

# Mil Potrero Mutual Water Company

## Water Enterprise Rate Analysis



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Funded by: State of California State  
Water Resources Control Board

## Contents

1. Mil Potrero Mutual Water Company .....	4
Community.....	4
Water System.....	4
Water District.....	5
Current Production and Consumption.....	5
Current Rates .....	6
Additional Fees.....	6
Proposed Rate Structure.....	6
2. Guiding Principles of this Rate Study .....	7
Sustainability.....	7
Fair .....	7
Conservation .....	7
Justifiable .....	7
Purpose of this study .....	7
Board Decision .....	7
Disclaimer.....	7
3. Rate Study Process.....	9
4. Reserve Funding.....	10
5. Capital Replacement Program .....	11
Source of the Data .....	11
Sources of Funding.....	11
Capital Replacement Program (CRP) Description .....	11
Alternative.....	14
6. Budget.....	15
Source .....	15
Sales Adjustments .....	16
Alternatives .....	16
7. Fixed Versus Variable Expenses .....	17
Source .....	17
Description .....	17

Alternatives .....	17
8. Rate Calculation .....	19
Theoretical Base Rate Calculation.....	19
Rate Adjustment Option #1 Base Rate Calculation.....	19
Rate Adjustment Option #1 Usage Rate Calculation .....	20
Seasonal Cash Flow .....	20
Rate Adjustment Option #1 Estimated Profit and Loss .....	20
Rate Adjustment Option #1 Affordability Index .....	22
Impacts of Rate Adjustment Option #1 .....	22
Rate Adjustment Option #1 estimated average monthly bill .....	23
Rate Adjustment Option #2 Base Rate Calculation.....	23
Rate Adjustment Option #2 Usage Rate Calculation .....	23
Rate Adjustment Option #2 Affordability Index .....	25
Impacts of Rate Adjustment Option #2 .....	25
Rate Adjustment Option #2 estimated average monthly bill .....	27
9. Conclusions and Recommendations .....	28



January 15, 2023

Emma Blankenship  
Small Community Technical Assistance  
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PO Box 944212  
Sacramento, CA 95814

Subject: Mil Potrero Mutual Water Company Rate Study A.R. #6682

Dear Emma:

Enclosed please find the printed final report for Mil Potrero Mutual Water Company (MPMWC) water rate study.

The rate adjustment options were presented to the MPMWC board on Jan. 14, 2023. From several options, the board selected one they feel will best fit their community. MPWMC is not required to hold a Proposition 218 hearing. The adjusted rates will be implemented on July 1, 2023.

If you have any additional questions, feel free to contact Mary Fleming at (916) 549-6338 or Michael Boyd at (308) 641-2807.

Sincerely,

*Michael Boyd*

Michael Boyd

RCAC, Regional Field Manager  
Community & Environmental Services

Enclosure: Mil Potrero Mutual Water Company Rate Study

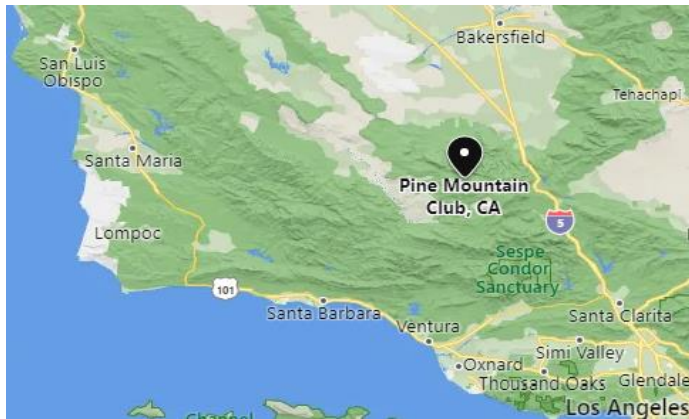
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# 1. Mil Potrero Mutual Water Company

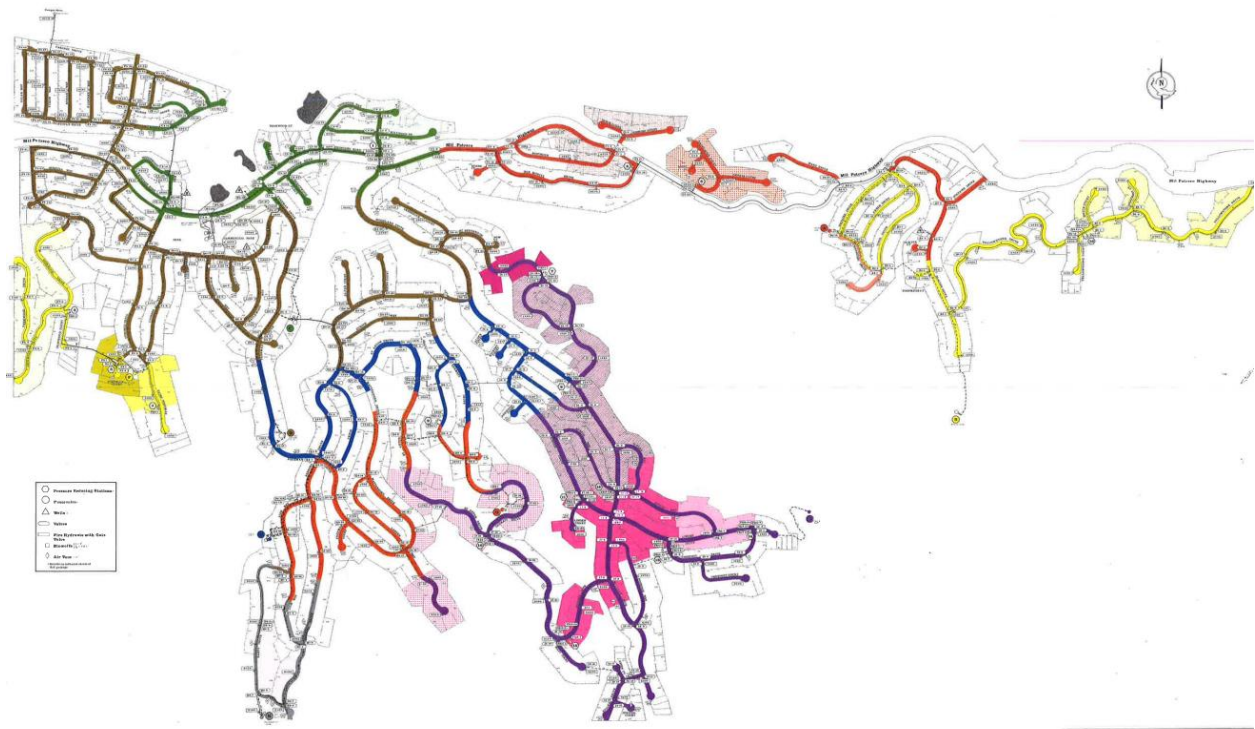
## Community

Mil Potrero Mutual Water Company operates within Pine Mountain Club, California. Pine Mountain Club is an unincorporated area and census-designated place in southwestern Kern County, Pine Mountain Club is one of the Mountain Communities of the Tejon Pass.

The Median Household Income (MHI) of Pine Mountain Club was determined to be \$54,265 according to the 2019 American Community Survey (ACS) estimates.



## Water System



The MPMWC is a D3/T2 rated water system that provides drinking water from nine wells positioned in various locations within the boundaries of MPWMC. Combinations of these wells fill nine reservoir tanks and four hydro-pneumatic tanks with water for both domestic use and firefighting purposes. These tanks are filled on demand using 24-hour SCADA and telemetry. MPMWC has 16 pressure reducing stations strategically placed with primary and secondary hydro control valves that allow more flow during events of high usage, such as firefighting.

The system is served by six vertical wells with two wells on standby and one additional well in the permitting process with the State of California. The wells use electric motors ranging from 7.5 to 30 horsepower.

All reservoir tanks within the system are either bolted or welded steel, ranging in capacity from 100,000 to 750,000 gallons. Total reservoir storage capacity is 2.85 million gallons. Much of this capacity is designed for fire protection demands and most reservoirs are designed to operate through gravity flow during emergency situations.

The system’s water treatment facility is located adjacent to the park and community garden. Raw water from wells two, three, five, seven and eight pass through the treatment plant for iron and manganese removal. It is then transferred to a 20,000-gallon holding tank and pumped into the main distribution system. Three pumps are located at the plant.

Booster stations are located at seven reservoirs. They are designed to transmit water to reservoirs at higher elevations. Four hydro-pneumatic pressure systems provide water to isolated areas for domestic usage and fire demands.

Distribution main lines carry water from reservoirs to all developed sections of the mutual water company. These lines vary in size from four to 12 inches in diameter with a total length of 176,900 linear feet or 33.5 miles. Two hundred thirty-five fire hydrants are located throughout the distribution system to ensure adequate fire protection.

## Water District

Mil Potrero Mutual Water Company (MPMWC) is a California nonprofit mutual water company pursuant to Section 501c (12) of the Internal Revenue Code. MPMWC was incorporated on Jan. 25, 1971, for the purpose of providing water services, at cost, to shareholders in the Mil Potrero area of the San Emidio Mountains of Kern County, California.

## Current Production and Consumption

FYE 6/30/2021 Usage					
Meter Size	September	December	March	June	Total
¾"	3,316,764	2,590,734	2,106,468	2,464,118	10,478,084
1"	94,273	88,309	61,045	86,584	330,211
2"	14,380	10,190	7,120	25,160	56,850
<b>Total</b>	<b>3,425,417</b>	<b>2,689,233</b>	<b>2,174,633</b>	<b>2,575,862</b>	<b>10,865,145</b>

Based on recent data above (in CF), the water system sees the highest water usage during the months of July to September. Nearly 32 percent of the annual water usage happens during those months. The lowest water usage is seen in January to March.

