

Madison Water Utility - Update on Water Rate Case

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Rate Case Process

- *Rate Application*
 - Information is used to determine Revenue Requirements – how much can the Utility collect for various costs?
 - ***PSC is still in the review process to determine final revenue requirements***
- Cost of Service Study
- Rate Design
 - ***Complete, based on information updated as of 4/20/2018***



Updated Cash Flow Analysis

- Long-term look at cash flow:
 - 5 years of historical data – 2013-2017
 - 25 years of forecasts – 2018-2043
 - Incorporated the Utility's CIP and estimated ongoing capital investment needs beyond the CIP
 - Evaluated alternative financing plans
- Objectives:
 - Evaluate recent trends in Utility financial status
 - Evaluate the 2018 rate increase and capital financing plan
 - Forecast future cash flow needs
 - Forecast future rate increases



Updated 2018 Forecast

- 2018 Cash flow needs:

• O&M and Taxes:	\$24,130,000	\$24,041,000
• Debt service:	\$17,800,000	\$18,669,000
• Capital improvements:	\$23,000,000	\$19,805,000
• Less Borrowing:	-\$18,000,000	-\$18,000,000
• <i>Note: Updated borrowing for \$36,000,000 for projects in 2018 <u>and</u> 2019 due to timing of issue</i>		
• Net:	\$46,930,000	\$44,515,000

Revenue Requirements

Standard PSC Ratemaking

- Estimated at ~~\$41,541,000~~ **\$43,269,000** total for the 2018 Test Year
 - ~~\$24,130,000~~ **\$24,041,000** for O&M and taxes
 - ~~\$17,411,000~~ **\$19,228,000** for normal depreciation and return on investment
 - **Requesting approval of a 6.45% rate of return for more substantial debt coverage**
 - **27.1%** overall rate increase

