

# CITY OF MORTON, WASHINGTON

## WATER RATE ANALYSIS

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**RCAC**  
[www.rcac.org](http://www.rcac.org)

Many thanks for their efforts during the analysis to:  
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## 1. Purpose and Objective

The City of Morton, Washington provides water services with the utility established as an enterprise fund. Portions of the water system are 60 years old or older and need repairs or replacement. Several projects were recommended in the last sanitary survey. Water rates have not been adjusted in at least the last 5 years. Based on recent rate reviews and discussions, the City suspects rates will need to increase to complete the projects and remain financially viable. In addition, sewer rates are increasing to fund compliance improvements required by a Memorandum of Agreement and Order with the state. The City desires a planned approach to future adjustments to minimize effects on the community.

The City of Morton, thru the Washington Department of Health, requested assistance from the Rural Community Assistance Corporation (RCAC) to complete a full analysis of the water rates and provide recommendations. The rate analysis was derived using historical water use and financial data provided by the City, as well as assumptions and estimates made by staff based on their knowledge of system history and future needs. Historical data is from fiscal years 2010-2013, as well as the FY 2014 approved budget and which was used to develop a five year budget projection. Data evaluated reflects all known water related financial accounts including the enterprise fund, reserve accounts, and debt service accounts.

An accurate and useful rate analysis not only identifies the total annual revenue required by a utility to conduct its normal day-to-day operations, but it also anticipates and plans for future operating and capital needs. It attempts to determine whether the projected revenue under existing rates will satisfy those needs. The primary objective of this process is to ensure that the utility has the ability to obtain sufficient funds to develop, construct, operate, maintain, and manage its water system on a continuing basis, in full compliance with federal, state, and local requirements.

The objective of this rate analysis activity is to:

- Determine revenues needed to support the budget
- Review impacts of potential capital improvements on the rates
- Make recommendations relating to future rate adjustments

Rate options were evaluated on the basis of:

- Keeping the structure simple to understand and administer
- Ensuring revenues were adequate to sustain the utility
- Preparing for future capital improvements

The information contained in this document will assist the Morton City Council in making prudent financial decisions to ensure the long-term viability of the water utility.

## 2. Financial Planning

The objective of developing a financial plan for a water system is to determine cash needs, revenue requirements and anticipated timing of utility costs to ensure that adequate funds are available to meet operational and maintenance needs as they occur. Financial planning for a small water system normally includes an examination of:

- Operating revenues;
- Operation and maintenance (O&M) expenses;
- Debt service (principal and interest payments) on borrowed funds, and
- Reserve requirements.

Planning for the future requires an examination of past and current activities. The City creates an annual budget for the water fund based on historical data, known changes, and estimated activities in the coming fiscal year. The budget outlines what it costs the City to provide services to its customers. Each year, the City conducts a comprehensive line item review of the budgetary expenditures to maximize available resources and reduce operational costs.

Table 2.1 shows the actual financial numbers for four previous fiscal years and the budget information for the current fiscal year for the Water Fund. The net income (loss) becomes the beginning fund balance for the next year. Based on the financial data provided, late fees, interest and miscellaneous income that may be considered non-operating revenue is included in the operating revenue in the table below. The fund balance (net income) is generally decreasing over time; operating revenues alone are not sufficient to meet all expenses. The water financial data spreadsheet found in Attachment A provides additional detail.

**Table 2.1 Historical and Current Water Fund Financial Data\***

<b>Water Fund</b>	<b>FY 2010 Actual</b>	<b>FY 2011 Actual</b>	<b>FY 2012 Actual</b>	<b>FY 2013 Actual</b>	<b>FY 2014 Budget</b>
Beginning Fund Balance	\$529,822	\$288,428	\$213,437	\$163,828	\$222,231**
Operating Revenue	\$364,271	\$639,179	\$346,654	\$519,814	\$340,860
Expenses	\$488,672	\$599,058	\$282,717	\$286,673	\$432,100
Debt Service	\$116,993	\$115,270	\$113,547	0	\$33,410
Transfers to Reserve Fund	0	0	0	0	0
<b>Net Income (Loss)</b>	<b>\$288,428</b>	<b>\$213,279</b>	<b>\$163,827</b>	<b>\$396,969</b>	<b>\$97,581</b>

\*Historical data from audit reports

\*\*FY 2014 Beginning Fund Balance includes the Disaster Assistance revenue line item at \$130,000.

According to City staff, the operating revenue for FY 2013 was significantly higher than the previous year due to the receipt of FEMA monies from the 2009 flood. Repair projects were completed in prior years. Exact source of the funding that increased the FY 2011 revenue was not known but believed to be grant funding also. These increases in revenue are not consistent, derived from rate payers or reliable sources of operational revenues for future

years. For the purposes of this rate study, typical annual operating revenues will be estimated at \$350,000.

## **Operating Revenues**

Revenues are the main source of income to a utility and are typically thought of as operating and non-operating. Operating revenue is the stable and reliable income that comes from customer rates or user charges. Non-operating revenue such as interest on checking and reserve accounts, meter deposits, connection fees, and late payments, penalties and reconnection fees may be considered operating revenue, if they are stable and dependable revenue sources. Beginning fund balances may be considered non-operating revenue or included in the reserves description. As economic fluctuations in recent years have shown, caution should be used when predicting future revenue from growth related fees.

## **Operating Expenses**

This is the first cost category that is considered when developing a financial plan. Operating and maintenance costs include the day to day expenses of getting drinking water to customers. Common expense items include labor, insurance, materials, electricity, and chemicals. Often expenses can be split between fixed and variable. Fixed expenses are those that are present no matter how much water is produced and commonly include all or a significant portion of administrative costs, operator salaries, debt service, insurance, professional services, etc. Variable expenses increase as additional water is produced and may include chemicals, testing, electricity, etc. Many small water systems find a significant portion of their expenses (70-90%) fall into the fixed category.

## **Water System Reserves**

The rationale for maintaining adequate reserve levels is twofold. First, it helps to assure that the utility will have adequate funds available to meet its financial obligations in times of varying needs. Secondly, it provides a framework around which financial decisions can be made to determine when reserve balances are inadequate or excessive and what specific actions need to be taken to remedy the situation.