### Current Rates

MPMWC currently charges its customers the following rates:

Current Base Rates	
Meter Size	Quarterly Meter Charge
3/4"	\$ 112.50
1"	\$ 133.75
2"	\$ 283.75

Current Usage Charges						
Charge per CCF	Up to 1,000 CF	1,001 – 2,000 CF	2,001 – 3,000 CF	3,001 – 4,000 CF	4,001 – 5,000 CF	Over 5,000 CF
	\$ 1.50	\$2.00	\$2.75	\$3.30	\$6.00	\$7.25

MPMWC currently charges all residential and commercial customers a base rate according to meter size and a tiered usage rate. Water use is measured and billed in units of 100 cubic feet (CCF). One hundred cubic feet is equal to 748 gallons.

### Additional Fees

In addition to monthly water rates, MPMWC also currently has the following fees:

Late Fees	\$9.50
Service On	No Charge
Service Off	No Charge
Reconnection Fee – During Operating Hours	\$40
Reconnection Fee – Outside Operating Hours	\$80
2022/20233 Annual Assessment for ¾" Meter	\$450.00
2022/20233 Annual Assessment for 1" Meter	\$535.00
2022/20233 Annual Assessment for 2" Meter	\$1135.00
Standby Fees (Non-Connected Shareholders)	\$275.00

### Proposed Rate Structure

RCAC offered several rate adjustments options for MPMWC's consideration. In discussions with MPMWC's staff and board, it was determined that reducing the number of tiers from six to three would be beneficial. Two final rate adjustment options were offered.

## 2. Guiding Principles of this Rate Study

### Sustainability

Water rates should cover the costs to the water utility to allow it to provide water services for the foreseeable future.

### Fair

Water rates should be fair to all rate payers. No single rate payer or group of rate payers should be singled out for different rates. Therefore, the proposed rates do not make any distinction between domestic, commercial or agricultural users. The rates are the same for all.

The water enterprise should not charge more for water than the cost to provide the water. However, the costs should include operations, repairs, reserves and all other costs related to the production, treatment and distribution of potable water now and in the foreseeable future.

### Conservation

Water rates should promote conservation. Water is a limited resource and should be conserved.

### Justifiable

Water rates must be based on the actual financial needs of the company. Revenue generated from water rates cannot be used for anything but to pay for the costs of procuring, treating and distributing water within its service area, plus any administrative costs and reserves.

Therefore, the proposed rates are based on MPMWC's budget, Capital Replacement Program, and a sales forecast.

### Purpose of this study

The purpose of this study is to provide MPMWC with recommended rates. The water system must be able to build reserves to cover their debt service (anticipated in Year 3) and the inevitable need to replace all components of the operation.

### Board Decision

While this document recommends certain rates, the ultimate decision rests with MPMWC's board. However, the board has a fiduciary responsibility to set the rates at such a level that the water enterprise will be able to continue to operate in the future, including providing funds to replace all parts of the system as they wear out.

### Disclaimer

*The recommendations contained in this rate study are based on financial information provided to RCAC by MPMWC. Although every effort was made to ensure the reliability of this information, no warranty is expressed or implied as to the correctness, accuracy or completeness of the information contained herein.*

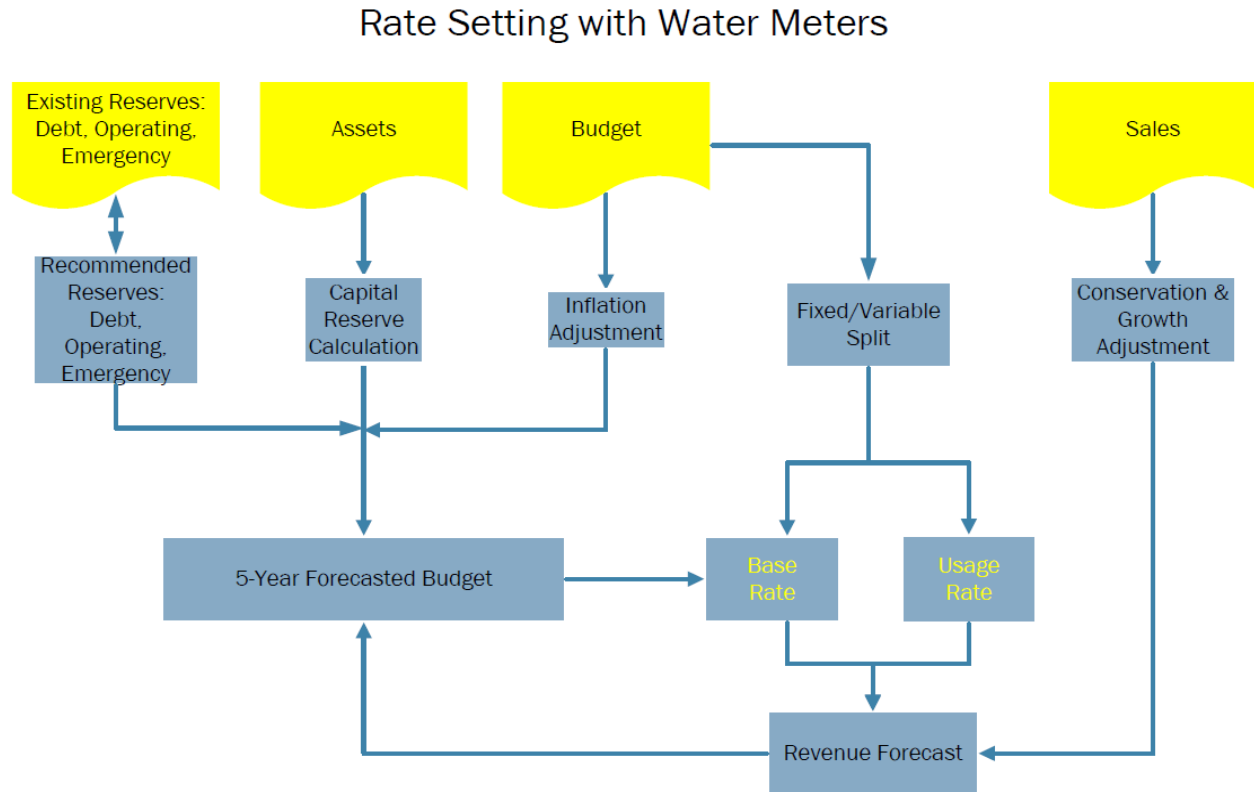


*Any opinions, findings, and conclusions or recommendations expressed in this material are solely the responsibility of the authors and do not necessarily represent the official views of SWRCB, who funded this rate study.*

*For accounting advice, a CPA should be consulted. For legal advice, the company should seek the advice of an attorney.*

### 3. Rate Study Process

The figure<sup>1</sup> below explains the process of setting rates. We begin with the list of all capitalized assets, the current budget and the current sales history as provided by the administration from MPMWC.



Existing reserves are compared to target reserves, and, from the list of assets, the required reserves are calculated (Section 4 of this report) and fed into a five-year budget projection (Section 5).

The budget is adjusted for inflation, estimated to be 5 percent per year.

The number of customers is adjusted for unpaying customers, undeveloped lots and future water conservation and community growth reasonably expected to occur in the next five years.

The budgeted expenses are split between fixed and variable costs, which led to a recommended base rate or meter charge and usage charges. The calculated rates are then applied to the forecasted sales to arrive at a revenue estimate. This process was repeated several times to arrive at an acceptable rate that would balance the budget. Non-operating revenue will be necessary to fully fund reserve accounts.

<sup>1</sup> All yellow fields and cells in the figures of this report are based on external data. All blue fields or cells are calculated.

## 4. Reserve Funding

As of June 30, 2022, MPMWC water enterprise held \$2,378,667 in reserve funds.

AWWA standards recommend a review of four types of reserves:

1. **Debt Reserve:** MPMWC had no debt at the time of this analysis. It is anticipated that the replacements of water service lines in FYE 2025 will require partial funding through a loan. The anticipated annual debt service has been included in the projected budgets. However, no provision for possible debt reserves has been added.
2. **Operating Reserve:** Operating reserves are established to provide the utility with the ability to withstand short-term cash-flow fluctuations. The industry standard calls for 1.5 times the operating expenses during a billing cycle. The target operating reserve is \$442.675, which was fully funded at the time of this rate study.
3. **Emergency Reserve:** Emergency reserves are intended to help utilities deal with short-term emergencies, such as mainline breaks or pump failures. An emergency reserve is intended to fund the immediate replacement or reconstruction of the system's single most critical asset. The emergency reserve should be set at the replacement cost of the most expensive component that could fail. In the case of the MPMWC, it was determined that \$200,000 in emergency reserves would be sufficient and was fully funded at the time of this rate analysis.
4. **Capital Replacement Reserve (CRP):** This reserve is strictly to be used to fund the company portion of any replacement of capital assets that are worn out. MPMWC currently has \$1,735,952 saved in capital reserves.

The tables below show the existing reserves and the reserve targets for each of the four reserve categories.

1. These reserves have different time horizons. The debt reserve can be invested for a long period of time, as long as the debt is on the books. Operating reserves and emergency reserves should be readily available, while CRP funds can be invested with different maturity dates to coincide with the planned need for capital replacements.
2. These four different reserves should require different policies related to:
  - a. Investment terms and vehicles
  - b. What the funds can be used for
  - c. Who can access the funds
  - d. What procedure must be followed to access the funds

Existing Reserves	Amount	
Debt Reserve	\$ 0.00	Pursuant to lending agreement
Operating Reserve	\$442,675	To be placed in Checking Account
Emergency Reserve	\$200,000	To be placed in Savings Account
Capital Replacement Reserve	\$1,735,992	Often in CD or investment account
Total	\$2,378,667	

## 5. Capital Replacement Program

### Source of the Data

The data in the Capital Replacement Program (CRP) comes from the data supplied by the company and AWWA standards.

