



# **The Painful Art of Rate Setting**



# Session Objectives

- Be able to use different approaches to calculate base charges and volumetric charges
- Evaluate the impact of different pricing structures on different customers
- Identify factors can impact your pricing assumptions



# Full(er) Cost Pricing

- The goal of full(er) cost pricing is to have the charges for water cover the entire cost of running the water system today and into the future
- Of course, there are many ways in which you can get to the right dollar figure. Some of it comes down to your rate setting philosophy



## Small System Rate Setting Decisions

- **Decision to on how much of costs to cover**
- **Revenue to be generated by base charge**
- **Revenue to be generated by volumetric charges**
- Establishing different customer classes
- Establishing different prices for water for larger users
- Decision to implement more complex rate structures

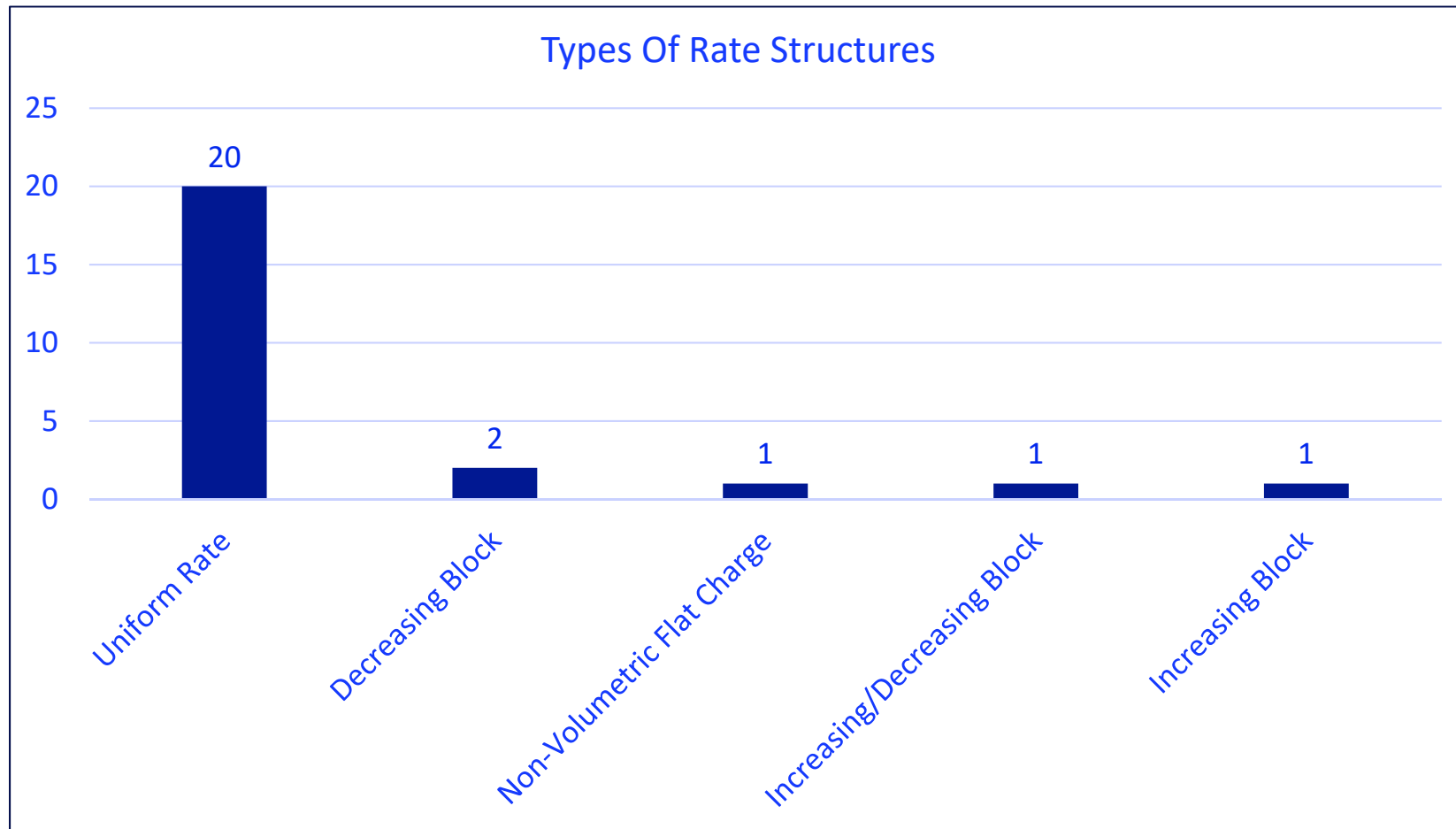


# Rate structures in the room today





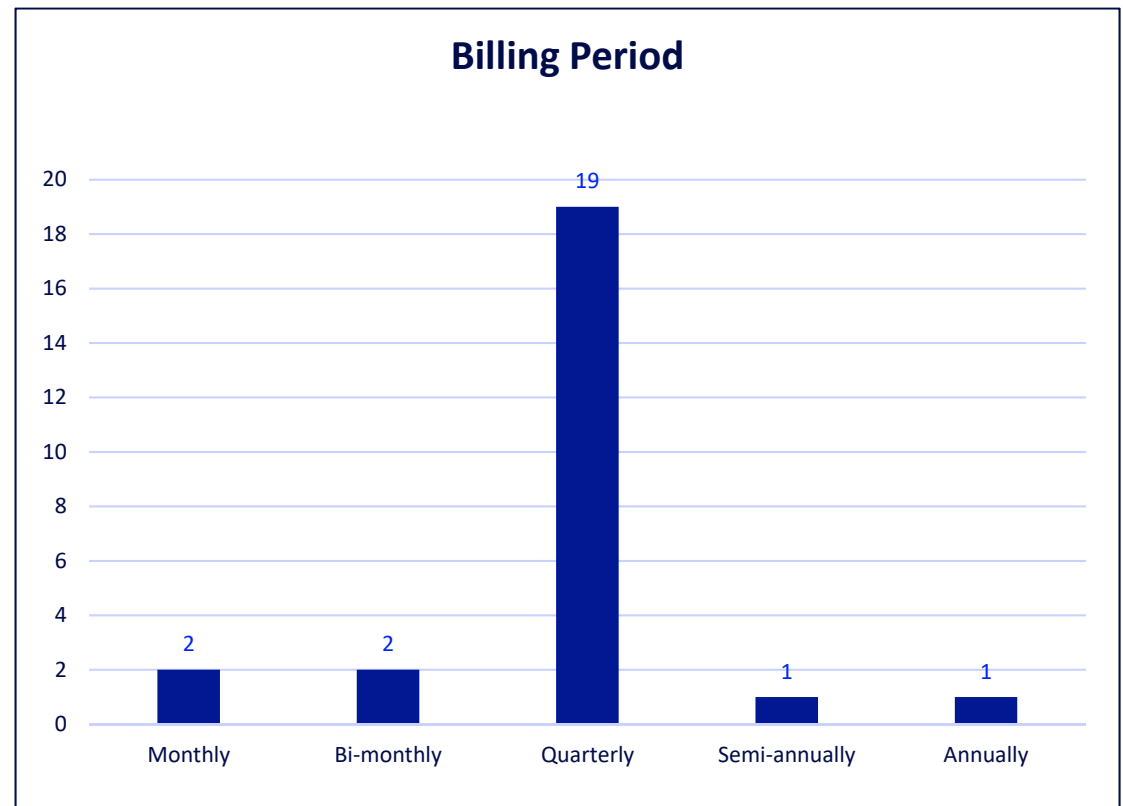
# Rate Structures in the Room





# Other Decisions: Frequency of Billing?

- A. Monthly
- B. Bi-monthly
- C. Quarterly
- D. Other





## Before considering rates, decide if there is a role of property tax/general tax?

- Fire protection
- Economic development
- Customer assistance/affordability programs
- Philosophy of covering costs with charges linked to property owner wealth?
- Plugging holes (not recommended!)





# Sample Rate Setting Philosophies

- Customers should pay for access
- Customers payment should be completely based on gallons consumed
- Customer's fixed charges for fixed costs and variable charges for variable costs
- Some mix of the above ideas



# Rate Setting Philosophies

*Jeff Hughes*

## The Science of Setting Water and Sewer Rates

- *An increase in mergers and acquisitions*
- *Almost \$8 billion in assets and more than \$1 billion in annual revenues<sup>1</sup>*
- *Changing regulations, affecting the bottom line*
- *A backlog in capital investment needs*
- *Interruptions in supplies that hurt revenues*
- *Loss of major customers*
- *Innovative pricing and customer-relations strategies*
- *Sagging revenues*

typically fall on governing boards that were chosen not as business or technical experts but as representatives of their constituents on a broad range of matters.

The drought of 2002 brought two types of water stories to the headlines: (1) the struggles of many communities to maintain their water supplies and (2) the financial difficulties of many communities due to decreased sales. The response to the first type of circumstance was immediate and significant: an executive order requiring conservation, and statewide initiatives to examine current supplies. The response to the second type of circumstance has been less obvious and less pronounced.

Table 1). These numbers are impressive. However, the projected numbers are staggering. According to a study by the North Carolina Rural Economic Development Center, the state will need more than \$11 billion in investments to meet its capital needs for water and sewer infrastructure over the next twenty years.<sup>2</sup>

In North Carolina, as throughout the country, numerous water and sewer enterprises owned by local governments benefited from the federal government's ambitious construction grants program of the 1970s (for the patterns of federal wastewater funding from 1970 to 2000, see Figure 1). Many local government officials fondly remember those days of



# Rate Revenues vs. Non Rate Revenues

	Account	Budget
1	30-329-00 W/S INTEREST EARNED DEPOS	\$0.00
2	30-334-00 CONTRIBUTIONS/DONATIONS	\$0.00
3	30-335-00 W/S MISC. REVENUE	\$700.00
4	30-336-00 FUND BALANCE APPROPRIATED	\$9,187.87
7	30-345-01 SALES TAX REFUND	\$0.00
9	30-371-01 W/S CHARGES	\$344,445.00
10	30-371-02 W/S ADJUSTMENTS	\$0.00
11	30-373-00 TAP CONNECTIONS	\$1,500.00
13	30-373-02 SERVICE CHARGES/CUT OFFS	\$12,500.00
14	30-373-04 IMPACT FEES	\$1,000.00
15	30-373-05 CAPITAL CONTRIBUTIONS	\$0.00
16	30-374-00 Online W/S Payment Fee	\$1,600.00
17	30-375-80 Contributed Capital - G.R.S.P.	\$0.00
18	30-375-81 Contributed Capital Fund	\$0.00
19	30-377-00 RBEG - Pump Station	\$0.00
20	30-378-00 I&I Study Grant - Commerce	\$12,000.00
22	30-385-00 SALE OF ASSETS	\$0.00
23	30-386-00 TRANSFER FROM OTHER FUND	\$0.00
		\$382,932.87



## Exercise

Let's figure out some rates for Irvindale that cover the identified costs of providing water service

For simplicity, let's assume the budgeted rate revenues take into all the actual costs (even though we know they don't....)