With Expense Depreciation

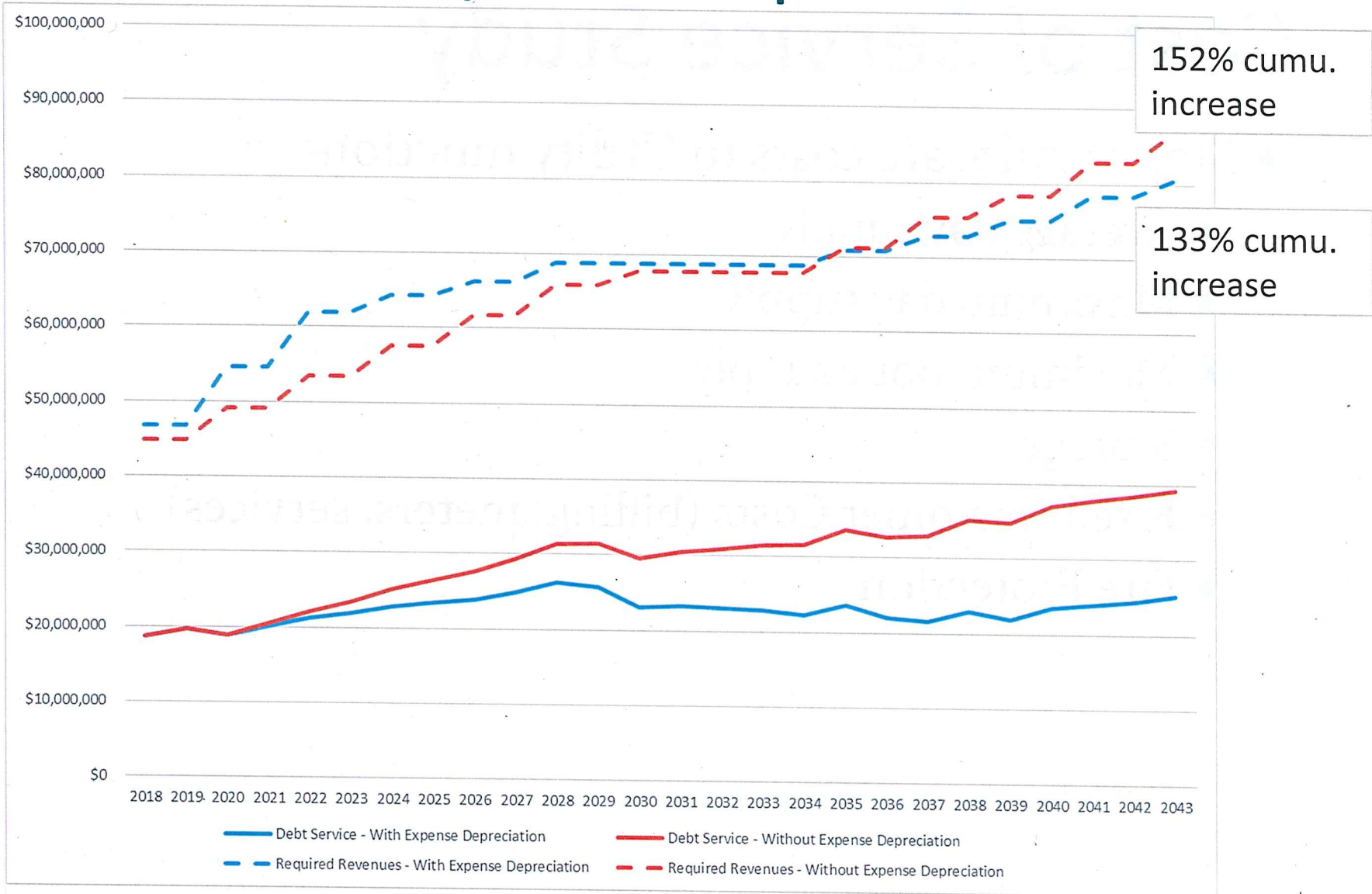
- Estimated at ~~\$41,541,000~~ **\$45,269,000** total for the 2018 Test Year
 - ~~\$24,130,000~~ **\$24,041,000** for O&M and taxes
 - ~~\$17,411,000~~ **\$19,228,000** for normal depreciation and return on investment
 - **\$2,000,000** for expense depreciation
 - **Requesting approval of a 6.45% rate of return for more substantial debt coverage**
 - **32.7%** overall rate increase



Projected Financial Plan

- Rate increases of ~~25.5%~~ **32.7%** in 2018, ~~18%~~ **17.4%** in 2020, ~~13.5%~~ **13.8%** in 2022 would allow the Utility to increase cash financing
- Expense Depreciation (cash funding main replacements)
 - Start at \$2.0 million per year for current rate case
 - Gradually increase to \$10.0 million per year
 - Requesting that amount would be collected through a fixed charge per month, to ensure that revenues would be sufficient
- Rate increases may change due to other factors such as increased expenses or decreased sales

Comparison of Revenues and Debt with and without Expense Depreciation





Cost of Service Study

- Step 1: Allocate costs to Utility functions
 - Average day supply
 - Maximum day supply
 - Maximum hour supply
 - Storage
 - Fixed Customer Costs (billing, meters, services)
 - Fire Protection



