

City of Manchester



Water Rate Analysis

Test Period

January 1, 2018 to December 31, 2018



Prepared by

Kentucky Rural Community Assistance Program

Fall 2019

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Introduction

The Rural Community Assistance Partnership (RCAP) is a national network of nonprofit organizations working to ensure that rural and small communities throughout the United States have access to safe drinking water and sanitary wastewater disposal. Established through a grant in 1969, more than 150 RCAP Technical Assistance Providers (TAPs) based in the field provide on-site assistance to more than 2,000 communities in all 50 states, Puerto Rico, and the U.S. Virgin Islands. Our two primary funders are USDA-Rural Development and U.S. Health and Human Services (who also fund local health department's environmental services). In this and past program years, RCAP has also been funded through the Clean Water Act and the Safe Drinking Water Act by the U.S. Environmental Protection Agency. Communities serving less than 10,000 in population with an emphasis on those communities serving less than 3,300 in population may qualify to receive selected services from Kentucky RCAP free of charge. Kentucky RCAP provides technical, managerial, and financial services to rural communities throughout the Commonwealth.

RCAP was requested to perform a water rate analysis in the summer of 2019 as follows:

1. To assess the overall stability of the water system.
2. To recommend a fair and equitable water rate structure that will cover the expenses of the water system.
3. To recommend sustainable actions to the water system in the short and long-term.

It is the objective of this rate analysis to examine the revenues from rates and charges made by the City of Manchester to recover the cost of providing safe, efficient, and reliable water service to the residential, business, and institutional customers served by the water system. The goal of the system's rates should be to provide for the proper operations and maintenance of the current system, provide adequate funding for future improvements to the system, and lastly financially prepare for timely replacement of the system's infrastructure.



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Rate Analysis Process

The water rate analysis is a detailed, comprehensive, and tailored review unique to each water system. This time-consuming process looks at every aspect of the water system and requires the support of the entire utility staff. The outcome desired by RCAP is to provide a rate structure that will enable financial stability and overall sustainability to the water system in the City of Manchester. The process of RCAP's water rate analysis is outlined below.

1. Financial Analysis

a. Data Collection

- A detailed analysis of historical financial data, preferably five (5) years, will be obtained from the accounting system. Reports gathered include, but are not limited to: Income Statement, Balance Sheet, Chart of Accounts, General Ledger, Check Register, Accounts Receivable Aging, and Debt Service Schedules.

b. Data Analysis

- The current financial status is examined by removing anomalies from historical data and projecting future known and measurable revenues and expenses into a forecasted financial model. This model separates all revenues and expenses into categories and then allocates each expense category into fixed or variable cost components. Financial stability is determined, and recommendations are suggested.

2. Production Analysis

a. Data Collection

- A detailed analysis of one (1) year of production data will be obtained from the water system manager/superintendent, water operators, and Monthly Operating Reports. Key information to be gathered includes the number and size of all water taps and the total gallons treated and pumped.

b. Data Analysis

- Water production and distribution are reviewed and the total water loss in the system is determined. This information is used to determine additional methods to increase revenue or decrease expenses, such as: Energy Audits, Water Loss Programs, Meter Replacement Programs, etc.

3. Billing Analysis

a. Data Collection

- A detailed analysis of one (1) year of customer billing data will be obtained from the billing system and organized into a database for review. Billing history for each customer account is obtained, including, but not limited to account number, name, address, status, applied water rate, and monthly and yearly billing usage.

b. Data Analysis

- Customer billing information is separated into four categories: Residential, Business/Industry, Non-Profit/Public Facilities, and Wholesale. Each category is analyzed separately to determine average water usage and revenues. This information is then formatted into a forecast model to determine how different rates will affect each customer category. The fairness of water rates is considered a high priority!

4. Establish Water Rates

- a. Calculate a sustainable rate structure
- b. Complete an affordability test based upon Median Household Income (MHI) of the community
- c. If a change in rate structure is needed:
 - Create a short-term plan for immediate relief
 - Create a long-term plan for system sustainability
 - Complete necessary requirements to approve and enact a new rate structure

Statement of Accountability

Although similar in some cases, a water rate analysis should not be compared to a financial audit. The objectives and methods of analysis are different and are not to be confused. Information derived for this water rate analysis was provided from City of Manchester and has not been verified for authenticity. A utility rate analysis does not analyze the financial statements to ensure they have been presented fairly or check for fraudulent activity in a utility system; therefore, a utility rate analysis should never take the place of a yearly audit.