The list of the components, their installation date and their original costs were all supplied or estimated by the utility.

The normal estimated life is based on AWWA or industry standards.

The estimated remaining life is based on the operator and RCAC's best judgment.

### Sources of Funding

Funding for the replacement of components can only come from cash saved by the company, a grant or a loan.

The possibility of the MPMWC obtaining a grant in the near future is moderate to low, but due to changing funding streams, access to grants may change in the future.

With the current funding information, MPMWC has a moderate to low chance of qualifying for grants but will also need out-of-pocket cash reserves. It is assumed that the replacement of capital assets valued less than \$100,000 will be 100 percent funded with cash and the replacement of larger capital assets will be funded with a combination of cash and loans, as shown in the below table.

#### Default Funding of CRP

		Cash	Grant	Loan
\$0	\$20,000	100%	0%	0%
\$20,001	\$100,000	100%	0%	0%
\$100,001	\$500,000	20%	0%	80%
\$500,001	\$9,999,999	20%	0%	80%

### Capital Replacement Program (CRP) Description

The CRP provides us with a detail of the reserves needed to replace the existing, funded and future unfunded capital assets. The total line of the CRP table, \$1,257,261 is the amount MPMWC must put aside each year to be able to replace the assets listed when they reach the end of their life expectancy. This amount varies every year when old equipment is replaced and when new equipment is installed.

**TABLE 1: Capital Replacement Program**

Replacement of Existing Capital Assets	Year Acquired	Purchase Cost	Current Age	Estimated Current Cost	Estimated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
Water Mains- Distrubution	1971	\$995,943	51	3,508,743	18	8,444,210	20%	0%	80%	204,457	78,541
Service Lines	1971	\$203,606	51	717,311	2	790,836	20%	0%	80%	41,798	57,987
Transmission Lines/ X-Country Mains	1971	\$294,500	51	1,037,534	5	1,324,186	20%	0%	80%	60,458	40,349
Admin Office	2008	\$414,024	14	585,005	25	1,981,035	20%	0%	80%	34,089	13,554
Admin Office - Generator	2013	\$8,452	9	10,555	11	18,053	100%	0%	0%	3,075	1,321
Garage/Shop	1971	\$8,613	51	30,344	5	38,727	100%	0%	0%	8,841	5,900
Well 1	1971	\$13,082	51	46,088	2	50,812	100%	0%	0%	13,428	18,629
Building - Well 1 Pump House	2013	\$4,500	9	5,620	30	24,289	100%	0%	0%	1,637	698
Pump/Motor	1971	\$20,000	51	70,461	2	77,683	100%	0%	0%	20,529	28,480
Well 2	1971	\$15,573	51	54,864	2	60,488	100%	0%	0%	15,985	22,176
Building - Well-2 Pump House	1971	\$5,500	51	19,377	5	24,730	100%	0%	0%	5,645	3,768
Pump	1971	\$20,000	51	70,461	3	81,567	100%	0%	0%	20,529	20,211
Well 3	1971	\$14,087	51	49,629	2	54,716	100%	0%	0%	14,460	20,060
Building - Well-3 Pump House	1971	\$5,500	51	19,377	5	24,730	100%	0%	0%	5,645	3,768
Pump	1971	\$20,000	51	70,461	2	77,683	100%	0%	0%	20,529	28,480
Well 4	2003	\$11,211	19	17,922	2	19,760	100%	0%	0%	5,222	7,244
Building - Well-4 Pump House	1971	\$5,500	51	19,377	5	24,730	100%	0%	0%	5,645	3,768
Pump/Motor	1971	\$20,000	51	70,461	7	99,145	100%	0%	0%	20,529	11,020
Building - Well-5 Pump House	2002	\$5,500	20	9,012	5	11,502	100%	0%	0%	2,626	1,752
Treatment Plant Metal Storage Shop	2013	\$22,337	9	27,896	30	120,564	100%	0%	0%	8,128	3,464
Building / Well 6 Pump House	2013	\$5,500	9	6,869	2	7,573	100%	0%	0%	2,001	2,776
Building - Well-7 Pump House	1992	\$5,500	30	11,537	5	14,724	100%	0%	0%	3,361	2,243
Well 8	2006	\$314,790	16	467,308	19	1,180,863	20%	0%	80%	27,230	10,447
New Well 9	2018	\$582,714	4	643,207	31	2,779,905	20%	0%	80%	37,480	15,974
Building - Well 9 Pump House	2018	\$48,000	4	52,983	31	228,990	100%	0%	0%	15,437	6,579
Pump/Motor	2018	\$11,907	4	13,143	11	21,409	100%	0%	0%	3,829	1,710
Treatment Plant & Retention/CW Tanks	1971	\$61,200	51	215,610	2	237,710	100%	0%	0%	62,819	87,149
Pump House	1971	\$65,000	51	228,997	2	252,470	100%	0%	0%	66,719	92,560
Building Filtration Tank	1971	\$24,600	51	86,667	2	95,550	100%	0%	0%	25,251	35,031
Tank - A	1971	\$25,000	51	88,076	9	130,128	100%	0%	0%	25,661	12,776
A-Tank PumpHouse	1971	\$6,500	51	22,900	2	25,247	100%	0%	0%	6,672	9,256
Pump - 3 motors	1971	\$18,000	51	63,415	2	69,915	100%	0%	0%	18,476	25,632
A-HP Tank	2019	\$43,135	3	46,452	37	282,492	100%	0%	0%	13,534	6,604
A-HP Generator	2019	\$46,528	3	50,106	22	146,572	100%	0%	0%	14,598	5,656
Tank - B	1971	\$25,000	51	88,076	8	130,128	100%	0%	0%	25,661	12,776
B-Tank Shed	1971	\$5,500	51	19,377	5	24,730	100%	0%	0%	5,645	3,768
Tank - C	1971	\$43,000	51	151,491	2	167,018	100%	0%	0%	44,137	61,232
C-Tank Pumhouse	1971	\$5,500	51	19,377	5	24,730	100%	0%	0%	5,645	3,768
Pump	1971	\$23,600	51	83,144	4	106,115	100%	0%	0%	24,224	16,167
Tank - D	1971	\$58,000	51	204,336	8	301,898	100%	0%	0%	59,534	29,640
D-Tank Pumhouse	1971	\$5,500	51	19,377	3	22,431	100%	0%	0%	5,645	5,558
Pump	1971	\$24,000	51	84,553	4	102,775	100%	0%	0%	24,635	19,343
D-Tank Metal Building	2019	\$50,156	3	54,013	26	192,051	100%	0%	0%	15,737	6,330
Tank - E	1971	\$30,000	51	105,691	5	134,892	100%	0%	0%	30,794	20,551
E-Tank Pump House	1971	\$5,500	51	19,377	5	24,730	100%	0%	0%	5,645	3,768
Pump - 2 motors	1971	\$21,600	51	76,098	3	88,092	100%	0%	0%	22,171	21,827
Tank - F	1971	\$20,000	51	70,461	8	104,103	100%	0%	0%	20,529	10,221
F-Tank Pumhouse	1971	\$5,500	51	19,377	5	24,730	100%	0%	0%	5,645	3,768
Pump	1971	\$17,000	51	59,892	5	76,439	100%	0%	0%	17,450	11,646
Generator	2017	\$79,971	5	90,480	20	240,070	100%	0%	0%	26,362	10,125
Tank - G	1971	\$35,000	51	123,306	5	157,374	100%	0%	0%	35,926	23,976
G-Tank Pump House	1971	\$5,500	51	19,377	2	21,363	100%	0%	0%	5,645	7,832

