge with the consumption charge or Option B leaves the capital facility surcharge as a stand-alone charge.

- Scenario 3 and 4 are identical. They both exclude long-term debt, fund all CIP, and meet reserve requirements. The difference is in the consumption charge. Scenario 3 represents a two-tier consumption charge, while Scenario 4 reflects a three-tier consumption charge. Scenarios 3 and 4 also have Options A and B associated with the capital facility surcharge.

Financial Plan – Scenario 2B

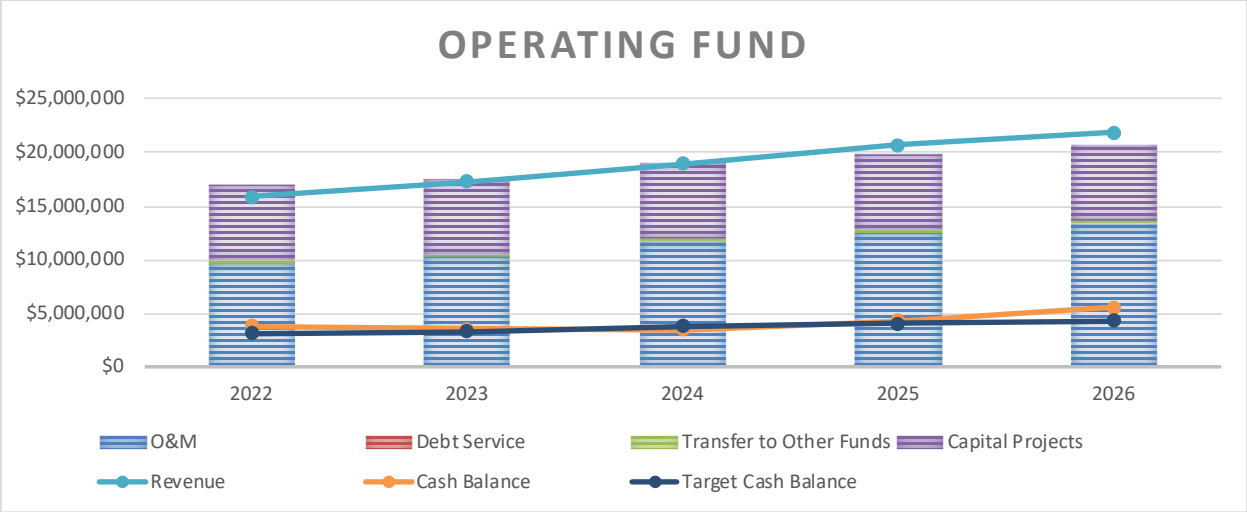
The derivation of Scenario 2B is described in detail in the body of this Report. It is important to note that for all scenarios, the operations and maintenance (O&M) expenses and capital improvement program (CIP) remain constant. The rate revenues, principal and interest expense on debt, transfers, and reserve requirements change based on scenario.

Summarized below are MPMW's revenue requirements for Scenario 2B:

- **Operation and Maintenance Expenses:** MPMW anticipates O&M expenses to increase from $10,018,500 in FY 2022 to $13,647,900 in FY 2026.
- **Debt Service:** MPMW does not have any existing debt but intends to obtain a State Revolving Loan (SRF) in the amount of $23,000,000 in FY 2026.
- **Capital Improvements**: MPMW plans to invest $60,414,500 in capital projects from FY 2022 to FY 2026. The capital projects will upgrade the infrastructure system, specifically the water storage and transmission & distribution assets.
- **Reserves**: MPMW will continue with operating and capital fund reserves.
  - The operating fund reserve covers fluctuations in day-to-day expenses. The scheduled target is 120 days of O&M expenses.
  - The capital fund reserve maintains enough funds on hand to help mitigate unexpected capital costs. The scheduled target is $1,000,000.

To meet the projected revenue requirements, MPMW is proposing revenue adjustments that would allow the enterprise to operate in self-sufficient manner with a balanced budget, as shown in Figure ES-2.

Figure ES-2 Operating Cash Flow (Scenario 2B)



ADEQUACY OF EXISTING RATES TO MEET COSTS OF SERVICE

Based on the financial plan, Black & Veatch recommends the revenue adjustments shown in Table ES-2 for Scenario 2B, to meet the projected revenue requirements for FY 2022 to FY 2026. These adjustments do not represent the proposed rate increases to customers. Rather, these represent the utility's overall revenue increases to meet their overall obligations and maintain current service levels.

Table ES-2 Proposed Revenue Adjustment (Scenario 2B)

Fiscal Year	Effective Month	Revenue Adjustment
FY 2022	July	5.00%
FY 2023	July	5.00%
FY 2024	July	5.00%
FY 2025	July	5.00%
FY 2026	July	5.00%

COST-OF-SERVICE ANALYSIS

The water cost-of-service analysis performed in this Study uses the Base-Extra Capacity Method endorsed by the American Water Works Association (AWWA) *Principles of Water Rates, Fees, and Charges*, M1 (M1) manual. Under cost-of-service principles, costs are allocated to the different customer classes in proportion to their water system use. As recommended by AWWA, Black & Veatch distributed operational and capital costs to the base (average load conditions), extra capacity (peaking conditions), customer-related parameters (meters services and customer billing), and direct cost (fire protection). This allocation methodology produces unit costs for allocation to individual customer classes based on the projected customer service requirements.

RATE DESIGN

Through the cost-of-service analysis, the allocation of costs to customer classes must meet Proposition 218 requirements. The Right to Vote on Taxes Act, also known as Proposition 218, was passed

by California voters in 1996 and added Article XIIIC and Article XIIID to the California Constitution. These articles provide the regulatory framework that guides and informs the rate-setting process. The regulatory framework helps ensure cost recovery is proportionate to the cost of providing the service. In summary, Proposition 218 requires:

- Revenue derived from rates must not exceed funds required to provide the service.
- Revenue derived from rates must not be used for any purpose other than for which it is imposed.
- The rates imposed must not exceed the proportional cost of the service provided.

MPMW examined alternative rate structures in the analysis. The body of the report fully develops Scenario 2B. Appendix A contains the details supporting all scenarios. Through discussions with City Council and staff, the selected rate structure promotes water conservation, minimizes rate impacts, retains simplicity, and ensures revenue's reasonable stability.

- **Fixed Meter Charge**: MPMW's monthly fixed meter charge is based on meter sizes for all customer classes. The monthly fixed meter service charge recovers portions of fixed cost elements such as meter maintenance and services, meter reading, customer billing, and maintenance and capacity costs associated with public fire protection.
- **Unmetered Fire Fixed Charge**: MPMW's fixed fire service charge is based on meter size for private fire service connections. The fire service charge will recover the costs of maintenance and capacity costs associated with private fire protection costs.
- **Consumption Charge**: MPMW's consumption charge for all customers is on a centum cubic foot (CCF) or hundred cubic feet basis. The consumption charges recover costs associated with average day and peak day capacity demands.
- **Capital Facility Surcharge**: MPMW's consumption-based surcharge currently recovers capital costs associated with the repair and rehabilitation of the water system. The capital facility surcharge was implemented in 1990 to help MPMW fund CIP projects.

Table ES-3 summarizes the recommended five-year rate schedules for Scenario 2B.

Table ES-3 Proposed Five-Year Rate Schedule (Scenario 2B)

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Monthly Fixed Meter Charge ($/Month)						
5/8"	28.21	27.58	28.96	30.41	31.93	33.53
3/4"	28.21	27.58	28.96	30.41	31.93	33.53
1"	47.03	45.97	48.27	50.68	53.21	55.87
1-1/2"	94.05	91.95	96.55	101.38	106.45	111.77
2"	150.46	147.12	154.48	162.20	170.31	178.83
3"	282.14	294.24	308.95	324.40	340.62	357.65
4"	471.15	459.75	482.74	506.88	532.22	558.83
6"	940.45	919.50	965.48	1,013.75	1,064.44	1,117.66
8"	1,504.70	1,471.20	1,544.76	1,622.00	1,703.10	1,788.26
10"	2,163.01	2,114.84	2,220.58	2,331.61	2,448.19	2,570.60
Monthly Unmetered Fire Fixed Charges ($/Month)						
1-1/2"	16.93	30.23	31.74	33.33	35.00	36.75
2"	27.08	48.37	50.79	53.33	56.00	58.80
3"	50.79	96.73	101.57	106.65	111.98	117.58
4"	84.81	151.14	158.70	166.64	174.97	183.72
6"	169.28	302.29	317.40	333.27	349.93	367.43
8"	270.85	483.66	507.84	533.23	559.89	587.88
10"	389.34	695.26	730.02	766.52	804.85	845.09
12"	727.90	1,299.83	1,364.82	1,433.06	1,504.71	1,579.95
Consumption Charge ($/CCF) - Three Tier						
Tier 1 (0-6 CCF)		5.09	5.34	5.61	5.89	6.18
Tier 2 (7-12 CCF)		6.82	7.16	7.52	7.90	8.30
Tier 3 (Over 12 CCF)		8.69	9.12	9.58	10.06	10.56
Capital Facility Surcharge						
All Usage	1.50	1.58	1.66	1.74	1.83	1.92

1 Revenue and Revenue Requirements

To meet the costs associated with providing water services to its customers, MPMW derives revenue from various sources, including water user rates, capacity fees, capital facility surcharges, interest earned from the investment of available funds, and other operating charges. Black & Veatch has projected the level of future revenue generated in the Study based on historical data and future system growth in terms of the number of connections and consumption. In addition, this section projects the expenses or revenue requirements necessary to operate and maintain the system, invest in capital improvements, and cover other water system expenses.

1.1 CUSTOMER AND WATER CONSUMPTION PROJECTIONS

1.1.1 Customer Connections

MPMW provides water services to approximately 4,400 residential and non-residential customers. The following is a brief description of the customer classes:

- Residential: This represents single-family and multi-family residential customers.
- Non-Residential: This represents commercial, industrial, irrigation, institutional, and construction (hydrant).
- Fire: This represents dedicated private fire connections.

All customers, except for unmetered fire, are connected to the water system via metered-connections. The projected total number of connections is expected to grow over the five-year study period, with an average growth of 0.9 percent per year based on MPMW's draft 2020 Urban Water Management Plan (UWMP). The UWMP is developed in coordination with the City's General Plan, Planning Division, Public Works Department, and Environmental Programs Department. The projections are based on the current General Plan's build-out and any additional allowable development associated with ConnectMenlo. Table 1-1 summarizes the projected number of connections for MPMW.

Table 1-1 Projected Number of Connections

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		(Conn)	(Conn)	(Conn)	(Conn)	(Conn)
	Connections					
1	Single Family Residential	3,361	3,362	3,364	3,365	3,366
2	Multi Family Residential	266	298	330	361	371
3	Commercial	199	210	220	231	235
4	Industrial	215	211	208	204	201
5	Irrigation/Landscape	149	156	162	169	173
6	Public Institutional	42	43	45	46	46
7	Hydrant	10	10	11	11	11
8	Private Fire	143	143	143	143	143
9	Total	4,385	4,433	4,483	4,530	4,546

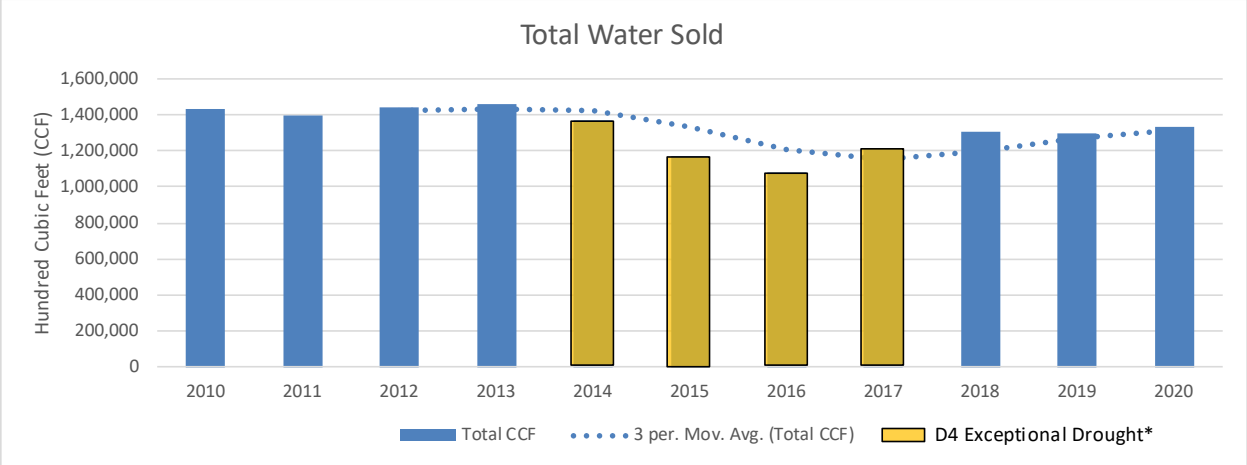
1.1.2 Water Consumption

MPMW and Black & Veatch examined historical water consumption patterns by customer class based on available data in conjunction with projected water consumption, potential future development

in the City, and water conservation requirements set forth by the State of California in the Water Conservation Act of 2009 (SBx7-7).

In analyzing the historical water consumption patterns, Black & Veatch examined total water consumption and plotted a 3-year moving average of total usage between 2010 and 2020, as shown in Figure 1-1. Based on consumption, in 2013 usage peaked at 1,457,000 CCF, thereafter it steadily declined to 1,076,000 CCF in 2016. The decrease in 2015 and 2016 was due to drought conditions which prompted Executive Order B29-15 to be issued by the State of California Governor Brown on April 1, 2015. Executive Order B29-15 directed the State Water Resources Control Board (SWRCB) to impose restrictions on water providers to achieve a statewide 25 percent reduction in potable urban water usage through February 16, 2016. Each water provider was tasked to reduce water usage by a specific percentage based on different factors such as historical conservation efforts, climate, existing gallons per day per capita usage, etc. MPMW's goal was 20 percent, which its customers met. On April 7, 2017, the Governor lifted the drought declaration and mandatory statewide conservation. As shown in Figure 1-1, consumption bounced back from 2017 through 2020. During the analysis, MPMW received projected five-year water consumption based on the draft 2020 UWMP. It is expected consumption to increase on average 3.6 percent per year over the five-year study period.

Figure 1-1 Historical Water Consumption



* The State of California drought classification, which represents shortages of water creating water emergencies.

SBx7-7 was enacted in November 2009, and it required all water suppliers to increase their water use efficiency. The overall goal of SBx7-7 was to encourage urban and agricultural water providers to implement conservation, monitor water consumption, and report to the SWRCB. Specifically to urban water providers, the goal was to achieve a 20 percent reduction in water use by 2020. Based on the 2015 UWMP prepared by Erler & Kalinowski, Inc., in June 2016, the 2020 target was 204 gallons per day per capita (gpcd). In 2015, MPMW's actual consumption was 158 gpcd based on the 2015 UWMP, thus meeting the 2020 requirement. While consumption is expected to increase as identified in the draft 2020 UWMP, MPMW expects to remain compliant with the target over the five-year study period.

Table 1-2 shows the projected water consumption for the five-year study period.

Table 1-2 Projected Water Consumption

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		(CCF)	(CCF)	(CCF)	(CCF)	(CCF)
	Consumption					
1	Single Family Residential	403,717	405,054	406,391	409,065	407,176
2	Multi Family Residential	159,081	176,460	193,839	211,218	215,825
3	Commercial	375,643	402,379	431,789	462,536	470,792
4	Industrial	183,143	181,806	180,469	179,132	175,802
5	Irrigation/Landscape	105,608	113,629	120,313	126,997	128,307
6	Public Institutional	104,271	112,292	121,650	131,008	132,828
7	Hydrant	1,669	1,669	1,669	1,669	1,669
8	Total (CCF)	1,333,132	1,393,289	1,456,120	1,521,625	1,532,399

1.2 REVENUE UNDER EXISTING RATES

Water user rates serve as the primary source of revenue for MPMW. Therefore, the level of future rate revenue is important in the development of a long-range financial plan. Rate revenue is determined by multiplying the projected system growth in terms of the number of connections and billed water consumption by the applicable rates.

Table 1-3 shows MPMW's current schedule of charges as of FY 2021. There are several charges applied to different customers based on the services received. Typical customers are charged a monthly fixed meter charge, a consumption charge, and a capital surcharge. Private fire connections are charged a monthly fire fixed charge.

Table 1-3 Existing Water Rates

Description	Water Charges FY 2021
Monthly Fixed Meter Charge ($/Month)	$/Month
5/8"	28.21
3/4"	28.21
1"	47.03
1-1/2"	94.05
2"	150.46
3"	282.14
4"	471.15
6"	940.45
8"	1,504.70
10"	2,163.01
Consumption Charge ($/CCF)	
Tier 1 (0-6 CCF)	5.57
Tier 2 (Over 6 CCF)	7.98
Capital Facility Surcharge	
All Usage	1.50

Description	Water Charges FY 2021
Monthly Unmetered Fire Fixed Charges ($/Month)	
1-1/2"	16.93
2"	27.08
3"	50.79
4"	84.81
6"	169.28
8"	270.85
10"	389.34
12"	727.90

Table 1-4 represents a summary of projected water rate revenue under existing rates with no revenue adjustments (Scenario 0). As shown, the revenue generated is anticipated to increase over the five-year study period in conjunction with the number of connections and water consumption. Projected revenue increases from $15,012,400 in FY 2022 to $17,040,900 in FY 2026.

Table 1-4 Projected Revenue under Existing Rates

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		($)	($)	($)	($)	($)
	Monthly Fixed Meter					
1	Single Family Residential	1,301,300	1,301,600	1,302,300	1,302,600	1,303,000
2	Multi Family Residential	249,000	280,000	310,900	341,300	349,900
3	Commercial	389,000	401,400	412,000	424,400	427,500
4	Industrial	332,600	328,800	325,500	321,700	318,400
5	Irrigation/Landscape	195,700	204,300	211,700	220,300	225,600
6	Public Institutional	106,100	107,900	110,300	112,100	112,100
7	Hydrant	27,500	27,500	30,900	30,900	30,900
8	Total Monthly Fixed Meter	2,601,200	2,651,500	2,703,600	2,753,300	2,767,400
	Monthly Unmetered Fire Fixed					
9	Private Fire	345,500	345,500	345,500	345,500	345,500
10	Total Monthly Unmetered Fire Fixed	345,500	345,500	345,500	345,500	345,500
	Consumption					
11	Single Family Residential	2,756,200	2,765,300	2,774,500	2,792,700	2,779,800
12	Multi Family Residential	1,230,200	1,364,600	1,499,000	1,633,400	1,669,100
13	Commercial	2,974,900	3,186,600	3,419,600	3,663,100	3,728,400
14	Industrial	1,434,100	1,423,600	1,413,200	1,402,700	1,376,600
15	Irrigation/Landscape	832,900	896,100	948,800	1,001,500	1,011,900
16	Public Institutional	824,700	888,200	962,200	1,036,200	1,050,600
17	Hydrant	13,000	13,000	13,000	13,000	13,000
18	Total Water Consumption	10,066,000	10,537,400	11,030,300	11,542,600	11,629,400
	Capital Facility Surcharge					
19	Single Family Residential	605,600	607,600	609,600	613,600	610,800
20	Multi Family Residential	238,600	264,700	290,800	316,800	323,700
21	Commercial	563,500	603,600	647,700	693,800	706,200
22	Industrial	274,700	272,700	270,700	268,700	263,700
23	Irrigation/Landscape	158,400	170,400	180,500	190,500	192,500
24	Public Institutional	156,400	168,400	182,500	196,500	199,200
25	Hydrant	2,500	2,500	2,500	2,500	2,500
26	Total Water Capital Surcharge	$ 1,999,700	$ 2,089,900	$ 2,184,300	$ 2,282,400	$ 2,298,600
27	Total Water System (Operating)	$ 15,012,400	$ 15,624,300	$ 16,263,700	$ 16,923,800	$ 17,040,900

1.3 OTHER REVENUE

MPMW generates other operating revenue sources from miscellaneous fees and charges such as new customer installations, plan checks, interest on investments, and other minor miscellaneous charges. In total, other operating revenues represent less than one-percent of MPMW's total revenue. MPMW anticipates that these revenues will remain relatively flat for the five-year study period.

1.4 OPERATING AND MAINTENANCE EXPENSES

Table 1-5 summarizes MPMW's projected O&M expense for the five-year study period. These expenses include costs related to water purchase, contract and professional services, salaries and benefits, materials and supplies (operating expenses), fringe benefits, special project expenditures, routine capital outlay, utilities, repair and maintenance, and travel. The special project expenditures represent transfer to the general fund for indirect costs such as legal, finance, and human resources. MPMW benefits from utilizing general fund resources associated with the indirect costs due to economies of scale and thus experience lower operating costs.

MPMW, in conjunction with the City, anticipates that all O&M expenditures excluding water purchases will increase on average about 3.1 percent per year starting FY 2022. The 3.1 percent closely tracks the Consumer Price Index Uninflated (CPI-U)[1] before COVID-19 conditions, where the four-year average ending December 2019 was 3.4 percent. Due to COVID-19, the 12-month CPI-U ending December 2020 was 2.0 percent, but it is expected that this value to increase.

Table 1-5 O&M Expenses

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		($)	($)	($)	($)	($)
	Operating Expenses					
1	Water Purchase	6,382,000	6,803,400	8,163,600	8,789,800	9,536,700
2	Services	1,084,500	1,113,700	1,143,700	1,174,500	1,206,200
3	Salaries & Wages	949,500	977,900	1,007,200	1,037,500	1,068,600
4	Operating Expenses	501,800	522,000	542,800	564,400	587,000
5	Fringe Benefits	468,300	482,500	497,100	512,000	527,400
6	Special Project Expenditures	287,700	296,300	305,200	314,300	323,800
7	Fixed Assets & Capital Outlay	130,300	134,300	138,300	142,400	146,600
8	Utilities	113,100	118,700	124,700	130,900	137,400
9	Repairs & Maintenance	99,000	102,000	105,100	108,300	111,500
10	Travel	2,300	2,400	2,500	2,600	2,700
11	Total	$ 10,018,500	$ 10,553,200	$ 12,030,200	$ 12,776,700	$ 13,647,900

As shown in Table 2-5, MPMW's O&M expenses are projected to increase from $10,018,500 in FY 2022 to $13,647,900 in FY 2026.