Cost of Service Study

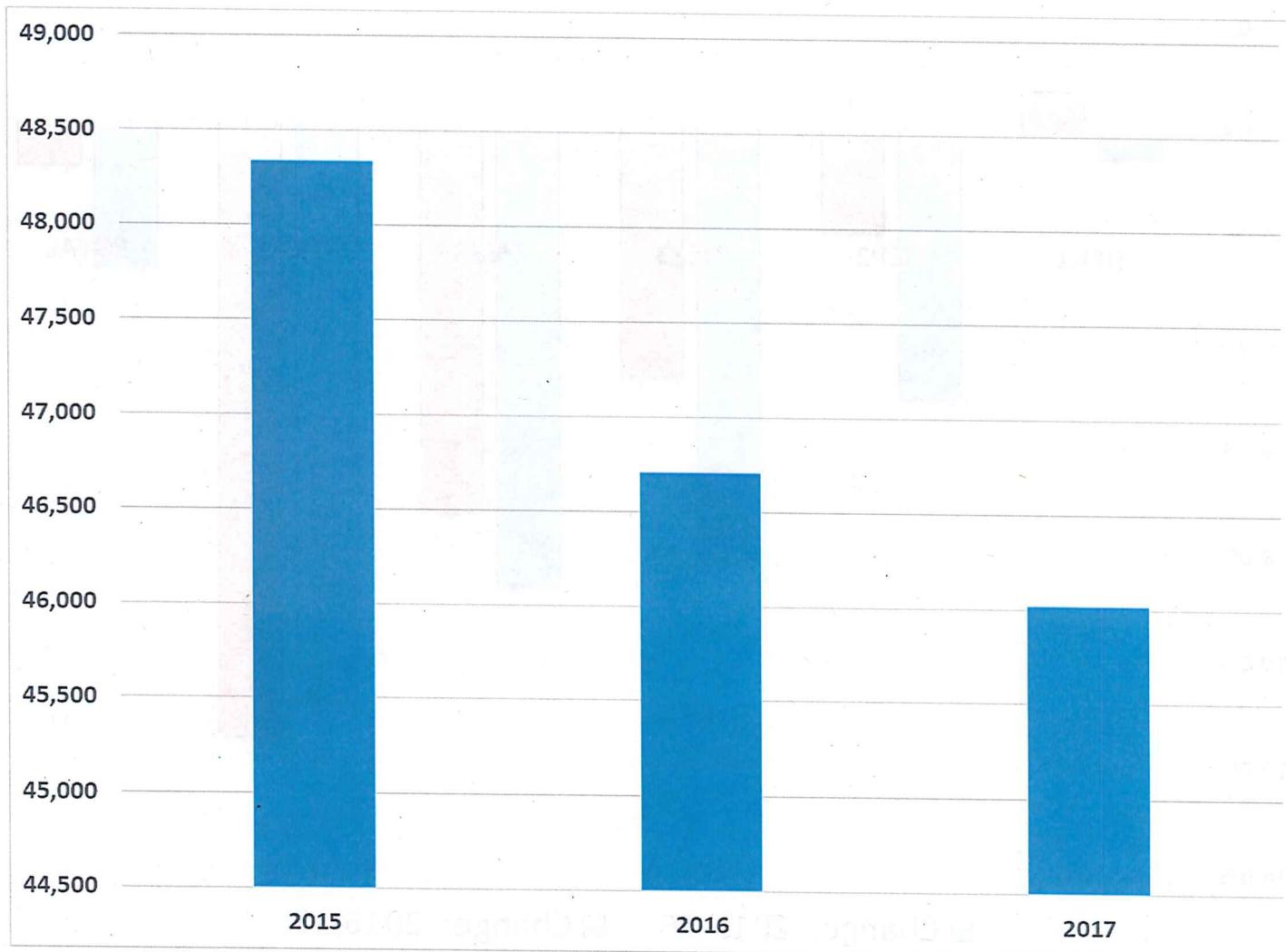
- Step 2: Allocate functional costs to customer classes
 - Retail Customers
 - Residential
 - Duplex (newly separated from Residential)
 - Multi-family
 - Commercial
 - Industrial
 - Public Authority
 - Wholesale customers
 - Fitchburg
 - Maple Bluff
 - Shorewood Hills
 - ~~Waunona Sanitary District No. 2~~ (are now retail customers)