## For the Exercise

Total Revenue Target:  
\$382,932.87

Revenues to be collected  
from Rates:  
\$344,445.00



# Payment for Access

- Taken to its limit, everyone in the water system pays the same amount for access to the system, regardless of how much water they use



# Payment for Access

We charge a flat rate of \$15.00 monthly

P.O. - Box 133  
Jacksonville

We ARE a small town we do NOT have sewage

Jacksonville, GA



# Payment for Access

- What information do we need to make this calculation?
- Total revenue needed from rates
- Total number of accounts





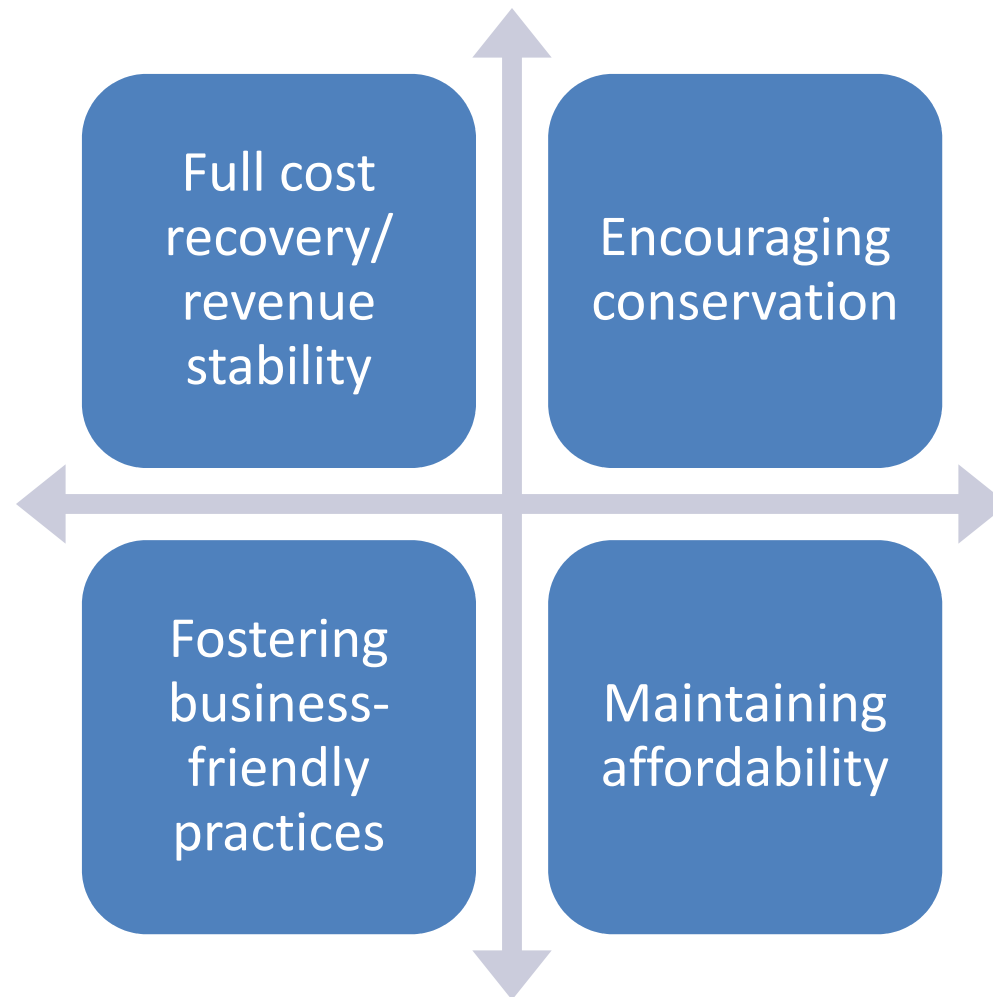
# Payment for Access

$$\frac{\boxed{\$344,445}}{\text{Total Needed Revenue}} \div \frac{\boxed{\$765.43}}{\text{Total Annual Bill}} = \frac{\boxed{450}}{\text{Total Accounts}} = \boxed{\$63.79} \text{ Monthly Bill}$$

The equation shows the calculation of a monthly bill. It starts with a fraction where the numerator is \$344,445 (Total Needed Revenue) and the denominator is 450 (Total Accounts). This is divided by another fraction where the numerator is \$765.43 (Total Annual Bill) and the denominator is 12. The result is \$63.79 (Monthly Bill).



# Which Water System Objectives?





# Payment Solely Based on Volume

- In its pure form, everyone in the water system pays for the volume of water received and only for the volume of water received



Payment for volume of product received

## **WATER & SEWER RATES**

### **In Town**

Water	\$ 7.72 per 1000 gallons
Sewer	\$ 10.73 per 1000 gallons

### **Out of Town**

Water	\$ 15.44 per 1000 gallons
Sewer	\$ 21.46 per 1000 gallons

Troutman, NC



# Payment for volume of product

- What information do we need to make this calculation?
- Total revenue needed from rates
- Total gallons sold

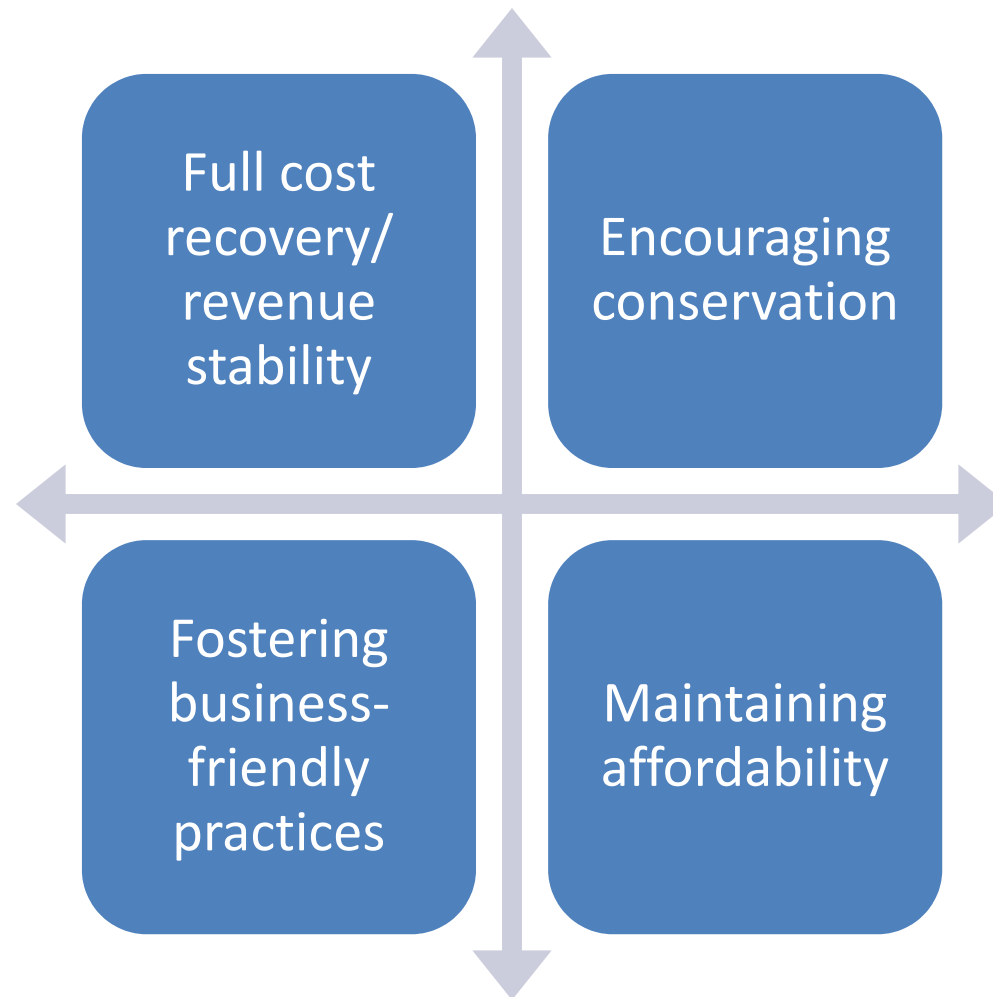


# Payment for volume of product received

$$\frac{\boxed{\$344,445}}{\text{Total Needed Revenue}} \div \frac{\boxed{32,877,590}}{\text{Total Gallons Sold}} = \boxed{\$10.48} \text{ Price per 1,000 Gallons}$$



# Which Water System Objectives?





# Base Charge for Fixed Costs; Volumetric Charge for Variable Costs

- In its pure form, all of the fixed costs of the water system would be covered by the base charge, and all of the variable costs would be covered by the volumetric rate