Utility reserve levels can be thought of as a savings account. Reserve balances are funds that are set aside for a specific cash flow requirement, financial need, project, task, or legal covenant. Common reserve balances are established around the following four areas: operating reserve, capital improvement/equipment replacement, emergency, and debt service reserve. These balances are maintained in order to meet short-term cash flow requirements, and at the same time, minimize the risk associated with meeting financial obligations and continued operational needs under adverse conditions. Additional information on the four common reserves can be found in Attachment B.

Deposits to reserve accounts may be broken into reduced annual installments to minimize the overall impact on rates. When building reserves and you are limited in your annual contributions, prioritize required debt service and emergency reserves first. Once established, you can build the other reserves as you are able. Once the target reserve has been met, the contributions can be redirected to other water reserve funds or water projects. Operating reserve levels should be evaluated on a regular basis to reflect current costs.

**Table 2.2 Recommended Reserve Targets**

<b>Purpose</b>	<b>Amount</b>
Debt Service Reserve	\$153,107
Capital Improvement Plan (CIP) Reserve	\$270,000
Emergency Reserve	\$36,513
Operating Reserve	\$36,513
<b>Total Reserves</b>	<b>\$496,133</b>

- **Debt Service Reserve** – Current reserve requirement is \$33,410 for existing loan. This amount is met. Future projects may increase this requirement by \$66,498.38 in year two and another \$53,198.70 in year four of projections. All three of these are included in the reserve target in Table 2.2.
- **CIP Reserve** – Based on discussion with the Public Works Committee, an initial goal was set at \$270,000 or 10% of the two major capital improvement projects anticipated in the next 5 years. This amount might be used for planning or initial work of a project when outside funds are not yet available. The water utility has a number of assets that will need replaced as outlined in Attachment C Capital Outlay Needs. Ensuring that the CIP reserve is replenished as funds are used is recommend. Self-funding smaller projects is generally more cost effective and sustainable in the long term.
- **Emergency Reserve** – Emergency concerns at this time are associated with potential failure of the reservoir or the Tilton Bridge water main. A failure at the reservoir may require potable water delivery and/or temporary storage tanks. Research showed cost varied greatly depending on duration, gallons, and type of need (delivery, storage, etc.) For example, a delivery of 3,000 gallons could range from \$200 to \$500. Summer rental rates for a 4,000 gallon water truck left on-site could exceed \$650 per day or \$19,500 per month. Water bladder tanks are another storage option and vary in capacity and cost. A 10,000 gallon bladder tank can be purchased for around \$6,000. A target to provide approximately one budget cycle or 45 day of operating costs (12.5% of annual) is used in the table above. This amount would provide initial funds to cover these types of costs in the early stages of an emergency.
- **Operating Reserve** – Industry standards and RCAC suggest allotting for 45 days of operating costs (12.5% of annual) which is reflected in the target above.

The annual operating cost used to calculate the emergency and operating reserve targets is \$292,100. Several amounts were removed from the operating expenses shown in the 2014 budget as they are clearly separate from the expenses required for the most basic daily operations. The line items excluded are loan (\$33,410), new equipment (\$40,000), projects and computer upgrades (\$50,000 each.) The lower annual cost represents 63% of the total expenses budgeted. FY 2013 year end totals for all expenses were 77% of the budgeted amount.

Morton's FY2013 year-end balance for water investments (\$84,480.49) and the ending fund balance (\$395,001.06) total \$479,481.55. The water utility has a solid start on adequate reserves. However, there is a small gap when compared to the reserve target. Table 2.3 Reserve Saving Scenario presents one option for fully funding the target reserve amount in two years and potential cost to customers.

Aside from debt service no other reserves are clearly identified. RCAC recommends the city make a specific indication of what the reserve targets are and where that money is accounted for in the budget. This could be a short paragraph added to the budget description. Stating the goal of the reserves allows future decision makers to understand why money was saved and use the money in a prudent manner.

**Table 2.3 Fully Funded Reserves: 2 Year Saving Scenario**

Reserve	Target	FY 14 Available Funds	Difference	Annual Contribution Needed	Cost/Customer/Month
Debt Service	\$153,107	\$153,107	0	0	0
CIP	\$270,000	\$253,348	\$16,652	\$8,326	\$1.14
Emergency	\$36,513	\$36,513	0	0	0
Operating	\$36,513	\$36,513	0	0	0
<b>Total</b>	<b>\$496,133</b>	<b>\$479,481</b>	<b>\$16,652</b>	<b>\$8,326</b>	<b>\$1.14</b>

## Five Year Budget Forecast

RCAC utilized the FY 14 approved budget and developed projections for FY 15 to FY 19.

Two major capital improvement projects are anticipated during the next 5 years. The first is estimated at \$1.5 million and would replace the water reservoir and the Tilton Bridge water main. The second replaces the Davis Lake Road water main with an estimated cost of \$1.2 million. For the purposes of budget forecasting, potential loan options were analyzed as shown in Table 2.4 CIP Funding Options. Funding considered is based on the Washington Drinking Water State Revolving Loan Fund current guidelines. It is likely that Morton will qualify for a reduced interest rate of 1% and potential principle forgiveness. An estimate of 20% is shown. A \$1.5 million loan is reduced to \$1.2 million and \$1.2 million is reduced to \$960,000. Budget forecast uses the lower interest rate and inclusion of principle forgiveness.