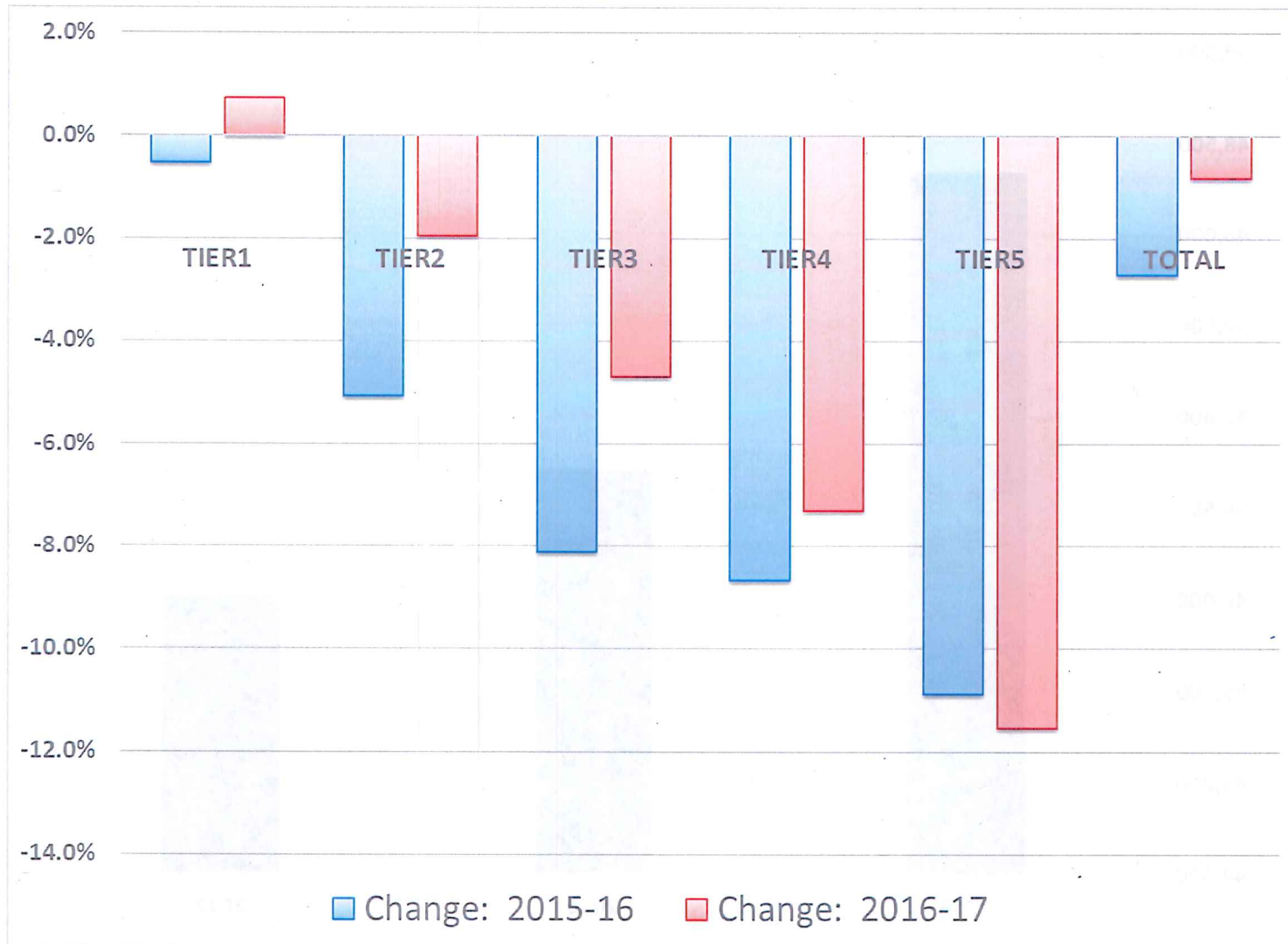
Cost of Service Study

- Updates since the last rate case
 - Analyzed trends in residential water use by rate tier
 - Analyzed hourly AMI data since the last rate case for each customer class to update the peak demand patterns that determine the cost allocation to each class
 - Analyzed demand patterns for duplex customers to determine a separate rate

