Smart Management for
Small Water Systems

Water System Finance and Effective Communication with Boards

Tyler, TX
June 11, 2019

UNC ENVIRONMENTAL FINANCE CENTER

EFCN environmental finance center network

NADO RESEARCH FOUNDATION
NATIONAL ASSOCIATION OF DEVELOPMENT ORGANIZATIONS

Government Finance Officers Association

This program is made possible under a cooperative agreement with the US EPA.

Workshop Objectives

- Learn how to plan for and finance your water system now and into the future
- Discover tips to gain support from your Board for financial plans for your system
- Provide forum for sharing finance and management perspectives, ideas, and experiences

Housekeeping and Introductions

Water Operator CEUs

If you need a CEU certificate, you will need to confirm the following on the roster today before you leave:

- Is your name spelled correctly?
- Did you provide an email address UNIQUE TO YOU? A unique email address is required to receive your certificate.
- Did you provide your water system operator number?

Within 30 days of the training, you will receive an email with instructions to print your certificate. Emails from EFCN may be blocked or go to your Junk mail. To avoid this issue, add *Smallsystem@syr.edu* to your email Contacts or check your Junk mail frequently.

EFCN will apply to the water operator state licensing agency for CEU preapproval when applicable. You may be awarded CEUs by your agency. It is your responsibility to confirm with the agency that training meets relevancy criteria established for your license type as some agencies may not apply CEUs to your license if the training topic is not relevant to your position.

EFCN follows the IACET Standard of CEU calculation.
0.1 CEU = 1 Contact Hour or 1 Professional Development Hour

Questions? Please contact *Smallsystem@syr.edu*

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Environmental Finance Center Network (EFCN)

The Environmental Finance Center Network (EFCN) is a university-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and improvement. The EFCN works with the public and private sectors to promote sustainable environmental solutions while bolstering efforts to manage costs.

The Environmental Finance Center Network helping small water systems

- Environmental Finance Center at The University of North Carolina at Chapel Hill
- Southwest Environmental Finance Center at the University of New Mexico
- Syracuse University Environmental Finance Center
- Environmental Finance Center at Wichita State University
- EFC West
- Environmental Finance Center at the University of Maryland
- New England Environmental Finance Center at the University of Southern Maine
- Great Lakes Environmental Infrastructure Center
- Government Finance Officers Association (GFOA)
- National Association of Development Organizations (NADO)

UNC Environmental Finance Center

Southwest Environmental Finance Center

Environmental Finance Center, Syracuse University

Wichita State University, Hugo Wall School of Public Affairs, Environmental Finance Center

EFCWest, Environmental Finance Center West

University of Maryland Environmental Finance Center

New England Environmental Finance Center

Great Lakes Environmental Infrastructure Center, Environmental Finance Center for EPA Region 5

Government Finance Officers Association

NADO Research Foundation

Areas of Expertise

- Asset Management
- Rate Setting and Fiscal Planning
- Leadership Through Decision-making and Communication
- Water Loss Reduction
- Energy Management Planning
- Accessing Infrastructure Financing Programs
- Workforce Development
- Water Conservation Finance and Management
- Collaborating with Other Water Systems
- Resiliency Planning
- Managing Drought

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UNC | SCHOOL OF GOVERNMENT

Environmental Finance Center

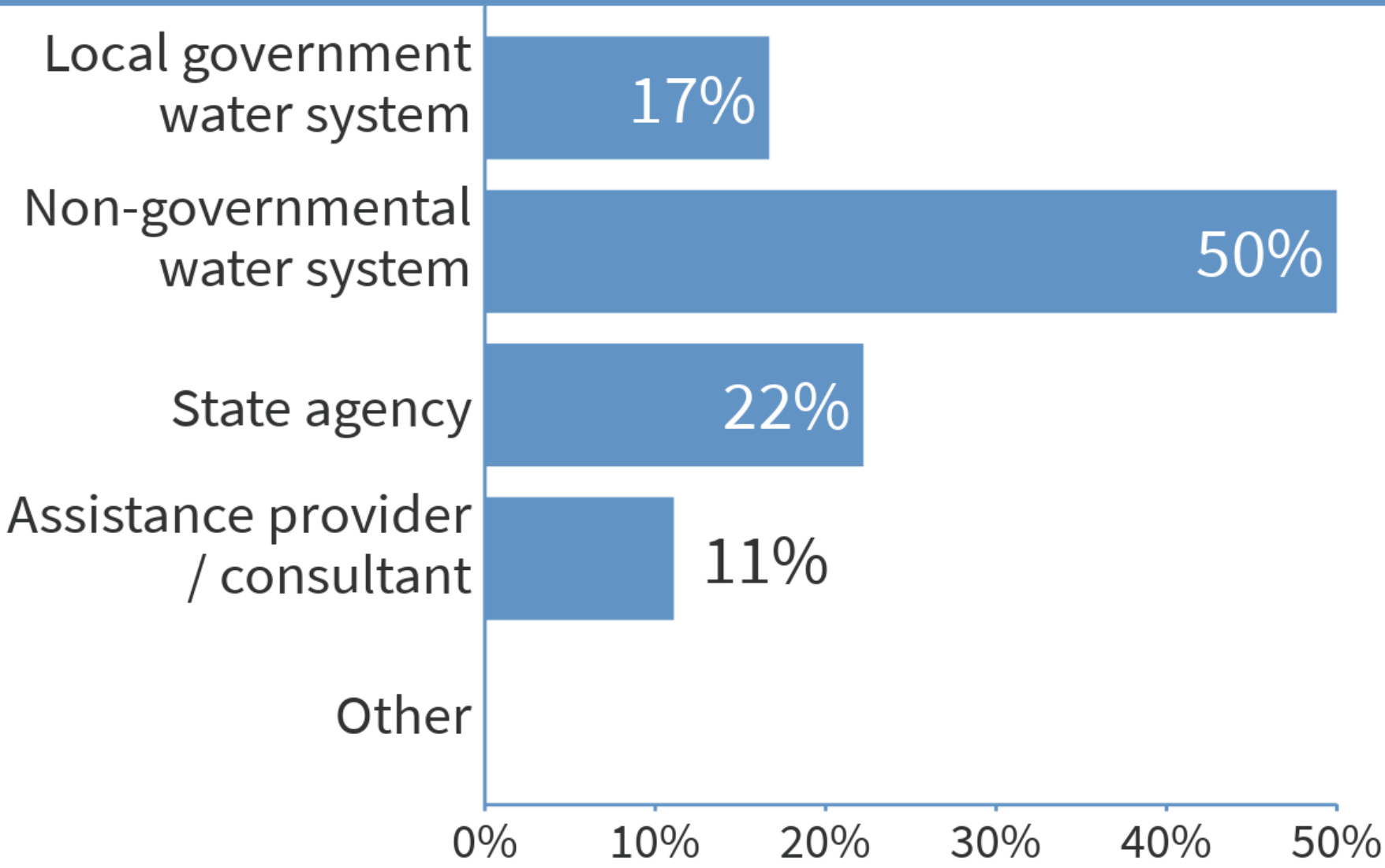
Supporting fair, effective, and financially sustainable delivery of environmental programs through:

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

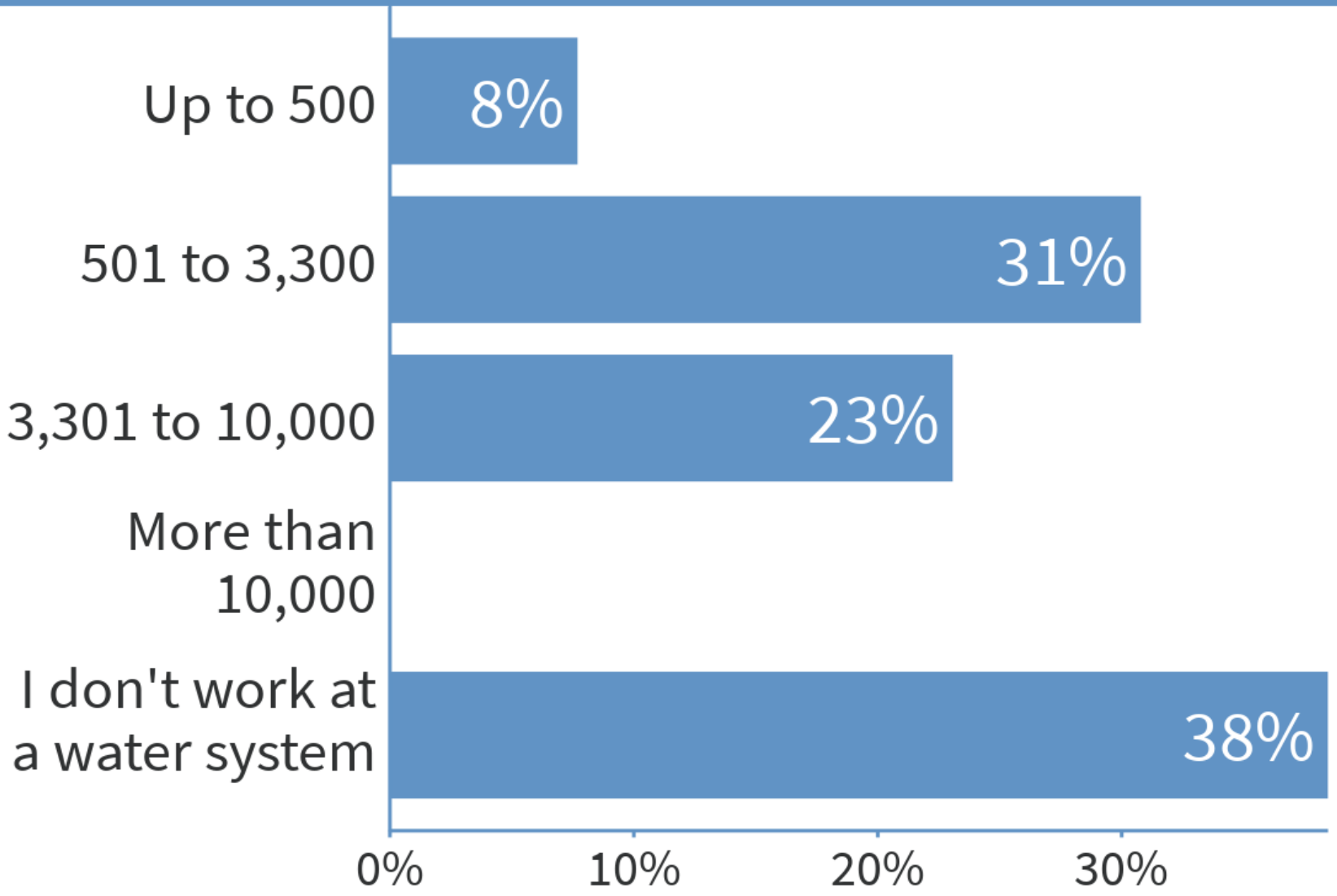
How you pay for it matters

Environmentalfinance.org

What organization do you work for?



How many people do you serve?



Workshop Agenda

- Basics of water system finance
- Designing appropriate rate structures
- Assessing financial performance
- Long-term financial planning
- Effective communication with the Board
- Funding programs

Basics of Water System Finance

Session Objectives

- Learn how to think about your water system as a financial entity
- Define some basic financial concepts
- Identify what might be missing in budgets

What does your water system do?

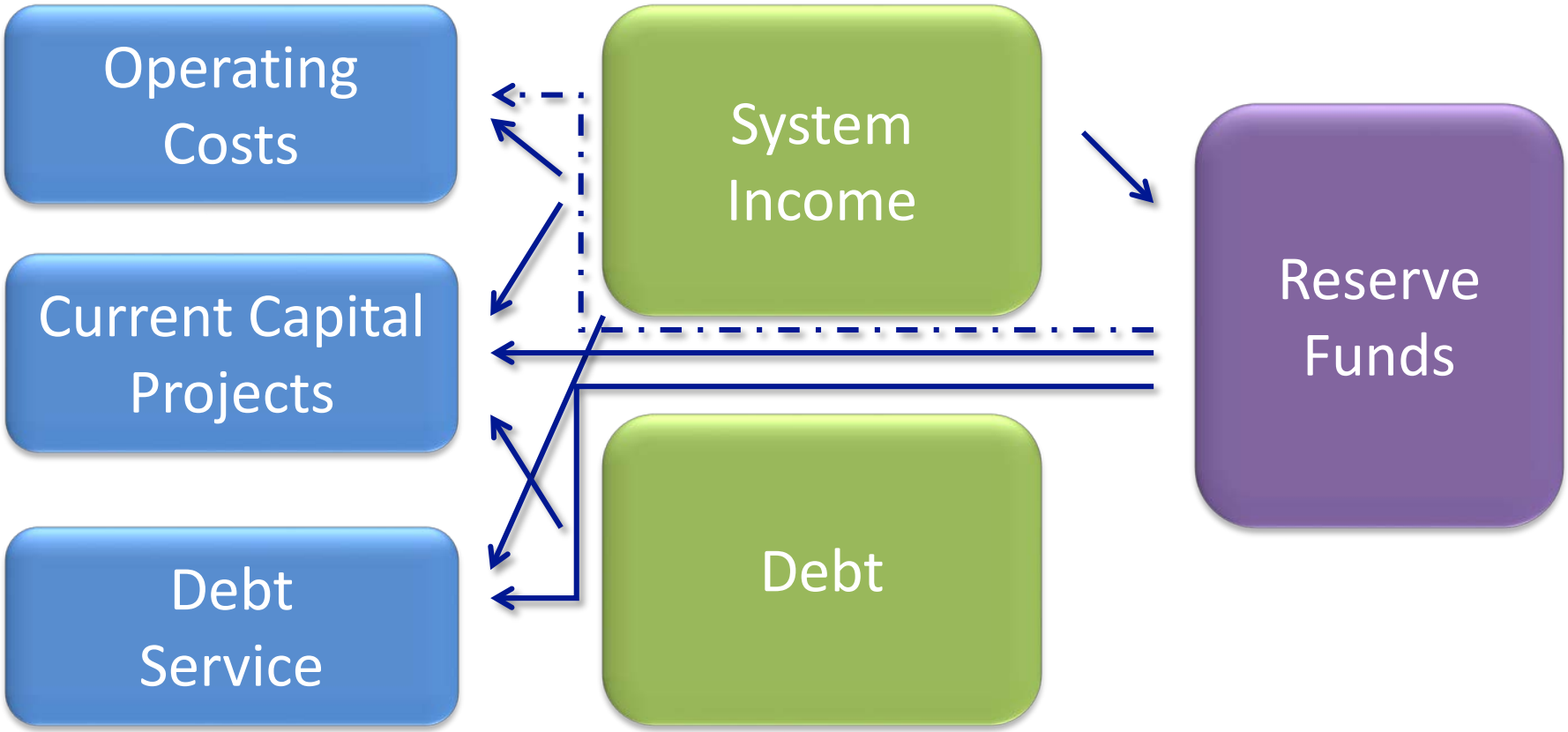
Water systems can serve multiple purposes

1) System serves an important **environmental and health purpose** -- protecting community's water resources and supplying community with highest quality drinking water.

2) System serves an important **public service** – providing community with basic services that everyone in the community can afford.

3) System serves as a well managed **public enterprise** – putting into practice forward-thinking sustainable business practices.

Water System Finance Diagram



Three Types of Costs

- 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 in some States).

- 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 shortfalls

How Much Do You Need In Your Reserves?

- Beyond what is needed for debt service, it depends

- Enough to pay for your most expensive piece of equipment?
- Enough to cover your costs if you had no revenue for two months?
- Enough to cover the projects in your capital improvement plan?