**Table 2.4 CIP Funding Options**

Loan Amount	Term	Interest Rate	Annual Payment	Cost/Month/ Customer	Notes
\$1,500,000	20 years	1.0%	\$83,122.97	\$11.37	Project 1 cost estimate.
\$1,500,000	20 years	1.5%	\$87,368.60	\$11.96	
\$1,200,000	20 years	1.0%	\$66,498.38	\$9.10	Project 2 cost estimate.
\$1,200,000	20 years	1.5%	\$69,894.88	\$9.56	Used in budget forecast for project 1.
\$960,000	20 years	1.0%	\$53,198.70	\$7.28	Used in budget forecast for project 2.
\$960,000	20 years	1.5%	\$55,915.91	\$7.65	

Assumptions used when developing the five-year budget forecast include:

- **Revenues** – Assume no changes to rates or other revenue. Changes to revenue based on proposed rate adjustments will be discussed in Section 5.
- **Operational Expense** – No major changes are anticipated in expenses. FY2013 actual expenses were 77% of budgeted. For projections 80% of the 2014 operational expense budget was used. The city does not currently use a specific inflation index or other method to account for inflation. An annual inflation factor of 2% was applied to operational expenses and annual capital outlay expenses. This factor is based on reviews of the consumer price index for Seattle, Portland and nationally.
- **Annual Reserve Contribution** – Reserves are described in detail above. The annual contribution as shown in Table 2.4 is used for projections in the first two years. Years three to five show \$15,000 to maintain reserve.
- **Debt Service** – Amounts are determined by funding agencies when loans are acquired. Current debt service of \$33,410 annual will remain for the next five years. Capital projects in the next five years are likely to require loan financing. Future debt service is estimated in increase by \$66,498.38 beginning in year two and an additional \$53,198.70 beginning in year four of projections.

**Table 2.5 Water Fund Budget Forecast**

<b>Water Fund</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
Beginning Fund Balance	\$526,969*	\$402,319	\$353,903	\$231,855	\$95,858	\$(100,761)
Operating Revenue	\$340,860	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000
Expenses	\$432,100	\$356,680	\$363,814	\$371,089	\$378,512	\$386,082
Debt Service	\$33,410	\$33,410	\$99,908	\$99,908	\$153,107	\$153,107
Transfers to Reserve Fund	\$0	\$8,326	\$8,326	\$15,000	\$15,000	\$15,000
<b>Net Income (Loss)</b>	<b>\$402,319</b>	<b>\$353,903</b>	<b>\$231,855</b>	<b>\$95,858</b>	<b>\$(100,761)</b>	<b>\$(304,950)</b>

\*Beginning Fund Balance in FY2014 adjusted for FY2013 actual ending fund balance and includes budgeted non-revenues and other financing of \$130,000.

Graph 2.1 Water Fund 10 Year Financial Picture

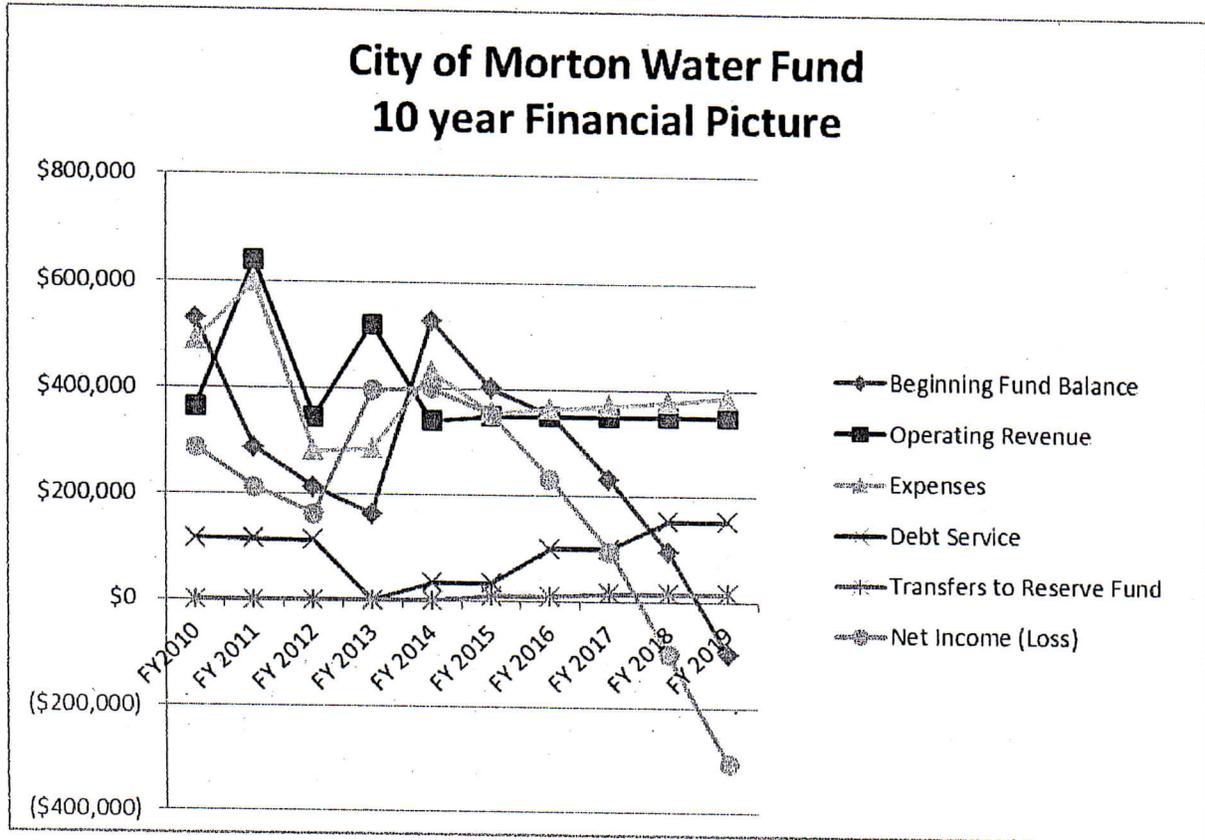


Table 2.5 and Graph 2.1 both reflect the impact inflation and saving for capital project needs will have on the budget. The **revenue requirement** includes the expenses, debt service and transfers to reserve fund amounts. The compounding impact of inflation, anticipated new debt service, and transfers to reserves create a decreasing net income if revenues remain at current level.

## Financial Indicators

There are several financial indicators, such as Operating Ratio and Affordability Index that help a utility decide if a rate adjustment is needed. It is important to track the trend of ratios during the year and from one year to the next to watch for any significant changes. If a ratio is below the minimum or falling, changes will need to be made quickly to avoid serious financial difficulty.

### Operating Ratio

The Operating Ratio measures the amount of operating revenue versus the total amount of operating expenses for a utility system. The minimum standard for an operating ratio for a utility system is 1.0 meaning there is enough operating revenue to cover operating expenses.