Gallons per Residential Customer, 2015-2017



Percent Change in Residential Water Use by Tier





Changes in Peak Day Demand

Last Rate Case

- Residential
 - Max Day Ratio – 1.77
- Duplex
 - Max Day Ratio – part of Res.
- Multi-Family
 - Max Day Ratio – 1.66
- Commercial
 - Max Day Ratio – 1.82
- Industrial
 - Max Day Ratio – 1.73
- Public Authority
 - Max Day Ratio – 2.38

Current Rate Case

- Residential
 - Max Day Ratio – 1.60
- Duplex
 - Max Day Ratio – 1.21
- Multi-Family
 - Max Day Ratio – 1.40
- Commercial
 - Max Day Ratio – 1.74
- Industrial
 - Max Day Ratio – 1.66
- Public Authority
 - Max Day Ratio – 1.83



Changes in Peak Hour Demand

Last Rate Case

- Residential
 - Max Hour Ratio – 3.20
- Duplex
 - Max Hour Ratio – part of Res.
- Multi-Family
 - Max Hour Ratio – 3.24
- Commercial
 - Max Hour Ratio – 2.77
- Industrial
 - Max Hour Ratio – 2.93
- Public Authority
 - Max Hour Ratio – 5.28

Current Rate Case

- Residential
 - Max Hour Ratio – 2.97
- Duplex
 - Max Hour Ratio – 2.02
- Multi-Family
 - Max Hour Ratio – 2.45
- Commercial
 - Max Hour Ratio – 2.91
- Industrial
 - Max Hour Ratio – 2.34
- Public Authority
 - Max Hour Ratio – 3.36



Changes in Peak Day Demand

Last Rate Case

- Fitchburg
 - Max Day Ratio – 3.50
 - Max Hour Ratio – 5.43
- Maple Bluff
 - Max Day Ratio – 2.29
 - Max Hour Ratio – 4.66
- Shorewood Hills
 - Max Day Ratio – 1.32
 - Max Hour Ratio – 2.32
- Waunona SD
 - Now Retail

Current Rate Case

- Fitchburg
 - Max Day Ratio – 2.47
 - Max Hour Ratio – 5.37
- Maple Bluff
 - Max Day Ratio – 2.40
 - Max Hour Ratio – 4.48
- Shorewood Hills
 - Max Day Ratio – 1.35
 - Max Hour Ratio – 1.80
- Waunona SD
 - Now Retail

Changes in Revenue Structure Between Customer Classes

Current Revenues

- Residential – 34.5% of revenues
- Duplex – 1.7%
- Multi-Family – 16.4%
- Commercial – 17.3%
- Industrial – 1.2%
- Public Authority – 13.7%
- Fitchburg – 0.02%
- Maple Bluff – 0.3%
- Shorewood Hills – 0.3%
- Public Fire Protection – 13.0%
- Private Fire Protection – 1.7%

Updated Cost of Service

- Residential – 41.8%
- Duplex – 1.6%
- Multi-Family – 18.1%
- Commercial – 21.3%
- Industrial – 1.4%
- Public Authority – 14.8%
- Fitchburg – 0.03%
- Maple Bluff – 0.3%
- Shorewood Hills – 0.4%
- Public Fire Protection – 0.3%
- Private Fire Protection – 0%

Proposed Rates – Public Fire Protection

Current Charges

Meter Size	Monthly Charge
5/8"	\$2.03
3/4"	\$5.75
1"	\$13.00
1 1/4"	\$18.00
1 1/2"	\$23.75
2"	\$50.75
3"	\$168.75
4"	\$371.25
6"	\$675.00
8"	\$1,350.00
10"	\$2,362.50
12"	\$3,375.00

Proposed Charges

Meter Size	Monthly Charge
5/8"	\$3.27 *
3/4"	\$0.00
1"	\$0.00
1 1/4"	\$0.00
1 1/2"	\$0.00
2"	\$0.00
3"	\$0.00
4"	\$0.00
6"	\$0.00
8"	\$0.00
10"	\$0.00
12"	\$0.00