Annual Budget

- All costs become part of the annual budget for the water system
- Budgeted expenses determine the budgeted (targeted) revenues for the upcoming year
- The budget is crucial in determining appropriate rates, so must be both *accurate* and *complete*
  - Some budgets may be missing important expenses

Irvindale 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

What catches your attention?

Anything surprise you?

Costs that may be overlooked in budgets

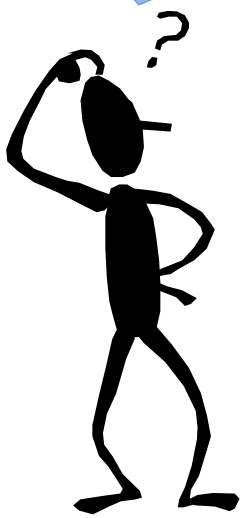
- Indirect costs of running the system (shared management costs, shared facility costs, etc.)
- Capital-related costs (debt service, **depreciation**, sinking fund transfers, pay as you go capital expenditures)
- Retirement/pension

Designing Appropriate Rate Structures

Session Objectives

- Introduce “right” rates
- Understand common types of rate setting objectives
- Learn how to match rate structure elements with rate setting objectives

Are our rates right?



It depends...

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There is no one rate structure that works perfectly for all utilities

Rates that are “right” can:

- ✓ Provide adequate funds to support public health
- ✓ Provide adequate funds to support environmental protection
- ✓ Support local and state policies and objectives
- ✓ Communicate in a certain way with customers
- ✓ Allocate costs in an intentional and fair way

Terminology for Rate Structures

Base Charge

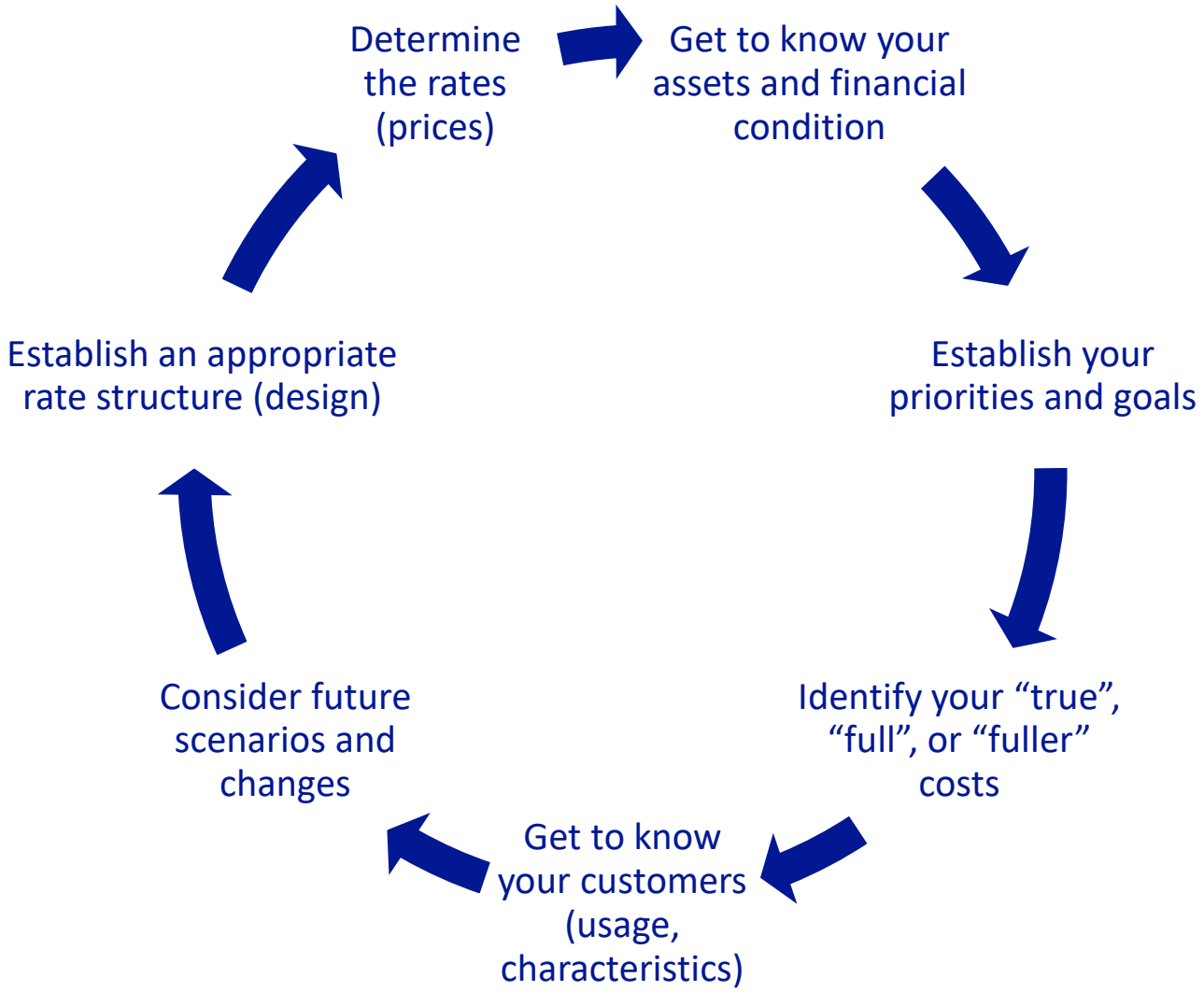
Consumption Allowance

$ 32.00 / month, includes the first 2,000 gallons
+ $ 2.00 / 1,000 gallons for use between 2,000 and 5,000 gallons
+ $ 5.00 / 1,000 gallons for use between 5,000 and 20,000 gallons
+ $ 6.00 / 1,000 gallons for all use above 20,000 gallons

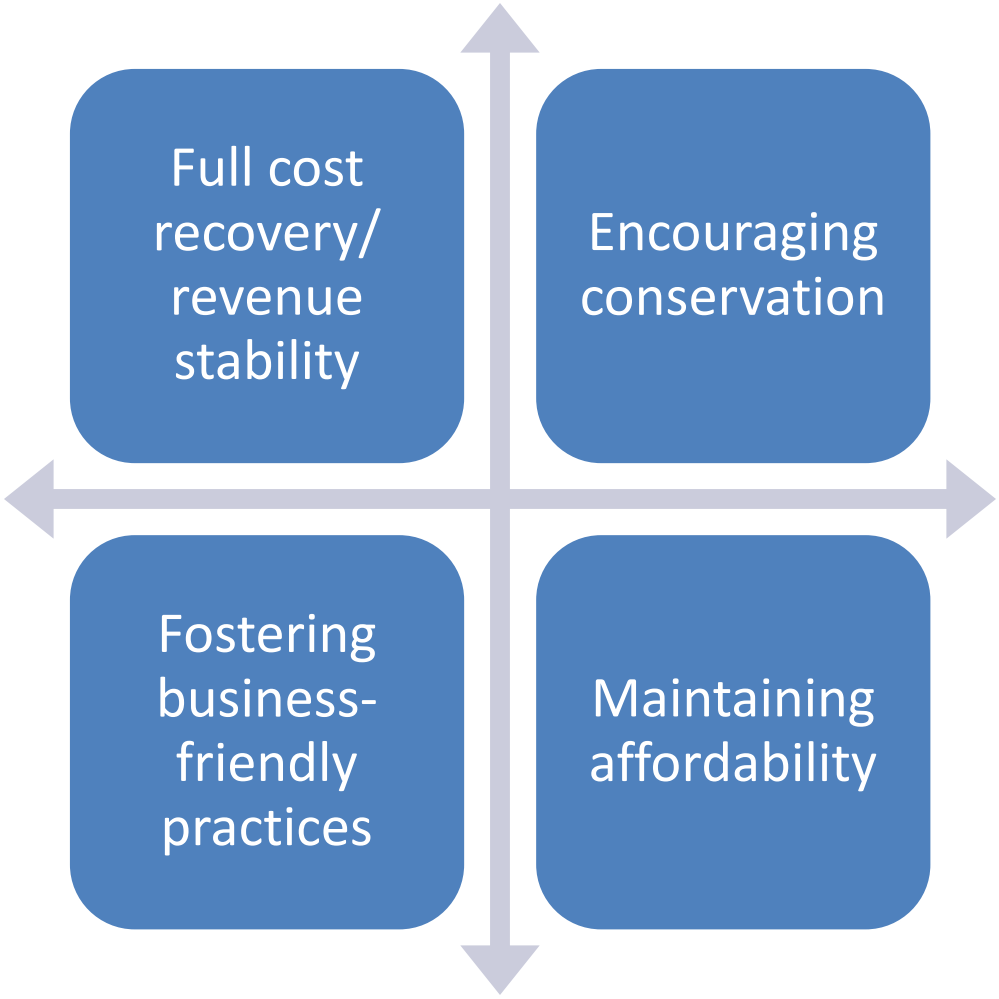
Volumetric Rates

Blocks

Path Towards Financial Sustainability



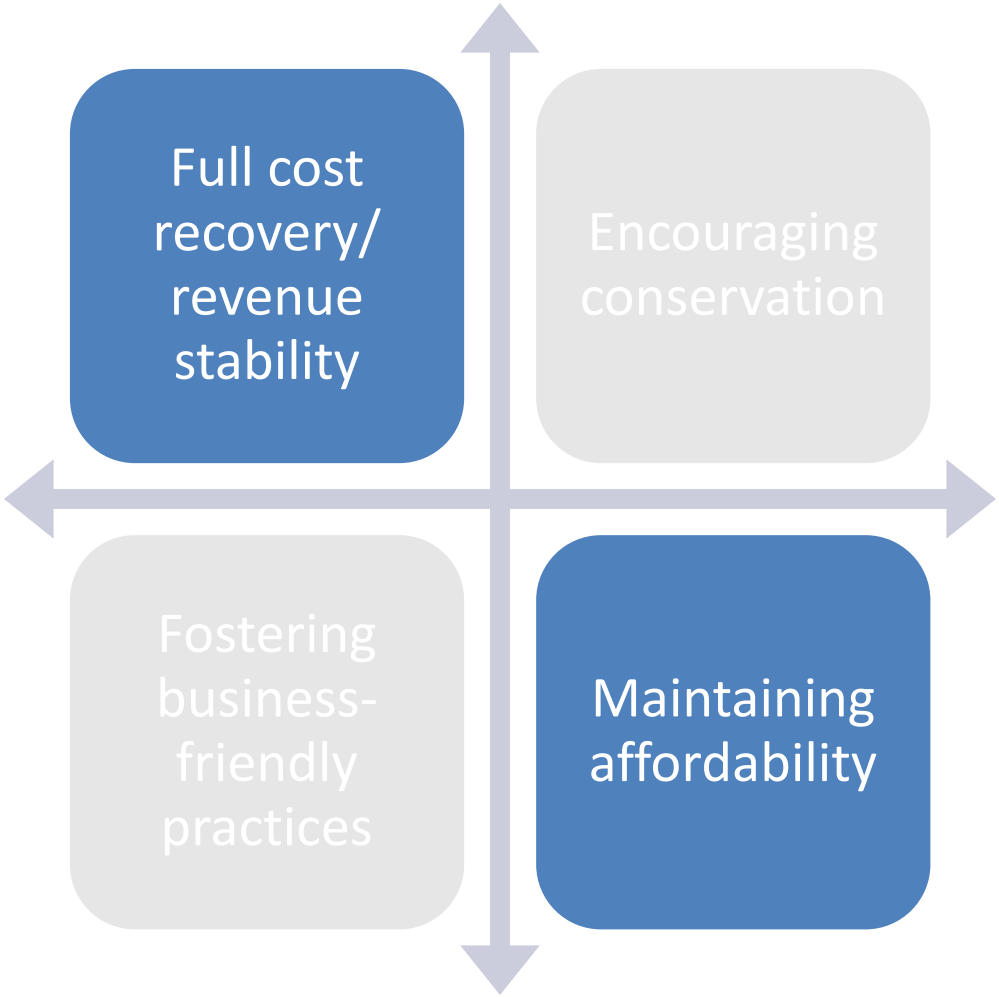
Examples of water system objectives



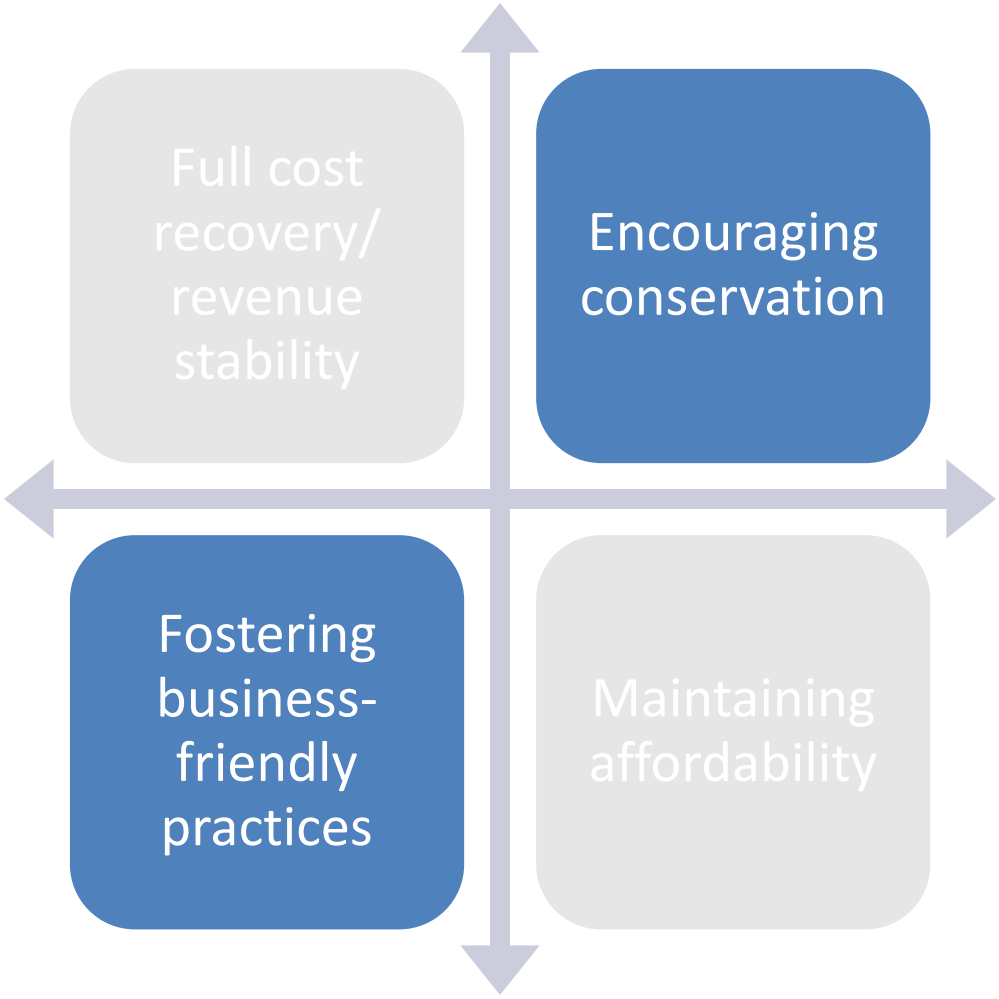
What are some other objectives?

- Keep it simple
- Charge seasonal customers fairly
- Maintain steady cash flow
- ?
- ?

