

**MADISON FINANCIAL  
IMPROVEMENT PLAN**

**MADISON WATER UTILITY  
MADISON, WISCONSIN  
JANUARY 2019**

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## FINANCIAL IMPROVEMENT PLAN

### Executive Summary

Madison Water Utility's (MWU) position is similar to many other water utilities throughout the Midwest. With aging infrastructure and declining demand, MWU must continue providing outstanding service while keeping water affordable. This financial plan presents actions MWU will take to achieve the twin goals of excellent service and affordability.

MWU commits to steady replacement of its infrastructure. To ensure that MWU will have the financial stability to pay for these replacements while maintaining operations, MWU has set cash-reserve, capital-structure, debt-coverage, and return-on-rate-base goals. Achieving these goals will take hard work but will ultimately keep water rates affordable in the long-run.

MWU considered several financial initiatives to meet financial goals. MWU will pursue a series of conventional rate increases and may ask the PSC to authorize accelerated recovery of water main investment. This approach is forecast to significantly improve MWU's financial health, reducing debt while building cash reserves.

This plan includes several operational changes and reviews. These include hiring a chief financial officer, conducting a Government Finance Officers Association business process review, consolidating MWU's accounting system with the City of Madison's system, performing an operations audit, and making a dashboard of key metrics available to decision makers.

MWU is poised to strengthen its financial and operational health with these measures to maintain its high standard of service while keeping rates affordable.

## Purpose

This plan is part of the Madison Water Utility's (MWU) ongoing work to invest in its water infrastructure while strengthening its finances. MWU has proactively invested in water infrastructure replacement. In 2018, MWU obtained Wisconsin Public Service Commission (PSC) approval to increase water rates by 30.6%. At the direction of the Madison Common Council, MWU is working to improve annual cash forecasts and long-range financial models. These improvements will balance infrastructure needs with financial resources to optimize investment and ensure a steady, predictable path for future rates.

This plan also addresses point 12 of the PSC's November 1, 2018, water rate order for MWU and the additional information the PSC requested in its letter dated January 16, 2019 (PSC reference number 357635). The PSC ordered MWU to submit a financial improvement plan, including

- a. Planned actions to reduce MWU's debt relative to its investment in water infrastructure
- b. Operating and financial goals
- c. A timeline for achieving goals
- d. Potential obstacles to achieving these goals
- e. Expected impacts on water users
- f. Evaluation of a water rate surcharge as a financial tool.

This plan addresses the required items.

## Problem Statement

Water utilities in the United States must meet the mounting need to invest in infrastructure while providing reliable water service. At the same time, financial resources for infrastructure investment is generated from variable and falling customer water use.

### Infrastructure Investment Need

In its 2012 report *Buried No Longer: Confronting America's Water Infrastructure Challenge*, the American Water Works Association forecast that water utilities in the midwestern United States need to spend \$146 billion on water main replacements from 2011 through 2035.<sup>1</sup>

In 2017, out of MWU's 895 miles of water main, 28 miles were installed before 1920. Another 187 miles of MWU's main were installed from 1941 to 1960. Many water utilities have experienced high rates of failure for this vintage of mains.

MWU has proactively addressed the need for investment in water infrastructure. However, investment must fit within available resources, regulatory constraints, and customers' ability to pay.

### Variable and Falling Sales

In 2014, the Water Research Foundation and the US Environmental Protection Agency published *Defining a Resilient Business Model for Water Utilities* from the Environmental Finance Center (EFC) at the University of North Carolina and Raftelis Financial Consultants. The report identified falling and variable revenue from rates as a risk to water-utility business models. The cost to provide water service is largely fixed, e.g. debt service. Revenue is largely variable. As the volume of water sold falls, water revenue grows more slowly than water rates. This saves money for water users, but it reduces financial resources available for infrastructure investment.<sup>2</sup>

In *Measuring and Mitigating Water Revenue Variability: Understanding How Pricing Can Advance Conservation without Undermining Utilities' Revenue Goals*, the University of North Carolina EFC and Ceres, Inc. identify the difficulty of predicting revenue from water rates as a key challenge for utility finances.<sup>3</sup>

Figure One shows MWU's annual water sales from its annual reports to the PSC.

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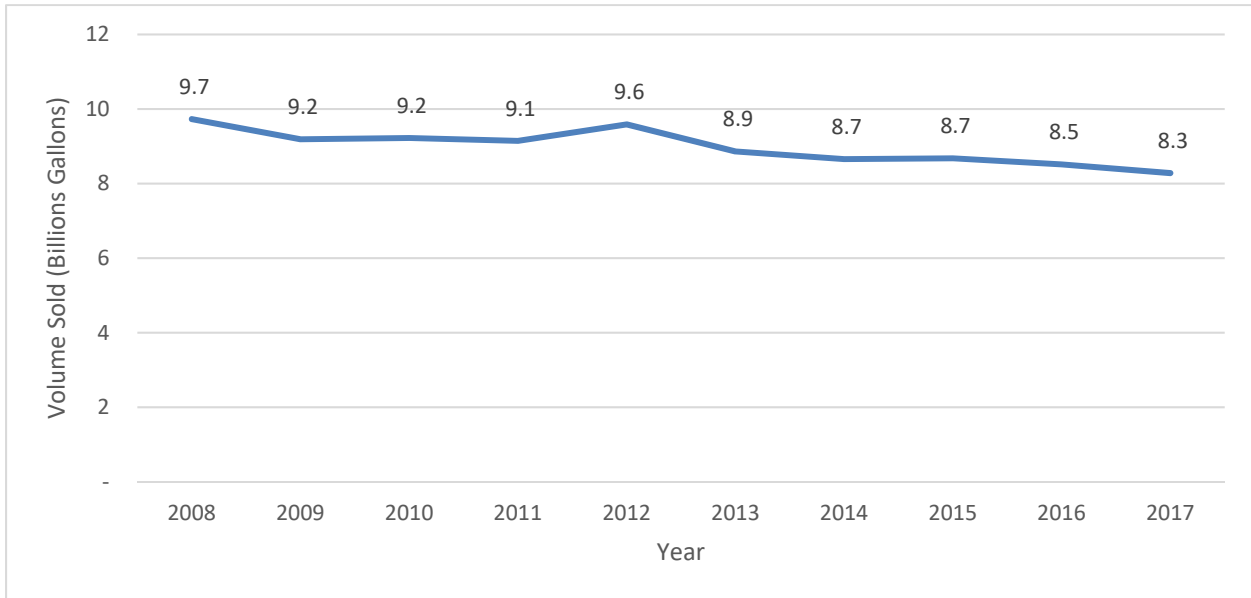
<sup>1</sup> <http://www.climateneeds.umd.edu/reports/American-Water-Works.pdf>. Accessed on December 13, 2018.

<sup>2</sup> <http://www.waterrf.org/PublicReportLibrary/4366.pdf>. Accessed on December 13, 2018.

<sup>3</sup> 2014. <https://www.researchgate.net/publication/277477363>. Accessed on December 14, 2018.



Figure One: Volume of Water Sold



From 2008 to 2017, customer demand fell by 15%. In 2016, Kraft Heinz announced that it would close the Oscar Mayer production facility on Madison’s east side. MWU’s former largest customer has now ceased operation and water purchases. Oscar Mayer’s closing is only a part of the water-use reduction that MWU experienced.<sup>4</sup>

### Baseline Financial Forecast

The baseline financial forecast assumes that water sales fall 0.5% annually in the future. Figure Two shows MWU’s forecast cash flow and cash reserve. Figure Two includes the water rate increase approved in 2018 but does not include further rate increases. This forecast provides a baseline for assessing alternatives, but the baseline forecast is neither feasible nor recommended. Figure Two is based on the forecast in Alternative A explained below; Schedule A has additional detail.

<sup>4</sup> Novak, Bill. January 5, 2017. “Oscar Mayer Closing Dropped Annual Water Usage in Madison, Officials Say”. *Wisconsin State Journal*. [https://madison.com/wsj/news/local/oscar-mayer-closing-dropped-annual-water-usage-in-madison-officials/article\\_3be94011-c8e9-59fe-a0cb-00614b23523d.html](https://madison.com/wsj/news/local/oscar-mayer-closing-dropped-annual-water-usage-in-madison-officials/article_3be94011-c8e9-59fe-a0cb-00614b23523d.html). Accessed December 13, 2018.

**Figure Two: Baseline Forecast of Debt and Cash Reserves**

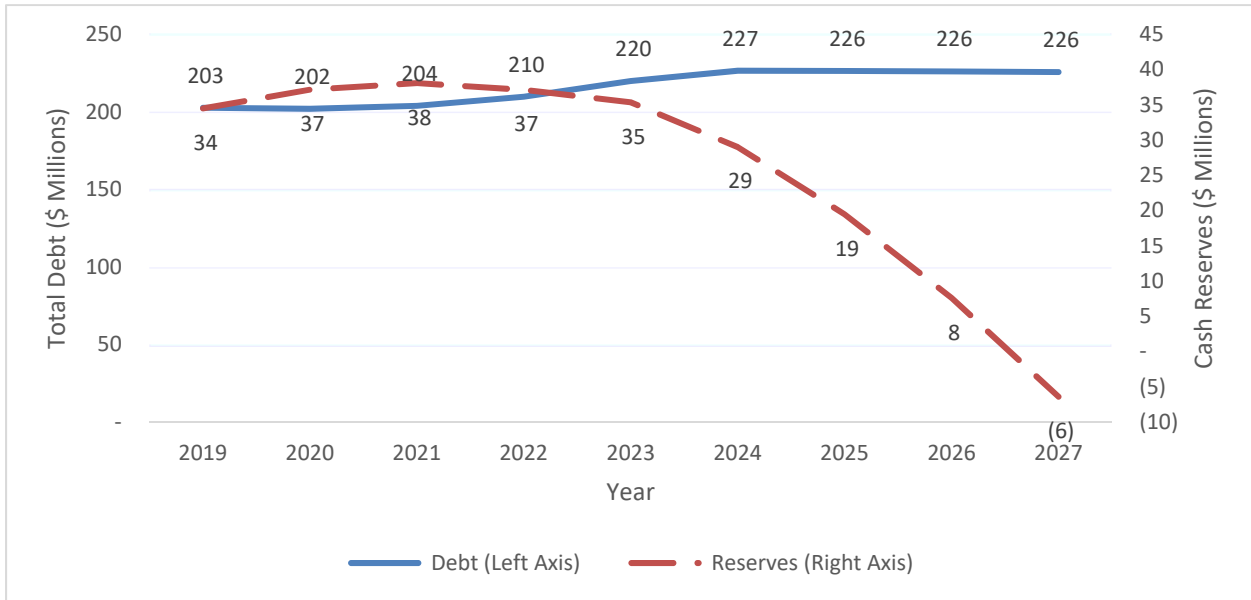


Figure Two shows an unsustainable reduction in cash reserves at the currently authorized water rates. Debt rises about 10% from the current level. The forecast in Figure Two and Alternative A uses MWU’s current ten-year capital budget, which is Attachment 1.

## Financial and Operational Goals

Improving MWU’s financial position depends on several factors, including maintaining and adhering to sound budgeting and financial practices, monitoring financial progress and taking the necessary actions to achieve key performance indicators (KPIs). The combination of these goals will improve the financial position of the water utility over the course of the next decade. The following directives will help achieve the financial and operational objectives outlined in this report:

- Developing a nine-year financial forecast and budget necessary to attain financial and operational goals
- Monitoring capital and operation and maintenance activity to meet budgeted and forecasted goals
- Establishing and monitoring KPIs on a routine basis
- Implementing operational enhancements to achieve efficiencies and reduce costs.

## Goal Development

Madison Water Utility has begun the goal development process by establishing financial and operational goals and setting specific timelines to strive for in future fiscal periods. Water industry benchmarks and best practices inform these goals. Each goal promotes the long-term financial health of MWU and its rate payers. MWU identified the following metrics and set financial goals for each metrics.

## Financial Goals

Exhibit A – Financial Goals

Financial Metric	Benchmark	MWU Goal	Timeline
Infrastructure Investment	Replace critical infrastructure within expected service life	\$136 million	Achieve by 2027
Rate of Return	200 basis points above US 20-year municipal bond rates for a given period	5.00%	Achieve by 2027
Capital Structure (debt to equity ratio)	50% Debt & 50% Equity (Net Assets)	50% Debt / 50% Equity	Achieve by 2032
Debt Coverage Ratio	1.25 x highest outstanding annual principal and interest payment (revenue bond debt only)	1.25x	Achieve Annually
Affordability and Rate Stability	MWU policy O-2D, Affordability states “Annualized Rate Increases” not exceed 9% in any single year, applied from the beginning of the last increase to when new rates become effective	Less than 9% per year	Comply annually

Exhibit A Continued – Cash Reserve Goals

Financial Metric	Benchmark	MWU Goal	Timeline
Operation and Maintenance	Three to six months of operation and maintenance expenses (funded over 18 months beginning in 2019)	\$4,000,000 *	Achieve by 2021
Depreciation (Debt Requirement)	Used to report resources set aside to fund plant renewals and replacement or make up potential future deficiencies in the redemption account - \$750,000 per bond resolution	\$750,000	Achieve Annually
Redemption (Debt Requirement)	Current-year bond principal payment + interest payment - due on January 2 of following year; per bond repayment schedules	\$12,772,842 **	Achieve Annually
Reserve (Debt Requirement)	The lowest of 125% of average future debt service, maximum annual future debt service, or 10% of the par value of outstanding bonds; per bond closing statement	\$17,707,577 **	Achieve Annually
Standpipe Maintenance Reserve	Estimated cost to paint all reservoirs over 20-year useful life – Funded over 20 years	\$11,320,000 total or \$566,000 / yr.	Fully Fund by 2038
Well Rehab Reserve	Estimated cost to rehab 3 wells per year funded over ten years - \$50,000 per well	\$150,000 total or \$15,000 / yr.	Fully Fund by 2028
Main Addition Capital Reserve	One year of capital main additions funded over ten years – Per 2019 capital budget	\$8,000,000 total or \$800,000 / yr.	Fully Fund by 2028

Annual Reserve Funding Goal (Non-debt related; 2021 and beyond) = \$ 1,381,000

Total Reserve Goal (without debt) = \$19,470,000

\*\*\* Total Reserve Goal (with debt) = \$54,700,419

\* Calculation does not include plant or equity (net assets) associated with property contributed to the utility

\*\* Calculation will vary annually based upon current year operations, repayment obligations, or changes in water rate orders

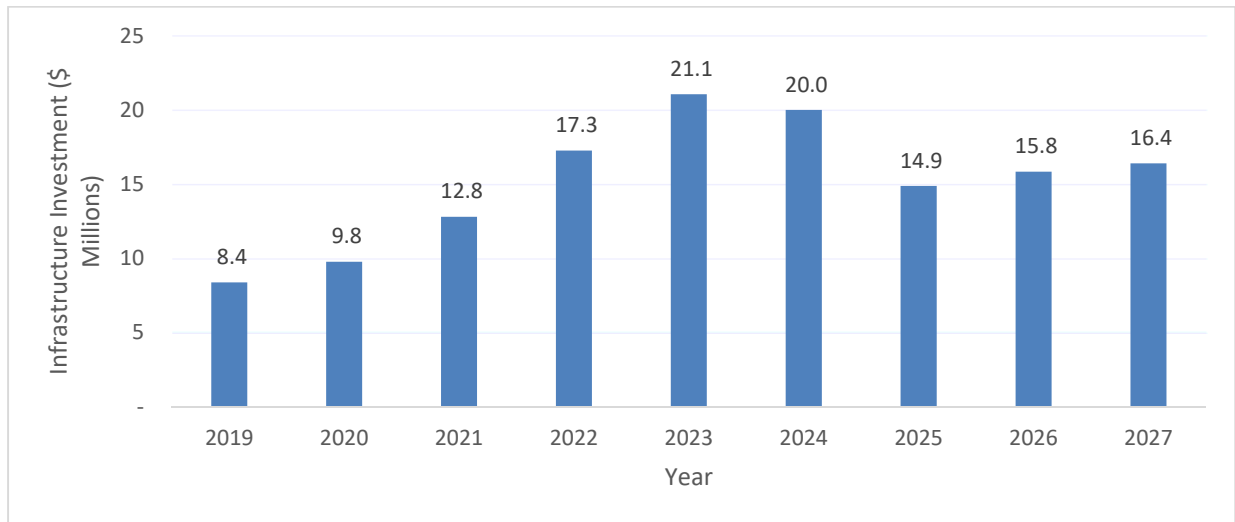
\*\*\* Total cash reserve balances in attached alternatives may differ from reserve goal due to changes in reserve balance associated with changes in forecasted debt levels

**Infrastructure Investment**

The AWWA and American Society of Civil Engineers identify the need for significant investment to maintain adequate water infrastructure.<sup>5</sup> MWU experienced several significant water main breaks in recent years<sup>6</sup>. MWU has undertaken an ambitious program of distribution system investment to reduce main failures and improve service reliability.

Figure Three shows MWU’s capital expenditure goal. The capital budget in Attachment 1 has additional details.

Figure Three: Infrastructure Investment Goal



MWU’s timeline for the infrastructure investment goal is ongoing. Infrastructure will continue to age as MWU meets its investment goal in each year. New infrastructure needs will continue to appear on the horizon.

**Return on Rate Base**

The PSC primarily regulates water rates through the rate of return metric. The following equation shows how the PSC defines rate of return with respect to revenue, costs, and net utility plant.

$$\text{Rate of Return} = \frac{\text{Revenue} - \text{Operating Expense} - \text{Depreciation} - \text{Taxes}}{\text{Net Investment in Utility Plant}}^7$$

<sup>5</sup> ASCE. 2017. “Drinking Water Infrastructure Report Card”. <https://www.infrastructurereportcard.org/wp-content/uploads/2017/01/Drinking-Water-Final.pdf>. Accessed December 14, 2018.

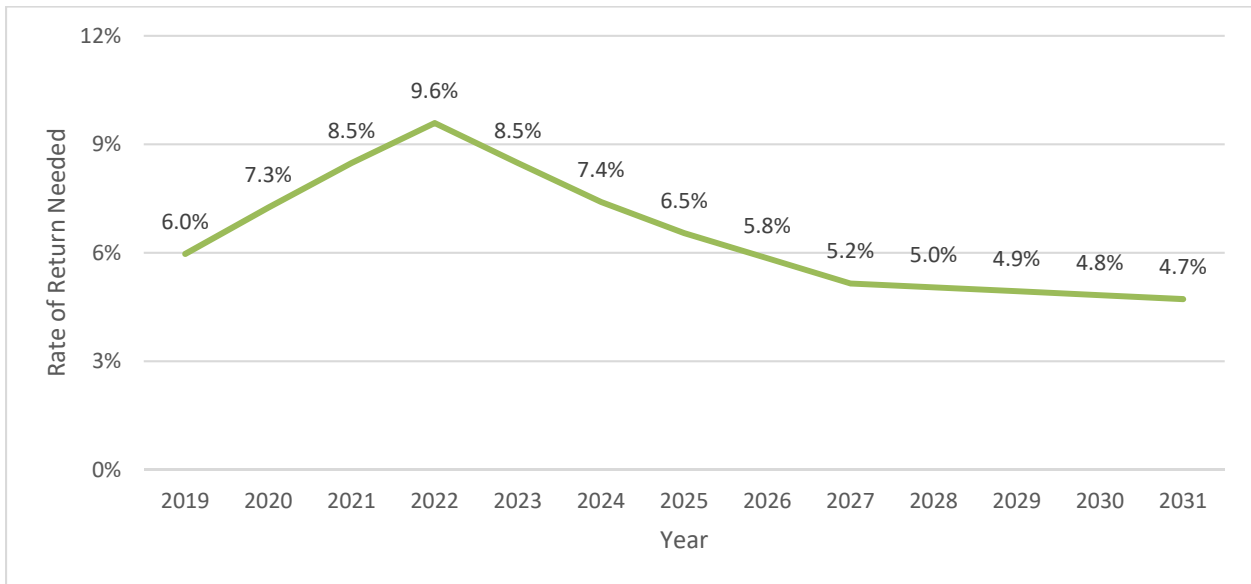
<sup>6</sup> Aadland, Chris. February 5, 2018. “Madison Water Utility Works Overnight to Fix ‘Large’ West Side Water Main Break”. *Wisconsin State Journal*. [https://madison.com/wsj/news/local/madison-water-utility-works-overnight-to-fix-large-west-side/article\\_cad44e8b-3e7b-51b4-8d15-ddb6c1e0cb4e.html](https://madison.com/wsj/news/local/madison-water-utility-works-overnight-to-fix-large-west-side/article_cad44e8b-3e7b-51b4-8d15-ddb6c1e0cb4e.html). Accessed December 14, 2018.

<sup>7</sup> American Water Works Association. 2017. *Manual M1: Principles of Water Rates, Fees, and Charges*. 7<sup>th</sup> edition. Pgs 43-49.

The PSC typically establishes a rule-of-thumb benchmark rate of return that is two percentage points above a representative municipal bond rate. The current benchmark rate of return is approximately 5%. This plan assumes the benchmark rate of return will stay near 5% through 2027. In its 2018 water rate order, the PSC authorized MWU to earn an 8% rate of return. MWU needed the higher rate of return to meet its current debt-service obligation. The PSC’s decision to remove some of MWU’s plant investment increased the rate of return for the same revenue level. In order point 12.a, the PSC ordered MWU to plan to meet its obligation with its rates reduced to the benchmark rate of return. MWU’s financial plan assumes that municipal bond rates remain between 3% and 5%. MWU expects the PSC’s benchmark rate of return to be between 5% and 7%.

MWU set a goal of reducing its rate of return to 5% by reducing the amount and cost of debt. The forecast for the preferred alternative keeps the rate of return below the level the PSC authorized in 2018. Quickly reducing the rate of return would conflict with MWU’s goals of investing in water infrastructure, reducing total debt, maintaining cash reserves, and maintaining debt coverage ratios. Quickly reducing the rate of return will undermine MWU’s efforts to reduce long-term lifecycle cost.

**Figure Four: Goal for Reducing Rate of Return over Time**



Alternative B2 presented below generates the performance shown in Figure Four. Schedule B2 shows additional details.

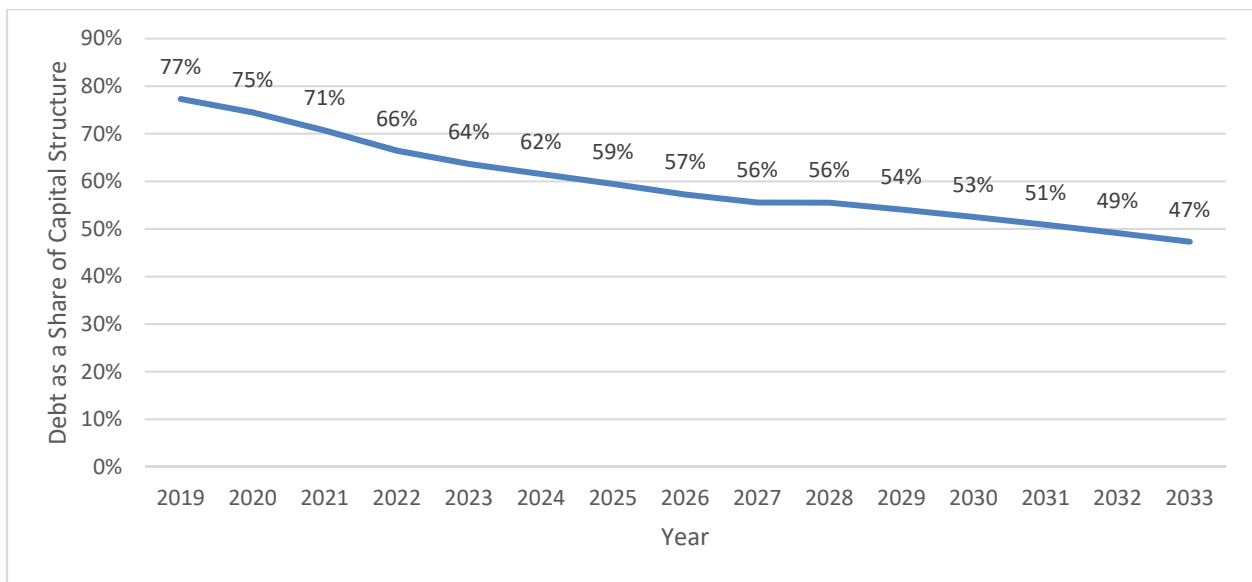
Figure Four shows a rate of return goal above the level the PSC required. Following the recommendation from the *Defining a Resilient Business Model* to adapt financial goals to their specific situation, MWU has determined that a rate of return temporarily above the target level builds cash reserves and reduces the need for borrowing. Reducing borrowing improves MWU’s capital structure. Building cash reserves allows MWU to meet short term needs more effectively.

Capital Structure

MWU has set a goal of using more cash and less debt to finance infrastructure investment. Cash financing costs more in the short term, but it avoids ongoing interest costs. Over a water infrastructure project’s life cycle, cash financing lowers cost. In point 12.a of its water rate order, the PSC ordered MWU to include actions to reduce debt to half of its investment in water infrastructure. Any reduction in MWU’s debt from the baseline forecast would reduce costs over time and benefit water users.

MWU has a goal to reduce debt to 50% of its capital structure. Alternative B2 presented below produces the performance shown in Figure Five. Schedule B2 has additional details.

Figure Five: Capital Structure Goal



MWU can progress to this goal by cash funding more future construction projects. This reduces the amount of future borrowing while MWU pays down existing debt. MWU must navigate a tradeoff between its debt goal and its infrastructure investment goal. Debt financing can accelerate infrastructure investment but delays its achievement of the debt-reduction goal.

Cash financing construction and reducing debt depend on timely approval of water rate increases. New regulatory policies to accelerate recovery of plant investment would allow MWU to reduce debt more quickly. Timely rate approvals and accelerated recovery of plant investment would allow MWU to achieve its goal more quickly, in accordance with the PSC’s 2018 order.

### Debt Coverage

Water service requires significant capital investment. Access to credit on affordable terms is critical to financing the capital investment needed to maintain a water system.<sup>8</sup> A utility's ability to borrow in the future depends on its ability to generate revenue in excess of debt obligations. MWU captures this business need in a debt-coverage goal.

MWU's goal is to have annual net revenue available for debt service of at least 125% of the highest annual outstanding principal and interest payment in the remaining debt repayment schedule. The 125% goal is the minimum required under MWU's bond agreements.

With its rate increase approved on November 1, 2018, MWU expects to exceed the goal in 2019. Maintaining revenue above the goal level will require ongoing effort and routine rate increases.

### Affordability and Rate Stability

The Madison Water Board's water rate affordability policy is Attachment 2 to this plan. MWU's goal is to keep growth in water rates below 9% annually. The effect on ratepayers is more predictable future bills that they can plan for better. A key obstacle to this goal is MWU's need for revenue to fund capital replacements and improve its finances.

### Cash Reserve

AWWA has two documents that provide key insight into developing cash-reserve targets and policy: its report on cash-reserve policies<sup>9</sup> and its manual on best financial practices for water utilities.<sup>10</sup> A cash-reserve policy is critical for a utility's financial wellbeing. Cash reserves allow utilities to deal with emergency repairs, shortfalls in revenue, and other challenges.

The University of North Carolina's EFC<sup>11</sup> recommends best financial practices to keep debt costs low. Credit-rating agencies award better ratings to utilities that have cash reserves to readily weather financial shocks. A written cash-reserve policy is an essential tool for building a cash reserve and demonstrating financial resilience.

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<sup>8</sup> Ibid.

<sup>9</sup> 2018. "Cash Reserves Policy Guidelines".

<https://www.awwa.org/Portals/0/files/resources/water%20utility%20management/AWWACashReservePolicy.pdf>. Accessed December 14, 2018.

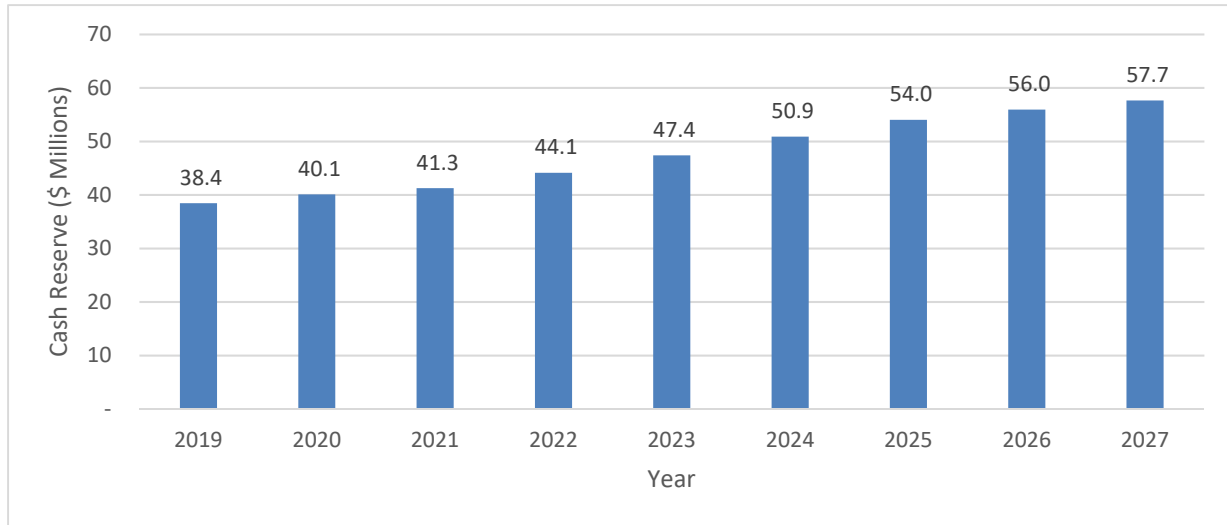
<sup>10</sup> 2017. *Manual of Water Supply Practices, M1: Principles of Water Rates, Fees, and Charges*. 7<sup>th</sup> edition.