Proposed Rates – Private Fire Protection

Current Charges

Connection Size	Monthly Charge
1 1/2"	\$2.03
2"	\$5.75
3"	\$13.00
4"	\$18.00
6"	\$23.75
8"	\$50.75
10"	\$168.75
12"	\$371.25
14"	\$675.00
16"	\$1,350.00

Proposed Charges

Connection Size	Monthly Charge
1 1/2"	\$0.00
2"	\$0.00
3"	\$0.00
4"	\$0.00
6"	\$0.00
8"	\$0.00
10"	\$0.00
12"	\$0.00
14"	\$0.00
16"	\$0.00

Proposed Rates – Fixed General Service

Current Charges

Meter Size	Monthly Charge
5/8"	\$5.70
3/4"	\$6.70
1"	\$9.80
1 1/4"	\$12.70
1 1/2"	\$15.90
2"	\$23.50
3"	\$38.10
4"	\$57.20
6"	\$98.40
8"	\$152.40
10"	\$223.50
12"	\$298.50

Proposed Charges

Meter Size	Monthly Charge
5/8"	\$9.70
3/4"	\$13.80
1"	\$21.89
1 1/4"	\$30.42
1 1/2"	\$39.26
2"	\$67.82
3"	\$156.50
4"	\$298.41
6"	\$545.79
8"	\$997.09
10"	\$1,653.70
12"	\$2,310.33

Proposed Rates – Infrastructure Renewal

Current Charges

Meter Size	Monthly Charge
5/8"	\$0.00
3/4"	\$0.00
1"	\$0.00
1 1/4"	\$0.00
1 1/2"	\$0.00
2"	\$0.00
3"	\$0.00
4"	\$0.00
6"	\$0.00
8"	\$0.00
10"	\$0.00
12"	\$0.00

Proposed Charges

Meter Size	Monthly Charge
5/8"	\$1.79
3/4"	\$2.68
1"	\$4.47
1 1/4"	\$6.62
1 1/2"	\$8.95
2"	\$14.32
3"	\$26.85
4"	\$44.74
6"	\$89.49
8"	\$143.18
10"	\$214.78
12"	\$286.37

Proposed Rates – Residential Customers

Current Charges

Rate Tier	Rate per 1,000 Gals
First 3,000 Gals	\$2.84
Next 3,000 Gals	\$3.26
Next 3,000 Gals	\$3.60
Next 5,000 Gals	\$4.50
Over 14,000 Gals	\$5.07

Proposed Charges

Rate Tier	Rate per 1,000 Gals
First 3,000 Gals	\$3.74
Next 3,000 Gals	\$4.78
Next 3,000 Gals	\$5.63
Next 5,000 Gals	\$7.84
Over 14,000 Gals	\$9.25

Proposed Rates – Duplex and Multi-Family Customers

Current Charges - Duplex

Rate Tier	Rate per 1,000 Gals
First 3,000 Gals	\$2.84
Next 3,000 Gals	\$3.26
Next 3,000 Gals	\$3.60
Next 5,000 Gals	\$4.50
Over 14,000 Gals	\$5.07

Proposed Charges - Both

Rate Tier	Rate per 1,000 Gals
All Usage	\$3.34

Current Charges - MF

Rate Tier	Rate per 1,000 Gals
All Usage	\$2.60

Proposed Rates – Non-Residential Customers

Current Charges - Commercial

Rate Tier	Rate per 1,000 Gals
All Usage	\$2.68

Proposed Charges - Commercial

Rate Tier	Rate per 1,000 Gals
All Usage	\$3.96

Current Charges – Industrial

Rate Tier	Rate per 1,000 Gals
All Usage	\$2.50

Proposed Charges – Industrial

Rate Tier	Rate per 1,000 Gals
All Usage	\$3.80

Current Charges – Public Authority

Rate Tier	Rate per 1,000 Gals
All Usage	\$3.31

Proposed Charges – Public Authority

Rate Tier	Rate per 1,000 Gals
All Usage	\$4.34

Proposed Rates – Wholesale Customers

Current Charges

Customer	Rate per 1,000 Gals
Fitchburg	\$2.84
Maple Bluff	\$2.05
Shorewood Hills	\$1.50
Waunona SD	\$1.54