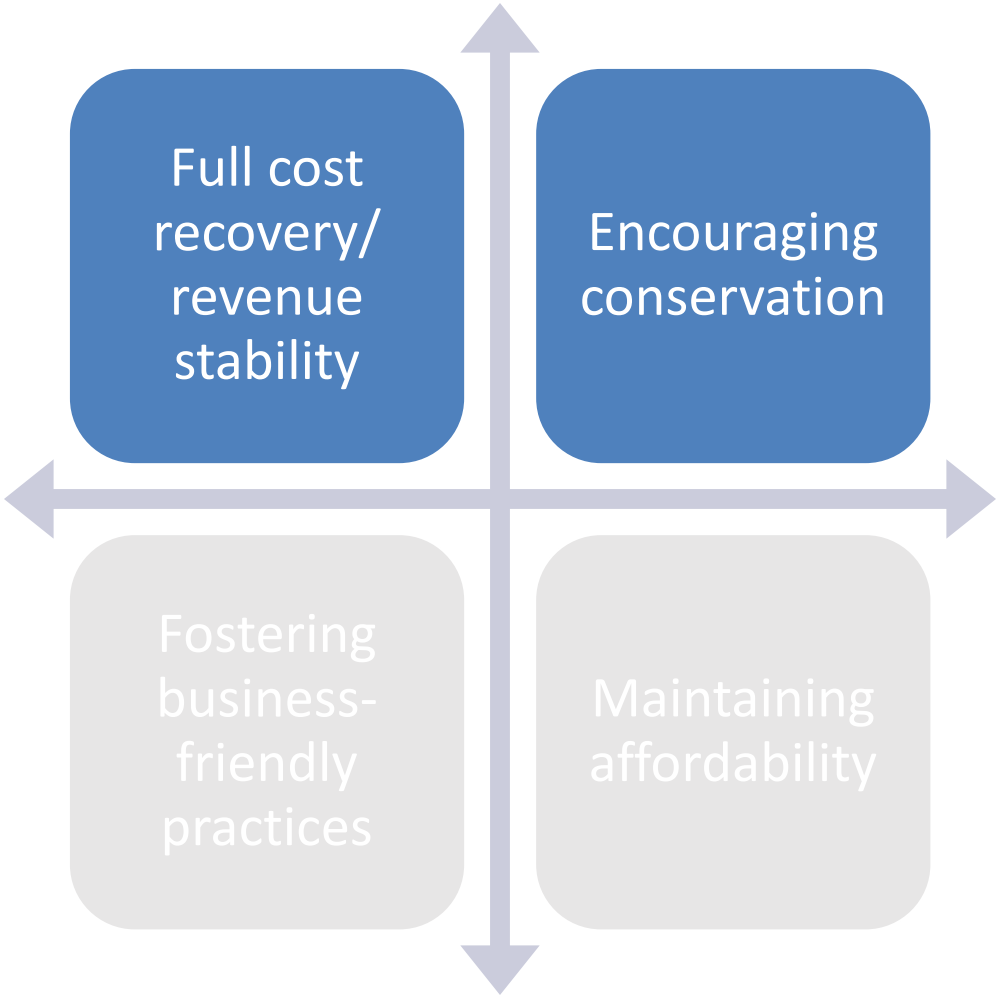
Competing Objectives



Competing Objectives



Competing Objectives



Get to know your customers and future scenarios

- How are your customer demands changing?
- Do you expect to meet demands comfortably?
- What is the make-up of your served community?

  Serve many large families? What is the community's ability to pay? Is it a seasonal community? Is there growth or decline in customers? Does a large fraction of your revenues come from a small number of customers? What is the mix of residential and non-residential customers? Who are your biggest customers?
- How often have customers been unable to afford their bills?

Get to know your costs and future scenarios

- In the past few years, how much of your revenues and costs were fixed vs. variable?
- How have your operating expenses changed recently?
- Do you know what your capital expenses and debt service payments will be going forward?

Elements of Rate Structure Designs

1. Customer classes/distinction
2. Billing period
3. Base charge
4. Consumption allowance included with base charge
5. Volumetric rate structure
6. (If applicable) Number of blocks, block sizes and rate differentials
7. (Optional) Automatic adjustments

Also: frequency of rate reviews and rate changes

Elements of Rate Structure Designs: 1. Customer Classes/Distinction

Alternative	Targets
One rate structure for all	All are equal
Separate rate structure for residential, irrigation, commercial, industrial, governmental, or wholesale customers	Specific type of customer
One rate structure, but with different base charges based on meter size	Non-residential or multi-family housing
One rate structure for all, but with blocks that implicitly only target non-residential use	Non-residential
Negotiated rate structure with individual high-use customers (typically an industrial customer)	Only one customer
Different rates for customers outside municipal limits/service area boundaries	“Outside” customers

Elements of Rate Structure Designs: 2. Billing Period

	More Frequently (e.g.: Monthly)	Less Frequently (e.g.: Quarterly)
UTILITY	Steady monthly revenue stream; Rate changes effected quicker; Lost revenues from unpaid bills smaller; Communicate with customer more frequently	Less staff and lower billing costs; Possibly fewer late payments and cutoffs to deal with
CUSTOMER	Smaller, more regular bills (easier to pay); Higher and faster sensitivity to use and rate changes (leaks, conservation); More sensitive to rate structure design and less confusion	None except for the hassle of more frequent billing

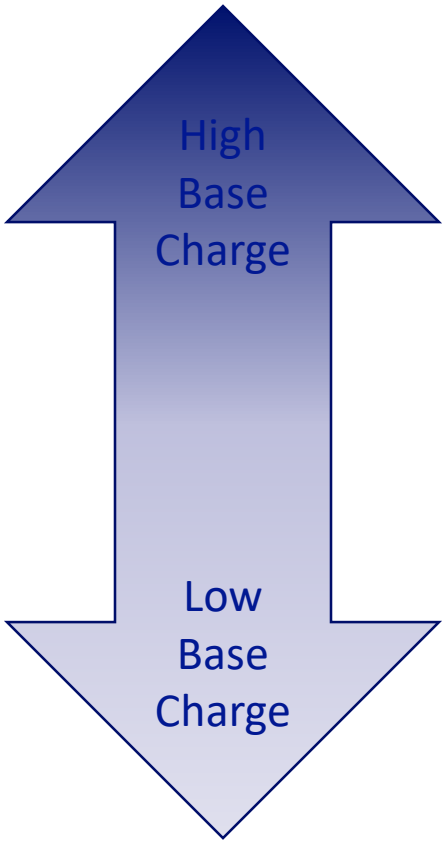
Suggestion: Use a monthly billing period if you can afford it

Elements of Rate Structure Designs: 3. Base Charges

PROS

Higher "guaranteed" revenue to pay off the fixed costs;
Higher month-to-month revenue stability

Provides strong incentive to keep use low;
Customers more likely to notice month-to-month change in bill due to change in use



CONS

Customers with very low use are paying a high unit price;
Customers do not witness a significant change in bill if conserve water

Revenues less stable for utility;
Revenues are highly seasonal

Suggestion: Smaller utilities with high fixed costs should lean towards higher base charges

Elements of Rate Structure Designs: 3. Base Charges

Two common ways to charge:

- Constant (by customer class): $35.00/month
- By meter size:
  - $35.00/month for 5/8” or ¾” meter
  - $55.00/month for 1” meter
  - $105.00/month for 2” meter, etc.

Elements of Rate Structure Designs: 4. Consumption Allowance with Base Charge

Bills and revenues are more sensitive to use changes

Provides a lifeline amount of water to offset some of the effects of high base charges

Provides a greater offset for the customer, but discourages conservation

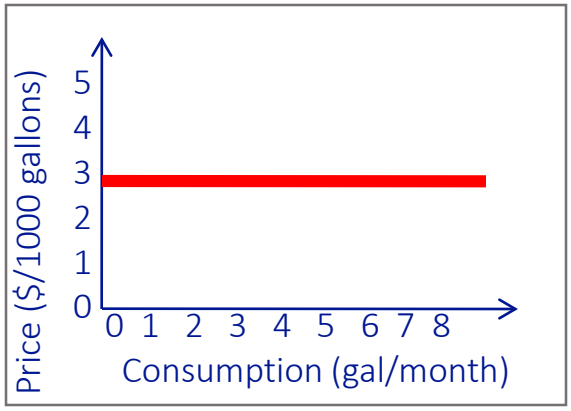
Do not include any
(0 gallons)

Include some amount
(e.g.: 1,000 gallons/month)

Include high amount
(e.g.: 3,000 gallons/month)

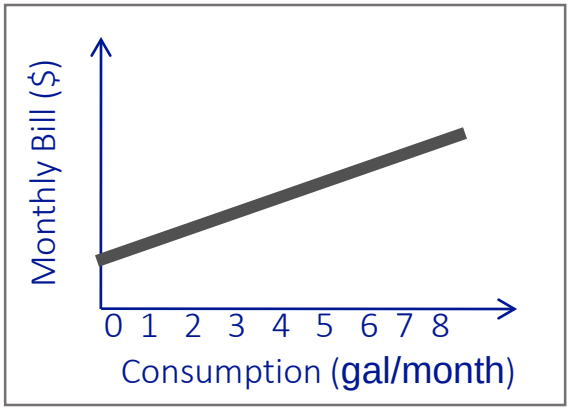
Suggestion: For systems with low base charges, do not include any consumption allowance. For systems with high base charges but wish to encourage conservation, keep consumption allowance low, if any.

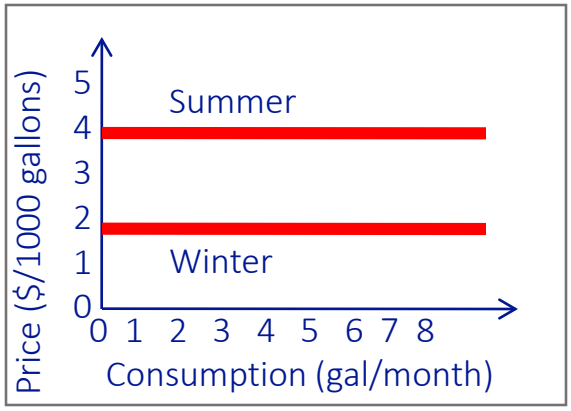
Elements of Rate Structure Designs: 5. Volumetric Rate Structure



Uniform ("Flat") Rates

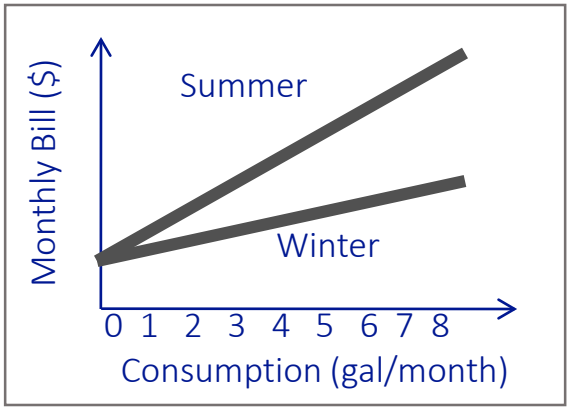
Simple and Fair





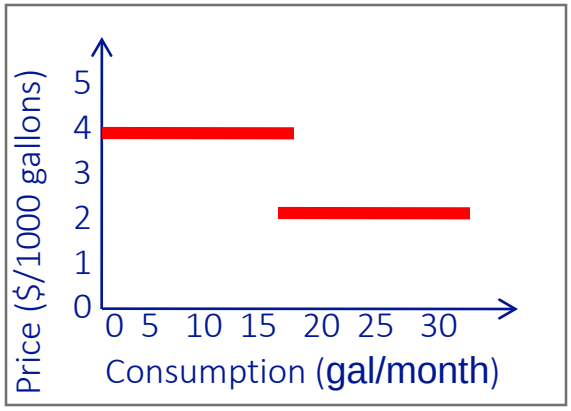
Seasonal (Uniform) Rates

Conservation-oriented, good for seasonal communities



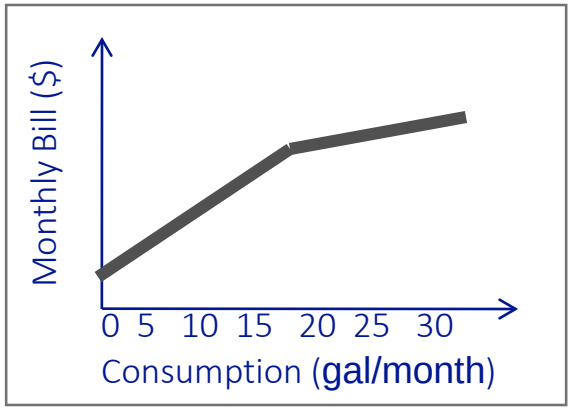
Suggestion: Pick the volumetric rate structure that fits your stated primary objectives best. Do not use decreasing blocks for residential consumption.

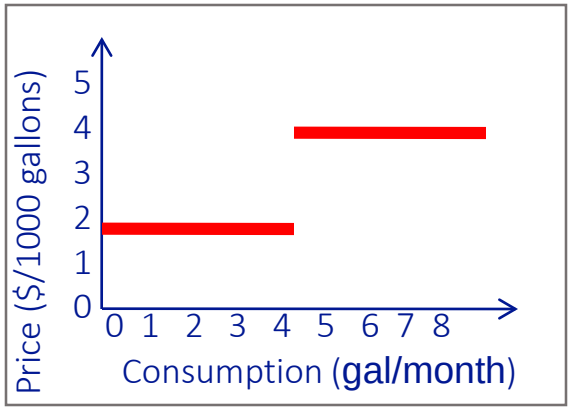
Elements of Rate Structure Designs: 5. Volumetric Rate Structure



Decreasing Block Rates

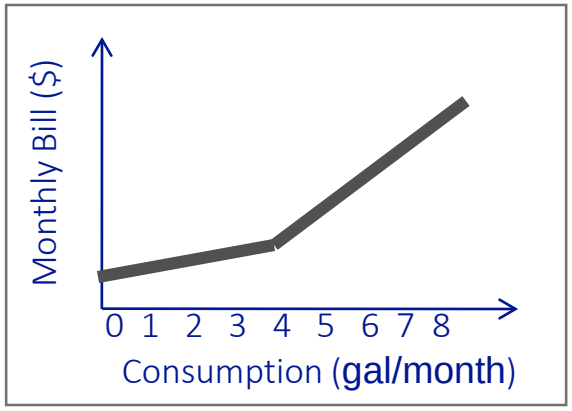
Provide price break for large users (e.g.: commercial). Not recommended for residential.





Increasing Block Rates

Conservation-oriented. Consider large families.



Suggestion: Pick the volumetric rate structure that fits your stated primary objectives best. Do not use decreasing blocks for residential consumption.

Elements of Rate Structure Designs: 5. Volumetric Rate Structure

Another rate structure option:

Non-volumetric. Only charge a periodic fixed (base) charge and not based on volume, or include water with rent.

Not reading meters. Simplest and cheapest option.
Gives the customer zero financial incentive to be efficient in their water use while utility incurs

Elements of Rate Structure Designs: 6. (If Applicable) Block Designs

For block rate structures to be effective:

- Decide on the correct number of blocks

  How many targets should you set on residential use? Do you want all non-residential use to be charged at a uniform rate, or provide blocks for non-residential use as well?

- Decide on where the blocks should end/start

  Start the second block only where summertime residential use ends and non-residential use continues (i.e.: charge residential use at uniform rates)? Set increasing block rates for residential customers where the blocks end at average use (e.g.: 5,000 gal/month), then double it (e.g.: 10,000 gal/month), and then over that (to target irrigation use more specifically)?

Elements of Rate Structure Designs: 6. (If Applicable) Block Designs

For block rate structures to be effective:

- Set significant rate differentials between blocks

  Charging only 50 cents/1,000 gallons more in one block than in the preceding block defeats the purpose of using an increasing block rate structure. If you select a block rate structure, select significant rate differentials to see any added value of your rate structure.