1.4.1 Wholesale Water

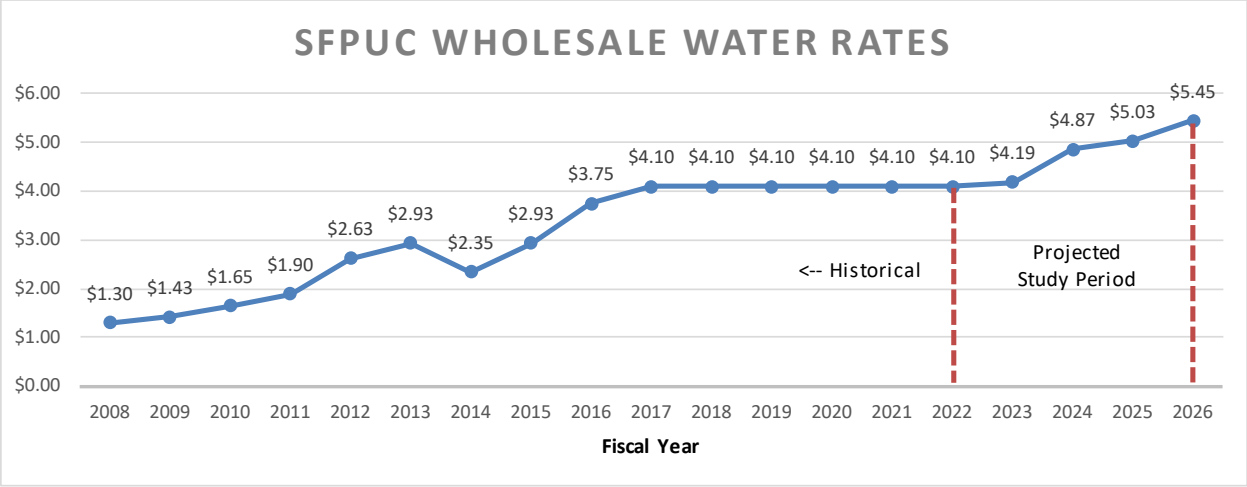
The highest O&M cost is for wholesale water purchases. Wholesale water purchase costs, including the Bay Area Water Supply & Conservation Agency (BAWSCA) surcharge, account for about 67.0 percent on average of the total annual O&M expenses over the five-year study period.

MPMW purchases 100 percent of its wholesale water supply from SFPUC. In 2012, SFPUC began an extensive multi-year capital improvement program to repair and rehabilitate the Hetch Hetchy regional water system. The program involved all aspects of the regional water system, including the mountain

[1] Consumer Price Index. Table A. San Francisco-Oakland-Hayward, CA. <CPI - https://www.bls.gov/regions/west/news-release/consumerpriceindex_sanfrancisco.htm>

tunnel, conveyance system, dams and reservoirs, buildings, powerhouses, and power transmission lines. In anticipation of the program, SFPUC began to increase its wholesale water rates around 2008. Between FY 2008 and FY 2020, SFPUC rates have increased from $1.30 per HCF to $4.10 per HCF. While SFPUC has maintained a constant rate since 2017, SFPUC rates anticipate a total increase of 32.9 percent through FY 2026. Figure 6 shows historical and projected SFPUC wholesale water rates.

Figure 1-2 Historical and Projected Wholesale Water Rates



In addition to the SFPUC wholesale water rate, BASWCA adds a bond surcharge. In February 2013, BAWSCA issued bonds to prepay its member agencies' share of outstanding capital costs owed to the SFPUC to achieve savings. Annual debt service costs for the BAWSCA bonds are allocated to the member agencies based on their share of total SFPUC wholesale water deliveries from the prior fiscal year. The BAWSCA surcharge replaces the prior capital recovery component of the SFPUC's wholesale water rates and results in a lower overall charge per CCF of wholesale water. The BAWSCA bond surcharge fluctuates based on bond payments. In FY 2021, the bond surcharge is $0.40 per CCF, and MPMW expects this rate to remain the same over the study period.

1.5 LONG-TERM DEBT

It is common practice for utilities to utilize debt to finance multi-year capital improvement projects, but financing options will depend on the utility's financial conditions. By financing capital improvements, MPMW can immediately fund major projects and spread the payment over a specified time frame. If MPMW decides to utilize debt financing, there are two primary sources: 1) Revenue Bonds and 2) State Revolving Fund Loans. The long-term debt options are summarized below.

TYPE OF DEBT	DESCRIPTION
Revenue Bond	▪ A revenue bond is a municipal bond sold to investors ▪ Repayment is made from fees associated with water sales of MPMW ▪ Parties involved in the transaction: MPMW, financial advisor, financial institution, underwriter, bond counsel, and trustee ▪ There are up-front costs associated with the issuance of the debt ▪ There are requirements: Debt Reserve Fund and Annual Debt Service Coverage ▪ The term is generally 30 years repayment

	▪ The interest rate is about 5.5% as of 2021
State Revolving Fund Loan	▪ An SRF loan is a loan from the State of California, State Water Resources Control Board ▪ Repayment is made from fees and charges associated with water sales of MPMW ▪ Parties involved in the transaction: MPMW, State Water Resources Control Board, City counsel ▪ There are no-front costs associated with the issuance of the debt, but there is an application process that will require MPMW staff time to prepare ▪ There are requirements: Application Process and Annual Reporting ▪ The term is 20 to 30 years for payback (or the project's useful life) ▪ The interest rate is about 1.40% as of the end of 2020

In Scenario 2, MPMW intends to obtain a State Revolving Fund loan for $23,000,000 in FY 2026. The debt service payment is not expected to be paid back in the five-year study period. SRF loans begin repayment after construction is complete; therefore, repayment will occur in FY 2027 at the earliest. The SRF loan is based on a loan with a 2.25 percent interest rate and a term of 20 years.

1.6 CAPITAL IMPROVEMENT PROGRAM

MPMW prepared a Water System Master Plan report dated April 2018 in which it performed an extensive evaluation of the distribution system. The report identified infrastructure needs and provided recommendations on capital expenditures. Using the report as guidelines, MPMW reviewed and developed the following multi-year CIP that levelized project expenditures through five years. Such projects would be more feasible to execute and minimize rate impacts. Based on the CIP, MPMW anticipates that it will need a total of $60,414,500 over the five-year study period.

Table 1-6 summarizes the planned CIP for FY 2022 through FY 2026.

Table 1-6 Capital Improvement Projects

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		($)	($)	($)	($)	($)
	Water Capital Improvements					
1	Automated water meter reading	1,045,000	1,535,000	0	0	0
2	Emergency Water Storage/Supply	800,000	2,550,000	3,060,000	0	0
3	Water Main Replacement Project	1,854,000	1,800,000	2,565,000	4,420,000	2,025,900
4	Calwater Alma Interconnection	140,000	1,500,000	0	0	0
5	Palo Alto Pope Chaucer Interconnection	344,300	0	0	0	0
6	Lower Zone 10" Check Valve for SRI for Bu rgess SFPUC Turnout	0	0	98,600	0	0
7	Lower Zone 12" Check Valves (2) for Hill S FPUC Turnout	0	0	195,900	0	0
8	Fire Flow Capacity Improvements	1,092,700	0	0	1,779,100	0
9	Post Earthquake Operational Plan	58,500	0	0	0	0
10	Lower Zone Services PRVs	0	0	0	0	1,266,800
11	Install Automated Blowoffs at Dead Ends	0	0	0	0	239,800
12	2.5 MG Storage Tank	0	0	2,200,000	2,266,000	27,000,000
13	Sharon Heights Pump Station VFDs	0	0	0	0	312,400
14	Water Rate Study	0	0	0	0	103,200
15	Urban Water Management Plan	0	0	0	0	162,300
16	Total	$ 5,334,500	$ 7,385,000	$ 8,119,500	$ 8,465,100	$ 31,110,400

The following provides a brief overview of key CIP projects based on FY 2020-21 Adopted Budget:

- Automated Water Meter Reading – The installation of a communication system enables MPMW to read water meters automatically rather than manually. With this upgrade, the accuracy of meter reads would be improved, resulting in the timely detection of water leaks, water loss reduction, and improved customer service.
- Emergency Water Storage/Supply - The development of wells and storage to provide a secondary water supply in the lower zone service area. An emergency water supply would be needed in the event of an outage or reduced supply of the Hetch Hetchy system.
- Water Main Replacement Project – The ongoing design and replacement of the aging water supply system ensures continued public health protection and system reliability. Using a condition assessment based on pipe age, material, size, and hazards, sections of the water system most vulnerable to failure are selected for replacement.
- Fire Flow Capacity Improvement - The planning, design, and implementation of water infrastructure improvements to address fire flow capacity deficiencies identified throughout the water system.
- Storage Tank – The storage tank is part of Emergency Water Storage/Supply but listed separately to show anticipated costs. The planning, design, and construction of a 2.5 MG underground storage tank to meet the operational, emergency, and fire flow storage needs of the Lower Pressure Zone.

1.6.1 Capital Improvement Financing Plan

MPMW funds annual expenditures for the CIP from a combination of revenues derived from operating, debt proceeds, capacity fees, capital facility surcharge interest earnings, and available funds on hand.

Table 1-7 shows the capital financial plan for MPMW under Scenario 2B. In this scenario, the capital facility surcharge consolidates with the consumption charge. It is expected that the operating fund will contribute funds for capital expenditures in an average amount of $7,000,000 per year over the five-year study period. In terms of debt proceeds, MPMW would obtain an SRF loan for $23,000,000 in FY 2026. Capacity fees, one-time fees when connecting to the water system, can only be used for capital improvements and will contribute a total of $3,527,400 over the five-year study period.

The source of funds identified in Scenario 2B, covers the identified total CIP expenditures of $60,414,500.

Table 1-7 Capital Fund (Scenario 2B)

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		($)	($)	($)	($)	($)
	Source of Funds					
1	Transfer from Operating Fund	4,900,200	4,695,700	4,471,100	4,225,400	4,065,800
2	Debt Proceeds	0	0	0	0	23,000,000
3	Water Capacity Fees	838,900	813,300	844,400	804,200	226,600
4	Capital Facility Surcharge	2,099,800	2,304,300	2,528,900	2,774,600	2,934,200
5	Interest Income	47,700	57,200	52,800	40,700	23,800
6	Total Sources	$ 7,886,600	$ 7,870,500	$ 7,897,200	$ 7,844,900	$ 30,250,400
	Use of Funds					
7	Capital Projects	5,334,500	7,385,000	8,119,500	8,465,100	31,110,400
8	Total Uses	$ 5,334,500	$ 7,385,000	$ 8,119,500	$ 8,465,100	$ 31,110,400
9	Net Annual Cash Balance	2,552,100	485,500	(222,300)	(620,200)	(860,000)
10	Beginning Unrestricted Fund Balance	(121,678)	2,430,422	2,915,922	2,693,622	2,073,422
11	Net Cumulative Fund Balance	$ 2,430,422	$ 2,915,922	$ 2,693,622	$ 2,073,422	$ 1,213,422
12	Reserve Target [1]	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000

[1] Reserve Target set at $1M.

1.7 RESERVES

MPMW has reserve goals in place for operating and capital. A utility typically establishes reserves for several reasons, such as covering shortfalls in operating revenues, maintaining strong bond ratings, covering day-to-day operating costs, and easing the burden on ratepayers associated with large rate increases. Therefore, MPMW will continue with its two reserves:

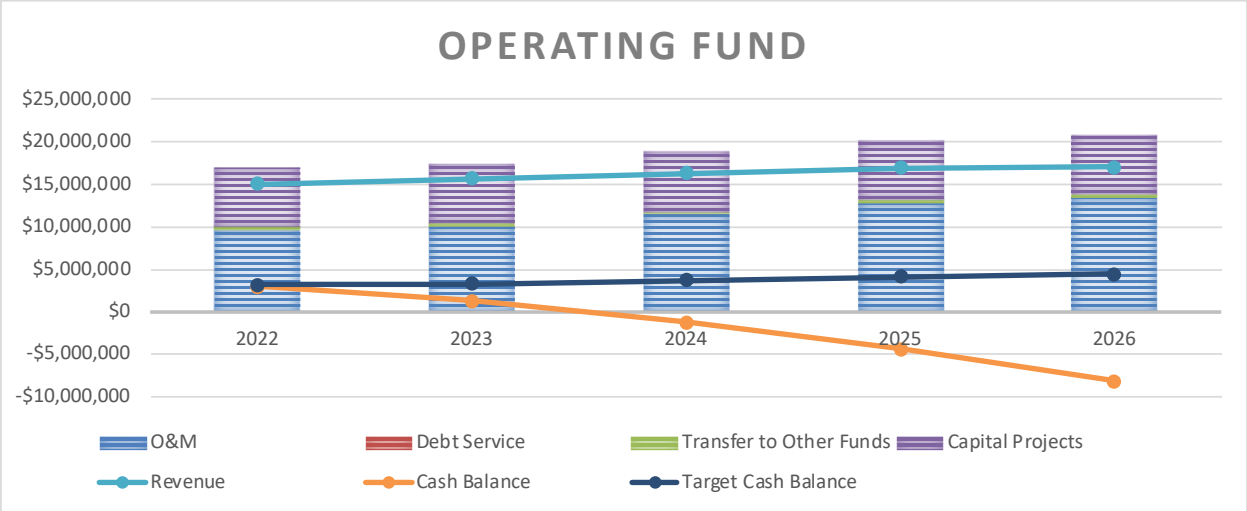
- Operating Reserve represents working capital maintained by the Operating Fund to cover day-to-day expenses and maintain enough funds to cover accounts receivables if there are supplier issues, periods of lower than expected water sales, or unforeseen cost increases. The reserve has a target of 120 days of operating expenses (estimated $3.2M for FY 2022).
- Capital Reserve represents funds used for unforeseen and unbudgeted capital costs. The reserves target to maintain a balance equaled to $1,000,0000.

1.8 PROJECTED OPERATING RESULTS

The revenue requirements of MPMW consist of O&M expenses, debt service, and transfers to other funds, and the capital fund for capital expenditures.

To fully understand the current condition of MPMW, it was important to examine the cash flow projections under Scenario 0 (status quo). In this scenario, MPMW would not impose any revenue increases over the five-year study period and continue to incur O&M expenses, debt service payments, and transfers. As shown in Figure 1-3, the status quo conditions would project that MPMW would operate in an annual deficit position tapping into its reserves. By FY 2024, the operating fund would run out of funds and need significant rate increases or support from the City's General Fund.

Figure 1-3 Operating Cash Flow (Scenario 0)



To avoid a deficit position, MPMW would need to implement the revenue increases, as shown in Table 1-8 for Scenario 2B. The revenue increases represent the overall total revenue adjustment needed to meet revenue requirements. The revenue adjustment does not represent adjustments to the individual rates but reflects the overall revenue level needed to meet MPMW's obligations.

The suggested revenue increases help MPMW meet the following goals:

- Meet budgeted operating obligations.
- Meet planned capital investments.
- Maintain an operating reserve of 120 days of operating expenses.
- Maintain capital reserve equaled to $1,000,000.

Table 1-8 Operating Fund (Scenario 2B)

Line No.	Description			Fiscal Year Ending June 30, FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
				$	$	$	$	$
	Revenue							
	Rate Revenue							
1	Revenue from Existing Rates			15,012,400	15,624,300	16,263,700	16,923,800	17,040,900
	Year	Months Effective	Rate Adj					
2	2022	12	5.00%	750,600	781,200	813,200	846,200	852,000
3	2023	12	5.00%		820,300	853,800	888,500	894,600
4	2024	12	5.00%			896,500	932,900	939,400
5	2025	12	5.00%				979,600	986,300
6	2026	12	5.00%					1,035,700
7	Increased Revenue Due to Adjustments			750,600	1,601,500	2,563,500	3,647,200	4,708,000
8	Subtotal Rate Revenue			$ 15,763,000	$ 17,225,800	$ 18,827,200	$ 20,571,000	$ 21,748,900
	Other Operating Revenue							
9	Inter Governmental Revenue			0	0	0	0	0
10	Use of Money & Property			74,000	69,500	67,300	85,100	109,300
11	Charges for Services			25,300	25,600	25,900	26,200	26,500
12	Other Financing Sources			0	0	0	0	0
13	Subtotal Other Operating Revenue			$ 99,300	$ 95,100	$ 93,200	$ 111,300	$ 135,800
14	**Total Revenue**			**$ 15,862,300**	**$ 17,320,900**	**$ 18,920,400**	**$ 20,682,300**	**$ 21,884,700**
	Revenue Requirements							
	Operating & Maintenance							
15	O&M Expenses			9,600,800	10,122,900	11,587,000	12,320,300	13,177,800
16	Routine Capital Outlay			130,300	134,300	138,300	142,400	146,600
17	Subtotal O&M			$ 9,731,100	$ 10,257,200	$ 11,725,300	$ 12,462,700	$ 13,324,400
	Debt Service							
18	Existing SRF Loans			0	0	0	0	0
19	Proposed SRF Loans			0	0	0	0	0
20	Total Debt Service			$ 0	$ 0	$ 0	$ 0	$ 0
	Transfers							
21	Transfer to Other Funds			287,400	296,000	304,900	314,000	323,500
22	Transfer to Capital Fund			7,000,000	7,000,000	7,000,000	7,000,000	7,000,000
23	Total Transfers			$ 7,287,400	$ 7,296,000	$ 7,304,900	$ 7,314,000	$ 7,323,500
24	**Total Revenue Requirements**			**$ 17,018,500**	**$ 17,553,200**	**$ 19,030,200**	**$ 19,776,700**	**$ 20,647,900**
25	Net Annual Cash Balance			(1,156,200)	(232,300)	(109,800)	905,600	1,236,800
26	Beginning Fund Balance			4,932,500	3,776,300	3,544,000	3,434,200	4,339,800
27	Net Cumulative Fund Balance			$ 3,776,300	$ 3,544,000	$ 3,434,200	$ 4,339,800	$ 5,576,600
28	Target Operating Reserves (120 Days)			$ 3,156,400	$ 3,328,100	$ 3,809,400	$ 4,050,500	$ 4,332,400

Error! Reference source not found. presents the proposed Operating Fund for Scenario 2B.

Figure 1-4 Proposed Operating Cash Flow (Scenario 2B)

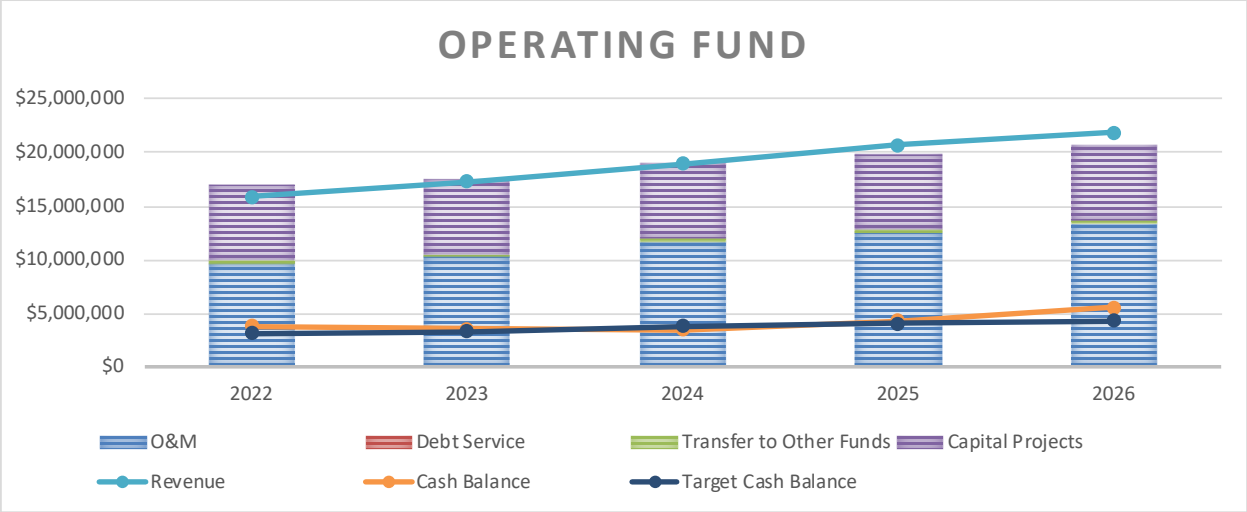


Table 1-8 summarizes the proposed Operating Fund for the five-year study period for Scenario 2B. The Operating Fund consists of two parts: 1) Revenue and 2) Revenue Requirements.

Revenue

- Line 1 is the revenue under existing rates. This revenue incorporates the capital facility charges.
- Lines 2 through 7 are the additional revenue generated from the required annual revenue increases. The additional revenue generated is a direct reflection of the number of months the increase is effective for, and therefore the amount might calculate at less than that stated amount.
- Line 8 is the total revenue generated from user charges.
- Line 13 represents the total of other operating revenues.
- Line 14 represents total revenues for the Operating Fund.

Revenue Requirements

- Line 17 represents the total O&M expenses and routine capital outlay. This includes water purchases.
- Line 18 and 19 represent existing and proposed debt service payments. MPMW has no existing debt on the books but is expected to get a future State Revolving Loan.
- Line 21 represents transfers to the General Fund to pay for indirect costs.
- Line 22 represents transfers to the capital fund to help execute capital projects in the multi-year CIP.
- Line 24 represents total revenue requirements for the Operating Fund.

Line 27 represents the net cumulative cash balance within the Operating Fund. The net cumulative cash balance intends to match, to the extent possible, Line 28. The reserve target is set at 120 days of O&M expenses, consistent with the proposed operating reserve goal.

2 Cost of Service Analysis

Cost of Service analysis requires recovery of MPMW's needed revenues from rates for water service, allocated to customer classes according to the service rendered. An equitable rate structure allocates the capture of revenue requirements to customer classes based on the quantity of water consumed and peak flows, the number of customer connections, and other relevant factors.

In analyzing MPMW's cost of service for allocation to its customer classes, Black & Veatch selected the annual revenue requirements for FY 2022 as the Test Year requirements to demonstrate the development of cost-of-service water rates. Table 2-1 summarizes the total service costs that need to be recovered from water user rates for Scenario 2B. The table represents Test Year 2022.

Table 2-1 Cost of Service Revenue from Rates (Scenario 2B)

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		($)	($)	($)
	Revenue Requirements			
1	O&M Expense	9,600,800	0	9,600,800
2	Routine Capital Outlay	130,300	0	130,300
3	Debt Service Requirements	0	0	0
4	Transfers to Other Funds	287,400	0	287,400
5	Transfers to Water Capital	0	7,000,000	7,000,000
6	Subtotal	$ 10,018,500	$ 7,000,000	$ 17,018,500
	Less Revenue Requirements Met from Other Sources			
7	Inter Governmental Revenue	0	0	0
8	Use of Money & Property	74,000	0	74,000
9	Charges for Services	25,300	0	25,300
10	Other Financing Sources	0	0	0
11	Subtotal	$ 99,300	$ 0	$ 99,300
	Adjustments			
12	Adjustment for Annual Cash Balance	680,600	475,600	1,156,200
13	Adjustment to Annualize Rate Increase	0	0	0
14	Subtotal	$ 680,600	$ 475,600	$ 1,156,200
15	Cost of Service to be Recovered from Rates	$ 9,238,600	$ 6,524,400	$ 15,763,000

Shown in Line 6 is the total revenue requirement that corresponds with Table 1-8, Line 24. Deducting revenues from other sources from revenue requirements provides the net revenue requirements, as shown in Line 11.

Line 12 represents the net annual cash balance during the Test Year. If the utility is drawing down funds already in the Operating Fund, then this number is positive. The number will be negative if the utility is replacing funds. In the case of MPMW, the $1,156,200 figure indicates that the forecast is projecting a negative cash balance for the year.

Since MPMW expects to implement the revenue adjustment starting on July 1, 2021, the final service recovery cost from rates does not require an adjustment. Therefore, Line 13 represents no additional revenues generated.