Customer	Fixed Charges per Month
Fitchburg	\$257.40
Maple Bluff	\$3,214.60
Shorewood Hills	\$3,740.60
Waunona SD	\$1,998.80

Proposed Charges

Customer	Rate per 1,000 Gals
Fitchburg	\$3.27
Maple Bluff	\$3.05
Shorewood Hills	\$1.82
Waunona SD	Retail

Customer	Fixed Charges per Month
Fitchburg	\$635.28
Maple Bluff	\$2,541.12
Shorewood Hills	\$3,046.11
Waunona SD	Retail

Customer Bill Impacts - Residential

Customer Type	Meter Size	Monthly Gallons	Bill at Old Rates	Bill at New Rates	Monthly Change
Residential	5/8	3,000	\$16.25	\$22.71	\$6.46
Residential	5/8	4,000	\$19.51	\$27.49	\$7.98
Residential	3/4	20,000	\$94.47	\$153.63	\$59.16
Residential	1	100,000	\$510.42	\$903.51	\$393.09
Duplex	5/8	4,000	\$19.51	\$24.85	\$5.34
Duplex	5/8	6,000	\$26.03	\$31.53	\$5.50
Duplex	5/8	25,000	\$115.10	\$94.99	(\$20.11)
Duplex	5/8	75,000	\$368.60	\$261.99	(\$106.61)
Multi-Family	5/8	20,000	\$59.73	\$78.29	\$18.56
Multi-Family	1	38,000	\$121.60	\$153.28	\$31.68
Multi-Family	3	800,000	\$2,286.85	\$2,855.35	\$568.50
Multi-Family	4	1,900,000	\$5,368.45	\$6,689.15	\$1,320.70

Customer Bill Impacts – Non-Residential

Customer Type	Meter Size	Monthly Gallons	Bill at Old Rates	Bill at New Rates	Monthly Change
Commercial	5/8	20,000	\$61.33	\$90.69	\$29.36
Commercial	1	33,000	\$111.24	\$157.04	\$45.80
Commercial	4	4,800,000	\$13,292.45	\$19,351.15	\$6,058.70
Commercial	3	18,900,000	\$50,858.85	\$75,027.35	\$24,168.50
Industrial	1	150,000	\$397.80	\$596.36	\$198.56
Industrial	1	280,000	\$722.80	\$1,090.36	\$367.56
Industrial	4	3,400,000	\$8,928.45	\$13,263.15	\$4,334.70
Industrial	6	13,750,000	\$35,148.40	\$52,885.28	\$17,736.88
Public Auth.	5/8	50,000	\$173.23	\$228.49	\$55.26
Public Auth.	1	230,000	\$784.10	\$1,024.56	\$240.46
Public Auth.	4	1,200,000	\$4,400.45	\$5,551.15	\$1,150.70
Public Auth.	6	4,000,000	\$14,013.40	\$17,995.28	\$3,981.88



Statewide Annual Bill Comparison

- Assumes 48,000 gallons residential usage annually (including public fire protection charge*)
 - 75th percentile of Class AB utilities - \$379.20
 - Average of Class AB utilities - \$322.88
 - 25th percentile of Class AB utilities - \$233.74
- Current Madison rates - \$234.12
- Proposed Madison rates - \$329.88
- *Note: Multiple communities charge PFP to the municipality rather than directly to the customers; these are collected through general taxes and the costs are not reflected in the above figures.