
MANAGING YOUR SYSTEM INTO THE FUTURE: ASSESSING UTILITY FINANCIAL HEALTH AND RATE SETTING OBJECTIVES

Tribal Utilities Funding Forum
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Hope Thomson
Project Director
Environmental Finance Center

TRAINING OBJECTIVES

- Review basics of water & wastewater system finances
- Learn standard measures of financial health
- Introduce rate setting philosophies
 - Calculate base and volumetric charges to cover the full cost of providing services
 - Demonstrate the impact of pricing structures on different customers
 - Discuss factors impacting your pricing assumptions



SCHOOL OF GOVERNMENT

Environmental Finance Center



Supporting fair, effective, and financially sustainable delivery of environmental programs through:

- Applied Research
- Program Design and Evaluation
- Teaching and Outreach
- Advising
- Policy Analysis

WATER SYSTEMS SERVE MULTIPLE PURPOSES

Protecting
water resources
and supplying
highest quality
drinking water

Environmental
& Health

1

2

3

WATER SYSTEMS SERVE MULTIPLE PURPOSES

Protecting water resources and supplying highest quality drinking water

Environmental & Health

1

Providing basic services that everyone in the community can afford

Public Service

2

3

WATER SYSTEMS SERVE MULTIPLE PURPOSES

Protecting water resources and supplying highest quality drinking water

Environmental
& Health

1

Providing basic services that everyone in the community can afford

Public Service

2

Putting sustainable business practices into action

Public
Enterprise

3

WATER SYSTEMS SERVE MULTIPLE PURPOSES

To serve all these purposes, water/wastewater systems need to be sustainably financed –
how you pay for it matters!

Environmental
Health

1

Public Service

2

Public
Enterprise

3

WATER AND WASTEWATER AS ENTERPRISE FUNDS



- Self-sufficiency
- Separated from other funds
- REVENUES collected = COSTS expended
- Avoid or minimize transfers⁸

THREE TYPES OF COSTS

- **Operating Costs**—what you need to run the system day in and day out

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- **Operating Costs**—what you need to run the system day in and day out
- **Capital Costs**—rehabilitation and replacement of existing infrastructure and new infrastructure
- **Debt Service**—what you owe on loans and bonds

TWO TYPES OF REVENUES

- **System Income**—Money from rates, tap fees, system development charges, grants, penalties, other sources
 - Note: To be a pure enterprise fund, not taxes (unless explicitly permitted).

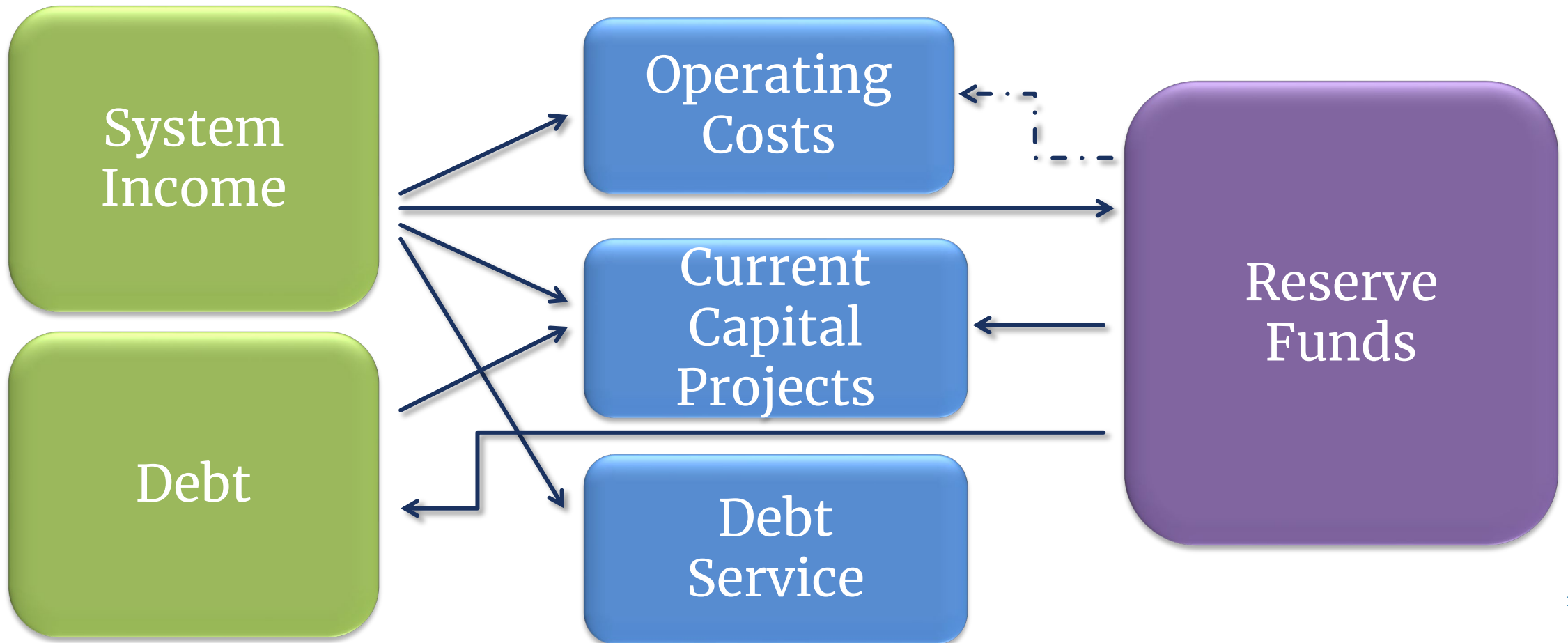
TWO TYPES OF REVENUES

- **System Income**—Money from rates, tap fees, system development charges, grants, penalties, other sources
 - Note: To be a pure enterprise fund, not taxes (unless explicitly permitted).
- **Debt**—Money from bonds and loans

MANY TYPES OF RESERVE FUNDS

- **Capital Reserve Fund**—Infrastructure rehabilitation and replacement
- **Repair Fund**—Known, ongoing maintenance issues
- **Emergency Fund**—Unknown, unanticipated maintenance issues
- **Rainy Day Fund**—Unexpected revenue shortfalls¹⁴

WATER SYSTEM FINANCE DIAGRAM



BUDGETS SHOULD REFLECT THE GOALS OF THE GOVERNING BODY

- Appropriation of funds
- Measuring and promoting financial and operational performance
- Setting rates and fees
- Public education



BUDGETING FOR THE FULL COST

Operations &
maintenance
expenditures

Taxes and
accounting costs

Contracts

Long-term debt
(principal and
interest)

Contingencies for
emergencies

Reserves for
capital
improvement

Indirect costs
(fleet, buildings,
shared
expenditures, etc.)

Retirement

BUDGETING FOR THE FULL COST

Knowing all about the costs informs
how much is needed in *revenues*

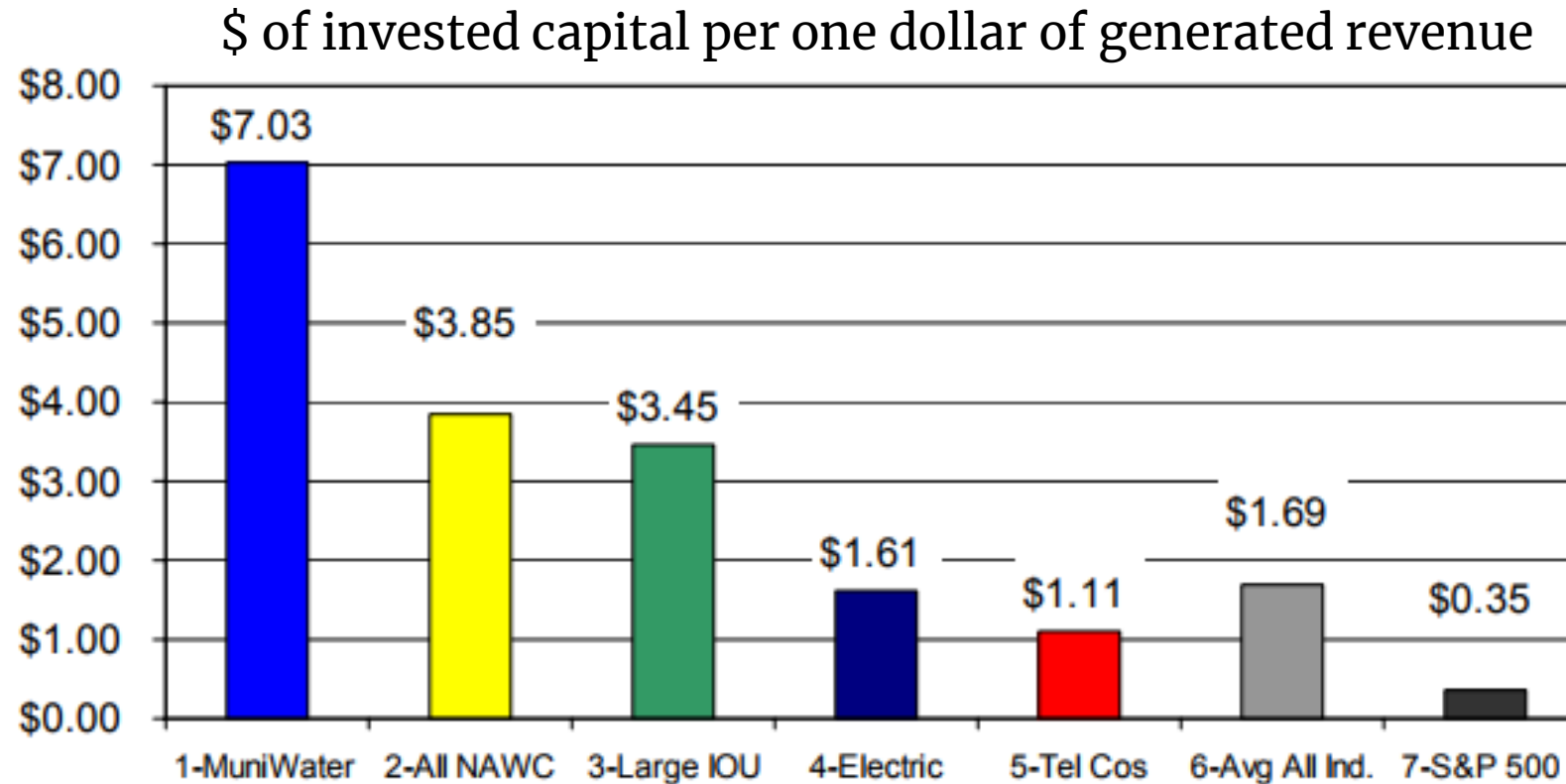
Contingencies for
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Reserves for
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Indirect costs
(fleet, buildings,
shared
expenditures, etc.)