2.1 FUNCTIONAL COST COMPONENTS

The first step in conducting a cost-of-service analysis involves analyzing the cost of providing water service by system function to properly allocate the costs to the various customer classes and subsequently design rates. As a basis for allocating costs of service among customer classes, costs were separated into the following four basic functional cost components: (1) "Base"; (2) "Extra Capacity"; (3) "Customer"; and (4) "Direct Assignment," described as follows:

- Base costs represent the system's operating and capital costs associated with service to customers to the extent required under constant or average annual load conditions without the elements necessary to meet water consumption variations or peak demands.
- Extra Capacity costs represent those operating and capital costs incurred in meeting peaking demands. Peaking demands represent water consumption in excess of the average rate of use.
- Customer costs are those expenditures that tend to vary in proportion to the number of customers connected to the system. These include maintenance and capital costs associated with meters and services, meter reading, billing, collecting, and accounting.
- Directly assigned costs are costs specifically identified as those incurred to serve specific customers. These costs include fire protection.

2.2 ALLOCATION TO COST COMPONENTS

The next step of the cost-of-service process involves allocating each element of cost to functional cost components based on the parameter or parameters having the most significant influence on the magnitude of that element of cost. O&M expense items were allocated directly to appropriate cost components. A detailed allocation of related capital investment was used as a proxy for allocating capital and replacement costs. The separation of costs into functional components provides a means for distributing such costs to the various classes of customers based on their respective responsibilities for each type of service.

2.2.1 System Base, Max Day, and Max Hour Allocations

The water system consists of various facilities, each designed and operated to fulfill a given function. For the system to provide adequate service to its customers, it must meet the annual volume requirements and the maximum demand rates placed on the system. Because not all customers and types of customers exert maximum demand at the same time, the capacities of the various facilities must meet the maximum coincidental demand of all classes of customers. Each water service facility within the system has an underlying average demand exerted by the customers for whom the base cost component applies. For those facilities designed solely to meet average day demand, 100% of the costs go to the base cost component. Extra capacity requirements associated with coincidental demands in excess of average use consist of maximum daily and maximum hourly demand subcomponents.

For volume-related cost allocations, the first step in determining the allocation percentages is to assign system peaking factors. The base element is equal to the average daily demand (ADD) and assigned

a value of 1.0. Based on the Water System Master Plan dated 2018, the existing water system has a maximum day (max day) demand of 1.5 times the ADD based on experience with similar systems. Thus, the max day factor value of 1.5. The maximum hourly (max hour) demand is 2.1 times the ADD. Thus, the max hour factor value of 2.1.

The costs associated with facilities required to meet maximum day demand are allocable to base and maximum day extra capacity as follows:

- Base = (1.0/1.5) x 100 = 66.7%
- Max Day = (1.5 – 1.0)/1.5 x 100 = 33.3%

These calculations indicate that the average or base use requires 66.7% of the capacity of facilities designed and generated to meet maximum day demand, and the remaining 33.3% meets maximum day extra capacity requirements.

The costs associated with facilities required to meet maximum hour demand are allocable to base, maximum day extra capacity, and maximum hour extra capacity as follows:

- Base = (1.0/2.1) x 100 = 47.6%
- Max Day = (1.5 – 1.0)/2.1 x 100 = 23.8%
- Max Hour = (2.1 – 1.5)/2.1 x 100 = 28.6%

2.2.2 Allocation of Functional Costs

To allocate O&M and capital costs to costs components shown in Section 2.1, the O&M and capital costs were allocated to a function or activity such as water supply, pumping, treatment, water storage, transmission and distribution, meters, hydrants, or general plant to the extent possible. In cases where O&M or capital costs cannot be identified into a specific function, then the average of the existing and proposed fixed assets is used as a basis. All fixed assets are categorized into functions and then allocated to the cost component. The result sets a distribution of fixed assets that can be used to allocate other O&M and capital costs. Table 2-2 represents the functional costs allocated to the cost components.

Table 2-2 Allocation of Function Costs (Scenario 2B)

Line No.	Description	Common to All Customers					Fire Protection
		Base	Max. Day	Max. Hour	Meters	Cust/Bill.	
	O&M & Capital Allocations						
1	Water Supply	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2	Pumping	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%
3	Treatment	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%
4	Water Storage	9.0%	0.0%	90.0%	0.0%	0.0%	1.0%
5	Transmission & Distribution	47.6%	23.8%	28.6%	0.0%	0.0%	0.0%
6	Meters	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
7	Customer	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
8	Hydrants	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
9	Transfers	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
10	FA - Avg Net Plant [1]	54.4%	14.5%	21.0%	3.9%	0.0%	6.2%
11	Avg O&M (less S&FB) [2]	85.7%	2.4%	3.4%	1.5%	5.7%	1.4%

Notes:
[1] FA - Net Plant represents the average of costs for all plant system elements.
[2] Avg O&M represents the average of costs for all O&M elements (excluding Salaries & Fringe Benefits).

2.2.3 Allocation of Operating and Maintenance Expenses

In allocating O&M expenses for Test Year (2022), the allocation factors in Table 3-2 were used to allocate the O&M costs to the cost components. Table 2-3, Lines 1-12 represent the allocations of O&M. Next, the revenues from other sources, as shown in Table 2-1, Line 11, and the adjustments shown in Table 2-1, Line 14, were subtracted to determine the net O&M costs. The net operating costs are shown in Line 15.

Table 2-3 Allocation of O&M Expenditures (Scenario 2B)

Line No.	Description	Total Cost	Common to All Customers					Fire Protection	Allocation Basis
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.		
		($)	($)	($)	($)	($)	($)	($)	
	Operation & Maintenance								
1	Salaries & Benefits	1,417,800	1,214,600	33,500	48,700	21,300	80,300	19,400	Avg O&M (less S&FB)
2	Operating Expenses	504,400	274,400	72,900	106,000	19,600	0	31,500	FA - Avg Net Plant
3	Utilities	113,100	61,500	16,300	23,800	4,400	0	7,100	FA - Avg Net Plant
4	Purchased Water	6,382,000	6,382,000	0	0	0	0	0	Water Supply
5	Services	613,900	334,000	88,700	129,000	23,900	0	38,300	FA - Avg Net Plant
6	Customer Billing	331,500	0	0	0	0	331,500	0	Customer
7	Capital Outlay	29,400	16,100	4,200	6,200	1,100	0	1,800	Customer
8	Meter Services	72,100	0	0	0	72,100	0	0	FA - Avg Net Plant
9	Hydrants	28,800	0	0	0	0	0	28,800	Meters
10	Repairs & Maintenance	99,000	53,900	14,300	20,800	3,800	0	6,200	Hydrants
11	Transfers	287,400	0	0	0	0	287,400	0	FA - Avg Net Plant
12	Total O&M Expenses	$ 9,879,400	$ 8,336,500	$ 229,900	$ 334,500	$ 146,200	$ 699,200	$ 133,100	
	Less Other Revenue								
13	Miscellaneous Revenues	(99,300)	(82,700)	(2,300)	(3,300)	(1,400)	(8,300)	(1,300)	Avg O&M
14	Other Adjustments	(680,600)	(566,500)	(15,600)	(22,700)	(9,900)	(56,900)	(9,000)	Avg O&M
15	Net Operating Expenses	$ 9,099,500	$ 7,687,300	$ 212,000	$ 308,500	$ 134,900	$ 634,000	$ 122,800	

2.2.4 Allocation of Capital Investments

In the allocation of capital investment for Test Year (2022), the allocation factors in Table 2-2 were used to allocate the existing and proposed fixed assets into the cost components. The existing and proposed fixed assets are used because they serve as a better proxy for current and future capital investments. Table 2-4, Line 10 shows the Test Year total system investment of $27,565,500 in existing and proposed system investment. This value represents the book value of the fixed assets. Using the distribution of total system investment across the cost components on Line 10, the planned capital costs can be allocated, as shown in Line 11. Like O&M, Table 2-4 subtracts revenues from other sources, as shown in Table 2-1, Line 11, and the adjustments are shown in Table 2-1, Line 14, to determine the net capital costs shown in Line 15.

Table 2-4 Allocation of Capital Costs (Scenario 2B)

Line No.	Description	Total Cost	Common to All Customers					Fire Protection	Allocation Basis
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.		
		($)	($)	($)	($)	($)	($)	($)	
	Plant Assets								
1	Water Supply	6,740,200	6,740,200	0	0	0	0	0	Water Supply
2	Pumping	4,117,400	2,744,900	1,372,500	0	0	0	0	Pumping
3	Treatment	0	0	0	0	0	0	0	Treatment
4	Water Storage	2,952,600	265,800	0	2,657,300	0	0	29,500	Water Storage
5	Transmission	1,035,700	493,200	246,600	295,900	0	0	0	Transmission & Distribution
6	Distribution	9,871,100	4,700,500	2,350,300	2,820,300	0	0	0	Transmission & Distribution
7	Meters	1,067,400	0	0	0	1,067,400	0	0	Meters
8	Hydrants	1,685,100	0	0	0	0	0	1,685,100	Hydrants
9	General Plant	96,000	52,200	13,900	20,200	3,700	0	6,000	FA - Avg Net Plant
10	Total Plant Assets	$ 27,565,500	$ 14,996,800	$ 3,983,300	$ 5,793,700	$ 1,071,100	$ 0	$ 1,720,600	
	Note: Using the distribution for Plant Assets								
	Capital Projects								
11	Capital Projects	7,000,000	3,808,300	1,011,500	1,471,300	272,000	0	436,900	FA - Avg Net Plant
12	Total Capital Projects	$ 7,000,000	$ 3,808,300	$ 1,011,500	$ 1,471,300	$ 272,000	$ 0	$ 436,900	
	Less Other Revenue								
13	Miscellaneous Revenues	0	0	0	0	0	0	0	FA - Avg Net Plant
14	Other Adjustments	(475,600)	(258,700)	(68,700)	(100,000)	(18,500)	0	(29,700)	FA - Avg Net Plant
15	Net Operating Expenses	$ 7,475,600	$ 4,067,000	$ 1,080,200	$ 1,571,300	$ 290,500	$ 0	$ 466,600	

2.3 UNITS OF SERVICE

Following the allocation of costs, each customer class's total cost responsibility is developed using unit costs of service for each cost function and subsequently assigning those costs to the customer classes based on the respective service requirements of each. To properly recognize the cost of service, each customer class receives its share of base, maximum day, peak hour, and customer costs. The number of units of service required by each customer class provides a means for the proportionate distribution of costs previously allocated to respective cost categories.

Table 2-5 summarizes the estimated Test Year (2022) units of service for the various customer classes. Base costs vary with the volume of water consumed and distributed to customer classes on that basis. Extra Capacity costs are associated with meeting peak demand rates of water use and distributed to customer classes based on the respective class capacity requirements in excess of average rates of use. Black & Veatch followed the capacity factor methodology outlined in Appendix A of the AWWA M1 Manual to derive peak consumption information from the monthly consumption records in MPMW's Customer Information System (CIS), which helps provide the basis for estimating maximum day and peak hour ratios by customer class. The number of bills for each customer class serves as the basis for distributing customer billing requirements. Customer meter requirements are allocated based on the number of equivalent meters serving each customer class. The estimated number of equivalent meters for each customer class relies on the total number of various sizes of meters serving respective classes and the ratio of the cost of meters for the various sizes to the cost of the ¾-inch meter. The equivalent meter ratios adopted in this analysis are consistent with those established in AWWA M1 Manual. Private fire-protection cost allocations use equivalent meters.

2.3.1 Max Day/Max Hour Peaking Factors

Like other utilities, MPMW does not have access to system capacity factor data for individual customer classes. It is typical for utilities to lack this data since acquiring it requires installing special meters for prolonged periods to measure the usage patterns of different customer classes. In the absence of measured capacity factors, estimates were developed of these factors using procedures outlined in Appendix A of AWWA's M1 Rate Manual. The process involved using MPMW's monthly peaking data and

high-level assumptions regarding customer class usage patterns. Each customer class's capacity factors are multiplied by the average consumption for each class to determine the base, max day, and max hour allocation percentages. The allocation to base, max day, and max hour considers the total water consumption per customer class and the demand each customer class places on the system.

2.3.2 Fire Service

Fire protection costs are allocated between those costs to be recovered from all users and those recovered from customers with private fire meters. MPMW provided Black & Veatch with the number of public fire hydrants and the number of private fire meters by meter size. The public fire hydrants and private meters were converted to equivalent meters to derive 12,600-meter equivalents for public fire and 5,671-meter equivalents for private fire. As shown in Table 2-7, Column 1, $1,320,800 of the fire protection costs are associated with public hydrants and are recovered from all water users. The remaining $621,000 of the fire protection costs will be recovered directly from those customers with private fire meters.

The derivation of fire protection units of service depends on the system's fire requirements. For MPMW, according to the Water System Master Plan dated April 2018, the water system should be able to handle a 4-hour fire delivering 4,000 gallons per minute (GPM) of flow. The process for converting these fire protection requirements into base/max day/max hour elements is as follows:

Public Fire Protection

- Max Day requirements = Fire duration x Water flow x conversion factors x number of public meters/total number of meters
  - Max Day Extra = 4 x 4,000 x 60/7.48/100 x 12,600/18,271 = 885 CCF/day
- Max Hour requirements = Water flow x conversion factors x number of public meters/total number of meters
  - Max Hour Total = 4,000 x 60/7.48/100 x 12,600/18,271 = 5,311 CCF/day
  - Max Hour Extra = 5,311 CCF/day – 885 CCF/day = 4,425 CCF/day

The same process for the private fire protection units was repeated but replaced "number of public fire meters" with "number of private meters."

2.4 COST OF SERVICE ALLOCATIONS

To determine the cost of service for each customer class, apply the unit costs of service to each customer classes' respective service requirements. The total unit costs of service applied to each customer class's respective requirements result in the total cost of service for each customer class.

2.4.1 Units Costs of Service

The Test Year (2022) unit cost of service for each functional cost component is simply the total cost divided by the applicable units of service, as shown in Table 2-6. On Line 3, the total cost represents the costs that rates need to recover, as shown in Table 2-1, Line 15. The net O&M cost includes O&M less revenue from other sources and adjustments. The total capital cost includes transfers to the Capital Fund.

Line 5 represents the unit costs for the entire water system regardless of customer classes. After that, use these unit costs in allocating the costs to the specific customer classes.

2.4.2 Distribution of Costs of Service to Customer Classes

Applying the unit costs to the units for each customer class produces the customer class costs. This process is illustrated in Table 2-7, in which the unit costs are applied to the customer class units of service for Test Year (2022). The costs attributable to each customer class reflect the functional cost components described in Section 2.1. Each customer class places a burden on the system in different ways, and thus, the allocation of the units is representative of this burden.

An example of the application of unit costs is shown below for illustrative purposes.

	Base Component	
Unit Cost (Table 3-6, Col 2, Line 5)	$ 8.43	per CCF
Multi Family Consumption (Table 3-7, Col 2, Line 4)	159,081	CCF
Total Allocated Cost	$ 1,340,900	

Please note that the numbers within the tables are rounded, yet the calculations are done based on non-rounded values; therefore, results might vary.

Table 2-5 Units of Service (Scenario 2B)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Line		Consumption		Maximum Day			Maximum Hour					Fire
No.	Description	Annual	Avg. Day	Factor	Total	Extra	Factor	Total	Extra	Meters	Bills	Protection
	Units of Measure	(CCF)	(CCF/day)		(CCF/day)	(CCF/day)		(CCF/day)	(CCF/day)	(EMs)	(Bills)	(EMs)
	Customers											
1	Single Family Residential	403,717	1,106	225%	2,489	1,383	300%	3,318	830	3,844	40,332	
2	Multi Family Residential	159,081	436	210%	915	479	280%	1,220	305	745	3,192	
3	Commercial	375,643	1,029	251%	2,583	1,554	334%	3,437	854	1,158	2,388	
4	Industrial	183,143	502	227%	1,139	637	303%	1,520	381	988	2,580	
5	Irrigation/Landscape	107,277	294	355%	1,043	749	474%	1,393	350	666	1,908	
6	Public Institutional	104,271	286	250%	714	429	334%	954	240	316	504	
7	Hydrant	-	-	524%	-	-	699%	-	-	-	-	
8	Subtotal	1,333,132	3,652		8,884	5,231		11,844	2,960	7,717	50,904	
9	Public Fire Service				885	885		5,311	4,425			12,600
10	Private Fire Service				398	398		2,390	1,992		1,716	5,671
11	Subtotal				1,283	1,283		7,701	6,417		1,716	18,271
12	Total Water System	1,333,132	3,652		10,167	6,515		19,544	9,377	7,717	52,620	18,271

Table 2-6 Units Cost of Service (Scenario 2B)

Line No.	Description	(1) Total Cost	(2) Common to All Customers: Base	(3) Common to All Customers: Max. Day	(4) Common to All Customers: Max. Hour	(5) Common to All Customers: Meters	(6) Common to All Customers: Cust/Bill.	(7) Fire Protection
		($)	($)	($)	($)	($)	($)	($)
1	Net Operating Expense	9,238,600	7,687,300	212,000	308,500	134,900	773,100	122,800
2	Capital Costs	6,524,400	3,549,600	942,800	1,371,300	253,500	0	407,200
3	Total Cost of Service	$ 15,763,000	$ 11,236,900	$ 1,154,800	$ 1,679,800	$ 388,400	$ 773,100	$ 530,000
4	Units of Service		1,333,132 CCF	6,515 CCF/Day	9,377 CCF/Day	7,717 Eq. Meters	52,620 Bills	18,271 Eq. Meters
5	Cost per Unit		$ 8.43 per CCF	$ 177.26 per CCF/Day	$ 179.14 per CCF/Day	$ 50.33 per Eq. Meters	$ 14.69 per Bill	$ 29.01 per Eq. Meters

Table 2-7 Distribution of Costs to Customer Classes (Scenario 2B)

Line No.	Description	(1) Total Cost	(2) Common to All Customers: Base	(3) Common to All Customers: Max. Day	(4) Common to All Customers: Max. Hour	(5) Common to All Customers: Meters	(6) Common to All Customers: Cust/Bill.	(7) Fire Protection
1	Cost per Unit		$ 8.43 per CCF	$ 177.26 per CCF/Day	$ 179.14 per CCF/Day	$ 50.33 per Eq. Meters	$ 14.69 per Bill	$ 29.01 per Eq. Meters
	Single Family Residential							
2	Units		403,717	1,383	830	3,844	40,332	0
3	Allocation of costs of service ($)	4,582,400	3,402,900	244,900	148,500	193,500	592,600	0
	Multi Family Residential							
4	Units		159,081	479	305	745	3,192	0
5	Allocation of costs of service ($)	1,565,000	1,340,900	85,000	54,700	37,500	46,900	0
	Commercial							
6	Units		375,643	1,554	854	1,158	2,388	0
7	Allocation of costs of service ($)	3,688,200	3,166,300	275,500	153,000	58,300	35,100	0
	Industrial							
8	Units		183,143	637	381	988	2,580	0
9	Allocation of costs of service ($)	1,812,600	1,543,700	113,000	68,300	49,700	37,900	0
	Irrigation/Landscape							
10	Units		107,277	749	350	666	1,908	0
11	Allocation of costs of service ($)	1,161,300	904,200	132,900	62,700	33,500	28,000	0
	Public Institutional							
12	Units		104,271	429	240	316	504	0
13	Allocation of costs of service ($)	1,021,200	878,900	76,000	43,000	15,900	7,400	0
	Hydrant							
14	Units		0	0	0	0	0	0
15	Allocation of costs of service ($)	0	0	0	0	0	0	0
	Public Fire Service							
16	Units		0	885	4,425	0	0	12,600
17	Allocation of costs of service ($)	1,315,200	0	156,900	792,800	0	0	365,500
	Private Fire Service							
18	Units		0	398	1,992	0	1,716	5,671
19	Allocation of costs of service ($)	617,100	0	70,600	356,800	0	25,200	164,500
20	TOTAL COSTS OF SERVICE	$ 15,763,000	$ 11,236,900	$ 1,154,800	$ 1,679,800	$ 388,400	$ 773,100	$ 530,000

3 Rate Design

The initial consideration in the derivation of rate schedules for water service is establishing equitable charges to the customers commensurate with the cost of providing that service. While the cost of service allocations to customer classes should not be construed as literal or exact determinations, they offer a guide to the necessity for and the extent of rate adjustments. Practical considerations sometimes modify rate adjustments by considering additional factors such as bill impacts, existing contracts, and historical local policies and practices.

3.1 PROPOSED RATES

The costs of service analysis described in the preceding sections of this report provide a basis for the design of water rates.

3.1.1 Monthly Meter Charge

The monthly meter charge recovers costs associated with meter maintenance and services, meter reading, customer billing, and maintenance and capacity costs associated with public fire protection regardless of the level of water consumed. Black & Veatch used meter ratios based on maximum operating capacities by meter size, which recognizes that as meter size increases, so does the capacity, as shown in Table 3-1. For example, customers with a 4" meter expect to be able to use more water (at a higher flow capacity) than customers are with a ¾" meter. Consequently, MPMW's water system must maintain assets sized accordingly and capable of providing customers the level of service expected from their meter connection when the tap turns on.

Table 3-1 demonstrates the cost elements incorporated into the monthly meter charge for FY 2021 for Scenario 2B. The following are calculations used to derive the unit costs shown in Table 3-1. The unit costs are added and multiplied by the meter ratio to derive the total service charge.

- Meter Unit Cost = $388,400 (Table 3-6, Col 5, Line 3) / 7,717 Equivalent Meters (Table 3-6, Col 5, Line 4) / 12 bills = $4.19/Eq. Meter
- Customer Unit Cost = $773,000 (Table 3-6, Col 6, Line 3) / 52,620 bills (Table 3-6, Col 6, Line 4) = $14.69/bill
- Public Fire Unit Cost = $1,315,200 (Table 3-7, Col 1, Line 17) / 12,600 Equivalent Meters (Table 3-5, Col 11, Line 9) / 12 bills = $8.70/Eq. Meter

Table 3-2 shows the total revenue generated from the monthly meter charge for FY 2021 for Scenario 2B. Table 3-3 shows the five-year monthly meter charge rate schedule for Scenario 2B. The five-year fixed charge rate schedule follows the cost of service allocations described in Section 2 of this report.