- Keep in mind your base charge and consumption allowance

  High base charges and consumption allowances may be significant portions of the total bill, greatly diluting the effect of an increasing block rate structure on providing incentives to conserve. Offset high base charges by reducing the consumption allowance, or setting high block rates.

Elements of Rate Structure Designs: 6. (If Applicable) Block Designs

For block rate structures to be effective:

- Meter reading must be punctual

  If the meter is read a few days too late, it may unjustly place the last few days' of a customer's use in a higher block.

- Replace meters frequently and repair lines quickly

  Faulty meters or leaking pipes will cause the customer to be billed at the wrong block levels, costing either the utility lost revenue or the customer more.

Elements of Rate Structure Designs: 6. (If Applicable) Block Designs

For block rate structures to be effective:

- Consider the adverse effect on large families

  Large families consistently use high amounts of water throughout the year and may not have capacity to conserve. An increasing block rate structure therefore negatively affects the customer, without achieving any conservation objectives. Investigate your billing records to estimate the number of residential accounts that consistently use high amounts of water and use this knowledge to select the appropriate block sizes to mitigate this effect. Consider using uniform rates or budget-based rate structures if the community has many large families.

Elements of Rate Structure Designs: 7. (Optional) Automatic Adjustments

- Prepare for drought in advance: create an ordinance to give the utility the ability to raise rates temporarily during a water shortage scenario (sometimes called “drought surcharges”).
- Specify the potential rate increases precisely.
- Rate increases should be substantial to encourage conservation.
- Explicitly state the conditions that would trigger the temporary rate changes on and off. Tie the triggers to your water shortage response plans and water reservoir/well levels.

Note: Temporary rate increases that are significant in magnitude have been shown to be effective methods of encouraging conservation while recovering lost revenue.

Exercise:

Matching rate setting objectives and rate structures with the circumstances of small water systems

Scenario: Groundwater System with a Very Small Customer Base

High fixed costs, small number of customers

- High base charges, possibly with a consumption allowance.
- Monthly billing if very small number of customers; bi-monthly if cost savings outweigh cash flow stability (phase the meter reading over the two months)

Warning: No one rate structure design fits all utilities, even in this scenario.

Scenario: Small, Purchase Water System

High variable costs, small number of customers

- Lower base charges (sufficient to pay off the monthly fixed/minimum charge to the seller utility plus at least most of own fixed costs),
- No consumption allowance (unless included by the seller utility)
- High volumetric rates that exceed the variable rates you are paying the utility

Warning: No one rate structure design fits all utilities, even in this scenario.

Scenario: Worried About Affordability of Rates for Residential Customers

- Do not compromise revenue sufficiency to maintain artificially low rates
- Create separate residential rate structure:
  - Low base charges with no consumption allowance
  - Increasing block rates with a first block only up to lifeline amount (~ 2,000 gallons/month)
  - Relatively steep increases in rates between blocks
  - Monthly billing
- Consider separate “Customer Assistance Programs”
- Find out if it is legal to charge different rates for low-income or fixed-income customers (in many cases, it is not)

Warning: No one rate structure design fits all utilities, even in this scenario.

Scenario: Water Demands are Decreasing

- Increase base charges and the percent of revenues from fixed charges.
- If using block rates, considering consolidating some of the blocks and/or decreasing the size of the blocks accordingly, or switching to a uniform rate structure.

Warning: No one rate structure design fits all utilities, even in this scenario.

Scenario: Want to Encourage Conservation

- Monthly billing
- Lower base charge with no consumption allowance, higher volumetric rates
- Uniform rates, increasing block rates, or budget-based rates.
- Seasonal rates during peak demand season.
- Many, small block sizes and steep differentials in rates between blocks. Low rate for the first block.
- Have a water shortage rate structure

Warning: No one rate structure design fits all utilities, even in this scenario.

Scenario: Have Highly Seasonal Demands

Resorts, second home communities, etc.

- Charge a base charge year-round
- Consider seasonal rate structure: higher rates during high season(s)
- If seasonal demand is due to irrigation water, have a separate irrigation rate structure where rates are higher than standard water rates

Warning: No one rate structure design fits all utilities, even in this scenario.

Rate Setting Resources

http://www.awwa.org

EPA United States Environmental Protection Agency

Setting Small Drinking Water System Rates for a Sustainable Future

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

https://www.epa.gov/dwcapacity/resources-setting-small-system-water-rates-0

Various Decision-Making Tools

http://www.efc.sog.unc.edu/project/utility-financial-tools

or http://efcnetwork.org/resources/tools/

The EFC has created several free tools to assist water utilities in addressing the challenges and questions we commonly see in our teaching and advising. These tools cover a broad range of finance and management topics, including rates and revenue, financial benchmarking, affordability, capital finance, communicating with the board, and evaluating loans and grants.

Rates and Revenue

Water and Wastewater Rates Analysis Model

Usethistool to review your rates to ensure projected revenues cover projected expenses. This tool will help you determine whether proposed rates will keep the utility financially self-sufficient for the next few years.

Water Utility Revenue Risk Assessment Tool

Use this tool to assess how much revenues might be affected by changing demand patterns. The tool will help you compare effects on existing rates and on alternative rate structures.

Benchmarking

Financial Sustainability and Rates Dashboards

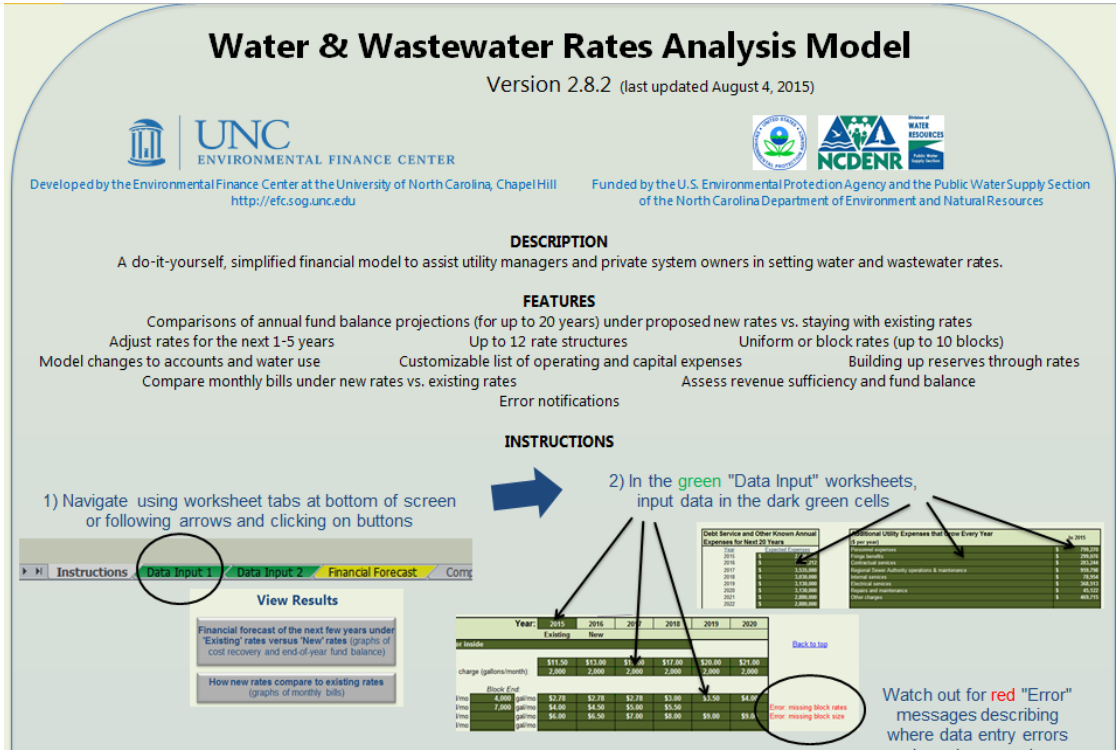
Our flagship tools for water utilities, these interactive dashboards allow you to benchmark your utility's rates against other utilities with similar characteristics. The dashboards also help you evaluate rates, cost recovery, affordability, pricing signal, and other financial benchmarks. Use the dashboards to communicate important information about your rates with your board, the media, and the public.

Water & Wastewater Rates Analysis Model

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

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

Free, simplified Excel tool allowing you to model and compare two rate structures on your projected fund balance



Assessing Financial Condition

Session Objectives

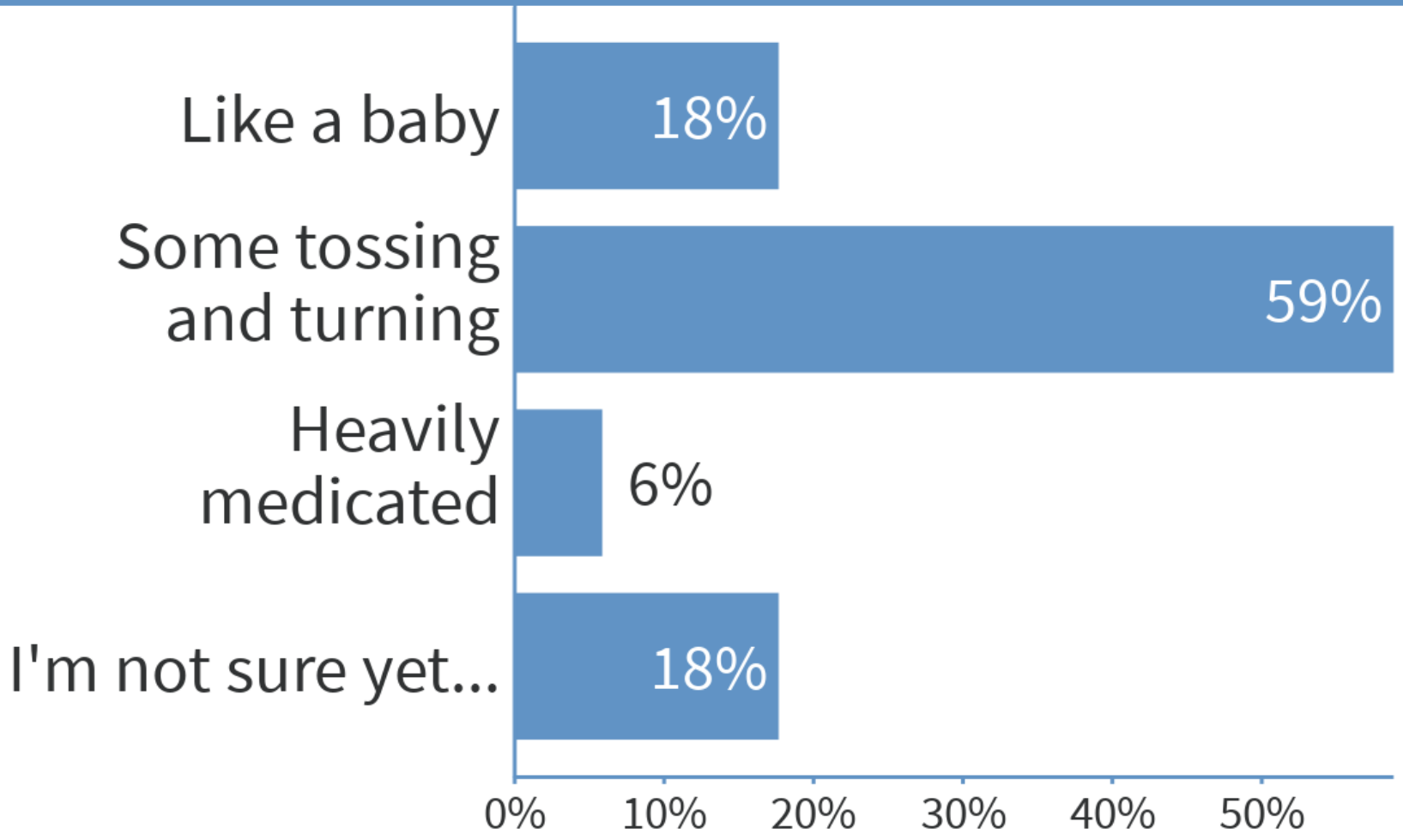
- Understanding where your water system is right now financially

- Learn some standard measures that funders will be concerned with

Can you sleep at night?

- Is your water system self-sufficient?
- Are you able to cover your debt service after paying for your day-to-day operations?
- If your customers stop paying their bills, how long can you maintain operations?
- Can your system meet its short term obligations?
- How much of your utility's expected life has already run out (and how much is left)?

In terms of your water system's finances, how well do you sleep at night?



Whiteboard Video: Financial Benchmarking

http://www.waterrf.org/Pages/Projects.aspx?PID=4366

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

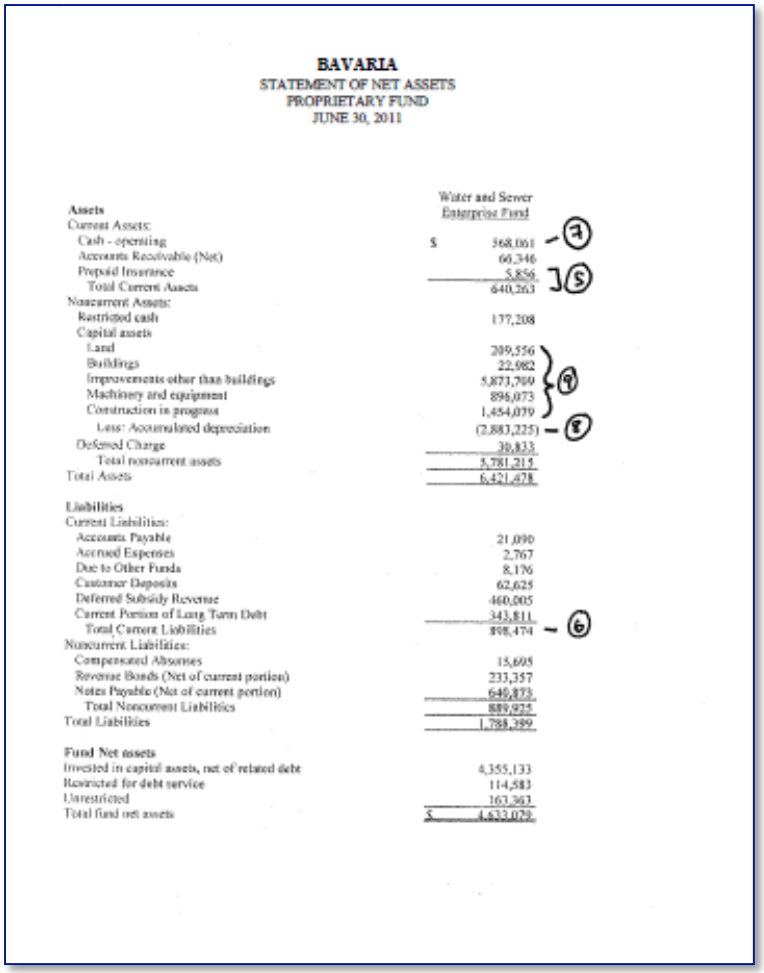
Where do we get started?

Local governments:

annual audited financial statements

Non-governments:

balance sheets, shareholder reports, annual reports, etc.