A financially healthy utility system needs to maintain an ongoing operating ratio greater than 1, a ratio of less than 1 indicates there is insufficient revenue to meet current expenses. For example, if you had an operating ratio of 0.75, this means your revenue is 75% of expenses or in other words, you can only cover 3/4 of your expenses.

Operating Ratio = Revenue/Expenses

### Affordability Index

The affordability index measures the burden of costs passed from the water or wastewater utility to the users against the median household income (MHI) for the area and is used by funding agencies to determine grant and low interest loan eligibility. The specific number can vary by agency. A utility bill greater than 2.5% of MHI should be investigated further for options to reduce rate impacts, especially if the residents are paying additional user charges for the wastewater, solid waste and other utility services. No data is available to determine the MHI for the City of Morton. Lewis County MHI, according to the 2008-2012 ACS census data, is \$43,490. At 2.5%, the utility bill would be \$90.60 per month. Average in-city customer currently pays \$39.50 per month.

Affordability Index = average annual residential bill for water or wastewater/annual MHI

**Table 2.6 Water Utility Financial Indicators**

				Proposed		
	Goal	FY 2013	FY 2014	Option A	Option B	Option C
<b>Operating Ratio<sup>1</sup></b>	>1	1.19	0.73	1.02	1.02	1.02
<b>Affordability Index<sup>2</sup></b>	Below 2.5%	1.1%	1.1%	1.6	1.5	1.5

1. Calculated using Operating Revenue, Expenses and Debt Service shown in Tables 2.1, excluding \$179,275 Disaster Assistance received in FY 2013.
2. Calculated using an average monthly water bill of \$38 based on in-city rates and 7,000 gallons used.

### 3. Customer Water Demands

When analyzing water rates it's vital to understand existing patterns of consumption among the system's customers. A large portion of customers may use a small percentage of water, and a small portion of customers may use a large percentage. Twelve months of water use data from June 2013 to May 2014 provided by city staff was analyzed to create a usage profile. The utility had 649 customer accounts during this time. Customers were categorized by in city and out of city customers and commercial customers were identified. Most non-commercial customers are single family homes; however, some are community buildings, churches, multi-family dwellings or others. To calculate an accurate equivalent residential unit (ERU), the list of customer use would need to be further sorted to contain only single family dwellings for evaluation. An estimated ERU based on the current data analyzed would be the 5,098 gallons shown in the table below. Table 3.1 provides a summary of customer characteristics.

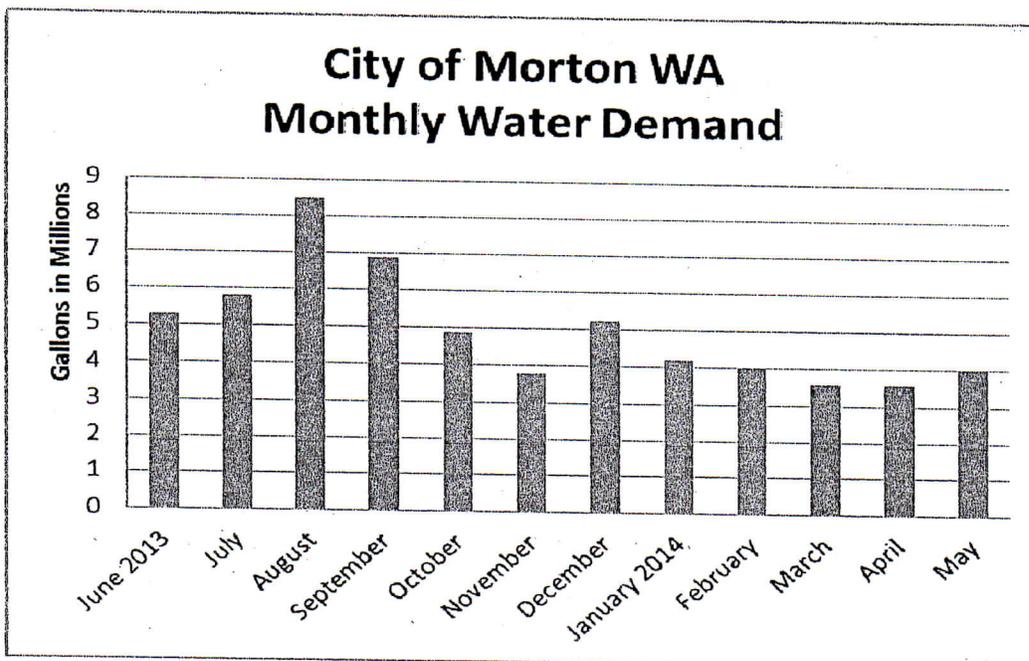
**Table 3.1 Water Use Customer Characteristics**

Class	Non-Commercial	Commercial	In City	Out of City
<b>Number of Connections</b>	552	97	571	78
<b>Mean (Average) User – Avg. Monthly Use (gal)</b>	5,098	13,542	7,039	7,132
<b>Use less than 5,000 gal/mon</b>	336	63	358	41
<b>Use less than 3,000 gal/mon</b>	201	52	227	26
<b>Use less than 1,200 gal/year</b>	31	9	36	4
<b>Total Annual Use in gallons</b>	43,902,305	15,762,458	52,989,133	6,675,630
<b>% of Total Use</b>	73.6%	26.4%	88.8%	11.2%

Total annual gallons billed for all customers are 59,664,763.

The highest average monthly water user is the sewer treatment plant with an average use of 403,399 per month. Usage varied from a low of roughly 80,000 gallons to a high of 1.39 million gallons in a single month, 2.2% and 16.3% of total use for the month respectively. This customer was considered an outlier and the water use was not used in calculating the mean or median user noted above. Total annual gallons billed, excluding the sewer treatment plant, are 54,823,973.

The top five water users (including the sewer treatment plant) combined used 12.8 million gallons during the 12 month study period and accounted for 21.5% of the total water use.

**Chart 3.1 Monthly Water Demand**

Demand increases during the summer months and is lower in winter and spring. Peak monthly use during this study period was in August 2013. The revenue from the city is stabilized by the base rate. However revenue from usage charges will vary throughout the year, similar to Chart 3.1. Prudent financial planning will take note of the cycle and adjust accordingly.