# Base Charge for Fixed Costs; Volumetric Charge for Variable Costs

Base Chrg Lower Bound

Rate

38.00

0

0.000000

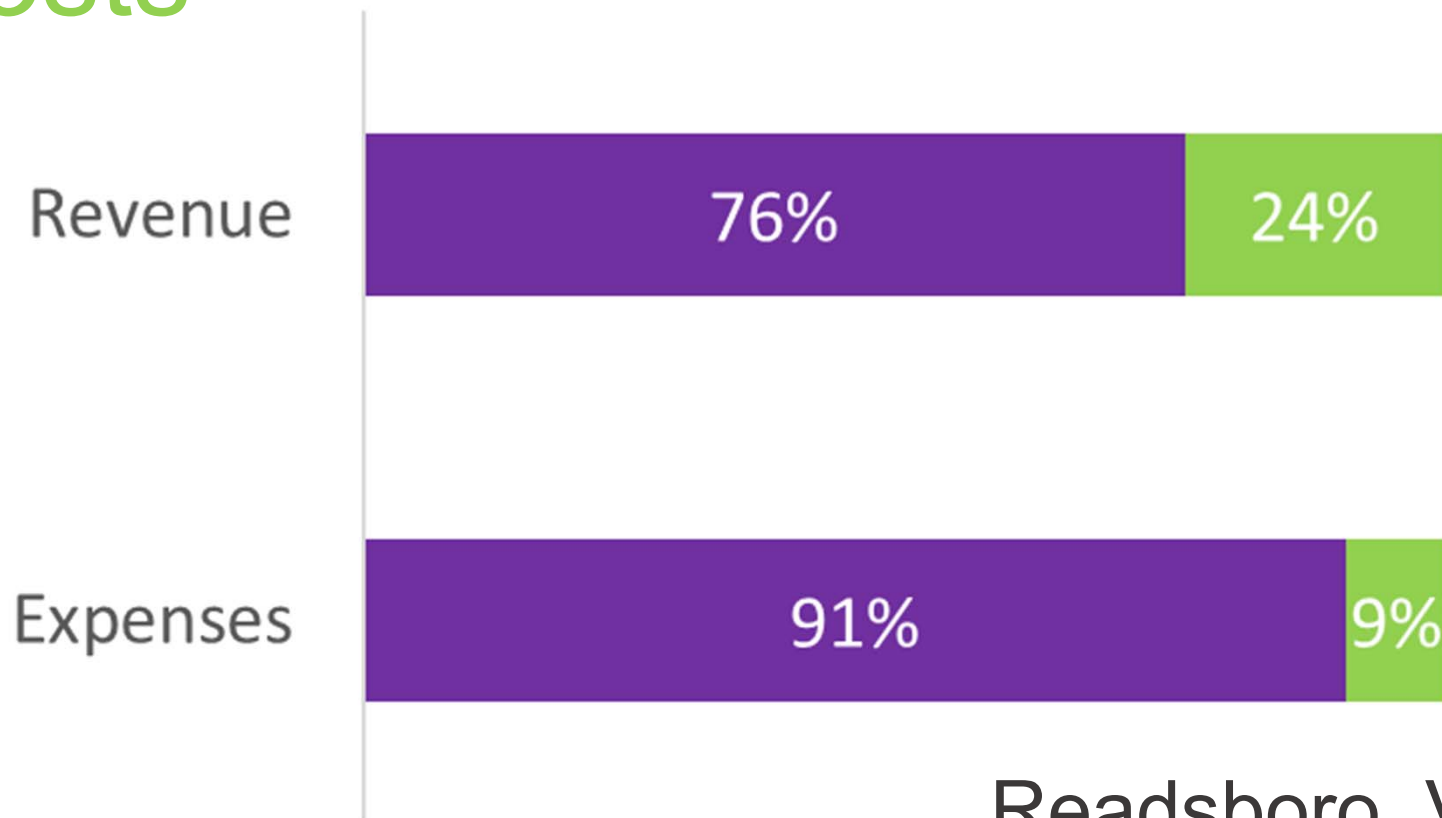
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9.500000

Readsboro, VT



# Base Charge for Fixed Costs; Volumetric Charge for Variable Costs



Readsboro, VT



# Base Charge for Fixed Costs; Volumetric Charge for Variable Costs

- What information do we need to make this calculation?
- Total revenue needed to cover fixed costs
- Total accounts
- Total revenue needed to cover variable costs
- Total gallons sold



# For the Exercise

## Revenues from Rates:

\$344,445

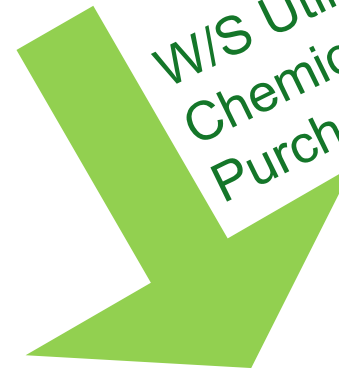
Everything else



\$292,045

Fixed Cost

W/S Utilities  
Chemicals & Salt  
Purchase Water Bill



\$52,400

Variable  
Cost





# Base Charge for Fixed Costs; Volumetric Charge for Variable Costs

$$\frac{\boxed{\$292,045}}{\text{Fixed Annual Costs}} \div \frac{\boxed{\$648.99}}{\text{Total Annual Bill}} = \frac{\boxed{\$54.08}}{\text{Monthly Base Bill}}$$
$$\frac{\boxed{450}}{\text{Total Accounts}} \div \boxed{12}$$

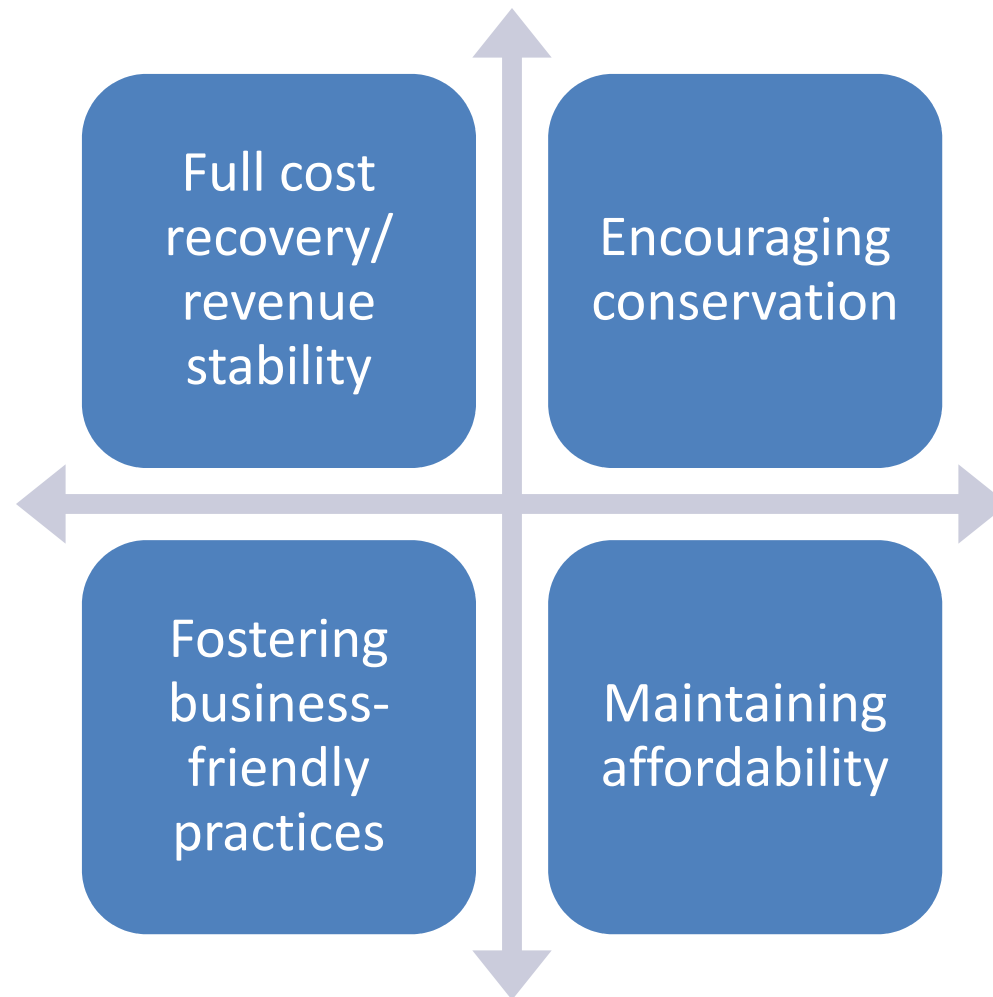
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$$\frac{\boxed{\$52,400}}{\text{Variable Annual Costs}} \div \frac{\boxed{32,877,590}}{\text{Total Gallons Sold}} \times \mathbf{1,000} = \boxed{\$1.59}$$

Price per 1,000 Gallons



# Which Water System Objectives?





## Common Approaches to Setting Base Charges -- Base Charge Set at:

- All “fixed” costs
- Debt costs
- Customer service costs
- Capped at a “reasonable” amount



# \$25 Base Charge; Rest from Volumetric Rates

## WATER & SEWER RATES AND FEE SCHEDULE EFFECTIVE

### IN TOWN

WATER MINIMUM (1000 GALLONS)	\$25.00
SEWER MINIMUM (1000 GALLONS)	\$25.00
DISPOSAL FEE	\$ 5.00
ADDITIONAL WATER PER 1000 GALLONS	\$ 6.15

Denton, NC





# \$25 Base Charge; Rest from Volumetric Rates

- Pick a base charge and see what the volumetric charge would need to be



# \$25 Base Charge; Rest from Volumetric Rates

- What information do we need to make this calculation?
- Total Accounts
- Total Revenue Needed
- Total Gallons



# \$25 Base Charge; Rest from Volumetric Rates

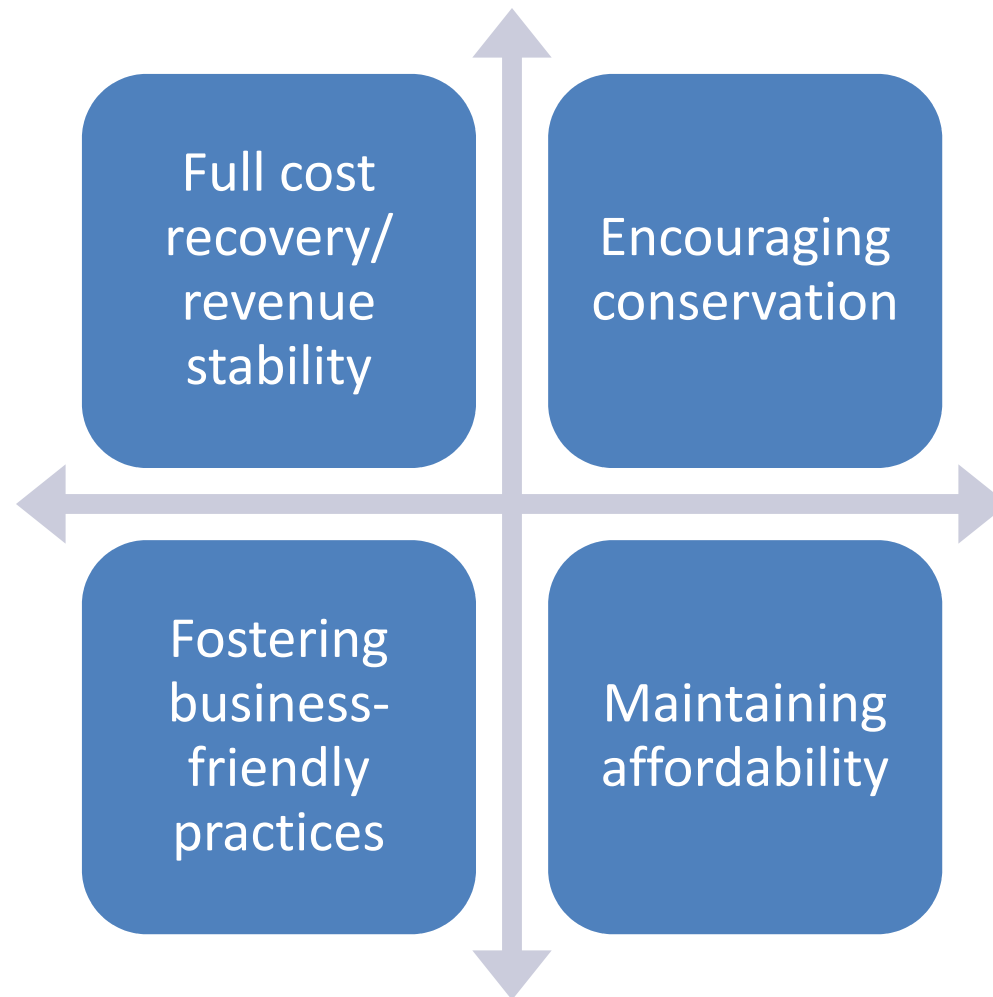
$$\begin{array}{ccccccc} \boxed{12} & \times & \boxed{\$25} & \times & \boxed{450} & = & \boxed{\$135,000} \\ \text{Months} & & \text{Monthly Base} & & \text{Total Accounts} & & \text{Total from Base Bill} \\ & & \text{Bill} & & & & \end{array}$$