Retirement

WATER & WASTEWATER ARE CAPITAL INTENSIVE



Source: Water Research Foundation, “Improving Water Utility Capital Efficiency” (2005 data)



ASSESSING FINANCIAL CONDITION



QUICK OVERVIEW OF FINANCIAL STATEMENTS

MAYBERRY STATEMENT OF NET ASSETS PROPRIETARY FUNDS DECEMBER 31, 2010		BAYARIA STATEMENT OF NET ASSETS PROPRIETARY FUND JUNE 30, 2011	
ASSETS			
Current Assets		Water and Sewer Enterprise Fund	
Cash	284,130	\$ 568,001	(7)
Accounts receivable, net	14,800	60,346	(8)
Total current assets	298,930	5,856	(5)
Capital assets		640,203	
Land and improvements	10,229	177,208	
Distribution and collection systems	5,752,840	289,556	
Infrastructure	500,334	22,682	
Less accumulated depreciation	(2,314,334)	5,873,709	(9)
Total capital assets	3,982,969	896,073	(8)
Total Assets	4,281,899	1,454,079	
		(2,883,225)	(6)
LIABILITIES		30,833	
Current liabilities		5,781,214	
Accounts payable	9,252	472,678	
Customer deposits	44,225		
Accounts payable - current	18,500		
Total current liabilities	70,977		
Noncurrent liabilities		2,848,225	
Bond payable	2,848,225	176,424	
Total noncurrent liabilities	2,848,225	3,230,643	
Total liabilities	2,919,202	4,018,867	
NET ASSETS	1,362,697	\$ 4,097,539	
Invested in capital assets net of related debt			
Capital assets	3,982,969		
Less related debt	(2,620,272)		
Total	1,362,697		
Unrestricted net assets			
Total net assets	1,362,697		
Total liabilities and net assets	4,281,899		
		15,605	
		233,357	
		646,873	
		889,024	
		1,788,299	
		4,355,133	
		114,583	
		163,267	
		\$ 4,633,023	

QUICK OVERVIEW OF FINANCIAL STATEMENTS

- Audited financial statements are produced at the end of each fiscal year and reflect only that fiscal year.
 - Ex post – based on what actually happened
- Performed by a third-party
- Primarily interested in enterprise funds or proprietary funds
- Varying degrees of complexity, like budgets
- Alternatives:
 - balance sheets
 - shareholder reports
 - annual reports

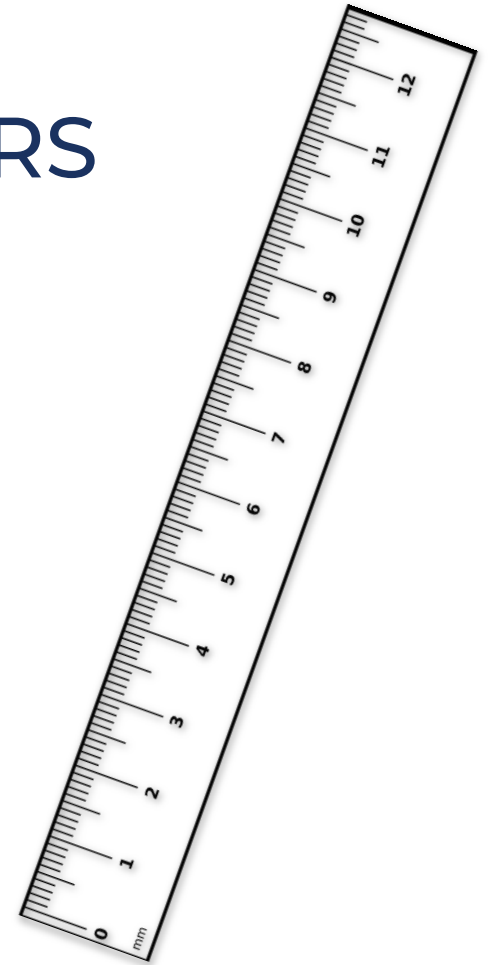


WHAT ARE KEY PERFORMANCE INDICATORS (KPIs)?



KEY PERFORMANCE INDICATORS

- **QUANTIFIABLE MEASURES OF PERFORMANCE**
 - Things we can measure
 - Things that people care about
 - Data is helpful
- **MEASURE PROGRESS**
 - Assess operational performance
 - Set goals and understand growth
- **IMPACTS INVESTMENT CAPACITY**
 - Investors, particularly institutional investors, use to assess financial health
- **INDICATIVE OF FINANCIAL HEALTH OF A COMMUNITY**



FINANCIAL PERFORMANCE METRICS

Is your system self-sufficient?

Operating Ratio

Are you able to cover your debt service after paying for your day-to-day operations?

Debt Service Coverage Ratio

If your customers stop paying their bills, how long can you maintain operations?

Days Cash on Hand

Can your system meet its short-term obligations?

Quick / Current Ratio

How much of your utility's expected life has already run out (and how much is left)?

Asset Depreciation

OPERATING RATIO

- A measure of self sufficiency
- The revenue you get from daily operations, divided by the expenditures or expenses you make to keep operations running

$$= \frac{\textit{Operating Revenues}}{\textit{Operating Expenses}}$$



>1.0

THIS FUNNY THING CALLED DEPRECIATION

- An accounting solution for a physical problem: aging infrastructure
- You have a “cost” every year of your infrastructure wearing out, a percentage of its value

What is Depreciation?

Loss of value over time of an asset not restored by current maintenance

An economic fact for any water or wastewater system

Value lost from both declining physical factors and functional or non-physical factors (obsolescence)



CAUSES OF DEPRECIATION

Physical Factors

Wear and tear resulting from use

Decay, rot, rust, and corrosion from the passage of time and the elements

Related to the extent that there is regular maintenance

Non-Physical Factors

Obsolescence due to new designs, innovations, and other improvements

Inadequacy to meet current demand

Changes in regulation

OPERATING RATIO AND DEPRECIATION

- Including depreciation in your operating ratio
 - “Fully funding” depreciation allows you to have saved for replacement at the time replacement is needed
- Less necessary if you have a comprehensive capital improvement plan and are actively budgeting for future infrastructure

ASSET DEPRECIATION*

- A measure of how much of your total assets have already depreciated. As you approach 1.0, your system is near the end of its expected life.

$$= \frac{\textit{Accumulated Depreciation}}{\textit{Gross Plant and Equipment}}$$

Benchmark? Don't get close to 1.0



*Caveat – This indicator is only as good as your depreciation schedule and even then historic pricing is likely to distort the results.

DEBT SERVICE COVERAGE RATIO

- A measure of the ability to pay debt service
- Often calculated by funders and debtors

$$= \frac{\text{Operating Revenues} - \text{Operating Expenditures (excludes depreciation)}}{\text{Principal} + \text{Interest Payments on Long Term Debt}}$$



>1.2

DAYS CASH ON HAND

- How long you can continue to pay for O&M without any additional revenues?
- Unrestricted Cash and cash equivalents are monies can be used for anything

$$= \frac{\text{Unrestricted cash and cash equivalents} \times 365}{\text{Operating Expenses} - \text{Depreciation}}$$

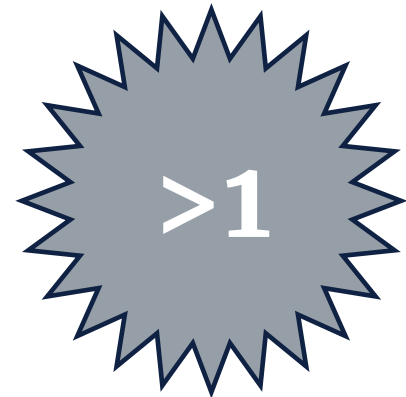


QUICK/CURRENT RATIO

- A measure of short-term liquidity: ability to pay your current bills

$$= \frac{\text{Quick Assets (unrestricted, excluding Inventories and Prepaid Items)}}{\text{Current Liabilities}}$$

**changes daily – routine calculations help!



WHAT'S NEXT?

- Once we figure out where we are, how do we know where we are going?
- How do we estimate the future costs and revenues?