Replacement of Existing Capital Assets Continued	Year Acquired	Purchase Cost	Current Age	Estimated Current Cost	Estimated Remaining Life	Estimated Future Cost	Fund with Cash	Fund with Grant	Fund with Loan	Existing Reserves	Annual Reserve Required
Pump - 2 50 hp motors	1971	\$18,000	51	63,415	0	80,935	100%	0%	0%	18,476	12,331
Tank - H	1971	\$20,000	51	70,461	5	89,928	100%	0%	0%	20,529	13,701
H-Tank Pump House	1971	\$5,500	51	19,377	2	21,363	100%	0%	0%	5,645	7,832
Pumps	1971	\$20,400	51	71,870	0	91,726	100%	0%	0%	20,940	13,975
H-HP Tank	2016	\$26,391	6	30,606	34	160,783	100%	0%	0%	8,917	4,088
H-HP Generator	2018	\$59,522	4	65,701	19	166,024	100%	0%	0%	19,142	7,344
Tank - I	1971	\$30,000	51	105,691	5	134,892	100%	0%	0%	30,794	20,551
Campground HP Tank	2015	\$25,807	7	30,676	33	153,480	100%	0%	0%	8,938	4,019
Pump	1985	\$2,500	37	6,233	2	6,872	100%	0%	0%	1,816	2,520
Telemetry / controls	1985	\$1,500	37	3,740	1	3,927	100%	0%	0%	1,090	Not Cap.
Temp Hydro Tank	2016	\$13,330	6	15,459	34	81,210	100%	0%	0%	4,504	2,065
Hydrants	1985	\$153,076	37	381,672	3	563,903	20%	0%	80%	22,240	11,073
PR Station	1971	\$984	51	3,467	5	4,424	100%	0%	0%	1,010	Not Cap.
PR Station	1971	\$984	51	3,467	15	7,207	100%	0%	0%	1,010	397
PR Station	1971	\$984	51	3,467	19	8,760	100%	0%	0%	1,010	387
PR Station	1971	\$984	51	3,467	2	3,822	100%	0%	0%	1,010	Not Cap.
PR Station	1971	\$984	51	3,467	2	3,822	100%	0%	0%	1,010	Not Cap.
PR Station	1971	\$984	51	3,467	2	3,822	100%	0%	0%	1,010	Not Cap.
PR Station	1971	\$984	51	3,467	25	11,739	100%	0%	0%	1,010	402
PR Station	1971	\$984	51	3,467	16	7,567	100%	0%	0%	1,010	392
PR Station	1971	\$984	51	3,467	2	3,822	100%	0%	0%	1,010	Not Cap.
PR Station	1971	\$984	51	3,467	2	3,822	100%	0%	0%	1,010	Not Cap.
PR Station	1971	\$984	51	3,467	2	3,822	100%	0%	0%	1,010	Not Cap.
PR Station	1971	\$984	51	3,467	22	10,141	100%	0%	0%	1,010	391
PR Station	1971	\$984	51	3,467	2	3,822	100%	0%	0%	1,010	Not Cap.
PR Station	1971	\$984	51	3,467	2	3,822	100%	0%	0%	1,010	Not Cap.
PR Station	1971	\$984	51	3,467	2	3,822	100%	0%	0%	1,010	Not Cap.
Air Vacs	1971	\$1,750	51	6,165	2	6,797	100%	0%	0%	1,796	2,492
Blow Offs Assemblies	1971	\$8,800	51	31,003	2	34,180	100%	0%	0%	9,033	12,531
GMC Sierra #569	2021	\$31,231	1	32,012	7	45,044	100%	0%	0%	9,327	5,007
Dodge RAM #652	2019	\$28,500	3	30,691	4	37,306	100%	0%	0%	8,942	7,021
Dodge RAM #653	2019	\$28,500	3	30,691	4	37,306	100%	0%	0%	8,942	7,021
GMC Sierra Flatbed #766	2010	\$31,600	12	42,498	2	46,855	100%	0%	0%	12,382	17,178
GMC Sierra #754	2021	\$49,678	1	50,920	7	71,649	100%	0%	0%	14,836	7,964
GMC Sierra #150	2016	\$36,324	6	42,125	2	46,442	100%	0%	0%	12,273	17,027
Flatbed #513	2014	\$13,812	8	16,829	2	18,554	100%	0%	0%	4,903	6,802
GMC Sierra #786	2021	\$43,276	1	44,358	7	62,416	100%	0%	0%	12,924	6,937
Dodge Dump Truck	2022	\$115,000	0	115,000	15	239,077	100%	0%	0%	33,506	13,154
Backhoe	1994	\$50,000	28	99,825	2	110,057	100%	0%	0%	29,084	40,349
Valve Exerciser Trailer	2013	\$23,005	9	28,730	11	49,138	100%	0%	0%	8,371	3,596
Crns Trailer#837	2016	\$3,250	6	3,769	14	7,462	100%	0%	0%	1,098	437
Big Tex Trailer #798	2018	\$6,500	4	7,175	16	15,662	100%	0%	0%	2,090	812
Bobcat Skid Steer #986	2018	\$70,481	4	77,798	21	216,742	100%	0%	0%	22,667	8,735
Misc Machine/Tools/Equip	2018	\$200,000	4	220,763	10	359,599	100%	0%	0%	64,320	28,726
Portable Air Compressor-185 cfm	2022	\$28,546	0	28,546	20	75,741	100%	0%	0%	8,317	3,194
Portable Generator-100 kv	2022	\$40,000	0	40,000	20	106,132	100%	0%	0%	11,654	4,476
Portable Generator-100 kv	2022	\$40,000	0	40,000	20	106,132	100%	0%	0%	11,654	4,476
Total		\$5,068,652		\$11,654,830		\$24,102,050	27	0	73	1,684,670	1,257,261

## Alternative

Because funding the full amount of CIP reserves recommended would result in untenable customer rates, MPMWC opted to reduce the target of reserves in the rate adjustment options. Instead of setting the targeted CIP reserves at \$6,286,305 over the five-year period, Rate Adjustment Option #1 reduces the funding to \$4,422,169 and Rate Adjustment Option #2 reduces it to \$4,925,181. MPMWC understands that reducing the amounts of annual contributions to reserves means the system will have to come up with these amounts from other sources, or from steeper rate increases in future years. It will require an effort of MPMWC to obtain these grants and/or loans. The amount of grants and/or loans obtained for future projects has a very substantial impact on water rates. Therefore, this study recommends a new rate study every five years.

## 6. Budget

### Source

All expenses shown in TABLE 2 were calculated by using the MPMWC 2023 approved budget and projecting out four years using an assumed 5 percent annual inflation rate.