$$\begin{array}{r} \boxed{\$344,445} \\ \text{Total Revenue Needed} \\ - \boxed{\$135,000} \\ \text{Total from Base Bill} \\ \hline \boxed{\$209,445} \\ \text{Total Needed from Volumetric} \end{array}$$

$$\begin{array}{r} \boxed{\$209,445} \\ \text{Total Needed from Volumetric} \\ \hline \boxed{32,877,590} \\ \text{Total Gallons Sold} \end{array} \times 1,000 = \boxed{\$6.37} \text{ Price per 1,000 Gallons}$$



# Which Water System Objectives?





# How This Impacts Customers

- All four rate structures get us to the same total revenue
- But how does each approach impact different types of customers?



# How This Impacts Customers



1,000 gallons/month



4,000 gallons/month



12,000 gallons/month



34,000 gallons/month



## Exercise

How much will water service cost per month for different customers under each rate structure?



# Payment for Access



\$63.79

\$63.79

\$63.79

\$63.79





# Payment for Volume of Product Received



\$10.48

\$41.92

\$125.76

\$356.32



## Base Charge for Fixed Costs; Volumetric Charge for Variable Costs



\$55.67

\$60.44

\$73.16

\$108.14



## \$25 Base Charge; Volumetric Charge for Rest







\$31.37

\$50.48

\$101.44

\$241.58



	 1,000 gallons/month	 4,000 gallons/month	 12,000 gallons/month	 34,000 gallons/month
Payment for Access (Fixed Monthly Bill)	\$63.79	\$63.79	\$63.79	\$63.79
Payment for Volume of Product Received	\$10.48	\$41.92	\$125.76	\$356.32
Base Charge for Fixed Costs; Volumetric Charge for Variable Costs	\$55.67	\$60.44	\$73.16	\$108.14
\$25 Base Charge; Volumetric Charge for Rest	\$31.37	\$50.48	\$101.44	\$241.58