TOOL: FINANCIAL HEALTH CHECKUP

key Field in the financial statement/LARH

- [1] Total Operating Revenues
- [2] Total Operating Expenses
- [3] Depreciation & Amortization Expenses
- [4] Debt Principal Payments
- [4b] Debt Interest Payments
- [5] Current Assets, excluding inventories, restricted cash, prepaids
- [6] Current Liabilities, excluding deposits & bond anticipation notes
- [7] Unrestricted Cash & Investments
- [8] Total Accumulated Depreciation
- [9] Total Depreciable Capital Assets

	2012	2013	2014	2015	2016
[1] Total Operating Revenues	\$ 3,984,193	\$ 3,965,968	\$ 3,901,253	\$ 4,459,727	\$ 5,074,590
[2] Total Operating Expenses	\$ 4,165,641	\$ 3,736,470	\$ 4,378,937	\$ 4,789,087	\$ 4,896,441
[3] Depreciation & Amortization Expenses	\$ 681,808	\$ 635,807	\$ 656,255	\$ 668,160	\$ 684,561
[4] Debt Principal Payments	\$ 323,177	\$ 331,520	\$ 339,490	\$ 342,512	\$ 265,342
[4b] Debt Interest Payments	\$ 55,289	\$ 53,350	\$ 47,011	\$ 38,474	\$ 147,909
[5] Current Assets, excluding inventories, restricted cash, prepaids	\$ 6,614,237	\$ 4,004,526	\$ 4,756,504	\$ 5,362,317	\$ 7,808,389
[6] Current Liabilities, excluding deposits & bond anticipation notes	\$ 1,247,456	\$ 456,465	\$ 425,164	\$ 750,171	\$ 691,223
[7] Unrestricted Cash & Investments	\$ 6,297,233	\$ 3,406,963	\$ 4,149,266	\$ 4,929,329	\$ 7,580,205
[8] Total Accumulated Depreciation	\$ 12,976,114	\$ 13,611,921	\$ 14,268,176	\$ 14,936,336	\$ 15,620,897
[9] Total Depreciable Capital Assets	\$ 30,575,353	\$ 30,686,885	\$ 30,867,768	\$ 30,994,872	\$ 31,291,993

Instructions

Enter as shown in the Total Operating Revenues
 Enter as shown in the Total Operating Expenses
 Depreciation and amortization are listed
 Enter \$0 if there were no debt service
 Enter \$0 if there were no debt service
 Total Current Assets minus all inventories
 Total Current Liabilities minus all refunding
 Unrestricted Cash & Investments (and
 Total accumulated depreciation on capital assets
 Enter the total value of capital assets



Step 2: Edit targets

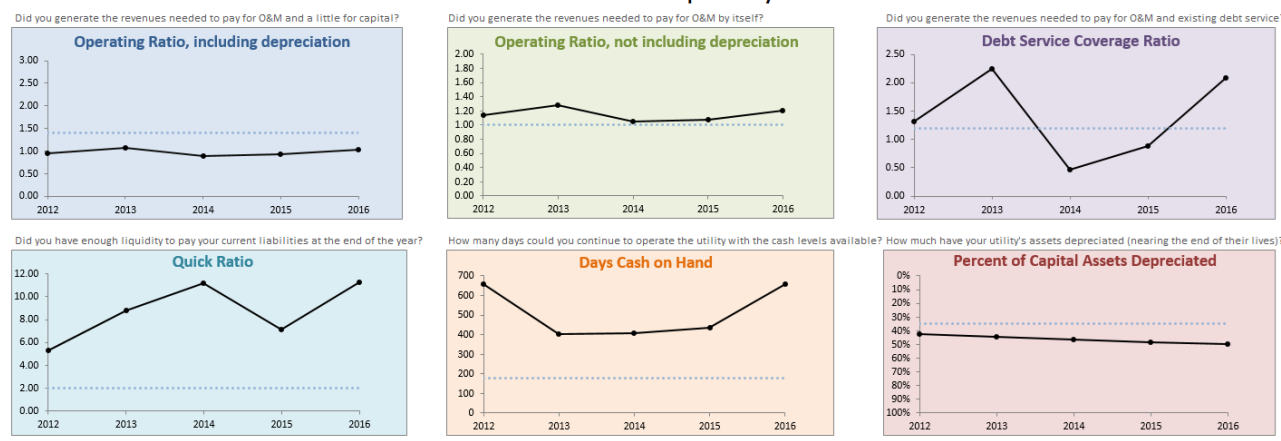
Financial Health Checkup
Five-Year Trends

Key: Blue line = target (edit targets in Step 2)

Above dotted line = exceeded target (good)

Below dotted line = did not meet target (needs improvement)

Assessment for Sample Utility





CALCULATING CHARGES



RATES & RATE SETTING

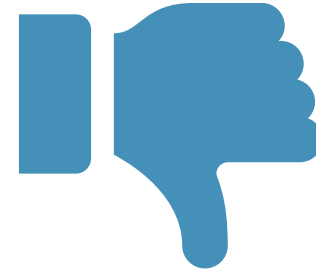


- Simple
- Based on expenses
- Cover full costs
- Fair, affordable & equitable

RATES & RATE SETTING

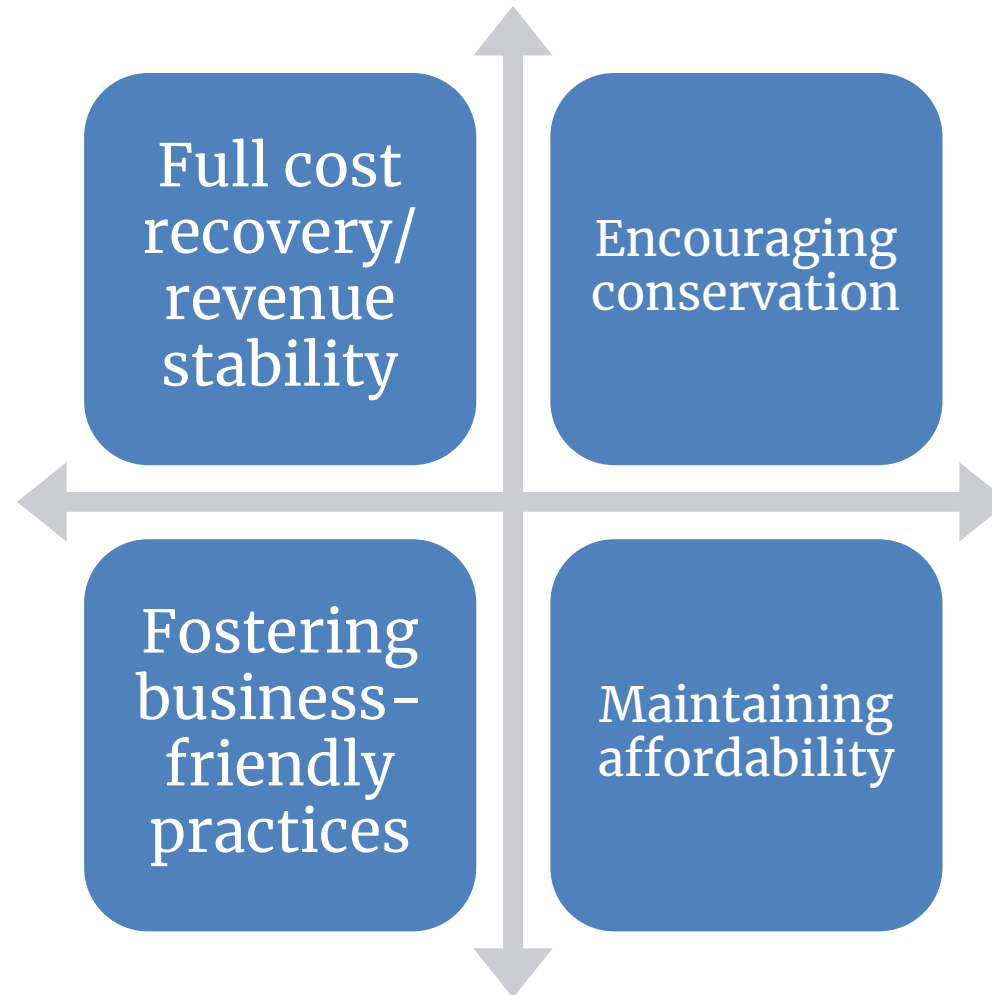


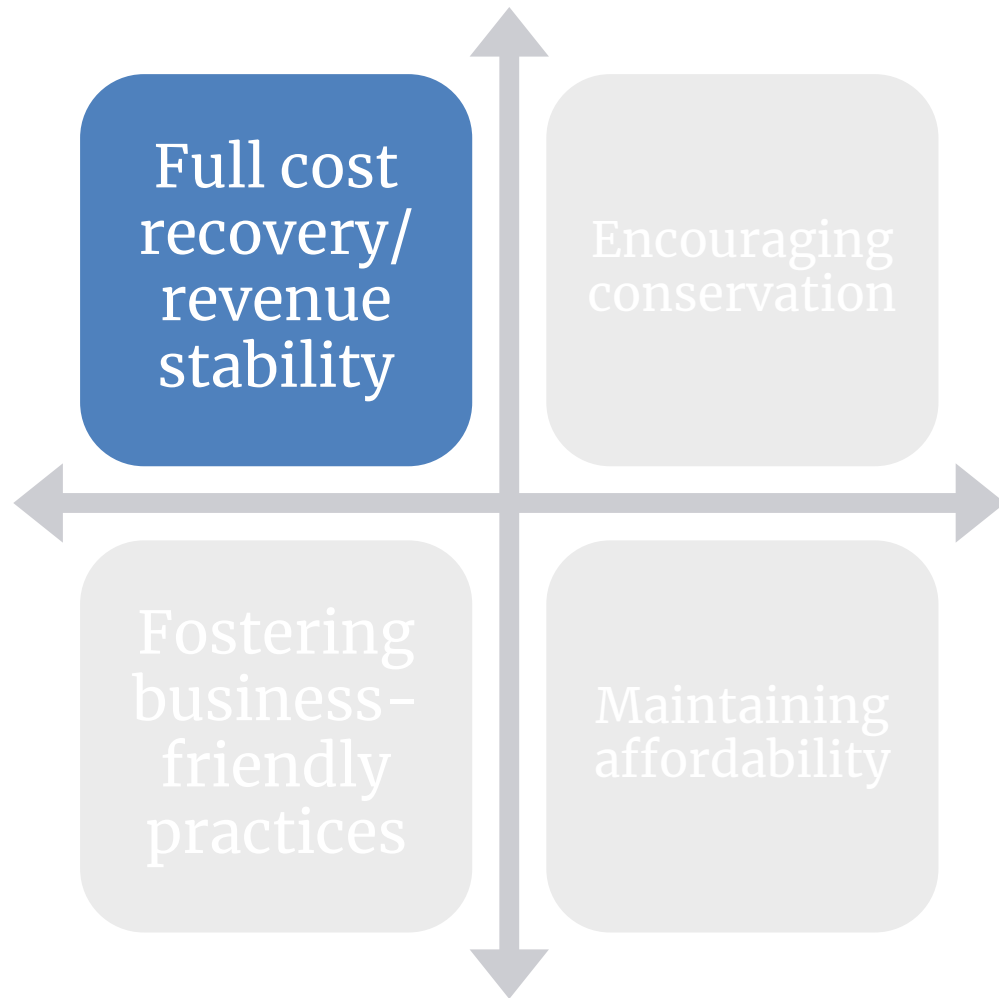
- Simple
- Based on expenses
- Cover full costs
- Fair, affordable & equitable