<sup>11</sup> Tiger, Mary. 2013. "More than Meets the Metric: Credit Rating Considerations for Water Utilities".

<http://efc.web.unc.edu/2013/11/26/more-than-meets-the-metric-credit-rating-considerations-for-water-utilities/>. Accessed December 13, 2018.



Figure Six: Cash Reserve Goal



MWU forecasts that it will achieve its cash reserve target in 2019. MWU does not expect to exceed the goal by much, so revenue or expense variability could produce a shortfall. Maintaining the target trajectory for future cash reserves will require ongoing effort.

### Operational Goals

To achieve the specific financial goals addressed above, MWU plans several operational improvement goals. In January 2019, MWU received a final “Plan of Action and Business Process Report” from the Government Finance Officers Association (GFOA) which identifies several recommendations to improve the water utility’s operations. The utility is currently evaluating each of the recommendations and determining the resources needed to achieve each item and its feasibility for implementation. Several of the points identified in the GFOA report were addressed with the water utility’s implementation of the City’s MUNIS general ledger accounting system effective January 1, 2019 and planned implementation of MUNIS utility billing and work order modules in 2021 and 2022. A copy of the final GFOA report is included as Attachment 3.

Additionally, the water utility is developing a robust internal reporting system for use both internally for financial analysis and to present to the City finance department and Water Utility Board. Periodic budget-to-actual reports, KPIs, cash flow analysis, and financial forecasts will be used as tools when presenting financial results to aid in the decision making and budgeting processes. These directives will be championed by the water utility chief financial officer hired in January 2019. MWU will implement these changes by the end of the fourth quarter of 2019. MWU anticipates that a performance metric dashboard in the new general ledger software will be complete for use in 2019.

Combined, these goals will assist the water utility in making informed business decisions and set a clear path to financial sustainability. The utility’s analysis began with developing a nine-year financial forecast offering several alternatives to achieve its financial goals. Each alternative was

created for the purpose of presenting various rate recovery mechanisms and their potential impact on customers and the utility's financial condition over the forecasted period. A summary and analysis of the forecasted results for each alternative are included in body of this report with supporting detail included in the schedules and attachments. The schedules are an integral part of this financial plan and should be used in conjunction with the subsequent narrative. Key financial data used in the high-level analysis is highlighted and bolded for ease of use in the attachments at the end of this report.

## Evaluating Actions to Meet Financial Goals

MWU's analysis of its nine-year financial forecast began with developing a baseline forecast (Alternative A). Alternative A is based on the most recent preliminary pre-close operating results as of December 2018. Other alternatives modify the baseline forecast to reflect the expected impact of changes to meet financial goals. Potential obstacles and customer impacts are included with each alternative and summarized in the Index of PSC Questions and MWU Responses to tie to MWU's financial and operational goals.

### Alternative A - Baseline Forecast

The detailed nine-year financial forecast for 2019 through 2027 began using historical and budgeted financial data from 2018 and 2019 and audited financial statements from the previous three years. Projections beyond the nine-year forecast are less detailed and more for conceptual purposes of longer-term analysis. The forecast uses similar assumptions and data used in the 2017 rate case. It uses currently adopted capital and operating budgets for 2019. The initial forecast is used as a baseline to develop an understanding of the direction the utility is heading at present rates. Baseline metrics establish MWU's current standing relative to the goals described above. Adjustments to the baseline are presented as alternatives to demonstrate how changes in variables affect the forecast and related metrics over the nine-year forecast period. MWU presents these alternatives to comply with the PSC's request for the utility to submit a Financial Improvement Plan (PSC reference number 356206).

The initial baseline nine-year financial forecast as presented in Alternative A includes several key assumptions. Listed below are the key assumptions.

- No rate increases for the next nine years – operating results at current rate design
- Water sales fall by 0.5% annually consistent with changes in the most recent six years on average
- Cost increases of 3% inflationary adjustments annually
- Capital budget consistent with water utility ten-year capital plan and Infrastructure Management Plan through 2040 – funded through debt only as cash needs are inadequate

MWU developed and continually updates an extensive Infrastructure Management Plan for foreseeable infrastructure and equipment needs. MWU provided the Infrastructure Management Plan to the PSC during the completion of the 2017 rate case (PSC reference numbers 342807 and 342808). The nine-year capital expenditure forecast in this plan comes from the Infrastructure Management Plan. The Infrastructure Management Plan identifies crucial infrastructure throughout the system. MWU holds periodic internal project prioritization meetings to adjust the capital budget and determine financial resource availability. The plan includes routine main replacements, which are largely driven by city-wide street reconstruction plans. A more detailed ten-year capital plan is revised annually and included in Attachment 1 as currently adopted.

Baseline Forecast Summary of Results

The baseline nine-year financial forecast as presented does not provide sufficient revenue or cash flows for the utility to consistently meet all financial and timeline goals established in Exhibit A. The cash shortages experienced during 2017 would continue and capital funding needs would require additional debt which contribute to the shortfall in the goals. Capital structure improvement and rate of return (ROR) goals would not be met for the forecasted period or foreseeable future due to the lack of improvement from 2017 metric results. To address these shortfalls, the utility will need to increase revenue and manage future operating and capital budgets to reduce the future need for additional debt and cash outflows. See Schedule A attached to this plan which describes likely outcomes of Alternative A in greater detail. *Alternative A is not a likely path to pursue but instead is a reference point to use in the development of the financial plan.*

Table A: Key Outcomes for Baseline Forecast

<b>Alternative A: Baseline; No Surcharge; No Rate Increases</b>									
	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	-	-	-	-	-	-	-	-
General Service Rate Increases	detailed	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rate of Return	6.0%	5.5%	4.9%	4.2%	3.3%	2.5%	1.9%	1.3%	0.8%
Debt Issuances (Millions)	-	11	14	19	24	22	16	17	18
Debt Share of Capital Structure	77%	76%	75%	74%	75%	76%	77%	78%	79%
Cash Reserve (Millions)	34	37	38	37	35	29	19	8	(6)
Debt Coverage	2.91	2.49	2.27	2.03	1.81	1.62	1.46	1.31	1.20

Potential Obstacles

Under this alternative, potential obstacles to achieving financial goals are inadequate revenue producing shortfalls in cash. Insufficient cash requires debt funding above the desired level, which would negatively affect the utility’s capital structure goals.

Impact on Customers

Lower short-term rates compared to alternatives. Average residential water bills would remain at the current level of \$26.52 per month. Long-term, significant rate increases. Because MWU would hold rates constant for a long period, significant rate increases would be unexpected for customers. Significant rate shock. Capital infrastructure replacement needs would not be met, likely increasing interruptions of service from main leaks and breaks.

Alternative B1 – Biannual Routine Rate Increases

Compared to Alternative A, Alternative B1 increases water rates in biannual 9% rate adjustments effective January 2020 through 2025. The assumed 9% rate increases provide a smooth path for increasing revenue while meeting the financial goals. MWU plans to complete a conventional rate case biannually. Capital and operating budgets remain consistent with the baseline forecast. Schedule B1 attached to this plan provides the details of this alternative. Alternative B1 meets or approaches the financial goals outlined in Exhibit A.

ROR – Goal of 5% reached in 2043, 16 years after target timeline

Capital Structure – Goal of 50/50 reached in 2031, within target timeline

Debt Coverage – Met every year beginning in 2019

Cash Reserves – Adequate annual operating fund, well rehab, standpipe & main replacement reserves met in 2020 but fall short for eight years (2022 – 2029) but met in 2030 with full funding

Under this alternative the utility can decrease its capital structure to near desired levels, build adequate cash reserves, and meet debt coverage to goal levels within a thirteen-year period. The rate of return remains higher than goal levels. MWU needs the rate of return temporarily above the target level to reduce debt in its capital structure and build cash reserves. The rate of return would decrease beginning in 2028 and beyond. Less debt would be required beyond the forecast period as reserves would be used to fund routine main replacements and high-cost routine maintenance projects. *This is one alternative preferred path for the utility to pursue for its financial planning.*

Table B1: Key Outcomes for Biannual Rate Increases

<b>Alternative B1: Biannual Rate Increases</b>									
	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	-	-	-	-	-	-	-	-
General Service Rate Increases	detailed	9.0%	0.0%	9.0%	0.0%	9.0%	0.0%	9.0%	0.0%
Rate of Return	6.0%	7.3%	6.6%	7.6%	6.6%	7.4%	6.5%	7.6%	6.9%
Debt Issuances (Millions)	-	10.74	10	13	20	18	15	12	14
Debt Share of Capital Structure	77%	75%	72%	69%	68%	65%	63%	60%	57%
Cash Reserve	34	41	42	43	46	50	53	55	56
Debt Coverage	2.91	2.84	2.59	2.67	2.44	2.52	2.30	2.39	2.25

**Potential Obstacles**

MWU has not determined the size of the eligible rate increase. Processing time for a conventional rate review is significant. Variations from forecast expectations, e.g. sales falling more than forecast or unexpected future bond market conditions, may be experienced with changes in economic- and city-driven conditions. Deviations from forecasted expectations may necessitate larger rate increases that violate MWU’s water rate affordability goal.

This approach requires the PSC to authorize a rate of return above its target level. Exceeding the target level in 2019 to 2027 allows MWU to build cash reserves, reduce debt, and smoothly transition to higher future rates. Reducing debt service costs would allow MWU to meet its future obligations while reducing its rate of return to the benchmark level.

**Impact on Customers**

Although necessary, rate increases may negatively impact customer perception of the utility but would provide a smoother, more predictable path for future rate increases. Ratepayers could

better plan for and afford these increases. Smaller, more regular increases would increase rates in the short term but decrease costs and rates in the long term. An average residential customer’s water bill would increase from \$26.52 per month to approximately \$35.96 per month in 2027 after accounting for the reduced volume of water use.

**Alternative B2 – Annual Rate Increases**

Alternatively, MWU could accelerate the timing of rate increases in Alternative B1 to an annual 9% increase effective January 2020 for three consecutive years through 2022. All other assumptions and inputs are consistent with those of Alternatives A and B1 as summarized in attached Schedule B2. The modification to annual increases expedites achievement of MWU’s financial goals.

ROR – Goal of 5% met by 2028, one year after the target timeline

Capital Structure – Goal of 50/50 met in 2030, within target timeline

Debt Coverage – Met every year beginning in 2019

Cash Reserves – Adequate Operating fund, well rehab, standpipe & main replacement reserves maintained beginning in 2020 and met within timeline of 2027

The change to earlier and more frequent rate changes in the near-term would expedite achievement of the rate of return and cash reserve funding goals. MWU’s capital structure would reach the desired level by the target timeline. Adequate cash reserve funding reduces the need for new debt in future forecasted periods. MWU would meet its financial goal of annual single-digit rate increases. *This is one alternative preferred path for the utility to pursue for its financial planning. MWU plans to pursue a combination of Alternatives B1 and B2 in future rate cases. The timing of rate increases will depend on the duration of PSC rate proceedings and MWU’s financial performance as the plan develops. A combination of Alternatives B1 and B2 would likely yield the most strategic results.*

**Table B2: Key Outcomes for Annual Rate Increases**

<b>Alternative B2: Annual Rate Increases</b>									
	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	-	-	-	-	-	-	-	-
General Service Rate Increases	detailed	9.0%	9.0%	9.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rate of Return	6.0%	7.3%	8.5%	9.6%	8.5%	7.4%	6.5%	5.8%	5.2%
Debt Issuances (Millions)	-	11	8	10	17	18	15	12	14
Debt Share of Capital Structure	77%	75%	71%	66%	64%	62%	59%	57%	56%
Cash Reserve (Millions)	34	41	44	47	52	57	60	58	55
Debt Coverage	2.91	2.84	2.95	3.04	2.80	2.57	2.34	2.13	2.00

**Potential Obstacles**

Variations from forecast expectations may be experienced with changes in economic and city-driven conditions. Fluctuations from forecasted expectations in revenues and capital forecasts

may lead to uneven rate increases causing MWU to fall short of its financial goal to comply with its Affordability policy. Public support would also be challenged in this alternative due to more frequent rate increases in the short-term.

### Impact on Customers

Like the impacts identified in Alternative B1, near-term, more frequent rate increases would have a greater economic effect on ratepayers in the short-term. A succession of rate increases may impact public support and willingness to accept MWU's financial goals. An average residential customer's water bill would increase from \$26.52 per month to approximately \$32.99 per month in 2027 after accounting for the reduced volume of water use.

### Alternative C – Surcharge with Level Debt

The PSC directed MWU to evaluate a surcharge as a tool for improving MWU's financial condition. This alternative addresses a hypothetical situation in which MWU applies a monthly surcharge per equivalent meter on customer bills along with routine rate increases to meet its financial goals. The surcharge values and timing of rate increases generate results similar as those presented in Alternative B1 and B2 including similar debt requirements. This alternative meets MWU's financial goals.

ROR – Consistent achievement of 5% throughout nine-year forecast period

Capital Structure – Goal of 50/50 met in 2030, within target timeline

Debt Coverage – Met every year beginning in 2019

Cash Reserves – Adequate Operating fund, well rehab, standpipe & main replacement reserves approached or maintained beginning in 2020 and met within timeline of 2027

A hypothetical surcharge would provide MWU with additional revenue and cash flows to fund operations and cash reserves not provided through a conventional rate case. In this alternative, the surcharge would provide adequate cash flows in the near-term (2019 through 2021) and consistently by 2027. MWU would require rate increases beginning in 2022 to meet increasing capital needs included in its nine-year capital forecast. MWU would also achieve its affordability goal. *This is a hypothetical alternative to comply with the PSC's request and would not be a desired path to meet the utility's financial goals.*

**Table C: Key Outcomes for Surcharges with Level Debt**

<b>Alternative C: Surcharge with Level Debt</b>									
	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	3.67	3.67	4.33	4.33	5.17	5.17	5.17	5.17
General Service Rate Increases	detailed	0.0%	0.0%	9.0%	0.0%	9.0%	0.0%	5.0%	0.0%
Rate of Return	6.0%	5.5%	4.9%	5.8%	4.9%	5.6%	4.9%	5.1%	4.4%
Debt Issuances (Millions)	-	11	10	13	20	18	15	12	14
Debt Share of Capital Structure	77%	74%	72%	69%	67%	65%	62%	59%	57%
Cash Reserve	34	41	42	44	48	52	57	57	58
Debt Coverage	2.91	2.49	2.27	2.35	2.14	2.22	2.02	1.98	1.86

Potential Obstacles

The PSC has not established a surcharge template for water utilities. It is unclear what surcharge template the PSC would approve. Assuming surcharges do not increase MWU’s general service rates, MWU would need larger future percentage increases in general service rates. An alternative of near-term increases in general service rates reduces the future increases needed to achieve the same level of future revenue.

Impact on Customers

Ratepayers would experience impacts like the rate increase Alternative in B1 and B2. While a surcharge would increase revenues and cash flows each year, it would lessen the cumulative increase in the long run compared to a conventional rate increase. Depending on how it is reported, adding a surcharge separate from general service rates would add complexity to water utility bills and could confuse ratepayers. An average residential customer’s water bill would increase from \$26.52 per month to \$31.78 with a \$5.17 monthly surcharge in 2027. This calculation includes the effect of falling water consumption.

**Alternative D – Surcharge with Falling Debt**

This alternative applies surcharges and rate increases like Alternative C but modifies the surcharge to increase cash funding and decrease the need for additional debt issuances as forecasted in Alternatives A – C. To achieve the increase in cash funding, the surcharge would be higher in Alternative D than in Alternative C.

ROR – Consistent achievement of 5% goal by 2020 and remaining forecast period

Capital Structure – Goal of 50/50 met in 2025, within timeline

Debt Coverage – Met every year beginning in 2019

Cash Reserves – Adequate Operating fund, well rehab, standpipe & main replacement reserves maintained beginning in 2019 and met in 2027

Increasing the hypothetical monthly surcharge from Alternative C and slightly modifying the rate increase schedule would accelerate achievement of the financial goals of the utility. The



additional revenue generated from the increased surcharge would increase cash reserves over the nine-year forecast period and would also decrease the need for future debt borrowings in the later years of the forecast. The decrease in the need for debt to fund capital projects would assist the MWU in achieving the desired capital structure in seven years versus approximately thirteen years as presented in Alternatives B1, B2 & C. A desired rate of return would be maintained throughout the nine-year forecast period and compliance with the Affordability policy would be met. *This is a hypothetical Alternative to comply with the PSC’s request and would not be a desired path to meet the utility’s financial goals.*

Table D: Key Outcomes for Surcharges with Falling Debt

<b>Alternative D: Surcharge with Falling Debt</b>									
	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	9.67	9.67	11.90	11.90	12.05	12.05	12.33	12.33
General Service Rate Increases	detailed	0.0%	0.0%	6.6%	0.0%	9.0%	0.0%	9.0%	0.0%
Rate of Return	6.0%	5.5%	4.9%	5.4%	4.5%	5.2%	4.4%	5.4%	4.7%
Debt Issuances (Millions)	-	-	4	5	11	8	4	-	1
Debt Share of Capital Structure	77%	72%	67%	61%	57%	52%	47%	41%	36%
Cash Reserve	34	37	40	43	46	50	53	55	56
Debt Coverage	2.91	2.49	2.34	2.36	2.19	2.32	2.15	2.29	2.20

Potential Obstacles

The PSC has not established a surcharge template for water utilities. It is unclear what surcharge template the PSC would approve. Assuming surcharges do not increase MWU’s general service rates, MWU would need larger future percentage increases in general service rates. An alternative of near-term increases in general service rates reduces the future percentage increases needed to achieve the same level of future revenue.

Impact on Customers

Ratepayers would experience impacts similar to the rate increase Alternative in B1, B2 and C. While a surcharge would increase revenues and cash flows each year, it would lessen the cumulative increase in the long run compared to a conventional rate increase applied on a consistent basis. Depending on how it is reported, adding a surcharge separate from general service rates would add complexity to water utility bills and could confuse ratepayers. An average residential customer’s water bill would increase from \$26.52 per month to \$32.27 with a \$12.33 monthly surcharge in 2027.

Alternative E – Expense Depreciation without Surcharge

In its 2017 water rate application, MWU requested PSC approval of accelerated recovery of distribution system investments. The PSC previously approved this ratemaking approach for Marshfield Utilities in docket 3240-WR-106. The PSC calls the approach *expense depreciation*.

PSC staff stated in the past that MWU is a good candidate for expense depreciation. Accelerated recovery of distribution system investments would facilitate MWU’s policy of proactive investment in its water system and allow routine main replacements to be funded with cash as

opposed to debt. However, MWU withdrew its previous request for expense depreciation because of time constraints and the high costs of delaying its water rate increase.

Under Alternative E, expense depreciation accelerates the recovery of investment in new water mains beginning in 2020. Biannual rate increases would be required to fund operations and maintain adequate cash flows. Schedule E provides the detail forecast using expense depreciation.

ROR – Goal of 5% not met in the forecasted period

Capital Structure – Goal of 50/50 met in 2024, within target timeline

Debt Coverage – Met every year beginning in 2019

Cash Reserves – Adequate Operating fund, well rehab, standpipe & main replacement reserves maintained beginning in 2019 and met in 2027

Expense depreciation in this alternative allows the reduction of future borrowings to fund routine main replacement projects and fund cash reserves to goal levels within the forecasted period.

*Like the surcharge Alternatives C & D, expense depreciation methodology is presented for purposes of comparative analysis and is not a preferred path to meet the utility's financial goals.*

Table E: Key Outcomes for Expense Depreciation

Alternative E: Expense Depreciation without Surcharge									
	2019	2020	2021	2022	2023	2024	2025	2026	2027
Monthly Surcharge per Equivalent Meter	-	-	-	-	-	-	-	-	-
General Service Rate Increases	detailed	9.0%	0.0%	7.5%	0.0%	8.1%	0.0%	5.4%	0.0%
Rate of Return	6.0%	7.4%	7.0%	7.9%	7.0%	7.9%	7.2%	7.8%	7.2%
Debt Issuances (Millions)	-	2	6	9	13	11	7	5	6
Debt Share of Capital Structure	77%	72%	68%	64%	60%	56%	52%	47%	43%
Cash Reserve	34	37	40	43	46	50	53	55	56
Debt Coverage	2.91	2.84	2.65	2.70	2.48	2.57	2.38	2.39	2.28

Potential Obstacles

There is uncertainty regarding the complexity of a rate application using expense depreciation, which may lead to lengthy proceedings and delays in application processing. This financial plan anticipates the submittal of a test year 2019 conventional rate application in May 2019 in order to have resultant rate modifications effective for 2020. Any delays in a rate case proceeding could defer MWU's path to its financial goals.

Impact on Customers

If the PSC approved expense depreciation for all MWU's routine water main replacements, water rates would increase significantly. Alternative E shows expense depreciation for half of MWU's investment in water mains to mitigate the short-term rate impact. Expense depreciation would reduce rates in the medium term by reducing the need to debt-finance infrastructure

investment. If expense depreciation is recovered primarily in volume rates, it would disproportionately impact a small number of high-volume water users. An average residential customer’s water bill would increase from \$26.52 per month to approximately \$38.25 per month in 2027 after accounting for the reduced volume of water use.

**Alternative F – Expense Depreciation with Surcharge**

This method takes the concepts in Alternatives C through E and modifies the monthly surcharge and periodic rate increases to meet MWU’s financial goals.

ROR – Consistent achievement of 5% goal by 2020 and remaining forecast period

Capital Structure – Goal of 50/50 met in 2025, within target timeline

Debt Coverage – Met every year beginning in 2019

Cash Reserves – Adequate Operating fund, well rehab, standpipe & main replacement reserves maintained beginning in 2019 and met in 2027

Combining increased revenues from a surcharge along with expense depreciation allows MWU to reduce rate increases in the near term (1 to 3 years) but still requires rate increases in the long term (5 to 10 years). The surcharge component increases cash reserves while reducing the need for new debt to fund capital projects. As a result, capital structure and rate of return goals are met sooner than other alternatives. Expense depreciation further reduces the need for new debt for capital funding contributing to the improved capital structure metric. Cash reserves are fully funded throughout the forecast period. *While this Alternative achieves MWU’s financial goals most quickly, it is a high-risk approach. It is an unlikely scenario to use two uncertain rate making options (surcharges and expense depreciation) rarely, if ever, employed by the PSC. This is not a desired path to meet the utility’s financial goals.*

Table F: Key Outcomes for Expense Depreciation with a Surcharge

<b>Alternative F: Expense Depreciation and Surcharge</b>									
	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	3.67	3.67	6.00	6.00	6.00	6.00	6.00	6.00
General Service Rate Increases	detailed	0.0%	0.0%	2.5%	0.0%	7.8%	0.0%	7.0%	0.0%
Rate of Return	6.0%	5.6%	5.1%	5.0%	4.2%	4.9%	4.2%	5.0%	4.4%
Debt Issuances (Millions)	-	2	6	9	13	11	7	5	6
Debt Share of Capital Structure	77%	72%	68%	64%	60%	56%	52%	47%	43%
Cash Reserve	34	38	40	43	46	50	52	55	57
Debt Coverage	2.91	2.49	2.32	2.20	2.01	2.08	1.92	1.97	1.87

**Potential Obstacles**

This alternative combines two unconventional approaches to water rate setting. The added complexity to MWU’s rate cases would produce uncertainty and the potential to prolong rate application processing.

### Impact on Customers

Ratepayers would experience water rate increases and an increase in the complexity of their water bills. An average residential customer's water bill would increase from \$26.52 per month to \$34.41 with a \$6.00 surcharge in 2027.

### Actions to Address Variations in Forecasted Results

The alternatives presented in this report include several assumptions associated with long-range operating and capital budgets based upon currently known data. While budgets are created in the current year for anticipated projects, MWU and the Madison Water Board may modify these budgets in the future to address infrastructure needs and improve MWU's financial position. Specifically, operating budgets may be modified to reflect changes in overtime and salaries to reduce near-term costs. MWU may reduce capital budgets to decrease the need for additional borrowings in Alternatives A through F beginning in 2021 through 2027. These budgets could be reduced to 2019 levels of \$8.4 million to improve capital structure and cash reserve funding goals and reduce the need for future rate increases as well. MWU may integrate these changes into Alternatives B1 and B2 to further improve its finances.

Rather than fund infrastructure investment at its planned rate, MWU could scale back investment. Delaying nonessential projects could save money, but neglecting critical infrastructure would likely be costly in the long run. The risk of main breaks would rise, and reactive fixes would increase construction costs compared to proactive routine replacements. Aging water mains would leak more water, reducing MWU's efficiency.

The alternatives in this report were derived to approach or attain all financial goals identified in Exhibit A within their target timelines. Alternatives B1 and B2 present the most plausible direction for MWU to meet its financial goals. Included in each option is the annual funding of operating and capital cash reserves at pre-determined levels to eliminate the long-term need for borrowing for routine replacements and maintenance. While these cash reserve policies are directed towards sound, long-term financial management and are not overly aggressive, MWU may prioritize other financial goals presented in this report. For example, MWU may reduce funding for the main addition cash reserve or the standpipe maintenance reserve if necessary to free cash for other critical needs. This tactic could free up close to \$1.4 million annually in Alternatives A through F for use in current year operations or offset future rate increases or borrowing each year. This financial plan will allow MWU to make these decisions in the context of tradeoffs with the framework of financial and operating goals. The water utility will attentively monitor its cash flows and determine availability for cash reserve funding.

In a phone discussion in January 2019, PSC staff presented an option to Madison Water Utility of a cash infusion from other City of Madison funds. Currently, MWU does not consider this solution likely. A cash infusion would improve MWU's financial metrics. It would temporarily delay the need for rate increases by providing cash for operating and capital needs. However, city funds are managed to maintain adequate reserves and preserve bond ratings. Enterprise funds of the city are created to be self-sustaining business units with minimal assistance from the City of Madison. Utility management will present this option to City finance personnel and discuss potential action, if any, in February 2019.

MWU will consider the impact that the alternatives in this plan would have on the public's trust in MWU. MWU's success in implementing this plan will depend on timely PSC decisions that allow MWU to generate enough revenue to strengthen its finances. MWU will provide timely and effective communication to its ratepayers as information and decisions become available. This communication will be made through monthly Water Board or Common Council meetings and other means deemed necessary to disseminate information to the general public. MWU places a high importance on keeping its ratepayers and the public informed on its operations and providing insight into the decision-making process.

## Operational Initiatives

The following initiatives review and alter MWU's business processes. Unlike the initiatives above, they do not have an immediate financial impact. These initiatives would likely generate benefits over time. This addresses the PSC's requirement in order point 12.b for MWU to identify operational adjustments.

MWU is an enterprise fund of the City of Madison. Many of MWU's operational and functional processes are managed by the city as a whole. As a result, MWU may be limited in the input they can provide regarding their financial condition. As an example, street and related main reconstruction projects are typically planned at the city-wide level without an emphasis on MWU's main replacement priorities. Madison finance charges MWU for its portion of a project and deducts cash from accounts. This process decreases capital spending control for the water utility during the budgeting process. MWU's 2019 and 2020 capital budgets call for replacements of water main only and does not include other infrastructure projects. Infrastructure projects have been delayed to 2022 until MWU can reestablish cash balances and enact this financial improvement plan. Between now and 2040, MWU plans to limit water main replacements to 400 miles of priority mains installed from 1945 through 1970. MWU has replaced approximately 100 miles of this main through 2017 and will continue to do so as capital funding allows. MWU will work more closely with the City of Madison beginning in 2019 to address project and main replacement prioritization.

### Hire Chief Financial Officer

MWU hired a chief financial officer (CFO). The CFO started on December 28, 2018.

### Operational Impacts

Having a CFO will improve forecasting, cash flow management, debt management, and investment of reserves. A CFO will coordinate the annual financial audit, oversee billing to customers, and oversee regulatory interaction. This person will promote decision making that improves MWU's financial metrics, and the CFO will work to proactively identify and address risks.

### Ratepayer Impacts

Ratepayers will pay the CFO's salary and benefits. However, improving the management of debt, reserves, and cash flow offers opportunities to more than offset the labor cost. Events like debt issuance, forecast development, and rate increases are infrequent and high-consequence, so they merit extra attention and expertise.

### Obstacles and Risks

MWU will need to fit the new CFO role into existing roles and relationships. The new position does not change legal or regulatory constraints or obviate the need to invest in infrastructure.

## GFOA Business Process Review

In 2018, MWU contracted the Government Finance Officers Association (GFOA) Research and Consulting Center to review MWU's business processes and recommend improvements. GFOA's report analyzed business processes for generating financial reports, accounting for capital assets, managing accounts receivable, managing vendors, and other business processes. The GFOA report is Attachment 3 to this plan.

### Operational Impacts

GFOA's recommendations would reduce redundancies and complexity. The recommendations would reduce accounting and record-keeping obstacles for MWU to comply with PSC requirements.

### Ratepayer Impacts

Ratepayers bore no cost of the GFOA process review since the City of Madison general fund paid for the study. Assuming MWU successfully implements the recommendations, ratepayers will benefit from efficiencies produced from simplified record keeping and modern, adequate accounting systems.