**TABLE 2: Five-Year Projected Budgets**

	2023 Budget	2024 Projections	2025 Projections	2026 Projections	2027 Projections
Accounting	\$ 5,200	\$ 5,460	\$ 5,733	\$ 6,020	\$ 6,321
Advertising	\$ 300	\$ 315	\$ 331	\$ 347	\$ 365
Meeting Expenses	\$ 5,200	\$ 5,460	\$ 5,733	\$ 6,020	\$ 6,321
Bank Charges	\$ 6,000	\$ 6,300	\$ 6,615	\$ 6,946	\$ 7,293
Collection Expense	\$ 1,400	\$ 1,470	\$ 1,544	\$ 1,621	\$ 1,702
Contingency	\$ 4,000	\$ 4,200	\$ 4,410	\$ 4,631	\$ 4,862
Certification / License Reimbursement	\$ 600	\$ 630	\$ 662	\$ 695	\$ 729
Dues & Subscriptions	\$ 3,500	\$ 3,675	\$ 3,859	\$ 4,052	\$ 4,254
Office Equipment & Furniture	\$ 600	\$ 630	\$ 662	\$ 695	\$ 729
Office Equipment Repair & Maintenance	\$ 700	\$ 735	\$ 772	\$ 810	\$ 851
Franchise Fee Expenses	\$ 7,500	\$ 7,875	\$ 8,269	\$ 8,682	\$ 9,116
Insurance, Liability	\$ 25,960	\$ 27,258	\$ 28,621	\$ 30,052	\$ 31,555
Insurance, Medical	\$ 128,000	\$ 134,400	\$ 141,120	\$ 148,176	\$ 155,585
Insurance, Workers Compensation	\$ 36,800	\$ 38,640	\$ 40,572	\$ 42,601	\$ 44,731
Legal Expenses	\$ 1,000	\$ 1,050	\$ 1,103	\$ 1,158	\$ 1,216
Office & Building Maintenance	\$ 1,000	\$ 1,050	\$ 1,103	\$ 1,158	\$ 1,216
Fees & Permits	\$ 14,000	\$ 14,700	\$ 15,435	\$ 16,207	\$ 17,017
Postage	\$ 8,500	\$ 8,925	\$ 9,371	\$ 9,840	\$ 10,332
Computer Supply & Expense	\$ 6,000	\$ 6,300	\$ 6,615	\$ 6,946	\$ 7,293
Office Supply & Expense	\$ 8,500	\$ 8,925	\$ 9,371	\$ 9,840	\$ 10,332
Office Meeting events/rewards	\$ 2,000	\$ 2,100	\$ 2,205	\$ 2,315	\$ 2,431
Pension Plan Matching Contribution	\$ 22,314	\$ 23,430	\$ 24,601	\$ 25,831	\$ 27,123
Taxes, Payroll	\$ 42,000	\$ 44,100	\$ 46,305	\$ 48,620	\$ 51,051
Taxes, Other	\$ 3,000	\$ 3,150	\$ 3,308	\$ 3,473	\$ 3,647
Office Telephone & Pager	\$ 6,500	\$ 6,825	\$ 7,166	\$ 7,525	\$ 7,901
Water Conservation Education	\$ 2,000	\$ 2,100	\$ 2,205	\$ 2,315	\$ 2,431
Training & Conferences	\$ 3,500	\$ 3,675	\$ 3,859	\$ 4,052	\$ 4,254
Travel Expenses	\$ 1,000	\$ 1,050	\$ 1,103	\$ 1,158	\$ 1,216
Office Utilities	\$ 5,200	\$ 5,460	\$ 5,733	\$ 6,020	\$ 6,321
Pension Plan Administration	\$ 3,700	\$ 3,885	\$ 4,079	\$ 4,283	\$ 4,497
Uniforms	\$ 5,200	\$ 5,460	\$ 5,733	\$ 6,020	\$ 6,321
Facilities Supplies/Svcs	\$ 1,500	\$ 1,575	\$ 1,654	\$ 1,736	\$ 1,823
Tanks - Supplies/Svcs	\$ 3,000	\$ 3,150	\$ 3,308	\$ 3,473	\$ 3,647
Hyd, Valve, App Supplies/Svcs	\$ 5,800	\$ 6,090	\$ 6,395	\$ 6,714	\$ 7,050
Instrumentation Supplies/Svcs	\$ 2,000	\$ 2,100	\$ 2,205	\$ 2,315	\$ 2,431
Service Lines - Supplies/Svcs	\$ 22,500	\$ 23,625	\$ 24,806	\$ 26,047	\$ 27,349
Field - Supplies/Svcs	\$ 21,500	\$ 22,575	\$ 23,704	\$ 24,889	\$ 26,133
Power Costs- Well 2	\$ 6,627	\$ 6,958	\$ 7,306	\$ 7,672	\$ 8,055
Power Costs - Well 3/6	\$ 5,635	\$ 5,917	\$ 6,213	\$ 6,523	\$ 6,849
Power Costs - Well 4	\$ 5,248	\$ 5,510	\$ 5,786	\$ 6,075	\$ 6,379
Power Costs - Well 5/Trmt/10	\$ 14,684	\$ 15,418	\$ 16,189	\$ 16,999	\$ 17,848
Power Costs - Well 7/8/9	\$ 17,133	\$ 17,990	\$ 18,889	\$ 19,834	\$ 20,825
Power Costs - A Tank	\$ 5,500	\$ 5,775	\$ 6,064	\$ 6,367	\$ 6,685
Power Costs - C Tank	\$ 12,998	\$ 13,648	\$ 14,330	\$ 15,047	\$ 15,799
Power Costs - D Tank	\$ 9,474	\$ 9,948	\$ 10,445	\$ 10,967	\$ 11,516
Power Costs - E Tank	\$ 9,663	\$ 10,146	\$ 10,653	\$ 11,186	\$ 11,745
Power Costs - F Tank	\$ 2,542	\$ 2,669	\$ 2,803	\$ 2,943	\$ 3,090
Power Costs - G Tank	\$ 10,016	\$ 10,517	\$ 11,043	\$ 11,595	\$ 12,175
Power Costs - H Tank	\$ 1,666	\$ 1,749	\$ 1,837	\$ 1,929	\$ 2,025
Power Costs - Campground	\$ 584	\$ 613	\$ 644	\$ 676	\$ 710
Hyd, Valve, App Supplies/Svcs	\$ 5,200	\$ 5,460	\$ 5,733	\$ 6,020	\$ 6,321
Instrumentation-Supplies/Svcs	\$ 5,000	\$ 5,250	\$ 5,513	\$ 5,788	\$ 6,078
Treatment Chemicals Supplies/Svcs (i.e. Chemical Pump)	\$ 5,200	\$ 5,460	\$ 5,733	\$ 6,020	\$ 6,321
Sampling/Bac-T Supplies/Svcs	\$ 2,500	\$ 2,625	\$ 2,756	\$ 2,894	\$ 3,039
Sampling/Other Test Supplies/Svcs	\$ 7,500	\$ 7,875	\$ 8,269	\$ 8,682	\$ 9,116
Meters - Supplies/Svcs	\$ 8,200	\$ 8,610	\$ 9,041	\$ 9,493	\$ 9,967
Safety/Sec Eq - Supplies/Svcs	\$ 5,000	\$ 5,250	\$ 5,513	\$ 5,788	\$ 6,078
Facilities Supplies/Svcs	\$ 1,200	\$ 1,260	\$ 1,323	\$ 1,389	\$ 1,459
Maintenance - Supplies/Svcs	\$ 1,200	\$ 1,260	\$ 1,323	\$ 1,389	\$ 1,459
Treatment Chemicals (Chlorine & Other Chemicals)	\$ 8,000	\$ 8,400	\$ 8,820	\$ 9,261	\$ 9,724
Fleet - Supplies/Svcs	\$ 7,965	\$ 8,363	\$ 8,781	\$ 9,220	\$ 9,682
Fleet - Fuel	\$ 24,000	\$ 25,200	\$ 26,460	\$ 27,783	\$ 29,172
Dumptruck - Supplies/Svcs	\$ 1,000	\$ 1,050	\$ 1,103	\$ 1,158	\$ 1,216
Backhoe Supplies/Svcs	\$ 3,000	\$ 3,150	\$ 3,308	\$ 3,473	\$ 3,647
GMC Sierra #569 Supplies/Svcs	\$ 1,800	\$ 1,890	\$ 1,985	\$ 2,084	\$ 2,188
Dodge #652 Supplies/Svcs	\$ 1,800	\$ 1,890	\$ 1,985	\$ 2,084	\$ 2,188
Dodge #653 Supplies/Svcs	\$ 1,800	\$ 1,890	\$ 1,985	\$ 2,084	\$ 2,188
GMC Sierra Flatbed #766 Supplies/Svcs	\$ 2,000	\$ 2,100	\$ 2,205	\$ 2,315	\$ 2,431
GMC Sierra #754 Supplies/Svcs	\$ 1,800	\$ 1,890	\$ 1,985	\$ 2,084	\$ 2,188
GMC Sierra #150 Supplies/Svcs	\$ 2,000	\$ 2,100	\$ 2,205	\$ 2,315	\$ 2,431
Flatbed Truck #513 Supplies/Svcs	\$ 2,000	\$ 2,100	\$ 2,205	\$ 2,315	\$ 2,431
GMC Sierra #786 Supplies/Svcs	\$ 1,800	\$ 1,890	\$ 1,985	\$ 2,084	\$ 2,188
Carson Trailer #837 Supplies/Svcs	\$ 500	\$ 525	\$ 551	\$ 579	\$ 608
Big Tex Trailer #798	\$ 200	\$ 210	\$ 221	\$ 232	\$ 243
Bobcat Skid Steer #986	\$ 250	\$ 263	\$ 276	\$ 289	\$ 304
Generator #S88431 Site A Tank Supplies/Svcs	\$ 1,550	\$ 1,628	\$ 1,709	\$ 1,794	\$ 1,884
Generator #S89441 Site F Tank Supplies/Svcs	\$ 1,550	\$ 1,628	\$ 1,709	\$ 1,794	\$ 1,884
Generator #S90401 Site H Tank Supplies/Svcs	\$ 1,550	\$ 1,628	\$ 1,709	\$ 1,794	\$ 1,884
Generator - Site Office Supplies/Svcs	\$ 1,250	\$ 1,313	\$ 1,378	\$ 1,447	\$ 1,519
Regular Payroll:	\$ 544,407	\$ 571,627	\$ 600,209	\$ 630,219	\$ 661,730
Overtime:	\$ 10,000	\$ 10,500	\$ 11,025	\$ 11,576	\$ 12,155
<b>Total Operating Costs</b>	<b>\$ 1,180,466</b>	<b>\$ 1,239,489</b>	<b>\$ 1,301,464</b>	<b>\$ 1,366,537</b>	<b>\$ 1,434,864</b>



The cash revenue shown is a calculated number based on:

- The water rates selected
- The number of paying customers
- An annual inflation factor of 5 percent
- A conservation factor and growth factor
- Water sales

### Sales Adjustments

Higher water rates cause a reduction in the quantity of water sold as customers adjust their consumption to the new rates.

Sales adjustment over Base year	Year 1	Year 2	Year 3	Year 4	Year 5
Conservation Factor	-2%	-0-%	-0%	-0%	-0%
Growth Factor	0%	0%	0%	0%	0%
Total Sales Adjustment	-2%	-0-%	-0%	-0%	-0%

With a change in base rates and the usage rate, it can be expected that customers will conserve water after seeing their new bills. It is estimated that after having the increased rates for a year, the customers will have returned to their water use habits they had prior to the rate change.

Little growth is expected over the five-year period in this rate analysis. If growth is experienced in a higher amount than projected, any resulting excess revenues over costs should be used to increase the CIP reserve fund.

MPMWC expects that most, if not all, delinquent accounts are collectible.

### Alternatives

If the utility does not fund its budget by setting appropriate water rates, it does not mean that the enterprise cannot pay its bills. It simply means that the enterprise is not providing for future replacement of the capital assets and will not be able to guarantee the continuing operation of the water system.

The utility and the board have a fiduciary responsibility to set rates to a level where the company can continue to operate and provide clean water for the foreseeable future.

## 7. Fixed Versus Variable Expenses

### Source

The fixed/variable costs budget was developed using five-year average costs and estimating how much of each expense line item remains the same even if a single drop of water is never delivered. The fixed costs are those incurred to have the water clean, safe and available for delivery to individual connects.

### Description

Some expenses vary by the volume of water sold. For example, electricity costs will go up when more water is processed.

Other expenses are fixed. For example, insurance costs remain the same whether water is sold or not. Percentages are used to estimate the ratio of fixed to variable because many expenses are somewhere in between.

In MPMWC's case, 85 percent of all expenses are fixed and only 15 percent are variable. It is not unusual for smaller water systems to have a high percentage of fixed costs.

### Alternatives

While fixed expenses should be covered by the base rate (the same every month), variable costs should be covered by the usage rate (based on the quantity sold). Should fixed costs not be recovered by the base rate, but by variable income (usage charges), there may be seasonal shortfalls in cash-flow of the company, and the company will have to dip into its operating reserves.

The split between fixed and variable expenses is not germane to the overall balancing of the budget. It is only relevant to cover seasonal cash flows of the utility.