## 4. Current Rate

### Common Rate Structures

- **Uniform Flat Rate** - Customers pay the same amount regardless of the quantity of water used. This type of rate is easiest to administer; however, it may not be fair to the lowest water users and does not promote water conservation or monitoring of use, leaks and wasted water.
- **Single or Uniform Block Rate** - Customers are charged a constant price per volume regardless of the amount of water used. The cost per block of water is often added to a minimum charge for having service available. This rate tends to be more equitable to customers than a flat rate as the cost to customer is in direct proportion to the amount use.
- **Inclining or Increasing Block Rate** - Designed to promote water use efficiency, the price of water increases as the amount used increases. This rate is effective for systems seeking to discourage high water use and minimizes cost impacts to low water users. Be aware of impacts to industrial or commercial customers that are high water users.

### Current Rate Structure

The City of Morton charges a base rate with a single block rate for use above 5,000 gallons per month. Customers outside city limits are charged a higher base rate than customers within city limits. The reason for the different base rate was not provided at the time of the study and should be researched further. Residential and commercial customers pay the same base rate.

**Table 4.1 City of Morton Water Rate Schedule**

<b>Inside City Limits:</b>	
0- 5,000 gallons	\$35.00
5,001+ gallons	\$1.50 per 1,000 gallons
<b>Outside City Limits:</b>	
0- 5,000 gallons	\$47.74
5,000+ gallons	\$1.50 per 1,000 gallons
Current as of Oct. 2014	

**Table 4.2 Water Rate Customer Characteristics**

Class	In City	Out of City
<b>Number of Connections</b>	571	78
<b>Never pay more than current base</b>	358	41
<b>Estimated Revenue from base</b>	\$239,820	\$44,685

Based on the average monthly water use during the study period approximately 61% of the customers would never pay more than the current base rate.

Total revenue budgeted for 2014 is \$340,860, not including the Disaster Assistance line item of \$130,000. Revenue estimates based on average water use charges would be \$307,449 under the current rate structure which leaves \$33,411 to be collected from non-typical use, water hookups, late charges, interest income and other miscellaneous income.

## 5. Water Rate Options

The City of Morton Water Utility revenue requirement includes operating expenses, debt service, and transfers to reserve funds. Table 5.1 displays the projected revenue requirement thru FY 2019 and difference from the historical average revenue estimate of \$350,000, which was described in Section 2.

**Table 5.1 Revenue Requirement**

Year	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
<b>Requirement</b>	\$398,416	\$472,048	\$485,997	\$546,619	\$554,189
<b>Current Revenue</b>	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000
<b>Difference</b>	\$48,416	\$122,048	\$135,997	\$196,619	\$204,189

The revenue requirement will increase annually by the rate of inflation at a minimum. In FY 2016 and 2018, new debt service is added. As stated in Section 2, revenues are not sufficient to meet expenses and the fund balance is decreasing. In order to stabilize the finances and ensure a financially viable utility, if expenses are not decreased, revenues must increase by the difference shown in Table 5.1. Split evenly, an additional \$6.63 per customer per month would need to be collected in FY 2015 to generate the \$48,416 in Table 5.1.

A percentage of the 649 accounts are not billed or do not pay the bill and may end up in collections. Forty accounts (or 6% of the customers) used less than 100 gallons per month with many or all months where no water was used. To account for accounts which are closed for a portion of the year or otherwise receive no revenue, rate options are estimated using 609 paying accounts.

Three options are outlined below; however there are many other ways to adjust rates to reach the revenue requirement. Each option is designed to generate the revenue requirement shown in Table 5.1.

### Option A

Total annual gallons billed (all customers except the sewer treatment plant) are 54,823,973. The City of Morton Water Utility revenue requirement is estimated at \$398,416 for 2015. Divided evenly, the cost per 1,000 gallons is \$7.26. Recalculating this cost for each year to determine a new base rate, Table 5.2 demonstrates the rates required.

**Table 5.2 Option A**

<b>Inside City Limits:</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
0- 5,000 gallons	\$36.30	\$43.05	\$44.30	\$49.85	\$50.55
5,001+ gallons per 1,000 gallons	\$7.26	\$8.61	\$8.86	\$9.97	\$10.11
<b>Bill for 8,000 gallons</b>	\$58.08	\$68.88	\$70.88	\$79.76	\$80.88
<b>Outside City Limits:</b>					
0- 5,000 gallons	\$49.04	\$55.79	\$57.04	\$62.59	\$63.29
5,000+ gallons per 1,000 gallons	\$7.26	\$8.61	\$8.86	\$9.97	\$10.11

### Option B

Fixed and variable expenses were briefly discussed in Section 2. Commonly in small systems fixed costs account for 70-90% of total costs. Fixed costs may be covered by the base rate and variable expenses would come from the usage charges. Option B is calculated using 80% of costs as fixed and recovered in the base rate with the remaining 20% coming from usage charges.

**Table 5.3 Option B**

<b>Inside City Limits:</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
0- 5,000 gallons	\$42.10	\$50.16	\$51.67	\$58.31	\$59.15
5,001+ gallons per 1,000 gallons	\$4.36	5.16	5.32	5.98	\$6.06
<b>Bill for 8,000 gallons</b>	\$55.18	\$65.64	\$67.63	\$76.25	\$77.33
<b>Outside City Limits:</b>					
0- 5,000 gallons	\$54.84	\$62.90	\$64.41	\$71.05	\$71.89
5,000+ gallons per 1,000 gallons	\$4.36	5.16	5.32	5.98	\$6.06

### Option C

Option C is similar to option B using the fixed and variable concepts. This option also lowers the base rate from 5,000 gallons included to 3,000 gallons. The number of customers that, in an average month, only pay the base rate is lowered from 399 to 253. See Table 3.1 for more detail.

**Table 5.3 Option C**

<b>Inside City Limits:</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>FY 2017</b>	<b>FY 2018</b>	<b>FY 2019</b>
0- 3,000 gallons	\$42.10	\$50.15	\$51.70	\$58.33	\$59.14
3,001+ gallons per 1,000 gallons	\$2.42	2.87	2.95	3.32	\$3.37
<b>Bill for 8,000 gallons</b>	\$49.36	\$58.76	\$60.55	\$68.29	\$69.25
<b>Outside City Limits:</b>					
0- 3,000 gallons	\$54.84	\$62.89	\$64.44	\$71.07	\$71.88
3,000+ gallons per 1,000 gallons	\$2.42	2.87	2.95	3.32	\$3.37

## Rate Equity

In setting or adjusting water rates, "equity" is the art of spreading the burden fairly among the system's customers. A system may not be able to entirely control the cost of producing, treating, storing, and distributing safe water to its customers, but it must recover the full cost of providing water and is responsible to ensure all customers are paying their fair share - not too much, not too little.