Table 3-1 Cost Components for Monthly Meter Charge (Scenario 2B)

Meter Size	Meter Ratio	Meter Service Costs			Total Service Charge
		Meter Unit Cost	Customer Unit Cost	Public Fire Unit Cost	
		per Eq. Meter	per Bill	per Eq. Meter	$/Month
5/8"	1.00	4.19	14.69	8.70	27.58
3/4"	1.00	4.19	14.69	8.70	27.58
1"	1.67	4.19	14.69	8.70	45.97
1-1/2"	3.33	4.19	14.69	8.70	91.95
2"	5.33	4.19	14.69	8.70	147.12
3"	10.67	4.19	14.69	8.70	294.24
4"	16.67	4.19	14.69	8.70	459.75
6"	33.33	4.19	14.69	8.70	919.50
8"	53.33	4.19	14.69	8.70	1,471.20
10"	76.67	4.19	14.69	8.70	2,114.84

Table 3-2 Monthly Meter Charge Revenue (Scenario 2B)

Meter Size	Total Bills in Year	Total Service Charge	Total Meter Revenue
	Bills	$/Month	$
5/8"	34,896	27.58	962,600
3/4"	600	27.58	16,600
1"	9,864	45.97	453,500
1-1/2"	1,560	91.95	143,400
2"	2,928	147.12	430,800
3"	612	294.24	180,100
4"	252	459.75	115,900
6"	84	919.50	77,200
8"	84	1,471.20	123,600
10"	24	2,114.84	50,800
			$ 2,554,500

Table 3-3 Proposed Five-Year Monthly Meter Charge (Scenario 2B)

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Monthly Fixed Meter Charge ($/Month)						
5/8"	28.21	27.58	28.96	30.41	31.93	33.53
3/4"	28.21	27.58	28.96	30.41	31.93	33.53
1"	47.03	45.97	48.27	50.68	53.21	55.87
1-1/2"	94.05	91.95	96.55	101.38	106.45	111.77
2"	150.46	147.12	154.48	162.20	170.31	178.83
3"	282.14	294.24	308.95	324.40	340.62	357.65
4"	471.15	459.75	482.74	506.88	532.22	558.83
6"	940.45	919.50	965.48	1,013.75	1,064.44	1,117.66
8"	1,504.70	1,471.20	1,544.76	1,622.00	1,703.10	1,788.26
10"	2,163.01	2,114.84	2,220.58	2,331.61	2,448.19	2,570.60

3.1.2 Monthly Fire Fixed Charge

The fire fixed charge includes customer billing, maintenance and capacity costs, and direct fire costs associated with private fire protection. The fire service charge increases as pipeline diameter size increases. MPMW provides fire service to 143 private fire service accounts. These customers have a separate water line connection to the water system that is specifically for fire protection.

Table 3-4 demonstrates the cost elements incorporated into the monthly fire fixed charge for FY 2021. The following are calculations used to derive the unit costs derived in Table 3-4. The unit cost is multiplied by the meter ratio to derive the total service charge.

- Private Fire Unit Cost = $617,100 (Table 3-7, Col 1, Line 19) / 5,671 Equivalent Meters (Table 3-5, Col 11, Line 10) / 12 bills = $9.07/Eq. Meter

Table 3-5 shows the five-year monthly fire fixed charge rate schedule.

Table 3-4 Cost Components for Monthly Fire Fixed Charge (Scenario 2B)

Meter Size	Meter Ratio	Mtr Costs Private Fire Unit Cost	Total Service Charge
		per Eq. Meter	$/Month
1-1/2"	3.33	9.07	30.23
2"	5.33	9.07	48.37
3"	10.67	9.07	96.73
4"	16.67	9.07	151.14
6"	33.33	9.07	302.29
8"	53.33	9.07	483.66
10"	76.67	9.07	695.26
12"	143.33	9.07	1,299.83

Table 3-5 Proposed Five-Year Monthly Fire Fixed Charge (Scenario 2B)

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Monthly Unmetered Fire Fixed Charges ($/Month)						
1-1/2"	16.93	30.23	31.74	33.33	35.00	36.75
2"	27.08	48.37	50.79	53.33	56.00	58.80
3"	50.79	96.73	101.57	106.65	111.98	117.58
4"	84.81	151.14	158.70	166.64	174.97	183.72
6"	169.28	302.29	317.40	333.27	349.93	367.43
8"	270.85	483.66	507.84	533.23	559.89	587.88
10"	389.34	695.26	730.02	766.52	804.85	845.09
12"	727.90	1,299.83	1,364.82	1,433.06	1,504.71	1,579.95

3.1.3 Tiered Consumption Charge

As described earlier, the MPMW's rate structure is commonly known as an inclining tier rate structure. Under this type of rate design, the tiered consumption charge recovers costs by charging an increasing unit rate (dollar per unit - $/CCF) as the amount of water consumed increases. Under an inclining tier structure, the allocation of base costs is recovered through one tier to the extent possible, and extra capacity costs are recovered through a second and third-tier consumption charge. The

advantage of an inclining tier structure is that it sends a water conservation signal that inefficient water consumption is discouraged.

3.1.4 Development of Consumption Charge

3.1.4.1 Tier Structure Rate Case

In the Court case, *Capistrano Taxpayers Association, Inc. v. City of San Juan Capistrano*, the Court made a significant ruling that tiered rates are not invalid, but the tiered water rates must be supported by the actual cost of service calculations with identifiable costs correlating to each tier. Since its inception in 1996, Proposition 218 has placed the burden of proving the constitutionality of a challenged rate structure on the water service provider. In this case, the Court concluded that the administrative record did not provide enough support for each of the tier breakpoints or for the proportionate allocation of system-wide costs. Therefore, the water service provider failed to carry its burden, and the Court held that the rate structure at issue failed to comply with Proposition 218. Based on the ruling, the tiered rates developed in the Study were developed to meet Proposition 218 requirements.

3.1.4.2 Tier Structure Breakpoints

The consumption charge is designed to recover costs associated with the base and extra capacity demands. These costs include fixed and variable costs incurred by MPMW's water systems while meeting customer average rate of use and peaking demand use. The following are the individual components that make up the consumption charge.

Tier 1, Tier 2 and Tier 3 breakpoints used in the three-tier option were determined based on the following:

- Tier 1: Represents basic indoor usage for 2.75 people per household[2] using 55 gallons of water per person per day[3] times 30.4 days per month. That results in a tier up to 6 CCF.
- Tier 2: Represents indoor plus outdoor usage. MPMW's typical customer uses 12 CCF per month, which represents indoor and some outdoor usage. Therefore Tier 2 is usage up to 12 CCF.
- Tier 3: Represents outdoor usage. That results in any consumption beyond 12 CCF.

3.1.4.3 Tier Structure Differential

In determining the cost differential between Tier 1, Tier 2, and Tier 3 a water consumption analysis[4] was performed using data from FY 2017, FY 2018, and FY 2019. The analysis identifies high and

[2] QuickFacts, Menlo Park City, California, https://www.census.gov/quickfacts/fact/table/menloparkcitycalifornia/PST045219
[3] Fact Sheet, California Water Boards, https://www.waterboards.ca.gov/publications_forms/publications/factsheets/docs/water_efficiency_bill_factsheet.pdf
[4] Incorporates methodology in AWWA M1, Appendix A.

average consumption throughout the fiscal years. In the summer months, consumption peaks due to indoor and outdoor water consumption. Therefore, to derive the peaking differential, the maximum monthly consumption is identified and compared to the average monthly consumption by fiscal year. The following are MPMW's average monthly consumption and maximum monthly consumption by fiscal year.

FISCAL YEAR	THREE-TIER PEAKING DIFFERENTIAL	THREE-TIER PEAKING DIFFERENTIAL
	(Tier 1 to Tier 2)	(Tier 1 to Tier 3)
2017	1.26	1.44
2018	1.23	1.58
2019	1.28	1.59
3-Year Average	1.26	1.54

The differential represents the additional costs associated with peaking that will need to be recovered in Tier 2 and Tier 3 compared to annual average costs recovered in Tier 1. In the analysis, Scenario 2B uses a 1.26 Tier 2 to Tier 1 and 1.54 Tier 3 to Tier 1 peaking differentials.

3.1.4.4 Tier 1 Consumption Charge

The Tier 1 consumption charge is designed to recover a portion of net operating expenses and capital costs associated with *base costs* divided by the Tier 1 consumption. Base costs represent costs associated with average daily demand conditions. This includes most water supply costs and delivery costs. Water supply costs are the costs associated with obtaining from SFPUC. Delivery costs are the costs associated with delivering water through the rest of the water system.

The following is the derivation of the Tier 1 consumption charge. Table 3-6 derives the consumption revenue generated in Tier 1.

Tier 1 Consumption Charge			
Net Operating Expenses plus Capital Costs	$	1,584,063	
Tier 1 Consumption		237,491	CCF
Tier 1 Unit Costs	$	6.67	/CCF
Capital Facility Surcharge	$	1.58	/CCF
Net Tier 1 Unit Costs	$	5.09	/CCF

Table 3-6 Tier 1 Consumption Charge Revenue (Scenario 2B)

Customer Class	Consumption	Charge	Total Cons Revenue
Consumption (CCF)			
All Customers - Tier 1 (0-6 CCF)	237,491	6.67	$ 1,584,100

3.1.4.5 Tier 2 Consumption Charge

The Tier 2 consumption charge is similar to Tier 1 in which it's designed to recover a portion of net operating expenses and capital costs associated with *base costs* divided by the Tier 2 consumption.

The following is the derivation of the Tier 2 consumption charge. Table 3-7 derives the consumption revenue generated in Tier 2.

Tier 2 Consumption Charge		
Net Operating Expenses plus Capital Costs	$ 1,110,874	
Tier 2 Consumption	132,247	CCF
Tier 2 Unit Costs	$ 8.40	/CCF
Capital Facility Surcharge	$ 1.58	/CCF
Net Tier 2 Unit Costs	$ 6.82	/CCF

Table 3-7 Tier 2 Consumption Charge Revenue (Scenario 2B)

Customer Class	Consumption	Charge	Total Cons Revenue
Consumption (CCF)			
All Customers - Tier 2 (7-12 CCF)	132,247	8.40	$ 1,110,900

3.1.4.6 Tier 3 Consumption Charge

The Tier 3 consumption charge is designed to cover the remaining net operating expenses and capital costs assigned to *base costs* that are not covered in Tier 1 and Tier 2, and the *extra capacity costs* associated with peak demands in excess of base demand are represented by maximum day and maximum hour demands. The following is the derivation of the Tier 3 consumption charge.

Tier 3 Consumption Charge		
Total Allocated Costs (Table 2-7, Col 1, Line 20)	$ 15,763,000	
less Costs recovered from Private Fire (Table 2-7, Line 19)	$ (617,100)	
less Costs recovered from Meter Charges (Table 3-2)	$ (2,554,100)	
less Costs recovered from Tier 1 Con Charges (Table 3-6)	$ (1,584,100)	
less Costs recovered from Tier 2 Con Charges (Table 3-7)	$ (1,110,900)	
Total Allocated to be Recovered	$ 9,896,800	
Tier 3 Consumption	963,394	CCF
Tier 3 Unit Costs	$ 10.27	/CCF
Capital Facility Surcharge	$ 1.58	/CCF
Net Tier 3 Unit Costs	$ 8.69	/CCF

Table 3-8 shows the five-year consumption charge rate schedule.

Table 3-8 Proposed Five-Year Three-Tier Consumption Charge (Scenario 2B)

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Consumption Charge ($/CCF) - Three Tier						
Tier 1 (0-6 CCF)	5.09	5.34	5.61	5.89	6.18	
Tier 2 (7-12 CCF)	6.82	7.16	7.52	7.90	8.30	
Tier 3 (Over 12 CCF)	8.69	9.12	9.58	10.06	10.56	

3.1.4.7 Capital Facility Surcharge

The capital facility surcharge is a separate charge that is extracted from the consumption charge and directed to the capital fund. The funds generated from the charge is designed to contribute a minimum dollar amount towards capital costs. MPMW executes numerous capital projects throughout

the year as shown in Table 1-6. In situations where the capital projects exceed the minimum dollar amount, the operating fund provides additional funds. The capital facility surcharge is expected to generate between $2.1M to $2.9M during the study period.

Table 3-9 shows the five-year capital consumption rate schedule.

Table 3-9 Proposed Capital Facility Surcharge (Scenario 2B)

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Capital Facility Surcharge						
All Usage	1.50	1.58	1.66	1.74	1.83	1.92

3.1.5 Alternative Consumption Rate Structures

In the Study, MPMW and Black & Veatch discussed and analyzed alternative consumption rate structures. While the purpose of the consumption charge is to recover costs associated with the base and extra capacity demands, there are different ways to achieve cost recovery. Alternatives analyzed were 1) a uniform consumption charge for all customers and 2) a tiered residential and uniform non-residential consumption charge. Ultimately, the inclining tier structure provided the best compromise between fairness and the promotion of water conservation.

3.1.6 AB 3030 Pass-Through

On September 30, 2008, the State of California Governor signed Assembly Bill 3030 (AB 3030) to add Section 53756 to the California Government Code. Section 53756 provided water, sewer, or refuse collection agencies the ability to adopt charges authorizing automatic adjustments that pass-through increases in wholesale charges for water or adjustments for inflation without going through the Proposition 218 protest proceedings. Section 53756 does state that the agency must comply with the following:

- Adopt the schedule of fees or charges for a not to exceed five years;
- The schedule of fees or charges may include a schedule of adjustments, including a clearly defined formula for adjusting for inflation;
- The schedule of fees or charges for an agency that purchases wholesale water from a public agency may provide for automatic adjustments that pass through the adopted increases or decreases in the wholesale charges for water established by the other agency; and
- Notice of any adjustment shall be given no less than 30 days before the effective date of the adjustment.

3.1.7 Low-Income Charges

As part of the Study, MPMW inquired about low-income discounts to charges through a rate assistance program. The program would help mitigate the impacts of high-water bills for customers who are less able to pay for water service. With increasing costs associated with operating and maintaining the aging water system, charges continue to rise, placing a larger burden on low-income or fixed-income households.

In California, municipal ratemaking is subject to Proposition 218. Proposition 218 limits MPMW's ability to use rate revenue to subsidize discounts for low-income customers or pay for the administration of a rate assistance program. In short, Proposition 218 requires that rates and charges do not exceed the proportional cost of providing service attributable to each customer and that rates must be levied for services available to a customer. To establish low-income discounts, MPMW would need to rely on non-rate revenue (e.g., monies from the General Fund) or have rate revenue-funded subsidies approved by voters.

3.2 TYPICAL MONTHLY COSTS UNDER PROPOSED CHARGES

The following represent comparisons of typical monthly bills under existing rates and the proposed schedule of water user rates derived in this Study for both residential and non-residential customers. Table 3-10 represents a typical single-family residential household with a ¾" meter using a range of consumption from 0-14 CCF. The average single-family residential household uses 12 CCF. Table 3-11 represents non-residential customers with a 2" meter using a range of consumption from 0-1,000 CCF. Non-residential encompasses various customer classes and uses; therefore, the table is designed to give a perspective of charges.

Table 3-10 Typical Residential Monthly Bill with a 3/4" meter (Scenario 2B)

Typical Monthly Usage	FY 2021 Existing Rates	FY 2022 Proposed Rates	FY 2023 Proposed Rates	FY 2024 Proposed Rates	FY 2025 Proposed Rates	FY 2026 Proposed Rates
(CCF)	($)	($)	($)	($)	($)	($)
Residential						
0	$28.21	$27.58	$28.96	$30.41	$31.93	$33.53
2	$42.35	$40.92	$42.97	$45.12	$47.38	$49.75
4	$56.49	$54.26	$56.97	$59.82	$62.81	$65.95
6	$70.63	$67.60	$70.98	$74.53	$78.26	$82.17
8	$89.59	$84.40	$88.62	$93.05	$97.70	$102.59
10	$108.55	$101.20	$106.26	$111.57	$117.15	$123.01
12	$127.51	$118.00	$123.90	$130.10	$136.61	$143.44
14	$146.47	$138.54	$145.47	$152.74	$160.38	$168.40

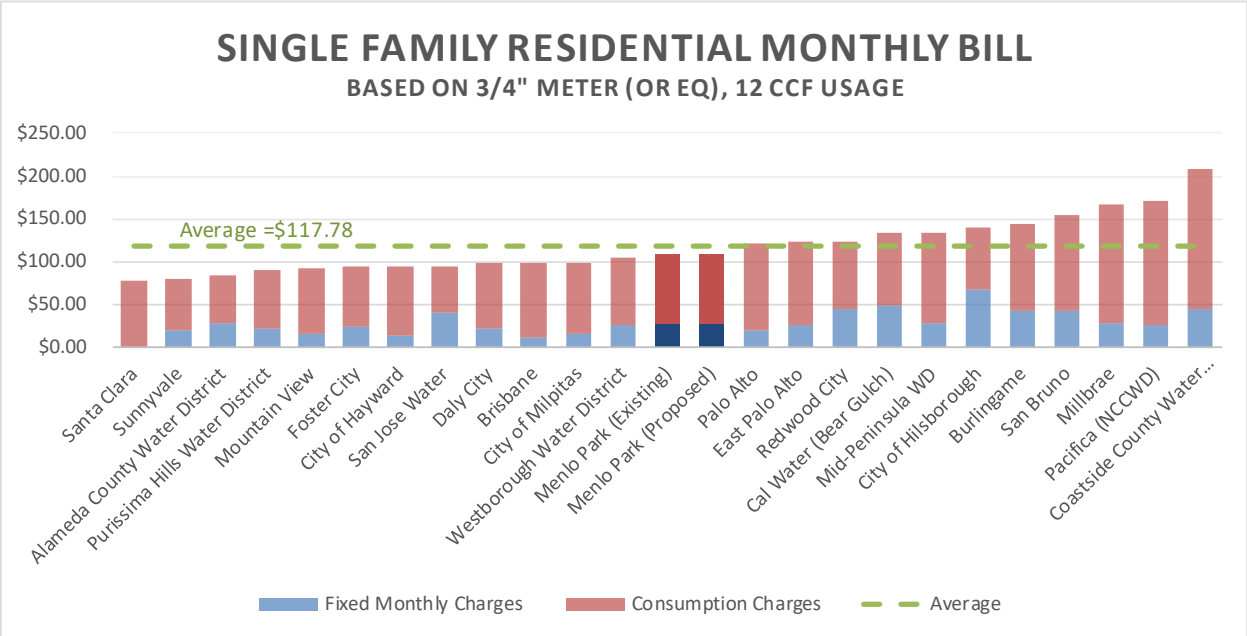
Table 3-11 Typical Non-Residential Monthly Bill with a 2" meter (Scenario 2B)

Typical Monthly Usage	FY 2021 Existing Rates	FY 2022 Proposed Rates	FY 2023 Proposed Rates	FY 2024 Proposed Rates	FY 2025 Proposed Rates	FY 2026 Proposed Rates
(CCF)	($)	($)	($)	($)	($)	($)
Non-Residential						
0	$150.46	$147.12	$154.48	$162.20	$170.31	$178.83
20	$325.60	$319.70	$335.69	$352.47	$370.09	$388.59
50	$610.00	$627.80	$659.19	$692.15	$726.76	$763.10
100	$1,084.00	$1,141.30	$1,198.37	$1,258.29	$1,321.20	$1,387.26
250	$2,506.00	$2,681.80	$2,815.89	$2,956.68	$3,104.51	$3,259.74
500	$4,876.00	$5,249.30	$5,511.77	$5,787.36	$6,076.73	$6,380.57
750	$7,246.00	$7,816.80	$8,207.64	$8,618.02	$9,048.92	$9,501.37
1,000	$9,616.00	$10,384.30	$10,903.52	$11,448.70	$12,021.14	$12,622.20

3.3 NEIGHBORING WATER UTILITIES

Figure 3-1 is the proposed rates compared to other BAWSCA agencies' rates for a single-family residential customer with a ¾" meter size (or equivalent) consuming 12 CCF. MPMW is currently in the 3rd percentile below the average of all the BAWSCA water providers. With the proposed rate increases, MPMW remains in the 3rd percentile of water providers. All surveyed community rates are current as of January 2021. It is important to note that Cal Water (Bear Gulch) serving the other portion of the City includes surcharges such as balancing accounts, low-income ratepayers, CPUC reimbursement fees, and the rate support fund.

Figure 3-1 Comparison to other BAWSCA Agencies



3.4 DROUGHT CONDITIONS

3.4.1 Water Shortage Contingency Plan

MPMW developed a six-stage Water Shortage Contingency Plan in the draft 2020 Urban Water Management Plan that complies with the SWRCB's regulations. Table 3-12 shows that the plan includes the percent supply reduction and water supply condition for the different stages within the plan.

Table 3-12 Stages of Water Shortages Contingency Plan

STAGES	PERCENT SUPPLY REDUCTION	WATER SUPPLY CONDITION
1	≤10%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 10% due to water supply shortages or an emergency.
2	11-20%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 11% to 20% due to water supply shortages or emergency.
3	21-30%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 21% to 30% due to water supply shortages or emergency.
4	31-40%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 31% to 40% due to water supply shortages or emergency.

5	41-50%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 41% to 50% due to water supply shortages or emergency.
6	>50%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use greater than 50% due to water supply shortages or emergency.

Source: Draft 2020 Urban Water Management Plan

3.4.2 Drought Surcharges

Table 3-13 shows the drought surcharges that have been developed for Stages 1 through 6 to be consistent with new Water Shortage Contingency Plan requirements. For the purposes of this Study, normal conditions represent the projected baseline consumption for each fiscal year. The projected baseline provides an expected revenue for the fiscal year. Under drought condition, consumption is decreased, and thus additional revenue is required for recovery from a drought surcharge. The drought surcharge is calculated by dividing the revenue loss by the reduced usage after accounting for reduction in water supply costs associated with SFPUC water purchases.

Table 3-13 Proposed First Year Drought Charges, FY 2022 (Scenario 2B)

Description	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Required Water Reduction %		Up to 10%	Up to 20%	Up to 30%	Up to 40%	Up to 50%	Greater than 50%
Reduction by Tier							
All Customers							
Tier 1 (0-6 CCF)		0.5%	1.0%	2.0%	3.0%	4.0%	5.0%
Tier 2 (7-12 CCF)		2.5%	4.0%	5.5%	7.0%	8.5%	10.0%
Tier 3 (Over 12 CCF)		13.4%	26.9%	40.3%	53.7%	67.0%	80.4%
Projected Consumption (CCF)	1,275,649	1,148,084	1,020,519	892,954	765,389	637,824	510,260
Total Reduction in Consumption (CCF)		127,565	255,130	382,695	510,260	637,825	765,389
Projected Consumption by Tier (CCF)							
Tier 1 (0-6 CCF)	227,250	226,114	224,978	222,705	220,433	218,160	215,888
Tier 2 (7-12 CCF)	126,545	123,381	121,483	119,585	117,686	115,788	113,890
Tier 3 (Over 12 CCF)	921,854	798,589	674,058	550,664	427,270	303,876	180,482
Total Consumption	1,275,649	1,148,084	1,020,519	892,954	765,389	637,824	510,260
Projected Consumption Rates ($/CCF)							
Tier 1 (0-6 CCF)	$6.67	$6.67	$6.67	$6.67	$6.67	$6.67	$6.67
Tier 2 (7-12 CCF)	$8.40	$8.40	$8.40	$8.40	$8.40	$8.40	$8.40
Tier 3 (Over 12 CCF)	$10.27	$10.27	$10.27	$10.27	$10.27	$10.27	$10.27
Projected Consumption Revenue							
Tier 1 (0-6 CCF)	$1,515,761	$1,508,180	$1,500,603	$1,485,442	$1,470,288	$1,455,127	$1,439,973
Tier 2 (7-12 CCF)	$1,062,974	$1,036,400	$1,020,457	$1,004,514	$988,562	$972,619	$956,676
Tier 3 (Over 12 CCF)	$9,467,441	$8,201,509	$6,922,576	$5,655,319	$4,388,063	$3,120,807	$1,853,550
Total Revenue	$12,046,175	$10,746,090	$9,443,636	$8,145,276	$6,846,913	$5,548,553	$4,250,199
Revenue Lost		$1,300,085	$2,602,539	$3,900,900	$5,199,262	$6,497,622	$7,795,976
Reduced Water Sold + Water Loss		135,219	270,438	405,657	540,876	676,095	811,312
SFPUC + BAWSCA Wholesale Rate		$4.50	$4.50	$4.50	$4.50	$4.50	$4.50
Reduced Cost of SFPUC & BAWSCA		($608,500)	($1,217,000)	($1,825,500)	($2,433,900)	($3,042,400)	($3,650,900)
Revenue Lost due to Reduction		$1,300,085	$2,602,539	$3,900,900	$5,199,262	$6,497,622	$7,795,976
Less Reduction of Water Purchase Costs		($608,500)	($1,217,000)	($1,825,500)	($2,433,900)	($3,042,400)	($3,650,900)
Revenue to be recovered by drought surcharges		$691,585	$1,385,539	$2,075,400	$2,765,362	$3,455,222	$4,145,076
Drought Surcharge on Consumption ($/CCF)		$0.60	$1.36	$2.32	$3.61	$5.42	$8.12

Using the same methodology per fiscal year, Table 3-14 shows the proposed five-year drought surcharges for each stage.