## What do you think would work best for your utility?

\$63.79 flat charge for  
all customers

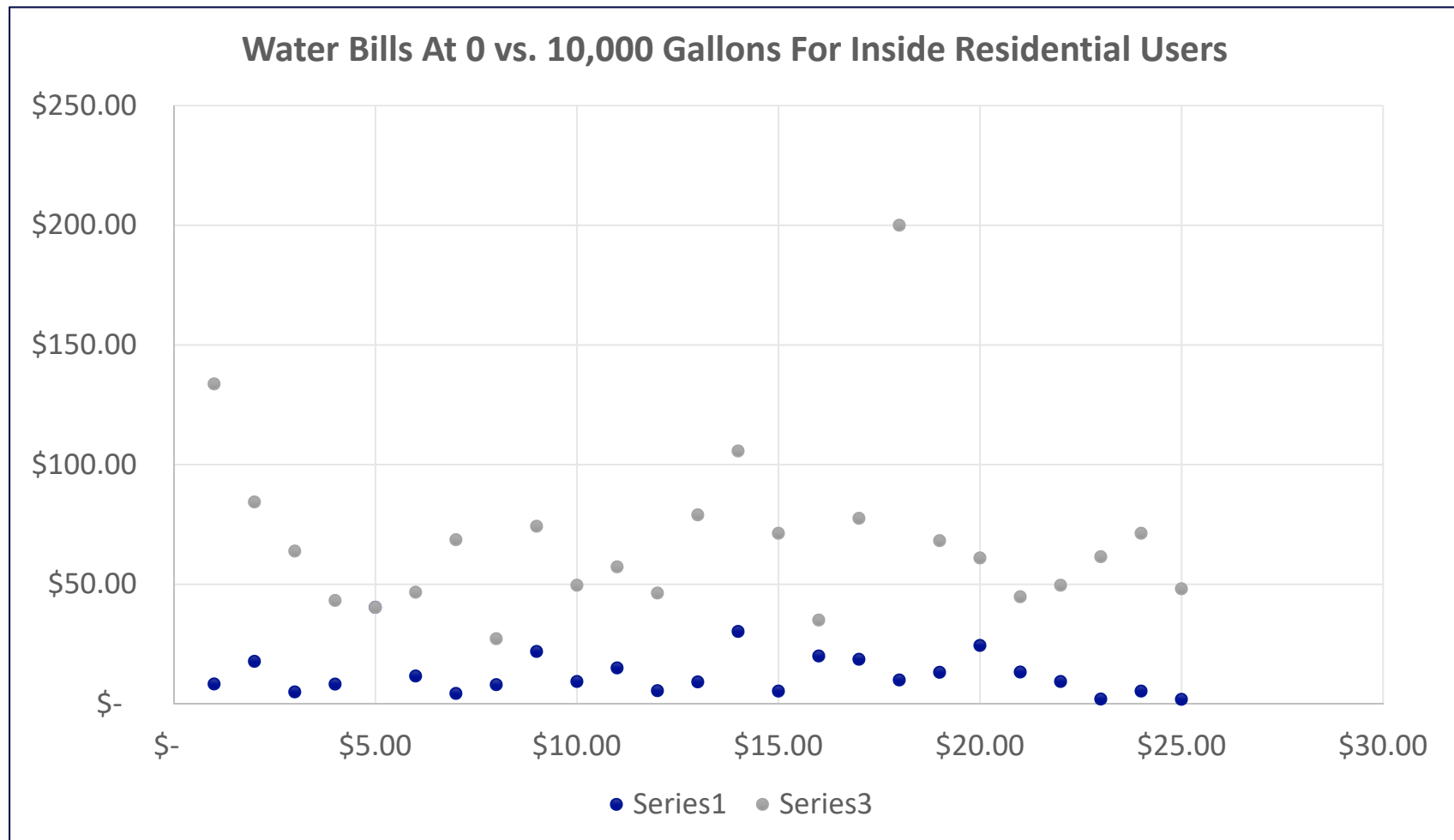
\$10.49 per 1,000  
gallons

\$54.08 base plus \$1.59  
per 1,000 gallons

\$25.00 base plus \$6.37  
per 1,000 gallons



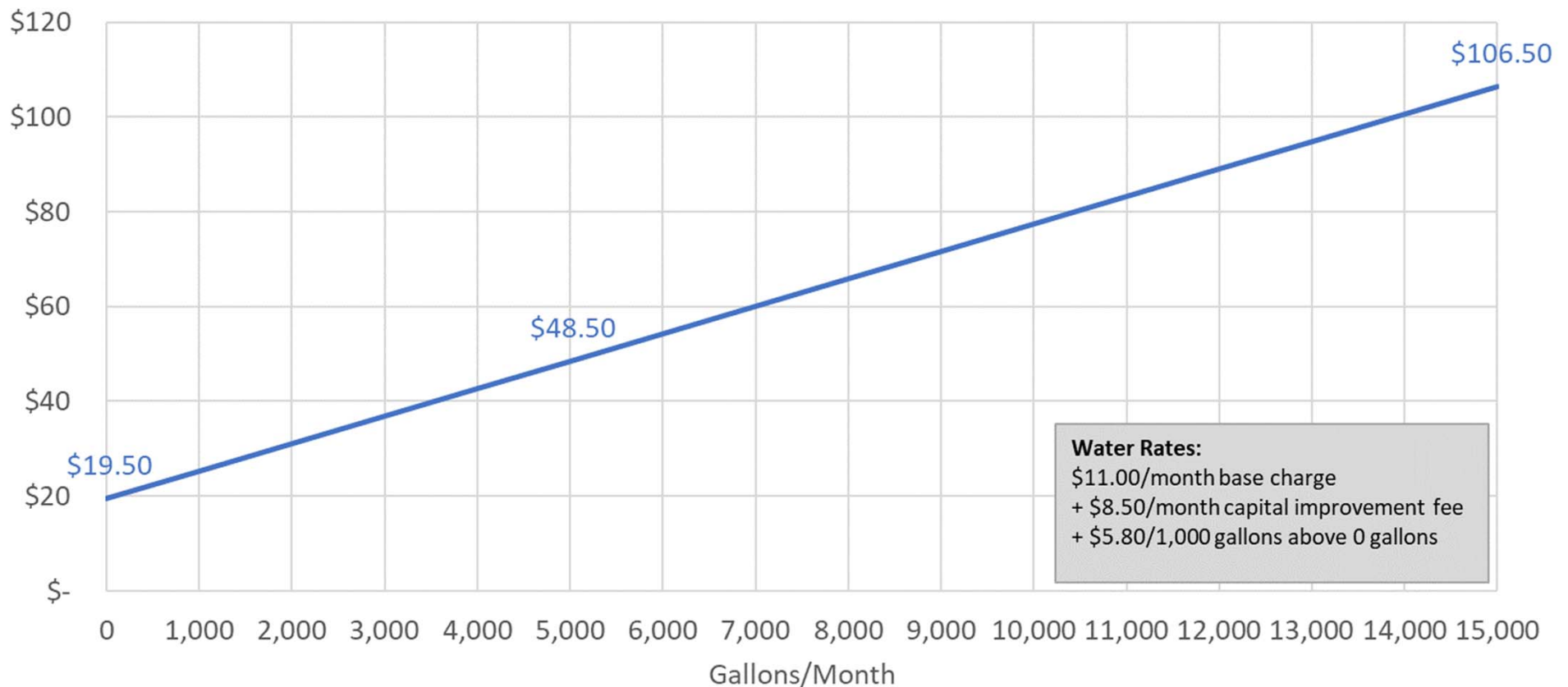
# Revenue Stability vs Conservation





# Example of a Uniform Water Rate Structure

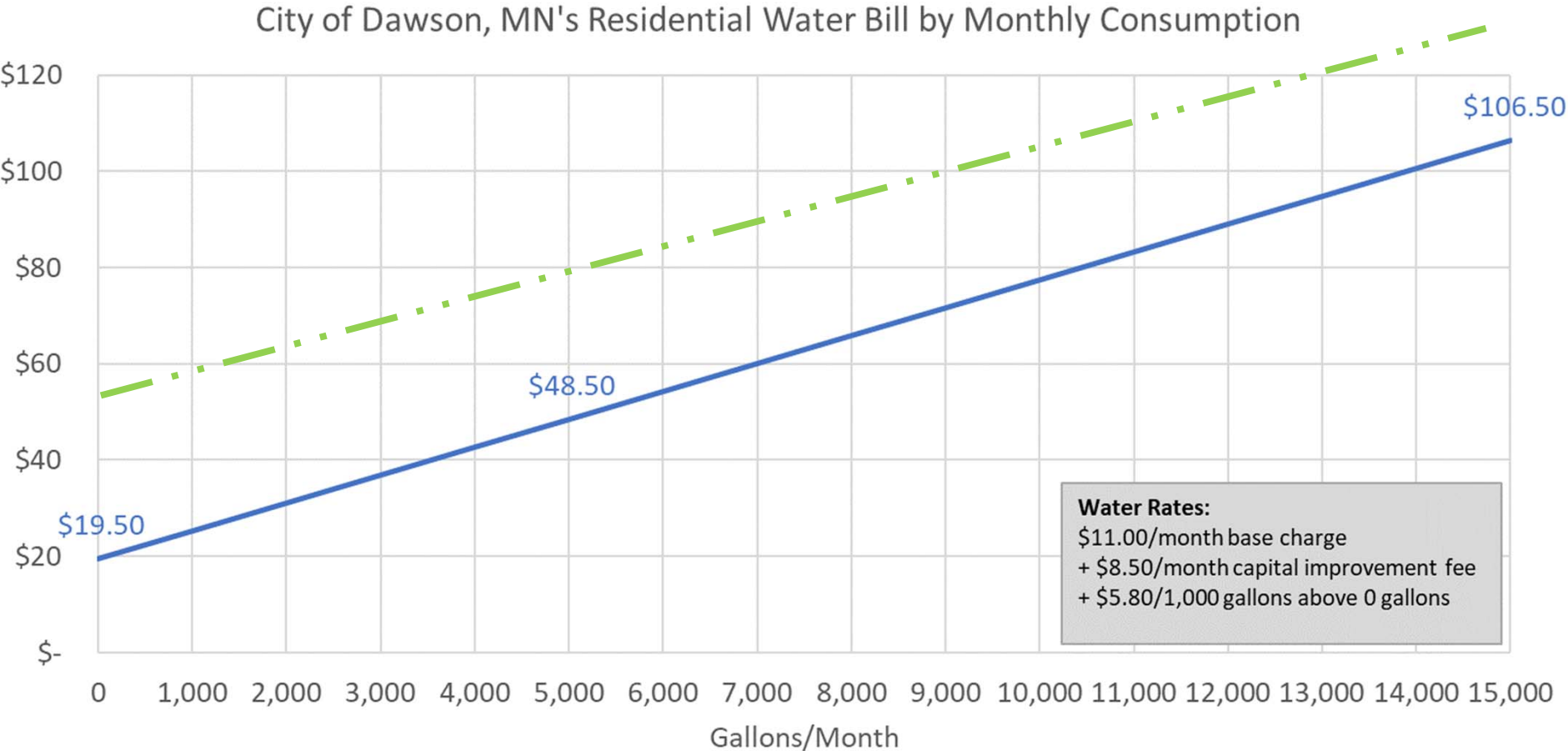
City of Dawson, MN's Residential Water Bill by Monthly Consumption



City of Dawson, MN's water service population = 1,540



# Moving towards a rate structure that generates more revenue for capital



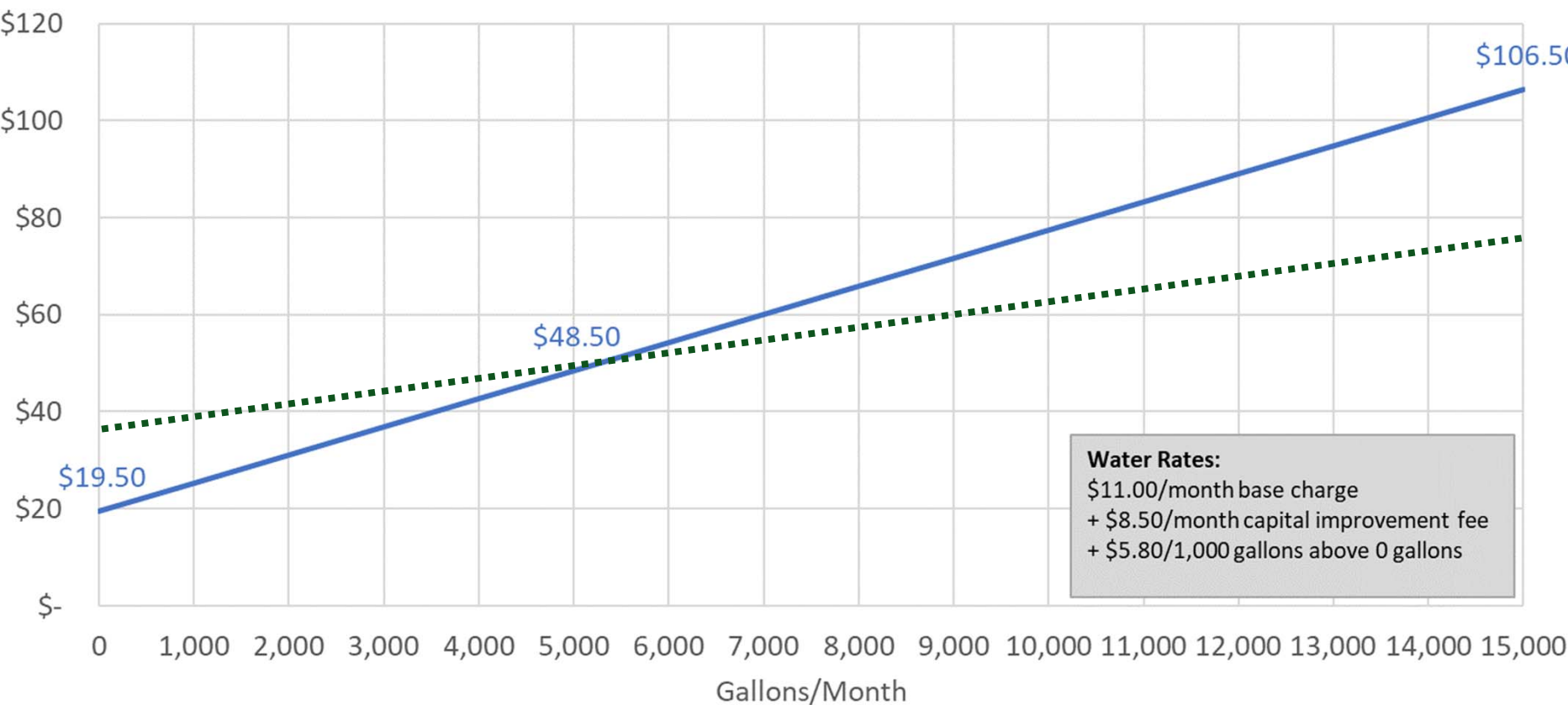
City of Dawson, MN's water service population = 1,540





# Moving toward a more revenue stable rate structure

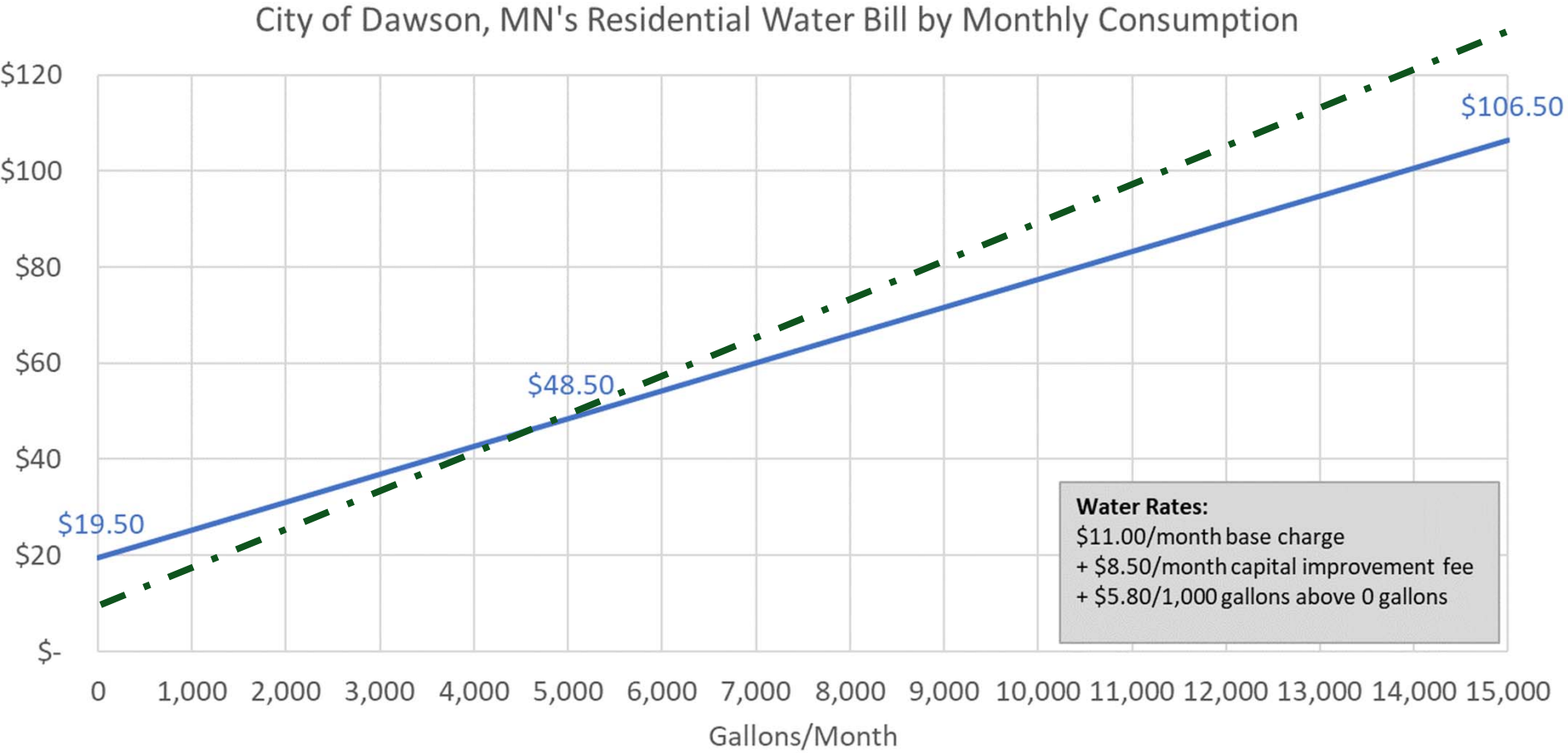
City of Dawson, MN's Residential Water Bill by Monthly Consumption