BAVARIA
STATEMENT OF NET ASSETS
PROPRIETARY FUND
JUNE 30, 2011

	Water and Sewer Enterprise Fund
Assets	
Current Assets:	
Cash - operating	$ 368,061
Accounts Receivable (Net)	66,346
Prepaid Insurance	5,856
Total Current Assets	640,263
Noncurrent Assets:	
Restricted cash	177,208
Capital assets	
Land	209,556
Buildings	22,982
Improvements other than buildings	5,873,769
Machinery and equipment	896,073
Construction in progress	1,454,079
Less: Accumulated depreciation	(2,883,225)
Deferred Charge	30,833
Total noncurrent assets	5,781,215
Total Assets	6,421,478
Liabilities	
Current Liabilities:	
Accounts Payable	21,090
Accrued Expenses	2,767
Due to Other Funds	8,176
Customer Deposits	62,625
Deferred Subsidy Revenue	460,005
Current Portion of Long Term Debt	343,811
Total Current Liabilities	898,474
Noncurrent Liabilities:	
Compensated Absences	15,695
Revenue Bonds (Net of current portion)	233,357
Notes Payable (Net of current portion)	646,873
Total Noncurrent Liabilities	889,925
Total Liabilities	1,788,399
Fund Net assets	
Invested in capital assets, net of related debt	4,355,133
Restricted for debt service	114,583
Unrestricted	163,363
Total fund net assets	$ 4,633,079

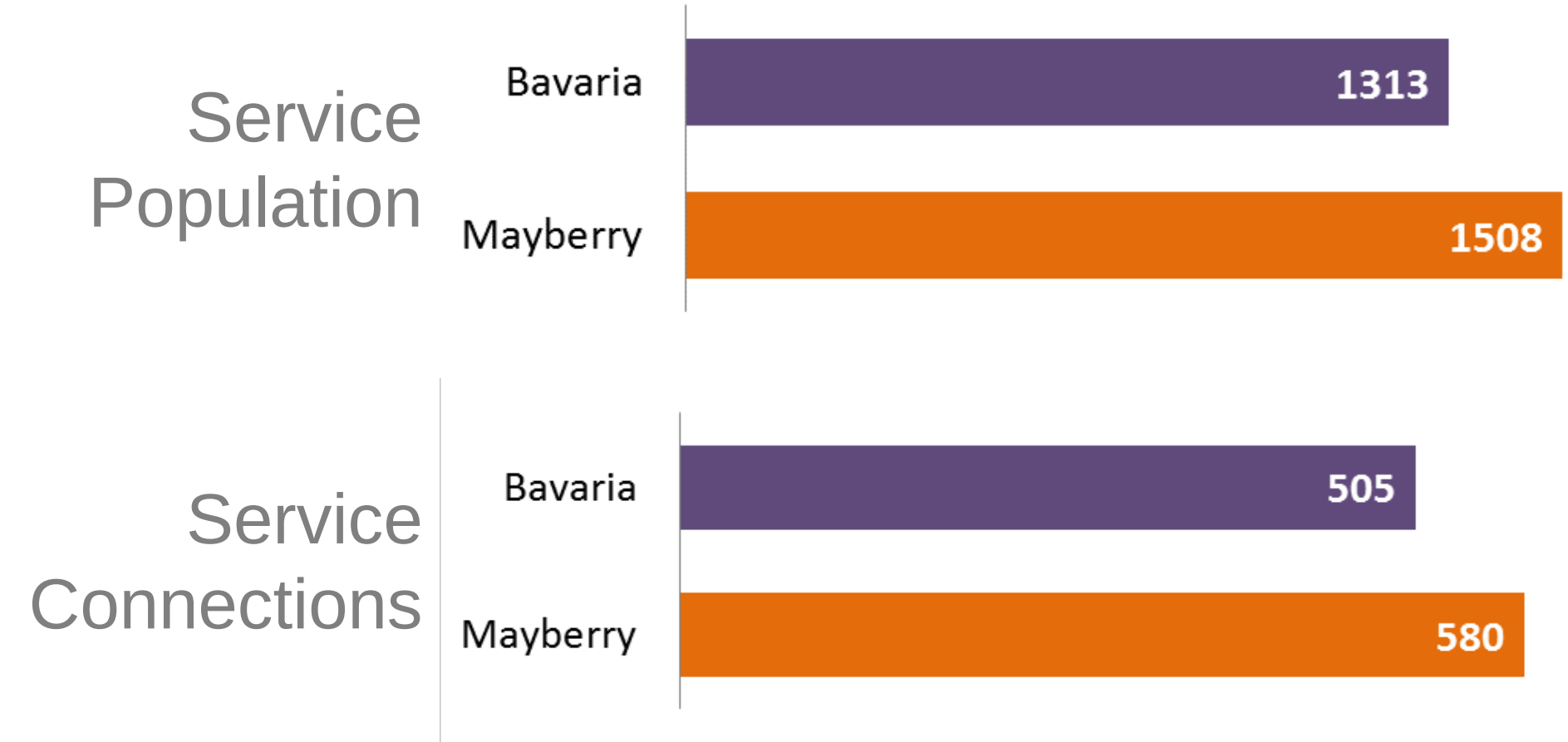
A Tale of Two Systems That Look Similar On Paper...

- **Bavaria** and **Mayberry**

- Two average small town community water systems from the same state

Note: Actual numbers from actual towns

They Serve Similar Populations



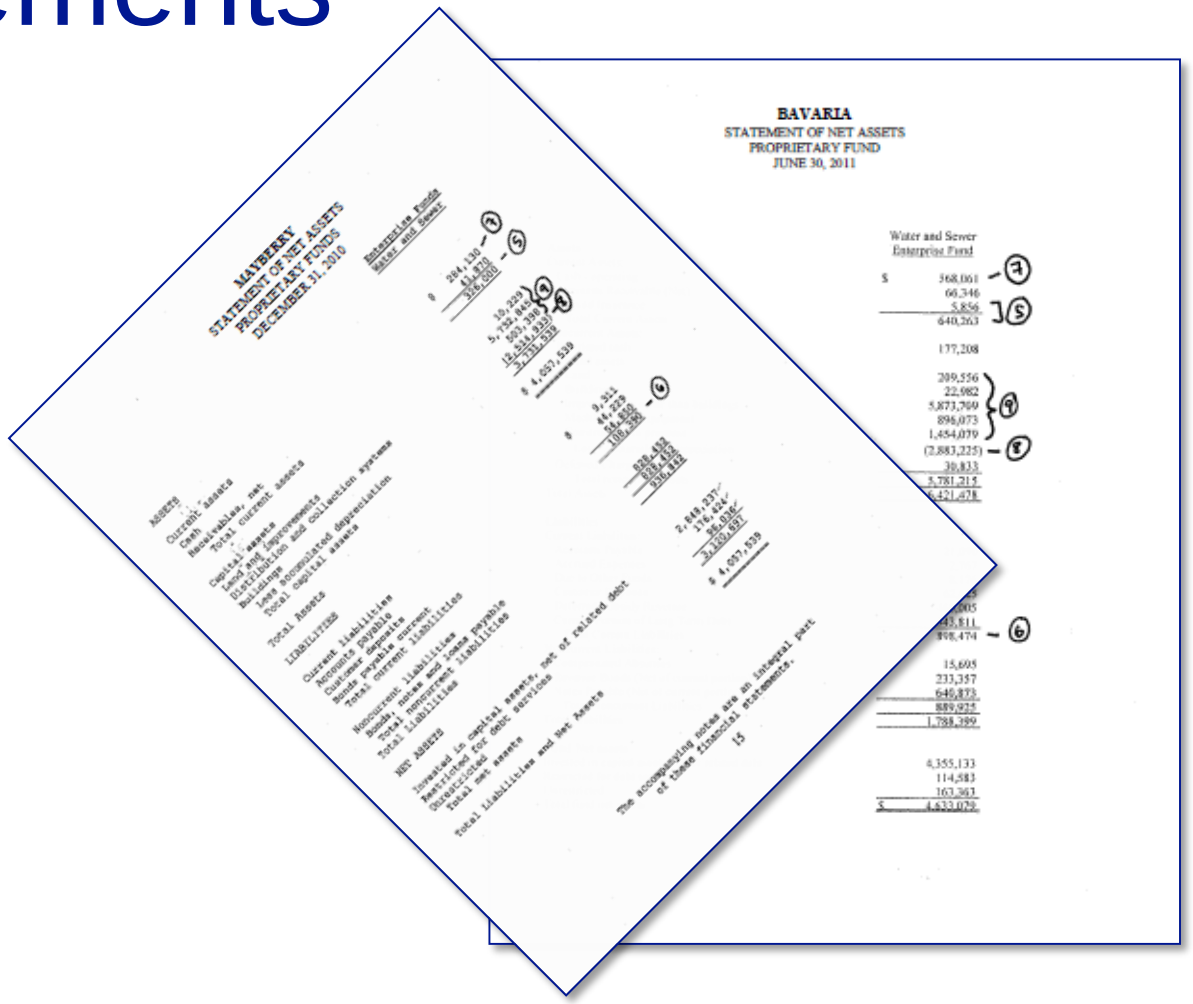
They Have Similar Demographics

...Though Vastly Different in Financial Indicators (and In Actual Appearance)

Mayberry

Bavaria

Quick Overview of Financial Statements



BAVARIA
STATEMENT OF NET ASSETS
PROPRIETARY FUND
JUNE 30, 2011

Water and Sewer Enterprise Fund

$	368,061
	66,346
	5,856
	640,263
	177,208
	209,556
	22,982
	5,873,769
	896,073
	1,454,079
	(2,883,225)
	30,833
	5,781,215
	6,421,478
	33,811
	898,474
	15,605
	233,357
	646,873
	889,925
	1,788,399
	4,355,133
	114,583
	163,363
$	4,633,079

The accompanying notes are an integral part of these financial statements.

15

Statement of Net Position

- The assets and liabilities of the water system on the day the financial statements were prepared

Statement of Revenues, Expenses & Changes in Net Position

- Annual operating and non-operating revenues and expenses for the water system

- Also transfers to and from the general fund

Statement of Cash Flows

- Money in and money out of the water system

Notes to Financial Statements

- Explanations, where needed, to the financial statements

Operating Ratio

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

Please calculate two numbers—
one including depreciation, and one
excluding depreciation

Operating Ratio
Including Depreciation

MAYBERRY

STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS

PROPRIETARY FUNDS

FOR THE YEAR ENDED DECEMBER 31, 2010

	Enterprise Funds Water and Sewer	
OPERATING REVENUES		
Charges for services	$ 444,231	
Grants	0	
Total operating revenues	444,231	(1)
OPERATING EXPENSES		
Personnel services	178,885	
Contractural services	63,898	
Other supplies and expense	126,202	(3)
Depreciation	142,463	(2)
Total operating expenses	511,448	
Operating income (loss)	(67,217)	

Operating Ratio – Mayberry

Including Depreciation

1a.

$$\frac{\$444{,}231}{\$511{,}448} = 0.87$$

Operating Revenues ***(1)***

Operating Expenses (including depreciation) ***(2)***

Operating Ratio
Excluding Depreciation

MAYBERRY

STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS

PROPRIETARY FUNDS

FOR THE YEAR ENDED DECEMBER 31, 2010

	Enterprise Funds Water and Sewer	
OPERATING REVENUES		
Charges for services	$ 444,231	
Grants	0	
Total operating revenues	444,231	(1)
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Personnel services	178,885	
Contractural services	63,898	
Other supplies and expense	126,202	(3)
Depreciation	142,463	(2)
Total operating expenses	511,448	
Operating income (loss)	(67,217)	

Operating Ratio – Mayberry

Excluding Depreciation

1b.

$444,231

Operating Revenues ***(1)***

$$\frac{\$444,231}{\$368,985} = 1.20$$

$368,985

Operating Expenses (excluding depreciation) ***(2-3)***

OE $511,448
- Dep $142,463

Debt Service Coverage Ratio

$$= \frac{\textit{Total Operating Revenues – Operating Expenses (excluding depreciation)}}{\textit{Principal + Interest Payments on Long Term Debt}}$$

Debt Service Coverage Ratio

MAYBERRY
STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS
PROPRI
FOR THE YEAR EN

OPERATING REVENUES
Charges for services
Grants
Total operating revenues

OPERATING EXPENSES
Personnel services
Contractural services
Other supplies and expense
Depreciation
Total operating expenses
Operating income (loss)

MAYBERRY
STATEMENT OF CASH FLOWS
PROPRIETARY FUNDS
FOR THE YEAR ENDED DECEMBER 31, 2010

	Enterprise Funds Water and Sewer
CASH FLOWS FROM OPERATING ACTIVITIES	
Receipts from customers	$ 437,947
Payments to suppliers	(187,296)
Payments to employees	(178,885)
Net cash provided by operating activities	71,766
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES	
Transfers in (out)	(60,000)
Net cash (used) by noncapital financing activities	(60,000)
CASH FLOWS FROM CAPITAL AND RELATED FINANCING ACTIVITIES	
Loan proceeds	0
Purchases of capital assets	(39,841)
Principal paid on capital debt	(49,655)
Interest paid on capital debt	(35,128)
Net cash (used) by capital and related financing activities	(124,624)

④

Debt Service Coverage Ratio – Mayberry

OE $511,448
- Dep $142,463

2. $\dfrac{\$444{,}231 - \$368{,}985}{\$84{,}783} = 0.89$

Operating Revenues ***(1)*** — *Operating Expenses* ***(2-3)*** *(excluding depreciation)*

Principal & Interest on Long-Term Debt ***(4)***

P $49,655
+ I $35,128

Days of Cash on Hand

$$= \frac{\textit{Unrestricted cash and cash equivalents}}{\textit{(Operating Expenses excluding depreciation) / 365}}$$

Days of Cash on Hand

MAYBERRY
STATEMENT OF NET ASSETS
PROPRIETARY FUND
DECEMBER 31, 2010

	Enterprise Funds Water and Sewer
ASSETS	
Current assets	
Cash	107,706 (5)
Restricted cash	176,424
Receivables, net	41,870 (6)
Total current assets	326,000
Capital assets	
Land and improvements	10,229
Distribution and collection systems	5,732,845
Buildings	503,398
Less accumulated depreciation	(2,514,933)
Total capital assets	3,731,539
Total Assets	$ 4,057,539
LIABILITIES	

Days of Cash on Hand – **Mayberry**

3. $\dfrac{\$107{,}706 \text{ — Unrestricted Cash \& Cash Equivalents (5)}}{\$368{,}985 \text{ — Operating Expenses (excluding depreciation) (2-3)} \;/\; 365} = 107$

OE $511,448
- Dep $142,463

Current Ratio

$$= \frac{\textit{Unrestricted cash and cash equivalents + Receivables, net}}{\textit{Current Liabilities}}$$

Current Ratio – Mayberry

4. $\dfrac{\text{\$107,706 (Unrestricted Cash & Cash Equivalents (5)) + \$41,870 (Receivables, net (6))}}{\text{\$108,390 (Current Liabilities (7))}} = 1.38$