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Current Condition

The rate increase adopted by the City of Manchester in 2019 will provide sufficient revenues for the water system to operate sustainably. Water revenue is expected to considerably exceed operating expenses. Profits realized from the foreseeable future, if saved or invested, will greatly assist the City of Manchester in funding future capital projects. It is important that inter-governmental transfers of water revenues be avoided at all possible costs. Each city service should operate independently to ensure long-term sustainability for the city's water system and fairness for the customer base.



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Financial Analysis



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Audit Review

City of Manchester

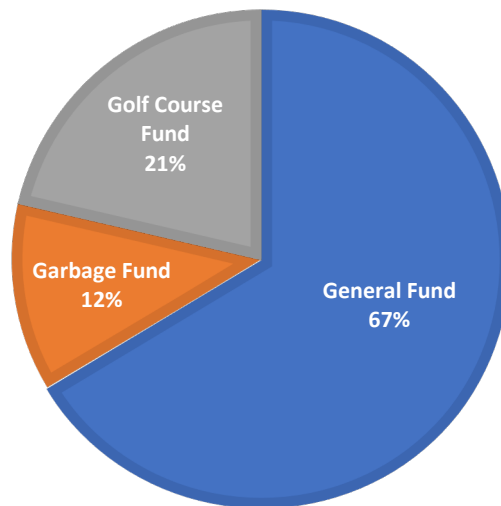
Statement of Revenues, Expenses, and Changes in Net Position

For the Year Ended June 30, 2017

Operating Revenues	
Charges for services	3,366,371
Intergovernmental revenue	111,870
Total Operating Revenue	3,478,241
Operating Expense	
Salaries	538,786
Payroll tax	36,807
Cost of water purchased	105,710
Depreciation	797,523
Maintenance	29,701
Utilities	407,981
Chemicals	169,231
Employee benefits	125,686
Pension expense	99,883
Insurance	28,437
Supplies	211,763
Professional fees	23,300
License and permits	27,716
Processing fees	32,916
Equipment rental	749
Fuel	29,714
Dues and subscriptions	7,199
Uniforms	5,124
Taxes	58,450
Office expense	25,091
Other general expenses	3,502
Total Operating Expense	2,765,269
Operating Income (Loss)	712,972

Other Revenues (Expenses)	
Interest revenue	392
Interest expense	(149,884)
Total Other Revenues (Expenses)	(149,492)
Income (Loss) before Transfers	563,480
Transfers (to) / from Governmental Activities	(655,000)
Net Income (Loss)	(91,520)

TRANSFERS FROM UTILITY FUND



Typical Year

Financial Analysis

	Typical Year	Notes
Income		
Water Income	2,498,782	Estimated revenues from model using 2018 customer usage data
Other Income	40,513	Water penalty fees
Interest Income	329	
Total Income	2,539,624	
Expense		
Advertising	730	Reallocated transaction from "adjustment" account
Bank Service Charge	950	
Bond/Insurance	23,407	
Chemicals	140,304	
Computer/Internet	773	
Contract Labor	665	
Drug Testing	824	
Dues & Subscriptions	6,037	
Equipment Rental	382	
Food	1,592	Reallocated transactions from "reim/refund" account
Fuel & Oil	20,485	
Health Benefits	76,818	Reallocated transactions from "reim/refund" account
License & Permits	9,756	Reallocated transactions from "reim/refund" account
Material & Supplies	183,912	Reallocated transactions from "reim/refund" account
Office Supplies	253	
Postage	3,664	
Processing Fee (Lab Fees)	21,352	Removed invalid transactions and reallocated transactions to "purchased water" account
Purchased Water	70,640	Removed invalid transactions and reallocated transactions from "reim/refund" account
Repair & Maintenance	2,815	
Retirement	82,740	
Return Check	152	
Salaries & Wages	418,165	
Sales Tax	5,387	
Social Security & Medicare	29,868	
Telephone	6,985	
Training	2,689	Reallocated transactions from "reim/refund" account
Unemployment Insurance	2,356	
Uniforms	482	
Interest Expense	67,598	Forecasted interest payments (five-year average)
Utilities	298,372	
Total Expenses	1,480,154	
Net Income (Loss)	1,059,470	
Additional Cash Requirements		
Debt Service	153,384	Forecasted principle payments (five-year average)
Reserve Accounts	24,900	Estimated
Short-Lived Asset Fund	12,698	2.5% of revenues (5-Year Funding Plan)
Emergency Reserve	37,004	12.5% of total expense (5-Year Funding Plan)
Total Additional Cash Requirements	227,986	
FULL COST OF PROVIDING WATER	1,708,139	
TOTAL CASH SURPLUS	831,484	