Most water systems strive to adopt a rate structure in which the amount of money paid by each customer is roughly proportional to that customer's demand on the system's capacity and

resources. Within this overall strategy, concessions are often made for low or fixed income customers, attraction of commercial and industrial activity and the jobs they provide, and a wide range of other local and political considerations. In a detailed water use analysis many systems discover large discrepancies between demands made on the system and revenue received.

**Table 5.4 Sample Bills Inside City Limits FY 2015**

Monthly Water Use	Current	Option A	Option B	Option C
3,000	\$35.00	\$36.30	\$42.10	\$42.10
5,000	\$35.00	\$36.30	\$42.10	\$46.94
8,000	\$39.50	\$58.08	\$55.18	\$54.20
15,000	\$50.00	\$108.9	\$85.70	\$71.14
50,000	\$102.50	\$363.00	\$238.30	\$155.84
100,000	\$177.50	\$726.00	\$456.30	\$276.84

**Table 5.5 Sample Bills Option A Inside City Limits**

Monthly Water Use	2015	2016	2017	2018	2019
3,000	\$36.30	\$43.05	\$44.30	\$49.85	\$50.55
5,000	\$36.30	\$43.05	\$44.30	\$49.85	\$50.55
8,000	\$58.08	\$68.88	\$70.88	\$79.76	\$80.88
15,000	\$108.90	\$129.15	\$132.90	\$149.55	\$151.65
50,000	\$363.00	\$430.50	\$443.00	\$498.50	\$505.50
100,000	\$726.00	\$861.00	\$886.00	\$997.00	\$1,011.00

**Table 5.5 Sample Bills Option B Inside City Limits**

Monthly Water Use	2015	2016	2017	2018	2019
3,000	\$42.10	\$50.16	\$51.67	\$58.31	\$59.15
5,000	\$42.10	\$50.16	\$51.67	\$58.31	\$59.15
8,000	\$55.18	\$65.64	\$67.63	\$76.25	\$77.33
15,000	\$85.70	\$101.76	\$104.87	\$118.11	\$119.75
50,000	\$238.30	\$282.36	\$291.07	\$327.41	\$331.85
100,000	\$456.30	\$540.36	\$557.07	\$626.41	\$634.85

**Table 5.5 Sample Bills Option C Inside City Limits**

Monthly Water Use	2015	2016	2017	2018	2019
3,000	\$42.10	\$50.15	\$51.70	\$58.33	\$59.14
5,000	\$46.94	\$55.89	\$57.60	\$64.97	\$65.88
8,000	\$54.20	\$64.50	\$66.45	\$74.93	\$75.99
15,000	\$71.14	\$84.59	\$87.10	\$98.17	\$99.58
50,000	\$155.84	\$185.04	\$190.35	\$214.37	\$217.53
100,000	\$276.84	\$328.54	\$337.85	\$380.37	\$386.03

## 6. Conclusions and Recommendations

### Key Points and Recommendation:

- The water fund balance (net income) is generally decreasing over time; operating revenues alone are not sufficient to meet all expenses.
- An additional \$6.63 per customer per month would need to be collected in FY 2015 to meet the target revenue requirement.
- New debt service on two new loans could increase bills by \$16.38 per customer per month in the next five years.
- **Option C** or similar adjustment offers the least impact to high water users while spreading out the costs among all users. This option gives most customers some control over their bill by controlling how much water they use.

### Key points to remember with any rate adjustment:

- Successful utilities are those that strive to *be transparent*. In day to day operations, a sustainable utility must promote its services (highlights and the low points) and continuously educate its customers on why it is necessary to complete projects and adjust rates.
- The ability of the rate structure to generate adequate revenue will depend on maintaining a vigorous *collection and shut-off policy* to keep delinquent accounts at a minimum.
- When a utility implements a significant rate increase, users may reduce their consumption with subsequent effect on revenue levels and the utility's ability to meet its financial obligations. Within 12 to 18 months after a rate increase, a thorough review should be conducted to *assess the actual impacts* to water use and revenue. Make adjustments as needed to ensure revenues will sufficiently cover expenses.
- In order to achieve and maintain long term viability, water systems should *review their rates annually* or no less than every two years. Keeping track of customer seasonal and annual water demands and revenues generated will help determine operations needs, budget forecasts and rate adjustments.
- Establishing a *pattern of small rate adjustments* every year to keep up with inflation and capital projects is highly recommended. This practice improves customer awareness of the cost of operating the water service and minimizes large rate increases every 5 or 10 years.

### Additional Considerations:

- *Water loss* evaluation is separate from the rate analysis process. A goal of water loss less than 10% may be challenging to achieve but is highly encouraged. Reducing and managing water loss is critical to using resources efficiently. Minimizing water loss can reduce public health risks, electrical expenses, unnecessary wear and tear on pumps, tanks and water lines, and other costly impacts.
- *Identify all areas of service* provided and consider if a fee is appropriate. Fire protection service, irrigation, bulk water, construction site water use, public/community buildings & parks can be overlooked services. If these or other services are being provided by the water department, consider whether or not to charge specifically for this service. Any service provided incurs an expense. Whether the expense is divided among all users or charged to a specific user is determined by the utility's governing body.