Table 3-14 Proposed Five-Year Drought Charges (Scenario 2B)

Description[1]	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6[2]
Required Water Reduction %	Up to 10%	Up to 20%	Up to 30%	Up to 40%	Up to 50%	Greater than 50%
FY 2022	$0.60	$1.36	$2.32	$3.61	$5.42	$8.12
FY 2023	$0.63	$1.40	$2.39	$3.67	$5.43	$7.98
FY 2024	$0.64	$1.43	$2.41	$3.67	$5.37	$7.74
FY 2025	$0.60	$1.32	$2.21	$3.34	$4.83	$6.86
FY 2026	$0.60	$1.33	$2.22	$3.33	$4.77	$6.68

1. The drought rates represent the max rate per stage. The actual drought surcharge will be calculated based on the actual water conservation target that must be met.
2. Stage 6 represents water conservation greater than 50%. The drought surcharge shown is for 60% reduction.

4 Capacity Fee

4.1 DEVELOPMENT FEE BACKGROUND

Many utilities assess system development charges (SDCs), also known as system capacity charges, like MPMW, to help offset costs for increased system capacity. Generally levied at the time building permits are required, SDCs recover the cost associated with increasing flow capacities, which result from either (1) changes in the use of a structure served by an existing connection to the system or (2) a new connection to the system. For this report's purposes, both situations of additional flow are considered a "new" customer.

The premise behind SDCs is that new customers or developers should pay for required system capacity, to the extent that service user charges do not support the investment for the required capacity. In other words, growth should pay for growth. Capacity represents the current demand requirement of each property and is not transferable to any other property located within the service area.

The cost of providing such capacity in system facilities for new customers can contribute significantly to the need for capital financing and service user rates and/or taxes to support the financing. Collection of SDCs to partially or wholly finance new customer capacity requirements can, over time, help reduce the amount of financing and the magnitude of rate increases that otherwise might be needed. Ideally, SDCs should generate enough revenues to meet future expansion requirements to not burden existing users with the proportionate costs of expansion caused by growth in system use by new users.

4.2 GENERAL APPROACHES

System development charges are traditionally assessed to new development to recover the value of system capacity constructed for new customer service. There is no single established method for determining SDCs that is both appropriate for all situations and perfectly equitable to all new customers. There are, however, various approaches that are currently recognized and utilized, some more than others, by utilities. These methods can be categorized as follows:

1. **System Buy-In Approach**. System development charges are designed to derive from the new customer an amount per connection equal to the "equity" in the system attributable to similar existing customers. New development would pay for its share of the useful life and remaining capacity of existing facilities from which new development would benefit. (Note: The word "equity" refers to that portion of system value for which there is no offsetting debt. It does not imply ownership of, or title to, utility facilities.)

2. **Incremental Cost-Pricing Approach**. System development charges are designed to derive from the new customer the marginal or incremental cost of system expansion associated with new customer growth. Under this method, new connections to the system should be responsible for those costs that cause the utility to incur for the most recent or next increment of required system capacity. Costs recovered user fees or other utility charges or excluded from this calculation.

3. **Combination Cost Approach**. With this method, SDCs combine selected elements of each of the preceding approaches to establish a composite value of both existing and required expansion facilities as a basis for pricing system capacity required to serve new customers.

Regardless of the methodology employed, revenues derived from SDCs are commonly used to offset part or all capital costs to accomplish any of the following objectives:

- To pay the capital costs of future capacity provided for growth.
- To provide rate relief to existing system users by recovering that portion of the annual existing and future capacity capital costs associated with growth, including debt service requirements and direct asset purchases from current revenues.
- To accumulate reserves to finance system improvements and expansions required to meet growth needs.

Based on MPMW staff's data, the water system assets contain excess capacity that new connections can utilize. Therefore, the methodology used for this Study is the system buy-in approach. Since the system buy-in approach requires selecting a basis for determining system value, a discussion of asset valuation methods follows.

4.3 ASSET VALUATION METHODS

There are different approaches to how utilities value their existing assets and, thus, the excess capacity available to new connections. Regardless of the approach taken, the first step is to identify a proper basis for determining current asset value. To do this, MPMW provided its fixed asset records. These records present detailed listings of each water system asset in use by MPMW, including asset name, system function, date in service, useful life, original cost, and annual and the accumulated depreciation.

From this point, the current valuation for the fixed assets must be determined. Various methods are employed to estimate the value of utility facilities required to furnish service to new users. To establish SDCs, the two principal methods commonly used to value a utility's properties are original cost and replacement cost, with or without considerations for depreciation of existing assets. The following sections give an overview of each valuation method.

4.3.1 Original Cost

The original cost (OC) method's principal advantages lie in its relative simplicity and stability since the recorded costs of tangible property are held constant.

The major criticism levied against original cost valuation pertains to the disregard of changes in the value of money over time, attributable to inflation and other factors. As evidenced by history, prices have tended to increase rather than to remain constant. Because the value of money varies inversely with price changes, monetary values in most recent years have exhibited a definite decline; a fact not recognized by the original cost approach. This situation becomes further exacerbated when you consider that most utility systems are developed over time on a piecemeal basis as demanded by service area growth. In other words, the utility paid for each property addition using dollars of different purchasing power. When these outlays are added together to obtain a system value, the result can be misleading. Thus, the original cost approach often fails to fully satisfy a principal objective of many system development charge studies, which is to determine a meaningful measure of the tangible asset's current value.

4.3.2 Replacement Cost

Changes in the value of the dollar over time, at least as considered by the impact of inflation, can be recognized by replacement cost (RC) property valuation. The replacement cost represents the cost of duplicating the existing utility facilities at current prices. Unlike the original cost approach, the replacement cost method recognizes price level changes that may have occurred since system construction.

The most accurate replacement cost valuation would involve a physical inventory and appraisal of system components in terms of their replacement costs at the time of valuation. However, with original cost records available, a reasonable approximation of replacement cost system value can most easily be ascertained by trending historical original costs. This approach employs applicable cost indices to express actual capital costs experienced by the utility in current dollars. An obvious advantage of the replacement cost approach is that it considers changes in money's value over time. In this analysis, the annual Engineering News Record Construction Cost Index (ENR-CCI) factors are used to inflate original cost figures to estimate current asset values for each asset.

4.3.3 Depreciation

Considerations of the current value of utility facilities may also be materially affected by age and depreciation effects. Depreciation considers the anticipated losses in system value caused by wear and tear, decay, inadequacy, and obsolescence. Expressing both the original cost and replacement cost valuation measures on an original cost less depreciation (OCLD) and a replacement cost less depreciation (RCLD) basis provides appropriate recognition of the effects of depreciation on existing facilities. Under the OCLD and RCLD approach, accumulated depreciation is computed for each asset account based upon its age or condition and deducted from the respective total original cost or replacement cost to determine the OCLD or RCLD measures of system value.

4.3.4 Credits

Regardless of the methodology, consideration of credits is integral to implementing a defensible system development charge methodology. There are two types of credits with specific characteristics, both of which the Study addresses.

1. The first is a revenue credit due to possible double payment situations, which could occur when other revenue sources may contribute to the capital costs of infrastructure covered by the system development charge, such as long-term debt, grants, and ad valorem taxes. This type of credit has been integrated into the calculation, thus reducing the amount.
2. The second type of credit is a site-specific credit or developer reimbursement for the dedication of land or construction of system improvements; these contributed assets and related credits are a matter of agency policy and typically not included in a schedule of development system development charges.

5 Capacity Fee Analysis

Based on an evaluation of approaches, the most suitable approach for deriving system development charges for MPMW is the system buy-in approach. This method should meet MPMW's objectives and allow for the recovery of costs equitably based on supportable calculation procedures.

The system buy-in approach avoids the need for detailed estimates of individual expansion-related costs and associated incremental capacity measures for many existing and new system components. It essentially determines a common unit cost of replacement capacity based on an estimate of all existing facilities' total current value and the system's total available treated water supply.

5.1 SYSTEM INVESTMENT

5.1.1 Existing System Investment

For this analysis, the RC method is used to value existing system assets. There are several reasons to choose this approach. First, the MPMW system is fairly young. Over 80 percent of the fixed assets still have a useful life, with most of those assets reporting over 50 percent of their useful life remaining. This signifies that MPMW still has useful life within the assets and will not need to be replaced over the next five years besides the normal routine repair and rehabilitation of assets. Subsequently, MPMW recently had a third-party consultant determine the replacement costs associated with many of its infrastructure assets. Many assets are still in use despite that some have fully depreciated. Furthermore, it is reasonable to assume that the RC approach provides the utility with a return on its money used to build the past facilities for future customers. This return is often accounted for by the increase in the replacement cost value of the facilities.

MPMW maintains fixed assets data by components such as Land, Buildings, Equipment, Infrastructure, and Construction in Progress. The data obtained were for assets as of the end of FY 2019 (June 30, 2019). To help establish the charge's engineering nexus, the components are reclassified into major functional components such as water supply, pumping, treatment, water storage, transmission & distribution, meters, hydrants, and general plant. The reclassification relies upon Black & Veatch's engineering judgment for other similar asset types.

Table 5-1 shows the fixed asset original cost and replacement cost values for water assets utilized in the system development charge analysis. Original costs are shown to demonstrate how the costs were incurred by MPMW over the years and are the basis for determining the replacement costs. Column 1 represents the original cost, Column 2 represents the Construction Work in Progress, and Column 3 represents the sum of Columns 1 and 2. The replacement costs shown in Column 4 were determined using the original cost and construction cost data indices. Column 5 represents the Construction Work in Progress, which is identical to Column 2 as these assets are still not placed on the fixed asset register. Column 6 represents the total of Columns 4 and 5.

Appendix B of this report provides details for each fixed asset and how the summary figures were derived.

Table 5-1 Water System Fixed Asset Value – RC Valuation

		(1)	(2)	(3)	(4)	(5)	(6)
Line No.	System Component	OriginalCost			2020 Replacement Cost*		
		Assets	CWIP	Total	Assets	CWIP	Total
		$	$	$	$	$	$
	Water Facilities						
1	Water Supply	0	6,008,056	6,008,056	0	6,008,056	6,008,056
2	Pump Stations	4,806,116	0	4,806,116	13,153,636	0	13,153,636
3	Water Treatment	0	0	0	0	0	0
4	Water Storage	4,091,973	702,049	4,794,022	10,654,122	702,049	11,356,171
5	Transmission	1,800,587	0	1,800,587	21,659,858	0	21,659,858
6	Distribution	8,311,294	3,505,879	11,817,173	88,813,406	3,505,879	92,319,285
7	Meters	132,166	0	132,166	153,033	0	153,033
8	Hydrants	132,166	0	132,166	153,033	0	153,033
9	General Plant	253,667	0	253,667	299,206	0	299,206
10	Total Existing System Investment	$19,527,967	$10,215,984	$29,743,951	$134,886,294	$10,215,984	$145,102,278

CWIP = Construction Work in Progress

* 2020 RC values are derived based on ENR Construction Cost Index. 2020 ENR CCI = 2019 avg annual value of 11,281 x 1.03[1].

5.1.2 Cash Reserves

In addition to fixed assets, SDC methodologies allow the incorporation of cash reserves if the utility has specifically dedicated these funds for capital activities. Cash reserves represent cash that has been saved over multiple years from existing customers to help finance future capital projects. Since new customers have not contributed to the cash reserves, the cash reserves are considered an asset that new customers will be buying into by paying their fair share through the SDC. Based on the beginning of year balance for FY 2021, the capital fund's cash balance is $0.

5.2 SYSTEM CAPACITY

Water facilities are designed to accommodate average day and maximum day and, in some cases, maximum hour demand requirements. The utility system conditions are critical to understanding the existing systems' actual service demand requirements and serve as a critical component in the development of SDCs. In determining the existing system's capacity, Black & Veatch used the water supply capacity available (individual supply guarantee) from SFPUC of 4.456 mgd. These system characteristics commonly serve as a measure of total system capacity. In the case of water, these are the assets that constrain the systems from providing more capacity.

Table 5-2 shows the max water supply capacity of the water system. The max water supply capacity is the amount of water MPMW can purchase from SFPUC based on its Individual Supply Guarantee identified in the 2015 Urban Water Management Plan. MPMW has intertie connections as an emergency water supply, but these are not used for day-to-day operations. Therefore, the max water supply capacity is 4.456 mgd associated with SFPUC. In FY 2020, MPMW experienced a water consumption of 2.85 mgd, which is below the maximum water supply capacity.

Table 5-2 Max Water Supply Capacity

Description	Total Capacity (mgd)	Used Capacity (mgd)	Available Capacity (mgd)
SFPUC	4.456		
Total Water Supply Capacity	4.456		
2019 System Average Day Flow		2.849	
2019 Available Water Capacity			1.607

mgd - millon gallons per day

5.3 APPLICABLE SYSTEM EQUITY

The total system equity is equal to the total system value less applicable credits. Therefore, to determine the appropriate SDC value, applicable credits need to be identified. As previously mentioned, there are two types of credits with specific characteristics:

1. Revenue credit due to possible double payment situations could occur when other sources of revenues may contribute to the capital costs of infrastructure covered by the system development charge, such as long-term debt, grants, and ad valorem taxes.
2. Site-specific credit or developer reimbursement for the dedication of land or construction of system improvements; these contributed assets and related credits are a matter of agency policy and typically not included in a schedule of SDCs.

5.3.1 Revenue Credit

New connections to the systems should not be required to pay, via the SDC, for the facilities financed by debt and are being paid via user rates and facilities paid by grants or ad valorem taxes that do not need to be repaid. Therefore, the system development charge analysis must consider debt, grants, and ad valorem credits to avoid the potential for double-payment.

- Debt: Customer user rates are designed to retire the outstanding debt in the enterprises, and since new connections will eventually turn into rate-paying customers, the principal outstanding is credited against the fixed asset. MPMW has no long-term debt. Therefore, there is no water system credit for debt.
- Grants/Ad Valorem: Grants and ad valorem taxes are funds provided to MPMW to help construct water facilities. These funds are given to MPMW with no expectation of being repaid; therefore, new customers will be exempt from buying into those assets, just as existing customers did not pay for these assets. MPMW has no records of grants and/or ad valorem taxes used to pay for any water facilities. Therefore, there is no water credit for grants and/or ad valorem taxes.

5.3.2 Site-Specific Credit

MPMW has extracted contributed capital assets from the fixed asset listing. These fixed assets were contributed to MPMW's water system by a third-party. Typically, a third-party company will install water facilities in the vicinity of a large development to provide services to the new development and connect to the existing MPMW's water facilities. There were no records of contributed assets identified, and thus no adjustments were made.

5.4 SYSTEM UNIT COST

Incorporating the different SDC components, a unit cost for the system is determined, as shown in Table 5-3. The unit cost represents the system's cost divided by the total water supply capacity. The costs of the system include:

- Fixed assets as shown in Lines 1 to 9.
- Cash reserves as shown in Line 11.
- Debt credits are shown in Line 12 and 13.
- The final equity value of the system is shown in Line 15.

Using the water supply capacity as shown in Line 16, the system's unit cost is determined to be $32.48/gpd.

Table 5-3 Water Unit Equity Costs

Line No.	System Component	2020	
		$	
	Water System Value		
	Existing Investment (RC)		(per Table 5-1)
1	Water Supply	6,008,056	
2	Pump Stations	13,153,636	
3	Water Treatment	-	
4	Water Storage	11,356,171	
5	Transmission	21,659,858	
6	Distribution	92,319,285	
7	Meters	153,033	
8	Hydrants	153,033	
9	General Plant	299,206	
10	Total Value	$145,102,278	
11	Cash Reserves	-	
	Non Equity Credits		
12	Outstanding Long-Term Debt	-	
13	Debt Service Reserve Funds	-	
14	Total Credits	-	
15	Total Equity Value	$145,102,278	
16	Total Water Supply Capacity - mgd	4.46	(per Table 5-2)
17	Unit Equity Value - $/gpd	$32.56	

mgd - million gallons per day
gpd - gallons per day

5.5 PROPOSED SYSTEM DEVELOPMENT CHARGES

Historically, MPMW has recovered SDCs based on a meter size basis for all customers. Table 5-4 represents the existing SDC schedule of charges.

Table 5-4 Existing Capacity Fees

Line No.	Meter Size	Buy-In Component per Meter
	Existing SDCs	
1	3/4" or less	$5,723
2	1"	$9,539
3	1-1/2"	$19,077
4	2"	$30,523
5	3"	$57,232
6	4"	$95,577
7	6"	$190,771

The charge increases as the meter size increases based on each meter's anticipated water capacity compared to the baseline meter size, a ¾ inch meter. The relationship between larger meters and the ¾" baseline meter follows the directions found in the American Water Works Association M26 and M1 manuals, which rely on flow capacity on a gallon per minute basis. The ¾ inch meter represents a single-family residential household. Using consumption data reported by MPMW for FY 2020, the typical ¾" meter consumption in the City served by MPMW is 215 gpd. Using the 215 gpd as the base for the calculation of the system development fee, the following calculation illustrates the development of the fee for a ¾ inch meter:

Baseline Meter Charge		
3/4" meter usage per Household - gpd	215	
Unit Equity Value - $/gpd	$32.56	(per Table 5-4)
Total SDC for 3/4" meter	$6,985	

Table 5-5 presents the SDC charges by meter size applicable to any new connection or changes to the existing connections based on the calculation and the meter ratios.

Table 5-5 Proposed Maximum Water System Development Charge

Line No.	Meter Size	Meter Equivalents	Buy-In Component per Meter
	Proposed SDCs		
1	3/4" or less	1.00	$6,985
2	1"	1.67	$11,642
3	1-1/2"	3.33	$23,284
4	2"	5.33	$37,254
5	3"	10.67	$74,509
6	4"	16.67	$116,420
7	6"	33.33	$232,840
8	8"	53.33	$372,544
9	10"	76.67	$535,532
10	12"	143.33	$1,001,211

It is recommended that MPMW incorporate an annual Consumer Price Index or Engineering News-Record inflation adjustment to account for increased costs.

6 Disclaimer

Black & Veatch has prepared this report for MPMW, and it is based on information not within the control of Black & Veatch. MPMW has not requested Black & Veatch to make an independent analysis, to verify the information provided to us, or to render an independent judgment of the validity of the information provided by others. Because of this, Black & Veatch cannot, and does not, guarantee the accuracy thereof to the extent that such information, data, or opinions were based on information provided by others.

In conducting these analyses and in forming an opinion of the projection of future financial operations summarized in this report, Black & Veatch made certain assumptions on the conditions, events, and circumstances that may occur in the future. The methodology utilized in performing the analyses follows generally accepted practices for such projections. Such assumptions and methodologies are reasonable and appropriate for the purpose for which they are used. While we believe the assumptions are reasonable and the projection methodology valid, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that occur. Such factors may include MPMW's ability to execute the capital improvement program as scheduled and within budget, regional climate and weather conditions affecting the demand for water, and adverse legislative, regulatory, or legal decisions (including environmental laws and regulations) affecting MPMW's ability to manage the system and meet water quality requirements.

7 Appendix A – Scenario 2B Tables

The following matrix identifies the corresponding tables associated with each Section in the report.