### Obstacles and Risks

GFOA determined that Wisconsin municipalities have difficulty accommodating the PSC-required chart of accounts within their accounting software. MWU has maintained Microsoft Dynamics accounting software to accommodate PSC requirements. Implementing GFOA's recommendations will require significant coordination between MWU and City of Madison staff.

## Consolidate MWU's Accounting System with the City of Madison's

The City of Madison uses Munis enterprise resource planning software from Tyler Technologies. MWU currently uses Munis to interact with city systems. MWU also maintains separate accounting records in Microsoft Dynamics to meet regulatory reporting requirements.

As identified in the January 2019 GFOA Plan of Action and Business Process Report attached to this financial plan, beginning January 2019 MWU implemented the City of Madison's general ledger and accounting system to avoid double entering transactions into two accounting systems. The City of Madison's general ledger system follows governmental fund accounting principles and requires several work-around and reconciliation procedures to generate data necessary for PSC reporting. MWU staff is working to derive useful financial reporting tools to better manage the utility going forward with the new system. Presently it is difficult to translate the financial data in the new system to meaningful information in the PSC's chart of account structure. Utility management is developing monthly financial reporting tools that will be used to monitor financial data and update forecasted information. This will be a continual process at MWU until it finds a viable, long-term solution.

### Operational Impacts

The transition will facilitate more accurate, timely reporting. Previously, some cash outflows to the City happened only once per year, and soon, they will occur monthly. This transition will allow MWU to better monitor and benchmark actuals against the budget. Leaders will be better equipped to make key financial and operational decisions.

### Ratepayer Impacts

None expected.

### Obstacles and Risks

New systems often entail steep learning curves. MWU staff will need time to learn the new system. Risk exists of data loss or data mistranslation, requiring additional vigilance and work to correct.

### Operations Audit

The Common Council directed MWU to audit its operations. MWU and the Common Council are still developing the audit scope. In its 2018 water rate order, the PSC discussed MWU “operational and management challenges”. The operations audit will identify and address those challenges.

### Operational Impacts

The audit will not directly impact operations. Assuming the audit identifies redundancies or inefficiencies, it would improve operations.

### Ratepayer Impacts

Ratepayers will pay for the operations audit. Assuming the audit identifies and resolves redundancies or inefficiencies, savings to ratepayers may offset the audit’s cost over time.

### Obstacles and Risks

Assuming the audit scope does not duplicate efforts by the GFOA or CFO, obstacles and risks should be minimal.

### Performance Dashboard

MWU plans to create a dashboard of key performance metrics. It will make the dashboard available to local decision makers.

### Operational Impacts

The performance dashboard will give users faster access to key indicators of MWU’s performance and financial health. Greater data availability will likely reduce adverse surprises and may improve decision making.



Ratepayer Impacts

The performance dashboard will not directly impact ratepayers. If greater data availability improves decision making, ratepayers will benefit over time. It will allow for greater transparency which would positively impact ratepayers.

Obstacles and Risks

Assuming the dashboard is developed successfully and tracks meaningful metrics, risks are minimal. Greater data availability on key indicators of MWU’s health and performance should not have a downside.

Future Action Steps

MWU has implemented initial stages of financial and operating changes to achieve financial goals in a reasonable timeline. MWU will meet several operational objectives in 2019 while others will require time and additional experience and information to attain. MWU’s objectives and associated timelines are listed below.

Objective	Timeline for Completion	Status
<b>Financial</b>		
Establish manageable cash reserve goals	January 2019 – Formal policy will require Water Board Approval	In Progress
Develop and monitor long-range operational and capital financial plan	Ongoing	In Progress – Draft ten-year financial plan created; updated annually
Conduct Test Year 2019 Water Rate study	May 2019 – Submit to PSC; January 2020 – New rates effective	In Progress – TY2019 study template received and formulating data
Build a metric-driven dashboard in city financial system	May 2019	In Progress
Create periodic reporting and monitoring framework including: <ul style="list-style-type: none"> <li>- Operating budget to actuals</li> <li>- Capital budget to actuals</li> <li>- Forecast to actuals</li> <li>- Routine financial statements</li> <li>- Cash flow monitoring</li> </ul> Key Performance Indicator (KPI) metrics	December 2019	In Progress

Objective	Timeline for Completion	Status
<b>Operational</b>		
Hire a Chief Financial Officer to assist in financial management	December 2018	Completed
Implement City-wide financial system	January 2019	On-going – implemented general ledger in January 2019 with supporting modules in subsequent years
Implement GFOA recommendations outlined in Plan of Action and Business Process Report – January 2019	December 2019 and 2020	On-going – several recommendations addressed with implementation of city financial system, remaining recommendations addressed in 2019 and 2020.
Review internal policies for efficiency and process improvement	December 2019 and 2020	On-going

## Conclusion

Despite the challenges facing water utilities throughout the Midwest, Madison Water Utility remains committed to investing in infrastructure to provide outstanding service. The financial and operational initiatives outlined in this plan will guide Madison Water Utility to achieving its ambitious financial targets. Madison Water Utility's mission is to provide the essential supply of water for consumption and fire protection via quality service and price, for present and future generations. A path of routine rate increases, some revisions to MWU's capital expenditure plan, and a rate of return temporarily above the target level will place the utility in a favorable position to achieve its financial and operating goals.

However, solving the complex issues facing Madison Water Utility – and water utilities throughout the state – requires shared effort from utilities, municipal decision makers, water users, and regulators. The PSC's ongoing efforts to provide cogent policies and manageable processes for alternate funding mechanisms such as surcharges and expense depreciation will invaluablely aid this work. Wisconsin water utilities would breathe more easily with the tools they need to provide stellar service at affordable rates.

For Madison Water Utility's part, from auditing its operations to setting ambitious, measurable goals to pioneering new regulatory frameworks, Madison Water Utility has charted a course toward healthier finances and long-term rate affordability.

## Index of PSC Questions and MWU Responses

In a letter to the Madison Water Utility dated January 16, 2019, (PSC reference number 357635) the PSC requested changes to MWU's Financial Improvement Plan submitted December 28, 2018. This index addresses the PSC's specific concerns in the January 16, 2019 letter and MWU's response to each. The preceding revised financial plan addresses the PSC's concerns; this index intends to aid the reader by documenting and referencing the resolution of each.

### Financial Plan Generally Not Sufficient

#### PSC Comments

Commission staff believes the plan filed on December 28, 2018, is not sufficient to satisfy the requirements of Order Point No. 12. While the first section of the plan presents general challenges facing the water utility industry as a whole, it does not describe the Commission's specific concerns as they relate to MWU's operational, financial, and management practices. Throughout the plan, MWU provides only a very general description of actions it intends to take in order to reach each of its goals and the timeline for taking these actions. In addition, MWU does not provide supporting documentation for the graphs and charts included in its plan.

#### MWU Response

MWU developed specific financial and operational goals in the revised financial plan. Pages 10 through 17 of this plan describe the goals. Specific timelines for achieving each goal are included and supported by the narratives of each alternative and supporting detailed schedule. Each specific action can support several goals. The narrative and supporting schedule for each alternative addresses how a given action affects the whole framework of goals. The Actions to Address Variations in Forecasted Results section on pages 27 and 28 supports how MWU intends to address deviations from forecasted results. The financial plan Operational goals are also included in the body of the financial plan with specific actions for improvement (e.g. addressing GFOA recommendations). The Future Action Steps of the Water Utility section on pages 32 and 33 summarizes MWU's plan to address its financial and operational goals.

### Achieve 50/50 Capital Structure

#### PSC Comments

The plan describes MWU's goal with respect to debt as a percentage of net book value, not the requested debt as a percent of capital structure. Commission staff notes that if MWU uses the correct metric of debt as a percent of capital structure, MWU should reevaluate both its percentage goal and timeline for achieving it. With regard to capital structure, the plan includes a statement that "Actions to reduce MWU's debt comply with the PSC's order, even if MWU sets a different goal." It is unclear what MWU's intention is with regard to this statement.

### MWU Response

The calculations of capital structure have been revised to present debt as a share of the capital structure for each alternative. Page 7 of Attachment 4 shows capital structure calculations. Schedules A through F have additional details for each alternative. Tables A through F in the body of this report summarize the key metrics for each alternative, including capital structure.

Exhibit A presents MWU's capital structure goal of 50% debt to 50% equity. Figure Five on page 14 of this plan shows MWU's timeline for achieving the capital structure goal. The narrative included in each alternative addresses the timeframe for achieving this goal along with the options available to achieve each goal. Additionally, shortfalls in achieving the goal within a reasonable time frame could be addressed by modifying capital addition budget and forecasts to reduce the need for additional debt needed to fund the capital projects. The Actions to Address Variations in Forecasted Results section on pages 27 and 28 of this plan describes potential action items. For example, the capital addition budgets for 2021 through 2027 could be reduced to achieve the goal structure of 50% debt to 50% equity by 2030. Any capital investment reductions would be addressed during the annual capital budgeting process to protect critical infrastructure. Maintaining target-level cash reserves as described in Exhibit A would reduce MWU's need to borrow.

MWU has set its capital structure goal to 50% debt to 50% equity. MWU does not intend to modify this goal and will employ the necessary actions to achieve its goal as noted in the Actions to Address Variations in Forecasted Results on pages 27 and 28.

### Achieve Benchmark Rate of Return

#### PSC Comments

The plan states MWU cannot achieve the benchmark ROR before 2027 without conflicting with its goals of investing in water infrastructure, reducing total debt, maintaining cash reserves, maintaining debt coverage ratios, and reducing lifecycle costs. The plan also states that building cash reserves and reducing debt will help MWU achieve the benchmark ROR. It is unclear when MWU intends to achieve the benchmark ROR.

#### MWU Response

MWU's plan is to achieve each of its metric goals in Exhibit A within a fiscally responsible time period. Figure Four on page 13 shows MWU's goal for meeting its needs with a 5% rate of return. Schedules A through F present rate of return forecasts for each of the alternatives considered. Attachment 4 to this report includes a summary of the key financial outcomes for each alternative.

## Specific Operational Adjustments

### PSC Comments

MWW established five goals relating to infrastructure investment, cash reserves, capital structure, debt coverage, and return on rate base. However, the plan does not provide sufficient detail, including the following information:

A description of specific operational adjustments (for example, internal controls, reporting practices, improved business efficiency, etc.) for each goal

### MWU Response

In addition to timely planned rate reviews, MWU identified financial and operational adjustments to implement beginning in January 2019. These adjustments are identified in the Operational Goals section on pages 16 and 17, in the Actions to Address Variations in Forecasted Results section on pages 27 and 28, and in the Future Action Steps on pages 32 and 33. Many operational adjustments are in progress with anticipated resolution in 2019. Improved reporting mechanisms will monitor financial goals throughout the year. MWU will continually review its capital and operating budgets to ensure they are in line with these goals.

## Goal Timelines

### PSC Comments

A timeline and milestone specific to each goal

### MWU Response

Exhibit A on pages 10 and 11 shows milestones specific to each goal. Operational Goals on pages 16 and 17, and Future Action Steps on pages 32 and 33 all identify timelines for MWU's goals. Figures Three, Four, Five, and Six all explicitly give goal-specific timelines and milestone performance for each year.

## Goal-Specific Obstacles and Customer Impacts

### PSC Comments

A description of potential obstacles specific to each goal

Customer impacts specific to each goal

### MWU Response

It is difficult to tie a specific financial or operational goal to a potential obstacle or customer impact in isolation. Actions to further a particular goal affect the general framework of goals. There are obstacles and impacts of pursuing a given alternative, but alternatives impact all the goals generally. In the financial plan, each alternative includes a separate narrative regarding

potential obstacles and customer impacts. The goals, alternatives, potential obstacles, and customer impacts should be read holistically and not individually.

### Detailed Infrastructure Investment Estimates

#### PSC Comment

Detail regarding estimates of investment in infrastructure other than main replacement

#### MWU Response

Attachment 1 is MWU's ten-year capital budget. MWU adopts and revises capital budgets annually based on operational need and financial availability. A ten-year capital budget is updated annually from the capital infrastructure master plan but not formally adopted by the utility. The figures in these capital budget were used for preparation of the nine-year financial forecast.

### Investment Need Prioritization

#### PSC Comment

A description of how MWU intends to prioritize its investment needs and balance these needs with its financial goals

#### MWU Response

MWU has an Infrastructure Management Plan and Asset Management Plan which are used during the capital budgeting process to prioritize projects. Periodic internal project prioritization meetings are held to adjust the capital budget. During the budgeting process, these plans, along with city-wide street reconstruction projects are accumulated and estimated within the nine-year capital budget. MWU uses its nine-year forecast model to determine the availability of resources to fund the projects and its effect on financial goals. For the budget year 2019 and 2020, substantial cuts have been made in the capital infrastructure budget to minimize the need for future borrowings. These budgets will be revisited in future periods based upon annual financial results. Only those projects deemed critical will be considered in the short-term.

### GFOA Report

#### PSC Comment

While the plan mentions business practice changes it may make as a result of a Government Finance Officers Association (GFOA) report, the plan does not include an executive summary, list of findings, or copy of the report.

#### MWU Response

The GFOA report is Attachment 3.

## Obstacles and Customer Impacts not Tied to Specific Goals

### PSC Comment

The Financial Initiatives section of the plan lists several potential obstacles and customer impacts; however, they are not tied to specific goals. The section is essentially a summary of four potential rate increase alternatives, plus an option of reducing infrastructure investment. The Operational Initiatives section of the plan lists some potential obstacles and customer impacts, but again, they are not tied to specific goals. This section also lacks specific timelines and milestones.

### MWU Response

See MWU's response to potential obstacles and customer impacts in Detailed Goals and Operational Adjustments section addressed previously. It is difficult to tie obstacles and impacts to specific financial goals. Instead, obstacles apply to the whole framework of goals and tradeoffs between them. Ratepayer impacts apply to alternatives undertaken to achieve those goals.

## Evaluate a Surcharge as a Tool

### PSC Comment

The surcharge described in the plan describes a mechanism that would provide additional revenue between rate cases. The Commission intended the plan to include a description of a surcharge that would provide additional revenue to provide financial stability (for example, by achieving a more balanced capital structure and ROR closer to the benchmark) and that MWU would propose at the time of a rate filing.

### MWU Response

Schedules C, D, and F detail surcharge calculations. Page 5 of Attachment 4 compares monthly surcharges under the various alternatives.



**Madison Water Utility  
Financial Forecast Model  
January 31, 2019**

<b>Alternative A: Baseline</b>										
Rate Increase from Previous Year	n/a	detailed	0%	0%	0%	0%	0%	0%	0%	0%
Assumed Effective Date	n/a	11/1/2018	12/31/2019	1/1/2021	1/1/2022	1/1/2023	1/1/2024	12/31/2024	1/1/2026	1/1/2027
Change in Billing Units from Previous Year	n/a	n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%

<b>Income Statement</b>										
	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
<b>Revenue</b>										
Unmetered Sales	1,960,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Metered Retail Sales	28,316,000	43,673,729	43,455,360	43,238,084	43,021,893	42,806,784	42,592,750	42,379,786	42,167,887	41,957,048
Wholesale Sales	270,000	315,351	313,770	312,200	310,640	309,090	307,540	306,000	304,470	302,950
Public Fire	4,100,000	79,292	79,292	79,292	79,292	79,292	79,292	79,292	79,292	79,292
Private Fire	600,000	-	-	-	-	-	-	-	-	-
Other Revenue	1,050,000	1,058,700	1,067,487	1,076,362	1,085,325	1,094,379	1,103,523	1,112,758	1,122,085	1,131,506
<b>Total Revenue</b>	<b>36,296,000</b>	<b>45,287,072</b>	<b>45,075,909</b>	<b>44,865,938</b>	<b>44,657,150</b>	<b>44,449,545</b>	<b>44,243,105</b>	<b>44,037,836</b>	<b>43,833,734</b>	<b>43,630,796</b>
Expense Increase	n/a	3%	3%	3%	3%	3%	3%	3%	3%	3%
<b>Expense</b>										
Supply	47,500	48,925	50,393	51,905	53,462	55,066	56,717	58,419	60,172	61,977
Pumping	3,596,000	3,703,880	3,814,996	3,929,446	4,047,330	4,168,750	4,293,812	4,422,626	4,555,305	4,691,964
Treatment	722,250	743,918	766,235	789,222	812,899	837,286	862,404	888,276	914,925	942,372
Distribution	5,546,600	5,712,998	5,884,388	6,060,920	6,242,747	6,430,030	6,622,930	6,821,618	7,026,267	7,237,055
Customer Accounts	824,500	881,035	907,466	934,690	962,731	991,613	1,021,361	1,052,002	1,083,562	1,116,069
Admin General	5,508,000	5,064,045	5,302,508	5,554,183	5,819,890	6,100,504	6,396,957	6,710,245	7,041,428	7,391,637
<b>Total Expenses</b>	<b>16,244,850</b>	<b>16,154,801</b>	<b>16,725,986</b>	<b>17,320,365</b>	<b>17,939,058</b>	<b>18,583,247</b>	<b>19,254,182</b>	<b>19,953,187</b>	<b>20,681,658</b>	<b>21,441,075</b>
Taxes	7,457,043	8,148,122	8,255,790	8,492,402	8,791,019	9,180,630	9,647,725	10,093,791	10,436,396	10,798,785
Depreciation	7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291
<b>Net Operating Income</b>	<b>5,109,438</b>	<b>13,202,934</b>	<b>12,257,980</b>	<b>11,128,506</b>	<b>9,823,789</b>	<b>8,290,943</b>	<b>6,645,083</b>	<b>5,094,667</b>	<b>3,677,678</b>	<b>2,200,645</b>
Interest on Debt	(7,064,703)	(7,944,739)	(8,199,138)	(8,153,463)	(8,277,264)	(8,591,065)	(9,121,448)	(9,493,203)	(9,568,322)	(9,671,620)
Other Net Non-Operating	1,589,598	1,574,087	1,462,982	1,450,981	1,432,064	1,409,789	1,392,993	1,384,221	1,320,168	1,282,658
<b>Net Income</b>	<b>(365,667)</b>	<b>6,832,282</b>	<b>5,521,824</b>	<b>4,426,024</b>	<b>2,978,589</b>	<b>1,109,667</b>	<b>(1,083,373)</b>	<b>(3,014,315)</b>	<b>(4,570,477)</b>	<b>(6,188,318)</b>



**Madison Water Utility  
Financial Forecast Model  
January 31, 2019**

Alternative A: Baseline												
Rate Increase from Previous Year	n/a	detailed	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Assumed Effective Date	n/a	11/1/2018	12/31/2019	1/1/2021	1/1/2022	1/1/2023	1/1/2024	12/31/2024	1/1/2026	1/1/2027		
Change in Billing Units from Previous Year	n/a	n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%
<b>New Debt</b>												
Debt Issued	-	-	10,742,600	14,083,256	18,995,064	24,406,800	22,010,373	16,377,020	17,425,100	18,047,700		
Interest Rate	n/a	n/a	4.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Term	20	20	20	20	20	20	20	20	20	20	20	20
Index	-	1	2	3	4	5	6	7	8	9	10	
2020 Principal	-	-	-	342,433	357,842	373,945	390,773	408,357	426,733	445,936	466,004	
2021 Principal	-	-	-	-	425,914	447,210	469,570	493,049	517,701	543,586	570,766	
2022 Principal	-	-	-	-	-	574,460	603,183	633,342	665,009	698,260	733,173	
2023 Principal	-	-	-	-	-	-	738,125	775,031	813,783	854,472	897,195	
2024 Principal	-	-	-	-	-	-	-	665,651	698,933	733,880	770,574	
2025 Principal	-	-	-	-	-	-	-	-	495,283	520,048	546,050	
2026 Principal	-	-	-	-	-	-	-	-	-	526,980	553,329	
2027 Principal	-	-	-	-	-	-	-	-	-	-	545,809	
<b>Total New Debt Principal</b>	-	-	-	342,433	783,756	1,395,615	2,201,651	2,975,430	3,617,443	4,323,162	5,082,899	
2020 Interest	-	-	-	483,417	468,008	451,905	435,077	417,492	399,116	379,913	359,846	
2021 Interest	-	-	-	-	704,163	682,867	660,507	637,028	612,376	586,491	559,311	
2022 Interest	-	-	-	-	-	949,753	921,030	890,871	859,204	825,954	791,041	
2023 Interest	-	-	-	-	-	-	1,220,340	1,183,434	1,144,682	1,103,993	1,061,269	
2024 Interest	-	-	-	-	-	-	-	1,100,519	1,067,236	1,032,289	995,595	
2025 Interest	-	-	-	-	-	-	-	-	818,851	794,087	768,084	
2026 Interest	-	-	-	-	-	-	-	-	-	871,255	844,906	
2027 Interest	-	-	-	-	-	-	-	-	-	-	902,385	
<b>Total New Debt Interest</b>	-	-	-	483,417	1,172,170	2,084,525	3,236,954	4,229,344	4,901,465	5,593,982	6,282,438	
Cumulative Existing Debt	212,705,000	202,685,000	191,315,000	179,520,000	167,135,000	154,275,000	141,090,000	127,520,000	113,455,000	99,320,000		
Cumulative New Debt		-	10,742,600	24,483,423	42,694,731	65,705,916	85,514,639	98,916,229	112,723,886	126,448,425		
<b>Total Debt</b>		202,685,000	202,057,600	204,003,423	209,829,731	219,980,916	226,604,639	226,436,229	226,178,886	225,768,425		
<b>Debt Coverage</b>		2.04	2.91	2.49	2.27	2.03	1.81	1.62	1.46	1.31	1.20	

**Madison Water Utility  
Financial Forecast Model  
January 31, 2019**

<b>Alternative B1: Biannual Rate Increases</b>														
Rate Increase from Previous Year	n/a	detailed	<b>9.0%</b>		<b>0%</b>		<b>9.0%</b>		<b>0%</b>		<b>9.0%</b>		<b>0%</b>	
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027				
Change in Billing Units from Previous Year	n/a	n/a	<b>-0.5%</b>		<b>-0.5%</b>		<b>-0.5%</b>		<b>-0.5%</b>		<b>-0.5%</b>		<b>-0.5%</b>	
<b>Income Statement</b>														
Revenue		<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>			
Unmetered Sales		1,960,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Metered Retail Sales		28,316,000	43,673,729	47,366,343	47,129,511	51,114,311	50,858,740	55,158,846	54,883,052	59,523,414	59,225,797	59,225,797	59,225,797	59,225,797
Wholesale Sales		270,000	315,351	342,010	340,300	369,070	367,220	398,270	396,280	429,790	427,640	427,640	427,640	427,640
Public Fire		4,100,000	79,292	86,428	86,428	94,207	94,207	102,685	102,685	111,927	111,927	111,927	111,927	111,927
Private Fire		600,000	-	-	-	-	-	-	-	-	-	-	-	-
Other Revenue		1,050,000	1,058,700	1,067,487	1,076,362	1,085,325	1,094,379	1,103,523	1,112,758	1,122,085	1,131,506	1,131,506	1,131,506	1,131,506
Total Revenue		36,296,000	45,287,072	49,022,268	48,792,601	52,822,913	52,574,546	56,923,325	56,654,775	61,347,216	61,056,870	61,056,870	61,056,870	61,056,870
Expense Increase	n/a		3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Expense														
Supply		47,500	48,925	50,393	51,905	53,462	55,066	56,717	58,419	60,172	61,977	61,977	61,977	61,977
Pumping		3,596,000	3,703,880	3,814,996	3,929,446	4,047,330	4,168,750	4,293,812	4,422,626	4,555,305	4,691,964	4,691,964	4,691,964	4,691,964
Treatment		722,250	743,918	766,235	789,222	812,899	837,286	862,404	888,276	914,925	942,372	942,372	942,372	942,372
Distribution		5,546,600	5,712,998	5,884,388	6,060,920	6,242,747	6,430,030	6,622,930	6,821,618	7,026,267	7,237,055	7,237,055	7,237,055	7,237,055
Customer Accounts		824,500	881,035	907,466	934,690	962,731	991,613	1,021,361	1,052,002	1,083,562	1,116,069	1,116,069	1,116,069	1,116,069
Admin General		5,508,000	5,064,045	5,302,508	5,554,183	5,819,890	6,100,504	6,396,957	6,710,245	7,041,428	7,391,637	7,391,637	7,391,637	7,391,637
Total Expenses		16,244,850	16,154,801	16,725,986	17,320,365	17,939,058	18,583,247	19,254,182	19,953,187	20,681,658	21,441,075	21,441,075	21,441,075	21,441,075
Taxes		7,457,043	8,148,122	8,255,790	8,492,402	8,791,019	9,180,630	9,647,725	10,093,791	10,436,396	10,798,785	10,798,785	10,798,785	10,798,785
Depreciation		7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291	9,190,291	9,190,291	9,190,291
Net Operating Income		<b>5,109,438</b>	<b>13,202,934</b>	<b>16,204,339</b>	<b>15,055,170</b>	<b>17,989,552</b>	<b>16,415,944</b>	<b>19,325,303</b>	<b>17,711,606</b>	<b>21,191,160</b>	<b>19,626,719</b>	<b>19,626,719</b>	<b>19,626,719</b>	<b>19,626,719</b>
Interest on Debt		(7,064,703)	(7,944,739)	(8,199,138)	(8,153,463)	(8,073,101)	(8,068,324)	(8,409,671)	(8,604,237)	(8,641,066)	(8,512,280)	(8,512,280)	(8,512,280)	(8,512,280)
Other Net Non-Operating		1,589,598	1,574,087	1,462,982	1,450,981	1,432,064	1,409,789	1,392,993	1,384,221	1,320,168	1,282,658	1,282,658	1,282,658	1,282,658
Net Income		(365,667)	6,832,282	9,468,183	8,352,688	11,348,515	9,757,409	12,308,624	10,491,590	13,870,262	12,397,097	12,397,097	12,397,097	12,397,097

**Madison Water Utility  
Financial Forecast Model  
January 31, 2019**

**Alternative B1: Biannual Rate Increases**

Rate Increase from Previous Year	n/a	detailed	<b>9.0%</b>	<b>0%</b>	<b>9.0%</b>	<b>0%</b>	<b>9.0%</b>	<b>0%</b>	<b>9.0%</b>	<b>0%</b>
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from Previous Year	n/a	n/a	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>

**Cash Flow**

	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Net Income	(365,667)	6,832,282	9,468,183	8,352,688	11,348,515	9,757,409	12,308,624	10,491,590	13,870,262	12,397,097
Depreciation	7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291
Debt Principal Payments	(7,655,000)	(10,020,000)	(11,370,000)	(12,137,433)	(13,045,268)	(13,929,525)	(14,920,056)	(15,934,221)	(16,999,029)	(17,579,532)
Debt Proceeds	41,600,000	-	10,742,600	10,000,000	12,500,000	20,300,000	18,000,000	15,000,000	12,100,000	14,200,000
Capital Expenditure	(24,296,500)	(8,380,000)	(9,766,000)	(12,802,960)	(17,268,240)	(21,067,000)	(20,009,430)	(14,888,200)	(15,841,000)	(16,407,000)
Net Contributions and Transfers In	3,743,114	(2,920,233)	(290,490)	(566,695)	(597,073)	(353,013)	(577,519)	(368,376)	(245,407)	(194,713)
Net Cash Flow	<b>20,510,617</b>	<b>(6,706,736)</b>	<b>6,620,446</b>	<b>770,265</b>	<b>1,041,218</b>	<b>3,102,597</b>	<b>3,497,734</b>	<b>3,196,985</b>	<b>1,922,828</b>	<b>1,606,143</b>
Start of Year Cash and Investments	20,693,448	41,204,065	34,497,329	41,117,775	41,888,040	42,929,258	46,031,855	49,529,589	52,726,574	54,649,401
End of Year Cash and Investments	41,204,065	34,497,329	41,117,775	41,888,040	42,929,258	46,031,855	49,529,589	52,726,574	54,649,401	56,255,545
Cash Reserve Target	<b>39,909,577</b>	<b>38,448,718</b>	<b>40,091,649</b>	<b>41,264,127</b>	<b>44,137,325</b>	<b>47,400,200</b>	<b>50,886,879</b>	<b>54,034,997</b>	<b>55,954,539</b>	<b>57,653,827</b>
Cash Reserve Over / (Short)	<b>1,294,488</b>	<b>(3,951,389)</b>	<b>1,026,127</b>	<b>623,913</b>	<b>(1,208,068)</b>	<b>(1,368,345)</b>	<b>(1,357,290)</b>	<b>(1,308,423)</b>	<b>(1,305,138)</b>	<b>(1,398,283)</b>

**Balance Sheet**

	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Average Plant in Service	274,485,448	289,675,498	297,600,298	307,736,578	321,623,978	339,643,398	359,033,413	375,334,028	389,550,428	404,526,228
Materials and Supplies	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893
Average Accumulated Depreciation	(60,933,289)	(66,807,409)	(72,857,271)	(78,978,858)	(85,234,010)	(91,724,193)	(98,510,791)	(105,548,122)	(112,756,397)	(120,111,722)
Regulatory Liability	(2,990,855)	(2,531,222)	(2,071,589)	(1,611,956)	(1,152,323)	(692,690)	(233,057)	-	-	-
Rate Base	211,340,197	221,115,760	223,450,331	227,924,657	236,016,538	248,005,408	261,068,457	270,564,798	277,572,924	285,193,399
Rate of Return	<b>2.4%</b>	<b>6.0%</b>	<b>7.3%</b>	<b>6.6%</b>	<b>7.6%</b>	<b>6.6%</b>	<b>7.4%</b>	<b>6.5%</b>	<b>7.6%</b>	<b>6.9%</b>
Existing Debt	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Principal Payments	9,820,000	10,020,000	11,370,000	11,795,000	12,385,000	12,860,000	13,185,000	13,570,000	14,065,000	14,135,000
Interest Payments	7,216,293	8,090,128	8,337,289	7,800,233	7,226,620	6,618,708	5,986,581	5,355,118	4,746,476	4,144,340
Miscellaneous Charges	(151,590)	(145,390)	(138,151)	(130,186)	(121,526)	(112,167)	(102,087)	(91,259)	(79,618)	(66,701)

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<b>Alternative B1: Biannual Rate Increases</b>												
Rate Increase from Previous Year	n/a		detailed	9.0%	0%	9.0%	0%	9.0%	0%	9.0%	0%	9.0%
Assumed Effective Date	n/a		11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027	
Change in Billing Units from Previous Year	n/a		n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%
<b>New Debt</b>												
Debt Issued	-	-	-	10,742,600	10,000,000	12,500,000	20,300,000	18,000,000	15,000,000	12,100,000	14,200,000	
Interest Rate	n/a	n/a	20	4.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Term	20	20	20	20	20	20	20	20	20	20	20	20
Index	-	1	2	3	4	5	6	7	8	9		
2020 Principal	-	-	-	342,433	357,842	373,945	390,773	408,357	426,733	445,936		
2021 Principal	-	-	-	-	302,426	317,547	333,425	350,096	367,601	385,981		
2022 Principal	-	-	-	-	-	378,032	396,934	416,781	437,620	459,501		
2023 Principal	-	-	-	-	-	-	613,925	644,621	676,852	710,694		
2024 Principal	-	-	-	-	-	-	-	544,367	571,585	600,164		
2025 Principal	-	-	-	-	-	-	-	-	453,639	476,321		
2026 Principal	-	-	-	-	-	-	-	-	-	365,935		
2027 Principal	-	-	-	-	-	-	-	-	-	-		
<b>Total New Debt Principal</b>	-	-	-	342,433	660,268	1,069,525	1,735,056	2,364,221	2,934,029	3,444,532		
2020 Interest	-	-	-	483,417	468,008	451,905	435,077	417,492	399,116	379,913		
2021 Interest	-	-	-	-	500,000	484,879	469,001	452,330	434,825	416,445		
2022 Interest	-	-	-	-	-	625,000	606,098	586,252	565,413	543,532		
2023 Interest	-	-	-	-	-	-	1,015,000	984,304	952,073	918,230		
2024 Interest	-	-	-	-	-	-	-	900,000	872,782	844,202		
2025 Interest	-	-	-	-	-	-	-	-	750,000	727,318		
2026 Interest	-	-	-	-	-	-	-	-	-	605,000		
2027 Interest	-	-	-	-	-	-	-	-	-	-		
<b>Total New Debt Interest</b>	-	-	-	483,417	968,008	1,561,783	2,525,177	3,340,378	3,974,209	4,434,641		
Cumulative Existing Debt		202,685,000	191,315,000	179,520,000	167,135,000	154,275,000	141,090,000	127,520,000	113,455,000	99,320,000		
Cumulative New Debt		-	10,742,600	20,400,167	32,239,899	51,470,375	67,735,319	80,371,098	89,537,069	100,292,537		
<b>Total Debt</b>		202,685,000	202,057,600	199,920,167	199,374,899	205,745,375	208,825,319	207,891,098	202,992,069	199,612,537		
<b>Debt Coverage</b>		<b>2.04</b>	<b>2.91</b>	<b>2.84</b>	<b>2.59</b>	<b>2.67</b>	<b>2.44</b>	<b>2.52</b>	<b>2.30</b>	<b>2.39</b>	<b>2.25</b>	

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**Alternative B1: Biannual Rate Increases**

Index 1 2 3 4 5 6 7 8 9 10

lows a simplified rate increase in barely over a year.