- Super-complicated
- Frozen in time
- Based on political desires
- Based upon neighbors

WATER SYSTEM OBJECTIVES

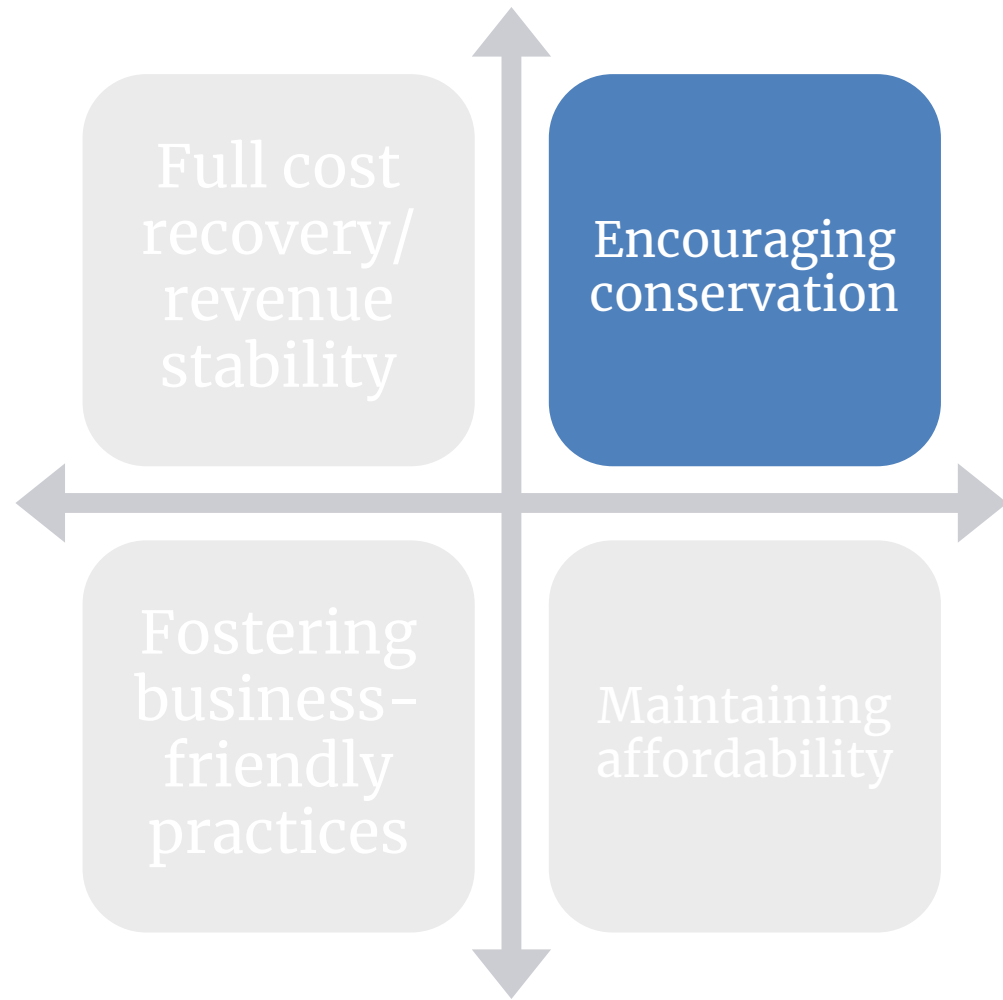




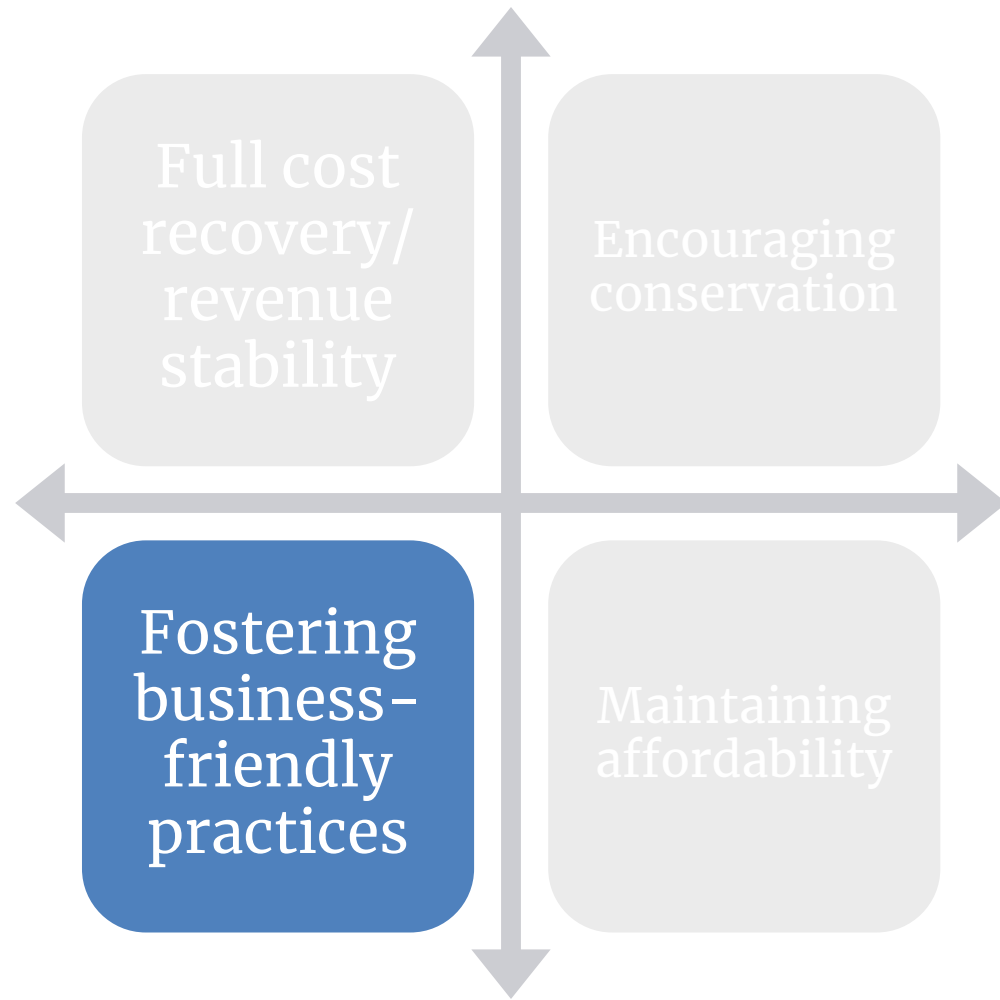
Bring in enough revenue to cover the full cost of running the water system:

- O&M
- Capital needs
- Debt service

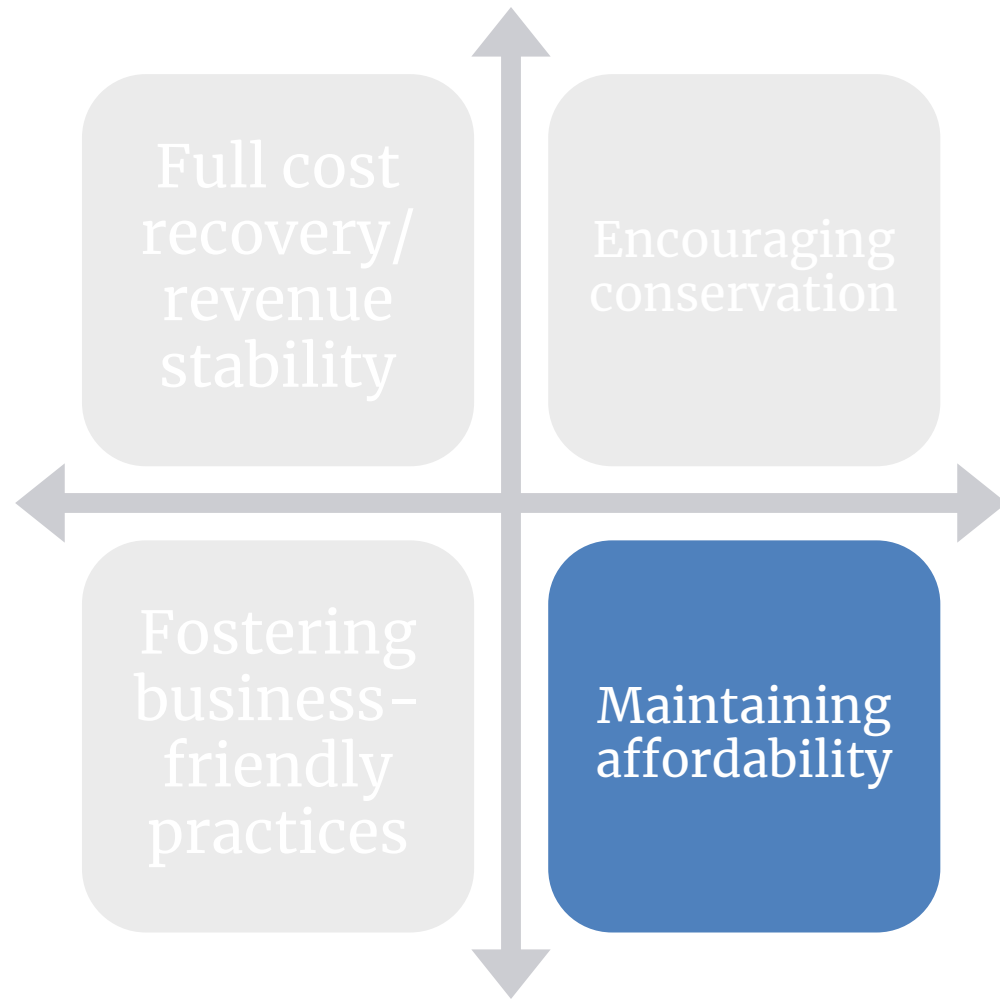
Why do this?