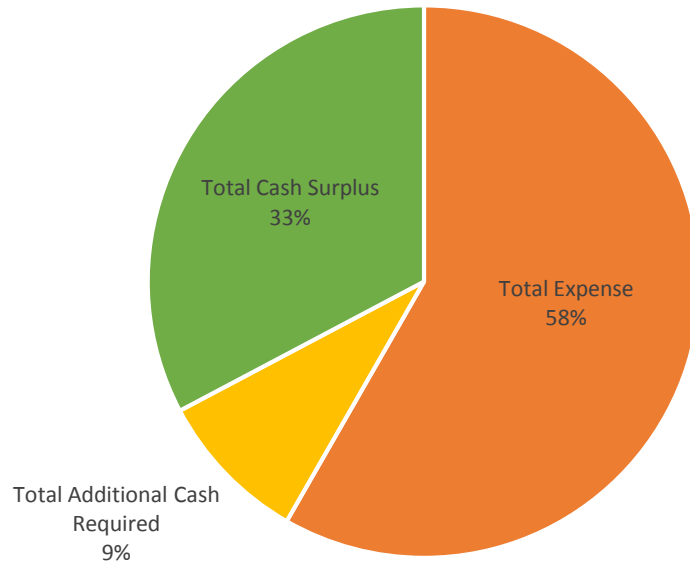
**Gifts, capital expenditures, and inter-governmental transfers have been removed to accurately reflect a typical year.*



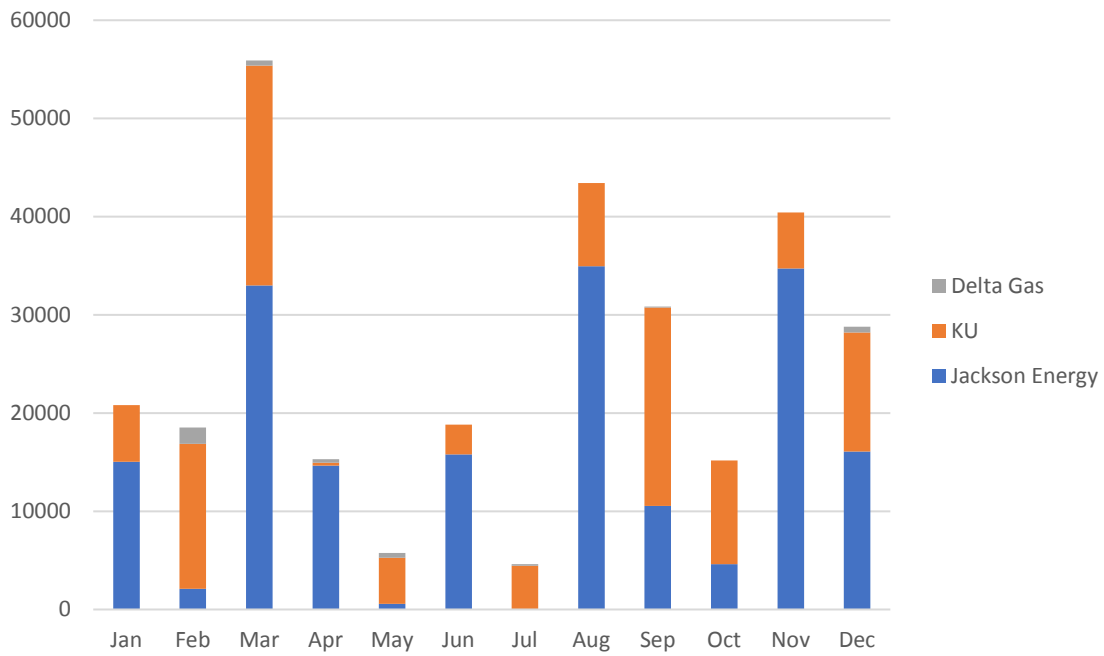
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Cash Breakdown