2028 - Simplified 2029 - Simplified 2030 - Simplified 2031 - Simplified 2032 - Simplified 2033 - Simplified 2034 - Simplified 2035 - Simplified 2036 - Simplified 2037 - Simplified

<b>Rate Base</b>										
3.7%	Annual rate increase									
-0.5%	Annual sales growth									
Revenue	62,999,394	65,003,720	67,071,813	69,205,703	71,407,483	73,679,312	76,023,419	78,442,104	80,937,740	83,512,774
from PSC 2018 water rate order										
4%	Expense growth									
from PSC 2018 water rate order										
Expenses	22,298,717.72	23,190,666	24,118,293	25,083,025	26,086,346	27,129,800	28,214,992	29,343,591	30,517,335	31,738,028
Taxes	11,230,737	11,679,966	12,147,165	12,633,052	13,138,374	13,663,909	14,210,465	14,778,883	15,370,039	15,984,840
Depreciation	9,557,903	9,940,219	10,337,828	10,751,341	11,181,394	11,628,650	12,093,796	12,577,548	13,080,650	13,603,876
Net Income	19,912,037	20,192,869	20,468,528	20,738,286	21,001,369	21,256,953	21,504,166	21,742,081	21,969,716	22,186,029
3.0%	Rate Base Growth									
Rate Base	293,749,201	302,561,677	311,638,527	320,987,683	330,617,314	340,535,833	350,751,908	361,274,465	372,112,699	383,276,080
Rate of Return	6.8%	6.7%	6.6%	6.5%	6.4%	6.2%	6.1%	6.0%	5.9%	5.8%

100% Debt Issued Percent of Principal Paid  
r year.

<b>Cash</b>										
Capital Expenditures	(18,113,705)	(18,752,695)	(19,414,678)	(20,100,496)	(20,811,025)	(21,547,169)	(22,309,871)	(23,100,105)	(23,918,884)	(24,767,257)
Debt Issued	18,743,974	18,653,843	17,733,600	10,245,000	14,639,763	13,862,223	13,041,680	11,843,730	12,353,996	9,983,132
Payment on 2028 and Later Debt	(1,504,065)	(3,000,898)	(4,423,887)	(5,245,973)	(6,420,705)	(7,533,046)	(8,579,544)	(9,529,916)	(10,521,232)	(11,322,304)
Interest on Pre-2019 Debt	(3,491,434)	(2,915,834)	(2,374,178)	(1,925,249)	(1,555,131)	(1,221,381)	(923,678)	(669,044)	(438,163)	(245,800)
Principal on Pre-2019 Debt	(14,700,000)	(14,410,000)	(13,280,000)	(10,245,000)	(9,735,000)	(8,715,000)	(7,640,000)	(6,175,000)	(6,405,000)	(3,740,000)
Principal on 2019 and Later Debt	(4,043,974)	(4,243,843)	(4,453,600)	-	(4,904,763)	(5,147,223)	(5,401,680)	(5,668,730)	(5,948,996)	(6,243,132)
Interest on 2019 and Later Debt	(4,974,644)	(4,774,775)	(4,565,018)	-	(4,113,855)	(3,871,395)	(3,616,938)	(3,349,888)	(3,069,622)	(2,775,486)
Non-Operating Income	1,330,116	1,379,331	1,430,366	1,483,289	1,538,171	1,595,084	1,654,102	1,715,303	1,778,770	1,844,584
Depreciation	9,557,903	9,940,219	10,337,828	10,751,341	11,181,394	11,628,650	12,093,796	12,577,548	13,080,650	13,603,876
Net Cash Flow	2,716,209	2,068,217	1,458,960	5,701,198	820,219	307,695	(177,967)	(614,020)	(1,118,765)	(1,476,358)
End-of-Year Cash Reserve	58,971,753	61,039,970	62,498,930	68,200,128	69,020,347	69,328,042	69,150,076	68,536,056	67,417,291	65,940,933

60% Splitting payments between principal and interest on a fixed percentage is a significant simplification of reality.  
Estimated Principal as a Share of Debt Service for 2028 and Later Debt

<b>Capital Structure</b>										
Simplified Total Debt	198,710,098	196,909,559	194,255,227	191,107,643	187,255,220	182,735,393	177,587,666	171,869,717	165,556,977	158,763,595
Simplified Total Equity	158,764,065	171,445,297	184,635,439	202,833,377	217,135,649	231,881,692	247,067,526	262,694,013	278,726,222	295,206,627
Debt Share of Capital Structure	56%	53%	51%	49%	46%	44%	42%	40%	37%	35%

**Madison Water Utility  
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	Alternative B1: Biannual Rate Increases									
	11	12	13	14	15	16	17	18	19	20
	2038 - Simplified 2039 - Simplified 2040 - Simplified 2041 - Simplified 2042 - Simplified 2043 - Simplified 2044 - Simplified 2045 - Simplified 2046 - Simplified 2047 - Simplified									
<b>Rate Base</b>										
Revenue	86,169,733	88,911,223	91,739,933	94,658,639	97,670,204	100,777,581	103,983,820	107,292,065	110,705,562	114,227,660
Expenses	33,007,549	34,327,851	35,700,966	37,129,004	38,614,164	40,158,731	41,765,080	43,435,683	45,173,111	46,980,035
Taxes	16,624,234	17,289,203	17,980,771	18,700,002	19,448,002	20,225,923	21,034,959	21,876,358	22,751,412	23,661,469
Depreciation	14,148,031	14,713,952	15,302,510	15,914,610	16,551,195	17,213,243	17,901,772	18,617,843	19,362,557	20,137,059
Net Income	22,389,918	22,580,216	22,755,686	22,915,022	23,056,842	23,179,685	23,282,008	23,362,181	23,418,483	23,449,097
Rate Base	394,774,363	406,617,594	418,816,121	431,380,605	444,322,023	457,651,684	471,381,234	485,522,671	500,088,352	515,091,002
Rate of Return	5.7%	5.6%	5.4%	5.3%	5.2%	5.1%	4.9%	4.8%	4.7%	4.6%
<b>Cash</b>										
Capital Expenditures	(25,646,313)	(26,557,183)	(27,501,038)	(28,479,094)	(29,492,613)	(30,542,903)	(31,631,323)	(32,759,280)	(33,928,237)	(35,139,710)
Debt Issued	8,646,826	9,055,799	7,215,807	6,746,797	6,281,711	5,592,764	4,243,478	3,011,285	1,958,210	1,085,185
Payment on 2028 and Later Debt	1,274,974	1,278,472	1,278,472	1,278,472	1,278,472	1,278,472	1,278,472	1,278,472	1,278,472	1,278,472
Interest on Pre-2019 Debt	(129,100)	(43,600)	-	-	-	-	-	-	-	-
Principal on Pre-2019 Debt	(2,095,000)	(2,180,000)	-	-	-	-	-	-	-	-
Principal on 2019 and Later Debt	(6,551,826)	(6,875,799)	(7,215,807)	(6,746,797)	(6,281,711)	(5,592,764)	(4,243,478)	(3,011,285)	(1,958,210)	(1,085,185)
Interest on 2019 and Later Debt	(2,466,792)	(2,142,819)	(1,802,810)	(1,445,971)	(1,108,632)	(794,546)	(514,908)	(302,734)	(152,170)	(54,259)
Non-Operating Income	1,912,834	1,983,609	2,057,002	2,133,111	2,212,036	2,293,882	2,378,755	2,466,769	2,558,040	2,652,687
Depreciation	14,148,031	14,713,952	15,302,510	15,914,610	16,551,195	17,213,243	17,901,772	18,617,843	19,362,557	20,137,059
Net Cash Flow	11,483,552	11,812,647	12,089,822	12,316,151	12,497,301	12,627,832	12,694,777	12,663,251	12,537,145	12,323,346
End-of-Year Cash Reserve	77,424,484	89,237,131	101,326,954	113,643,104	126,140,405	138,768,238	151,463,015	164,126,266	176,663,411	188,986,757
<b>Capital Structure</b>										
Simplified Total Debt	159,528,579	160,295,662	161,062,746	161,829,829	162,596,913	163,363,996	164,131,079	164,898,163	165,665,246	166,432,330
Simplified Total Equity	317,423,477	340,312,271	363,833,538	387,947,089	412,618,725	437,809,134	463,466,379	489,503,984	515,839,725	542,398,639
Debt Share of Capital Structure	33%	32%	31%	29%	28%	27%	26%	25%	24%	23%



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<b>Alternative B2: Annual Rate Increases</b>										
Rate Increase from Previous Year	n/a	detailed	9.0%	9.00%	9.0%	0%	0.0%	0%	0.0%	0%
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from Previous Yea	n/a	n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%
<b>Income Statement</b>										
Revenue	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Unmetered Sales	1,960,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Metered Retail Sales	28,316,000	43,673,729	47,366,343	51,371,167	55,714,599	55,436,026	55,158,846	54,883,052	54,608,637	54,335,593
Wholesale Sales	270,000	315,351	342,010	370,930	402,290	400,280	398,280	396,290	394,310	392,340
Public Fire	4,100,000	79,292	86,428	94,207	102,685	102,685	102,685	102,685	102,685	102,685
Private Fire	600,000	-	-	-	-	-	-	-	-	-
Other Revenue	1,050,000	1,058,700	1,067,487	1,076,362	1,085,325	1,094,379	1,103,523	1,112,758	1,122,085	1,131,506
<b>Total Revenue</b>	<b>36,296,000</b>	<b>45,287,072</b>	<b>49,022,268</b>	<b>53,072,666</b>	<b>57,464,900</b>	<b>57,193,371</b>	<b>56,923,335</b>	<b>56,654,785</b>	<b>56,387,717</b>	<b>56,122,125</b>
Expense Increase	n/a	3%	3%	3%	3%	3%	3%	3%	3%	3%
Expense										
Supply	47,500	48,925	50,393	51,905	53,462	55,066	56,717	58,419	60,172	61,977
Pumping	3,596,000	3,703,880	3,814,996	3,929,446	4,047,330	4,168,750	4,293,812	4,422,626	4,555,305	4,691,964
Treatment	722,250	743,918	766,235	789,222	812,899	837,286	862,404	888,276	914,925	942,372
Distribution	5,546,600	5,712,998	5,884,388	6,060,920	6,242,747	6,430,030	6,622,930	6,821,618	7,026,267	7,237,055
Customer Accounts	824,500	881,035	907,466	934,690	962,731	991,613	1,021,361	1,052,002	1,083,562	1,116,069
Admin General	5,508,000	5,064,045	5,302,508	5,554,183	5,819,890	6,100,504	6,396,957	6,710,245	7,041,428	7,391,637
<b>Total Expenses</b>	<b>16,244,850</b>	<b>16,154,801</b>	<b>16,725,986</b>	<b>17,320,365</b>	<b>17,939,058</b>	<b>18,583,247</b>	<b>19,254,182</b>	<b>19,953,187</b>	<b>20,681,658</b>	<b>21,441,075</b>
Taxes	7,457,043	8,148,122	8,255,790	8,492,402	8,791,019	9,180,630	9,647,725	10,093,791	10,436,396	10,798,785
Depreciation	7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291
<b>Net Operating Income</b>	<b>5,109,438</b>	<b>13,202,934</b>	<b>16,204,339</b>	<b>19,335,235</b>	<b>22,631,539</b>	<b>21,034,769</b>	<b>19,325,313</b>	<b>17,711,616</b>	<b>16,231,661</b>	<b>14,691,974</b>
Interest on Debt	(7,064,703)	(7,944,739)	(8,199,138)	(8,153,463)	(8,021,795)	(7,824,676)	(8,028,900)	(8,235,707)	(8,285,389)	(8,170,099)
Other Net Non-Operating	1,589,598	1,574,087	1,462,982	1,450,981	1,432,064	1,409,789	1,392,993	1,384,221	1,320,168	1,282,658
<b>Net Income</b>	<b>(365,667)</b>	<b>6,832,282</b>	<b>9,468,183</b>	<b>12,632,752</b>	<b>16,041,808</b>	<b>14,619,881</b>	<b>12,689,405</b>	<b>10,860,131</b>	<b>9,266,440</b>	<b>7,804,533</b>

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<b>Alternative B2: Annual Rate Increases</b>										
Rate Increase from Previous Year	n/a	detailed	9.0%	9.00%	9.0%	0%	0.0%	0%	0.0%	0%
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from Previous Year	n/a	n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%

<b>Cash Flow</b>										
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Net Income	(365,667)	6,832,282	9,468,183	12,632,752	16,041,808	14,619,881	12,689,405	10,860,131	9,266,440	7,804,533
Depreciation	7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291
Debt Principal Payments	(7,655,000)	(10,020,000)	(11,370,000)	(12,137,433)	(13,014,235)	(13,779,664)	(14,675,230)	(15,677,154)	(16,729,109)	(17,296,116)
Debt Proceeds	41,600,000	-	10,742,600	8,973,873	8,622,149	17,407,655	18,000,000	15,000,000	12,100,000	14,200,000
Capital Expenditure	(24,296,500)	(8,380,000)	(9,766,000)	(12,802,960)	(17,268,240)	(21,067,000)	(20,009,430)	(14,888,200)	(15,841,000)	(16,407,000)
Net Contributions and Transfers In	3,743,114	(2,920,233)	(290,490)	(566,695)	(597,073)	(353,013)	(577,519)	(368,376)	(245,407)	(194,713)
<b>Net Cash Flow</b>	<b>20,510,617</b>	<b>(6,706,736)</b>	<b>6,620,446</b>	<b>4,024,203</b>	<b>1,887,693</b>	<b>5,222,585</b>	<b>4,123,341</b>	<b>3,822,592</b>	<b>(2,411,074)</b>	<b>(2,703,005)</b>
Start of Year Cash and Investments	20,693,448	41,204,065	34,497,329	41,117,775	45,141,978	47,029,671	52,252,255	56,375,597	60,198,189	57,787,114
End of Year Cash and Investments	41,204,065	34,497,329	41,117,775	45,141,978	47,029,671	52,252,255	56,375,597	60,198,189	57,787,114	55,084,109
Cash Reserve Target	<b>39,909,577</b>	<b>38,448,718</b>	<b>40,091,649</b>	<b>41,264,127</b>	<b>44,137,325</b>	<b>47,400,200</b>	<b>50,886,879</b>	<b>54,034,997</b>	<b>55,954,539</b>	<b>57,653,827</b>
Cash Reserve Over / (Short)	<b>1,294,488</b>	<b>(3,951,389)</b>	<b>1,026,127</b>	<b>3,877,851</b>	<b>2,892,345</b>	<b>4,852,055</b>	<b>5,488,717</b>	<b>6,163,192</b>	<b>1,832,575</b>	<b>(2,569,718)</b>

<b>Balance Sheet</b>										
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
Average Plant in Service	274,485,448	289,675,498	297,600,298	307,736,578	321,623,978	339,643,398	359,033,413	375,334,028	389,550,428	404,526,228
Materials and Supplies	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893
Average Accumulated Depreciation	(60,933,289)	(66,807,409)	(72,857,271)	(78,978,858)	(85,234,010)	(91,724,193)	(98,510,791)	(105,548,122)	(112,756,397)	(120,111,722)
Regulatory Liability	(2,990,855)	(2,531,222)	(2,071,589)	(1,611,956)	(1,152,323)	(692,690)	(233,057)	-	-	-
Rate Base	211,340,197	221,115,760	223,450,331	227,924,657	236,016,538	248,005,408	261,068,457	270,564,798	277,572,924	285,193,399

Rate of Return	<b>2.4%</b>	<b>6.0%</b>	<b>7.3%</b>	<b>8.5%</b>	<b>9.6%</b>	<b>8.5%</b>	<b>7.4%</b>	<b>6.5%</b>	<b>5.8%</b>	<b>5.2%</b>
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Existing Debt	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	Sum 2028-2099
Principal Payments	9,820,000	10,020,000	11,370,000	11,795,000	12,385,000	12,860,000	13,185,000	13,570,000	14,065,000	14,135,000	99,320,000
Interest Payments	7,216,293	8,090,128	8,337,289	7,800,233	7,226,620	6,618,708	5,986,581	5,355,118	4,746,476	4,144,340	
Miscellaneous Charges	(151,590)	(145,390)	(138,151)	(130,186)	(121,526)	(112,167)	(102,087)	(91,259)	(79,618)	(66,701)	

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<b>Alternative B2: Annual Rate Increases</b>											
Rate Increase from Previous Year	n/a	detailed		<b>9.0%</b>	<b>9.00%</b>	<b>9.0%</b>	<b>0%</b>	<b>0.0%</b>	<b>0%</b>	<b>0.0%</b>	<b>0%</b>
Assumed Effective Date	n/a	11/1/2018		12/31/2019 n/a		12/31/2021 n/a		12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from Previous Yea	n/a	n/a		<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>
<b>New Debt</b>											
Debt Issued		-		<b>10,742,600</b>	<b>8,973,873</b>	<b>8,622,149</b>	<b>17,407,655</b>	<b>18,000,000</b>	<b>15,000,000</b>	<b>12,100,000</b>	<b>14,200,000</b>
Interest Rate	n/a	n/a		4.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Term		20		20	20	20	20	20	20	20	20
Index	-	1	2	3	4	5	6	7	8	9	2028 10
2020 Principal	-	-	-	342,433	357,842	373,945	390,773	408,357	426,733	445,936	466,004
2021 Principal	-	-	-	-	271,393	284,963	299,211	314,171	329,880	346,374	363,693
2022 Principal	-	-	-	-	-	260,756	273,794	287,484	301,858	316,951	332,798
2023 Principal	-	-	-	-	-	-	526,453	552,775	580,414	609,435	639,906
2024 Principal	-	-	-	-	-	-	-	544,367	571,585	600,164	630,172
2025 Principal	-	-	-	-	-	-	-	-	453,639	476,321	500,137
2026 Principal	-	-	-	-	-	-	-	-	-	365,935	384,232
2027 Principal	-	-	-	-	-	-	-	-	-	-	429,445
Total New Debt Principal	-	-	-	342,433	629,235	919,664	1,490,230	2,107,154	2,664,109	3,161,116	3,746,387
2020 Interest	-	-	-	483,417	468,008	451,905	435,077	417,492	399,116	379,913	359,846
2021 Interest	-	-	-	-	448,694	435,124	420,876	405,915	390,207	373,713	356,394
2022 Interest	-	-	-	-	-	431,107	418,070	404,380	390,006	374,913	359,065
2023 Interest	-	-	-	-	-	-	870,383	844,060	816,421	787,401	756,929
2024 Interest	-	-	-	-	-	-	-	900,000	872,782	844,202	814,194
2025 Interest	-	-	-	-	-	-	-	-	750,000	727,318	703,502
2026 Interest	-	-	-	-	-	-	-	-	-	605,000	586,703
2027 Interest	-	-	-	-	-	-	-	-	-	-	710,000
Total New Debt Interest	-	-	-	483,417	916,701	1,318,136	2,144,405	2,971,848	3,618,532	4,092,460	4,646,634
Cumulative Existing Debt		202,685,000	191,315,000	179,520,000	167,135,000	154,275,000	141,090,000	127,520,000	113,455,000	99,320,000	
Cumulative New Debt		-	10,742,600	19,374,041	27,366,955	43,854,945	60,364,716	73,257,561	82,693,453	93,732,337	
Total Debt		202,685,000	202,057,600	198,894,041	194,501,955	198,129,945	201,454,716	200,777,561	196,148,453	193,052,337	
Debt Coverage		<b>2.04</b>	<b>2.91</b>	<b>2.84</b>	<b>2.95</b>	<b>3.04</b>	<b>2.80</b>	<b>2.57</b>	<b>2.34</b>	<b>2.13</b>	<b>2.01</b>

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<b>Alternative B2: Biannual Rate Increases</b>										
Index	1	2	3	4	5	6	7	8	9	10
2028 - Simplified 2029 - Simplified 2030 - Simplified 2031 - Simplified 2032 - Simplified 2033 - Simplified 2034 - Simplified 2035 - Simplified 2036 - Simplified 2037 - Simplified										
<b>Rate Base</b>										
3.7%	Annual rate increase									
-0.5%	Annual sales growth									
Revenue	57,907,650	59,749,982	61,650,928	63,612,352	65,636,179	67,724,394	69,879,046	72,102,248	74,396,181	76,763,095
<b>4%</b> Expense growth										
Expenses	22,298,717.72	23,190,666	24,118,293	25,083,025	26,086,346	27,129,800	28,214,992	29,343,591	30,517,335	31,738,028
Taxes	11,230,737	11,679,966	12,147,165	12,633,052	13,138,374	13,663,909	14,210,465	14,778,883	15,370,039	15,984,840
Depreciation	9,557,903	9,940,219	10,337,828	10,751,341	11,181,394	11,628,650	12,093,796	12,577,548	13,080,650	13,603,876
Net Income	14,820,293	14,939,131	15,047,642	15,144,935	15,230,065	15,302,036	15,359,793	15,402,225	15,428,157	15,436,351
<b>3.0%</b> Rate Base Growth										
Rate Base	293,749,201	302,561,677	311,638,527	320,987,683	330,617,314	340,535,833	350,751,908	361,274,465	372,112,699	383,276,080
Rate of Return	5.0%	4.9%	4.8%	4.7%	4.6%	4.5%	4.4%	4.3%	4.1%	4.0%
<b>100%</b> Debt Issued Percent of Principal Paid										
<b>Cash</b>										
Capital Expenditures	(18,113,705)	(18,752,695)	(19,414,678)	(20,100,496)	(20,811,025)	(21,547,169)	(22,309,871)	(23,100,105)	(23,918,884)	(24,767,257)
Debt Issued	18,446,387	18,341,376	17,405,510	14,574,241	14,278,044	13,482,418	12,642,885	11,424,995	11,914,324	9,521,477
Payment on 2028 and Later Debt	(1,480,186)	(2,951,945)	(4,348,608)	(5,518,083)	(6,663,790)	(7,745,655)	(8,760,152)	(9,676,924)	(10,632,960)	(11,396,988)
Interest on Pre-2019 Debt	(3,491,434)	(2,915,834)	(2,374,178)	(1,925,249)	(1,555,131)	(1,221,381)	(923,678)	(669,044)	(438,163)	(245,800)
Principal on Pre-2019 Debt	(14,700,000)	(14,410,000)	(13,280,000)	(10,245,000)	(9,735,000)	(8,715,000)	(7,640,000)	(6,175,000)	(6,405,000)	(3,740,000)
Principal on 2019 and Later Debt	(3,746,387)	(3,931,376)	(4,125,510)	(4,329,241)	(4,543,044)	(4,767,418)	(5,002,885)	(5,249,995)	(5,509,324)	(5,781,477)
Interest on 2019 and Later Debt	(4,646,634)	(4,461,645)	(4,267,511)	(4,063,780)	(3,849,976)	(3,625,603)	(3,390,136)	(3,143,026)	(2,883,697)	(2,611,544)
Non-Operating Income	1,330,116	1,379,331	1,430,366	1,483,289	1,538,171	1,595,084	1,654,102	1,715,303	1,778,770	1,844,584
Depreciation	9,557,903	9,940,219	10,337,828	10,751,341	11,181,394	11,628,650	12,093,796	12,577,548	13,080,650	13,603,876
Net Cash Flow	(2,023,646)	(2,823,438)	(3,589,139)	(4,228,043)	(4,930,292)	(5,614,039)	(6,276,146)	(6,894,022)	(7,586,126)	(8,136,778)
End-of-Year Cash Reserve	53,060,463	50,237,025	46,647,886	42,419,843	37,489,551	31,875,513	25,599,367	18,705,345	11,119,219	2,982,441
<b>60%</b> Estimated Principal as a Share of Debt Service for 2028 and Later Debt										
<b>Capital Structure</b>										
Simplified Total Debt	192,164,225	190,393,058	187,783,893	184,473,043	180,474,769	175,827,376	170,571,285	164,765,130	158,385,355	151,547,162
Simplified Total Equity	154,009,883	161,770,088	169,866,964	178,298,927	186,996,540	195,948,413	205,144,434	214,579,123	224,211,007	234,075,803
Debt Share of Capital Structure	56%	54%	53%	51%	49%	47%	45%	43%	41%	39%