Use pricing to encourage customers to reduce their water consumption

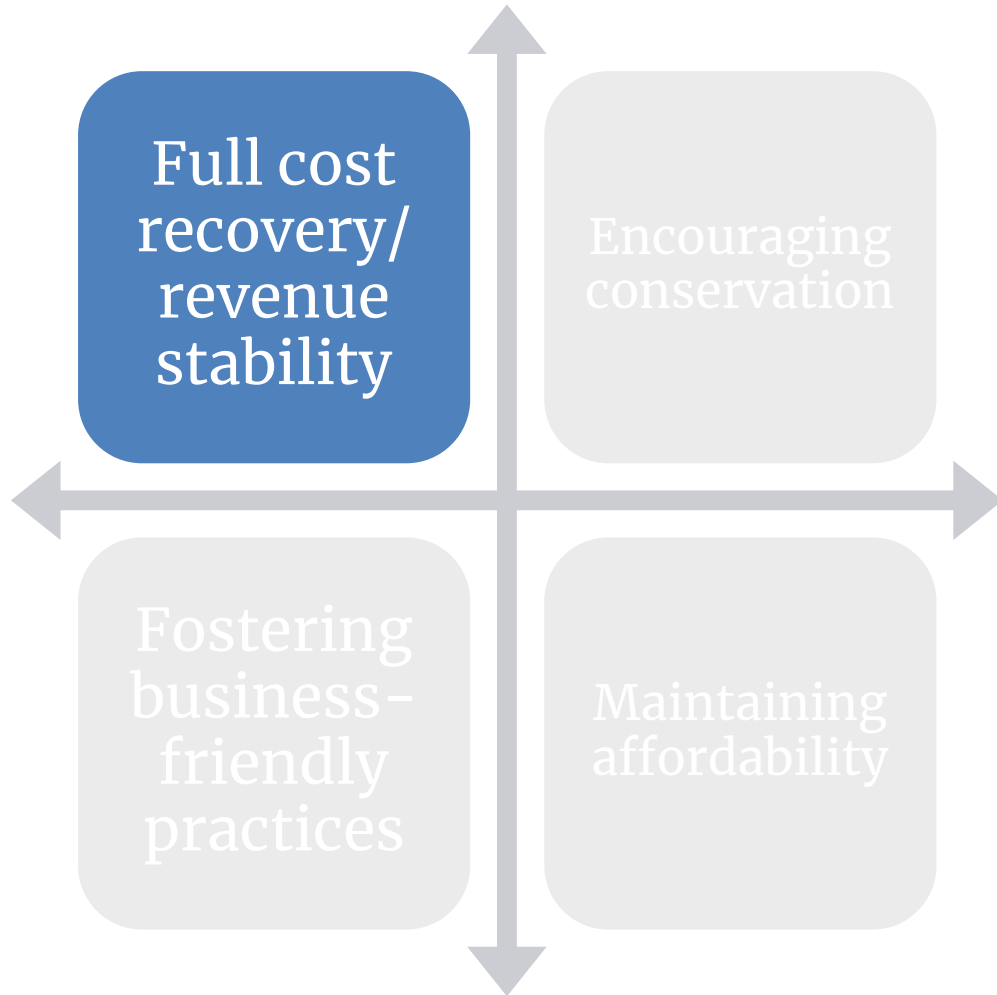


Use pricing to encourage businesses and agriculture to locate to your community or stay in your community



Ensure that all customers in your water system are able to afford enough water to live on

FULL COST PRICING



- **GOAL:** to have the charges for water cover the entire cost of running the water system today and into the future
- Many ways in which you can get to the right dollar figure

RATE SETTING PHILOSOPHIES



Payment for access vs. payment for volume of product received

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 revenues¹*
- *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.²


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 SETTING EXERCISE

Small town with a water and wastewater system

Population: 1,100 

Service Connections: 450 

MHI: \$24,432 



EXERCISE:

**RATE OPTIONS TO COVER THE FULL COST OF
PROVIDING WATER SERVICE**

FOR THE EXERCISE

Revenue requirement:

\$344,445.00

PAYMENT FOR ACCESS

- In its pure form, 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

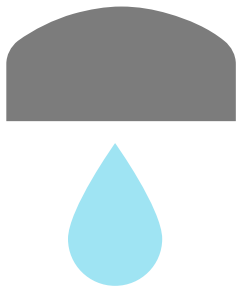
Jacksonville, GA

PAYMENT FOR ACCESS

- In its pure form, everyone in the water system pays the same amount

Data needs:

- Total revenue requirement
- Number of accounts



PAYMENT FOR ACCESS

$$\frac{\$344,445}{450} = \frac{\$765.43}{12} = \$63.79$$

Total Needed Revenue

Total Annual Bill

Total Accounts

Monthly Bill

PAYMENT FOR VOLUME OF PRODUCT RECEIVED

- 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

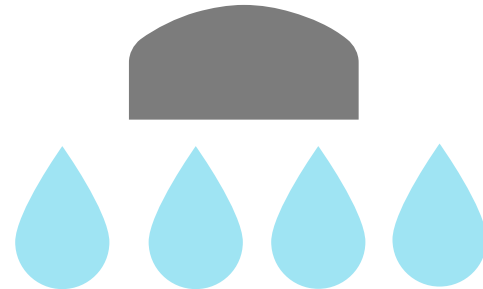
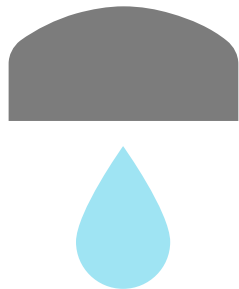
Troutman, NC

PAYMENT FOR VOLUME OF PRODUCT RECEIVED

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

Data needs:

- Total revenue requirement
- Total gallons sold



PAYMENT FOR VOLUME OF PRODUCT RECEIVED

$$\frac{\$344,445}{32,877,590} \times 1,000 = \$10.48$$

Total Needed Revenue

Total Gallons Sold

Price per 1,000 Gallons

BASE CHARGE FOR FIXED COSTS; VOLUMETRIC CHARGE FOR VARIABLE COSTS

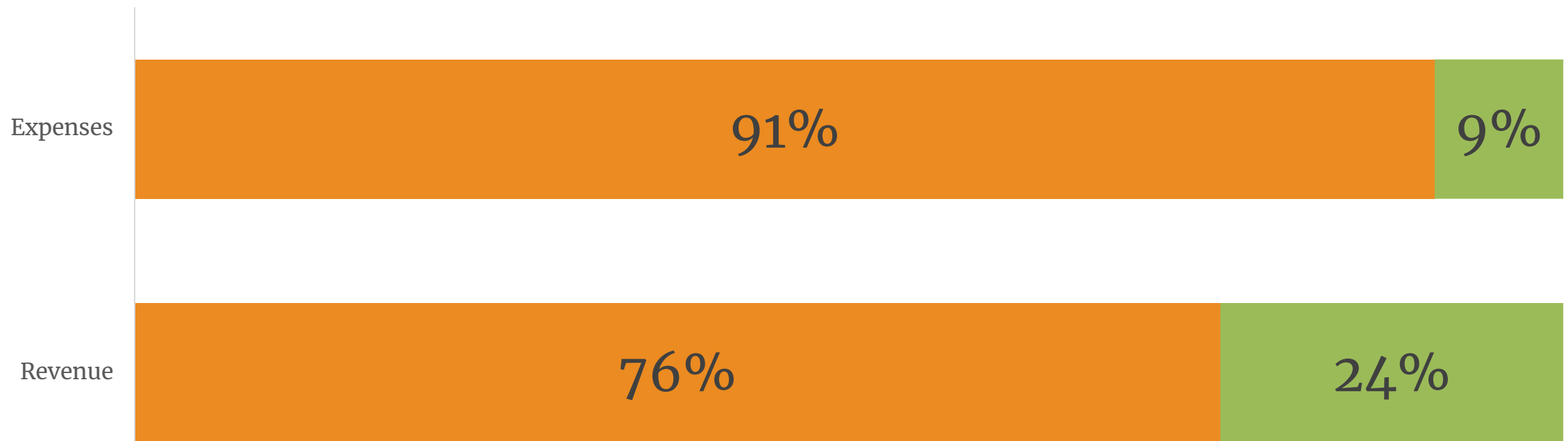
- In its pure form, all of the fixed costs of the water system would be covered by the base charge, and all of the variable costs would be covered by the volumetric rate