Attachment A. Ten Year Financial Spreadsheet

City of Morton Water Fund	2010	2011	2012	2013	2014	Annual Inflation Factor %	2015	2016	2017	2018	2019
	(Year End Actual)	(Year End Actual)	(Year End Actual)	(Year End Actual)	Budgeted		2015	2016	2017	2018	2019
310-360 Revenues	\$ 364,271.00	\$ 639,179.00	\$ 346,654.00	\$ 519,813.94	\$ 340,860	0.00%	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000
Total Operating Income	\$ 364,271.00	\$ 639,179.00	\$ 346,654.00	\$ 519,813.94	\$ 340,860		\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000	\$ 350,000
510-570 Operating Expenses	\$ 488,672.00	\$ 392,993.00	\$ 196,684.00	\$ 253,106.69	\$ 382,100	2.00%	\$ 305,680	\$ 311,794	\$ 318,029	\$ 324,390	\$ 330,878
591-593 Debt Service	\$ 116,993.00	\$ 115,270.00	\$ 113,547.00	\$ -	\$ 33,410	0.00%	\$ 33,410	\$ 99,908	\$ 99,908	\$ 153,107	\$ 153,107
594-596 Capital Outlay	\$ -	\$ -	\$ 4,233.00	\$ -	\$ 50,000	2.00%	\$ 51,000	\$ 52,020	\$ 53,060	\$ 54,122	\$ 55,204
597-599 Other Financing Uses/Transfers Out	\$ -	\$ -	\$ 81,800.00	\$ -	\$ -	0.00%					
580-590 Non Expenditures	\$ -	\$ 206,065.00	\$ -	\$ 33,566.67	\$ -	0.00%					
Reserve Contribution	\$ -	\$ -	\$ -	\$ -	\$ -	0.00%	\$ 8,326	\$ 8,326	\$ 15,000	\$ 15,000	\$ 15,000
Total Operating Expense	\$ 605,665.00	\$ 714,328.00	\$ 396,264.00	\$ 286,673.36	\$ 465,510		\$ 398,416	\$ 472,048	\$ 485,998	\$ 546,619	\$ 554,189
<b>NET OPERATING INCOME (LOSS)</b>	<b>\$(241,394.00)</b>	<b>\$(75,149.00)</b>	<b>\$(49,610.00)</b>	<b>\$ 233,140.58</b>	<b>\$ (124,650)</b>		<b>\$ (48,416)</b>	<b>\$ (122,048)</b>	<b>\$ (135,998)</b>	<b>\$ (196,619)</b>	<b>\$ (204,189)</b>
308 Beginning Cash and Investments	\$ 529,822.00	\$ 288,428.00	\$ 213,278.00	\$ 163,828.44	\$ 396,969		\$ 402,319	\$ 353,903	\$ 231,855	\$ 95,858	\$ (100,761)
380-390 Nonrevenues & Other Financing	\$ -	\$ -	\$ 159.00	\$ -	\$ 130,000	0.00%		\$ -	\$ -	\$ -	\$ -
Total Non-Operating Income	\$ 529,822.00	\$ 288,428.00	\$ 213,437.00	\$ 163,828.44	\$ 526,969		\$ 402,319	\$ 353,903	\$ 231,855	\$ 95,858	\$ (100,761)
<b>NET INCOME (LOSS)</b>	<b>\$ 288,428.00</b>	<b>\$ 213,279.00</b>	<b>\$ 163,827.00</b>	<b>\$ 396,969.02</b>	<b>\$ 402,319</b>		<b>\$ 353,903</b>	<b>\$ 231,855</b>	<b>\$ 95,858</b>	<b>\$ (100,761)</b>	<b>\$ (304,950)</b>

## **Attachment B. Reserve Account Definitions**

Reserves are an accepted way to stabilize and support a utility financial management. Small systems usually fund the operating expenses but don't consider putting money for a specific upcoming financial need or for an amount that can be used to provide rate stabilization in years when revenues are unusually low or expenditures are unusually high. The rationale for maintaining adequate reserve levels is twofold. First, it helps to assure that the utility will have adequate funds available to meet its financial obligations in times of varying needs. Secondly, it provides a framework around which financial decisions can be made to determine when reserve balances are inadequate or excessive and what specific actions need to be taken to remedy the situation.

Utility reserve levels can be thought of as a savings account. Reserve balances are funds that are set aside for a specific cash flow requirement, financial need, project, task, or legal covenant. Common reserve balances are established around the following four areas: operating reserve, capital improvement/equipment replacement, emergency, and debt service reserve. These balances are maintained in order to meet short-term cash flow requirements, and at the same time, minimize the risk associated with meeting financial obligations and continued operational needs under adverse conditions.

Deposits to reserve accounts may be broken into reduced annual installments to minimize the overall impact on rates. Once the target reserve has been met, the contributions can be redirected to other water reserve funds or water projects. Operating reserve levels should be adjusted on a regular basis to reflect current costs.

### **Debt Service Reserve**

Water utilities that have issued debt to pay for capital assets will often have required reserves that are specifically defined to meet the legal covenants of the debt. Debt service reserve requirements vary based on funding agency requirements. Commonly, debt service reserve represents an amount equal to one full annual loan payment and sometimes can be accumulated to this level over a period of five to ten years.

### **Operating Reserve**

Operating reserves are established to provide the utility with the ability to withstand short term cash-flow fluctuations. There can be a significant length of time between when a system provides a service and when a customer pays for that service. In addition, a system's cash flow can be affected by weather and seasonal demand patterns. A 45-day operating reserve is a frequently used industry norm. Because of potential delays in collecting payment many utilities attempt to keep an amount of cash equal to at least 45 days or one-eighth of their annual cash O&M expenses in an operating reserve to mitigate potential cash flow problems.

### **Emergency Reserve**

In addition to operating reserves, emergency reserves are an important tool for financial sustainability. Emergency reserves are intended to help utilities deal with short term emergencies which arise from time to time such as main breaks or pump failures. The appropriate amount of emergency reserves will vary greatly with the size of the utilities and

should depend on major infrastructure assets. An emergency reserve is intended to fund the immediate replacement or reconstruction of the system's single most critical asset; an asset whose failure will result in an immediate water outage or threat to public safety. For example, given that the largest single asset for a small rural utility may be the primary pump, the cost of replacing that pump in the case of a failure would be a good amount to save in emergency reserves.

### **Capital Improvement Reserve**

A capital improvement reserve (also called an equipment replacement reserve) is intended to be used for replacing system assets that have become worn out or obsolete. Annual depreciation is frequently used to estimate the minimum level of funding for this capital reserve but it's important to understand that depreciation expense is an accounting concept for estimating the decline in useful life of an asset and does not represent the current replacement cost of that asset. As an example, a brand new system with a construction cost of \$1 million and a service life of 100 years should (in theory) be setting aside \$10,000 per year to fully capitalize the replacement cost of the infrastructure as it wears out. Many smaller systems find this to be impossible because of the effect on rates. A large number of small systems are falling into disrepair due to a lack of capital improvement planning.