DESCRIPTION	SCENARIO 2B
Section 1 - Financial Planning	Table 7-1 Table 7-2 Table 7-3 Table 7-4 Table 7-5 Table 7-6 Table 7-7 Table 7-8
Section 2 - Cost of Service	Table 7-9 Table 7-10 Table 7-11 Table 7-12 Table 7-13 Table 7-14 Table 7-15
Section 3 - Rate Design	Table 7-16 Table 7-17 Table 7-18 Table 7-19 Table 7-20 Table 7-21 Table 7-22 Table 7-23 Table 7-24 Table 7-25 Table 7-26 Table 7-27 Table 7-28 Table 7-29

Table 7-1 Projected Number of Connections

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		(Conn)	(Conn)	(Conn)	(Conn)	(Conn)
	Connections					
1	Single Family Residential	3,361	3,362	3,364	3,365	3,366
2	Multi Family Residential	266	298	330	361	371
3	Commercial	199	210	220	231	235
4	Industrial	215	211	208	204	201
5	Irrigation/Landscape	149	156	162	169	173
6	Public Institutional	42	43	45	46	46
7	Hydrant	10	10	11	11	11
8	Private Fire	143	143	143	143	143
9	Total	4,385	4,433	4,483	4,530	4,546

Table 7-2 Projected Water Consumption

Line No.	Description	Fiscal Year Ending June 30, FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		(CCF)	(CCF)	(CCF)	(CCF)	(CCF)
	Consumption					
1	Single Family Residential	403,717	405,054	406,391	409,065	407,176
2	Multi Family Residential	159,081	176,460	193,839	211,218	215,825
3	Commercial	375,643	402,379	431,789	462,536	470,792
4	Industrial	183,143	181,806	180,469	179,132	175,802
5	Irrigation/Landscape	105,608	113,629	120,313	126,997	128,307
6	Public Institutional	104,271	112,292	121,650	131,008	132,828
7	Hydrant	1,669	1,669	1,669	1,669	1,669
8	Total (CCF)	1,333,132	1,393,289	1,456,120	1,521,625	1,532,399

Table 7-3 Existing Water Rates

Description	Water Charges FY 2021
Monthly Fixed Meter Charge ($/Month)	$/Month
5/8"	28.21
3/4"	28.21
1"	47.03
1-1/2"	94.05
2"	150.46
3"	282.14
4"	471.15
6"	940.45
8"	1,504.70
10"	2,163.01
Consumption Charge ($/CCF)	
Tier 1 (0-6 CCF)	5.57
Tier 2 (Over 6 CCF)	7.98
Capital Facility Surcharge	
All Usage	1.50

Description	Water Charges FY 2021
Monthly Unmetered Fire Fixed Charges ($/Month)	
1-1/2"	16.93
2"	27.08
3"	50.79
4"	84.81
6"	169.28
8"	270.85
10"	389.34
12"	727.90

Table 7-4 Projected Revenue under Existing Rates

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		($)	($)	($)	($)	($)
	Monthly Fixed Meter					
1	Single Family Residential	1,301,300	1,301,600	1,302,300	1,302,600	1,303,000
2	Multi Family Residential	249,000	280,000	310,900	341,300	349,900
3	Commercial	389,000	401,400	412,000	424,400	427,500
4	Industrial	332,600	328,800	325,500	321,700	318,400
5	Irrigation/Landscape	195,700	204,300	211,700	220,300	225,600
6	Public Institutional	106,100	107,900	110,300	112,100	112,100
7	Hydrant	27,500	27,500	30,900	30,900	30,900
8	Total Monthly Fixed Meter	2,601,200	2,651,500	2,703,600	2,753,300	2,767,400
	Monthly Unmetered Fire Fixed					
9	Private Fire	345,500	345,500	345,500	345,500	345,500
10	Total Monthly Unmetered Fire Fixed	345,500	345,500	345,500	345,500	345,500
	Consumption					
11	Single Family Residential	2,756,200	2,765,300	2,774,500	2,792,700	2,779,800
12	Multi Family Residential	1,230,200	1,364,600	1,499,000	1,633,400	1,669,100
13	Commercial	2,974,900	3,186,600	3,419,600	3,663,100	3,728,400
14	Industrial	1,434,100	1,423,600	1,413,200	1,402,700	1,376,600
15	Irrigation/Landscape	832,900	896,100	948,800	1,001,500	1,011,900
16	Public Institutional	824,700	888,200	962,200	1,036,200	1,050,600
17	Hydrant	13,000	13,000	13,000	13,000	13,000
18	Total Water Consumption	10,066,000	10,537,400	11,030,300	11,542,600	11,629,400
	Capital Facility Surcharge					
19	Single Family Residential	605,600	607,600	609,600	613,600	610,800
20	Multi Family Residential	238,600	264,700	290,800	316,800	323,700
21	Commercial	563,500	603,600	647,700	693,800	706,200
22	Industrial	274,700	272,700	270,700	268,700	263,700
23	Irrigation/Landscape	158,400	170,400	180,500	190,500	192,500
24	Public Institutional	156,400	168,400	182,500	196,500	199,200
25	Hydrant	2,500	2,500	2,500	2,500	2,500
26	Total Water Capital Surcharge	$ 1,999,700	$ 2,089,900	$ 2,184,300	$ 2,282,400	$ 2,298,600
27	Total Water System (Operating)	$ 15,012,400	$ 15,624,300	$ 16,263,700	$ 16,923,800	$ 17,040,900

Table 7-5 O&M Expenses

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		($)	($)	($)	($)	($)
	Operating Expenses					
1	Water Purchase	6,382,000	6,803,400	8,163,600	8,789,800	9,536,700
2	Services	1,084,500	1,113,700	1,143,700	1,174,500	1,206,200
3	Salaries & Wages	949,500	977,900	1,007,200	1,037,500	1,068,600
4	Operating Expenses	501,800	522,000	542,800	564,400	587,000
5	Fringe Benefits	468,300	482,500	497,100	512,000	527,400
6	Special Project Expenditures	287,700	296,300	305,200	314,300	323,800
7	Fixed Assets & Capital Outlay	130,300	134,300	138,300	142,400	146,600
8	Utilities	113,100	118,700	124,700	130,900	137,400
9	Repairs & Maintenance	99,000	102,000	105,100	108,300	111,500
10	Travel	2,300	2,400	2,500	2,600	2,700
11	Total	$ 10,018,500	$ 10,553,200	$ 12,030,200	$ 12,776,700	$ 13,647,900

Table 7-6 Capital Improvement Projects

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		($)	($)	($)	($)	($)
	Water Capital Improvements					
1	Automated water meter reading	1,045,000	1,535,000	0	0	0
2	Emergency Water Storage/Supply	800,000	2,550,000	3,060,000	0	0
3	Water Main Replacement Project	1,854,000	1,800,000	2,565,000	4,420,000	2,025,900
4	Calwater Alma Interconnection	140,000	1,500,000	0	0	0
5	Palo Alto Pope Chaucer Interconnection	344,300	0	0	0	0
6	Lower Zone 10" Check Valve for SRI for Burgess SFPUC Turnout	0	0	98,600	0	0
7	Lower Zone 12" Check Valves (2) for Hill SFPUC Turnout	0	0	195,900	0	0
8	Fire Flow Capacity Improvements	1,092,700	0	0	1,779,100	0
9	Post Earthquake Operational Plan	58,500	0	0	0	0
10	Lower Zone Services PRVs	0	0	0	0	1,266,800
11	Install Automated Blowoffs at Dead Ends	0	0	0	0	239,800
12	2.5 MG Storage Tank	0	0	2,200,000	2,266,000	27,000,000
13	Sharon Heights Pump Station VFDs	0	0	0	0	312,400
14	Water Rate Study	0	0	0	0	103,200
15	Urban Water Management Plan	0	0	0	0	162,300
16	Total	$ 5,334,500	$ 7,385,000	$ 8,119,500	$ 8,465,100	$ 31,110,400

Table 7-7 Capital Fund (Scenario 2B)

Line No.	Description	Fiscal Year Ending June 30,				
		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
		($)	($)	($)	($)	($)
	Source of Funds					
1	Transfer from Operating Fund	4,900,200	4,695,700	4,471,100	4,225,400	4,065,800
2	Debt Proceeds	0	0	0	0	23,000,000
3	Water Capacity Fees	838,900	813,300	844,400	804,200	226,600
4	Capital Facility Surcharge	2,099,800	2,304,300	2,528,900	2,774,600	2,934,200
5	Interest Income	47,700	57,200	52,800	40,700	23,800
6	Total Sources	$ 7,886,600	$ 7,870,500	$ 7,897,200	$ 7,844,900	$ 30,250,400
	Use of Funds					
7	Capital Projects	5,334,500	7,385,000	8,119,500	8,465,100	31,110,400
8	Total Uses	$ 5,334,500	$ 7,385,000	$ 8,119,500	$ 8,465,100	$ 31,110,400
9	Net Annual Cash Balance	2,552,100	485,500	(222,300)	(620,200)	(860,000)
10	Beginning Unrestricted Fund Balance	(121,678)	2,430,422	2,915,922	2,693,622	2,073,422
11	Net Cumulative Fund Balance	$ 2,430,422	$ 2,915,922	$ 2,693,622	$ 2,073,422	$ 1,213,422
12	Reserve Target [1]	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000

[1] Reserve Target set at $1M.

Table 7-8 Operating Fund (Scenario 2B)

Line No.	Description			Fiscal Year Ending June 30, FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
				$	$	$	$	$
	Revenue							
	Rate Revenue							
1	Revenue from Existing Rates			15,012,400	15,624,300	16,263,700	16,923,800	17,040,900
	Year	Months Effective	Rate Adj					
2	2022	12	5.00%	750,600	781,200	813,200	846,200	852,000
3	2023	12	5.00%		820,300	853,800	888,500	894,600
4	2024	12	5.00%			896,500	932,900	939,400
5	2025	12	5.00%				979,600	986,300
6	2026	12	5.00%					1,035,700
7	Increased Revenue Due to Adjustments			750,600	1,601,500	2,563,500	3,647,200	4,708,000
8	Subtotal Rate Revenue			$ 15,763,000	$ 17,225,800	$ 18,827,200	$ 20,571,000	$ 21,748,900
	Other Operating Revenue							
9	Inter Governmental Revenue			0	0	0	0	0
10	Use of Money & Property			74,000	69,500	67,300	85,100	109,300
11	Charges for Services			25,300	25,600	25,900	26,200	26,500
12	Other Financing Sources			0	0	0	0	0
13	Subtotal Other Operating Revenue			$ 99,300	$ 95,100	$ 93,200	$ 111,300	$ 135,800
14	**Total Revenue**			**$ 15,862,300**	**$ 17,320,900**	**$ 18,920,400**	**$ 20,682,300**	**$ 21,884,700**
	Revenue Requirements							
	Operating & Maintenance							
15	O&M Expenses			9,600,800	10,122,900	11,587,000	12,320,300	13,177,800
16	Routine Capital Outlay			130,300	134,300	138,300	142,400	146,600
17	Subtotal O&M			$ 9,731,100	$ 10,257,200	$ 11,725,300	$ 12,462,700	$ 13,324,400
	Debt Service							
18	Existing SRF Loans			0	0	0	0	0
19	Proposed SRF Loans			0	0	0	0	0
20	Total Debt Service			$ 0	$ 0	$ 0	$ 0	$ 0
	Transfers							
21	Transfer to Other Funds			287,400	296,000	304,900	314,000	323,500
22	Transfer to Capital Fund			7,000,000	7,000,000	7,000,000	7,000,000	7,000,000
23	Total Transfers			$ 7,287,400	$ 7,296,000	$ 7,304,900	$ 7,314,000	$ 7,323,500
24	**Total Revenue Requirements**			**$ 17,018,500**	**$ 17,553,200**	**$ 19,030,200**	**$ 19,776,700**	**$ 20,647,900**
25	Net Annual Cash Balance			(1,156,200)	(232,300)	(109,800)	905,600	1,236,800
26	Beginning Fund Balance			4,932,500	3,776,300	3,544,000	3,434,200	4,339,800
27	Net Cumulative Fund Balance			$ 3,776,300	$ 3,544,000	$ 3,434,200	$ 4,339,800	$ 5,576,600
28	Target Operating Reserves (120 Days)			$ 3,156,400	$ 3,328,100	$ 3,809,400	$ 4,050,500	$ 4,332,400

Table 7-9 Cost of Service Revenue from Rates (Scenario 2B)

Line No.	Description	Operating Expense	Capital Cost	Total Cost
		($)	($)	($)
	Revenue Requirements			
1	O&M Expense	9,600,800	0	9,600,800
2	Routine Capital Outlay	130,300	0	130,300
3	Debt Service Requirements	0	0	0
4	Transfers to Other Funds	287,400	0	287,400
5	Transfers to Water Capital	0	7,000,000	7,000,000
6	Subtotal	$ 10,018,500	$ 7,000,000	$ 17,018,500
	Less Revenue Requirements Met from Other Sources			
7	Inter Governmental Revenue	0	0	0
8	Use of Money & Property	74,000	0	74,000
9	Charges for Services	25,300	0	25,300
10	Other Financing Sources	0	0	0
11	Subtotal	$ 99,300	$ 0	$ 99,300
	Adjustments			
12	Adjustment for Annual Cash Balance	680,600	475,600	1,156,200
13	Adjustment to Annualize Rate Increase	0	0	0
14	Subtotal	$ 680,600	$ 475,600	$ 1,156,200
15	Cost of Service to be Recovered from Rates	$ 9,238,600	$ 6,524,400	$ 15,763,000

Table 7-10 Allocation of Function Costs (Scenario 2B)

Line No.	Description	Common to All Customers					Fire Protection
		Base	Max. Day	Max. Hour	Meters	Cust/Bill.	
	O&M & Capital Allocations						
1	Water Supply	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2	Pumping	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%
3	Treatment	66.7%	33.3%	0.0%	0.0%	0.0%	0.0%
4	Water Storage	9.0%	0.0%	90.0%	0.0%	0.0%	1.0%
5	Transmission & Distribution	47.6%	23.8%	28.6%	0.0%	0.0%	0.0%
6	Meters	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
7	Customer	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
8	Hydrants	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
9	Transfers	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
10	FA - Avg Net Plant [1]	54.4%	14.5%	21.0%	3.9%	0.0%	6.2%
11	Avg O&M (less S&FB) [2]	85.7%	2.4%	3.4%	1.5%	5.7%	1.4%

Notes:

[1] FA - Net Plant represents the average of costs for all plant system elements.

[2] Avg O&M represents the average of costs for all O&M elements (excluding Salaries & Fringe Benefits).

Table 7-11 Allocation of O&M Expenditures (Scenario 2B)

Line No.	Description	Total Cost	Common to All Customers					Fire Protection	Allocation Basis
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.		
		($)	($)	($)	($)	($)	($)	($)	
	Operation & Maintenance								
1	Salaries & Benefits	1,417,800	1,214,600	33,500	48,700	21,300	80,300	19,400	Avg O&M (less S&FB)
2	Operating Expenses	504,400	274,400	72,900	106,000	19,600	0	31,500	FA - Avg Net Plant
3	Utilities	113,100	61,500	16,300	23,800	4,400	0	7,100	FA - Avg Net Plant
4	Purchased Water	6,382,000	6,382,000	0	0	0	0	0	Water Supply
5	Services	613,900	334,000	88,700	129,000	23,900	0	38,300	FA - Avg Net Plant
6	Customer Billing	331,500	0	0	0	0	331,500	0	Customer
7	Capital Outlay	29,400	16,100	4,200	6,200	1,100	0	1,800	Customer
8	Meter Services	72,100	0	0	0	72,100	0	0	FA - Avg Net Plant
9	Hydrants	28,800	0	0	0	0	0	28,800	Meters
10	Repairs & Maintenance	99,000	53,900	14,300	20,800	3,800	0	6,200	Hydrants
11	Transfers	287,400	0	0	0	0	287,400	0	FA - Avg Net Plant
12	Total O&M Expenses	$ 9,879,400	$ 8,336,500	$ 229,900	$ 334,500	$ 146,200	$ 699,200	$ 133,100	
	Less Other Revenue								
13	Miscellaneous Revenues	(99,300)	(82,700)	(2,300)	(3,300)	(1,400)	(8,300)	(1,300)	Avg O&M
14	Other Adjustments	(680,600)	(566,500)	(15,600)	(22,700)	(9,900)	(56,900)	(9,000)	Avg O&M
15	Net Operating Expenses	$ 9,099,500	$ 7,687,300	$ 212,000	$ 308,500	$ 134,900	$ 634,000	$ 122,800	

Table 7-12 Allocation of Capital Costs (Scenario 2B)

Line No.	Description	Total Cost	Common to All Customers					Fire Protection	Allocation Basis
			Base	Max. Day	Max. Hour	Meters	Cust/Bill.		
		($)	($)	($)	($)	($)	($)	($)	
	Plant Assets								
1	Water Supply	6,740,200	6,740,200	0	0	0	0	0	Water Supply
2	Pumping	4,117,400	2,744,900	1,372,500	0	0	0	0	Pumping
3	Treatment	0	0	0	0	0	0	0	Treatment
4	Water Storage	2,952,600	265,800	0	2,657,300	0	0	29,500	Water Storage
5	Transmission	1,035,700	493,200	246,600	295,900	0	0	0	Transmission & Distribution
6	Distribution	9,871,100	4,700,500	2,350,300	2,820,300	0	0	0	Transmission & Distribution
7	Meters	1,067,400	0	0	0	1,067,400	0	0	Meters
8	Hydrants	1,685,100	0	0	0	0	0	1,685,100	Hydrants
9	General Plant	96,000	52,200	13,900	20,200	3,700	0	6,000	FA - Avg Net Plant
10	Total Plant Assets	$ 27,565,500	$ 14,996,800	$ 3,983,300	$ 5,793,700	$ 1,071,100	$ 0	$ 1,720,600	
	Note: Using the distribution for Plant Assets								
	Capital Projects								
11	Capital Projects	7,000,000	3,808,300	1,011,500	1,471,300	272,000	0	436,900	FA - Avg Net Plant
12	Total Capital Projects	$ 7,000,000	$ 3,808,300	$ 1,011,500	$ 1,471,300	$ 272,000	$ 0	$ 436,900	
	Less Other Revenue								
13	Miscellaneous Revenues	0	0	0	0	0	0	0	FA - Avg Net Plant
14	Other Adjustments	(475,600)	(258,700)	(68,700)	(100,000)	(18,500)	0	(29,700)	FA - Avg Net Plant
15	Net Operating Expenses	$ 7,475,600	$ 4,067,000	$ 1,080,200	$ 1,571,300	$ 290,500	$ 0	$ 466,600	

Table 7-13 Units of Service (Scenario 2B)

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Line No.	Description	Consumption		Maximum Day			Maximum Hour			Meters	Bills	Fire Protection
		Annual	Avg. Day	Factor	Total	Extra	Factor	Total	Extra			
	Units of Measure	(CCF)	(CCF/day)		(CCF/day)	(CCF/day)		(CCF/day)	(CCF/day)	(EMs)	(Bills)	(EMs)
	Customers											
1	Single Family Residential	403,717	1,106	225%	2,489	1,383	300%	3,318	830	3,844	40,332	
2	Multi Family Residential	159,081	436	210%	915	479	280%	1,220	305	745	3,192	
3	Commercial	375,643	1,029	251%	2,583	1,554	334%	3,437	854	1,158	2,388	
4	Industrial	183,143	502	227%	1,139	637	303%	1,520	381	988	2,580	
5	Irrigation/Landscape	107,277	294	355%	1,043	749	474%	1,393	350	666	1,908	
6	Public Institutional	104,271	286	250%	714	429	334%	954	240	316	504	
7	Hydrant	-	-	524%	-	-	699%	-	-	-	-	
8	Subtotal	1,333,132	3,652		8,884	5,231		11,844	2,960	7,717	50,904	
9	Public Fire Service				885	885		5,311	4,425			12,600
10	Private Fire Service				398	398		2,390	1,992		1,716	5,671
11	Subtotal				1,283	1,283		7,701	6,417		1,716	18,271
12	Total Water System	1,333,132	3,652		10,167	6,515		19,544	9,377	7,717	52,620	18,271

Table 7-14 Units Cost of Service (Scenario 2B)

Line No.	Description	(1) Total Cost	(2) Common to All Customers: Base	(3) Common to All Customers: Max. Day	(4) Common to All Customers: Max. Hour	(5) Common to All Customers: Meters	(6) Common to All Customers: Cust/Bill.	(7) Fire Protection
		($)	($)	($)	($)	($)	($)	($)
1	Net Operating Expense	9,238,600	7,687,300	212,000	308,500	134,900	773,100	122,800
2	Capital Costs	6,524,400	3,549,600	942,800	1,371,300	253,500	0	407,200
3	Total Cost of Service	$ 15,763,000	$ 11,236,900	$ 1,154,800	$ 1,679,800	$ 388,400	$ 773,100	$ 530,000
4	Units of Service		1,333,132 CCF	6,515 CCF/Day	9,377 CCF/Day	7,717 Eq. Meters	52,620 Bills	18,271 Eq. Meters
5	Cost per Unit		$ 8.43 per CCF	$ 177.26 per CCF/Day	$ 179.14 per CCF/Day	$ 50.33 per Eq. Meters	$ 14.69 per Bill	$ 29.01 per Eq. Meters

Table 7-15 Distribution of Costs to Customer Classes (Scenario 2B)

Line No.	Description	(1) Total Cost	(2) Common to All Customers: Base	(3) Common to All Customers: Max. Day	(4) Common to All Customers: Max. Hour	(5) Common to All Customers: Meters	(6) Common to All Customers: Cust/Bill.	(7) Fire Protection
1	Cost per Unit		$ 8.43 per CCF	$ 177.26 per CCF/Day	$ 179.14 per CCF/Day	$ 50.33 per Eq. Meters	$ 14.69 per Bill	$ 29.01 per Eq. Meters
	Single Family Residential							
2	Units		403,717	1,383	830	3,844	40,332	0
3	Allocation of costs of service ($)	4,582,400	3,402,900	244,900	148,500	193,500	592,600	0
	Multi Family Residential							
4	Units		159,081	479	305	745	3,192	0
5	Allocation of costs of service ($)	1,565,000	1,340,900	85,000	54,700	37,500	46,900	0
	Commercial							
6	Units		375,643	1,554	854	1,158	2,388	0
7	Allocation of costs of service ($)	3,688,200	3,166,300	275,500	153,000	58,300	35,100	0
	Industrial							
8	Units		183,143	637	381	988	2,580	0
9	Allocation of costs of service ($)	1,812,600	1,543,700	113,000	68,300	49,700	37,900	0
	Irrigation/Landscape							
10	Units		107,277	749	350	666	1,908	0
11	Allocation of costs of service ($)	1,161,300	904,200	132,900	62,700	33,500	28,000	0
	Public Institutional							
12	Units		104,271	429	240	316	504	0
13	Allocation of costs of service ($)	1,021,200	878,900	76,000	43,000	15,900	7,400	0
	Hydrant							
14	Units		0	0	0	0	0	0
15	Allocation of costs of service ($)	0	0	0	0	0	0	0
	Public Fire Service							
16	Units		0	885	4,425	0	0	12,600
17	Allocation of costs of service ($)	1,315,200	0	156,900	792,800	0	0	365,500
	Private Fire Service							
18	Units		0	398	1,992	0	1,716	5,671
19	Allocation of costs of service ($)	617,100	0	70,600	356,800	0	25,200	164,500
20	TOTAL COSTS OF SERVICE	$ 15,763,000	$ 11,236,900	$ 1,154,800	$ 1,679,800	$ 388,400	$ 773,100	$ 530,000

Table 7-16 Cost Components for Monthly Meter Charge (Scenario 2B)

Meter Size	Meter Ratio	Meter Service Costs			Total Service Charge
		Meter Unit Cost	Customer Unit Cost	Public Fire Unit Cost	
		per Eq. Meter	per Bill	per Eq. Meter	$/Month
5/8"	1.00	4.19	14.69	8.70	27.58
3/4"	1.00	4.19	14.69	8.70	27.58
1"	1.67	4.19	14.69	8.70	45.97
1-1/2"	3.33	4.19	14.69	8.70	91.95
2"	5.33	4.19	14.69	8.70	147.12
3"	10.67	4.19	14.69	8.70	294.24
4"	16.67	4.19	14.69	8.70	459.75
6"	33.33	4.19	14.69	8.70	919.50
8"	53.33	4.19	14.69	8.70	1,471.20
10"	76.67	4.19	14.69	8.70	2,114.84

Table 7-17 Monthly Meter Charge Revenue (Scenario 2B)

Meter Size	Total Bills in Year	Total Service Charge	Total Meter Revenue
	Bills	$/Month	$
5/8"	34,896	27.58	962,600
3/4"	600	27.58	16,600
1"	9,864	45.97	453,500
1-1/2"	1,560	91.95	143,400
2"	2,928	147.12	430,800
3"	612	294.24	180,100
4"	252	459.75	115,900
6"	84	919.50	77,200
8"	84	1,471.20	123,600
10"	24	2,114.84	50,800
			$ 2,554,500

Table 7-18 Proposed Five-Year Monthly Meter Charge (Scenario 2B)

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Monthly Fixed Meter Charge ($/Month)						
5/8"	28.21	27.58	28.96	30.41	31.93	33.53
3/4"	28.21	27.58	28.96	30.41	31.93	33.53
1"	47.03	45.97	48.27	50.68	53.21	55.87
1-1/2"	94.05	91.95	96.55	101.38	106.45	111.77
2"	150.46	147.12	154.48	162.20	170.31	178.83
3"	282.14	294.24	308.95	324.40	340.62	357.65
4"	471.15	459.75	482.74	506.88	532.22	558.83
6"	940.45	919.50	965.48	1,013.75	1,064.44	1,117.66
8"	1,504.70	1,471.20	1,544.76	1,622.00	1,703.10	1,788.26
10"	2,163.01	2,114.84	2,220.58	2,331.61	2,448.19	2,570.60