BASE CHARGE FOR FIXED COSTS; VOLUMETRIC CHARGE FOR VARIABLE COSTS

Base Chrg Lower Bound	Rate
38.00	0 0.000000
	4 9.500000

Readsboro, VT

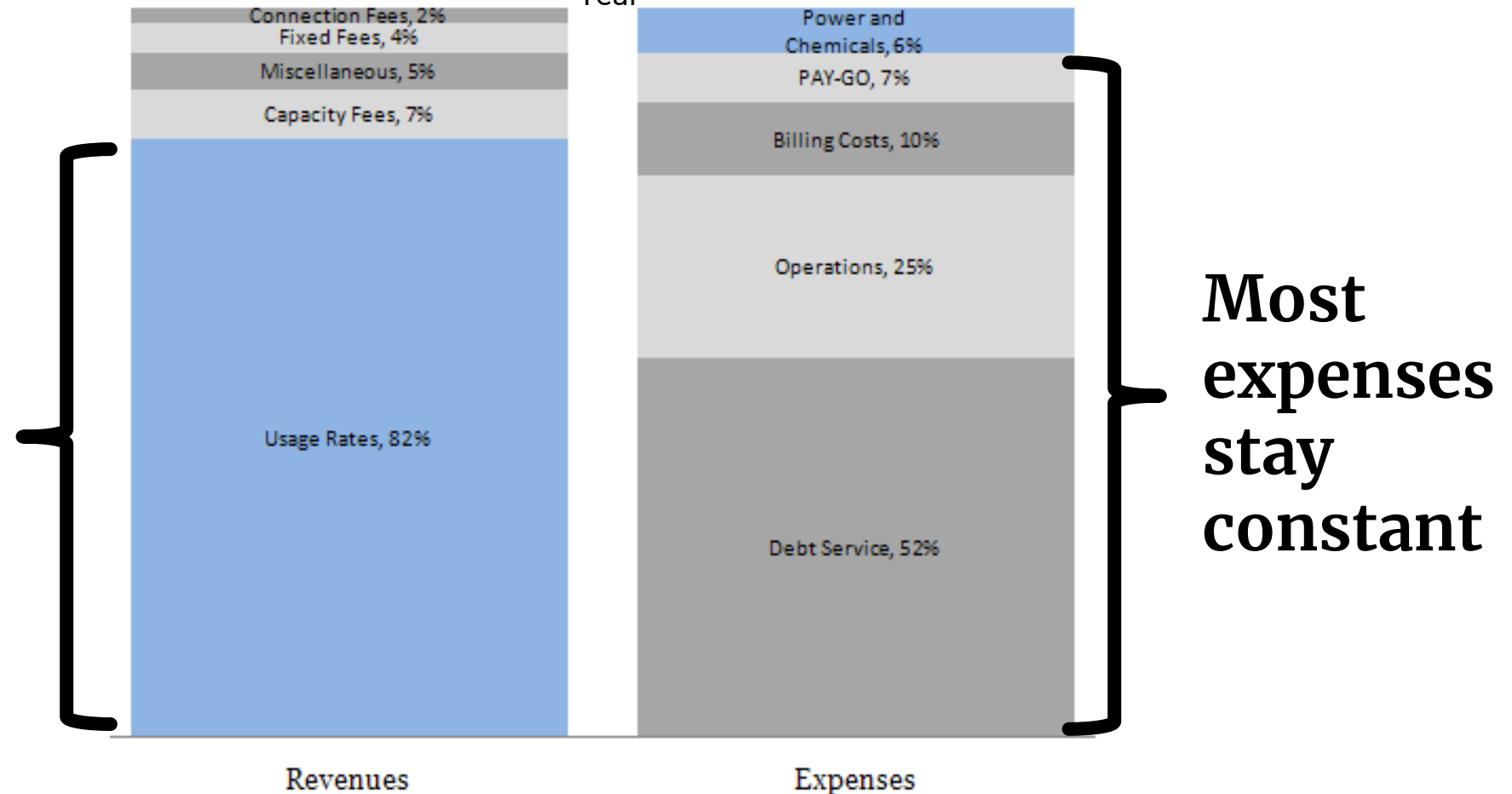
BASE CHARGE FOR **FIXED COSTS**; VOLUMETRIC CHARGE FOR **VARIABLE COSTS**



Readsboro, VT

FIXED VS. VARIABLE REVENUES AND EXPENSES

Revenue and Expenses for Charlotte-Mecklenburg Utilities in a Given Year



Revenues change with the amount of water used

Most expenses stay constant

FIXED
EXPENSES

Revenues decrease when you sell less – often resulting in higher bills to continue to cover costs

Revenues change the amount of water used

Rate structures can be designed to better cover fixed costs including administrative and capital needs

expenses
constant

Revenues

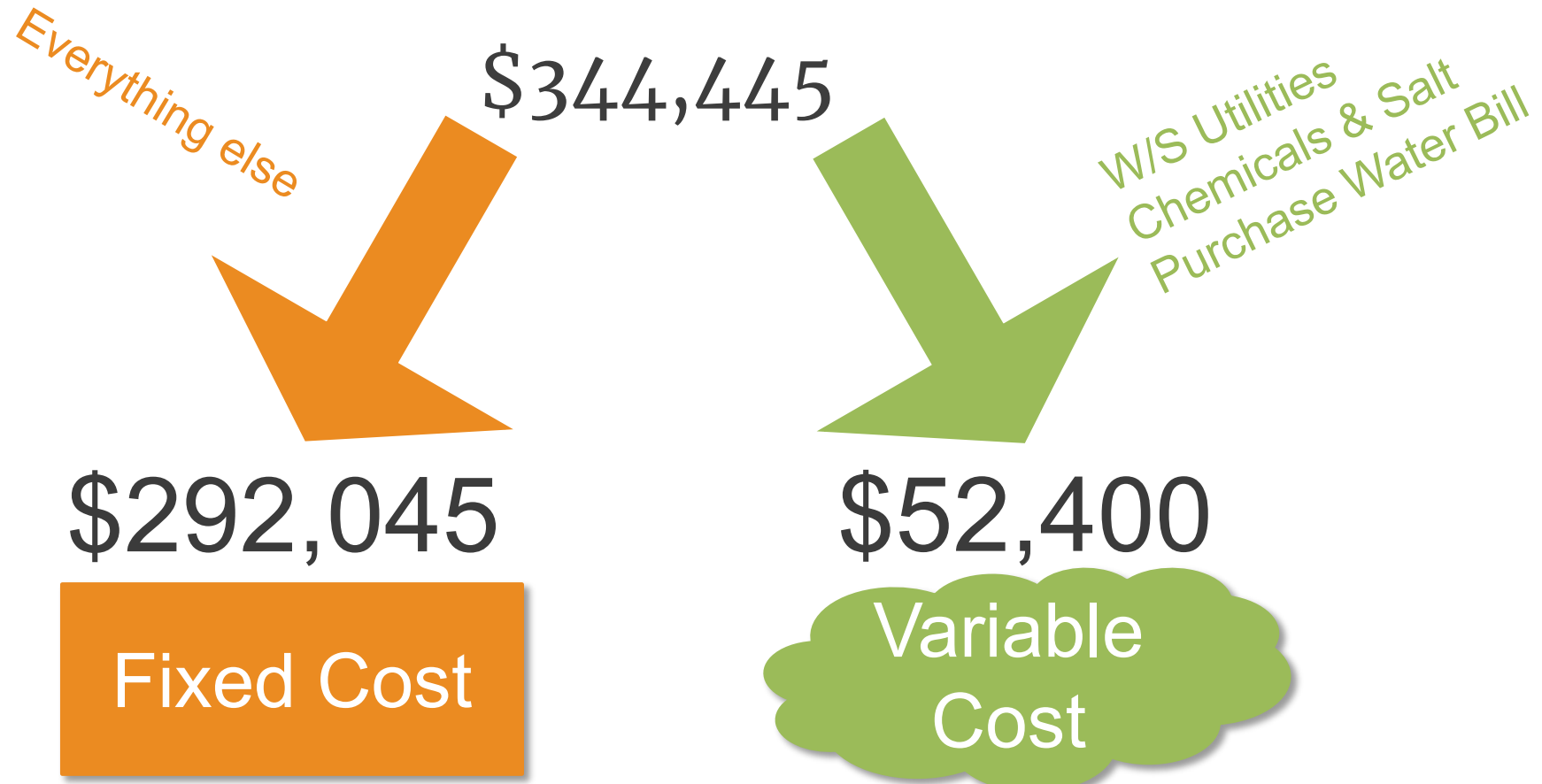
Expenses

BASE CHARGE FOR FIXED COSTS; VOLUMETRIC CHARGE FOR VARIABLE COSTS

- More information needed for 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:



BASE CHARGE FOR FIXED COSTS; VOLUMETRIC CHARGE FOR VARIABLE COSTS

$$\frac{\$292,045}{450} = \frac{\$648.99}{12} = \$54.08$$

Fixed Annual Costs *Total Annual Bill* *Monthly Base Bill*

Total Accounts

$$\frac{\$52,400}{32,877,590} \times 1,000 = \$1.59$$

Variable Annual Costs *Price per 1,000 Gallons*

Total Gallons Sold

\$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

WATER & SEWER RATES AND FEE SCHEDULE EFFECTIVE

	<u>IN TOWN</u>
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

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

\$25 BASE CHARGE; REST FROM VOLUMETRIC RATES

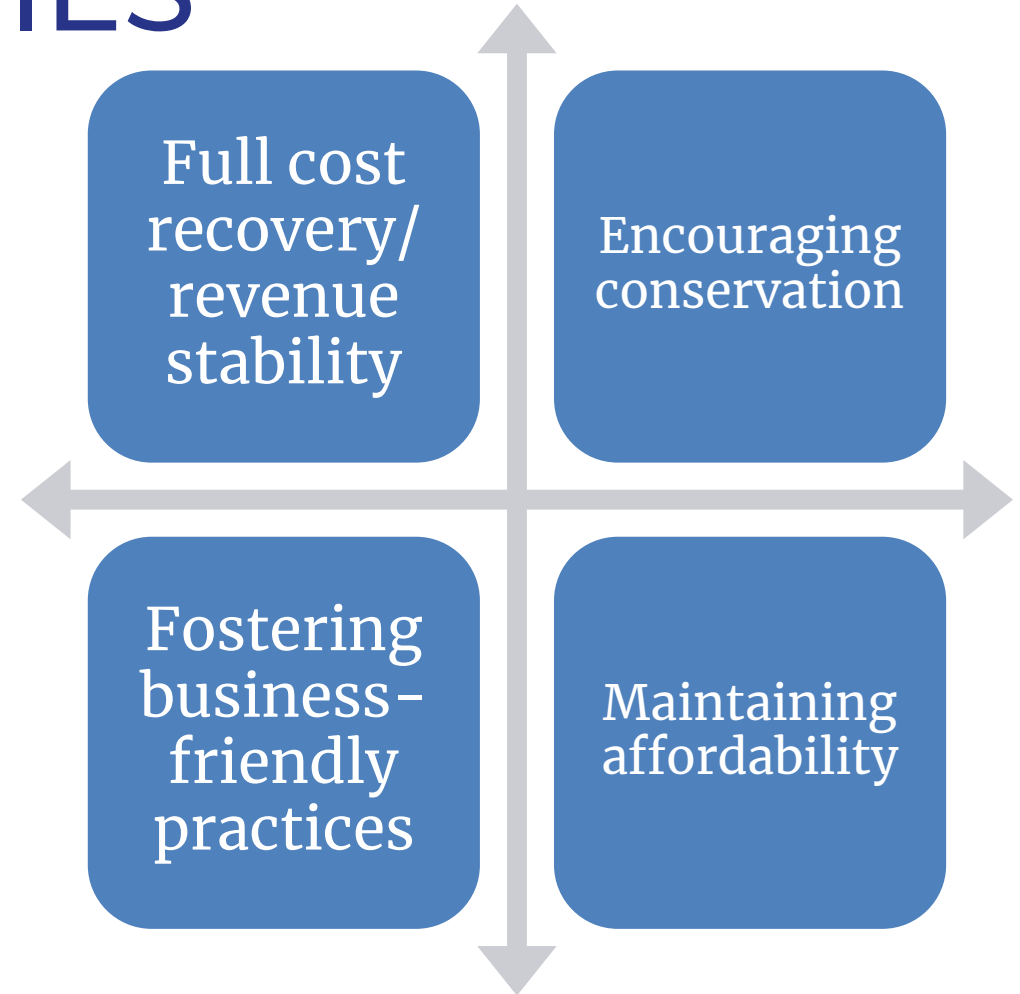
$$\begin{array}{ccccccc} \boxed{12} & \times & \boxed{\$25} & \times & \boxed{450} & = & \boxed{\$135,000} \\ \text{Months} & & \text{Monthly Base} & & \text{Total Accounts} & & \text{Total from Base Bill} \\ & & \text{Bill} & & & & \end{array}$$

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

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

DIFFERENT STRATEGIES

- A. \$63.79 base
- B. \$10.49 per 1,000 gallons
- C. \$54.08 base
\$1.59 per 1,000 gallons
- D. \$25.00 base
\$6.37 per 1,000 gallons





WHERE DO YOU THINK THE \$25 PER
MONTH BASE CHARGE CAME FROM?