Now you calculate the four ratios for **Bavaria**

Operating Ratio – **Bavaria**

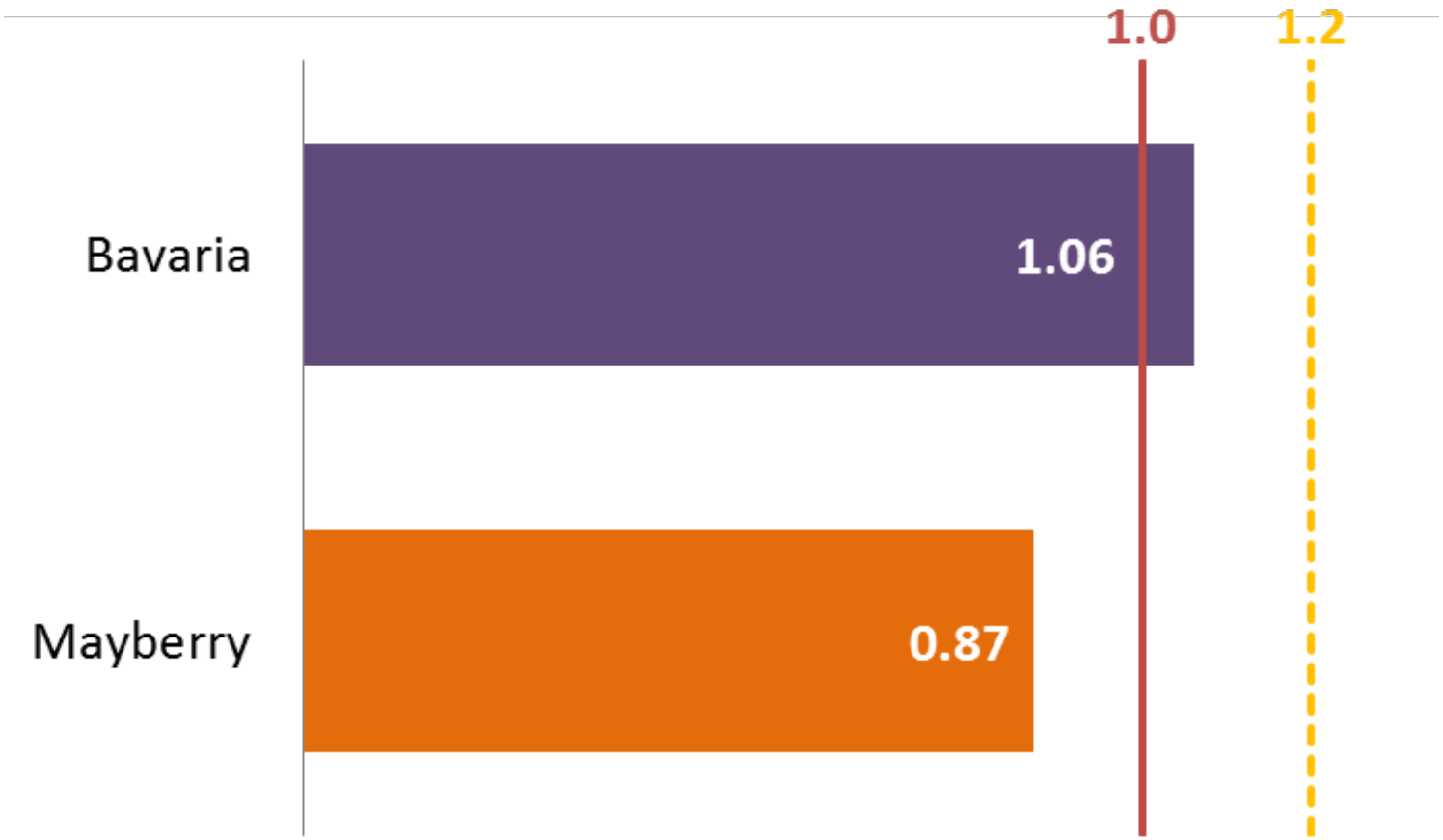
Including Depreciation

1a.

$$\frac{\$709{,}972 \text{ — Operating Revenues } \textbf{(1)}}{\$671{,}333 \text{ — Operating Expenses (including depreciation) } \textbf{(2)}} = 1.06$$

Operating Ratio

Including Depreciation



Operating Ratio – **Bavaria**

Excluding Depreciation

1b.

$709,972

Operating Revenues ***(1)***

$459,082

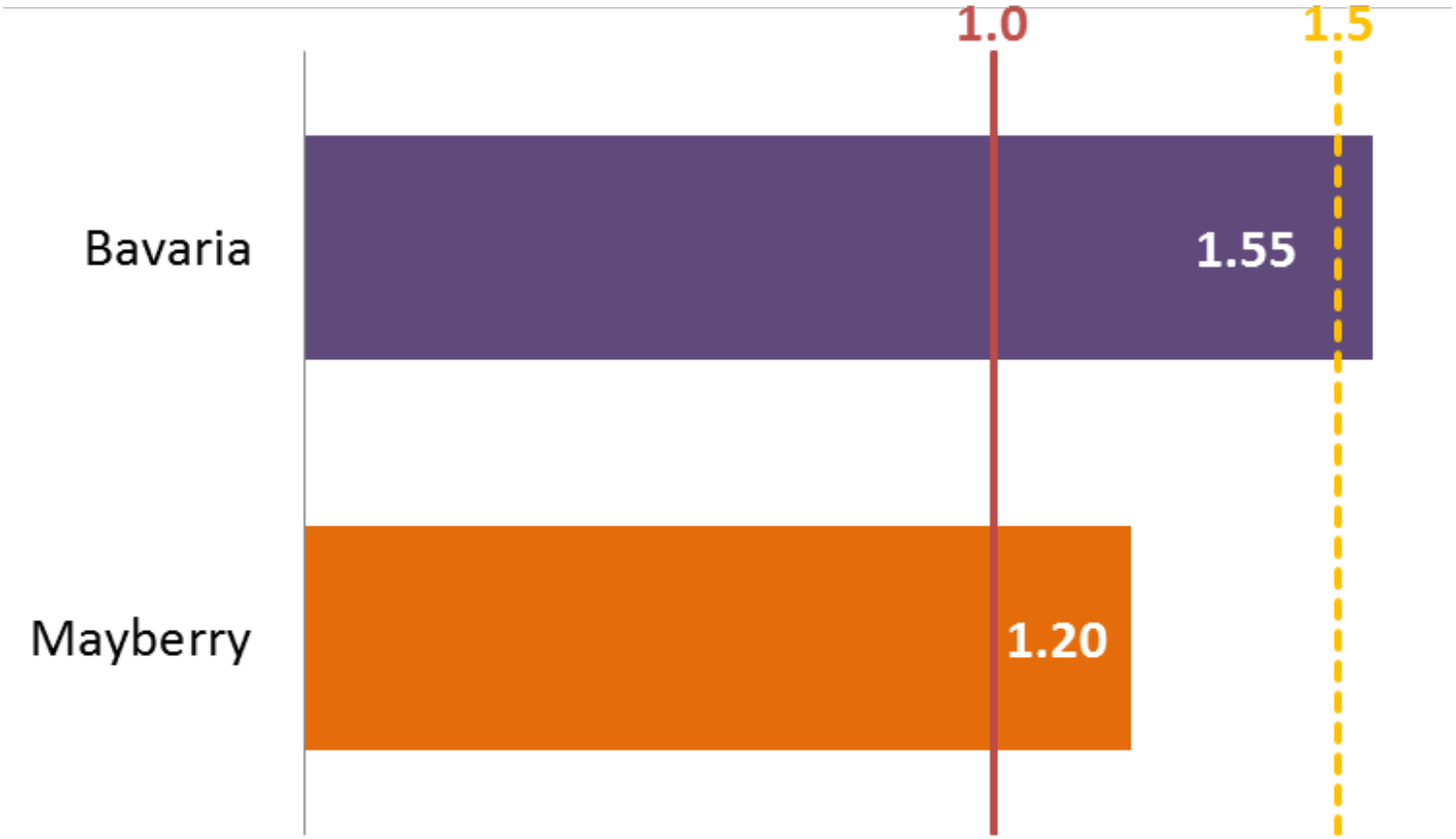
Operating Expenses (excluding depreciation) ***(2-3)***

= 1.55

OE $671,333
- Dep $212,251

Operating Ratio

Excluding Depreciation



Debt Service Coverage Ratio – **Bavaria**

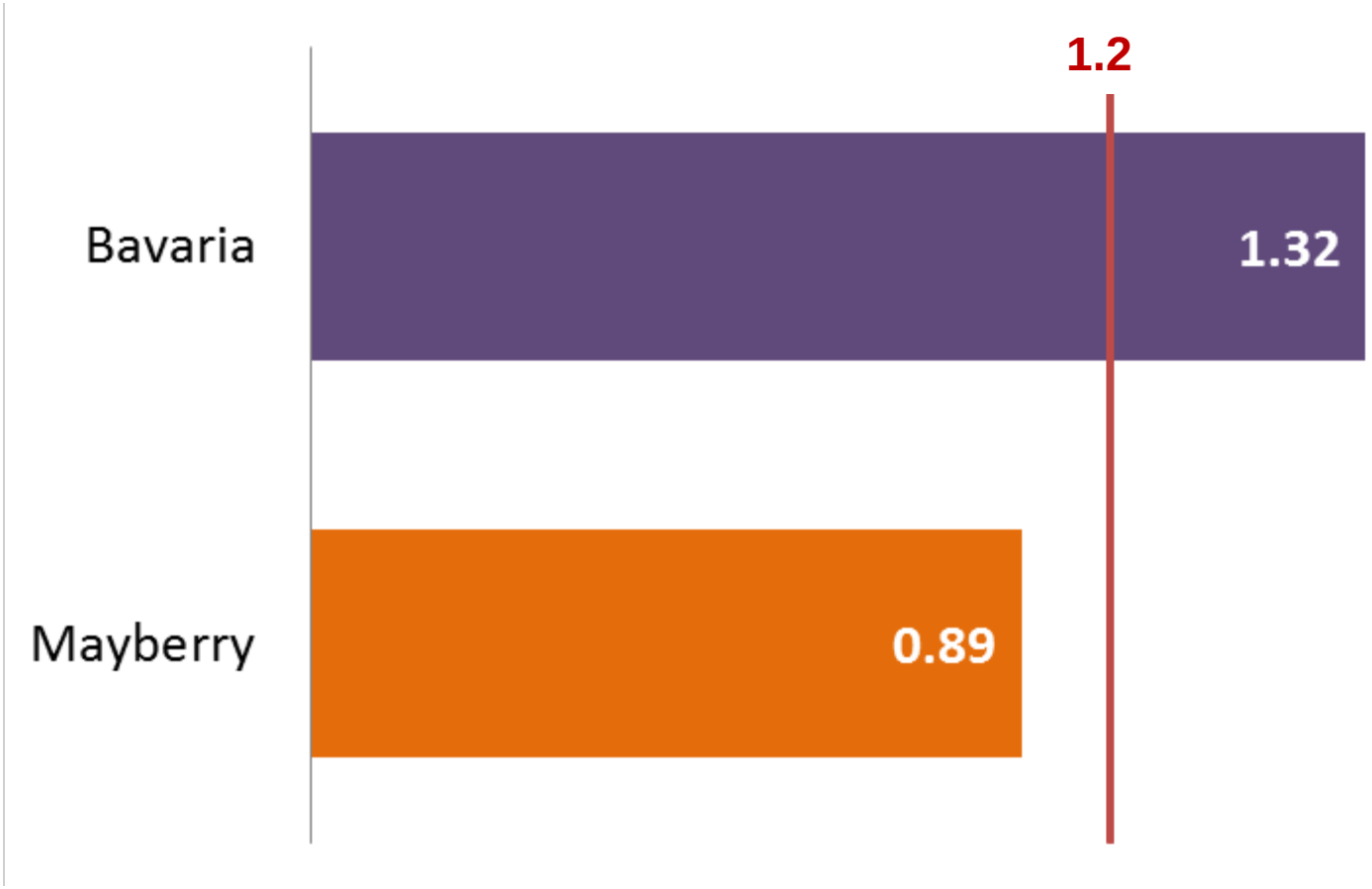
OE $671,333
- Dep $212,251

2. $\dfrac{\text{\$709,972} - \text{\$459,082}}{\text{\$190,633}} = 1.32$

Operating Revenues ***(1)*** − *Operating Expenses* ***(2-3)*** *(excluding depreciation)*

Principal & Interest on Long-Term Debt ***(4)***

Debt Service Coverage Ratio

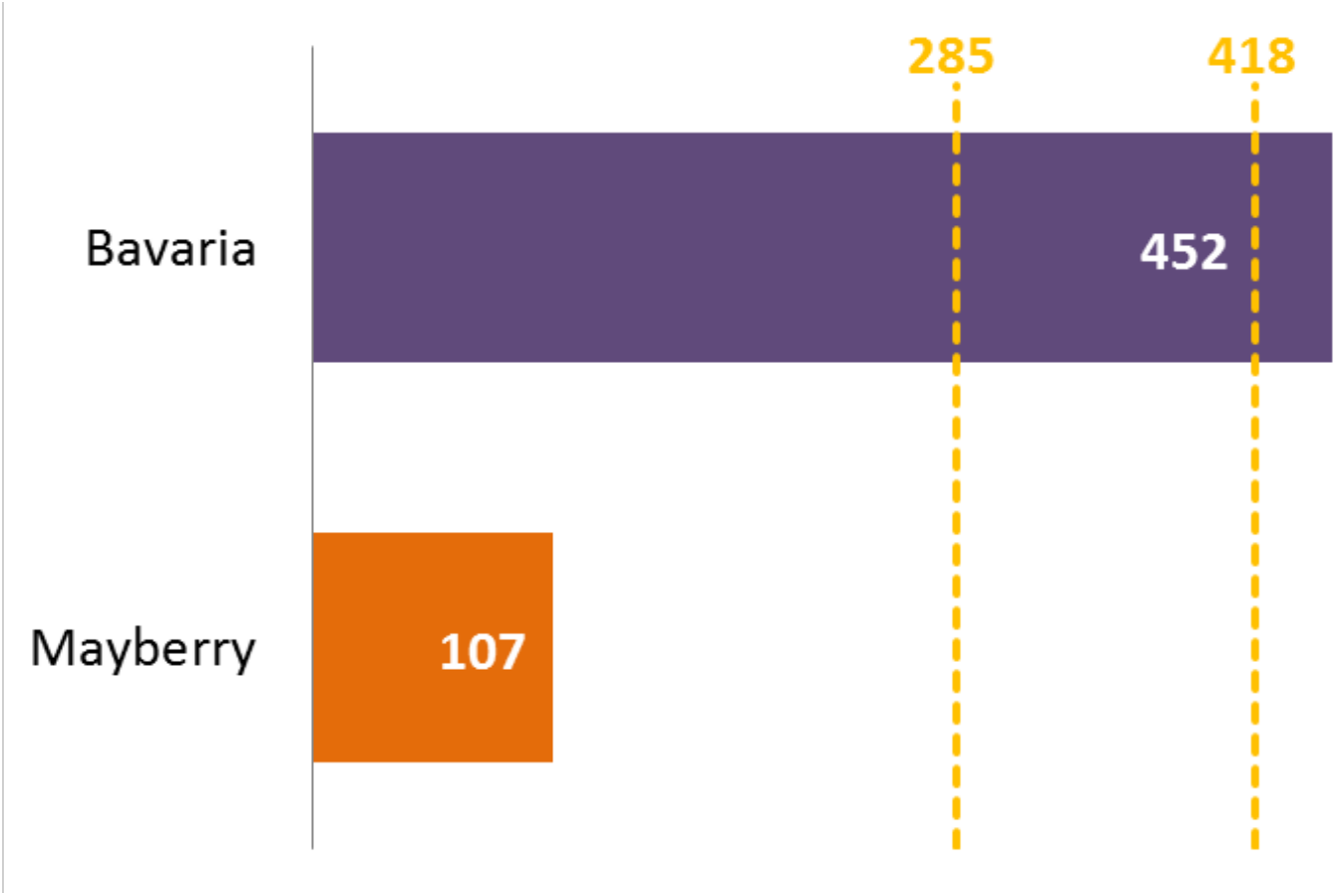


Days of Cash on Hand – **Bavaria**

3. $\dfrac{\$568{,}061 \text{ — Unrestricted Cash \& Cash Equivalents (5)}}{\$459{,}082 \text{ — Operating Expenses (excluding depreciation) (2-3)} \;/\; 365} = 452$