Utility Breakdown



Usage Analysis



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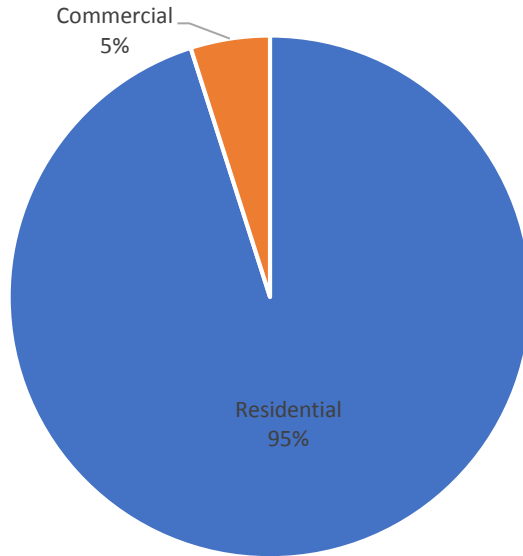


Customer Breakdown

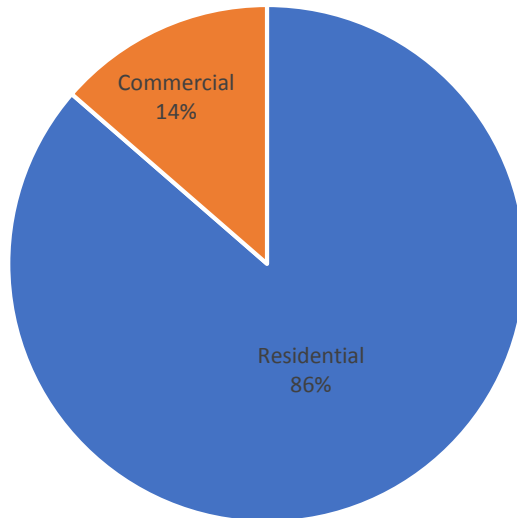
Customer Breakdown

	Customer Distribution		Usage		(Gallons Sold)		Target Revenue	Actual Revenue	Equity Test
Residential - Inside	644	15%	31,800,900	12%	\$	177,177	10%	-3.72%	
Residential - Outside	2,971	68%	160,528,000	63%	\$	1,240,191	69%	3.64%	
Residential - H/S	559	13%	27,903,700	11%	\$	227,898	13%	0.83%	
Commercial - Inside	139	3.2%	27,054,100	11%	\$	104,657	6%	-1.07%	
Commercial - Outside	71	1.6%	7,415,000	2.9%	\$	46,440	2.6%	0.32%	
Commercial - H/S	6	0.1%	236,000	0.1%	\$	2,141	0.1%	0.01%	
TOTAL	4,390		254,937,700		\$	1,798,503			
Wholesale			276,978,100		\$	700,279.66			
No Charge Accounts			9,190,500		\$	-			