To initiate a capital improvement plan (CIP), a small water or sewer system will start with a list of assets that includes the remaining service life, theoretical replacement costs in today's dollars and the remaining service life. It then calculates the monthly and annual reserve that must be collected from each customer to fully capitalize the replacement cost of each asset.

An alternative method is to set aside an annual amount equal to 1% to 2% of the total original cost asset value of the utility's property. Larger systems often have sufficient non-operating revenue to fund these reserve levels without affecting rates, but smaller systems often do not, leaving them to fund their CIP reserves from rates alone.

Regardless of the method used, creating a CIP and establishing even a minimal capital improvement reserve is highly recommended for any system that strives to remain financially viable in future years.

**Attachment C. Capital Outlay Needs**

City of Morton Water Utility		12/5/2014		Number of Units (Connections, ERUs etc.):		609						Monthly Cost Per Unit to Reserves:		\$16.43	
Max Payments Occur Thru Year 0; Revenue in year 32 above listed needs:						\$3,187,580		Reserve Cash Applied:				Annual \$\$ to Reserves:		\$120,070	
2014						Calculated Replacement Life		Calculated Equity				No Calculation: <input checked="" type="checkbox"/>		Replacement Cost	
Asset and Description RCAC V14	Install Date	Est. Effective Life	Condition Rating	Critical Number	Calc Remain Life	Original Cost	Book Value Original \$\$	Replacement Cost	Inf. Rate				Cash Replace ?	Saving Acc't Interest	Future Cost
	Year	Years	1 to 10 Tab A	1 to 5 Tab A	Years	Cost \$	Value \$	Cost \$	%				X	%	Value \$
700 gpm vertical turbine pump	1993	30	4	2	6.3	\$0	\$0	\$40,000							\$40,000
700 gpm vertical turbine pump	1993	30	4	2	6.3	\$0	\$0	\$40,000							\$40,000
G.E. Fanuc Series One Programmable Controller	1993	25	9	1	0.2	\$0	\$0	\$17,000							\$17,000
Tilton River Bridge water main	1965	60	10	1	0.00	\$0	\$0	\$500,000							\$500,000
Davis Lake Road Water Main	1960	60	6	4	2.1	\$0	\$0	\$995,000							\$995,000
Concrete 500,000 gal reservoir	1954	60	10	1	0.00	\$0	\$0	\$1,200,000							\$1,200,000
Tully water main	1955	60	7	4	0.2	\$0	\$0	\$24,000					X		\$24,000
Sather water main	1955	60	5	4	0.5	\$0	\$0	\$24,000					X		\$24,000
Cherry to kosmos water main	1965	60	7	4	2.2	\$0	\$0	\$80,000					X		\$80,000
Jcb Backhoe	1995	25	5	1	3.0	\$0	\$0	\$40,000					X		\$40,000
International Dump truck	1983	40	4	2	6.3	\$0	\$0	\$13,300					X		\$13,300
Ford Ranger (replace with chev s-10 (replace with utv)	2003	20	4	3	6.3	\$0	\$0	\$17,500					X		\$17,500
chevy s-10 (replace with utv)	1997	20	5	3	1.5	\$0	\$0	\$10,000					X		\$10,000
Temple Ave water main	1953	60	5	4	0.00	\$0	\$0	\$91,000					X		\$91,000
Lutheran Church water main	1953	60	4	4	0.00	\$0	\$0	\$10,500					X		\$10,500
Klasey Rd water main	1955	60	8	3	0.1	\$0	\$0	\$22,000							\$22,000
SR 508 Water Main	1965	60	4	4	7.7	\$0	\$0	\$87,120					X		\$87,120
Industrail loop and west main	1970	90	4	4	32.2	\$0	\$0	\$200,000					X		\$200,000
Water Meters	2004	20	3	5	8.0	\$0	\$0	\$162,500					X		\$162,500
mini excavator	2014	5	1		5.0	\$0	\$0	\$18,000					X		\$18,000

Per Customer  
per Month  
to replai  
all items  
without X

## Attachment D. Balance Budget Ideas

### Balancing the Water Budget

A balanced budget is when anticipated expenses do not exceed anticipated revenues. When the budget is not balanced – there are only two options: raise revenue or decrease expenses (denial doesn't work very well).

If expenses for operations, debt service and transfers to reserves exceed your revenue, it is time to look at a rate adjustment AND/OR other methods to balance the budget.

### Things to Help Balance the Budget - Without Raising Rates

- ◆ Conduct a water audit
  - ▶ Do you have people getting water for free?
  - ▶ Do you have large leaks increasing your operating expenses?
- ◆ Purchase items in bulk
  - ▶ Some suppliers will provide a discount for purchases made in bulk (such as meters). If storage space is a problem, your supplier might send you partial shipments as you need them.
- ◆ Make cooperative purchases
  - ▶ By purchasing supplies for two or more systems, you may receive a quantity discount.
- ◆ Perform an energy audit (RCAC specializes in small utility energy audits.)
  - ▶ Check all electrical devices such as pumps and motors to make sure they are operating at top efficiency.
- ◆ Review the timing of project
  - ▶ Can the project be delayed?
  - ▶ Is there a deadline from regulators for some projects?
  - ▶ Are the costs required to meet a particular need likely to increase over time?
- ◆ Make sure the water meters work (ask how old your customer meters are!) Water meters are your 'cash registers' so ensure they work properly. Plan to replace them every 10 years or as needed to assure you are getting all the revenue you are due
- ◆ Add new customers
- ◆ Is your billing software efficient?
- ◆ Review System Policies
  - ▶ Financial Policies and Controls
  - ▶ Customer Service
  - ▶ DO THIS ONE VERY QUICKLY
  - ▶ Enforce your policies to ensure you will have adequate cash flow to meet expenses
- ◆ What does your bank charge you when a customer bounces a check? Be sure to recoup that cost plus admin fees.
- ◆ Be sure you have a policy that addresses the consequence of stealing water.