**TABLE 3: Fixed/Variable Costs**

<b>MPMWC Fixed/Variable Expenses (5 Year Average)</b>	<b>5-Year Average</b>	<b>% Fixed</b>	<b>\$ Fixed</b>	<b>\$ Variable</b>
<b>OPERATIONS &amp; MAINTENANCE EXPENSES</b>				
Accounting	\$ 5,747	100%	\$ 5,747	\$ -
Advertising	\$ 332	100%	\$ 332	\$ -
Meeting Expenses	\$ 5,747	100%	\$ 5,747	\$ -
Bank Charges	\$ 6,631	100%	\$ 6,631	\$ -
Collection Expense	\$ 1,547	100%	\$ 1,547	\$ -
Contingency	\$ 4,421	100%	\$ 4,421	\$ -
Certification / License Reimbursement	\$ 663	100%	\$ 663	\$ -
Dues & Subscriptions	\$ 3,868	100%	\$ 3,868	\$ -
Office Equipment & Furniture	\$ 663	100%	\$ 663	\$ -
Office Equipment Repair & Maintenance	\$ 774	100%	\$ 774	\$ -
Franchise Fee Expenses	\$ 8,288	100%	\$ 8,288	\$ -
Insurance, Liability	\$ 28,689	100%	\$ 28,689	\$ -
Insurance, Medical	\$ 141,456	100%	\$ 141,456	\$ -
Insurance, Workers Compensation	\$ 40,669	100%	\$ 40,669	\$ -
Legal Expenses	\$ 1,105	100%	\$ 1,105	\$ -
Office & Building Maintenance	\$ 1,105	100%	\$ 1,105	\$ -
Fees & Permits	\$ 15,472	100%	\$ 15,472	\$ -
Postage	\$ 9,394	100%	\$ 9,394	\$ -
Computer Supply & Expense	\$ 6,631	100%	\$ 6,631	\$ -
Office Supply & Expense	\$ 9,394	100%	\$ 9,394	\$ -
Office Meeting events/rewards	\$ 2,210	100%	\$ 2,210	\$ -
Pension Plan Matching Contribution	\$ 24,660	100%	\$ 24,660	\$ -
Taxes, Payroll	\$ 46,415	100%	\$ 46,415	\$ -
Taxes, Other	\$ 3,315	100%	\$ 3,315	\$ -
Office Telephone & Pager	\$ 7,183	100%	\$ 7,183	\$ -
Water Conservation Education	\$ 2,210	100%	\$ 2,210	\$ -
Training & Conferences	\$ 3,868	100%	\$ 3,868	\$ -
Travel Expenses	\$ 1,105	100%	\$ 1,105	\$ -
Office Utilities	\$ 5,747	100%	\$ 5,747	\$ -
Pension Plan Administration	\$ 4,089	100%	\$ 4,089	\$ -
Uniforms	\$ 5,747	100%	\$ 5,747	\$ -
Facilities Supplies/Svcs	\$ 1,658	75%	\$ 1,243	\$ 414
Tanks - Supplies/Svcs	\$ 3,315	75%	\$ 2,487	\$ 829
Hyd. Valve, App Supplies/Svcs	\$ 6,410	75%	\$ 4,807	\$ 1,602
Instrumentation Supplies/Svcs	\$ 2,210	75%	\$ 1,658	\$ 553
Service Lines - Supplies/Svcs	\$ 24,865	75%	\$ 18,649	\$ 6,216
Field - Supplies/Svcs	\$ 23,760	100%	\$ 23,760	\$ -
Power Costs- Well 2	\$ 7,324	12%	\$ 879	\$ 6,445
Power Costs - Well 3/6	\$ 6,227	12%	\$ 747	\$ 5,480
Power Costs - Well 4	\$ 5,800	12%	\$ 696	\$ 5,104
Power Costs - Well 5/Trmt/10	\$ 16,228	12%	\$ 1,947	\$ 14,280
Power Costs - Well 7/8/9	\$ 18,934	12%	\$ 2,272	\$ 16,662
Power Costs - A Tank	\$ 6,078	12%	\$ 729	\$ 5,349
Power Costs - C Tank	\$ 14,364	12%	\$ 1,724	\$ 12,641
Power Costs - D Tank	\$ 10,470	12%	\$ 1,256	\$ 9,214
Power Costs - E Tank	\$ 10,679	12%	\$ 1,281	\$ 9,397
Power Costs - F Tank	\$ 2,809	12%	\$ 337	\$ 2,472
Power Costs - G Tank	\$ 11,069	12%	\$ 1,328	\$ 9,741
Power Costs - H Tank	\$ 1,841	12%	\$ 221	\$ 1,620
Power Costs - Campground	\$ 645	12%	\$ 77	\$ 568
Hyd. Valve, App Supplies/Svcs	\$ 5,747	75%	\$ 4,310	\$ 1,437
Instrumentation-Supplies/Svcs	\$ 5,526	100%	\$ 5,526	\$ -
Treatment Chemicals Supplies/Svcs (i.e. Chemical Pump)	\$ 5,747	75%	\$ 4,310	\$ 1,437
Sampling/Bac-T Supplies/Svcs	\$ 2,763	100%	\$ 2,763	\$ -
Sampling/Other Test Supplies/Svcs	\$ 8,288	100%	\$ 8,288	\$ -
Meters - Supplies/Svcs	\$ 9,062	100%	\$ 9,062	\$ -
Safety/Sec Eq - Supplies/Svcs	\$ 5,526	100%	\$ 5,526	\$ -
Facilities Supplies/Svcs	\$ 1,326	75%	\$ 995	\$ 332
Maintenance - Supplies/Svcs	\$ 1,326	75%	\$ 995	\$ 332
Treatment Chemicals (Chlorine & Other Chemicals)	\$ 8,841	50%	\$ 4,421	\$ 4,421
Fleet - Supplies/Svcs	\$ 8,802	100%	\$ 8,802	\$ -
Fleet - Fuel	\$ 26,523	100%	\$ 26,523	\$ -
Dumptruck - Supplies/Svcs	\$ 1,105	100%	\$ 1,105	\$ -
Backhoe Supplies/Svcs	\$ 3,315	100%	\$ 3,315	\$ -
GMC Sierra #569 Supplies/Svcs	\$ 1,989	100%	\$ 1,989	\$ -
Dodge #652 Supplies/Svcs	\$ 1,989	100%	\$ 1,989	\$ -
Dodge #653 Supplies/Svcs	\$ 1,989	100%	\$ 1,989	\$ -
GMC Sierra Flatbed #766 Supplies/Svcs	\$ 2,210	100%	\$ 2,210	\$ -
GMC Sierra #754 Supplies/Svcs	\$ 1,989	100%	\$ 1,989	\$ -
GMC Sierra #150 Supplies/Svcs	\$ 2,210	100%	\$ 2,210	\$ -
Flatbed Truck #513 Supplies/Svcs	\$ 2,210	100%	\$ 2,210	\$ -
GMC Sierra #786 Supplies/Svcs	\$ 1,989	100%	\$ 1,989	\$ -
Carson Trailer #837 Supplies/Svcs	\$ 553	100%	\$ 553	\$ -
Big Tex Trailer #798	\$ 221	100%	\$ 221	\$ -
Bobcat Skid Steer #986	\$ 276	100%	\$ 276	\$ -
Generator #588431 Site A Tank Supplies/Svcs	\$ 1,713	100%	\$ 1,713	\$ -
Generator #589441 Site F Tank Supplies/Svcs	\$ 1,713	100%	\$ 1,713	\$ -
Generator #590401 Site H Tank Supplies/Svcs	\$ 1,713	100%	\$ 1,713	\$ -
Generator - Site Office Supplies/Svcs	\$ 1,381	100%	\$ 1,381	\$ -
Regular Payroll:	\$ 601,638	100%	\$ 601,638	\$ -
Overtime:	\$ 11,051	100%	\$ 11,051	\$ -
<b>Total Operation and Maintenance Expenses:</b>	<b>\$ 1,304,564</b>		<b>\$ 1,188,020</b>	<b>\$ 116,544</b>
<b>GENERAL &amp; ADMINISTRATIVE EXPENSES</b>				
Operating Reserve Funding	\$ -	100%	\$ -	\$ -
Emergency Reserve Funding	\$ -	100%	\$ -	\$ -
Debt Service	\$ 19,390	100%	\$ 19,390	\$ -
Replacement of Existing Capital Assets	\$ 923,244	75%	\$ 692,433	\$ 230,811
<b>Total General and Administrative Expenses:</b>	<b>\$ 942,634</b>		<b>\$ 711,823</b>	<b>\$ 230,811</b>
<b>Total All Expenses</b>	<b>\$ 2,247,198</b>		<b>\$ 1,899,843</b>	<b>\$ 347,355</b>
<b>Fixed-Variable as % of all Expenses</b>			<b>85%</b>	<b>15%</b>

## 8. Rate Calculation

### Theoretical Base Rate Calculation

In theory, fixed expenses should be covered by fixed income (base charges) and variable expenses should be covered by variable income (usage charges). This is accomplished by using the total fixed cost and allocating it between total customers, based on the customer's potential demand as approximated by meter size.

The theoretical base rate is calculated by determining the maximum demand for each meter according to the AWWA Safe Maximum Operating Capacity, multiplying by the number of meters by that size in the system, and determining the percentage of total fixed costs that are allocated by meter size. This calculation results in the following:

**TABLE 4: Theoretical Base Rate Calculation**

Meter Size in "	Decimal Size	Number of Meters	AWWA Safe Maximum Operating Cap. (GPM)	Max Demand (GPM)	% Of Max Demand by Meter Size	Total Fixed Costs Allocated by Meter Size	Theoretical Base Rate by Meter Size
A	B	C	D	E= D * C	F= % of total	G= % * total	H=G/C/12
3/4"	0.750	2,268	30	68,040	92.86%	\$1,764,233	<b>\$194.47</b>
1"	1.000	95	50	4,750	6.48%	\$ 123,164	<b>\$324.12</b>
2"	1.500	3	160	480	0.66%	\$ 12,446	<b>\$1,037.17</b>
Total		2,356			100.00%	\$1,899,843	

Notes:

1. Safe maximum meter capacity for 5/8" through 2" meters (column D) based on AWWA C700 displacement meters.

### Rate Adjustment Option #1 Base Rate Calculation

Because full recovery of all the fixed costs in the base rate created a rate structure the board felt would be too onerous for the community, the base rates in the two options are lower than the theoretical rate above. Additionally, MPMWC's current meter equivalencies differ from the ones recommended by AWWA. MPMWC's governing body wishes to continue base rates equivalencies based on the equivalencies in their current rate structure.

**TABLE 5: Base Rate Calculation Rate Adjustment Option #1:**

Meter Size	Quarterly Base Rate
¾"	\$160.00
1"	\$195.00
2"	\$410.00

In Rate Adjustment Option #1, meter equivalencies remain according to the current schedule. Full funding of reserves will not be possible. MPMWC staff feel that non-operating revenue is consistent and reliable and can be used to partially fund CRP reserves. Over the five-year period, it is projected that \$4,422,169 in CRP reserves will be funded.