City of Dawson, MN's water service population = 1,540



# Moving toward a more conservation oriented rate structure



City of Dawson, MN's water service population = 1,540



# Levelized Billing

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## LEVEL PAYMENT PLAN

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The Level Payment Program (LPP) enables customers to pay their Eastern Municipal Water District bills in equal monthly payments. The customer's anticipated bills for the next year are apportioned equally over eleven (11) monthly payments, providing one set amount to be paid each month regardless of the actual charges incurred during that month.

The twelfth month of the LPP cycle is a settlement month. No normal Level Payment is due during that month. At that time, the difference between the LPP amounts paid and the actual bill amounts is resolved by applying a credit to the customer's account or billing the customer the amount of the difference for the year. The LPP cycle then starts again in the following month.

The Level Payment Program is available to any customer who:

- is billed for water and /or sewer directly by EMWD
- has no outstanding arrears due on his/her account when the first bill is issued
- has a record of at least six (6) months water usage within the past year.



# Extensions

## Payment Extension Policy

Customers who are unable to pay their bill on time may request an extension. A Payment Extension is provided to temporarily extend the due date of the bill for those situations when a qualifying customer is in need. Only the account holder may request this service, and it must be requested prior to the scheduled cut-off day. Payment extensions can only be made on active accounts.

Customers will be allowed two extensions of five days each per 12 month period. Extensions will not be allowed on an account that has less than three billing cycles, if a final read is scheduled, or if the Town is aware the customer is moving. Customers must provide a reasonable cause or undue hardship requiring the extension. Based on the customer's payment history and the amount due, the Town may not be able to grant an extension in all situations.

This extension does not prevent the payment from being considered late, which will lead to additional charges on the account. Even if a payment extension has been granted, a second notice will be mailed. If payment is not received by the extension date, the payment extension will default and the account will be disconnected.

In addition, all accounts terminated for non-payment twice within six months may be reviewed to ensure the deposit on hand is sufficient. If there is a gap between the deposit on hand and three months' average billing for that account, the deposit may be increased to the required level.



# Payment Plans

[Water Quality](#)[Water Information](#)[About Us](#)[News & Community](#)

## CUSTOMER ASSISTANCE PROGRAM

Sometimes customers face circumstances that stretch their financial resources. Illinois American Water is here to assist. Our customer service representatives will work with you on a plan to pay the balance of your bill over time. You may also be qualified to receive assistance through our H2O Help to Others Program™.

### Payment Arrangements

If you cannot pay your bill by the due date, please contact our customer service center immediately, before the due date. Our customer service representatives are available seven days a week at 800-422-2782. They will work with you on a plan to pay the balance of your bill over time.



# Bill Discounts

City of *Moberly!*  
Application

## Water/Sewer Discount

EFFECTIVE DATE: \_\_\_\_\_

RENEW BY: \_\_\_\_\_

Thank you for applying to the City of Moberly Water/Sewer Discount program. The eligibility requirements for this program are:

- Water/Sewer utilities must be in your name or spouse's name
- Minimum 65 years of age **OR** permanently and totally disabled
- Provide documentation of age (drivers license or other government issued ID)
- Provide documentation of disability, if applicable (Social Security Administration certification)
- Provide documentation of income (Federal form 1040, 1040A, 1040EZ, Social Security Earning Statement, bank statements)
- Meet current income guidelines adopted by the City of Moberly

**YOU MUST REAPPLY EACH YEAR TO CONTINUE RECEIVING THE DISCOUNT. IF APPROVED, THE CITY OF MOBERLY WILL DISCOUNT 25% (MAXIMUM \$10.00) FROM YOUR MONTHLY WATER/SEWER BILL FOR ONE YEAR.**

### CUSTOMER INFORMATION

Account #: \_\_\_\_\_

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Daytime Phone #: \_\_\_\_\_

Address: \_\_\_\_\_



# Bill Discounts

If approved, eligible residents will:

- Have late fees and door hanger fees waived (as applicable);
- Receive a credit applied to their utility bill based on the table below;
- Be provided with water conservation educational materials.

UAP Credit Guideline Table		
Family Size	Monthly Income	Potential Credit
1	\$1,792	\$25
2	\$2,344	\$50
3	\$2,895	\$75
4	\$3,446	\$90
5	\$3,998	\$100
6 or more	\$4,549	\$125

Astoria, OR





# Arrearage Forgiveness

## **HOW OFTEN WILL AN EXEMPTION BE GRANTED?**

Residential owner can qualify for a “*once in a lifetime*” exemption. The exemption applies to the individual owner and not the property address or billing number. For example, if an individual owns multiple rental properties, that owner must choose against which property, including his own home, the exemption will apply. Single family homeowners, without rental properties, using Borough Authority water could only apply the exemption against their domicile.

## **HOW MUCH OF MY BILL WILL BE FORGIVEN?**

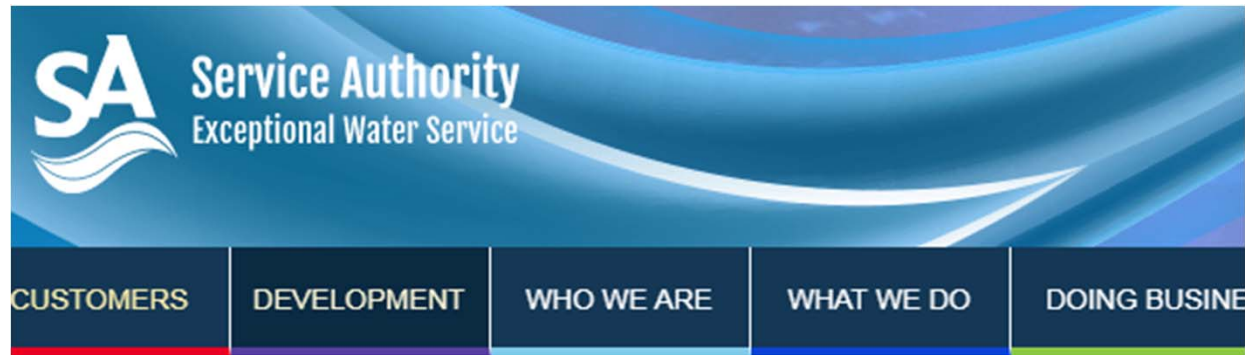
The program provides **ONLY LIMITED FORGIVENESS** of one’s Water bill. Pursuant to the guidelines established by the Authority, **ONLY THAT PORTION** of the bill which is **THREE (3) OVER THE AVERAGE CONSUMPTION WILL BE CONSIDERED FOR EXEMPTION**. Average consumption is derived from an owner’s last four (4) quarters of actual consumption.

Shippensburg, PA





# Temporary Assistance



## Applying for and Receiving Assistance from TAP

Service Authority customers seeking assistance from ACTS and SERVE in order to pay their water and sewer bills must meet the following minimum criteria:

- The applicant must be a residential customer with a documented impending disconnection of service.
- The applicant must be the Service Authority account holder.
- The applicant must meet any additional criteria required by ACTS or SERVE policies.

TAP has the following payment restrictions:

- The maximum assistance that can be provided for any one account at any given time is \$150.
- TAP funds may not be used towards peak charges, penalties, late fees, or other charges.
- TAP funds may only be used to pay towards a specific Service Authority account not more than two