OE $671,333
- Dep $212,251

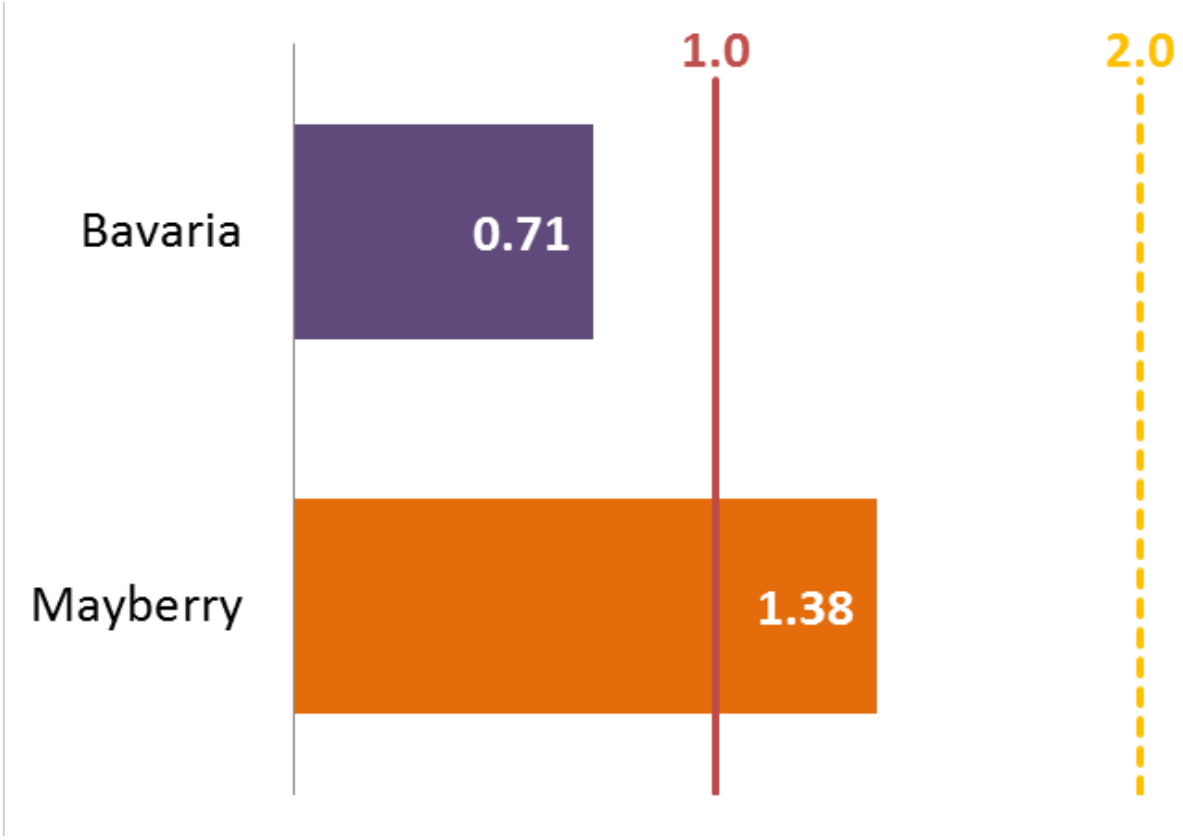
Days of Cash on Hand



Current Ratio – **Bavaria**

4. $\dfrac{\$568{,}061 \text{ (Unrestricted Cash \& Cash Equivalents (5))} + \$66{,}346 \text{ (Receivables, net (6))}}{\$898{,}474 \text{ (Current Liabilities (7))}} = 0.71$

Current Ratio



What Happened to **Bavaria**?

Or

Why the Notes to Financial Statements are Crucial

The accompanying notes are an integral part
of these financial statements.

15

Bavaria corrected

C $568,061
+ G $460,005

4. $\dfrac{\$1{,}028{,}066 + \$66{,}346}{\$898{,}474} = 1.22$

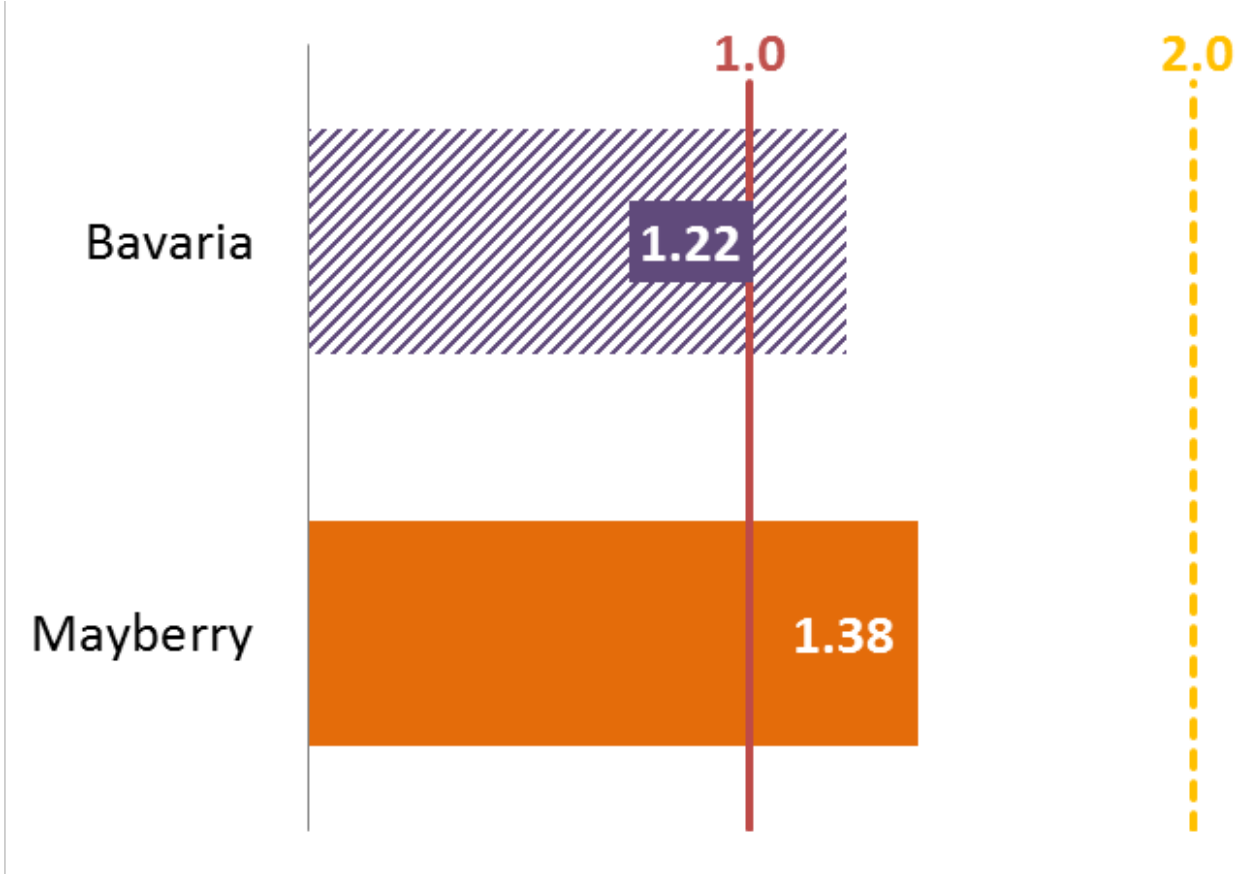
Unrestricted Cash & Cash Equivalents ***(5)***

Receivables, net ***(6)***

Current Liabilities ***(7)***

Current Ratio

Bavaria Corrected for Missing Grant Funds



One More to Mention: Asset Depreciation*

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

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.

Why Care About This?

- Funders and ratings agencies care about this

- As you think about the future needs of your system, you have to know where you are starting from

http://efc.web.unc.edu/2015/02/27/operating-ratio/

Key Financial Indicators for Water and Wastewater Systems: Operating Ratio

FEBRUARY 27, 2015 / GLENN BARNES / COMMENTS OFF ON KEY FINANCIAL INDICATORS FOR WATER AND WASTEWATER SYSTEMS: OPERATING RATIO

Print PDF

In previous posts, we have discussed where to find data to help water and wastewater systems make smart financial and managerial decisions. Another vital data source for any water and wastewater system is its own financial

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http://efc.web.unc.edu/2015/04/23/debt-service-coverage-ratio/

Key Financial Indicators for Water and Wastewater Systems: Debt Service Coverage Ratio

APRIL 23, 2015 / GLENN BARNES / COMMENTS OFF ON KEY FINANCIAL INDICATORS FOR WATER AND WASTEWATER SYSTEMS: DEBT SERVICE COVERAGE RATIO

Print PDF

In a previous post, we outlined how to use the financial statements of a water or wastewater system to calculate the key financial indicator of operating ratio, a measure of self-sufficiency. Another key financial indicator is debt service

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http://efc.web.unc.edu/2015/06/24/days-cash-on-hand/

Key Financial Indicators for Water and Wastewater Systems: Days of Cash on Hand

JUNE 24, 2015 / GLENN BARNES / COMMENTS OFF ON KEY FINANCIAL INDICATORS FOR WATER AND WASTEWATER SYSTEMS: DAYS OF CASH ON HAND

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In previous posts, we outlined how to use the financial statements of a water or wastewater system to calculate the key financial indicators of operating ratio (a measure of self-sufficiency) and debt service coverage ratio (a measure of a

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http://efc.web.unc.edu/2015/10/01/key-indicator-current-ratio/

Key Financial Indicators for Water and Wastewater Systems: Current Ratio

OCTOBER 1, 2015 / GLENN BARNES / 0 COMMENTS

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In previous posts, we outlined how to use the financial statements of a water or wastewater system to calculate the key financial indicators of operating ratio (a measure of self-sufficiency), debt service coverage ratio (a measure of a system's ability to pay its long-term debts), and days of cash on hand (a measure of a

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Caution: don’t just look at last year

Example from a different utility.

Last fiscal year’s ratios:

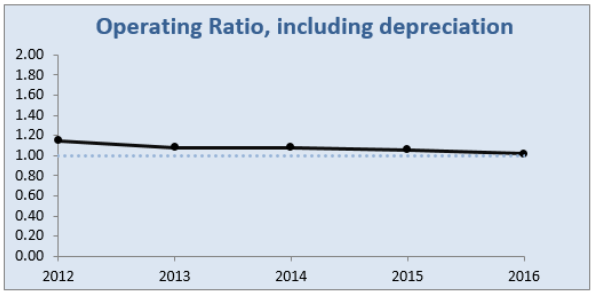
- Operating ratio = 1.02 ✓
- Debt service coverage ratio = 1.15 ?
- Days cash on hand = 145 ✓
- Current ratio = 1.2 ✓

Potential conclusion: “we’re on the right track”

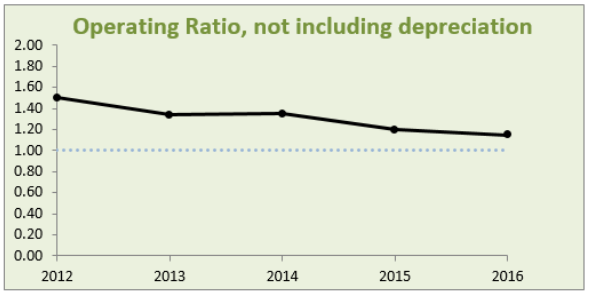
But consider the trends in the last 5 years

Assessment for Example utility

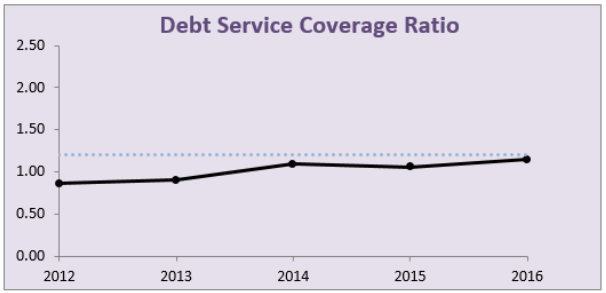
Did you generate the revenues needed to pay for O&M and a little for capital?



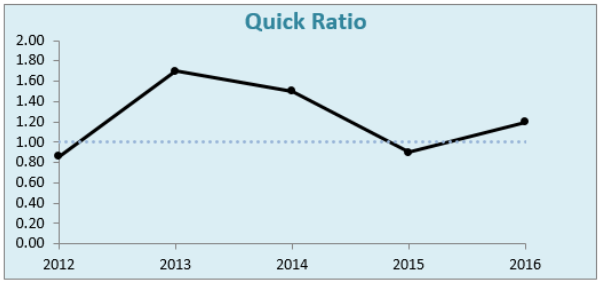
Did you generate the revenues needed to pay for O&M by itself?



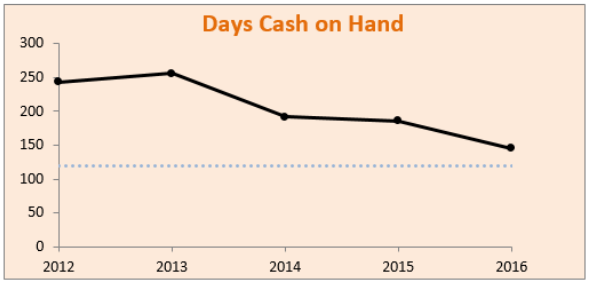
Did you generate the revenues needed to pay for O&M and existing debt service?



Did you have enough liquidity to pay your current liabilities at the end of the year?



How many days could you continue to operate the utility with the cash levels available?