HOW DO RATE STRUCTURES IMPACT CUSTOMERS?



1,000 gallons/month



4,000 gallons/month







12,000 gallons/month



34,000 gallons/month

THE RATES

- \$63.79 base – *payment for access*
- \$10.49 per 1,000 gallons – *payment for volume*
- \$54.08 base
\$1.59 per 1,000 gallons – *fixed vs. variable*
- \$25.00 base
\$6.37 per 1,000 gallons – *pick a base charge*

	 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

A BALANCED BUDGET?

Budget Expenses

	Account	Budget
19	30-810-01 W/S PROF. SERVICES	\$500.00
20	30-810-02 TOWN MANAGER SALARY	\$28,499.99
21	30-810-03 W/S EMPLOYEE SALARY	\$57,200.00
22	30-810-04 CLERK SALARY	\$37,251.88
23	30-810-05 FICA EXPENSE	\$8,703.00
24	30-810-06 W/S EMPLOYMENT TAX	\$975.00
25	30-810-07 W/S OVERTIME	\$4,500.00
26	30-810-08 MERIT BONUS	\$3,000.00
27	30-810-09 HOLIDAY/EMPLOYEE APREC	\$1,200.00
28	30-810-10 POSTAGE	\$2,700.00
29	30-810-11 Office Supplies/Repairs	\$4,700.00
30	30-810-12 PHONE	\$3,400.00
31	30-810-13 W/S UTILITES	\$30,000.00
32	30-810-14 TRAINING	\$2,400.00
33	30-810-15 Employee Screening	\$105.00
34	30-810-16 MAINT/REPAIR:SYST-EQUIP	\$30,000.00
35	30-810-17 Mayor Salary	\$1,800.00
36	30-810-18 Board Salary	\$10,500.00
37	30-810-20 W/S UNIFORMS	\$2,000.00
38	30-810-30 GAS AND OIL FOR VEHICLES	\$4,500.00
39	30-810-31 TIRES FOR VEHICLES	\$600.00
40	30-810-32 REPAIRS TO VEHICLES	\$1,000.00
41	30-810-33 SUPPLIES & MATERIALS	\$3,000.00
42	30-810-34 CHEMICALS AND SALT	\$20,000.00
43	30-810-45 CONTRACTED SERVICES	\$36,500.00
44	30-810-46 STATE PERMITS	\$1,700.00
45	30-810-48 DUES/SUBSCRIPTIONS	\$1,500.00
46	30-810-50 DEPRECIATION	\$0.00
47	30-810-54 INSURANCE	\$13,608.00
48	30-810-55 HOSPITAL INSURANCE	\$22,443.00
49	30-810-57 MISC EXPENSE	\$500.00
50	30-810-60 W/S - LGERS	\$9,272.00
51	30-810-70 WATER STUDY EXPENSES	\$24,000.00
52	30-810-74 Online Payments SVC	\$1,600.00
53	30-810-75 ARRA LOAN PRINCIPAL	\$8,875.00
54	30-810-76 PURCHASE WATER BILL	\$2,400.00
55	30-810-79 Banking Fees	\$500.00
56	30-810-89 CAPITAL OUTLAY NEW EQUIP	\$0.00
57	30-810-90 TRANSFER TO OTHER FUND	\$0.00
58	30-810-95 FINES AND PENALTIES	\$1,500.00
		\$382,932.87

Budget 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
5	30-345-01 SALES TAX REFUND	\$0.00
6	30-371-01 W/S CHARGES	\$344,445.00
7	30-371-02 W/S ADJUSTMENTS	\$0.00
8	30-373-00 TAP CONNECTIONS	\$1,500.00
9	30-373-02 SERVICE CHARGES/CUT OFFS	\$12,500.00
10	30-373-04 IMPACT FEES	\$1,000.00
11	30-373-05 CAPITAL CONTRIBUTIONS	\$0.00
12	30-374-00 Online W/S Payment Fee	\$1,600.00
13	30-375-80 Contributed Capital - G.R.S.P.	\$0.00
14	30-375-81 Contributed Capital Fund	\$0.00
15	30-377-00 RBEG - Pump Station	\$0.00
16	30-378-00 I&I Study Grant - Commerce	\$12,000.00
17	30-385-00 SALE OF ASSETS	\$0.00
18	30-386-00 TRANSFER FROM OTHER FUND	\$0.00
		\$382,932.87

**\$382,933 =
\$382,933**

But revenues and expenses can vary significantly from your budget!



WHAT CAUSES VARIATION?