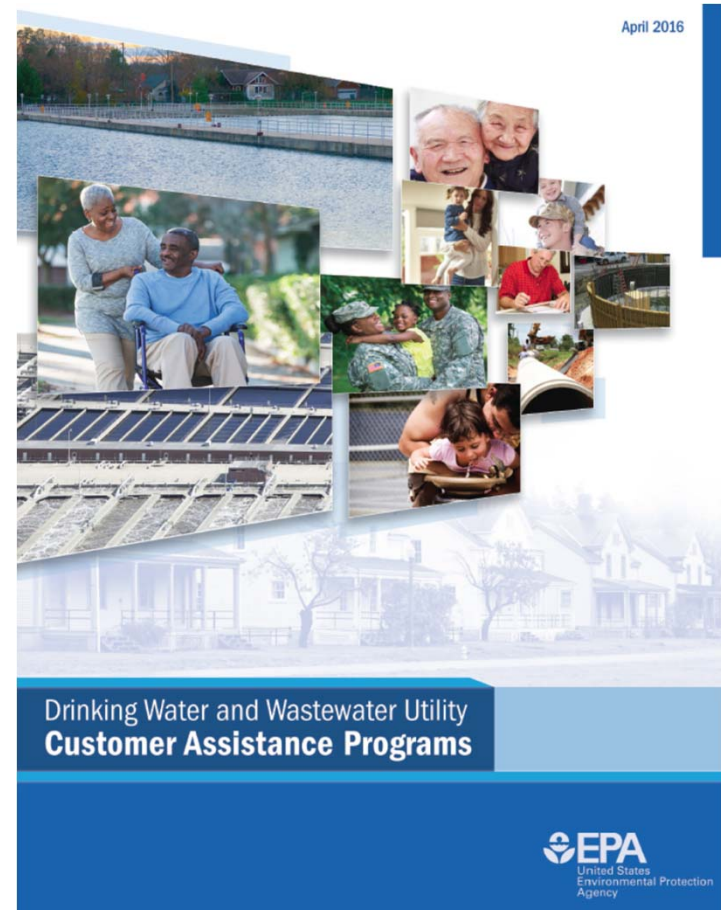
## Prince William County, VA



# Compendium: Customer Assistance Programs (CAPs)

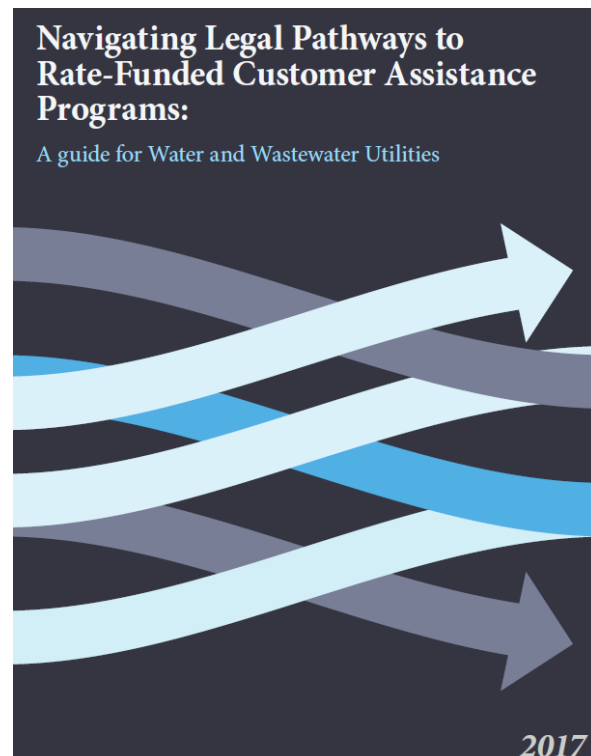
EPA developed compendium with examples of different types of water and wastewater CAPs across the U.S.

<https://www.epa.gov/waterfinancecenter/compendium-drinking-water-and-wastewater-customer-assistance-programs>





# Navigating Legal Pathways to Rate-Funded Customer Assistance Programs



## Alabama

Commission-regulated utilities  
Noncommission-regulated utilities



Water and wastewater utilities in Alabama fall under several rate setting regulatory systems.

### Commission-Regulated Utilities

The Alabama Public Service Commission (APSC) regulates private water and wastewater companies in Alabama.<sup>21</sup> Under Ala. Code § 37-1-34, the APSC does not have the authority to regulate government-owned utilities. Furthermore, per Ala. Code § 37-4-2.1, utilities serving less than 1,000 customers and purchasing water from a noncommission-regulated utility<sup>22</sup> can choose to be exempt from APSC regulation and instead fall under that utility's municipal authority.

Ala. Code § 37-1-81 states that commission-regulated utilities need to file rate schedules with the APSC before changing rates. In addition, Ala. Code § 37-1-80 states that commission-regulated utilities must charge "reasonable and just" rates. Alabama follows the "rate base theory" when determining what is just and reasonable, with the rate base (to determine the fair rate of return) being "the valuation placed on the utility property."<sup>23</sup> Ala. Code § 37-1-124 considers rates set by the APSC to be *prima facie* just and reasonable.<sup>24</sup> Furthermore, when the APSC finds rates to be unjust and unreasonable, Ala. Code § 37-1-97 gives it the power to adjust them to be just and reasonable.

Thus, commission-regulated utilities would likely need specific approval, in the form of an APSC order, to charge rates to be used to fund a low-income customer assistance program (CAP).

### Noncommission-Regulated Utilities

Municipalities, including cities and towns, have the right to operate and maintain rates for water utilities.<sup>25</sup> They are not subject to APSC regulation and thus can set their own water and wastewater rates.<sup>26</sup> For wastewater rates, under Ala. Code § 11-50-121, "all such charges shall be uniform for the same type, class, and amount of use or service by or from the sewer system." This code also lists factors that can be used to set rates, but does not mention socio-economic factors.<sup>27</sup>

State Population (2016): 4,863,300  
Median Annual Household Income (2015): \$43,623  
Poverty Rate (2015): 18.8%

Typical Annual Household Water and Wastewater Expenditures (2016): \$775

Alabama has 516 community water systems (CWS), of which 17 are privately-owned and 406 serve populations of 10,000 or fewer people. Alabama has 291 publicly owned treatment works facilities (POTWs), of which 204 treat 1 MGD or less. 58,937 people are served by privately-owned CWS; 5,548,854 are served by government-owned CWS; and 2,420,993 are served by POTWs.

Estimated Long-Term Water and Wastewater Infrastructure Needs: \$11.0 billion

Sources: U.S. Census Bureau 2016 Population Estimate & 2011-2015 American Community Survey 5-Year Estimates, 2016 EPC Rates Survey, U.S. Environmental Protection Agency's 2016 Safe Drinking Water Information System, 2011 Drinking Water Infrastructure Needs Survey & 2012 Clean Waterworks Needs Survey. See Appendix 1 for more details.

Based on the limits laid out above, noncommission-regulated water utilities appear to have very broad rate-setting authority that could be used to implement low-income CAPs funded by rate revenues. On the other hand, because of the aforementioned specific statutory limitation, wastewater utilities might face legal challenges if using rate revenues to fund low-income CAPs, but such programs would face fewer obstacles than programs using income-indexed rates or discounts.

<https://efc.sog.unc.edu/pathways-to-rate-funded-customer-assistance>



# Your revenues last year were...

- A. Significantly higher than expected
- B. Slightly higher than expected
- C. Close to as planned
- D. Slightly lower than planned
- E. Significantly lower than planned



# What causes variation?



# Rate Changes



As rates go up, usage goes down

As a rule of thumb, typically usage goes down 3-4% for every 10% increase in rates



# Population Change



Customers could be coming into your system or leaving your system



# Loss of a Big Customer

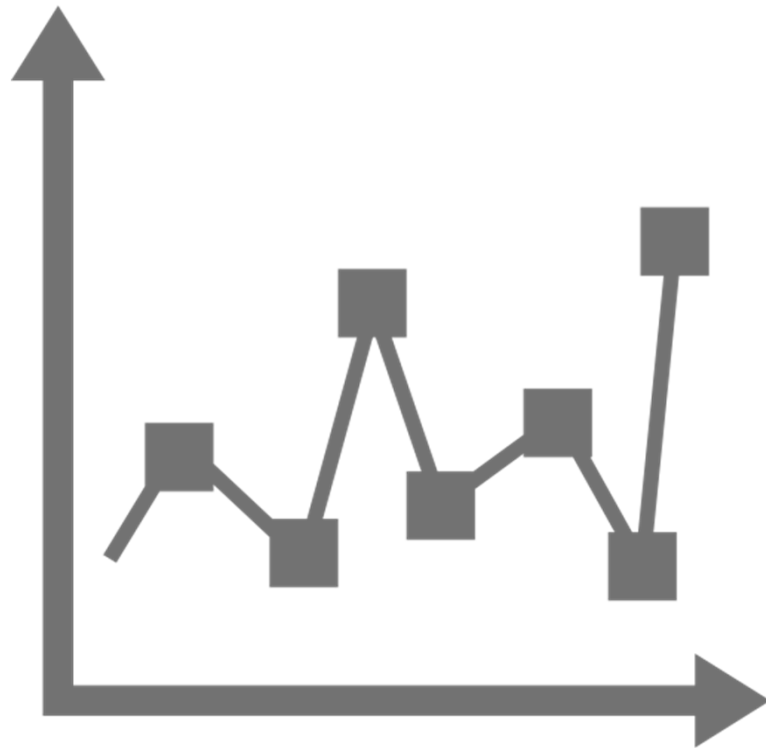


Some customers use significantly more water than others. Losing a single big user can have a disproportionate impact on revenues





# Economic Conditions



Economic downturns can cause customers to cut back on water use. Conversely, periods of economic growth can lead to higher water consumption



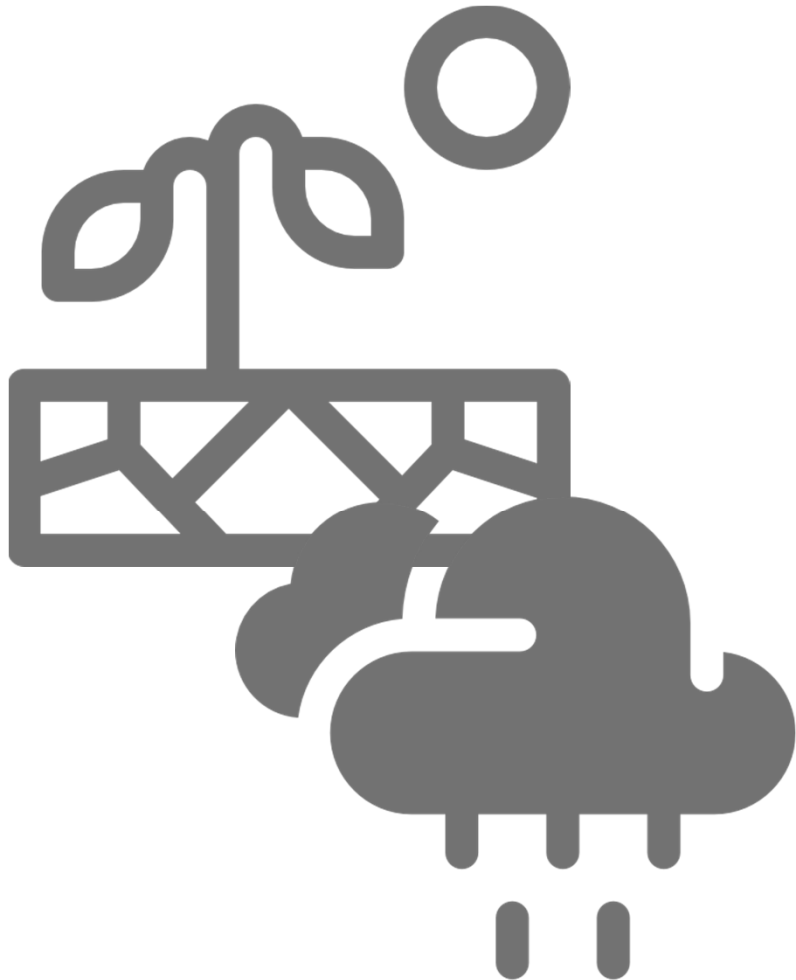
# Changes in Collection Rates



Even if the number of customers doesn't change, how often they are paying you may be changing