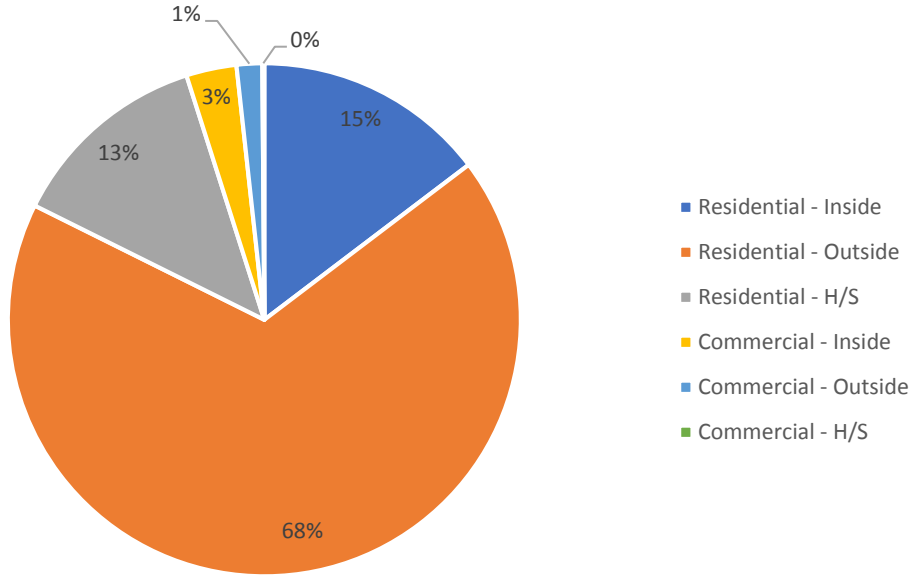
Customer Distribution



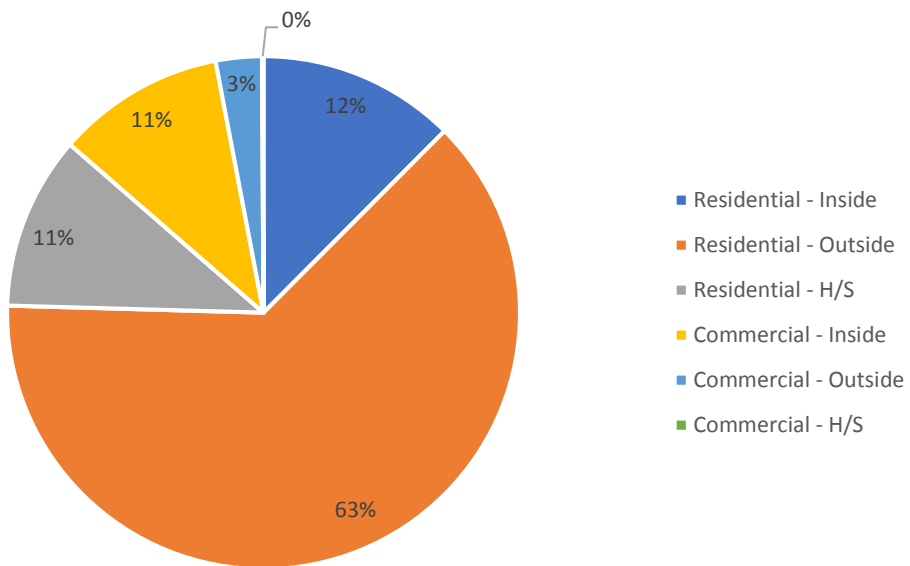
Water Usage



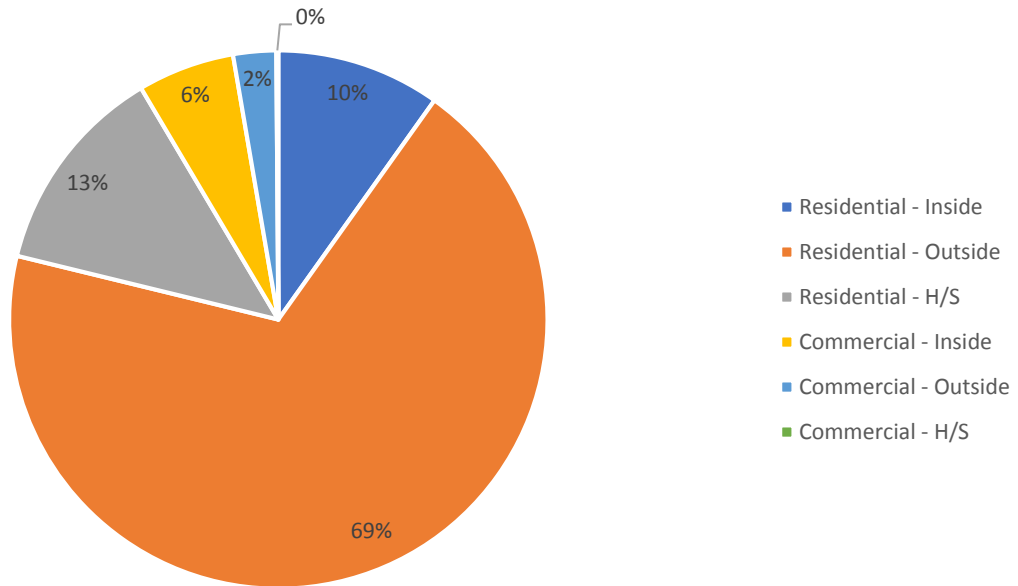
Customer Distribution (Detailed)