### Rate Adjustment Option #1 Usage Rate Calculation

The usage rate for the MPMWC will remain according to usage blocks. However, the blocks have been reduced from six to three.

Because the base rate adjustment will not fully recover fixed costs, MPMWC will rely heavily on the usage rate to balance the budget. While the usage rates must increase to balance the budget, it provides a little more control to the property owner by allowing them to reap the financial benefits of conserving water.

This benefit has been taken into consideration through the conservation factors applied to the estimated future quantities of water sold.

The new usage charge per 100 cubic feet (CCF) is according to three usage blocks. One hundred cubic feet equals 748 gallons.

**TABLE 6: Rate Adjustment Option #1 Usage Rates**

All Meter Sizes	Up to 2,000 CF	2,001 – 4,000 CF	Over 4,000 CF
Usage Rate per one hundred cubic feet	\$3.00	\$5.00	\$9.00

### Seasonal Cash Flow

By setting the base rate to less than the theoretical rate and relying on usage charges to balance the budget, seasonal cash flow issues may appear, particularly in the event of drought restrictions.

### Rate Adjustment Option #1 Estimated Profit and Loss

By setting the base rate and the usage rate, the model calculates the revenue generated by this rate. It compares revenue against expenses (as shown in the budget) and calculates the estimated profit/loss.

Also, the model estimates annual contributions to the reserves. It should be noted that non-operating revenue will be necessary to fully recover operating costs, debt service and fund reserves.

**TABLE 7: Estimated Profit/Loss with Rate Adjustment #1**

Rate Adjustment Option #1	Year #1	Year #2	Year #3	Year #4	Year #5	5 Year Total
Base + Usage Rate Revenue	\$ 1,936,813	\$ 1,947,647	\$ 1,947,647	\$ 1,947,647	\$ 1,947,647	\$ 9,727,401
Uncollectible Receivables	\$ (3,874)	\$ (3,895)	\$ (3,895)	\$ (3,895)	\$ (3,895)	\$ (19,455)
<b>Total Operating Revenue</b>	<b>\$ 1,932,939</b>	<b>\$ 1,943,752</b>	<b>\$ 1,943,752</b>	<b>\$ 1,943,752</b>	<b>\$ 1,943,752</b>	<b>\$ 9,707,946</b>
Operating Costs	\$ 1,180,466	\$ 1,239,489	\$ 1,301,464	\$ 1,366,537	\$ 1,434,864	\$ 6,522,820
Debt Service			\$ 31,268.44	\$ 31,268.44	\$ 31,268.44	\$ 93,805
Debt Reserves						\$ -
Operating Reserves						\$ -
CIP Reserves	\$1,018,000	\$970,022	\$877,098	\$812,435	\$744,614	\$ 4,422,169
<b>Total Costs</b>	<b>\$ 2,198,466</b>	<b>\$ 2,209,511</b>	<b>\$ 2,209,830</b>	<b>\$ 2,210,240</b>	<b>\$ 2,210,746</b>	<b>\$ 11,038,794</b>
Revenue Over/(Under) Costs	\$ (265,527)	\$ (265,760)	\$ (266,079)	\$ (266,489)	\$ (266,994)	\$ (1,330,848)
Non-Operating Revenue:						
New Connections	\$ 24,327	\$ 24,327	\$ 24,327	\$ 24,327	\$ 24,327	\$ 121,635
Interest Income	\$ 22,050	\$ 22,050	\$ 22,050	\$ 22,050	\$ 22,050	\$ 110,250
Stock Transfers	\$ 14,175	\$ 14,884	\$ 15,628	\$ 16,409	\$ 17,230	\$ 78,326
Standby Fees	\$ 184,500.0	\$ 183,000.0	\$ 181,500.0	\$ 180,000.0	\$ 178,500.0	\$ 907,500
Late Fees	20,475	21,499	22,574	23,702	24,887	\$ 113,137
<b>Total Non-Operating Revenue</b>	<b>\$ 265,527</b>	<b>\$ 265,760</b>	<b>\$ 266,079</b>	<b>\$ 266,489</b>	<b>\$ 266,994</b>	<b>\$ 1,330,848</b>
<b>Net Income</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>5 Year Rate Schedule</b>						
<b>Base Rate:</b>						
<b>Non-Connected</b>	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	
3/4"	160.00	160.00	160.00	160.00	160.00	
1"	195.00	195.00	195.00	195.00	195.00	
2"	410.00	410.00	410.00	410.00	410.00	
<b>Usage Rates:</b>						
up to 2,000 CF	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	\$ 3.00	
2,001 - 4,000 CF	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	
Over 4,000 CF	\$ 9.00	\$ 9.00	\$ 9.00	\$ 9.00	\$ 9.00	
Affordability Index	1.52%	1.52%	1.52%	1.52%	1.52%	

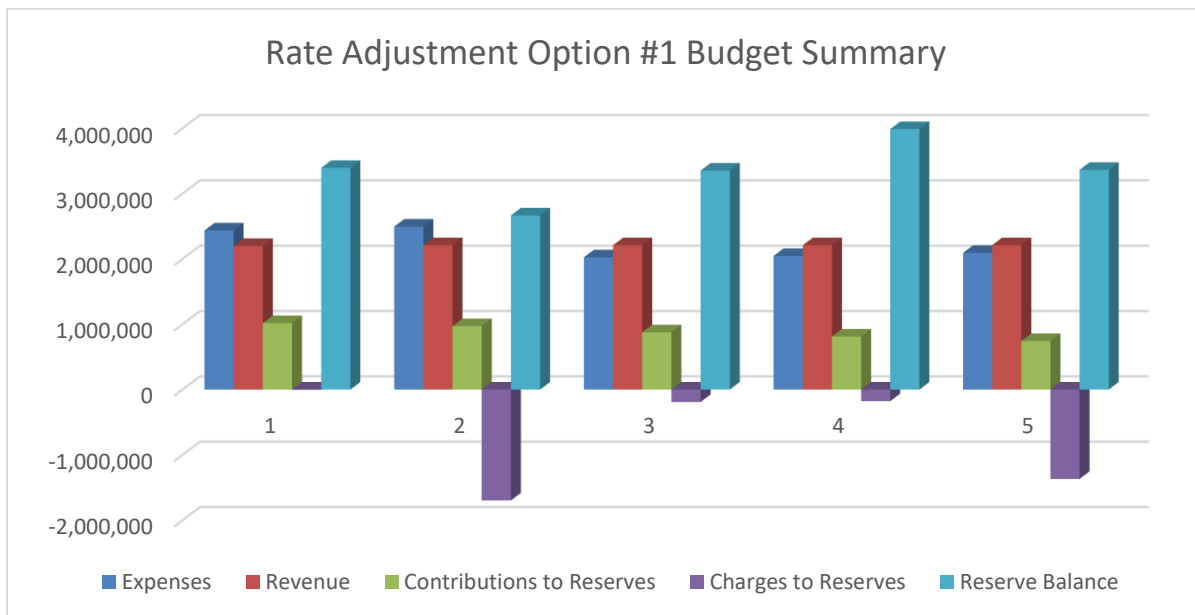
The negative operating revenue over/(under) operating costs indicates the rates were not raised enough to generate operating income that fully recovers all operating expenses, debt service and reserve

requirements. MPMWC feels the non-operating revenue is consistent and reliable as the means to balance the budget.

### Rate Adjustment Option #1 Affordability Index

The median household income of the MPMWC’s service area (from American Community Survey 2019 estimates) is \$54,265. The “affordability index” was calculated by dividing the average annual water bill of all residences by the MHI. Rate Adjustment Option #1 has an affordability index of 1.52 percent. Any number below 4 percent is generally considered “affordable.”

**TABLE 8: Rate Adjustment Option #1 Summary**



### Impacts of Rate Adjustment Option #1

- Expenses (darker blue bar) show a slight increase each year due to inflation.
- Revenue (red bar) will not increase each year. MPMWC opted for a rate structure that will carry the water system through the five-year period rather than implement incremental increases each year.
- Contributions to reserves (green bar) show a contribution to capital reserves each year, targeted at \$4,422,169 over the five-year period.
- Charges to reserves (purple bar) are the replacement costs of certain assets, according to the CRP. Because there are many replacements that need to take place within the five-year period of this rate analysis, each year subsequent to the first year indicates a reduction in reserves due to replacements. The purple bars indicate the need to dip into reserves.

- The Reserve Balance<sup>2</sup> (light blue bar) is the amount available to replace the system in future years. The reserve balance shows \$3,362,857 at the end of the five-year period. A new rate study should be conducted in five years or when a grant or loan is obtained.

**TABLE 9: Rate Adjustment Option #1 estimated average monthly bill**

Meter Size	Meter Size	Current	After Rate Adjustment Option #1
0.750	3/4"	\$138.98	\$202.95
1.000	1"	\$155.27	\$229.14
2.000	2"	\$510.72	\$713.25

### Rate Adjustment Option #2 Base Rate Calculation

In Rate Adjustment Option #2, a higher contribution to CRP reserves is targeted.

**TABLE 10: Rate Adjustment Option #2 Base Rates**

Meter Size	Quarterly Base Rate
3/4"	\$180.00
1"	\$215.00
2"	\$455.00

In Rate Adjustment Option #2, meter equivalencies remain according to the current schedule. Full funding of reserves will not be possible. MPMWC staff feel that non-operating revenue is consistent and reliable and can be used to partially fund CRP reserves. Over the five-year period, it is projected that \$4,925,181 in CRP reserves will be funded.

### Rate Adjustment Option #2 Usage Rate Calculation

The usage rate for the MPMWC will remain according to usage blocks. However, the blocks, again, have been reduced from six to three.