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<b>Alternative B2: Biannual Rate Increases</b>										
	11	12	13	14	15	16	17	18	19	20
2038 - Simplified 2039 - Simplified 2040 - Simplified 2041 - Simplified 2042 - Simplified 2043 - Simplified 2044 - Simplified 2045 - Simplified 2046 - Simplified 2047 - Simplified										
<b>Rate Base</b>										
Revenue	79,205,313	81,725,230	84,325,318	87,008,128	89,776,292	92,632,525	95,579,628	98,620,494	101,758,105	104,995,539
Expenses	33,007,549	34,327,851	35,700,966	37,129,004	38,614,164	40,158,731	41,765,080	43,435,683	45,173,111	46,980,035
Taxes	16,624,234	17,289,203	17,980,771	18,700,002	19,448,002	20,225,923	21,034,959	21,876,358	22,751,412	23,661,469
Depreciation	14,148,031	14,713,952	15,302,510	15,914,610	16,551,195	17,213,243	17,901,772	18,617,843	19,362,557	20,137,059
Net Income	15,425,499	15,394,223	15,341,071	15,264,511	15,162,930	15,034,628	14,877,816	14,690,610	14,471,025	14,216,976
Rate Base	394,774,363	406,617,594	418,816,121	431,380,605	444,322,023	457,651,684	471,381,234	485,522,671	500,088,352	515,091,002
Rate of Return	3.9%	3.8%	3.7%	3.5%	3.4%	3.3%	3.2%	3.0%	2.9%	2.8%
<b>Cash</b>										
Capital Expenditures	(25,646,313)	(26,557,183)	(27,501,038)	(28,479,094)	(29,492,613)	(30,542,903)	(31,631,323)	(32,759,280)	(33,928,237)	(35,139,710)
Debt Issued	8,162,088	8,546,824	6,681,384	6,185,652	5,774,848	5,371,726	4,243,478	3,011,285	1,958,210	1,085,185
Payment on 2028 and Later Debt	(12,051,935)	(12,737,754)	(13,273,885)	(13,770,238)	(14,233,627)	(14,664,668)	(15,005,176)	(15,246,809)	(15,403,941)	(15,491,019)
Interest on Pre-2019 Debt	(129,100)	(43,600)	-	-	-	-	-	-	-	-
Principal on Pre-2019 Debt	(2,095,000)	(2,180,000)	-	-	-	-	-	-	-	-
Principal on 2019 and Later Debt	(6,067,088)	(6,366,824)	(6,681,384)	(6,185,652)	(5,774,848)	(5,371,726)	(4,243,478)	(3,011,285)	(1,958,210)	(1,085,185)
Interest on 2019 and Later Debt	(2,325,933)	(2,026,197)	(1,711,637)	(1,381,519)	(1,072,237)	(783,494)	(514,908)	(302,734)	(152,170)	(54,259)
Non-Operating Income	1,912,834	1,983,609	2,057,002	2,133,111	2,212,036	2,293,882	2,378,755	2,466,769	2,558,040	2,652,687
Depreciation	14,148,031	14,713,952	15,302,510	15,914,610	16,551,195	17,213,243	17,901,772	18,617,843	19,362,557	20,137,059
Net Cash Flow	(8,666,917)	(9,272,950)	(9,785,977)	(10,318,619)	(10,872,315)	(11,449,313)	(11,993,063)	(12,533,601)	(13,092,726)	(13,678,265)
End-of-Year Cash Reserve	(5,684,477)	(14,957,427)	(24,743,404)	(35,062,022)	(45,934,338)	(57,383,651)	(69,376,713)	(81,910,314)	(95,003,040)	(108,681,306)
<b>Capital Structure</b>										
Simplified Total Debt	144,316,001	136,673,349	128,709,018	120,446,875	111,906,699	103,107,898	94,104,792	84,956,707	75,714,342	66,419,731
Simplified Total Equity	244,138,328	254,351,262	264,728,144	275,236,152	285,845,431	296,524,579	307,264,173	318,020,094	328,735,413	339,354,409
Debt Share of Capital Structure	37%	35%	33%	30%	28%	26%	23%	21%	19%	16%

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<b>Alternative C: Surcharge with Level Debt</b>										
Rate Increase from Previous Year	n/a	detailed	<b>0%</b>	<b>0%</b>	<b>9%</b>	<b>0%</b>	<b>9%</b>	<b>0%</b>	<b>5%</b>	<b>0%</b>
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from Previ	n/a	n/a	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>
<b>Income Statement</b>										
Revenue	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Unmetered Sales	1,960,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Metered Retail Sales	28,316,000	43,673,729	43,455,360	43,238,084	46,893,864	46,659,394	50,604,446	50,351,424	52,604,650	52,341,627
Wholesale Sales	270,000	315,351	313,770	312,200	338,600	336,910	365,400	363,570	379,840	377,940
Public Fire	4,100,000	79,292	79,292	79,292	86,428	86,428	94,207	94,207	98,917	98,917
Private Fire	600,000	-	-	-	-	-	-	-	-	-
Other Revenue	1,050,000	1,058,700	1,067,487	1,076,362	1,085,325	1,094,379	1,103,523	1,112,758	1,122,085	1,131,506
<b>Total Revenue</b>	<b>36,296,000</b>	<b>45,287,072</b>	<b>45,075,909</b>	<b>44,865,938</b>	<b>48,564,217</b>	<b>48,337,111</b>	<b>52,327,576</b>	<b>52,081,959</b>	<b>54,365,492</b>	<b>54,109,990</b>
Expense Increase	n/a	3%	3%	3%	3%	3%	3%	3%	3%	3%
Expense										
Supply	47,500	48,925	50,393	51,905	53,462	55,066	56,717	58,419	60,172	61,977
Pumping	3,596,000	3,703,880	3,814,996	3,929,446	4,047,330	4,168,750	4,293,812	4,422,626	4,555,305	4,691,964
Treatment	722,250	743,918	766,235	789,222	812,899	837,286	862,404	888,276	914,925	942,372
Distribution	5,546,600	5,712,998	5,884,388	6,060,920	6,242,747	6,430,030	6,622,930	6,821,618	7,026,267	7,237,055
Customer Accounts	824,500	881,035	907,466	934,690	962,731	991,613	1,021,361	1,052,002	1,083,562	1,116,069
Admin General	5,508,000	5,064,045	5,302,508	5,554,183	5,819,890	6,100,504	6,396,957	6,710,245	7,041,428	7,391,637
<b>Total Expenses</b>	<b>16,244,850</b>	<b>16,154,801</b>	<b>16,725,986</b>	<b>17,320,365</b>	<b>17,939,058</b>	<b>18,583,247</b>	<b>19,254,182</b>	<b>19,953,187</b>	<b>20,681,658</b>	<b>21,441,075</b>
Taxes	7,457,043	8,148,122	8,255,790	8,492,402	8,791,019	9,180,630	9,647,725	10,093,791	10,436,396	10,798,785
Depreciation	7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291
<b>Net Operating Income</b>	<b>5,109,438</b>	<b>13,202,934</b>	<b>12,257,980</b>	<b>11,128,506</b>	<b>13,730,856</b>	<b>12,178,509</b>	<b>14,729,554</b>	<b>13,138,790</b>	<b>14,209,436</b>	<b>12,679,839</b>
Surcharge Rate per Equivalent Me	-	-	<b>11.00</b>	<b>11.00</b>	<b>13.00</b>	<b>13.00</b>	<b>15.50</b>	<b>15.50</b>	<b>15.50</b>	<b>15.50</b>
Equivalent Meters	93,435	93,435	93,435	93,435	93,435	93,435	93,435	93,435	93,435	93,435
Surcharge Revenue	-	-	<b>4,111,140</b>	<b>4,111,140</b>	<b>4,858,620</b>	<b>4,858,620</b>	<b>5,792,970</b>	<b>5,792,970</b>	<b>5,792,970</b>	<b>5,792,970</b>
Interest on Debt	(7,064,703)	(7,944,739)	(8,199,138)	(8,153,463)	(8,073,101)	(8,068,324)	(8,409,671)	(8,604,237)	(8,641,066)	(8,512,280)
Other Net Non-Operating	1,589,598	1,574,087	1,462,982	1,450,981	1,432,064	1,409,789	1,392,993	1,384,221	1,320,168	1,282,658
<b>Net Income</b>	<b>(365,667)</b>	<b>6,832,282</b>	<b>9,632,964</b>	<b>8,537,164</b>	<b>11,948,438</b>	<b>10,378,595</b>	<b>13,505,845</b>	<b>11,711,744</b>	<b>12,681,508</b>	<b>11,243,187</b>



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<b>Alternative C: Surcharge with Level Debt</b>											
Rate Increase from Previous Year	n/a	detailed	0%	0%	9%	0%	9%	0%	5%	0%	
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027	
Change in Billing Units from Previ	n/a	n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	
<b>New Debt</b>											
Debt Issued	-	-	10,742,600	10,000,000	12,500,000	20,300,000	18,000,000	15,000,000	12,100,000	14,200,000	
Interest Rate	n/a	n/a	4.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Term	20	20	20	20	20	20	20	20	20	20	
Index	-	1	2	3	4	5	6	7	8	9	10
2020 Principal	-	-	-	342,433	357,842	373,945	390,773	408,357	426,733	445,936	466,004
2021 Principal	-	-	-	-	302,426	317,547	333,425	350,096	367,601	385,981	405,280
2022 Principal	-	-	-	-	-	378,032	396,934	416,781	437,620	459,501	482,476
2023 Principal	-	-	-	-	-	-	613,925	644,621	676,852	710,694	746,229
2024 Principal	-	-	-	-	-	-	-	544,367	571,585	600,164	630,172
2025 Principal	-	-	-	-	-	-	-	-	453,639	476,321	500,137
2026 Principal	-	-	-	-	-	-	-	-	-	365,935	384,232
2027 Principal	-	-	-	-	-	-	-	-	-	-	429,445
<b>Total New Debt Principal</b>	-	-	-	342,433	660,268	1,069,525	1,735,056	2,364,221	2,934,029	3,444,532	4,043,974
2020 Interest	-	-	-	483,417	468,008	451,905	435,077	417,492	399,116	379,913	359,846
2021 Interest	-	-	-	-	500,000	484,879	469,001	452,330	434,825	416,445	397,146
2022 Interest	-	-	-	-	-	625,000	606,098	586,252	565,413	543,532	520,557
2023 Interest	-	-	-	-	-	-	1,015,000	984,304	952,073	918,230	882,695
2024 Interest	-	-	-	-	-	-	-	900,000	872,782	844,202	814,194
2025 Interest	-	-	-	-	-	-	-	-	750,000	727,318	703,502
2026 Interest	-	-	-	-	-	-	-	-	-	605,000	586,703
2027 Interest	-	-	-	-	-	-	-	-	-	-	710,000
<b>Total New Debt Interest</b>	-	-	-	483,417	968,008	1,561,783	2,525,177	3,340,378	3,974,209	4,434,641	4,974,644
Cumulative Existing Debt		202,685,000	191,315,000	179,520,000	167,135,000	154,275,000	141,090,000	127,520,000	113,455,000	99,320,000	
Cumulative New Debt		-	10,742,600	20,400,167	32,239,899	51,470,375	67,735,319	80,371,098	89,537,069	100,292,537	
<b>Total Debt</b>		202,685,000	202,057,600	199,920,167	199,374,899	205,745,375	208,825,319	207,891,098	202,992,069	199,612,537	
<b>Debt Coverage</b>		<b>2.04</b>	<b>2.91</b>	<b>2.49</b>	<b>2.27</b>	<b>2.35</b>	<b>2.14</b>	<b>2.22</b>	<b>2.02</b>	<b>1.98</b>	<b>1.86</b>



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<b>Alternative D: Surcharge with Falling Debt</b>										
Rate Increase from Previous	n/a	detailed	<b>0%</b>	<b>0%</b>	<b>7%</b>	<b>0%</b>	<b>9%</b>	<b>0%</b>	<b>9%</b>	<b>0%</b>
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from	n/a	n/a	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>

<b>Income Statement</b>										
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
<b>Revenue</b>										
Unmetered Sales	1,960,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Metered Retail Sales	28,316,000	43,673,729	43,455,360	43,238,084	45,861,338	45,632,031	49,490,220	49,242,769	53,406,245	53,139,213
Wholesale Sales	270,000	315,351	313,770	312,200	331,140	329,480	357,340	355,550	385,610	383,680
Public Fire	4,100,000	79,292	79,292	79,292	84,525	84,525	92,133	92,133	100,424	100,424
Private Fire	600,000	-	-	-	-	-	-	-	-	-
Other Revenue	1,050,000	1,058,700	1,067,487	1,076,362	1,085,325	1,094,379	1,103,523	1,112,758	1,122,085	1,131,506
<b>Total Revenue</b>	<b>36,296,000</b>	<b>45,287,072</b>	<b>45,075,909</b>	<b>44,865,938</b>	<b>47,522,328</b>	<b>47,300,416</b>	<b>51,203,215</b>	<b>50,963,209</b>	<b>55,174,364</b>	<b>54,914,824</b>
Expense Increase	n/a	3%	3%	3%	3%	3%	3%	3%	3%	3%
<b>Expense</b>										
Supply	47,500	48,925	50,393	51,905	53,462	55,066	56,717	58,419	60,172	61,977
Pumping	3,596,000	3,703,880	3,814,996	3,929,446	4,047,330	4,168,750	4,293,812	4,422,626	4,555,305	4,691,964
Treatment	722,250	743,918	766,235	789,222	812,899	837,286	862,404	888,276	914,925	942,372
Distribution	5,546,600	5,712,998	5,884,388	6,060,920	6,242,747	6,430,030	6,622,930	6,821,618	7,026,267	7,237,055
Customer Accounts	824,500	881,035	907,466	934,690	962,731	991,613	1,021,361	1,052,002	1,083,562	1,116,069
Admin General	5,508,000	5,064,045	5,302,508	5,554,183	5,819,890	6,100,504	6,396,957	6,710,245	7,041,428	7,391,637
<b>Total Expenses</b>	<b>16,244,850</b>	<b>16,154,801</b>	<b>16,725,986</b>	<b>17,320,365</b>	<b>17,939,058</b>	<b>18,583,247</b>	<b>19,254,182</b>	<b>19,953,187</b>	<b>20,681,658</b>	<b>21,441,075</b>
Taxes	7,457,043	8,148,122	8,255,790	8,492,402	8,791,019	9,180,630	9,647,725	10,093,791	10,436,396	10,798,785
Depreciation	7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291
<b>Net Operating Income</b>	<b>5,109,438</b>	<b>13,202,934</b>	<b>12,257,980</b>	<b>11,128,506</b>	<b>12,688,967</b>	<b>11,141,814</b>	<b>13,605,193</b>	<b>12,020,040</b>	<b>15,018,308</b>	<b>13,484,673</b>
Surcharge Rate per Equivale	-	-	<b>29.00</b>	<b>29.00</b>	<b>35.70</b>	<b>35.70</b>	<b>36.15</b>	<b>36.15</b>	<b>37.00</b>	<b>37.00</b>
Equivalent Meters	93,435	93,435	93,435	93,435	93,435	93,435	93,435	93,435	93,435	93,435
Surcharge Revenue	-	-	<b>10,838,460</b>	<b>10,838,460</b>	<b>13,342,518</b>	<b>13,342,518</b>	<b>13,510,701</b>	<b>13,510,701</b>	<b>13,828,380</b>	<b>13,828,380</b>
Interest on Debt	(7,064,703)	(7,944,739)	(8,199,138)	(7,670,046)	(7,310,094)	(6,955,341)	(6,844,224)	(6,567,938)	(6,107,411)	(5,467,048)
Other Net Non-Operating	1,589,598	1,574,087	1,462,982	1,450,981	1,432,064	1,409,789	1,392,993	1,384,221	1,320,168	1,282,658
<b>Net Income</b>	<b>(365,667)</b>	<b>6,832,282</b>	<b>16,360,284</b>	<b>15,747,901</b>	<b>20,153,455</b>	<b>18,938,780</b>	<b>21,664,662</b>	<b>20,347,024</b>	<b>24,059,445</b>	<b>23,128,663</b>

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<b>Alternative D: Surcharge with Falling Debt</b>										
Rate Increase from Previous	n/a	detailed	0%	0%	7%	0%	9%	0%	9%	0%
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from	n/a	n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%

<b>Cash Flow</b>										
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Net Income	(365,667)	6,832,282	16,360,284	15,747,901	20,153,455	18,938,780	21,664,662	20,347,024	24,059,445	23,128,663
Depreciation	7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291
Debt Principal Payments	(7,655,000)	(10,020,000)	(11,370,000)	(11,795,000)	(12,508,995)	(13,141,407)	(13,798,025)	(14,440,495)	(15,087,894)	(15,209,038)
Debt Proceeds	41,600,000	-	-	4,100,000	5,000,000	10,500,000	7,500,000	3,600,000	-	1,200,000
Capital Expenditure	(24,296,500)	(8,380,000)	(9,766,000)	(12,802,960)	(17,268,240)	(21,067,000)	(20,009,430)	(14,888,200)	(15,841,000)	(16,407,000)
Net Contributions and Trans	3,743,114	(2,920,233)	(290,490)	(566,695)	(597,073)	(353,013)	(577,519)	(368,376)	(245,407)	(194,713)
Net Cash Flow	<b>20,510,617</b>	<b>(6,706,736)</b>	<b>2,769,948</b>	<b>2,607,911</b>	<b>2,882,432</b>	<b>3,272,085</b>	<b>3,475,804</b>	<b>3,146,145</b>	<b>1,923,146</b>	<b>1,708,203</b>
Start of Year Cash and Inves	20,693,448	41,204,065	34,497,329	37,267,277	39,875,187	42,757,619	46,029,704	49,505,508	52,651,653	54,574,799
End of Year Cash and Investi	41,204,065	34,497,329	37,267,277	39,875,187	42,757,619	46,029,704	49,505,508	52,651,653	54,574,799	56,283,001
Cash Reserve Target	<b>39,909,577</b>	<b>34,401,051</b>	<b>37,377,315</b>	<b>39,883,127</b>	<b>42,756,325</b>	<b>46,019,200</b>	<b>49,505,879</b>	<b>52,653,997</b>	<b>54,573,539</b>	<b>56,272,827</b>
Cash Reserve Over / (Short)	<b>1,294,488</b>	<b>96,278</b>	<b>(110,039)</b>	<b>(7,940)</b>	<b>1,294</b>	<b>10,505</b>	<b>(371)</b>	<b>(2,344)</b>	<b>1,259</b>	<b>10,174</b>

<b>Balance Sheet</b>										
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Average Plant in Service	274,485,448	289,675,498	297,600,298	307,736,578	321,623,978	339,643,398	359,033,413	375,334,028	389,550,428	404,526,228
Materials and Supplies	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893
Average Accumulated Depr	(60,933,289)	(66,807,409)	(72,857,271)	(78,978,858)	(85,234,010)	(91,724,193)	(98,510,791)	(105,548,122)	(112,756,397)	(120,111,722)
Regulatory Liability	(2,990,855)	(2,531,222)	(2,071,589)	(1,611,956)	(1,152,323)	(692,690)	(233,057)	-	-	-
Rate Base	211,340,197	221,115,760	223,450,331	227,924,657	236,016,538	248,005,408	261,068,457	270,564,798	277,572,924	285,193,399
Rate of Return	<b>2.4%</b>	<b>6.0%</b>	<b>5.5%</b>	<b>4.9%</b>	<b>5.4%</b>	<b>4.5%</b>	<b>5.2%</b>	<b>4.4%</b>	<b>5.4%</b>	<b>4.7%</b>

	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	Sum 2028-2099
Existing Debt											
Principal Payments	9,820,000	10,020,000	11,370,000	11,795,000	12,385,000	12,860,000	13,185,000	13,570,000	14,065,000	14,135,000	99,320,000
Interest Payments	7,216,293	8,090,128	8,337,289	7,800,233	7,226,620	6,618,708	5,986,581	5,355,118	4,746,476	4,144,340	
Miscellaneous Charges	(151,590)	(145,390)	(138,151)	(130,186)	(121,526)	(112,167)	(102,087)	(91,259)	(79,618)	(66,701)	

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Alternative D: Surcharge with Falling Debt																		
Rate Increase from Previous	n/a	detailed	0%		0%		7%		0%		9%		0%		9%		0%	
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027								
Change in Billing Units from	n/a	n/a	-0.5%		-0.5%		-0.5%		-0.5%		-0.5%		-0.5%		-0.5%			
<b>New Debt</b>																		
Debt Issued	-	-	-		4,100,000		5,000,000		10,500,000		7,500,000		3,600,000		-		1,200,000	
Interest Rate	n/a	n/a	4.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Term	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
Index	-	1	2	3	4	5	6	7	8	9	10							
2020 Principal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2021 Principal	-	-	-	-	123,995	130,194	136,704	143,539	150,716	158,252	166,165	174,413	183,000	192,990	203,413	214,688	226,833	239,868
2022 Principal	-	-	-	-	-	151,213	158,774	166,712	175,048	183,800	192,990	203,413	214,688	226,833	239,868	253,813	268,618	284,303
2023 Principal	-	-	-	-	-	-	317,547	333,425	350,096	367,601	385,981	405,252	425,433	446,554	468,635	491,686	515,727	540,768
2024 Principal	-	-	-	-	-	-	-	226,819	238,160	250,068	262,572	275,683	289,413	303,783	318,813	334,513	350,893	367,963
2025 Principal	-	-	-	-	-	-	-	-	108,873	114,317	120,033	126,033	132,313	138,883	145,743	152,893	160,343	168,093
2026 Principal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2027 Principal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	36,291
<b>Total New Debt Princij</b>	-	-	-	-	123,995	281,407	613,025	870,495	1,022,894	1,074,038	1,164,031	1,293,031	1,457,031	1,657,031	1,903,031	2,205,031	2,573,031	3,017,031
2020 Interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2021 Interest	-	-	-	-	205,000	198,800	192,291	185,455	178,278	170,743	162,830	154,543	146,083	137,453	128,663	119,613	110,313	100,763
2022 Interest	-	-	-	-	-	250,000	242,439	234,501	226,165	217,413	208,223	198,613	188,503	178,003	167,113	155,843	144,213	132,233
2023 Interest	-	-	-	-	-	-	525,000	509,123	492,451	474,947	456,567	437,343	417,283	396,393	374,683	352,153	328,813	304,663
2024 Interest	-	-	-	-	-	-	-	375,000	363,659	351,751	339,248	326,113	312,343	297,943	282,913	267,253	250,963	234,143
2025 Interest	-	-	-	-	-	-	-	-	180,000	174,556	168,840	162,853	156,603	150,193	143,623	136,893	130,013	122,983
2026 Interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2027 Interest	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60,000
<b>Total New Debt Intere</b>	-	-	-	-	205,000	448,800	959,730	1,304,079	1,440,554	1,389,409	1,395,707	1,457,031	1,573,031	1,737,031	1,950,031	2,213,031	2,537,031	2,932,031
Cumulative Existing Debt	202,685,000	191,315,000	179,520,000	167,135,000	154,275,000	141,090,000	127,520,000	113,455,000	99,320,000	85,125,000	70,880,000	56,685,000	42,540,000	28,445,000	14,400,000	0,405,000	-137,000	-280,000
Cumulative New Debt	-	-	4,100,000	8,976,005	19,194,598	26,081,573	28,811,078	27,788,184	27,914,146	28,200,108	28,636,068	29,222,031	29,958,031	30,844,031	31,880,031	33,066,031	34,402,031	35,888,031
<b>Total Debt</b>	<b>202,685,000</b>	<b>191,315,000</b>	<b>183,620,000</b>	<b>176,111,005</b>	<b>173,469,598</b>	<b>167,171,573</b>	<b>156,331,078</b>	<b>141,243,184</b>	<b>127,234,146</b>	<b>113,025,108</b>	<b>98,516,108</b>	<b>83,907,031</b>	<b>69,297,031</b>	<b>54,687,031</b>	<b>40,077,031</b>	<b>25,467,031</b>	<b>10,857,031</b>	<b>-378,000</b>
Debt Coverage	2.04	2.91	2.49	2.34	2.36	2.19	2.32	2.15	2.29	2.20								

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<b>Alternative E: Expense Depreciation; No Surcharge</b>										
Rate Increase from Previous Year	n/a	detailed	9%	0%	8%	0%	8%	0%	5%	0%
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from Previous Year	n/a	n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%

<b>Income Statement</b>										
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
<b>Revenue</b>										
Unmetered Sales	1,960,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Metered Retail Sales	28,316,000	43,673,729	47,366,343	47,129,511	50,410,903	50,158,849	53,950,607	53,680,854	56,296,722	56,015,238
Wholesale Sales	270,000	315,351	342,010	340,300	363,990	362,170	389,550	387,600	406,490	404,460
Public Fire	4,100,000	79,292	86,428	86,428	92,910	92,910	100,436	100,436	105,860	105,860
Private Fire	600,000	-	-	-	-	-	-	-	-	-
Other Revenue	1,050,000	1,058,700	1,067,487	1,076,362	1,085,325	1,094,379	1,103,523	1,112,758	1,122,085	1,131,506
<b>Total Revenue</b>	<b>36,296,000</b>	<b>45,287,072</b>	<b>49,022,268</b>	<b>48,792,601</b>	<b>52,113,129</b>	<b>51,868,308</b>	<b>55,704,116</b>	<b>55,441,648</b>	<b>58,091,157</b>	<b>57,817,064</b>
Expense Depreciation Factor	50%									
Expense Depreciation	-	-	4,627,000	5,018,213	4,993,122	6,292,500	6,261,038	6,734,341	6,700,669	7,027,193
Water Main Depreciation Rate	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Expense Increase	n/a	3%	3%	3%	3%	3%	3%	3%	3%	3%
<b>Expense</b>										
Supply	47,500	48,925	50,393	51,905	53,462	55,066	56,717	58,419	60,172	61,977
Pumping	3,596,000	3,703,880	3,814,996	3,929,446	4,047,330	4,168,750	4,293,812	4,422,626	4,555,305	4,691,964
Treatment	722,250	743,918	766,235	789,222	812,899	837,286	862,404	888,276	914,925	942,372
Distribution	5,546,600	5,712,998	5,884,388	6,060,920	6,242,747	6,430,030	6,622,930	6,821,618	7,026,267	7,237,055
Customer Accounts	824,500	881,035	907,466	934,690	962,731	991,613	1,021,361	1,052,002	1,083,562	1,116,069
Admin General	5,508,000	5,064,045	5,302,508	5,554,183	5,819,890	6,100,504	6,396,957	6,710,245	7,041,428	7,391,637
<b>Total Expenses</b>	<b>16,244,850</b>	<b>16,154,801</b>	<b>16,725,986</b>	<b>17,320,365</b>	<b>17,939,058</b>	<b>18,583,247</b>	<b>19,254,182</b>	<b>19,953,187</b>	<b>20,681,658</b>	<b>21,441,075</b>
Taxes	7,457,043	8,148,122	8,255,790	8,492,402	8,791,019	9,180,630	9,647,725	10,093,791	10,436,396	10,798,785
Depreciation	7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291
Reduce Depreciation on Water Main	-	-	(60,151)	(125,388)	(190,298)	(272,101)	(353,494)	(441,041)	(528,149)	(619,503)
<b>Net Operating Income</b>	<b>5,109,438</b>	<b>13,202,934</b>	<b>20,891,490</b>	<b>20,198,771</b>	<b>22,463,188</b>	<b>22,274,307</b>	<b>24,720,626</b>	<b>23,673,860</b>	<b>25,163,919</b>	<b>24,033,608</b>
Interest on Debt	(7,064,703)	(7,944,739)	(8,199,138)	(7,778,046)	(7,509,651)	(7,339,427)	(7,360,759)	(7,228,425)	(6,894,611)	(6,477,779)
Other Net Non-Operating	1,589,598	1,574,087	1,462,982	1,450,981	1,432,064	1,409,789	1,392,993	1,384,221	1,320,168	1,282,658
<b>Net Income</b>	<b>(365,667)</b>	<b>6,832,282</b>	<b>14,155,334</b>	<b>13,871,705</b>	<b>16,385,601</b>	<b>16,344,669</b>	<b>18,752,860</b>	<b>17,829,656</b>	<b>19,589,476</b>	<b>18,838,487</b>

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**Alternative E: Expense Depreciation; No Surcharge**

Rate Increase from Previous Year	n/a	detailed	<b>9%</b>	<b>0%</b>	<b>8%</b>	<b>0%</b>	<b>8%</b>	<b>0%</b>	<b>5%</b>	<b>0%</b>
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from Previous Year	n/a	n/a	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>

**Cash Flow**

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Net Income	(365,667)	6,832,282	14,155,334	13,871,705	16,385,601	16,344,669	18,752,860	17,829,656	19,589,476	18,838,487
Depreciation	7,484,669	7,781,215	7,776,002	7,799,276	7,912,986	8,122,625	8,342,620	8,455,151	8,509,853	8,570,788
Debt Principal Payments	(7,655,000)	(10,020,000)	(11,370,000)	(11,871,503)	(12,646,401)	(13,400,811)	(14,157,684)	(14,915,385)	(15,676,799)	(15,979,638)
Debt Proceeds	41,600,000	-	2,400,000	6,000,000	8,820,000	13,400,000	10,730,000	6,600,000	5,050,000	6,250,000
Capital Expenditure	(24,296,500)	(8,380,000)	(9,766,000)	(12,802,960)	(17,268,240)	(21,067,000)	(20,009,430)	(14,888,200)	(15,841,000)	(16,407,000)
Net Contributions and Transfers In	3,743,114	(2,920,233)	(290,490)	(566,695)	(597,073)	(353,013)	(577,519)	(368,376)	(245,407)	(194,713)
Net Cash Flow	20,510,617	(6,706,736)	2,904,846	2,555,212	2,797,171	3,318,570	3,434,341	3,153,887	1,914,272	1,697,428
Start of Year Cash and Investments	20,693,448	41,204,065	34,497,329	37,402,175	39,957,388	42,754,558	46,073,129	49,507,470	52,661,357	54,575,628
End of Year Cash and Investments	41,204,065	34,497,329	37,402,175	39,957,388	42,754,558	46,073,129	49,507,470	52,661,357	54,575,628	56,273,056
Cash Reserve Target	<b>39,909,577</b>	<b>34,401,051</b>	<b>37,377,315</b>	<b>39,883,127</b>	<b>42,756,325</b>	<b>46,019,200</b>	<b>49,505,879</b>	<b>52,653,997</b>	<b>54,573,539</b>	<b>56,272,827</b>
Cash Reserve Over / (Short)	<b>1,294,488</b>	<b>96,278</b>	<b>24,860</b>	<b>74,260</b>	<b>(1,767)</b>	<b>53,929</b>	<b>1,591</b>	<b>7,360</b>	<b>2,089</b>	<b>229</b>