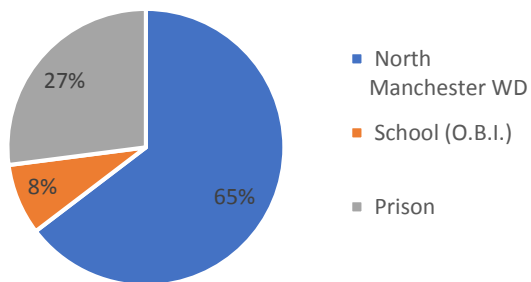
Water Usage (Detailed)



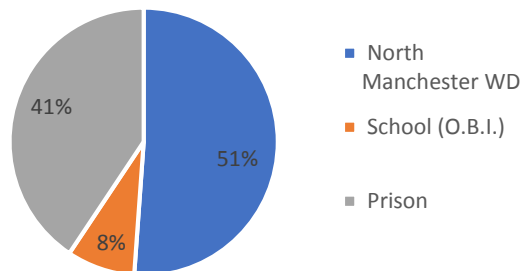
Water Revenue



Wholesale - Water Usage

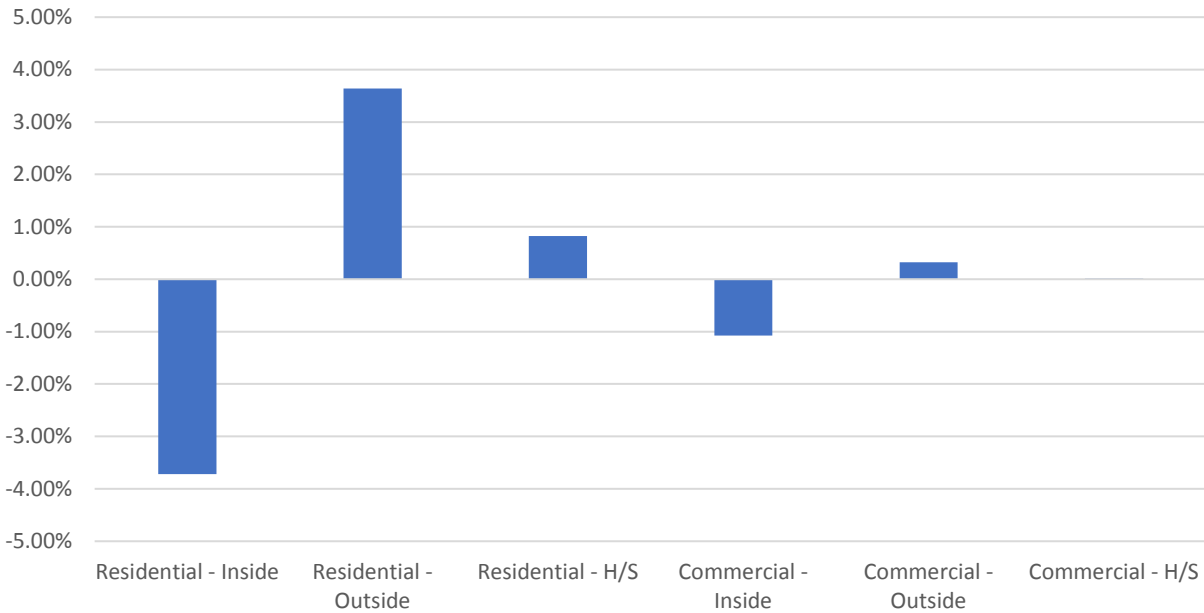


Wholesale - Revenue

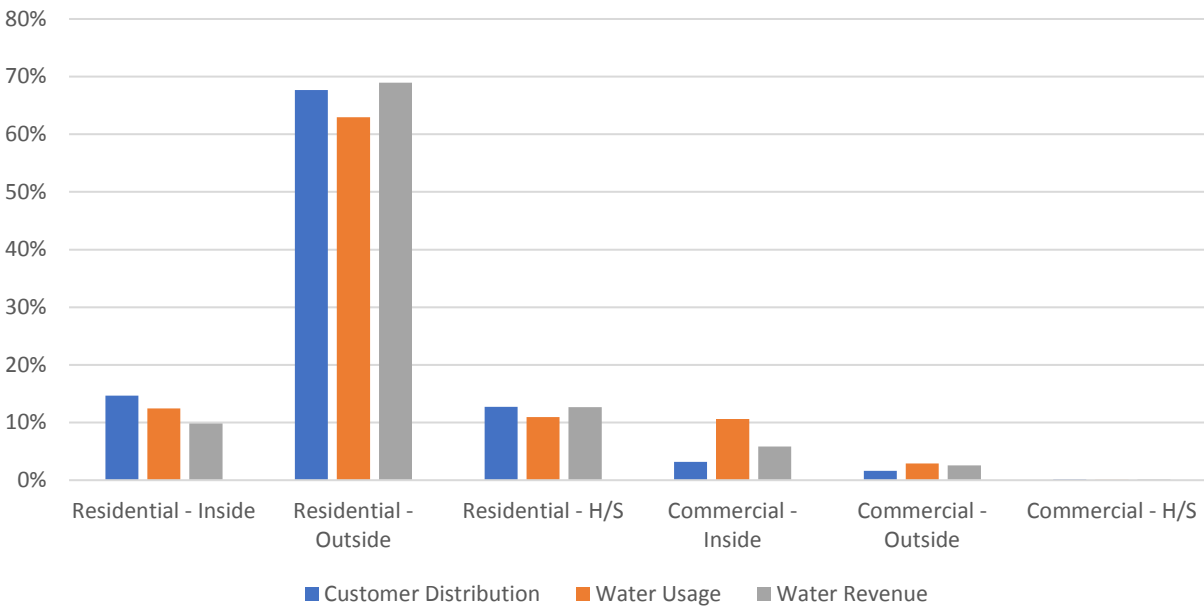


Equity Test

Base Equity Test



Base Equity Analysis



Recommendations



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Short-Term

1. Customer Billing

Ensure every customer connected to the water supply is metered and receiving a separate and accurate bill each month. Create strict policies on water theft and damage to meters and water system assets.

2. Accounts Receivable

If the collection and shut-off policies are not being strictly enforced, the system is losing revenue. The customers who pay on time are subsidizing late payers. If there are large amounts of accounts receivable, consider reducing the amount