Because the base rate adjustment will not fully recover fixed costs, MPMWC will rely heavily on the usage rate to balance the budget. While the usage rate must increase to balance the budget, it provides a little more control to the property owner by allowing them to reap the financial benefits of conserving water.



**TABLE 11: Rate Adjustment Option #2 Usage Rates**

All Meter Sizes	Up to 2,000 CF	2,001 – 4,000 CF	Over 4,000 CF
Usage Rate per one hundred cubic feet	\$2.00	\$5.00	\$8.00

**TABLE 12: Estimated Profit/Loss with Rate Adjustment #2**

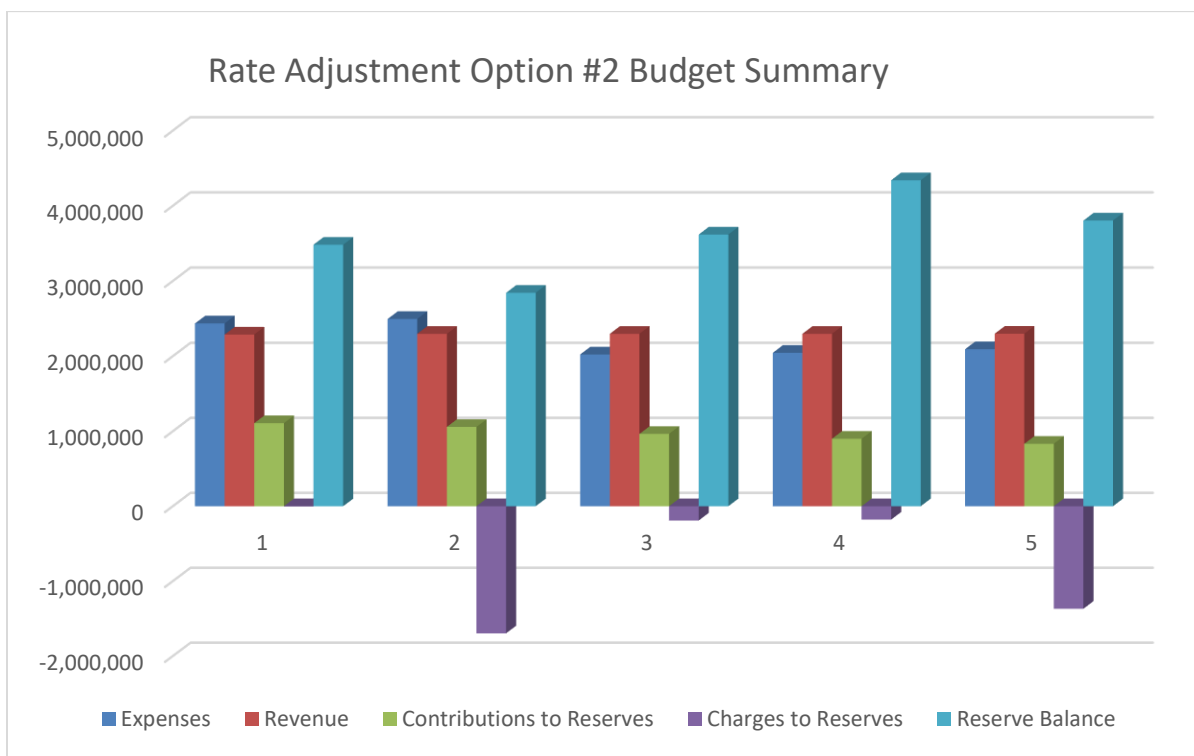
Rate Adjustment Option #2	Year #1	Year #2	Year #3	Year #4	Year #5	5 Year Total
Base + Usage Rate Revenue	\$ 2,035,960	\$ 2,045,267	\$ 2,045,267	\$ 2,045,267	\$ 2,045,267	\$ 10,217,027
Uncollectible Receivables	\$ (4,072)	\$ (4,091)	\$ (4,091)	\$ (4,091)	\$ (4,091)	\$ (20,434)
<b>Total Operating Revenue</b>	<b>\$ 2,031,889</b>	<b>\$ 2,041,176</b>	<b>\$ 2,041,176</b>	<b>\$ 2,041,176</b>	<b>\$ 2,041,176</b>	<b>\$ 10,196,593</b>
Operating Costs	\$ 1,180,466	\$ 1,239,489	\$ 1,301,464	\$ 1,366,537	\$ 1,434,864	\$ 6,522,820
Debt Service			\$ 31,268.44	\$ 31,268.44	\$ 31,268.44	\$ 93,805.32
Debt Reserves						\$ -
Operating Reserves						\$ -
<b>CIP Reserves</b>	<b>\$1,119,823</b>	<b>\$1,070,319</b>	<b>\$977,396</b>	<b>\$912,732</b>	<b>\$844,911</b>	<b>\$4,925,181</b>
<b>Total Costs</b>	<b>\$ 2,300,289</b>	<b>\$ 2,309,809</b>	<b>\$ 2,310,128</b>	<b>\$ 2,310,538</b>	<b>\$ 2,311,043</b>	<b>\$ 11,541,806</b>
Revenue Over/(Under) Costs	\$ (268,400)	\$ (268,633)	\$ (268,952)	\$ (269,362)	\$ (269,867)	\$ (1,345,213)
Non-Operating Revenue:						
New Connections	\$ 27,200.0	\$ 27,200.0	\$ 27,200.0	\$ 27,200.0	\$ 27,200.0	\$ 136,000
Interest Income	\$ 22,050	\$ 22,050	\$ 22,050	\$ 22,050	\$ 22,050	\$ 110,250
Stock Transfers	\$ 14,175	\$ 14,884	\$ 15,628	\$ 16,409	\$ 17,230	\$ 78,326
Standby Fees	\$ 184,500.0	\$ 183,000.0	\$ 181,500.0	\$ 180,000.0	\$ 178,500.0	\$ 907,500
Late Fees	\$ 20,475	\$ 21,499	\$ 22,574	\$ 23,702	\$ 24,887	\$ 113,137
<b>Total Non-Operating Revenue</b>	<b>\$ 268,400</b>	<b>\$ 268,633</b>	<b>\$ 268,952</b>	<b>\$ 269,362</b>	<b>\$ 269,867</b>	<b>\$ 1,345,213</b>
<b>Net Income</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>5 Year Rate Schedule</b>						
<b>Base Rate:</b>						
<b>Non-Connected</b>	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	\$ 75.00	
3/4"	180.00	180.00	180.00	180.00	180.00	
1"	215.00	215.00	215.00	215.00	215.00	
2"	455.00	455.00	455.00	455.00	455.00	
<b>Usage Rates:</b>						
up to 2,000 CF	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	\$ 2.00	
2,001 - 4,000 CF	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	\$ 5.00	
Over 4,000 CF	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	\$ 8.00	
Affordability Index	1.59%	1.59%	1.59%	1.59%	1.59%	

The negative operating revenue over/(under) operating costs indicates the rates were not raised enough to generate operating income that fully recovers all operating expenses, debt service and reserve requirements. MPMWC feels the non-operating revenue is consistent and reliable as the means to balance the budget.

### Rate Adjustment Option #2 Affordability Index

The median household income (MHI) of the MPMWC’s service area (from American Community Survey 2019 estimates) is \$54,265. The “affordability index” was calculated by dividing the average annual water bill of all residences by the MHI. Rate Adjustment Option #1 has an affordability index of 1.59 percent. Any number below 4 percent is generally considered “affordable.”

**TABLE 13: Rate Adjustment Option #2 Budget Summary**



### Impacts of Rate Adjustment Option #2

- Expenses (darker blue bar) show a slight increase each year due to inflation.
- Revenue (red bar) remains the same each year as MPMWC has determined to implement a rate schedule to cover the five-year period rather than make annual incremental rate increases.
- Contributions to reserves (green bar) show a contribution to capital reserves each year targeted at \$4,925,181 over the five-year period.
- Charges to reserves (purple bar) are the replacement costs of certain assets, according to the CRP. Because there are a lot of replacements that need to take place within the five-year period

of this rate analysis, each year subsequent to the first year indicates a reduction in reserves due to replacements. The purple bars indicate the need to dip into reserves.

- The Reserve Balance<sup>3</sup> (light blue bar) is the amount available to replace the system in future years. The reserve balance shows \$3,865,869 at the end of the five-year period. A new rate study should be conducted in five years or when a grant or loan is obtained.

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<sup>3</sup> Total Reserves (Capital Replacement Reserves, Emergency Reserves, Debt Reserves, etc.)

**TABLE 14: Rate Adjustment Option #2 estimated average monthly bill**

<b>Meter Size</b>	<b>Meter Size</b>	<b>Current</b>	<b>After Rate Adjustment Option #2</b>
0.750	3/4"	\$138.98	\$213.32
1.000	1"	\$155.27	\$242.22
2.000	2"	\$510.72	\$721.63

## 9. Conclusions and Recommendations

Key points to remember with any rate adjustment:

- Successful utilities are those that strive to be transparent. In day-to-day operations, MPMWC should strive to promote its services (highlights and the low points), and continuously educate residents on why it is necessary to raise and adjust rates.
- The ability of the recommended rate structures to generate adequate revenue will depend on maintaining a vigorous collection and shut-off policy to keep delinquent accounts at a minimum.
- In order to achieve and maintain long-term viability, MPMWC should review its rates annually, or no less than a minimum of every two years. Keeping track of customers' seasonal and annual water demands will help determine operational needs, budget forecasts and rate adjustments.
- MPMWC should implement the rate adjustment as soon as possible to provide sufficient revenues for funding future operations and to adequately fund reserves.
- MPMWC should establish policies for reserve accounts as recommended.
- MPMWC should designate reserves on its financial statements.
- CIP reserves should be moved to and maintained in the highest interest bearing accounts available to offset inflation unless the cost of doing so would be more than the interest earned on the account.