Rate changes



Population change



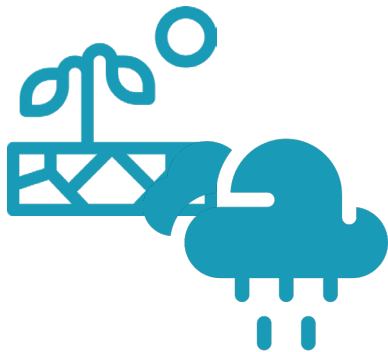
Losing a big customer



New technology



Economic conditions



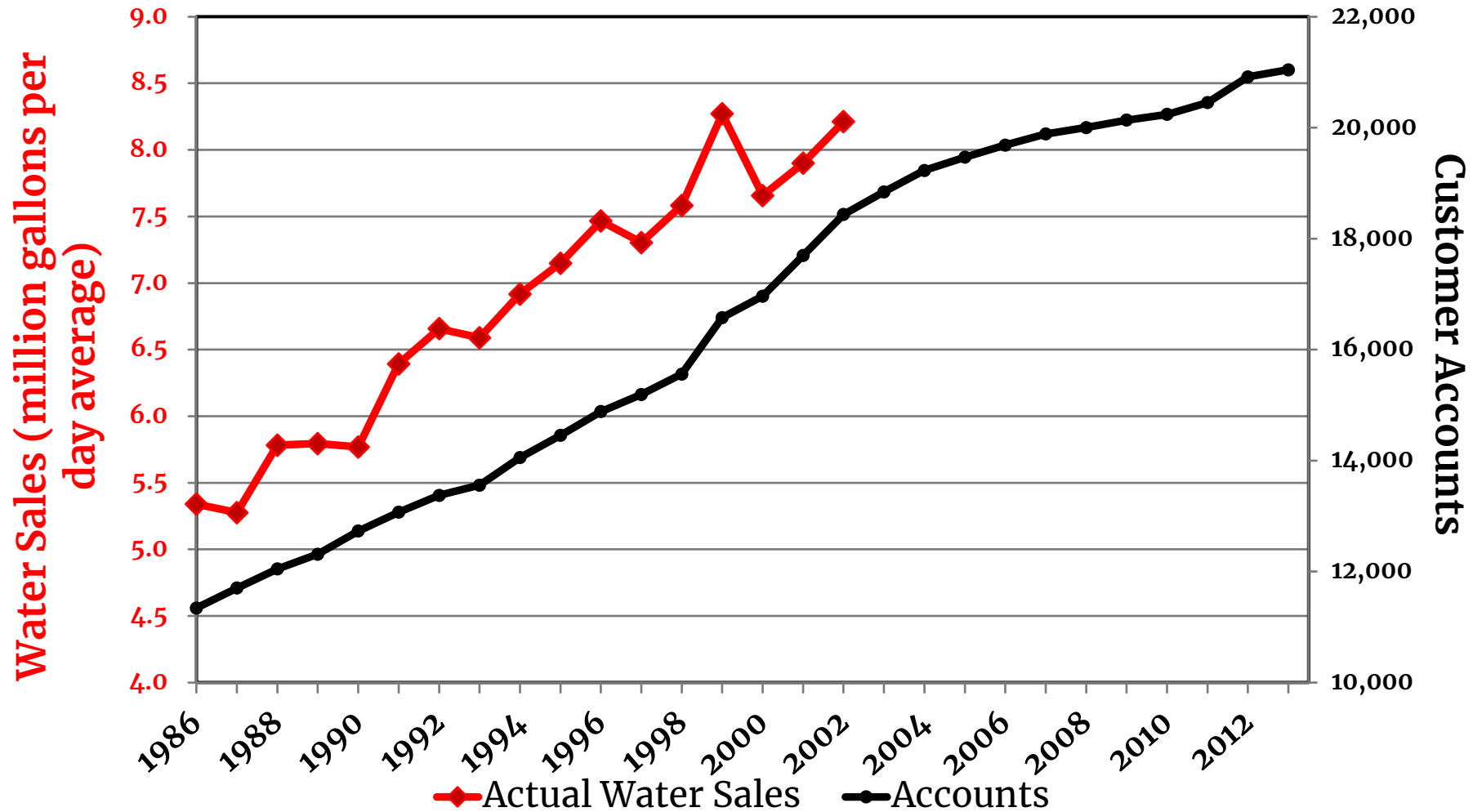
Weather



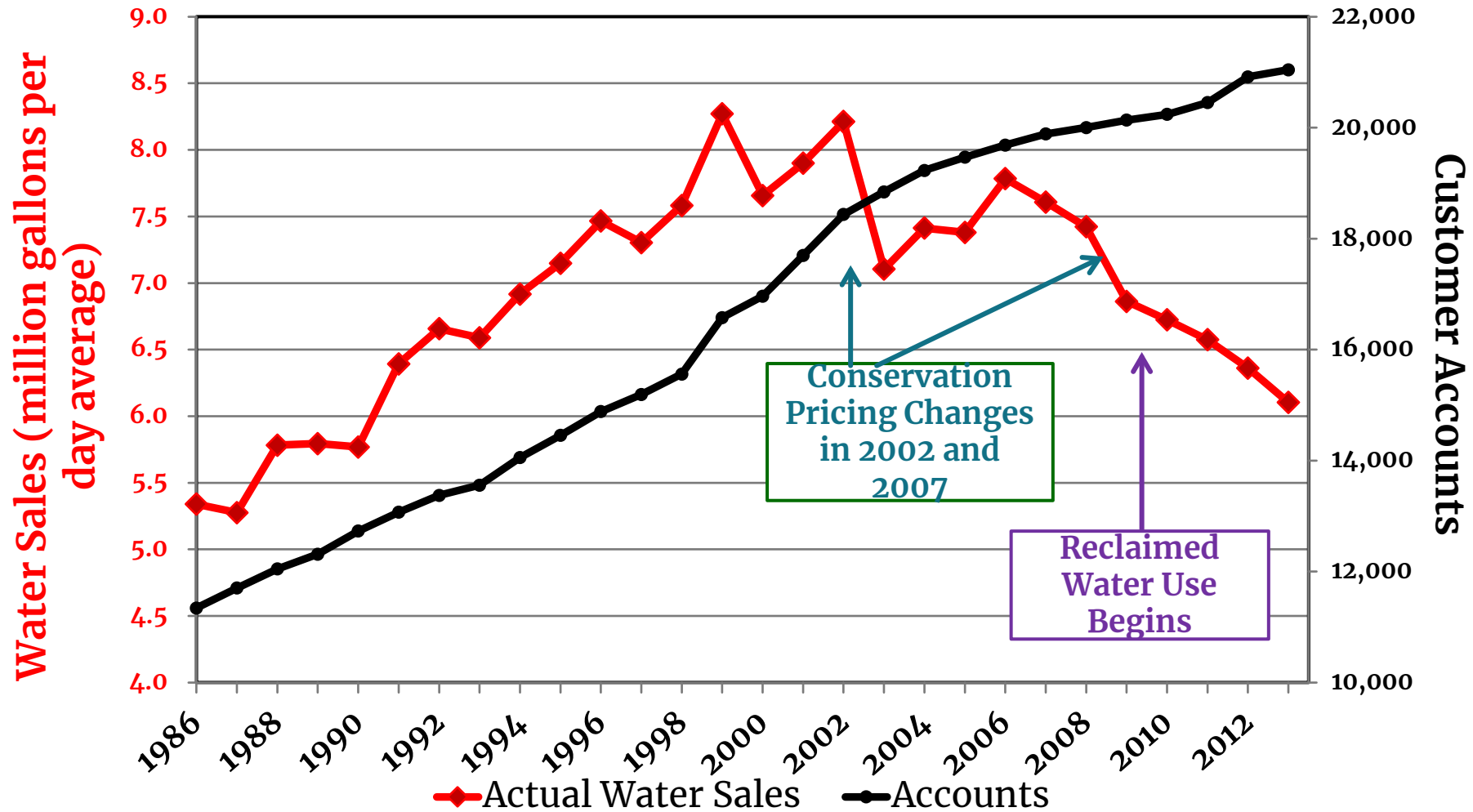
Water use restrictions



Changes in collection rates

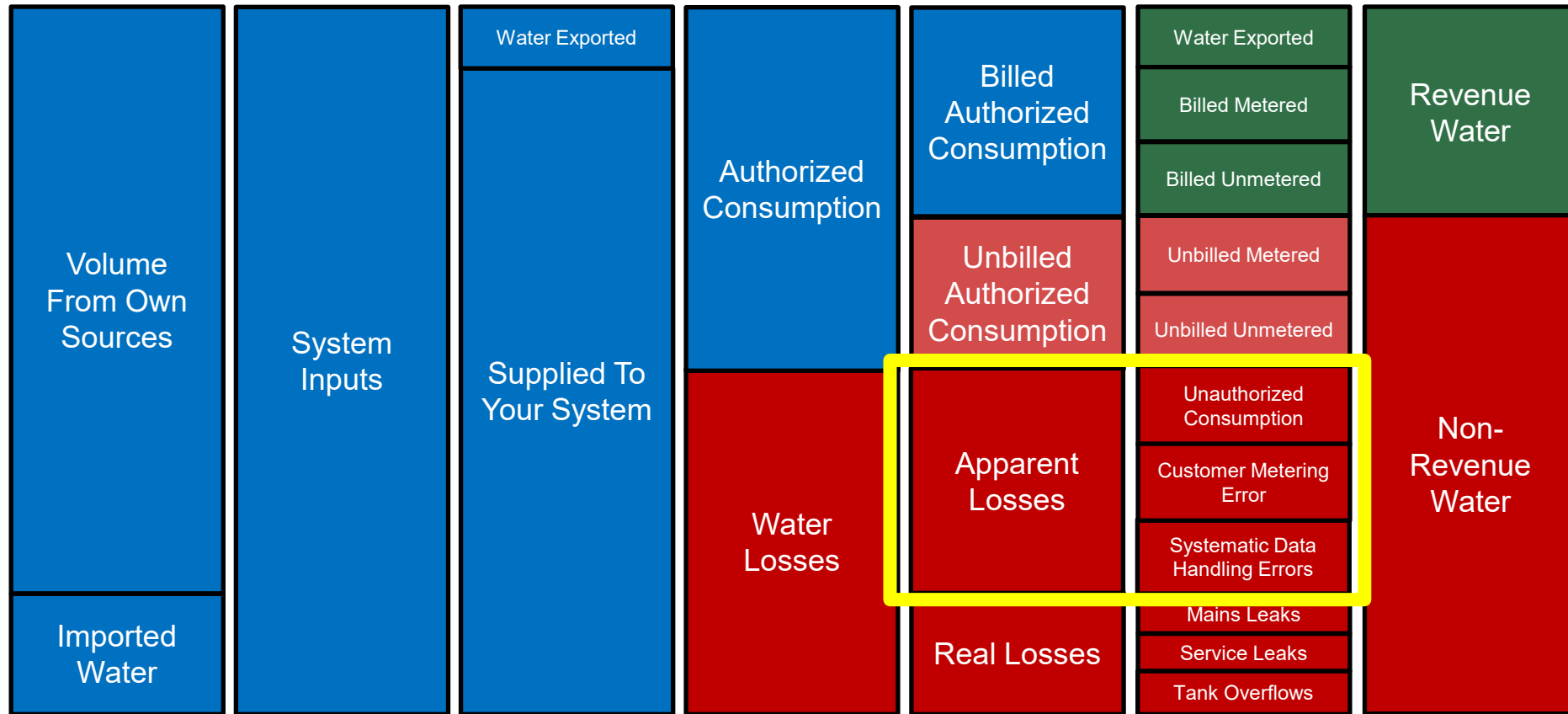


Source: Orange Water and Sewer Authority, North Carolina



Source: Orange Water and Sewer Authority, North Carolina

BILL CORRECTLY




WHAT TO DO?

- Make multiple forecasts based on different assumptions
- Ideally, be conservative
- Don't forget price elasticity!
- Use tools to stress test projections
- Give decision makers options to consider


WATER AND WASTEWATER RATES ANALYSIS MODEL

Water & Wastewater Rates Analysis Model

Version 2.8.2 (last updated August 4, 2015)



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

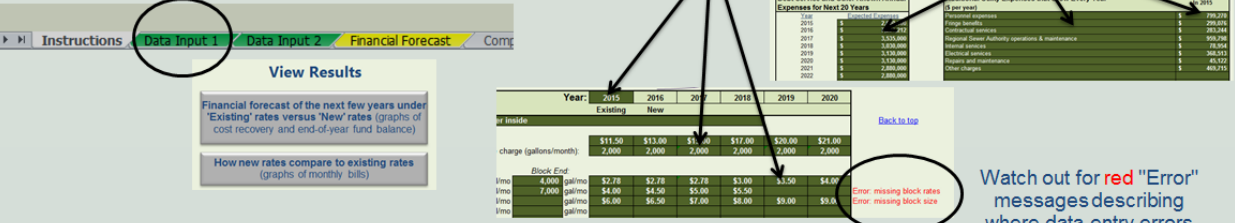
A do-it-yourself, simplified financial model to assist utility managers and private system owners in setting water and wastewater rates.

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
- Model changes to accounts and water use
- Compare monthly bills under new rates vs. existing rates
- Up to 12 rate structures
- Customizable list of operating and capital expenses
- Error notifications
- Uniform or block rates (up to 10 blocks)
- Building up reserves through rates
- Assess revenue sufficiency and fund balance

INSTRUCTIONS

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



The screenshot shows the software interface with tabs for 'Instructions', 'Data Input', 'Data Input 2', 'Financial Forecast', and 'Comp'. Below the tabs, there are sections for 'View Results' and a data table. The data table shows 'Existing' and 'New' rates for different block sizes (4,000, 7,000, 10,000 gallons/month) from 2015 to 2020. A red error message is visible: 'Error: missing block rates' and 'Error: missing block size'.

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

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

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

CONTACT US

Environmental Finance Center The University of North Carolina at Chapel Hill

Hope Thomson

Project Director

919-962-8273

hope.thomson@sog.unc.edu

Dr. El-Khattabi

Associate Director

919-962-5795

arelkhattabi@sog.unc.edu



THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

efc@unc.edu