of time customers are given to pay their bills. Also, the penalty for late payment is perhaps not high enough to encourage customers to pay on time.

3. Bulk Purchasing

Consider purchasing chemicals and supplies in bulk to save money. Try to coordinate with a nearby system to buy larger quantities or to purchase equipment that can be shared. Always get bids on high-cost items and periodically call vendors to ensure the water system is getting the best price on supplies.

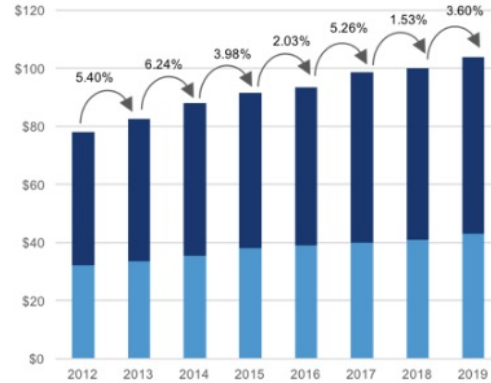
4. Fees and Deposits

Review the current fee and deposit policies to make sure they reflect the cost of providing services. Does the tap fee really cover the full cost of hooking up a new customer? Does the service-fee cover the extra cost of night and weekend work? Make sure all of the policies are in writing.

Affordability Standards

What Are Affordable Rates?