**Balance Sheet**

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Average Plant in Service	274,485,448	289,675,498	297,600,298	307,736,578	321,623,978	339,643,398	359,033,413	375,334,028	389,550,428	404,526,228
Materials and Supplies	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893
Average Accumulated Depreciation	(60,933,289)	(66,807,409)	(72,857,271)	(78,978,858)	(85,234,010)	(91,724,193)	(98,510,791)	(105,548,122)	(112,756,397)	(120,111,722)
Regulatory Liability	(2,990,855)	(2,531,222)	(2,071,589)	(1,611,956)	(1,152,323)	(692,690)	(233,057)	-	-	-
Rate Base	211,340,197	221,115,760	218,823,331	218,279,444	221,378,203	227,074,573	233,876,585	236,638,586	236,946,042	237,539,325
Water Main Additions	13,997,000	7,889,000	9,254,000	11,709,000	11,135,000	12,585,000	15,313,000	14,050,000	15,041,000	15,493,000
Rate of Return	<b>2.4%</b>	<b>6.0%</b>	<b>7.4%</b>	<b>7.0%</b>	<b>7.9%</b>	<b>7.0%</b>	<b>7.9%</b>	<b>7.2%</b>	<b>7.8%</b>	<b>7.2%</b>

	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	Sum 2028-2099
Existing Debt											
Principal Payments	9,820,000	10,020,000	11,370,000	11,795,000	12,385,000	12,860,000	13,185,000	13,570,000	14,065,000	14,135,000	99,320,000
Interest Payments	7,216,293	8,090,128	8,337,289	7,800,233	7,226,620	6,618,708	5,986,581	5,355,118	4,746,476	4,144,340	
Miscellaneous Charges	(151,590)	(145,390)	(138,151)	(130,186)	(121,526)	(112,167)	(102,087)	(91,259)	(79,618)	(66,701)	

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**Alternative E: Expense Depreciation; No Surcharge**

Rate Increase from Previous Year	n/a	detailed	9%	0%	8%	0%	8%	0%	5%	0%	
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027	
Change in Billing Units from Previous Year	n/a	n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	
<b>New Debt</b>											
Debt Issued	-	-	2,400,000	6,000,000	8,820,000	13,400,000	10,730,000	6,600,000	5,050,000	6,250,000	
Interest Rate	n/a	n/a	4.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Term	20	20	20	20	20	20	20	20	20	20	
<b>Index</b>	-	1	2	3	4	5	6	7	8	9	10
2020 Principal	-	-	-	76,503	79,945	83,543	87,302	91,231	95,336	99,626	104,110
2021 Principal	-	-	-	-	181,456	190,528	200,055	210,057	220,560	231,588	243,168
2022 Principal	-	-	-	-	-	266,740	280,077	294,080	308,784	324,224	340,435
2023 Principal	-	-	-	-	-	-	405,251	425,513	446,789	469,128	492,585
2024 Principal	-	-	-	-	-	-	-	324,503	340,728	357,765	375,653
2025 Principal	-	-	-	-	-	-	-	-	199,601	209,581	220,060
2026 Principal	-	-	-	-	-	-	-	-	-	152,725	160,361
2027 Principal	-	-	-	-	-	-	-	-	-	-	189,016
<b>Total New Debt Principal</b>	-	-	-	76,503	261,401	540,811	972,684	1,345,385	1,611,799	1,844,638	2,125,387
2020 Interest	-	-	-	108,000	104,557	100,960	97,200	93,272	89,166	84,876	80,393
2021 Interest	-	-	-	-	300,000	290,927	281,401	271,398	260,895	249,867	238,288
2022 Interest	-	-	-	-	-	441,000	427,663	413,659	398,955	383,516	367,305
2023 Interest	-	-	-	-	-	-	670,000	649,737	628,462	606,122	582,666
2024 Interest	-	-	-	-	-	-	-	536,500	520,275	503,238	485,350
2025 Interest	-	-	-	-	-	-	-	-	330,000	320,020	309,541
2026 Interest	-	-	-	-	-	-	-	-	-	252,500	244,864
2027 Interest	-	-	-	-	-	-	-	-	-	-	312,500
<b>Total New Debt Interest</b>	-	-	-	108,000	404,557	832,887	1,476,264	1,964,567	2,227,753	2,400,140	2,620,906
<b>Cumulative Existing Debt</b>		202,685,000	191,315,000	179,520,000	167,135,000	154,275,000	141,090,000	127,520,000	113,455,000	99,320,000	
<b>Cumulative New Debt</b>		-	2,400,000	8,323,497	16,882,096	29,741,286	39,498,601	44,753,216	48,191,417	52,596,780	
<b>Total Debt</b>		202,685,000	193,715,000	187,843,497	184,017,096	184,016,286	180,588,601	172,273,216	161,646,417	151,916,780	
<b>Debt Coverage</b>	<b>2.04</b>	<b>2.91</b>	<b>2.84</b>	<b>2.65</b>	<b>2.70</b>	<b>2.48</b>	<b>2.57</b>	<b>2.38</b>	<b>2.39</b>	<b>2.28</b>	

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<b>Alternative F: Expense Depreciation and Surcharge</b>										
Rate Increase from Previous Year	n/a	detailed	0%	0%	3%	0%	8%	0%	7%	0%
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from Previous Year	n/a	n/a	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%	-0.5%
<b>Income Statement</b>										
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
<b>Revenue</b>										
Unmetered Sales	1,960,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000	160,000
Metered Retail Sales	28,316,000	43,673,729	43,455,360	43,238,084	44,097,440	43,876,953	47,062,859	46,827,545	49,854,945	49,605,671
Wholesale Sales	270,000	315,351	313,770	312,200	318,400	316,810	339,810	338,110	359,970	358,170
Public Fire	4,100,000	79,292	79,292	79,292	81,274	81,274	87,614	87,614	93,747	93,747
Private Fire	600,000	-	-	-	-	-	-	-	-	-
Other Revenue	1,050,000	1,058,700	1,067,487	1,076,362	1,085,325	1,094,379	1,103,523	1,112,758	1,122,085	1,131,506
<b>Total Revenue</b>	<b>36,296,000</b>	<b>45,287,072</b>	<b>45,075,909</b>	<b>44,865,938</b>	<b>45,742,440</b>	<b>45,529,417</b>	<b>48,753,806</b>	<b>48,526,026</b>	<b>51,590,747</b>	<b>51,349,093</b>
Expense Depreciation Factor	50%									
Expense Depreciation	-	-	4,627,000	4,603,865	4,580,846	6,292,500	6,261,038	6,715,651	6,682,073	7,114,069
Water Main Depreciation Rate	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%	1.3%
Expense Increase	n/a	3%	3%	3%	3%	3%	3%	3%	3%	3%
<b>Expense</b>										
Supply	47,500	48,925	50,393	51,905	53,462	55,066	56,717	58,419	60,172	61,977
Pumping	3,596,000	3,703,880	3,814,996	3,929,446	4,047,330	4,168,750	4,293,812	4,422,626	4,555,305	4,691,964
Treatment	722,250	743,918	766,235	789,222	812,899	837,286	862,404	888,276	914,925	942,372
Distribution	5,546,600	5,712,998	5,884,388	6,060,920	6,242,747	6,430,030	6,622,930	6,821,618	7,026,267	7,237,055
Customer Accounts	824,500	881,035	907,466	934,690	962,731	991,613	1,021,361	1,052,002	1,083,562	1,116,069
Admin General	5,508,000	5,064,045	5,302,508	5,554,183	5,819,890	6,100,504	6,396,957	6,710,245	7,041,428	7,391,637
<b>Total Expenses</b>	<b>16,244,850</b>	<b>16,154,801</b>	<b>16,725,986</b>	<b>17,320,365</b>	<b>17,939,058</b>	<b>18,583,247</b>	<b>19,254,182</b>	<b>19,953,187</b>	<b>20,681,658</b>	<b>21,441,075</b>
Taxes	7,457,043	8,148,122	8,255,790	8,492,402	8,791,019	9,180,630	9,647,725	10,093,791	10,436,396	10,798,785
Depreciation	7,484,669	7,781,215	7,836,153	7,924,664	8,103,285	8,394,726	8,696,115	8,896,192	9,038,002	9,190,291
Reduce Depreciation on Water Main	-	-	(60,151)	(120,001)	(179,552)	(261,355)	(342,748)	(430,052)	(516,919)	(609,402)
<b>Net Operating Income</b>	<b>5,109,438</b>	<b>13,202,934</b>	<b>16,945,131</b>	<b>15,852,373</b>	<b>15,669,477</b>	<b>15,924,669</b>	<b>17,759,569</b>	<b>16,728,560</b>	<b>18,633,682</b>	<b>17,642,413</b>
Surcharge Rate per Equivalent Meter	-	-	11.00	11.00	18.00	18.00	18.00	18.00	18.00	18.00
Equivalent Meters	93,435	93,435	93,435	93,435	93,435	93,435	93,435	93,435	93,435	93,435
Surcharge Revenue	-	-	4,111,140	4,111,140	6,727,320	6,727,320	6,727,320	6,727,320	6,727,320	6,727,320
Interest on Debt	(7,064,703)	(7,944,739)	(8,199,138)	(7,778,046)	(7,509,651)	(7,339,427)	(7,360,759)	(7,228,425)	(6,894,611)	(6,477,779)
Other Net Non-Operating	1,589,598	1,574,087	1,462,982	1,450,981	1,432,064	1,409,789	1,392,993	1,384,221	1,320,168	1,282,658
<b>Net Income</b>	<b>(365,667)</b>	<b>6,832,282</b>	<b>14,320,115</b>	<b>13,636,447</b>	<b>16,319,209</b>	<b>16,722,351</b>	<b>18,519,123</b>	<b>17,611,676</b>	<b>19,786,560</b>	<b>19,174,612</b>

**Madison Water Utility  
Financial Forecast Model  
January 31, 2019**

<b>Alternative F: Expense Depreciation and Surcharge</b>										
Rate Increase from Previous Year	n/a	detailed	<b>0%</b>	<b>0%</b>	<b>3%</b>	<b>0%</b>	<b>8%</b>	<b>0%</b>	<b>7%</b>	<b>0%</b>
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027
Change in Billing Units from Previous Year	n/a	n/a	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>

<b>Cash Flow</b>										
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Net Income	(365,667)	6,832,282	14,320,115	13,636,447	16,319,209	16,722,351	18,519,123	17,611,676	19,786,560	19,174,612
Depreciation	7,484,669	7,781,215	7,776,002	7,804,663	7,923,732	8,133,371	8,353,367	8,466,140	8,521,083	8,580,889
Debt Principal Payments	(7,655,000)	(10,020,000)	(11,370,000)	(11,871,503)	(12,646,401)	(13,400,811)	(14,157,684)	(14,915,385)	(15,676,799)	(15,979,638)
Debt Proceeds	41,600,000	-	2,400,000	6,000,000	8,820,000	13,400,000	10,730,000	6,600,000	5,050,000	6,250,000
Capital Expenditure	(24,296,500)	(8,380,000)	(9,766,000)	(12,802,960)	(17,268,240)	(21,067,000)	(20,009,430)	(14,888,200)	(15,841,000)	(16,407,000)
Net Contributions and Transfers In	3,743,114	(2,920,233)	(290,490)	(566,695)	(597,073)	(353,013)	(577,519)	(368,376)	(245,407)	(194,713)
Net Cash Flow	20,510,617	(6,706,736)	3,069,628	2,319,954	2,730,780	3,696,253	3,200,605	2,935,907	2,111,355	2,033,552
Start of Year Cash and Investments	20,693,448	41,204,065	34,497,329	37,566,957	39,886,911	42,617,690	46,313,943	49,514,548	52,450,454	54,561,810
End of Year Cash and Investments	41,204,065	34,497,329	37,566,957	39,886,911	42,617,690	46,313,943	49,514,548	52,450,454	54,561,810	56,595,362
Cash Reserve Target	<b>39,909,577</b>	<b>34,401,051</b>	<b>37,377,315</b>	<b>39,883,127</b>	<b>42,756,325</b>	<b>46,019,200</b>	<b>49,505,879</b>	<b>52,653,997</b>	<b>54,573,539</b>	<b>56,272,827</b>
Cash Reserve Over / (Short)	<b>1,294,488</b>	<b>96,278</b>	<b>189,641</b>	<b>3,783</b>	<b>(138,635)</b>	<b>294,743</b>	<b>8,668</b>	<b>(203,543)</b>	<b>(11,730)</b>	<b>322,535</b>

<b>Balance Sheet</b>										
	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>
Average Plant in Service	274,485,448	289,675,498	297,600,298	307,736,578	321,623,978	339,643,398	359,033,413	375,334,028	389,550,428	404,526,228
Materials and Supplies	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893	778,893
Average Accumulated Depreciation	(60,933,289)	(66,807,409)	(72,857,271)	(78,978,858)	(85,234,010)	(91,724,193)	(98,510,791)	(105,548,122)	(112,756,397)	(120,111,722)
Regulatory Liability	(2,990,855)	(2,531,222)	(2,071,589)	(1,611,956)	(1,152,323)	(692,690)	(233,057)	-	-	-
Rate Base	211,340,197	221,115,760	218,823,331	218,693,792	222,204,827	227,901,197	234,703,209	237,483,899	237,809,951	238,316,357
Water Main Additions	13,997,000	7,889,000	9,254,000	11,709,000	11,135,000	12,585,000	15,313,000	14,050,000	15,041,000	15,493,000
Rate of Return	<b>2.4%</b>	<b>6.0%</b>	<b>5.6%</b>	<b>5.1%</b>	<b>5.0%</b>	<b>4.2%</b>	<b>4.9%</b>	<b>4.2%</b>	<b>5.0%</b>	<b>4.4%</b>

	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>Sum 2028-2099</b>
Existing Debt											
Principal Payments	9,820,000	10,020,000	11,370,000	11,795,000	12,385,000	12,860,000	13,185,000	13,570,000	14,065,000	14,135,000	99,320,000
Interest Payments	7,216,293	8,090,128	8,337,289	7,800,233	7,226,620	6,618,708	5,986,581	5,355,118	4,746,476	4,144,340	
Miscellaneous Charges	(151,590)	(145,390)	(138,151)	(130,186)	(121,526)	(112,167)	(102,087)	(91,259)	(79,618)	(66,701)	



**Madison Water Utility  
Financial Forecast Model  
January 31, 2019**

<b>Alternative F: Expense Depreciation and Surcharge</b>											
Rate Increase from Previous Year	n/a	detailed	<b>0%</b>	<b>0%</b>	<b>3%</b>	<b>0%</b>	<b>8%</b>	<b>0%</b>	<b>7%</b>	<b>0%</b>	
Assumed Effective Date	n/a	11/1/2018	12/31/2019	n/a	12/31/2021	n/a	12/31/2023	1/1/2025	12/31/2025	1/1/2027	
Change in Billing Units from Previous Year	n/a	n/a	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	<b>-0.5%</b>	
<b>New Debt</b>											
Debt Issued	-	-	<b>2,400,000</b>	<b>6,000,000</b>	<b>8,820,000</b>	<b>13,400,000</b>	<b>10,730,000</b>	<b>6,600,000</b>	<b>5,050,000</b>	<b>6,250,000</b>	
Interest Rate	n/a	n/a	4.5%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	
Term	20	20	20	20	20	20	20	20	20	20	
Index	-	1	2	3	4	5	6	7	8	9	10
2020 Principal	-	-	-	76,503	79,945	83,543	87,302	91,231	95,336	99,626	104,110
2021 Principal	-	-	-	-	181,456	190,528	200,055	210,057	220,560	231,588	243,168
2022 Principal	-	-	-	-	-	266,740	280,077	294,080	308,784	324,224	340,435
2023 Principal	-	-	-	-	-	-	405,251	425,513	446,789	469,128	492,585
2024 Principal	-	-	-	-	-	-	-	324,503	340,728	357,765	375,653
2025 Principal	-	-	-	-	-	-	-	-	199,601	209,581	220,060
2026 Principal	-	-	-	-	-	-	-	-	-	152,725	160,361
2027 Principal	-	-	-	-	-	-	-	-	-	-	<u>189,016</u>
Total New Debt Principal	-	-	-	76,503	261,401	540,811	972,684	1,345,385	1,611,799	1,844,638	2,125,387
2020 Interest	-	-	-	108,000	104,557	100,960	97,200	93,272	89,166	84,876	80,393
2021 Interest	-	-	-	-	300,000	290,927	281,401	271,398	260,895	249,867	238,288
2022 Interest	-	-	-	-	-	441,000	427,663	413,659	398,955	383,516	367,305
2023 Interest	-	-	-	-	-	-	670,000	649,737	628,462	606,122	582,666
2024 Interest	-	-	-	-	-	-	-	536,500	520,275	503,238	485,350
2025 Interest	-	-	-	-	-	-	-	-	330,000	320,020	309,541
2026 Interest	-	-	-	-	-	-	-	-	-	252,500	244,864
2027 Interest	-	-	-	-	-	-	-	-	-	-	<u>312,500</u>
Total New Debt Interest	-	-	-	108,000	404,557	832,887	1,476,264	1,964,567	2,227,753	2,400,140	2,620,906
Cumulative Existing Debt		202,685,000	191,315,000	179,520,000	167,135,000	154,275,000	141,090,000	127,520,000	113,455,000	99,320,000	
Cumulative New Debt		-	<u>2,400,000</u>	<u>8,323,497</u>	<u>16,882,096</u>	<u>29,741,286</u>	<u>39,498,601</u>	<u>44,753,216</u>	<u>48,191,417</u>	<u>52,596,780</u>	
Total Debt		202,685,000	193,715,000	187,843,497	184,017,096	184,016,286	180,588,601	172,273,216	161,646,417	151,916,780	
Debt Coverage	<b>2.04</b>	<b>2.91</b>	<b>2.49</b>	<b>2.32</b>	<b>2.20</b>	<b>2.01</b>	<b>2.08</b>	<b>1.92</b>	<b>1.97</b>	<b>1.87</b>	



**Madison  
Water Utility**

**2019 Capital Budget  
2019-2027 CIP**

**DRAFT**

Project	Description/Purpose	Primary Construction Year	Tasks	Annual Totals	\$ 8,380,000	\$ 9,766,000	\$ 12,802,960	\$ 17,268,240	\$ 21,067,000	\$ 20,009,430	\$ 14,888,200	\$ 15,841,000	\$ 16,407,000
				2019	2020	2021	2022	2023	2024	2025	2026	2027	
BPS #106 Area Hydraulic Improvements		Ongoing											
			Total	-	-	-	-	-	-	813,000	-	-	-
Lake View Reservoir and BPS Reconstruction (Res 113)		2021				Start Const							
			Total	-	-	2,081,000	-	-	-	680,000	-	-	-
Well 31 Design and Construction		Ongoing											
			Total	-	-	-	-	-	-	-	-	-	647,000
Blackhawk Elevated Reservoir (Zone 10)		Ongoing											
			Total	-	-	-	-	-	-	1,355,000	-	-	-
Unit Well 12 Conversion to a Two Zone Well		2022					Start Const						
			Total	-	-	228,960	3,816,000	804,000	-	-	-	-	-
Water Treatment System at Well 19		2024											
			Total	-	-	-	-	-	665,330	-	-	-	-
BPS 129 Reconstruction		2023						Start Const					
			Total	-	-	-	384,240	3,209,000	-	-	574,700	-	-
Booster Pump Station 109 (Spanem Ave)		2024							Start Const				
			Total	-	-	-	-	345,000	2,873,000	837,000	-	-	-
Well 14 Mitigation		2022					Start Const						
			Total	-	-	-	801,000	4,160,000	-	-	-	-	-
Pipeline Replacement/Rehab/Improvements		Ongoing	Total Pipe Rehab Budget	6,507,000	7,937,000	8,393,000	8,874,000	9,384,000	9,924,000	10,519,000	11,150,000	11,819,000	
			Reconstruction Pipe Projects	4,887,000	5,180,000	5,491,000	5,820,000	6,169,000	6,539,000	6,931,000	7,347,000	7,788,000	
			Pavement Management	1,620,000	1,717,000	1,820,000	1,929,000	2,045,000	2,168,000	2,298,000	2,436,000	2,582,000	
			Water Main Rehabilitation		1,040,000	1,082,000	1,125,000	1,170,000	1,217,000	1,290,000	1,367,000	1,449,000	
			Water Mains - New hydraulic improvement Projects	1,242,000	1,317,000	1,396,000	1,480,000	1,569,000	1,663,000	1,763,000	1,869,000	1,981,000	
				140,000			781,000	828,000	878,000	931,000	987,000	1,046,000	
			Total	7,889,000	9,254,000	9,789,000	11,135,000	11,781,000	12,465,000	13,213,000	14,006,000	14,846,000	
Water Utility Facility Improvements		Annually											
			SCADA System Upgrade and Expansion	22,000	23,000	24,000	25,000	26,000	26,700	27,400	28,100	28,800	
			Fiber Optic system installation and upgrade	20,000	20,000	20,000	20,000	20,000	20,400	20,800	21,200	21,600	
			Flow Meter and VFD Conversion		-								
			Addition of separate Chemical Feed Rooms at Well 6, Well 11, Well 13 & Well 14				329,000		356,000		385,000		
			Development of 2 PRV sub zones. One near Pflaum Rd and one in the Nakoma neighborhood				68,000						
			Various Facility Upgrade Projects	50,000	53,000	200,000	210,000	221,000	232,000	244,000	256,000	269,000	
			Meter and fixed network Program	379,000	394,000	410,000	426,000	443,000	461,000	479,000	498,000	518,000	
			Facility Safety Additions, Olin Roof fall protection system		-	-	-	-	-	-	-	-	
			Various Olin and Paterson Upgrades and Improvements	20,000	22,000	50,000	54,000	58,000	62,000	67,000	72,000	76,600	
			Retrofit Chlorine Shutoff Valves at 4 Wells										
			HMI Install at Well 29										
			Security Upgrades										
			Total	491,000	512,000	704,000	1,132,000	768,000	1,158,100	838,200	1,260,300	914,000	
			Total Estimated Annual Costs	8,380,000	9,766,000	12,802,960	17,268,240	21,067,000	20,009,430	14,888,200	15,841,000	16,407,000	

# Attachment 2

<b>Water Utility Board Policy</b>			
Title:	<b>Affordability</b>		
Policy Number:	<b>O-2D</b>	Adopted:	May 24, 2011
Category:	Outcomes	Revision #/Date:	2/July 22, 2014

Madison Water Utility customers will pay an affordable rate for water, including the financing of necessary replacement of water distribution plant and improvements to water treatment.

With a goal of maintaining affordable water rates and funding necessary improvements to the water supply system, Madison Water Utility shall:

1. Maintain its water rates between the 25<sup>th</sup> and 75<sup>th</sup> percentile for Class AB utilities (those serving 4,000 customers or more) in Wisconsin.
2. Apply for a necessary rate increase (subject to the adopted City of Madison Budget) that does not exceed an annualized rate of 9% per year. "Annualized rate increase" is defined as the increase beginning from the time when the last rate increase was fully effective to the estimated date the applied-for rate increase is anticipated to become fully effective, apportioned annually.
3. Generate its authorized return on rate base consumption (defined as per F-23 of the Utility's Annual Report to the PSCW). This sets a reasonable return on investment as determined by an outside party, the PSCW. The allowable return on investment is comparable to that of other publically and privately owned utilities in Wisconsin. By maximizing this return, the utility will have revenue necessary and reasonable for reinvestment in system improvements, and operations and maintenance expenses.
4. Petition for water rates that will complement economic growth in Madison.



**GOVERNMENT FINANCE OFFICERS ASSOCIATION  
(GFOA)  
RESEARCH AND CONSULTING CENTER**

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**City of Madison, WI**

**Plan of Action and Business Process Report**

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**January 2019**



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## Section A: Executive Summary

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With the decision to migrate the entire City of Madison (the City) and all auxiliary units to a Tyler Munis ERP system, GFOA was brought in to examine the current business processes of the City Water Department (City Water) and assess the possibility of moving the City Water to Tyler Munis for all financial related functions. City Water and the City followed GFOA's approach to assessing administrative systems, which requires organizations to focus on specific business processes and outcomes and to identify where administrative systems support current processes and more importantly, where they do not. GFOA reviewed and documented these processes in "as-is" process maps and narratives. Inefficiencies or opportunities were documented and potential improvements were defined and discussed.

Based on the review of City Water's current business processes, it is fairly clear that staff does not currently have the modern tools it needs to manage its business processes in a thorough and comprehensive manner. Due in large part to reporting needs, City Water has been forced to maintain dual systems, using both Tyler Munis to interact with the City and Microsoft Dynamics SL as a shell system to track independent data. This creates duplicate entry effort for multiple business processes. The redundant entry has caused significant time delays for City Water staff, and has created a processing environment rife with risk for data entry errors or oversight.

GFOA identified three potential options for City Water: to continue using both Tyler Munis and the legacy Microsoft Dynamics SL system simultaneously, to replace Microsoft Dynamics SL with an entirely new system, or to migrate entirely to the City's Tyler Munis system.

***GFOA recommends that City Water eliminate the legacy Microsoft Dynamics SL system and migrate entirely to the City's Tyler Munis system.***

This report will highlight the business case for moving forward with system replacement as well as point out recommendations and considerations for how to best utilize this opportunity and proceed in a strategic and collaborative manner across the various entities. Additionally, implementing business process improvements and associated technologies will require careful management of resources. This report addresses key steps to prepare for the project and to mitigate risk. Recommendations in this report are based on GFOA's collective consulting experience, peer governmental research, and direct research conducted for this project.



## Section B: Overall Assessment

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GFOA met with City Water and City staff involved in the financial and HR/payroll processes. The purpose of the meetings was to better understand existing business process, how well the current technology supports their needs, and any challenges or risks.

### 1. Systems Assessment

---

The City of Madison has been in the process of implementing Tyler Munis across business units for the past several years. From conversations with City staff, it appears that City Water is the final business unit needed to fully migrate the City of Madison to the Tyler Munis platform.

City Water has used the legacy Microsoft Dynamics SL system for greater than fifteen years. City Water continues to rely on SL for tracking and reporting purposes, as well as manual, paper and email-based tracking and approval processes.

Currently, City Water utilizes Tyler Munis for most of its financial, budgeting, and purchasing functions as they pertain to the City. However, nearly every action in the budgeting, financial, and purchasing functions are repeated in Microsoft SL to create a duplicate record for reporting purposes. City Water enters all final information into Tyler Munis, but this typically only occurs after external manual tracking and a duplicate entry of data to SL.

City Water has expressed concern regarding the reporting capabilities of Tyler Munis to comply with the reporting requirements of the Wisconsin Public Service Commission (PSC) as it relates to its oversight role of public utilities in the State. This is closely related to the organization of the City and City Water Utility's Chart of Accounts and General Ledger. This concern will be discussed later in the report.

City Water also uses Cityworks software to track assets and asset-related maintenance, ESRI GIS for spatial identification of infrastructure assets, and Advanced Utilities for utility billing.

### 2. Business Process Assessment

---

While the current technology environment in part supports the daily activities of City Water, the current combination of Tyler Munis and Microsoft Dynamics SL creates redundant work effort and leads to process inefficiencies, as well as an unclear workflow approval practices. The following points summarize the key functional weaknesses regarding the systems and processes that support the City Water financial management, human resources, and payroll functions.

- **Two system operation.** City Water's use of two separate systems for finance, HR, and payroll prevents City Water from operating efficiently and leaves room for significant error.
- **Lack of system integration.** Communicating between the independent Munis and SL systems requires manual uploads and labor-intensive reconciliation to ensure that data is accurate and up-to-date. Without one system of record, City Water and the City run the risk of maintaining inaccurate data. The current two-system approach also limits system integration capabilities.



- **Munis chart of accounts is not set up to meet PSC requirements.** In its current configuration, it is reported by City Water that the Tyler Munis chart of accounts structure does not meet their needs with regards to tracking data in a manner consistent with the State PSC reporting requirements.
- **Purchasing process.** Parts of the purchasing process are manual and involve duplication of effort. The AP, invoicing, and contracting processes involve manual, paper-based processes and require the creation of a mock check or invoice. Some of this is rooted in a lack of integrated bid/quote and contracting functionality in Tyler Munis. There is also an inefficient manual process for procurement card processing.
- **Capital assets process.** The current asset file is not integrated fully with Tyler Munis, creating issues with capital asset depreciation and reporting. The current combination of manual and SL asset tracking is a duplicative process.
- **Human resource, time entry, and payroll process.** The current HR/time entry/payroll processes all currently require dual entry to SL and Tyler Munis. There are also ongoing issues with the manual front-end process for payroll that may be difficult to eliminate unless Munis can meet the detailed overhead and cost accounting processes of City Water.
- **Customer billing.** There are redundant entry processes supported between SL and Munis. The billing process also includes significant Excel spreadsheet tracking, particularly with invoice processing.
- **Systems lack modern access functions.** Microsoft Dynamics SL does not fully utilize modern system access functionality such as customer, vendor and employee self-service. Implementation of modern functionality would eliminate many inefficient data entry, process tracking and reconciliation steps that exist in the current business processes.
- **Inefficient business processes.** GFOA has identified numerous examples where the City and City Water could benefit from a process improvement effort. City Water's processes are very common for an organization utilizing a legacy ERP system. Due to system limitations, City Water has created workarounds and manual processes to accomplish necessary tasks (such as mandatory financial reporting or administration of purchasing policies). These processes can be inefficient, inconsistent, and require significantly more manual effort than other organizations employing modern software. In addition, GFOA noted that there were many examples of processes that were largely created many years ago (likely when the system was implemented) and these have not been completely updated as standards or technologies changed or as City Water's needs have evolved.

All of these functional or technical gaps can be addressed by improving City Water business processes by implementing a modern enterprise system.