Table 7-19 Cost Components for Monthly Fire Fixed Charge (Scenario 2B)

Meter Size	Meter Ratio	Mtr Costs Private Fire Unit Cost	Total Service Charge
		per Eq. Meter	$/Month
1-1/2"	3.33	9.07	30.23
2"	5.33	9.07	48.37
3"	10.67	9.07	96.73
4"	16.67	9.07	151.14
6"	33.33	9.07	302.29
8"	53.33	9.07	483.66
10"	76.67	9.07	695.26
12"	143.33	9.07	1,299.83

Table 7-20 Proposed Five-Year Monthly Fire Fixed Charge (Scenario 2B)

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Monthly Unmetered Fire Fixed Charges ($/Month)						
1-1/2"	16.93	30.23	31.74	33.33	35.00	36.75
2"	27.08	48.37	50.79	53.33	56.00	58.80
3"	50.79	96.73	101.57	106.65	111.98	117.58
4"	84.81	151.14	158.70	166.64	174.97	183.72
6"	169.28	302.29	317.40	333.27	349.93	367.43
8"	270.85	483.66	507.84	533.23	559.89	587.88
10"	389.34	695.26	730.02	766.52	804.85	845.09
12"	727.90	1,299.83	1,364.82	1,433.06	1,504.71	1,579.95

Table 7-21 Tier 1 Consumption Charge Revenue (Scenario 2B)

Customer Class	Consumption	Charge	Total Cons Revenue
Consumption (CCF)			
All Customers - Tier 1 (0-6 CCF)	237,491	6.67	$ 1,584,100

Table 7-22 Tier 2 Consumption Charge Revenue (Scenario 2B)

Customer Class	Consumption	Charge	Total Cons Revenue
Consumption (CCF)			
All Customers - Tier 2 (7-12 CCF)	132,247	8.40	$ 1,110,900

Table 7-23 Proposed Five-Year Three-Tier Consumption Charge (Scenario 2B)

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Consumption Charge ($/CCF) - Three Tier						
Tier 1 (0-6 CCF)	5.09	5.34	5.61	5.89	6.18	
Tier 2 (7-12 CCF)	6.82	7.16	7.52	7.90	8.30	
Tier 3 (Over 12 CCF)	8.69	9.12	9.58	10.06	10.56	

Table 7-24 Proposed Capital Facility Surcharge (Scenario 2B)

Customer Class	Existing	Fiscal Year Ending June 30,				
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Capital Facility Surcharge						
All Usage	1.50	1.58	1.66	1.74	1.83	1.92

Table 7-25 Typical Residential Monthly Bill with a 3/4" meter (Scenario 2B)

Typical Monthly Usage	FY 2021 Existing Rates	FY 2022 Proposed Rates	FY 2023 Proposed Rates	FY 2024 Proposed Rates	FY 2025 Proposed Rates	FY 2026 Proposed Rates
(CCF)	($)	($)	($)	($)	($)	($)
Residential						
0	$28.21	$27.58	$28.96	$30.41	$31.93	$33.53
2	$42.35	$40.92	$42.97	$45.12	$47.38	$49.75
4	$56.49	$54.26	$56.97	$59.82	$62.81	$65.95
6	$70.63	$67.60	$70.98	$74.53	$78.26	$82.17
8	$89.59	$84.40	$88.62	$93.05	$97.70	$102.59
10	$108.55	$101.20	$106.26	$111.57	$117.15	$123.01
12	$127.51	$118.00	$123.90	$130.10	$136.61	$143.44
14	$146.47	$138.54	$145.47	$152.74	$160.38	$168.40

Table 7-26 Typical Non-Residential Monthly Bill with a 2" meter (Scenario 2B)

Typical Monthly Usage	FY 2021 Existing Rates	FY 2022 Proposed Rates	FY 2023 Proposed Rates	FY 2024 Proposed Rates	FY 2025 Proposed Rates	FY 2026 Proposed Rates
(CCF)	($)	($)	($)	($)	($)	($)
Non-Residential						
0	$150.46	$147.12	$154.48	$162.20	$170.31	$178.83
20	$325.60	$319.70	$335.69	$352.47	$370.09	$388.59
50	$610.00	$627.80	$659.19	$692.15	$726.76	$763.10
100	$1,084.00	$1,141.30	$1,198.37	$1,258.29	$1,321.20	$1,387.26
250	$2,506.00	$2,681.80	$2,815.89	$2,956.68	$3,104.51	$3,259.74
500	$4,876.00	$5,249.30	$5,511.77	$5,787.36	$6,076.73	$6,380.57
750	$7,246.00	$7,816.80	$8,207.64	$8,618.02	$9,048.92	$9,501.37
1,000	$9,616.00	$10,384.30	$10,903.52	$11,448.70	$12,021.14	$12,622.20

Table 7-27 Stages of Water Shortages Contingency Plan

STAGES	PERCENT SUPPLY REDUCTION	WATER SUPPLY CONDITION
1	≤10%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use of up to 10% due to water supply shortages or an emergency.
2	11-20%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 11% to 20% due to water supply shortages or emergency.
3	21-30%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 21% to 30% due to water supply shortages or emergency.
4	31-40%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 31% to 40% due to water supply shortages or emergency.
5	41-50%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use from 41% to 50% due to water supply shortages or emergency.
6	>50%	Declaration by the City Council upon the determination that the SFPUC or another governing authority (e.g., the SWRCB) has required a voluntary or mandatory reduction in water use greater than 50% due to water supply shortages or emergency.

Source: Draft 2020 Urban Water Management Plan

Table 7-28 Proposed First Year Drought Charges, FY 2022 (Scenario 2B)

Description	Stage 0	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Required Water Reduction %		Up to 10%	Up to 20%	Up to 30%	Up to 40%	Up to 50%	Greater than 50%
Reduction by Tier							
All Customers							
Tier 1 (0-6 CCF)		0.5%	1.0%	2.0%	3.0%	4.0%	5.0%
Tier 2 (7-12 CCF)		2.5%	4.0%	5.5%	7.0%	8.5%	10.0%
Tier 3 (Over 12 CCF)		13.4%	26.9%	40.3%	53.7%	67.0%	80.4%
Projected Consumption (CCF)	1,275,649	1,148,084	1,020,519	892,954	765,389	637,824	510,260
Total Reduction in Consumption (CCF)		127,565	255,130	382,695	510,260	637,825	765,389
Projected Consumption by Tier (CCF)							
Tier 1 (0-6 CCF)	227,250	226,114	224,978	222,705	220,433	218,160	215,888
Tier 2 (7-12 CCF)	126,545	123,381	121,483	119,585	117,686	115,788	113,890
Tier 3 (Over 12 CCF)	921,854	798,589	674,058	550,664	427,270	303,876	180,482
Total Consumption	1,275,649	1,148,084	1,020,519	892,954	765,389	637,824	510,260
Projected Consumption Rates ($/CCF)							
Tier 1 (0-6 CCF)	$6.67	$6.67	$6.67	$6.67	$6.67	$6.67	$6.67
Tier 2 (7-12 CCF)	$8.40	$8.40	$8.40	$8.40	$8.40	$8.40	$8.40
Tier 3 (Over 12 CCF)	$10.27	$10.27	$10.27	$10.27	$10.27	$10.27	$10.27
Projected Consumption Revenue							
Tier 1 (0-6 CCF)	$1,515,761	$1,508,180	$1,500,603	$1,485,442	$1,470,288	$1,455,127	$1,439,973
Tier 2 (7-12 CCF)	$1,062,974	$1,036,400	$1,020,457	$1,004,514	$988,562	$972,619	$956,676
Tier 3 (Over 12 CCF)	$9,467,441	$8,201,509	$6,922,576	$5,655,319	$4,388,063	$3,120,807	$1,853,550
Total Revenue	$12,046,175	$10,746,090	$9,443,636	$8,145,276	$6,846,913	$5,548,553	$4,250,199
Revenue Lost		$1,300,085	$2,602,539	$3,900,900	$5,199,262	$6,497,622	$7,795,976
Reduced Water Sold + Water Loss		135,219	270,438	405,657	540,876	676,095	811,312
SFPUC + BAWSCA Wholesale Rate		$4.50	$4.50	$4.50	$4.50	$4.50	$4.50
Reduced Cost of SFPUC & BAWSCA		($608,500)	($1,217,000)	($1,825,500)	($2,433,900)	($3,042,400)	($3,650,900)
Revenue Lost due to Reduction		$1,300,085	$2,602,539	$3,900,900	$5,199,262	$6,497,622	$7,795,976
Less Reduction of Water Purchase Costs		($608,500)	($1,217,000)	($1,825,500)	($2,433,900)	($3,042,400)	($3,650,900)
Revenue to be recovered by drought surcharges		$691,585	$1,385,539	$2,075,400	$2,765,362	$3,455,222	$4,145,076
Drought Surcharge on Consumption ($/CCF)		$0.60	$1.36	$2.32	$3.61	$5.42	$8.12

Table 7-29 Proposed Five-Year Drought Charges (Scenario 2B)

Description[1]	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6[2]
Required Water Reduction %	Up to 10%	Up to 20%	Up to 30%	Up to 40%	Up to 50%	Greater than 50%
FY 2022	$0.60	$1.36	$2.32	$3.61	$5.42	$8.12
FY 2023	$0.63	$1.40	$2.39	$3.67	$5.43	$7.98
FY 2024	$0.64	$1.43	$2.41	$3.67	$5.37	$7.74
FY 2025	$0.60	$1.32	$2.21	$3.34	$4.83	$6.86
FY 2026	$0.60	$1.33	$2.22	$3.33	$4.77	$6.68

1. The drought rates represent the max rate per stage. The actual drought surcharge will be calculated based on the actual water conservation target that must be met.
2. Stage 6 represents water conservation greater than 50%. The drought surcharge shown is for 60% reduction.

8 Appendix B – Fixed Assets

Asset ID.	Description	Function	Acq Date	Acq Year	Useful Life	Original Cost	Annual Depreciation	Accumulated Depreciation	Original Cost less Depreciation (OCLD)	Replacement Cost less Depreciation (RCLD)
								Budget Year		
	Water Utility							2020		
	Land									
	Reservior #1 (2M gal)	Water Storage	1/1/1973	1973		0			0	0
	Reservior #2 (3.5M gal)	Water Storage	1/1/1997	1997		0			0	0
	Pumping Station	Pumping	1/1/1973	1973		215,622			215,622	1,322,113
	Pumping Station	Pumping	1/1/1970	1970		850,832			850,832	7,158,713
	Subtotal Land					$1,066,454			$1,066,454	$8,480,826
	Buildings									
	Pumping Station	Pumping	1/1/1973	1973	50	9,800	196	9,212	588	3,605
	Reservior #1 (2M gal)	Water Storage	1/1/1973	1973	50	628,209	12,564	590,508	37,701	231,168
	Reservior #1 - roof	Water Storage	1/1/2006	2006	50	213,971	4,279	59,906	154,065	230,957
	Reservior #2 (3.5M gal)	Water Storage	1/1/1997	1997	50	3,249,793	64,996	1,494,908	1,754,885	3,499,959
	Pumping Station	Pumping	1/1/1970	1970	50	57,687	1,154	57,687	0	0
	Sharon Park - Station	Pumping	1/1/2016	2016	60	2,860,525	47,675	190,700	2,669,825	3,000,759
	Sharon Park - Pumps	Pumping	1/1/2016	2016	20	811,650	40,583	162,332	649,318	729,803
	Subtotal Buildings					$7,831,635	$171,447	$2,565,253	$5,266,382	$7,696,252
	Equipment*									
	Air Compressor/Portable	General Plant	1/1/2009	2009	10	12,035	0	12,035	0	0
	Service Body for 94 F350	General Plant	1/1/2009	2009	10	4,210	0	4,210	0	0
	Kubola Tractor with Backh	General Plant	1/1/2015	2015	10	31,359	596	24,257	7,102	8,223
	Trailer	General Plant	1/1/2009	2009	10	8,065	0	8,065	0	0
	Rear Bumper for BiFuel Truck	General Plant	1/1/2009	2009	10	319	0	319	0	0
	Side Boxes for BiFuel Truck	General Plant	1/1/2009	2009	10	798	0	798	0	0
	Additions	General Plant	1/1/2015	2015	50	34,915	663	27,008	7,907	9,156
	Pump Purchase	General Plant	1/1/2015	2015	50	18,087	344	13,990	4,097	4,744
	Balance	Meters	1/1/2015	2015	50	132,166	2,510	102,233	29,933	34,659
	Balance	Hydrants	1/1/2015	2015	50	132,166	2,510	102,233	29,933	34,659
	Portable Generator	General Plant	1/1/2015	2015	10	13,546	257	10,478	3,068	3,552
	Air Compressor	General Plant	1/1/2015	2015	10	12,281	233	9,500	2,781	3,220
	Litmor Electric Crane	General Plant	1/1/2009	2009	10	6,997	0	6,997	0	0
	FX20 Trailer-VAS	General Plant	1/1/2015	2015	10	16,900	321	13,072	3,828	4,432
	SD 800 Ditch Witch Valve	General Plant	1/1/2015	2015	10	15,933	303	12,325	3,608	4,178
	Portable Light Tower	General Plant	1/1/2015	2015	10	9,959	189	7,703	2,256	2,612
	Thumb, Q-Disconnect 200	General Plant	1/1/2015	2015	10	8,093	154	6,260	1,833	2,122
	Mini-Message Board	General Plant	1/1/2015	2015	10	13,418	255	10,379	3,039	3,519
	Emergency Response Tra	General Plant	1/1/2015	2015	10	1,807	34	1,398	409	474
	Electric Crane	General Plant	1/1/2015	2015	10	22,682	431	17,545	5,137	5,948
	DMP Big TEX Trailer	General Plant	1/1/2015	2015	10	8,160	155	6,312	1,848	2,140
	Double Wall Fuel Tank Tr	General Plant	1/1/2015	2015	10	5,450	104	4,216	1,234	1,429
	Hoise System for Confined	General Plant	7/1/2018	2018	10	8,653	164	6,693	1,960	2,059
	Subtotal Equipment*					$517,998	$9,223	$408,025	$109,972	$127,125

* The Balance line item details were not provided, therefore the amount was split 50% meters and 50% hydrants.

The data did not contain individual depreciation amounts, therefore the total in accumulated and annual depreciation is from the CAFR. Then the infdividual equipment was prorated evenly.

Asset ID.	Description	Function	Acq Date	Acq Year	Useful Life	Original Cost	Annual Depreciation	Accumulated Depreciation	Original Cost less Depreciation (OCLD)	Replacement Cost less Depreciation (RCLD)
								Budget Year 2020		
	Water Utility Infrastructure									
	0" AC Total	Distribution	1/1/1910	1910	50	1	0	1	0	0
	0" DI Total	Distribution	1/1/1910	1910	50	1	0	1	0	0
	Total Laterals	Distribution	1/1/1910	1910	50	7	0	7	0	0
	0" UNC Total	Distribution	1/1/1910	1910	50	224	0	224	0	0
	2" CI Total	Distribution	1/1/1910	1910	50	0	0	0	0	0
	4" AC Total	Distribution	1/1/1910	1910	50	10	0	10	0	0
	4" CI Total	Distribution	1/1/1910	1910	50	2	0	2	0	0
	4" DI Total	Distribution	1/1/1910	1910	50	1	0	1	0	0
	6" AC Total	Distribution	1/1/1910	1910	50	103	0	103	0	0
	6" CI Total	Distribution	1/1/1910	1910	50	29	0	29	0	0
	6" DI Total	Distribution	1/1/1910	1910	50	0	0	0	0	0
	6" PVC Total	Distribution	1/1/1910	1910	50	0	0	0	0	0
	6" UNC Total	Distribution	1/1/1910	1910	50	2	0	2	0	0
	8" AC Total	Distribution	1/1/1910	1910	50	163	0	163	0	0
	8" CI Total	Distribution	1/1/1910	1910	50	22	0	22	0	0
	8" DI Total	Distribution	1/1/1910	1910	50	0	0	0	0	0
	8" ENC Total	Distribution	1/1/1910	1910	50	2	0	2	0	0
	8" PVC Total	Distribution	1/1/1910	1910	50	11	0	11	0	0
	8" STEEL Total	Distribution	1/1/1910	1910	50	1	0	1	0	0
	8" UNC Total	Distribution	1/1/1910	1910	50	1	0	1	0	0
	10 AC Total	Distribution	1/1/1910	1910	50	74	0	74	0	0
	10 CI Total	Distribution	1/1/1910	1910	50	2	0	2	0	0
	DW Total	Distribution	1/1/1910	1910	50	1	0	1	0	0
	10 PVC Total	Distribution	1/1/1910	1910	50	1	0	1	0	0
	10 UNC Total	Distribution	1/1/1910	1910	50	3	0	3	0	0
	12" AC Total	Transmission	1/1/1910	1910	50	121	0	121	0	0
	12" DI Total	Transmission	1/1/1910	1910	50	28	0	28	0	0
	12" ENC Total	Transmission	1/1/1910	1910	50	1	0	1	0	0
	12" PVC Total	Transmission	1/1/1910	1910	50	1	0	1	0	0
	14" AC Total	Transmission	1/1/1910	1910	50	2	0	2	0	0
	14" DI Total	Transmission	1/1/1910	1910	50	1	0	1	0	0
	16" AC Total	Transmission	1/1/1910	1910	50	0	0	0	0	0
	0" AC Total	Distribution	1/1/1920	1920	50	2	0	2	0	0
	0" DI Total	Distribution	1/1/1920	1920	50	1	0	1	0	0
	Total Laterals	Distribution	1/1/1920	1920	50	9	0	9	0	0
	0" UNC Total	Distribution	1/1/1920	1920	50	303	0	303	0	0
	2" CI Total	Distribution	1/1/1920	1920	50	0	0	0	0	0
	4" AC Total	Distribution	1/1/1920	1920	50	14	0	14	0	0
	4" CI Total	Distribution	1/1/1920	1920	50	2	0	2	0	0
	4" DI Total	Distribution	1/1/1920	1920	50	2	0	2	0	0
	6" AC Total	Distribution	1/1/1920	1920	50	139	0	139	0	0
	6" CI Total	Distribution	1/1/1920	1920	50	39	0	39	0	0

Asset ID.	Description	Function	Acq Date	Acq Year	Useful Life	Original Cost	Annual Depreciation	Accumulated Depreciation	Original Cost less Depreciation (OCLD)	Replacement Cost less Depreciation (RCLD)
								Budget Year 2020		
	Water Utility Infrastructure									
	6" DI Total	Distribution	1/1/1920	1920	50	0	0	0	0	0
	6" PVC Total	Distribution	1/1/1920	1920	50	1	0	1	0	0
	6" UNC Total	Distribution	1/1/1920	1920	50	3	0	3	0	0
	8" AC Total	Distribution	1/1/1920	1920	50	220	0	220	0	0
	8" CI Total	Distribution	1/1/1920	1920	50	30	0	30	0	0
	8" DI Total	Distribution	1/1/1920	1920	50	0	0	0	0	0
	8" ENC Total	Distribution	1/1/1920	1920	50	3	0	3	0	0
	8" PVC Total	Distribution	1/1/1920	1920	50	15	0	15	0	0
	8" STEEL Total	Distribution	1/1/1920	1920	50	2	0	2	0	0
	8" UNC Total	Distribution	1/1/1920	1920	50	1	0	1	0	0
	10 AC Total	Distribution	1/1/1920	1920	50	100	0	100	0	0
	10 CI Total	Distribution	1/1/1920	1920	50	3	0	3	0	0
	DW Total	Distribution	1/1/1920	1920	50	1	0	1	0	0
	10 PVC Total	Distribution	1/1/1920	1920	50	1	0	1	0	0
	10 UNC Total	Distribution	1/1/1920	1920	50	4	0	4	0	0
	12" AC Total	Transmission	1/1/1920	1920	50	163	0	163	0	0
	12" DI Total	Transmission	1/1/1920	1920	50	38	0	38	0	0
	12" ENC Total	Transmission	1/1/1920	1920	50	2	0	2	0	0
	12" PVC Total	Transmission	1/1/1920	1920	50	1	0	1	0	0
	14" AC Total	Transmission	1/1/1920	1920	50	2	0	2	0	0
	14" DI Total	Transmission	1/1/1920	1920	50	2	0	2	0	0
	16" AC Total	Transmission	1/1/1920	1920	50	0	0	0	0	0
	0" AC Total	Distribution	1/1/1930	1930	50	7	0	7	0	0
	0" DI Total	Distribution	1/1/1930	1930	50	3	0	3	0	0
	Total Laterals	Distribution	1/1/1930	1930	50	34	0	34	0	0
	0" UNC Total	Distribution	1/1/1930	1930	50	1,162	0	1,162	0	0
	2" CI Total	Distribution	1/1/1930	1930	50	1	0	1	0	0
	4" AC Total	Distribution	1/1/1930	1930	50	52	0	52	0	0
	4" CI Total	Distribution	1/1/1930	1930	50	8	0	8	0	0
	4" DI Total	Distribution	1/1/1930	1930	50	7	0	7	0	0
	6" AC Total	Distribution	1/1/1930	1930	50	532	0	532	0	0
	6" CI Total	Distribution	1/1/1930	1930	50	148	0	148	0	0
	6" DI Total	Distribution	1/1/1930	1930	50	0	0	0	0	0
	6" PVC Total	Distribution	1/1/1930	1930	50	2	0	2	0	0
	6" UNC Total	Distribution	1/1/1930	1930	50	13	0	13	0	0
	8" AC Total	Distribution	1/1/1930	1930	50	844	0	844	0	0
	8" CI Total	Distribution	1/1/1930	1930	50	116	0	116	0	0
	8" DI Total	Distribution	1/1/1930	1930	50	0	0	0	0	0
	8" ENC Total	Distribution	1/1/1930	1930	50	12	0	12	0	0
	8" PVC Total	Distribution	1/1/1930	1930	50	58	0	58	0	0
	8" STEEL Total	Distribution	1/1/1930	1930	50	6	0	6	0	0
	8" UNC Total	Distribution	1/1/1930	1930	50	5	0	5	0	0
	10 AC Total	Distribution	1/1/1930	1930	50	383	0	383	0	0
	10 CI Total	Distribution	1/1/1930	1930	50	13	0	13	0	0