The average U.S. monthly water and wastewater bill per household is \$104 and increases every year, but consider these numbers for your system:



CDBG	Single	\$30.00
	Combined	\$60.00
USDA / RD	Single	1.5% of MHI
	Combined	3.0% of MHI

Affordability Test					
MHI	1.0%	1.5%	2.0%	2.5%	3.0%
\$ 10,000.00	\$ 8.33	\$ 12.50	\$ 16.67	\$ 20.83	\$ 25.00
\$ 12,000.00	\$ 10.00	\$ 15.00	\$ 20.00	\$ 25.00	\$ 30.00
\$ 14,000.00	\$ 11.67	\$ 17.50	\$ 23.33	\$ 29.17	\$ 35.00
\$ 16,000.00	\$ 13.33	\$ 20.00	\$ 26.67	\$ 33.33	\$ 40.00
\$ 18,000.00	\$ 15.00	\$ 22.50	\$ 30.00	\$ 37.50	\$ 45.00
\$ 20,000.00	\$ 16.67	\$ 25.00	\$ 33.33	\$ 41.67	\$ 50.00
\$ 22,000.00	\$ 18.33	\$ 27.50	\$ 36.67	\$ 45.83	\$ 55.00
\$ 24,000.00	\$ 20.00	\$ 30.00	\$ 40.00	\$ 50.00	\$ 60.00
\$ 26,000.00	\$ 21.67	\$ 32.50	\$ 43.33	\$ 54.17	\$ 65.00
\$ 28,000.00	\$ 23.33	\$ 35.00	\$ 46.67	\$ 58.33	\$ 70.00
\$ 30,000.00	\$ 25.00	\$ 37.50	\$ 50.00	\$ 62.50	\$ 75.00

City of Manchester MHI: \$15,923 (2000 Census)
\$20,865 (2016 American Community Survey)

Communities charging less than 1.5% of MHI for water service should not feel remorseful about raising rates.



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Long-Term

1. Water Meter Replacement Program

The U.S. Environmental Protection Agency (USEPA) gives water meters an estimated useful life of fifteen (15) years. If the meters currently used exceed fifteen years of usage, there is a high probability that deterioration has significantly reduced the accuracy of the water meter. This inaccurate water reading could be contributing to the high water loss and depriving the city of earned water revenues.

2. Leak Detection Program

A leak detection program will reduce the amount of water loss and can instantly save money. The industry standard for water loss in a drinking water system is less than fifteen percent (15%).

3. Asset Management Plan

Asset Management Plans are created to ensure that each asset within the water system is being properly maintained. It also ensures that funding is available to perform regularly scheduled maintenance. Although it might cost more to maintain assets in the short-term, there is considerable savings in the long-term. By investing in asset management there can be reduced life-cycle cost, which is critical to maintaining standard performance. An Asset Management Plan enables water systems to provide safe drinking water at the lowest possible cost; water systems owe that to their communities!

4. Emergency Reserve Fund

Emergency situations can and will happen. It is always advantageous to prepare for these unexpected circumstances. An emergency reserve fund will provide needed funds in a time of distress.

5. Energy Audit

Water treatment and distribution systems are heavy energy consumers and with energy costs continuing to increase it quickly becomes apparent how important energy efficiency can be for a utility. RCAP energy audits are designed specifically for drinking water systems and a 20% average savings opportunity has been discovered at each system!

Summary

As inflation and prices of necessary supplies and equipment continue to rise on a frequent basis, the total cost of fully operating and maintaining a sustainable water system has significantly increased. The City of Manchester needs to ensure their ability to provide safe, potable drinking water to their customers now and in the future.

RCAP recommends a series of long-term system improvements be initiated, specifically aimed at reducing the system's high water loss. The suggested programs in the long-term recommendations to accomplish this goal are a meter replacement program, leak detection program, and asset management plan. System improvements created from these programs will reduce water loss, reduce expenses, and increase water revenues enabling the system to operate at a greater efficiency.

The City of Manchester's current rate structure will provide the required financial revenues to sustain system operations in the short-term while the recommended long-term programs will enable the system to be sustainable well into the future. With the combination of these recommendations Manchester Waterworks will be able to achieve both a financially and operationally sustainable water system.

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