## Section C: Detailed Business Process Analysis

As identified earlier, GFOA worked with staff from City Finance and City Water to assess and analyze current business processes and communication practices between the two entities. This section will identify the findings of that detailed analysis. The section will focus on the overall business processes in the scope including financials, capital assets, and accounts receivable. The assessment includes 3 sets of maps that are included with the report as attachments. These include:

- As-is Maps – map out the current business process
- Transitional Maps – identify anticipated changes business process by the following color codes:
  - Green – Process step will continue in the future
  - Yellow – Process step will transform to Munis in the future
  - Red - Process step will be eliminated in the future
  - Blue - Process step requires further analysis in the future
- Future Process Maps – map out the future business process reflecting transitional maps and compares to GFOA best practice.

For each functional area in scope, the report identifies the considerations and business process issues, recommended improvements to the business processes and the various best business processes that can be attained by implementing the recommended improvements.

### **Process: Financials**

City Finance moved from its legacy financial and HR/Payroll applications to Tyler Munis and all of the City is live on Tyler Munis as of January of 2015, with the exception of City Water. City Water has utilized Microsoft Dynamics SL as its main financial system since it was implemented in 2004. The City and City Water are in agreement that City Water should be integrated to the main applications of the City. The City and City Water have begun the project to do just that.

Phase 1 is currently in progress to get City Water fully integrated into the Tyler Munis General Ledger and to fully rollout detailed Tyler Munis Payroll, Projects, Budget and Procurement/Accounts Payable functionality to City Water. Phase 2 will be used for a possible rollout of Tyler Munis UBS, capital assets, and inventory to City Water. City Water is also currently implementing the Cityworks Computerized Maintenance Management System (CMMS) that will include asset maintenance and work order tracking and has the ability to provide cost accounting to work orders.

### **1. Key Process Considerations/Issues:**

- 1.1. There is currently a small chart of accounts structure for City Water in Tyler Munis to support their processing of the Purchasing, Accounts Payable and Payroll functions along with a small City Water presence in the City General Ledger. Dynamics SL at City Water is structured in alignment with PSC Uniform Codes that are based on a three digit activity code; modified with two codes that allow City Water to differentiate between different types of materials such as mains, connections, etc. Auditors are required to audit City Water to the PSC format and they also have to convert to the City CAFR format. The



# Attachment 3

Government Finance Officers Association

Advanced Utility UBS system at City Water is also setup with the Dynamics SL PSC codes.

- 1.2. Projects at City Water are developed on an Excel Spreadsheet and then setup in Dynamics SL. Project codes in SL are identified by seven digits broken down between capital and expense codes. City Water projects are tracked in Munis with a title, project code, and asset code. Projects in SL are also used to track inventory, equipment, and cost allocations. The related labor of other City departments gets tracked in Munis against City Water projects.
- 1.3. One of the main issues of the financial and accounting functions is the time required reconciling the information between the two financial systems. The biggest challenge to eliminating the dual systems and integrating City Water completely into Munis is adapting Munis to adhere to the City Water PSC structure. Rates and other variables at City Water are driven by PSC required structures that do not translate easily to Munis. Integrating the PSC coding into Munis should allow for an easier consolidation of all City Water financial processes.
- 1.4. Internal controls are different at City Water due to the utilization of multiple systems. City Water is not completely in the Munis system of record which effects accounting controls analysis for budget, audit, etc.
- 1.5. Financial reporting at City Water is a main driver behind the utilization of separate systems. The required Public Service Commission (PSC) Annual Report must be generated yearly. City Water Finance Division manages the process that includes about fifty different schedules. The schedules are web-based (mostly Excel spreadsheets) at the PSC. Some of the City Water information is already formatted on the schedules. At City Water the approximately fifty schedules are assigned internally and completed in the order suggested by the PSC. The majority of financial data comes from SL, which staff keys manually into the various schedules. The major issue with the process is that many different systems are utilized to support this process. City Water does their financial report in addition to the City CAFR. The City is currently contemplating the use of Caseware to integrate the CAFR schedules. There is some difficulty with Munis because there is different means of accessing financial data. City Water must also generate the Water Utility Board Report. The report is an income statement type report that is generated primarily from SL in the PSC COA format. This is used to set level of services and may also have an effect on rate increases, etc. The complexity of all of these various financial reports has been a major barrier to integrating City Water into the main financial processes of the City and into the Munis system.
- 1.6. Time entry at City Water is a dual tracking process for both payroll and cost accounting at City Water. Payroll is process with a combination of exception-based or positive pay processing. Time entry is split between daily and biweekly and generated using a printout on a two week basis or by manual timesheets. All timesheets are signed off by an individual staff member or supervisor. All timesheets are sent to City Water payroll clerks where they first focus on entering reported exceptions, overtime, differentials etc. to Munis and then sent through workflow for other management approvals. For Cost Accounting, City Water utilizes Microsoft Dynamics SL and processes the same paper timesheets along with equipment charges. This data is entered into SL and is reviewed by another employee and submitted within the system. Water Payroll posts the data and it is then allocated to projects at end of month along with overhead charges. There is also a group entered to SL monthly that does not include a labor burden. The major issue with the time entry process is the need for redundant entry between Tyler and SL. There are also reconciliation processes that have to be completed between Tyler and SL and SL is more time inefficient because SL deadlines are not as strict can include errant project or



work order charges. The allocation and cost accounting issues are the main issue; other processes are generally completed in Tyler Payroll.

- 1.7. For project allocations, City Water verifies monthly that all labor has been entered and approved and posted in SL. They ensure that all timesheet entries have been completed and rejections researched and corrected. They also charge out inventory, meter and couplings, to specific projects and other inventory; valves, etc. are charged out to projects from SL. Staff then runs the preliminary project allocator. The allocations are verified through spot checks and the final allocation is run to post to SL projects. Benefits and payroll tax calculations are updated on an annual basis.

## 1. Process Improvements:

- 1.1. Fully integrate City Water into the City Tyler Munis ERP system.
- 1.2. Integrating the PSC coding into the Tyler Munis should allow for an easier consolidation of City Water into the general City financial processes. The City should update the Munis chart of accounts to fully support the needs of City Water and improve operational efficiency and effectiveness of Water Utility finance functions.
- 1.3. As much as possible, the integration project should eliminate redundant, stand-alone, and/or paper-based processes that are prevalent at City Water.
- 1.4. The integration project should support designing and configuring the new system of record to more seamlessly meet current and future Federal, State and PSC compliance requirements
- 1.5. The new integrated financials should provide decision makers access to more accurate and timely reporting.
- 1.6. The online Employee Self-Service timesheet is available at some City agencies, but may not fit the scheduling needs of City Water.
- 1.7. As in all other areas of this report, the main issues in almost every process stem from the usage of the dual Tyler and SL systems at City Water. Integrate City Water fully into Tyler functionality and many of these issues will be eliminated, especially the dual timesheet entry.
- 1.8. The issues with manual front-end processing may not go away with integrating City Water fully into Munis unless it can meet the detailed cost accounting and overhead tracking processes of City Water.

## 2. GFOA Best Practice:

- 2.1. Enterprise systems, such as Tyler Munis, operate more efficiently when fully rolled out to all governmental departments.
- 2.2. Public sector best practice is to structure a chart of accounts that supports integrated financial processes for all administrative and operational departments. The City is currently in the process of aligning with this best practice by integrating City Water into Tyler Munis.
- 2.3. System implementations or upgrades are generally more successful when addressed as internal projects that include a formal governance structure, detailed analysis, configuration, training and multiple types of testing. The City is in the process of aligning with this best practice by adopting a governance strategy and formal project plan for the integration of City Water.



## **Process: Capital Assets**

### **1. Key Process Considerations/Issues:**

- 1.1. While there are asset files at City Water, there is no comprehensive and complete asset file available in either Munis or SL. Microsoft Dynamics SL does not include asset functionality. All asset files are maintained in a Microsoft Excel spreadsheet.
- 1.2. The Depreciation process is completely manually utilizing multiple spreadsheets.
- 1.3. The maintenance and tracking smaller value and non-capitalized assets is not available in the current systems. City Water does track non-capitalized assets in the same spreadsheet identified above, but they have are tracked as zero value assets.
- 1.4. City Water is currently the Cityworks computerized maintenance management system. Analysis of that system should include the data necessary to communicate between the systems to minimize the redundant data entry prevalent at the City and identified throughout this report.

### **2. Process Improvements:**

- 2.1. Fully integrate City Water into the City Tyler Munis ERP systems. The main issues identified above in almost every process stem from the usage of the dual Tyler Munis and Microsoft SL systems at Water. Integrate City Water fully into Tyler functionality and many of these issues go away, especially the dual invoice entry.
- 2.2. The City should investigate integrating the same asset file into Tyler Munis for depreciation, calculation and reporting purposes. If that is not possible, Water Finance will need to adjust spreadsheet integration to Cityworks to maintain the depreciation functions. Tyler Munis will be the record for City Water assets then and the two will need to verify that depreciation is calculated correctly based on average cost/value. Currently, Water's assets are maintained in excel spreadsheets. Depreciation is calculated based on average cost  $(BOY \text{ value} + EOY \text{ value})/2$  multiplied by a rate given to Water by the PSC.
- 2.3.

### **3. GFOA Best Practice:**

- 3.1. Depreciation should be processed in the main financial system, if that functionality is available. Financial reporting is more efficient if generated from integrated financial data.
- 3.2. Capital assets should be identified as early as possible within the procurement cycle utilizing the sourcing, accounting and threshold definition capabilities available in the integrated system.
- 3.3. Enterprise systems work more efficiently when asset lifecycle tracking is implemented.
- 3.4. Valuable assets below the capitalization threshold should be tracked in an automated accounting system.



## Process: Accounts Receivable

### 1. Key Process Considerations/Issues:

- 1.1. The major issue with the non-utility billing process is the need for redundant entry between Tyler Munis and Microsoft Dynamics SL. There are no major processing issues since the processes are generally completed in Munis financials in an efficient manner.
- 1.2. City Water may also receive revenue directly without a receivable. This also has to be dual entered into SL also from an Excel spreadsheet.
- 1.3. Completely integrating the processes to Tyler may be an issue because Tyler bills at the summary level and charge codes would have to be created to support the detail tracked in SL.

### 2. Process Improvements:

- 2.1. Fully integrate City Water into the City Tyler Munis ERP systems. As in all other areas, the main issues identified above stem from the usage of the dual Tyler Munis and SL systems at City Water. Integrating City Water fully into Munis functionality will eliminate many of these issues, especially the dual invoice entry.
- 2.2. The conversion process will require change management along with full consideration of addressing PSC requirements concerning revenue billing and recognition.
- 2.3. There are also issues with manual front-end processing that would go away with integrating City Water fully into Munis. This would involve allowing City Water direct entry access for processing all of their invoices.
- 2.4. Munis should be configured to track invoice/receivable processes utilizing a PSC transaction code.
- 2.5. The City should consider the development of interfaces between Advanced Utilities, Cityworks and Tyler to support more efficient reporting of City Water revenue.

### 3. GFOA Best Practice:

- 3.1. Enterprise systems, such as Tyler Munis, operate more efficiently when fully rolled out to all governmental departments.
- 3.2. In a fully operable enterprise system, receivables are processed more efficiently when entered at the charging department level and approved, if necessary through workflow automation.
- 3.3. System implementations or upgrades are generally more successful when addressed as internal projects that include a formal governance structure, detailed analysis, configuration, training and multiple types of testing.

## Process: Procure to Pay

### 1. Key Process Considerations/Issues:

- 1.1. The Water Department maintains a second vendor file within the Microsoft Dynamics (SL) system and the main issue is the maintenance of redundant systems between the two entities.
- 1.1. Transactions for items other than services priced below \$5,000 are usually transacted on procurement cards. For non-procurement card transactions, the main issue with the process is that paper based requisition creation is probably redundant to Tyler workflow



and the entire SL process is also redundant. Similar issues affect the inventory request process, only the requisition includes a code signifying the requested item is in inventory. City Water staff enters the PO in SL with the item or item numbers and a PO is created in SL and stored. Staff then begins the Requisition process in Tyler. Currently, the City does not have an Inventory module in Tyler. The corresponding maps have identified this as an issue that requires further analysis concerning how inventory will be tracked in the future.

- 1.2. For purchases greater than \$25,000, dependent on the item, City Water may bid themselves or process through City Purchasing. Once again the major issues with this process involves the reliance on manual processing and the need for redundant entry to two systems. The processes are not supported by systematic sourcing and the entire front-end is supported by manual paper.
- 1.2. The receiving process is beset with manual processes and completely devoid of modern automation such as online three-way matching.
- 1.3. For Payables, the major issue is the need to transact in multiple systems what could be processed efficiently in the City Munis system. For contractual receiving a citywide purchase invoice goes to City Engineering and is entered into Munis lifting a partial encumbrance and establishing a payable. The transaction is then processed by automated workflow to City Water for Water Construction approval. The same payables process is then initiated. Water Finance then prints out a report at Water and writes "Water Only" for their portion. A mock check is then created in SL that mirrors the checks in Munis. The documentation is attached to the mock check and filed. These are disposed of after 7 years. This is a highly inefficient and redundant process that could be integrated through enterprise system automation. Creating duplicate mock checks in a second system is also redundant and counter to any best practice.
- 1.4. The same payable process as above is transacted in Munis for contract receiving including the mock check being created in SL, which is once again is a highly inefficient and redundant process that could be integrated through enterprise system automation.
- 1.5. For a purchases utilizing a procurement card, the employee completes the purchase then signs the receipt; the employee's supervisor signs the receipt also as the supervisor is responsible for budget. The supervisor assigns an SL account to the receipt and it is sent manually to Water Finance, where they add other relevant SL and Munis accounts. They then enter the information to Tyler. City Purchasing downloads transactions daily from US Bank and these are imported to Tyler, mapped to each card with a default holding account. Water Finance accesses these by card number, clicks into each and enters the proper accounting. At the end of each month Water Finance staff accesses the card statements from US Bank and prints each one. They then rekey all these transactions into SL AP. A mock check is then created in SL to create a payable in SL. The documentation is attached to the mock check and filed. These are disposed of after seven years. This is a highly inefficient and redundant process that could be integrated through enterprise system automation and a more fully automated procurement card transactional process. This process is highly inefficient and should be redesigned in Munis to eliminate manual effort and duplicate check creation
- 1.6. For refunds, the Water Billing office runs a report of all final bills and determines if there was an overpayment. They fill out a refund request form, which is sent manually to management for review and routing to Water Finance. They then check if the customer is a vendor in SL and if not they create the vendor and also create an invoice in SL. They also create an AP invoice in Tyler, where refunds are processed with a generic vendor number. There they select the vendor; change the name and the AP process from above kicks off. A mock check is then created in SL to create a payable in SL. This function is beset with manual processes and redundant system entry.



- 1.7. For toilet rebates, a water customer buys a qualifying toilet and they are required to fill out a manual form that is reviewed for duplicate processing. It is manually sent on for manual approval and then manual routing to Water Finance. They then create a direct invoice in Tyler with a generic vendor number. They select the vendor; change the name and the AP process from above kicks off. A mock check is then created in SL to create a payable in SL. This function is beset with manual processes and redundant system entry.

## **2. Process Improvements:**

- 2.1. Fully integrate City Water into the City Tyler Munis ERP systems. As in all other areas, the main issues identified above in almost every process stem from the usage of the dual Tyler and SL systems at City Water. Integrate City Water fully into Tyler functionality and many of these issues go away, especially the dual requisition entry and approvals and the highly inefficient dual simulated check creation.
- 2.2. Purchase order documentation should be generated from a single integrated system.
- 2.3. There may be areas where SL is operationally necessary, such as inventory. The City would need to meet those operational needs in Munis or create systematic interfaces to limited operational functions.
- 2.4. There are also issues with manual processing that would not go away with integrating City Water fully into Munis. Manual entry in many of the processes above is driven by the lack of integrated bid/quote and contracting in Tyler. These should also be automated as part of an overall upgrade of the Tyler Munis product.
- 2.5. The City should fully automate the receiving and accounts payable processes to support an online matching process. This would require online receiving of all purchase order related purchases.
- 2.6. The City should more fully automate the procurement card process to eliminate where possible, manual processing.
- 2.7. The City should automate the front end entry of all rebate and refund processes and enter those transactions directly to Munis AP.

## **3. GFOA Best Practice:**

- 3.1. Most governments with an integrated system maintain a single vendor file with distributed entry.
- 3.2. Best practice for most automated enterprises systems such as Tyler Munis is to implement online receiving to support automated three-matching for goods and services procurements with a related purchase order or non-blanket contract. Matching can be utilized for blanket purchases in some systems by referencing the specific blanket purchase order and receiving and releasing the PO in stages.
- 3.3. Allocating costs from direct purchases in most enterprise systems is normally done by utilizing templates or coding available in the system, Tyler Munis users normally utilize some level of allocation codes to allocate direct costs in procurement processing. In the City's case the allocation codes would mirror the PSC code structure.
- 3.4. Best practice in most enterprise systems is to utilize three-way matching of the purchase order, receiving document and scanned or systematically received vendor invoice.
- 3.5. Integrated systems utilize integrated contracting based on organizational structure for project accounting purposes. In Tyler Munis this would involve integrating City Water into the project ledger structure.



## Section D: Functionality Issue Research

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For the two main issues confronting the City of Madison with regards to fully integrating City Water, GFOA conducted research, primarily by phone and email with entities similar to the City. This was done to gather research on how other governments utilize Tyler Munis or address the Public Service Commission (PSC) code structure within their enterprise system. The two main areas of research involved:

- How the organization designed and configured their systems to support the requirements of PSC.
- How the organizations utility-related expenses and revenues could be allocated from the main entity to the utility within the integrated system.

For research purposes GFOA took into account that PSC does not require any systematic protocols outside of the development of the Annual Report and the fact that the information in the report is subject to audit. Therefore, how an entity gathers the information to generate the report is not proscribed by PSC, only that the information is accurate and available for audit. Also, it was reported to GFOA a number of times that Tyler may be working on a PSC crosswalk for State of Wisconsin clients that would make development of the report more efficient. GFOA was unable to confirm this independently with Tyler. The results of our research is reported in this section.

The Village of Shorewood does not build accounting segments that are PSC related into their General Ledger. They use a series of crosswalks to achieve PSC compliance, but work within the confines of their BS&A financial system. A sample of their PSC conversion worksheet is attached to this report. Shorewood was hesitant to build PSC coding into their GL account strings. They recommended that other organizations download all utility cost data, with related GL numbers, amounts, etc. and a reference to the PSC code into an MS Excel spreadsheet. This can then be formatted for PSC reporting utilizing pivot tables as a crosswalk tool adapted to the PSC. For reporting, which Shorewood reported to be more difficult, they use the data built in to the crosswalk and they reported that some PSC schedules may require more manual data manipulation. Usually these are related to balance sheet items. The Shorewood chart of accounts contains asset groupings identical to the PSC groupings. Their system only allows three digits.

Village of Mequon implemented a Tyler system about nine years ago and adapting to the PSC structure was difficult. They were required to develop financial reports for PSC outside of the Munis COA structure. They do not use direct allocation within Tyler Munis

The main suggestions from the above two entities are based on the opinion that State of Wisconsin governments will end up developing crosswalks for adapting financial reports to the PSC worksheets based on the three digit revenue and expenditure groups. It was reported that in Tyler Munis, auxiliary fields such as unused project codes, user fields, object codes or any segments not currently in use, might be available to link to GL codes by PSC expenditure or revenue code. It was also reported that if the City of Madison is using Caseware software, which is under consideration, the City can build some of these crosswalks to operate automatically. The main takeaway from these entities is that the City will need to define a crosswalk table in MS Excel and use that for PSC purposes. PSC requires that expenses and revenues be properly reported.





## Attachment 3

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City of Wauwatosa has their water utility integrated to the PSC reporting structure directly in their chart of accounts. They are in the process of procuring and evaluating a new financial system and they will require the same integration when they implement a new system.

The Village of Germantown recommends using a series of crosswalks to achieve necessary PSC reporting needs. They are hesitant to encourage building PSC into the General Ledger since it would disrupt the rest of the City's use of the chart. They recommend a "data dump" of costs that include a reference to the PSC code and that some data would need to be dealt with manually. They also recommend defining a crosswalk table in MS Excel and using that for PSC purposes.

City of Appleton currently incorporates PSC codes into their Chart of Accounts. They utilize the last four of the eight digit Organization Code to reference the PSC coding structure. This was built into Tyler Munis when first implemented at the City. The main downside to this approach is that the rest of the City is required to use zeros for the last four org code digits.

City of Green Bay currently incorporates PSC codes into their Chart of Accounts. They utilize the last four of the eight digit Organization Code to reference the PSC coding structure. This was built into Tyler Munis when first implemented at the City. The main downside to this approach is that the rest of the City is required to use zeros for the last four org code digits.

The main GFOA research contact at Green Bay was also involved with Appleton's implementation of Munis and reported that Appleton built the PSC codes into the chart of accounts utilizing an object code and that Green Bay did the same, which resulted in PSC codes being built into their COA in a more efficient manner. That contact advised against using crosswalks if at all possible and building PSC codes into the COA in some manner. This was a conflicting opinion to Shorewood.

The City of Lacrosse utilizes Tyler Munis and has the PSC structure built in to their COA. They reported that they are still required to utilize many Excel spreadsheets to facilitate PSC reporting.

Jefferson County, Eau Claire, Appleton and Green Bay do not use clearing accounts for cost allocation purposes in the manner that City Water does currently. But this does not fully address the requirements that have to be met by the City of Madison to fully consolidate City Water into Tyler Munis. Currently, City Water utilizes clearing accounts to fully allocate indirect expenses and revenues that they cannot capture directly through Munis transactions. All expenditures and revenues related to City Water must be allocated fully and reported to PSC.

Appleton and Green Bay, both of which are live on Tyler do not use clearing accounts in the way that the City does, The City of Madison reported to GFOA that the City has a different impression on the use of clearing accounts and that they had identified organizations that are using clearing accounts. GFOA could not identify any other governments that are live on Tyler Munis and have PSC codes integrated into their chart of accounts. Therefore, we could not identify any other governments that use clearing accounts in the same manner that the City does. At the Village of Oak Creek, the water utility is external to the city. Oak Creek Water Utility uses their home grown system and MS Excel to clear or allocate. They do not use Munis currently.

GFOA has not been able to identify a single city or village in Wisconsin that uses Tyler Munis and has built the clearing account structure into Munis successfully. All of the governments we contacted have to use some form of clearing to allocate costs for PSC reporting purposes. We could not identify one that has built this function into Tyler Munis.



GFOA also contacted former clients that utilize Tyler Munis and questioned how they report to oversight entities utilizing Tyler Munis, especially related to indirect cost allocation. GFOA also researched the responses of Tyler Munis to former and active clients concerning the capability of Munis software to meet their indirect cost allocation requirements. We could not identify any clients that currently utilize any specific functionality available in Munis to allocate indirect costs utilizing system-provided formulas. GFOA also discovered that Tyler Munis is fairly consistent in their response to our client requirements related to indirect cost allocation. Tyler generally responds that indirect cost allocations are not available or not supported within the base General Ledger of their software. Tyler also consistently responds that costs can be directly allocated in Purchasing, Payroll, Accounts Payable and Accounts Receivable utilizing allocation codes and transaction templates that utilize the allocation codes.

GFOA contacted Spokane Transit Authority, a former client that is one of our more successful clients on the Tyler Munis financial platform. STA uses allocation codes in AP and Payroll that they have developed over time since going live on Munis. They reported to GFOA that they work very well if utilized properly, especially for direct expenditures that have to be distributed to several accounts, such as utility bills. STA does have the need to allocate indirect costs and they currently utilize MS Excel spreadsheets to allocate costs such as fleet and printing expenses. They are assessing the built-in capabilities of Munis such as Tyler Cubes and built-in reporting to report indirect costs in the future.

Most governments and public sector utilities find developing the required reports of their various oversight agencies to be labor-intensive and inefficient. They normally require the utilization of some type of middleware or spreadsheet tool, such as the clearing accounts at City Water to capture all of the related costs and revenues of the organization. They also require the collection of data from multiple administrative or operational systems. Consolidating City Water onto the Tyler Munis system will not eliminate the use of other tools and systems. But this should not deter the City and City Water from moving as close to complete system integration as possible. The City and City water have recognized this and have begun steps to complete this integration. The City has decided to integrate City Water utilizing the Munis Organization Code. Based on our research, GFOA concurs with this strategy.

Based on our research with the agencies above and our research through our own software capability database, GFOA does not believe that moving City Water on to Munis completely will eliminate all of the issues identified in this report, especially concerning cost allocation and PSC reporting. GFOA recommends that the City continue to move forward, because the integration will help both entities become more efficient in both the near and long-term. In the following sections GFOA discusses options and recommendations and a suggested strategy for completing this integration.



## Section E: GFOA Recommendation

Based on the information presented in sections B, C and D, GFOA believes there is a strong business case for moving forward with replacement of the City Water's Microsoft Dynamics SL system and integrating City Water to the City's existing Tyler Munis system. Current processes are inefficient and City Water utilizes shadow systems (i.e. Excel) and multiple "systems of record" for functional areas where the main financial system is lacking.

While GFOA recommends that City Water migrate to the City's Tyler Munis system, there are various system replacement options that both can take. Primary options are listed and explained below.

- **Option #1 (Recommended) – Migrate City Water fully to the City's Tyler Munis ERP system.** This option would eliminate the use of Microsoft Dynamics SL entirely and bring City Water onto the City's Tyler Munis system. All finance, HR, and payroll functionality would occur in Tyler Munis, and Tyler Munis would become the official system of record for City Water.

Of the options, this one requires the greatest coordination between the City, City Water, and Tyler Munis. Considering the City has already entered into a contractual agreement with Tyler, there would need to be significant collaboration and process mapping to ensure that City Water has access to all necessary functionality in the Tyler Munis system. The City has begun this effort and can leverage the attached maps to form the basis of their future business processes.

GFOA strongly recommends that the full rollout of Tyler Munis functionality to City Water be undertaken as a formal project that establishes formal project governance across a structured project that includes detailed planning, analysis, design, configuration, testing, training and formal cutover from MS Dynamics SL to Tyler Munis.

- **Option #2 – Purchase a new ERP system for City Water alone.** This option is similar to option 1 in that it fully eliminates Microsoft Dynamics SL, but is less desirable due to the City's existing Tyler Munis contract and the already-spent time and resources given to migrating City Water to Tyler Munis. This would also require additional interface planning between Tyler Munis and the City Water's new ERP system.

The implementation of Cityworks at City Water will produce some of the effects of implementing a separate system, since it will be used to replicate some of the cost accounting functions addressed by SL. GFOA recommends that the City and City Water formally analyze the role of Cityworks in the financial, HR and payroll processes as part of the rollout of Tyler Munis at City Water. The analysis should focus on eliminating all or as many instances of duplication between the two systems as possible and identify functions that can be completed through the development of automated interfaces between the two systems.

- **Option #3 – Continue with the status quo.** – Under this option, City Water would continue to use dual systems and enter information both into Tyler Munis and Microsoft Dynamics SL. The above discussion outlines the lasting issues with using dual systems and with the City and City Water not having an official system of record. This is not optimal,



since dual systems require additional time spent and leave room for entry errors. Maintaining duplicate into the future while introducing a third system, Cityworks, into the mix will only serve to exacerbate the problems identified in this report as independent silos of information and the required reconciliation between them spiral out of control.

## 1. Project Scope

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Having a manageable scope is a factor for the overall success of the project. To mitigate risk, GFOA strongly recommends that City Water focus solely on core processes, which consists of the following functions:

- General Ledger
- Cost Accounting
- Budgeting
- Projects/Grants
- Accounts Receivable
- Purchasing
- Accounts Payable
- Capital Assets
- Human Resources
- Payroll
- Time Entry & Attendance
- Benefits
- Utility Billing (Optional)

## 2. Implementation Scope

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As part of any project, City Water, the City, and Tyler Munis will be collaborating on providing services necessary to successfully implement the project. With every project the exact split of work effort between the government organizations and Tyler Munis would be different. GFOA recommends that certain aspects of the implementation be “required scope” for the project.” Ultimately, while this is a project that involves software, it **should not be treated as a software project**. This will help shift the focus on business process, project management, and organizational transformation. Many other local governments struggle with ERP and financial system projects because they underestimate the importance of implementation. These essential project components for the City and City Water would include:

- Project management. Active on-site project management, management of a detailed project plan, issue/risk tracking, deliverable acceptance, and regular status and steering committee meetings.
- System design / business process documentation. Preparation of a complete system design document that includes both system configuration documentation and City Water process documentation. The City has already completed much of this effort in conjunction with GFOA through the business process mapping and functional analysis of the various areas identified in the scope above. These are included as part of this report and identify current as-is processes, transformational maps and the recommended future processes with City Water integrated fully onto the Tyler Munis solution.



- Technical implementation. Implementation team staff from the vendor that is responsible for technical details related to implementation (not utilizing support staff or remote department that handles all work).
- Requirements development. It is extremely important that the City work with City Water to identify their processing requirements that will need to be activated in Munis when SL is deactivated. This is especially important concerning PSC reporting and cost allocation. City Water should fully map and define what information must be provided by Munis for each PSC Schedule. This can start with fully identify what data is pulled from SL and what is pulled from other systems. This should include other operational systems such as Advanced and Cityworks along with what data is gathered using the current clearing accounts in MS Excel. These requirements can also be used to assist in obtaining specific implementation support from Tyler Munis, if and when that becomes necessary.
- Functional configuration responsibility. City Finance and IT staff should have primary responsibility for design and configuration of the system and delivering a system that meets the functional requirements. But, City Water should play an important role in testing and accepting the new Munis functions.
- Accountability for requirements. City Water should be responsible for tracking completion of project requirements. This maintains an “outcome” focus on the results of the project so it does not get lost in the software details.
- Interface development. Detailed requirements for a pre-determined list of interfaces. Tyler Munis should have some responsibility for completing the interface effort.
- Reporting. Listing of required reporting from the system. This list should include any financial reports including the mandatory reporting to the State Public Services Commission.
- Training. Training sessions for City Water staff and assistance in preparing end-user training materials should be developed based on the City Water’s configured business processes.
- Deliverables (work products). The project should define expectations for critical deliverables including a project plan, system design document, testing scripts, mapped cost allocation and reporting specifications, and training materials.