Asset ID.	Description	Function	Acq Date	Acq Year	Useful Life	Original Cost	Annual Depreciation	Accumulated Depreciation	Original Cost less Depreciation (OCLD)	Replacement Cost less Depreciation (RCLD)
								Budget Year 2020		
	Water Utility Infrastructure									
	DW Total	Distribution	1/1/1930	1930	50	4	0	4	0	0
	10 PVC Total	Distribution	1/1/1930	1930	50	3	0	3	0	0
	10 UNC Total	Distribution	1/1/1930	1930	50	14	0	14	0	0
	12" AC Total	Transmission	1/1/1930	1930	50	627	0	627	0	0
	12" DI Total	Transmission	1/1/1930	1930	50	144	0	144	0	0
	12" ENC Total	Transmission	1/1/1930	1930	50	6	0	6	0	0
	12" PVC Total	Transmission	1/1/1930	1930	50	3	0	3	0	0
	14" AC Total	Transmission	1/1/1930	1930	50	8	0	8	0	0
	14" DI Total	Transmission	1/1/1930	1930	50	7	0	7	0	0
	16" AC Total	Transmission	1/1/1930	1930	50	0	0	0	0	0
	0" AC Total	Distribution	1/1/1940	1940	50	1,765	0	1,765	0	0
	0" DI Total	Distribution	1/1/1940	1940	50	755	0	755	0	0
	Total Laterals	Distribution	1/1/1940	1940	50	8,272	0	8,272	0	0
	0" UNC Total	Distribution	1/1/1940	1940	50	282,674	0	282,674	0	0
	2" CI Total	Distribution	1/1/1940	1940	50	227	0	227	0	0
	4" AC Total	Distribution	1/1/1940	1940	50	12,727	0	12,727	0	0
	4" CI Total	Distribution	1/1/1940	1940	50	1,945	0	1,945	0	0
	4" DI Total	Distribution	1/1/1940	1940	50	1,789	0	1,789	0	0
	6" AC Total	Distribution	1/1/1940	1940	50	129,551	0	129,551	0	0
	6" CI Total	Distribution	1/1/1940	1940	50	36,022	0	36,022	0	0
	6" DI Total	Distribution	1/1/1940	1940	50	48,577	0	48,577	0	0
	6" PVC Total	Distribution	1/1/1940	1940	50	540	0	540	0	0
	6" UNC Total	Distribution	1/1/1940	1940	50	3,057	0	3,057	0	0
	8" AC Total	Distribution	1/1/1940	1940	50	205,402	0	205,402	0	0
	8" CI Total	Distribution	1/1/1940	1940	50	28,230	0	28,230	0	0
	8" DI Total	Distribution	1/1/1940	1940	50	47,397	0	47,397	0	0
	8" ENC Total	Distribution	1/1/1940	1940	50	2,948	0	2,948	0	0
	8" PVC Total	Distribution	1/1/1940	1940	50	14,227	0	14,227	0	0
	8" STEEL Total	Distribution	1/1/1940	1940	50	1,465	0	1,465	0	0
	8" UNC Total	Distribution	1/1/1940	1940	50	1,217	0	1,217	0	0
	10 AC Total	Distribution	1/1/1940	1940	50	93,216	0	93,216	0	0
	10 CI Total	Distribution	1/1/1940	1940	50	3,121	0	3,121	0	0
	DW Total	Distribution	1/1/1940	1940	50	989	0	989	0	0
	10 PVC Total	Distribution	1/1/1940	1940	50	824	0	824	0	0
	10 UNC Total	Distribution	1/1/1940	1940	50	3,445	0	3,445	0	0
	12" AC Total	Transmission	1/1/1940	1940	50	152,605	0	152,605	0	0
	12" DI Total	Transmission	1/1/1940	1940	50	35,094	0	35,094	0	0
	12" ENC Total	Transmission	1/1/1940	1940	50	1,507	0	1,507	0	0
	12" PVC Total	Transmission	1/1/1940	1940	50	731	0	731	0	0
	14" AC Total	Transmission	1/1/1940	1940	50	1,970	0	1,970	0	0
	14" DI Total	Transmission	1/1/1940	1940	50	1,705	0	1,705	0	0
	16" AC Total	Transmission	1/1/1940	1940	50	44,067	0	44,067	0	0

Asset ID.	Description	Function	Acq Date	Acq Year	Useful Life	Original Cost	Annual Depreciation	Accumulated Depreciation	Original Cost less Depreciation (OCLD)	Replacement Cost less Depreciation (RCLD)
								Budget Year 2020		
	Water Utility Infrastructure									
	0" AC Total	Distribution	1/1/1950	1950	50	2,139	0	2,139	0	0
	0" DI Total	Distribution	1/1/1950	1950	50	915	0	915	0	0
	Total Laterals	Distribution	1/1/1950	1950	50	10,027	0	10,027	0	0
	0" UNC Total	Distribution	1/1/1950	1950	50	342,615	0	342,615	0	0
	2" CI Total	Distribution	1/1/1950	1950	50	275	0	275	0	0
	4" AC Total	Distribution	1/1/1950	1950	50	15,425	0	15,425	0	0
	4" CI Total	Distribution	1/1/1950	1950	50	2,358	0	2,358	0	0
	4" DI Total	Distribution	1/1/1950	1950	50	2,168	0	2,168	0	0
	6" AC Total	Distribution	1/1/1950	1950	50	157,023	0	157,023	0	0
	6" CI Total	Distribution	1/1/1950	1950	50	43,661	0	43,661	0	0
	6" DI Total	Distribution	1/1/1950	1950	50	77,694	0	77,694	0	0
	6" PVC Total	Distribution	1/1/1950	1950	50	654	0	654	0	0
	6" UNC Total	Distribution	1/1/1950	1950	50	3,705	0	3,705	0	0
	8" AC Total	Distribution	1/1/1950	1950	50	248,957	0	248,957	0	0
	8" CI Total	Distribution	1/1/1950	1950	50	34,217	0	34,217	0	0
	8" DI Total	Distribution	1/1/1950	1950	50	112,010	0	112,010	0	0
	8" ENC Total	Distribution	1/1/1950	1950	50	3,573	0	3,573	0	0
	8" PVC Total	Distribution	1/1/1950	1950	50	17,244	0	17,244	0	0
	8" STEEL Total	Distribution	1/1/1950	1950	50	1,776	0	1,776	0	0
	8" UNC Total	Distribution	1/1/1950	1950	50	1,475	0	1,475	0	0
	10 AC Total	Distribution	1/1/1950	1950	50	112,982	0	112,982	0	0
	10 CI Total	Distribution	1/1/1950	1950	50	3,783	0	3,783	0	0
	DW Total	Distribution	1/1/1950	1950	50	1,199	0	1,199	0	0
	10 PVC Total	Distribution	1/1/1950	1950	50	999	0	999	0	0
	10 UNC Total	Distribution	1/1/1950	1950	50	4,175	0	4,175	0	0
	12" AC Total	Transmission	1/1/1950	1950	50	184,964	0	184,964	0	0
	12" DI Total	Transmission	1/1/1950	1950	50	42,536	0	42,536	0	0
	12" ENC Total	Transmission	1/1/1950	1950	50	1,826	0	1,826	0	0
	12" PVC Total	Transmission	1/1/1950	1950	50	886	0	886	0	0
	14" AC Total	Transmission	1/1/1950	1950	50	2,388	0	2,388	0	0
	14" DI Total	Transmission	1/1/1950	1950	50	2,067	0	2,067	0	0
	16" AC Total	Transmission	1/1/1950	1950	50	53,432	0	53,432	0	0
	0" AC Total	Distribution	1/1/1960	1960	50	694	0	694	0	0
	0" DI Total	Distribution	1/1/1960	1960	50	297	0	297	0	0
	Total Laterals	Distribution	1/1/1960	1960	50	3,255	0	3,255	0	0
	0" UNC Total	Distribution	1/1/1960	1960	50	111,214	0	111,214	0	0
	2" CI Total	Distribution	1/1/1960	1960	50	89	0	89	0	0
	4" AC Total	Distribution	1/1/1960	1960	50	5,007	0	5,007	0	0
	4" CI Total	Distribution	1/1/1960	1960	50	765	0	765	0	0
	4" DI Total	Distribution	1/1/1960	1960	50	704	0	704	0	0
	6" AC Total	Distribution	1/1/1960	1960	50	50,970	0	50,970	0	0
	6" CI Total	Distribution	1/1/1960	1960	50	14,172	0	14,172	0	0
	6" DI Total	Distribution	1/1/1960	1960	50	25,220	0	25,220	0	0

Asset ID.	Description	Function	Acq Date	Acq Year	Useful Life	Original Cost	Annual Depreciation	Accumulated Depreciation	Original Cost less Depreciation (OCLD)	Replacement Cost less Depreciation (RCLD)
								Budget Year 2020		
	Water Utility Infrastructure									
	6" PVC Total	Distribution	1/1/1960	1960	50	212	0	212	0	0
	6" UNC Total	Distribution	1/1/1960	1960	50	1,203	0	1,203	0	0
	8" AC Total	Distribution	1/1/1960	1960	50	80,812	0	80,812	0	0
	8" CI Total	Distribution	1/1/1960	1960	50	11,107	0	11,107	0	0
	8" DI Total	Distribution	1/1/1960	1960	50	36,359	0	36,359	0	0
	8" ENC Total	Distribution	1/1/1960	1960	50	1,160	0	1,160	0	0
	8" PVC Total	Distribution	1/1/1960	1960	50	5,597	0	5,597	0	0
	8" STEEL Total	Distribution	1/1/1960	1960	50	577	0	577	0	0
	8" UNC Total	Distribution	1/1/1960	1960	50	479	0	479	0	0
	10 AC Total	Distribution	1/1/1960	1960	50	36,674	0	36,674	0	0
	10 CI Total	Distribution	1/1/1960	1960	50	1,228	0	1,228	0	0
	DW Total	Distribution	1/1/1960	1960	50	389	0	389	0	0
	10 PVC Total	Distribution	1/1/1960	1960	50	324	0	324	0	0
	10 UNC Total	Distribution	1/1/1960	1960	50	1,355	0	1,355	0	0
	12" AC Total	Transmission	1/1/1960	1960	50	60,040	0	60,040	0	0
	12" DI Total	Transmission	1/1/1960	1960	50	13,807	0	13,807	0	0
	12" ENC Total	Transmission	1/1/1960	1960	50	593	0	593	0	0
	12" PVC Total	Transmission	1/1/1960	1960	50	288	0	288	0	0
	14" AC Total	Transmission	1/1/1960	1960	50	775	0	775	0	0
	14" DI Total	Transmission	1/1/1960	1960	50	671	0	671	0	0
	16" AC Total	Transmission	1/1/1960	1960	50	17,344	0	17,344	0	0
	0" AC Total	Distribution	1/1/1970	1970	50	647	13	647	0	0
	0" DI Total	Distribution	1/1/1970	1970	50	277	6	277	0	0
	Total Laterals	Distribution	1/1/1970	1970	50	3,032	61	3,032	0	0
	0" UNC Total	Distribution	1/1/1970	1970	50	103,609	2,072	103,609	0	0
	2" CI Total	Distribution	1/1/1970	1970	50	83	2	83	0	0
	4" AC Total	Distribution	1/1/1970	1970	50	4,665	93	4,665	0	0
	4" CI Total	Distribution	1/1/1970	1970	50	713	14	713	0	0
	4" DI Total	Distribution	1/1/1970	1970	50	656	13	656	0	0
	6" AC Total	Distribution	1/1/1970	1970	50	47,485	950	47,485	0	0
	6" CI Total	Distribution	1/1/1970	1970	50	13,203	264	13,203	0	0
	6" DI Total	Distribution	1/1/1970	1970	50	23,495	470	23,495	0	0
	6" PVC Total	Distribution	1/1/1970	1970	50	198	4	198	0	0
	6" UNC Total	Distribution	1/1/1970	1970	50	1,120	22	1,120	0	0
	8" AC Total	Distribution	1/1/1970	1970	50	75,286	1,506	75,286	0	0
	8" CI Total	Distribution	1/1/1970	1970	50	10,347	207	10,347	0	0
	8" DI Total	Distribution	1/1/1970	1970	50	33,872	677	33,872	0	0
	8" ENC Total	Distribution	1/1/1970	1970	50	1,081	22	1,081	0	0
	8" PVC Total	Distribution	1/1/1970	1970	50	5,215	104	5,215	0	0
	8" STEEL Total	Distribution	1/1/1970	1970	50	537	11	537	0	0
	8" UNC Total	Distribution	1/1/1970	1970	50	446	9	446	0	0
	10 AC Total	Distribution	1/1/1970	1970	50	34,166	683	34,166	0	0
	10 CI Total	Distribution	1/1/1970	1970	50	1,144	23	1,144	0	0
	DW Total	Distribution	1/1/1970	1970	50	363	7	363	0	0

Asset ID.	Description	Function	Acq Date	Acq Year	Useful Life	Original Cost	Annual Depreciation	Accumulated Depreciation	Original Cost less Depreciation (OCLD)	Replacement Cost less Depreciation (RCLD)
								Budget Year 2020		
	Water Utility Infrastructure									
	10 PVC Total	Distribution	1/1/1970	1970	50	302	6	302	0	0
	10 UNC Total	Distribution	1/1/1970	1970	50	1,263	25	1,263	0	0
	12" AC Total	Transmission	1/1/1970	1970	50	55,934	1,119	55,934	0	0
	12" DI Total	Transmission	1/1/1970	1970	50	12,863	257	12,863	0	0
	12" ENC Total	Transmission	1/1/1970	1970	50	552	11	552	0	0
	12" PVC Total	Transmission	1/1/1970	1970	50	268	5	268	0	0
	14" AC Total	Transmission	1/1/1970	1970	50	722	14	722	0	0
	14" DI Total	Transmission	1/1/1970	1970	50	625	13	625	0	0
	16" AC Total	Transmission	1/1/1970	1970	50	16,158	323	16,158	0	0
	0" AC Total	Distribution	1/1/1980	1980	50	19	0	15	4	14
	0" DI Total	Distribution	1/1/1980	1980	50	8	0	7	2	6
	Total Laterals	Distribution	1/1/1980	1980	50	89	2	71	18	64
	0" UNC Total	Distribution	1/1/1980	1980	50	3,042	61	2,433	608	2,184
	2" CI Total	Distribution	1/1/1980	1980	50	2	0	2	0	2
	4" AC Total	Distribution	1/1/1980	1980	50	137	3	110	27	98
	4" CI Total	Distribution	1/1/1980	1980	50	21	0	17	4	15
	4" DI Total	Distribution	1/1/1980	1980	50	19	0	15	4	14
	6" AC Total	Distribution	1/1/1980	1980	50	1,394	28	1,115	279	1,001
	6" CI Total	Distribution	1/1/1980	1980	50	388	8	310	78	278
	6" DI Total	Distribution	1/1/1980	1980	50	690	14	552	138	495
	6" PVC Total	Distribution	1/1/1980	1980	50	6	0	5	1	4
	6" UNC Total	Distribution	1/1/1980	1980	50	33	1	26	7	24
	8" AC Total	Distribution	1/1/1980	1980	50	2,210	44	1,768	442	1,587
	8" CI Total	Distribution	1/1/1980	1980	50	304	6	243	61	218
	8" DI Total	Distribution	1/1/1980	1980	50	994	20	795	199	714
	8" ENC Total	Distribution	1/1/1980	1980	50	32	1	25	6	23
	8" PVC Total	Distribution	1/1/1980	1980	50	153	3	122	31	110
	8" STEEL Total	Distribution	1/1/1980	1980	50	16	0	13	3	11
	8" UNC Total	Distribution	1/1/1980	1980	50	13	0	10	3	9
	10 AC Total	Distribution	1/1/1980	1980	50	1,003	20	802	201	720
	10 CI Total	Distribution	1/1/1980	1980	50	34	1	27	7	24
	DW Total	Distribution	1/1/1980	1980	50	11	0	9	2	8
	10 PVC Total	Distribution	1/1/1980	1980	50	9	0	7	2	6
	10 UNC Total	Distribution	1/1/1980	1980	50	37	1	30	7	27
	12" AC Total	Transmission	1/1/1980	1980	50	1,642	33	1,314	328	1,179
	12" DI Total	Transmission	1/1/1980	1980	50	378	8	302	76	271
	12" ENC Total	Transmission	1/1/1980	1980	50	16	0	13	3	12
	12" PVC Total	Transmission	1/1/1980	1980	50	8	0	6	2	6
	14" AC Total	Transmission	1/1/1980	1980	50	21	0	17	4	15
	14" DI Total	Transmission	1/1/1980	1980	50	18	0	15	4	13
	16" AC Total	Transmission	1/1/1980	1980	50	474	9	379	95	341
	0" AC Total	Distribution	1/1/1990	1990	50	1,055	21	633	422	1,036
	0" DI Total	Distribution	1/1/1990	1990	50	452	9	271	181	444
	Total Laterals	Distribution	1/1/1990	1990	50	4,947	99	2,968	1,979	4,859

Asset ID.	Description	Function	Acq Date	Acq Year	Useful Life	Original Cost	Annual Depreciation	Accumulated Depreciation	Original Cost less Depreciation (OCLD)	Replacement Cost less Depreciation (RCLD)
								Budget Year 2020		
	Water Utility Infrastructure									
	0" UNC Total	Distribution	1/1/1990	1990	50	169,032	3,381	101,419	67,613	166,024
	2" CI Total	Distribution	1/1/1990	1990	50	135	3	81	54	133
	4" AC Total	Distribution	1/1/1990	1990	50	7,610	152	4,566	3,044	7,475
	4" CI Total	Distribution	1/1/1990	1990	50	1,163	23	698	465	1,142
	4" DI Total	Distribution	1/1/1990	1990	50	1,070	21	642	428	1,051
	6" AC Total	Distribution	1/1/1990	1990	50	77,469	1,549	46,481	30,987	76,090
	6" CI Total	Distribution	1/1/1990	1990	50	21,540	431	12,924	8,616	21,157
	6" DI Total	Distribution	1/1/1990	1990	50	38,331	767	22,999	15,332	37,649
	6" PVC Total	Distribution	1/1/1990	1990	50	323	6	194	129	317
	6" UNC Total	Distribution	1/1/1990	1990	50	1,828	37	1,097	731	1,795
	8" AC Total	Distribution	1/1/1990	1990	50	122,825	2,457	73,695	49,130	120,639
	8" CI Total	Distribution	1/1/1990	1990	50	16,881	338	10,129	6,752	16,581
	8" DI Total	Distribution	1/1/1990	1990	50	55,261	1,105	33,157	22,105	54,278
	8" ENC Total	Distribution	1/1/1990	1990	50	1,763	35	1,058	705	1,731
	8" PVC Total	Distribution	1/1/1990	1990	50	8,507	170	5,104	3,403	8,356
	8" STEEL Total	Distribution	1/1/1990	1990	50	876	18	526	351	861
	8" UNC Total	Distribution	1/1/1990	1990	50	728	15	437	291	715
	10 AC Total	Distribution	1/1/1990	1990	50	55,741	1,115	33,444	22,296	54,749
	10 CI Total	Distribution	1/1/1990	1990	50	1,866	37	1,120	746	1,833
	DW Total	Distribution	1/1/1990	1990	50	591	12	355	237	581
	10 PVC Total	Distribution	1/1/1990	1990	50	493	10	296	197	484
	10 UNC Total	Distribution	1/1/1990	1990	50	2,060	41	1,236	824	2,023
	12" AC Total	Transmission	1/1/1990	1990	50	91,254	1,825	54,752	36,502	89,630
	12" DI Total	Transmission	1/1/1990	1990	50	20,986	420	12,591	8,394	20,612
	12" ENC Total	Transmission	1/1/1990	1990	50	901	18	541	360	885
	12" PVC Total	Transmission	1/1/1990	1990	50	437	9	262	175	430
	14" AC Total	Transmission	1/1/1990	1990	50	1,178	24	707	471	1,157
	14" DI Total	Transmission	1/1/1990	1990	50	1,020	20	612	408	1,002
	16" AC Total	Transmission	1/1/1990	1990	50	26,361	527	15,817	10,544	25,892
	2005 Hamilton Ave Contibuted Capital	Distribution	1/1/2005	2005	50	416,809	8,336	125,043	291,766	455,299
	6" DIP	Distribution	1/1/2006	2006	50	700,815	14,016	196,228	504,587	756,420
	8" DIP	Distribution	1/1/2006	2006	50	1,232,865	24,657	345,202	887,663	1,330,685
	16" DIP	Transmission	1/1/2006	2006	50	65,976	1,320	18,473	47,503	71,211
	12" PVC	Transmission	1/1/2012	2012	50	647,264	12,945	103,562	543,702	678,718
	12" Steel	Transmission	1/1/2012	2012	50	235,076	4,702	37,612	197,464	246,499
	8" PVC	Distribution	1/1/2012	2012	50	526,506	10,530	84,241	442,265	552,092
	6" DIP	Distribution	1/1/2012	2012	50	201,264	4,025	32,202	169,062	211,044

Asset ID.	Description	Function	Acq Date	Acq Year	Useful Life	Original Cost	Annual Depreciation	Accumulated Depreciation	Original Cost less Depreciation (OCLD)	Replacement Cost less Depreciation (RCLD)
								Budget Year		
	Water Utility							2020		
	Infrastructure									
	8" DIP	Distribution	1/1/2016	2016	50	1,585,617	31,712	126,849	1,458,768	1,639,587
	6" DIP	Distribution	1/1/2016	2016	50	154,730	3,095	12,378	142,352	159,997
	Subtotal Infrastructure					$10,111,881	$139,303	$5,130,233	$4,981,648	$6,832,649
		Water Supply				0	0	0	0	0
		Pumping				4,806,116	89,608	419,931	4,386,185	12,214,994
		Treatment				0	0	0	0	0
		Water Storage				4,091,973	81,839	2,145,322	1,946,651	3,962,085
		Transmission				1,800,587	23,603	954,552	846,035	1,137,871
		Distribution				8,311,294	115,700	4,175,680	4,135,614	5,694,778
		Meters				132,166	2,510	102,233	29,933	34,659
		Hydrants				132,166	2,510	102,233	29,933	34,659
		General Plant				253,667	4,203	203,559	50,107	57,808
	Total Water Utility					**$19,527,967**	**$319,973**	**$8,103,511**	**$11,424,456**	**$23,136,853**

Notes
(1) Source: B8-WaterEnterprise2018_Amended2020.xlsx (Fixed Assets as of June 30, 2020)
(2) Assumes Straight-Line Depreciation method.
(3) ENR index are national annual averages.
(4) Replacement costs for some assets were provided by City (Berryman & Henigar).

	Water CWIP									
	Carryover	Distribution	1/1/2020	2020	50	104,350	2,087		104,350	104,350
77-003	Water Main Replace.	Distribution	1/1/2020	2020	50	3,316,447	66,329		3,316,447	3,316,447
77-007	Reservoir 1&2 - Mixer	Water Storage	1/1/2020	2020	50	352,127	7,043		352,127	352,127
77-012	Emergency W/Storage	Water Supply	1/1/2020	2020	50	6,008,056	120,161		6,008,056	6,008,056
77-015	Reservoir 2 - Roof Rep.	Water Storage	1/1/2020	2020	25	349,922	13,997		349,922	349,922
77-019		Distribution	1/1/2020	2020	50	13,146	263		13,146	13,146
77-021		Distribution	1/1/2020	2020	50	71,936	1,439		71,936	71,936
	Subtotal Water CWIP					$10,215,984			$10,215,984	$10,215,984
		Water Supply				6,008,056	120,161		6,008,056	6,008,056
		Pumping				0	0		0	0
		Treatment				0	0		0	0
		Water Storage				702,049	21,040		702,049	702,049
		Transmission				0	0		0	0
		Distribution				3,505,879	70,118		3,505,879	3,505,879
		Meters				0	0		0	0
		Hydrants				0	0		0	0
		General Plant				0	0		0	0
	Total					**$10,215,984**	**$211,319**		**$10,215,984**	**$10,215,984**

Notes
(1) Source: Water Rate Study.xlsx