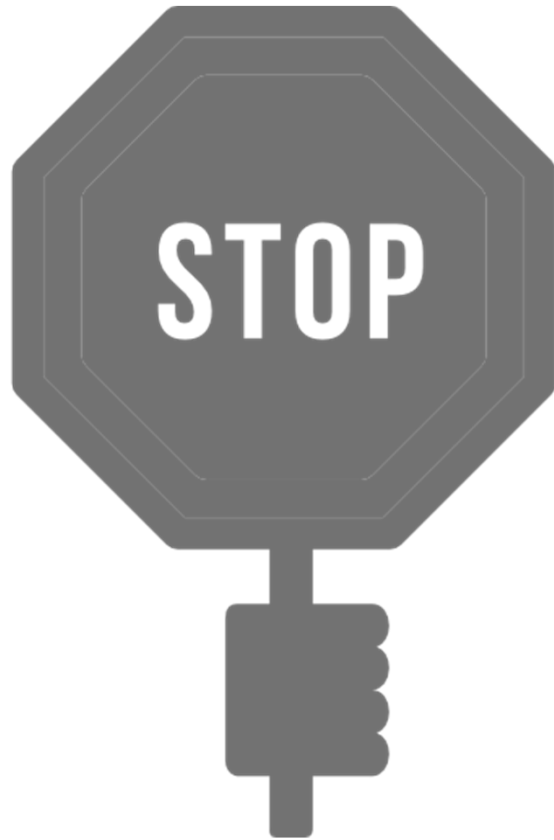
# Weather



Rainy conditions or dry/drought conditions can impact how much water customers use for outside irrigation



# Water Use Restrictions



Whether due to water supply shortages or drought conditions, restricting water use will obviously impact revenues



# Technology



Fixtures use less water today than in the past, and overall per capita water demand is decreasing across the country



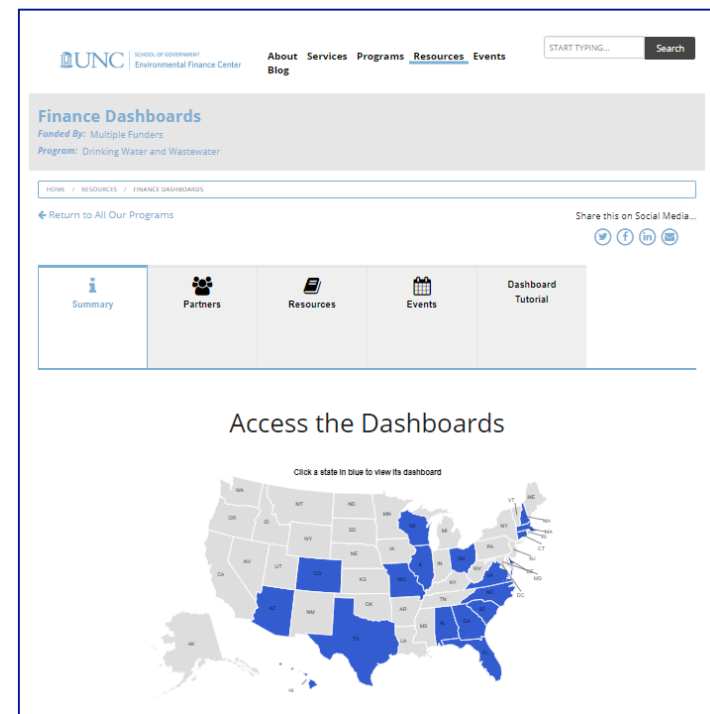
# What to do?

- Multiple forecasts based on different assumptions
- Ideally, be conservative
- Don't forget price elasticity
- Use tools to stress test projections
- Give board options



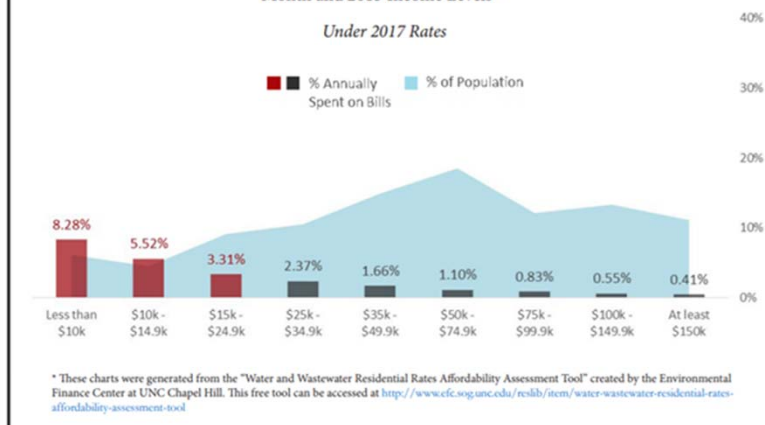
# Rates analysis and tools environmentalfinance.org

- State level rates surveys and analysis
- Utility rates affordability assessment tools
- Survey results and presentations



ers who meet income eligibility criteria.<sup>\*\*\*</sup> As a result

Figure 19. Affordability of Water & Wastewater Rates in Raleigh Assessed at 5,000 Gallons/ Month and 2015 Income Levels\*




# Water and Wastewater Rates Analysis Model

<http://efc.sog.unc.edu> or <http://efcnetwork.org>

Find the most up-to-date version in Resources / Tools



## Water & Wastewater Rates Analysis Model

Version 2.8.2 (last updated August 4, 2015)



UNC  
ENVIRONMENTAL FINANCE CENTER

Developed by the Environmental Finance Center at the University of North Carolina, Chapel Hill  
<http://efc.sog.unc.edu>



Funded by the U.S. Environmental Protection Agency and the Public Water Supply Section of the North Carolina Department of Environment and Natural Resources

**Get Started**

Download a copy of the model populated with data from an example utility

### DESCRIPTION

A do-it-yourself, simplified financial model to assist utility managers and private system owners in setting water and wastewater rates.

### FEATURES

- Comparisons of annual fund balance projections (for up to 20 years) under proposed new rates vs. staying with existing rates
- Adjust rates for the next 1-5 years
- Up to 12 rate structures
- Uniform or block rates (up to 10 blocks)
- Model changes to accounts and water use
- Customizable list of operating and capital expenses
- Building up reserves through rates
- Compare monthly bills under new rates vs. existing rates
- Assess revenue sufficiency and fund balance
- Error notifications

### INSTRUCTIONS

- 1) Navigate using worksheet tabs at bottom of screen or following arrows and clicking on buttons
- 2) In the green "Data Input" worksheets, input data in the dark green cells

**View Results**

Financial forecast of the next few years under 'Existing' rates versus 'New' rates (graphs of cost recovery and end-of-year fund balance)

How new rates compare to existing rates (graphs of monthly bills)

Year:	2015	2016	2017	2018	2019	2020
Existing	\$11.50	\$13.00	\$14.50	\$17.00	\$20.00	\$21.00
New	\$11.50	\$13.00	\$14.50	\$17.00	\$20.00	\$21.00

Block End

Block End	2015	2016	2017	2018	2019	2020
4,000 gal/mo	\$2.78	\$2.78	\$2.78	\$3.00	\$3.50	\$4.00
7,000 gal/mo	\$4.00	\$4.50	\$5.00	\$5.50	\$6.00	\$6.50
10,000 gal/mo	\$5.00	\$5.50	\$6.00	\$6.50	\$7.00	\$7.50

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Error: missing block rates  
Error: missing block size

Debt Service and Other Known Annual Expenses for Next 20 Years

Year	2015	2016	2017	2018	2019	2020
Debt Service	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
Other Known Annual Expenses	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000

Additional Utility Expenses that Grow Every Year (\$ per year)

Expense	2015	2016	2017	2018	2019	2020
Administrative	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Capital Expenses	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Regional Sewer Authority operations & maintenance	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Regional Sewer Authority capital expenses	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Regional Sewer Authority debt service	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Regional Sewer Authority other	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Regional Sewer Authority total	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Regional Sewer Authority total (including debt service)	\$600,000	\$600,000	\$600,000	\$600,000	\$600,000	\$600,000

Watch out for red "Error" messages describing where data entry errors

Created by the Environmental Finance Center at the University of North Carolina, Chapel Hill  
Funded by the U.S. E.P.A. and the N.C. Department of Environment and Natural Resources



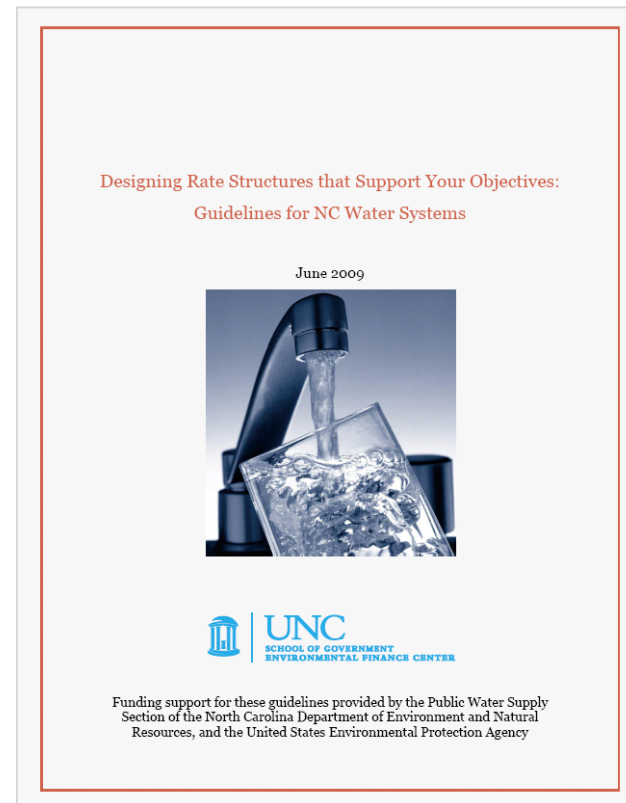


# Designing Rate Structures That Support Your Objectives

Free guide  
written for  
system  
managers

Available at:

<http://efc.sog.unc.edu/>





# Guidebooks on setting rates/financial planning



## Setting Small Drinking Water System Rates for a Sustainable Future

One of the Simple Tools for Effective Performance (STEP) Guide Series



<http://www.awwa.org>



<http://www.epa.gov/safewater/smallsystems>

[http://www.epa.gov/ogwdw/smallsystems/pdfs/guide\\_smallsystems\\_final\\_ratesetting\\_guide.pdf](http://www.epa.gov/ogwdw/smallsystems/pdfs/guide_smallsystems_final_ratesetting_guide.pdf)