While GFOA recognizes that the City of Madison already has an existing contract with Tyler Munis, it remains important to emphasize that the implementation of a new system to City Water will require large-scale change management and business process shifting. The City should formally lay out expectations with Tyler Munis and determine any tasks and responsibilities, which Tyler may have to meet. City Water will then have a greater chance of success implementing the new system functions. Training also plays a key factor in user success, and training for City Water staff on using the new system will be integral to the implementation process.

GFOA has been able to complete some peer research on utilizing Tyler Munis to meet PSC accounting and reporting requirements. But since many similar governments in Wisconsin utilize Tyler Munis in different manners to meet these requirements, GFOA recommends that the City utilize Tyler Consulting to identify a formal solution that best fits the City of Madison and City Water.

### **3. Project Staffing**

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Implementation projects will require significant staff participation. A system replacement project can only proceed if the City and City Water provide adequate staff with the necessary knowledge and decision-making capability to complete implementation tasks. For many organizations, GFOA



would recommend that governments identify a project team that can make the system implementation their number one priority. City sponsors will need to decide if this resource model can be supported.

Tasks such as business process improvement, documentation, and training material development, all of which are essential to a quality project, would be a primary responsibility of the project team. We recommend that project resources are made available for the development of training materials and on-line courses and to assist with initial training on systems and processes.

## 4. Implementation Schedule

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GFOA recommends a phased implementation approach. Focusing on one key functional area within financials or payroll first and then staggering the start of another functional area for a period afterward, allows the project team time to discuss future processes and their impacts. The project team is also able to ensure that one area is set up well before moving on into another component of the integration of City water project.

The amount of discussions required to streamline business processes so that City and City Water processes are in accord will require time. It would be prudent to stagger the implementation so that both the City and City Water can thoroughly discuss and configure a system with both organizations' goals in mind.

## 5. Governance Strategy

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GFOA's approach to software and implementation projects requires that organizations sufficiently plan for the project prior to the implementation and after implementation. To prepare for future project activities, the City and City Water will need to make many key decisions on project governance, project staffing, project goals/expectations, and more.

- **Develop an estimated staffing plan.** The development of the staffing plan can occur during the planning phase. For example, it is good practice to develop an internal staffing plan with City and City Water resources clearly defined. The staffing plan should consist of the following:
  - Staffing assumptions
  - Staffing tasks
  - Estimated work effort by schedule (i.e., estimated hours per month)
  - The City and City Water should assume the following roles are needed:
    - Project Manager
    - Financial Lead
    - Payroll/Time Entry Lead
    - Technology Lead



It should also be made clear that the City and City Water are collaborative implementation partners, and decisions about business process change or improvement will be made accordingly.

- **Develop project charter throughout the project.** Decisions will need to be made efficiently during implementation. To achieve this outcome, a project charter empowering team members to make decisions will be required. The City has already developed a project charter ahead of implementation from the initial Tyler Munis implementation wave. The charter describes project governance structure and identifies roles and responsibilities of key actors. As the project progresses, the City and City Water's project team should meet to ensure everyone has an understanding of the project's future and what actions are required of them. Every project team member should be able to communicate:
  - Business goals – Why the organization is doing the project.
  - Scope – What the project will accomplish (in-scope) and not accomplish (out-of-scope).
  - Decision/escalation authority – What decisions they can make.
  - Roles and responsibilities – What is each project team member's role and the expectation for that role.

## Section F: Next Steps

Proper planning for a project of this size is the number one key to project success. At a minimum, GFOA recommends that the City and City Water complete the following activities (categorized by key milestone). This will help mitigate risk by having many of the decisions and actions discussed and completed ahead of vendor involvement.

- Determine project governance structure.
- Ensure that the project has support among key stakeholders and executives.
- Finalize a set of functional and technical requirements that Munis should meet at City Water.
- Determine service level requirements at the City and City Water.
- Document and determine any specific interfaces for scope.
- Determine the data, if any, to be converted and the system that contains the data.
- Establish clear goals for the project and criteria for success.
- Determine workflow routing and related user roles based on the attached future business process maps.
- Identify business process improvement goals.
- Fully develop a revised Munis chart of accounts.
- Develop business process documentation and training materials for system users.
- Test and validate the configured system against the City and City Water's functional requirements.



- Plan how the City and City Water will deliver ongoing training to employees and how new employees will be trained on the new system. Set up an on-going training with City Finance and any remedial training that will be needed as full integration approaches.
- Establish a help-desk established for some change requests and web capabilities for making different requests.
- Include City Water staff in general Tyler Munis user groups.
- Determine how the system will be supported after go-live (including staffing plan).
- Identify long-term ownership model including a system plan for upgrades and enhanced functionality.

The City and City Water have already begun and in some instances completed many of the steps recommended by GFOA. The above recommendations should serve as both a roadmap forward and a guide for documenting steps that have already been completed. Formal documentation will assist the City and City water in completing this project successfully.



**Summary of Alternatives**

These scenarios represent hypothetical forecasts for reviewing alternatives rather than plans for the future.

**Alternative A: Baseline; No Surcharge; No Rate Increases**

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	-	-	-	-	-	-	-	-
General Service Rate Increases	detailed	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rate of Return	6.0%	5.5%	4.9%	4.2%	3.3%	2.5%	1.9%	1.3%	0.8%
Debt Issuances (Millions)	-	11	14	19	24	22	16	17	18
Debt Share of Capital Structure	77%	76%	75%	74%	75%	76%	77%	78%	79%
Cash Reserve (Millions)	34	37	38	37	35	29	19	8	(6)
Debt Coverage	2.91	2.49	2.27	2.03	1.81	1.62	1.46	1.31	1.20

**Alternative B1: Biannual Rate Increases**

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	-	-	-	-	-	-	-	-
General Service Rate Increases	detailed	9.0%	0.0%	9.0%	0.0%	9.0%	0.0%	9.0%	0.0%
Rate of Return	6.0%	7.3%	6.6%	7.6%	6.6%	7.4%	6.5%	7.6%	6.9%
Debt Issuances (Millions)	-	10.74	10	13	20	18	15	12	14
Debt Share of Capital Structure	77%	75%	72%	69%	68%	65%	63%	60%	57%
Cash Reserve	34	41	42	43	46	50	53	55	56
Debt Coverage	2.91	2.84	2.59	2.67	2.44	2.52	2.30	2.39	2.25

**Alternative B2: Annual Rate Increases**

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	-	-	-	-	-	-	-	-
General Service Rate Increases	detailed	9.0%	9.0%	9.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rate of Return	6.0%	7.3%	8.5%	9.6%	8.5%	7.4%	6.5%	5.8%	5.2%
Debt Issuances (Millions)	-	11	8	10	17	18	15	12	14
Debt Share of Capital Structure	77%	75%	71%	66%	64%	62%	59%	57%	56%
Cash Reserve (Millions)	34	41	44	47	52	57	60	58	55
Debt Coverage	2.91	2.84	2.95	3.04	2.80	2.57	2.34	2.13	2.00

**Alternative C: Surcharge with Level Debt**

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	3.67	3.67	4.33	4.33	5.17	5.17	5.17	5.17
General Service Rate Increases	detailed	0.0%	0.0%	9.0%	0.0%	9.0%	0.0%	5.0%	0.0%
Rate of Return	6.0%	5.5%	4.9%	5.8%	4.9%	5.6%	4.9%	5.1%	4.4%
Debt Issuances (Millions)	-	11	10	13	20	18	15	12	14
Debt Share of Capital Structure	77%	74%	72%	69%	67%	65%	62%	59%	57%
Cash Reserve	34	41	42	44	48	52	57	57	58
Debt Coverage	2.91	2.49	2.27	2.35	2.14	2.22	2.02	1.98	1.86

**Summary of Alternatives**

These scenarios represent hypothetical forecasts for reviewing alternatives rather than plans for the future.

**Alternative D: Surcharge with Falling Debt**

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	9.67	9.67	11.90	11.90	12.05	12.05	12.33	12.33
General Service Rate Increases	detailed	0.0%	0.0%	6.6%	0.0%	9.0%	0.0%	9.0%	0.0%
Rate of Return	6.0%	5.5%	4.9%	5.4%	4.5%	5.2%	4.4%	5.4%	4.7%
Debt Issuances (Millions)	-	-	4	5	11	8	4	-	1
Debt Share of Capital Structure	77%	72%	67%	61%	57%	52%	47%	41%	36%
Cash Reserve	34	37	40	43	46	50	53	55	56
Debt Coverage	2.91	2.49	2.34	2.36	2.19	2.32	2.15	2.29	2.20

**Alternative E: Expense Depreciation without Surcharge**

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	-	-	-	-	-	-	-	-
General Service Rate Increases	detailed	9.0%	0.0%	7.5%	0.0%	8.1%	0.0%	5.4%	0.0%
Rate of Return	6.0%	7.4%	7.0%	7.9%	7.0%	7.9%	7.2%	7.8%	7.2%
Debt Issuances (Millions)	-	2	6	9	13	11	7	5	6
Debt Share of Capital Structure	77%	72%	68%	64%	60%	56%	52%	47%	43%
Cash Reserve	34	37	40	43	46	50	53	55	56
Debt Coverage	2.91	2.84	2.65	2.70	2.48	2.57	2.38	2.39	2.28

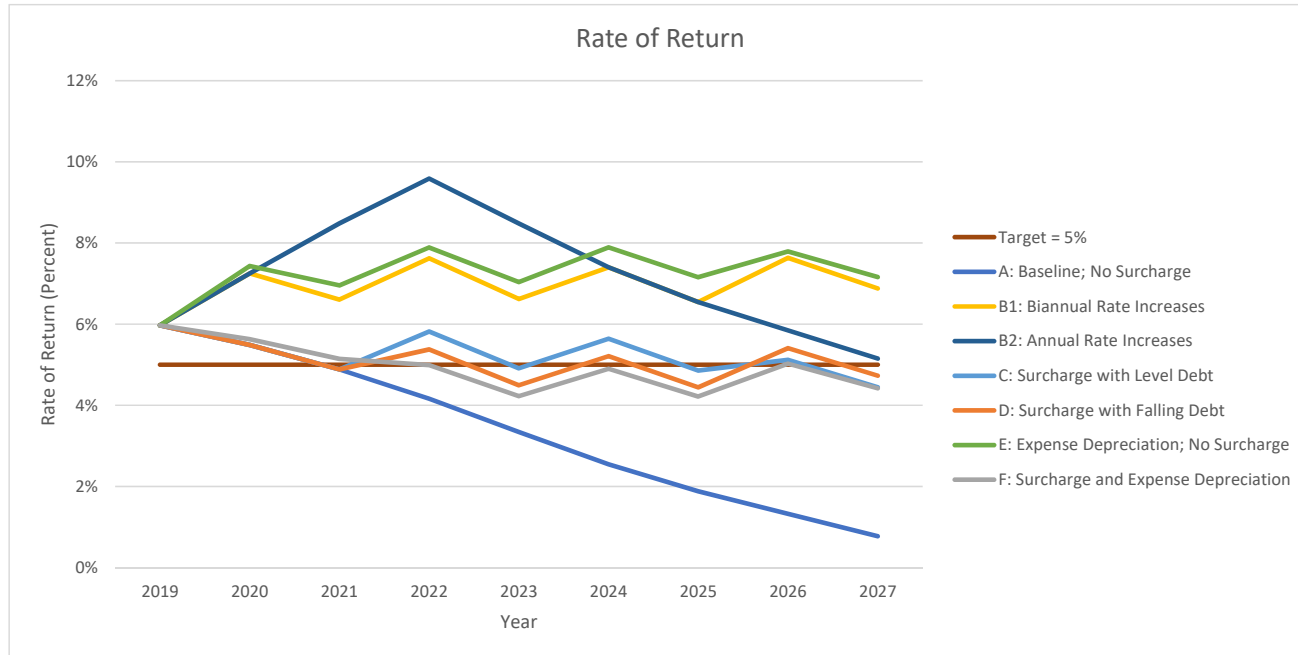
**Alternative F: Expense Depreciation and Surcharge**

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
Monthly Surcharge per Equivalent Meter	-	3.67	3.67	6.00	6.00	6.00	6.00	6.00	6.00
General Service Rate Increases	detailed	0.0%	0.0%	2.5%	0.0%	7.8%	0.0%	7.0%	0.0%
Rate of Return	6.0%	5.6%	5.1%	5.0%	4.2%	4.9%	4.2%	5.0%	4.4%
Debt Issuances (Millions)	-	2	6	9	13	11	7	5	6
Debt Share of Capital Structure	77%	72%	68%	64%	60%	56%	52%	47%	43%
Cash Reserve	34	38	40	43	46	50	52	55	57
Debt Coverage	2.91	2.49	2.32	2.20	2.01	2.08	1.92	1.97	1.87

**Summary of Alternatives**

These scenarios represent hypothetical forecasts for reviewing alternatives rather than plans for the future.

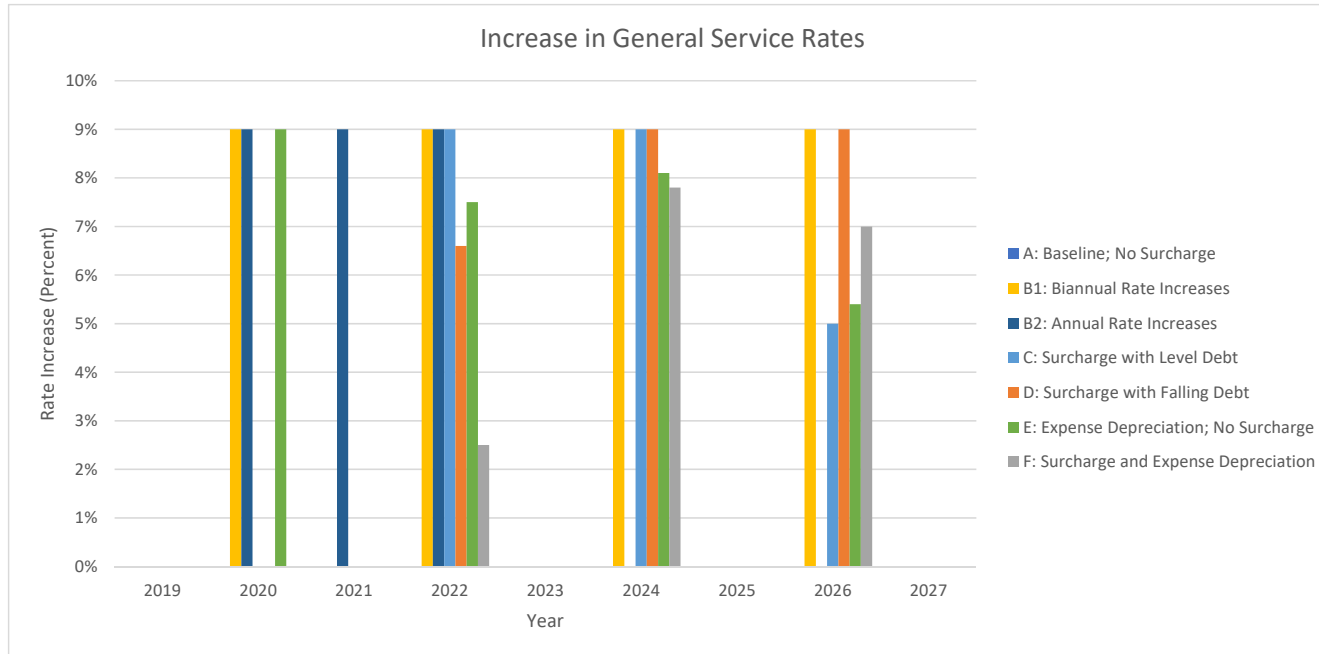
<b>Rate of Return</b>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
A: Baseline; No Surcharge	6%	5%	5%	4%	3%	3%	2%	1%	1%
B1: Biannual Rate Increases	6%	7%	7%	8%	7%	7%	7%	8%	7%
B2: Annual Rate Increases	6%	7%	8%	10%	8%	7%	7%	6%	5%
C: Surcharge with Level Debt	6%	5%	5%	6%	5%	6%	5%	5%	4%
D: Surcharge with Falling Debt	6%	5%	5%	5%	4%	5%	4%	5%	5%
E: Expense Depreciation; No Surcharge	6%	7%	7%	8%	7%	8%	7%	8%	7%
F: Surcharge and Expense Depreciation	6%	6%	5%	5%	4%	5%	4%	5%	4%
Target = 5%	5%	5%	5%	5%	5%	5%	5%	5%	5%



**Summary of Alternatives**

These scenarios represent hypothetical forecasts for reviewing alternatives rather than plans for the future.

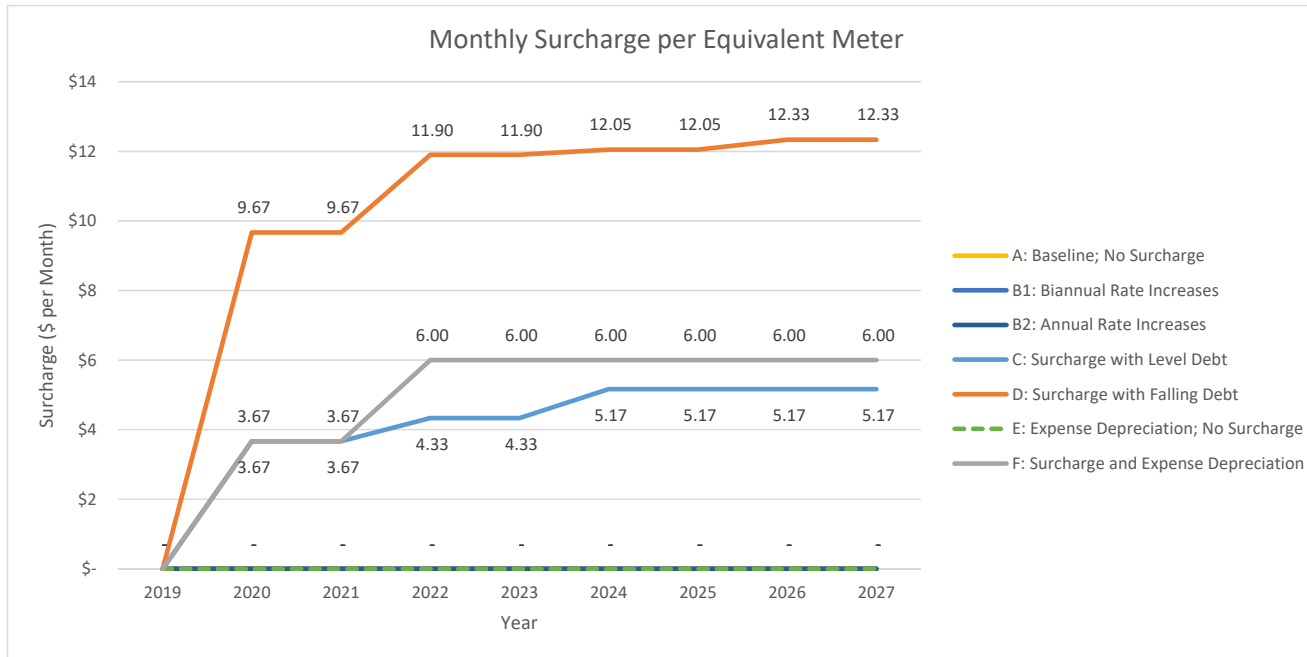
Increase in General Service Rates	2019	2020	2021	2022	2023	2024	2025	2026	2027
A: Baseline; No Surcharge	detailed	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
B1: Biannual Rate Increases	detailed	9.0%	0.0%	9.0%	0.0%	9.0%	0.0%	9.0%	0.0%
B2: Annual Rate Increases	detailed	9.0%	9.0%	9.0%	0.0%	0.0%	0.0%	0.0%	0.0%
C: Surcharge with Level Debt	detailed	0.0%	0.0%	9.0%	0.0%	9.0%	0.0%	5.0%	0.0%
D: Surcharge with Falling Debt	detailed	0.0%	0.0%	6.6%	0.0%	9.0%	0.0%	9.0%	0.0%
E: Expense Depreciation; No Surcharge	detailed	9.0%	0.0%	7.5%	0.0%	8.1%	0.0%	5.4%	0.0%
F: Surcharge and Expense Depreciation	detailed	0.0%	0.0%	2.5%	0.0%	7.8%	0.0%	7.0%	0.0%



**Summary of Alternatives**

These scenarios represent hypothetical forecasts for reviewing alternatives rather than plans for the future.

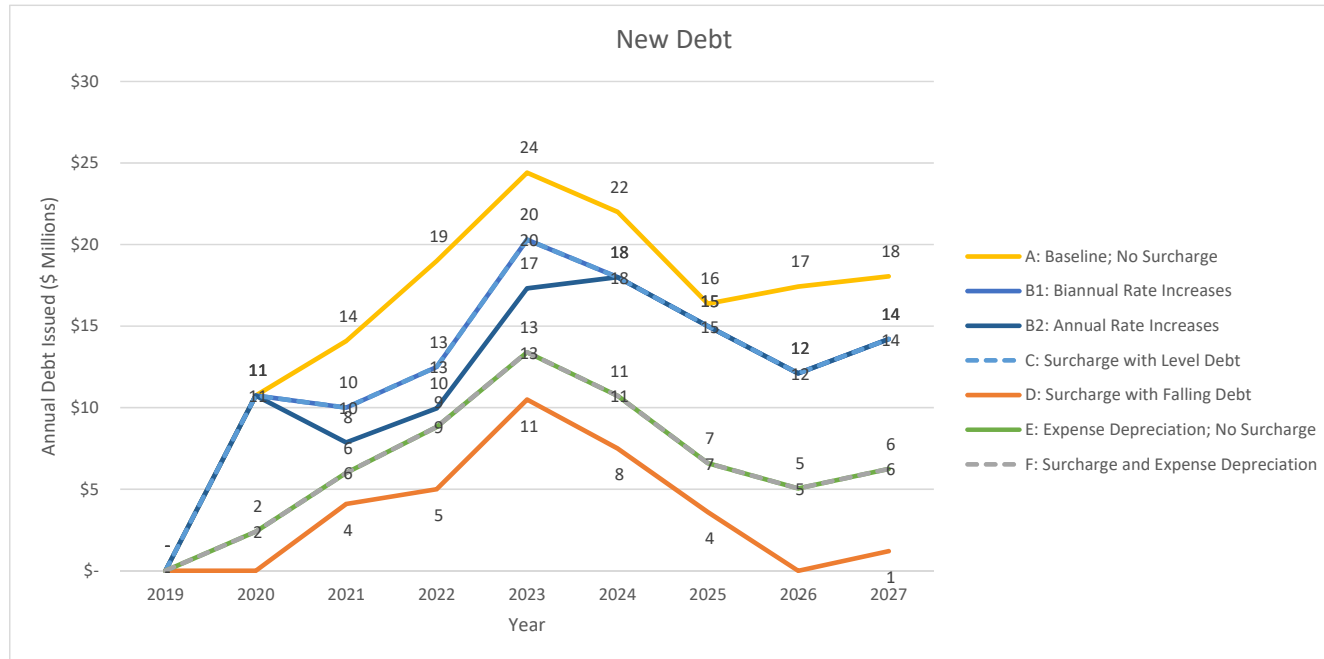
Surcharge per Month per Equivalent Meter	2019	2020	2021	2022	2023	2024	2025	2026	2027
A: Baseline; No Surcharge	-	-	-	-	-	-	-	-	-
B1: Biannual Rate Increases	-	-	-	-	-	-	-	-	-
B2: Annual Rate Increases	-	-	-	-	-	-	-	-	-
C: Surcharge with Level Debt	-	3.67	3.67	4.33	4.33	5.17	5.17	5.17	5.17
D: Surcharge with Falling Debt	-	9.67	9.67	11.90	11.90	12.05	12.05	12.33	12.33
E: Expense Depreciation; No Surcharge	-	-	-	-	-	-	-	-	-
F: Surcharge and Expense Depreciation	-	3.67	3.67	6.00	6.00	6.00	6.00	6.00	6.00



**Summary of Alternatives**

These scenarios represent hypothetical forecasts for reviewing alternatives rather than plans for the future.

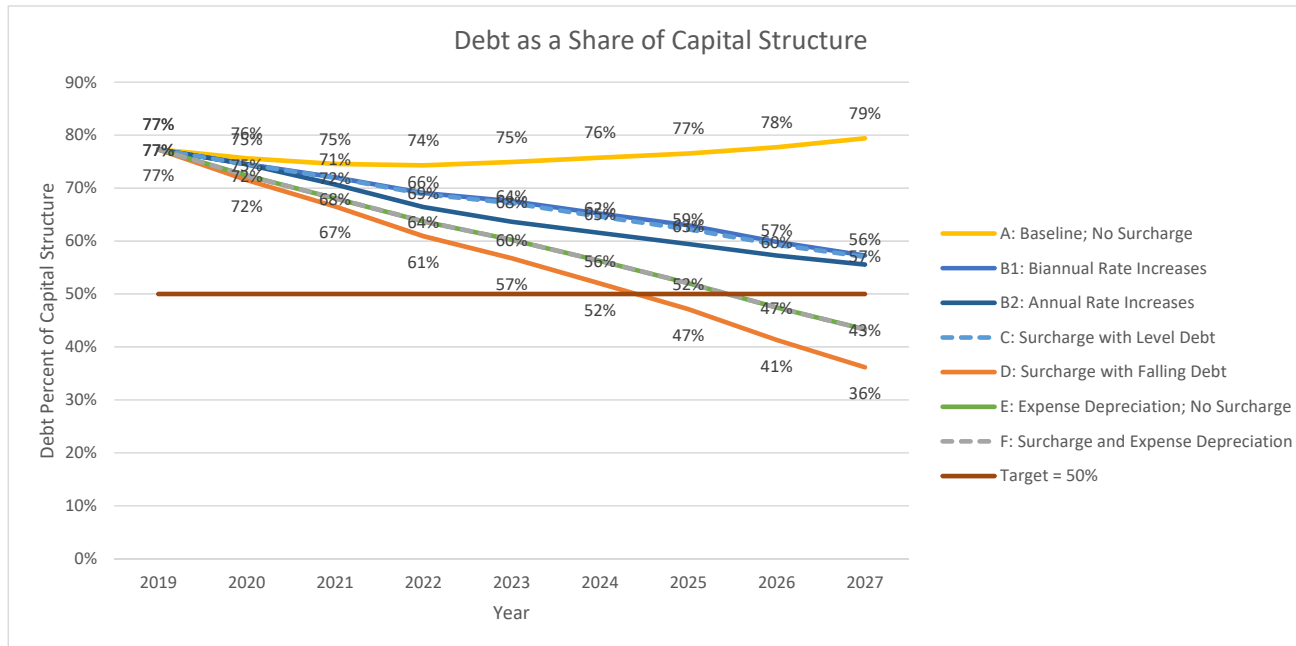
<b>New Debt Issuances (\$ Millions)</b>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>Total</u>
A: Baseline; No Surcharge	-	11	14	19	24	22	16	17	18	142
B1: Biannual Rate Increases	-	11	10	13	20	18	15	12	14	113
B2: Annual Rate Increases	-	11	8	10	17	18	15	12	14	105
C: Surcharge with Level Debt	-	11	10	13	20	18	15	12	14	113
D: Surcharge with Falling Debt	-	-	4	5	11	8	4	-	1	32
E: Expense Depreciation; No Surcharge	-	2	6	9	13	11	7	5	6	59
F: Surcharge and Expense Depreciation	-	2	6	9	13	11	7	5	6	59



**Summary of Alternatives**

These scenarios represent hypothetical forecasts for reviewing alternatives rather than plans for the future.

<b>Debt as a Share of the Capital Structure</b>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>
A: Baseline; No Surcharge	77%	76%	75%	74%	75%	76%	77%	78%	79%
B1: Biannual Rate Increases	77%	75%	72%	69%	68%	65%	63%	60%	57%
B2: Annual Rate Increases	77%	75%	71%	66%	64%	62%	59%	57%	56%
C: Surcharge with Level Debt	77%	74%	72%	69%	67%	65%	62%	59%	57%
D: Surcharge with Falling Debt	77%	72%	67%	61%	57%	52%	47%	41%	36%
E: Expense Depreciation; No Surcharge	77%	72%	68%	64%	60%	56%	52%	47%	43%
F: Surcharge and Expense Depreciation	77%	72%	68%	64%	60%	56%	52%	47%	43%
Target = 50%	50%	50%	50%	50%	50%	50%	50%	50%	50%



**Summary of Alternatives**

These scenarios represent hypothetical forecasts for reviewing alternatives rather than plans for the future.

<b>Estimated Monthly Average Residential Bill</b>	<u>Base Bill</u>	<u>Surcharge</u>
A: Baseline; No Surcharge	\$ 26.52	\$ -
B1: Biannual Rate Increases	35.96	-
B2: Annual Rate Increases	32.99	-
C: Surcharge with Level Debt	31.78	5.17
D: Surcharge with Falling Debt	32.27	12.33
E: Expense Depreciation; No Surcharge	38.25	-
F: Surcharge and Expense Depreciation	34.41	6.00