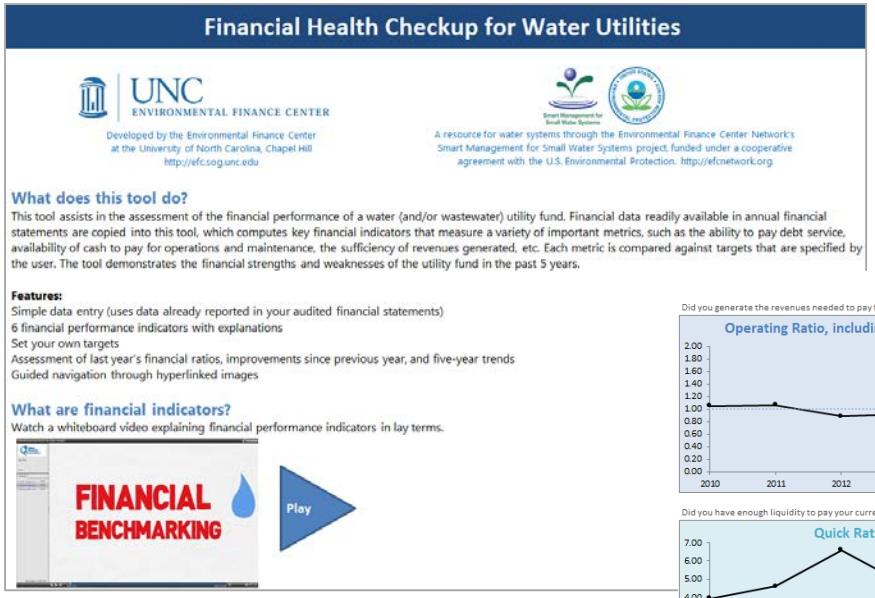


New conclusion: “we were OK, but something needs to change”

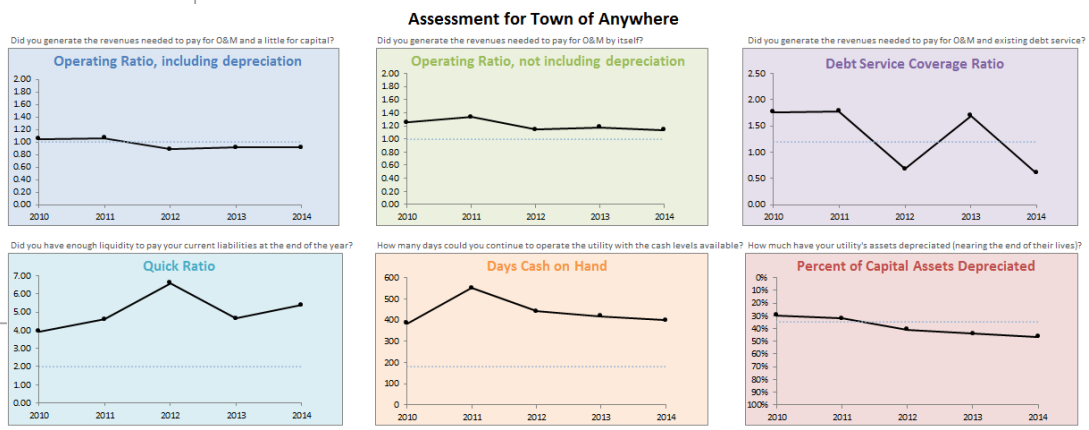
Tool: Financial Health Checkup for Water Utilities

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

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



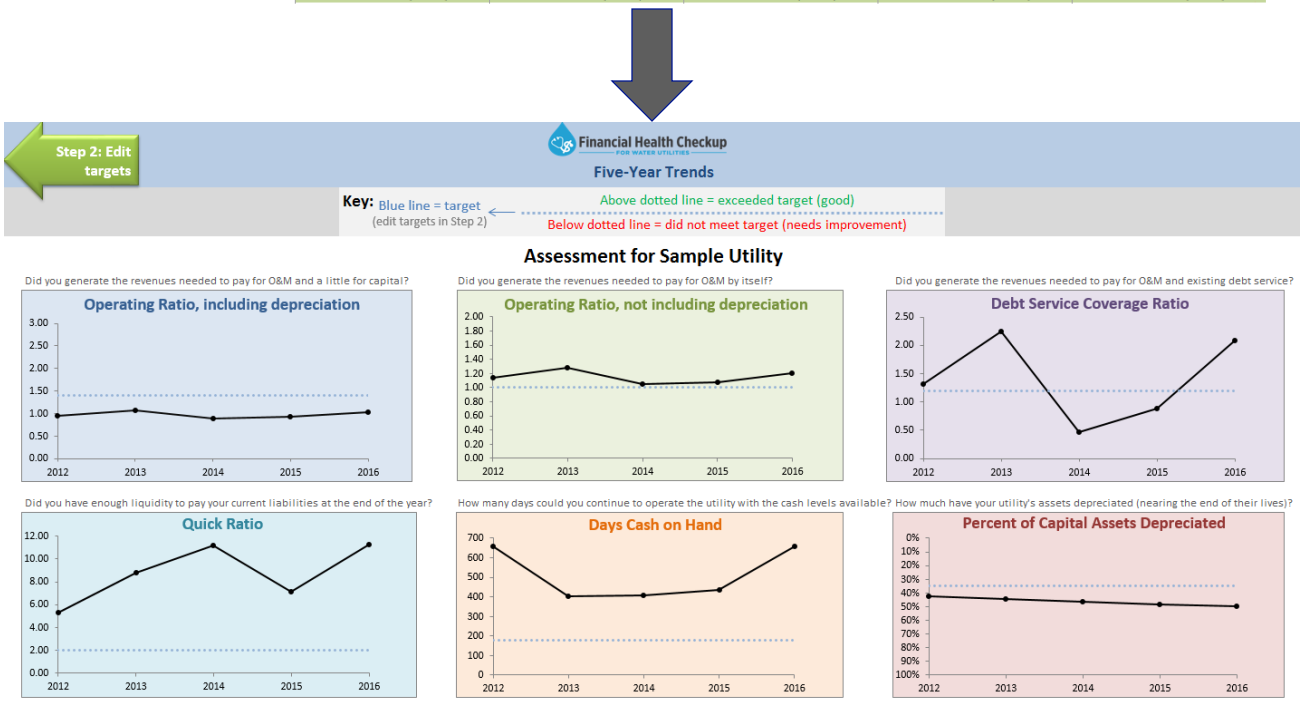
Excel®- based tool
Free to use



Created by the Environmental Finance Center at the University of North Carolina, Chapel Hill
A resource for water systems from the EFCN's Smart Management for Small Water Systems project funded under a cooperative agreement with the U.S. E.P.A.

Tool: Financial Health Checkup for Water Utilities

Key	Field in the financial statement/CAFR	2012	2013	2014	2015	2016	Instructions
[1]	Total Operating Revenues	$ 3,984,193	$ 3,965,968	$ 3,901,253	$ 4,459,727	$ 5,074,590	Enter as shown in the Total Operating
[2]	Total Operating Expenses	$ 4,165,641	$ 3,736,470	$ 4,378,937	$ 4,789,087	$ 4,896,441	Enter as shown in the Total Operating
[3]	Depreciation & Amortization Expenses	$ 681,808	$ 635,807	$ 656,255	$ 668,160	$ 684,561	Depreciation and amortization are list
[4]	Debt Principal Payments	$ 323,177	$ 331,520	$ 339,490	$ 342,512	$ 265,342	Enter $0 if there were no debt service
[4b]	Debt Interest Payments	$ 55,289	$ 53,350	$ 47,011	$ 38,474	$ 147,909	Enter $0 if there were no debt service
[5]	Current Assets, excluding inventories, restricted cash, prepaids	$ 6,614,237	$ 4,004,526	$ 4,756,504	$ 5,362,317	$ 7,808,389	Total Current Assets minus all invento
[6]	Current Liabilities, excluding deposits & bond anticipation notes	$ 1,247,456	$ 456,465	$ 425,164	$ 750,171	$ 691,223	Total Current Liabilities minus all refu
[7]	Unrestricted Cash & Investments	$ 6,297,233	$ 3,406,963	$ 4,149,266	$ 4,929,329	$ 7,580,205	Unrestricted Cash & Investments (and
[8]	Total Accumulated Depreciation	$ 12,976,114	$ 13,611,921	$ 14,268,176	$ 14,936,336	$ 15,620,897	Total accumulated depreciation on ca
[9]	Total Depreciable Capital Assets	$ 30,575,353	$ 30,686,885	$ 30,867,768	$ 30,994,872	$ 31,291,993	Enter the total value of capital assets



Long Term Capital Planning

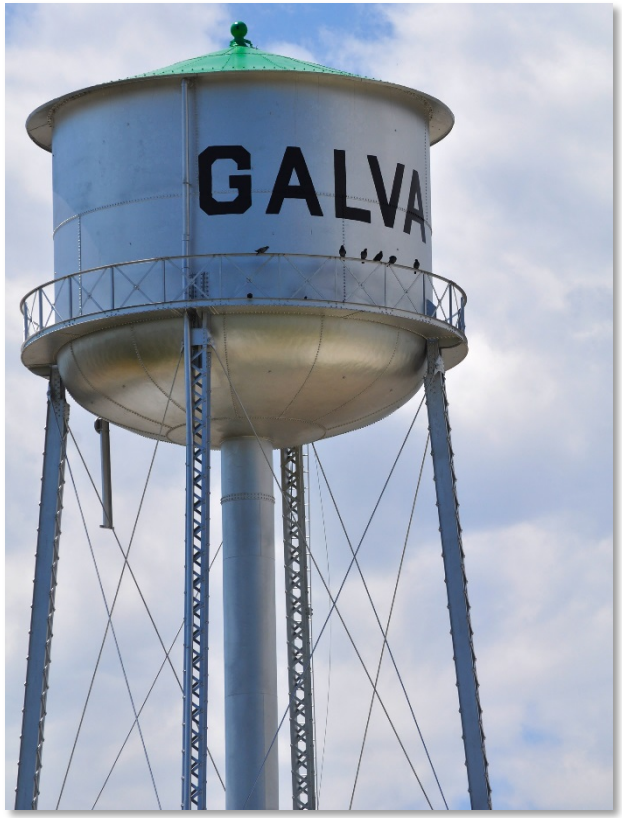
Session Objectives

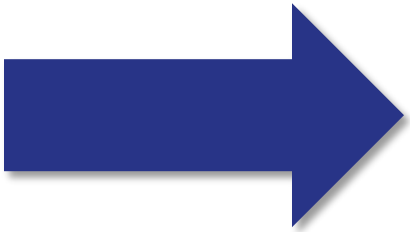
- Learn about two aspects of long-term system planning: asset management and capital planning

- Figure out how to pay for the future needs

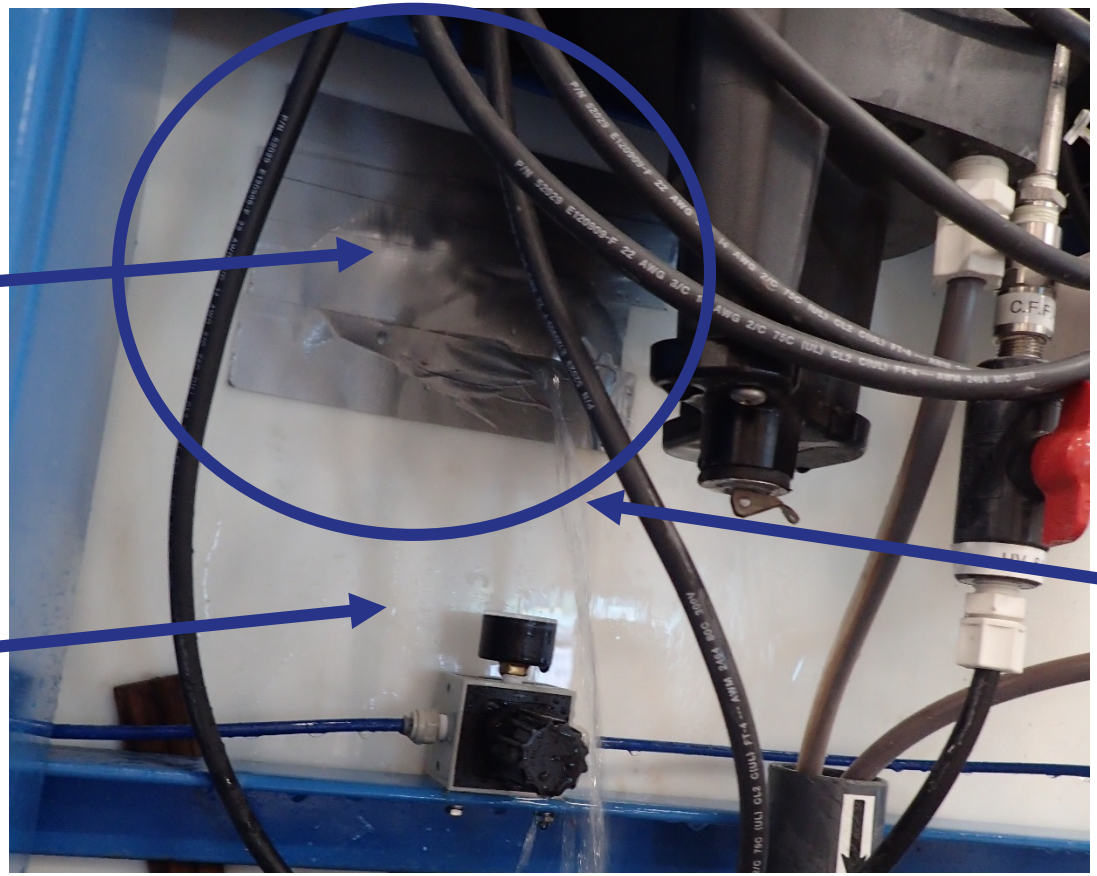
Infrastructure or Capital Assets

Infrastructure Wears Out





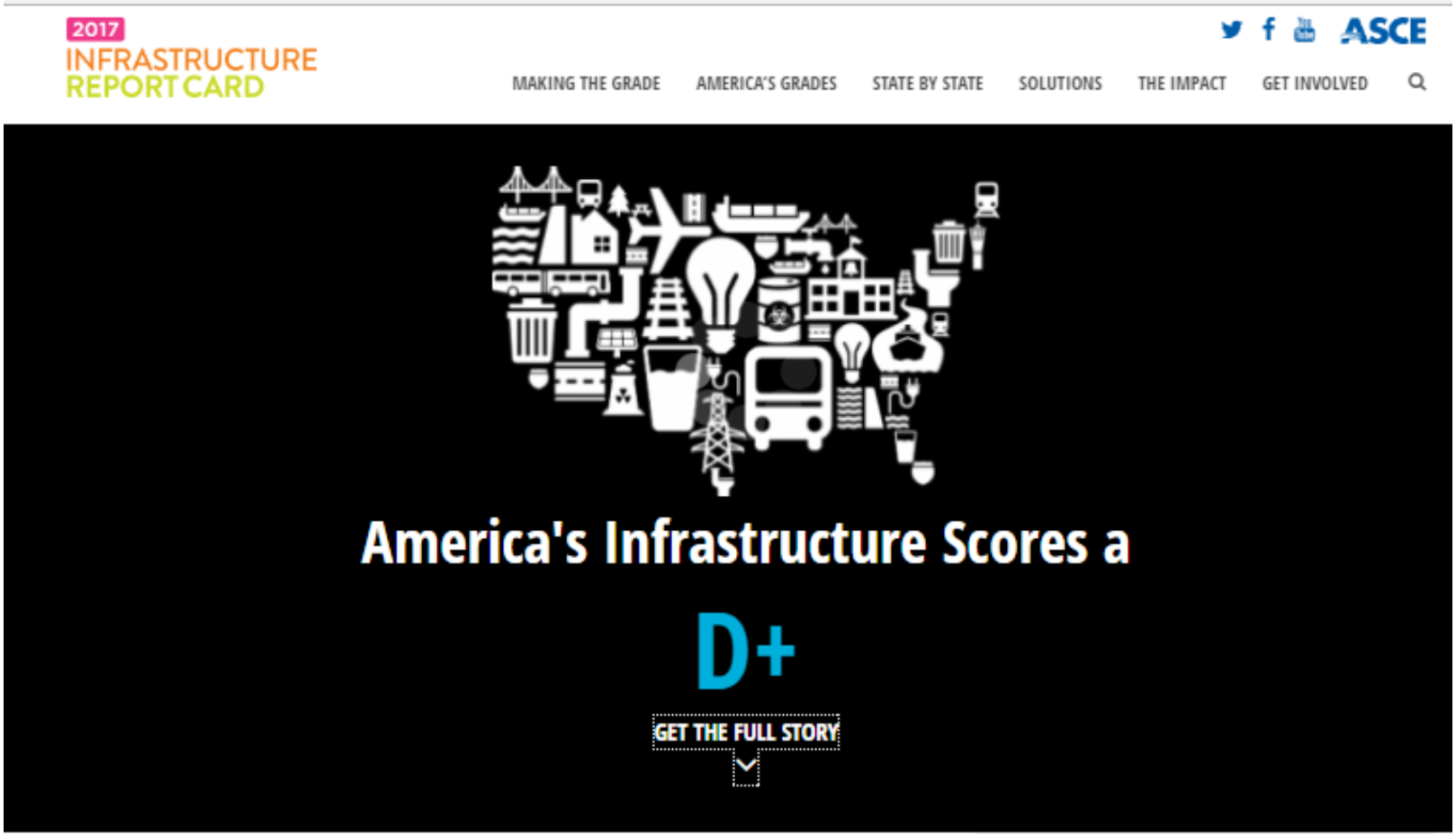
Infrastructure Wears Out



Water Tank

Leak

Poor Investment → Poor Infrastructure



REPORT CARD

Aviation D	Ports C+
Bridges C+	Public Parks D+
Dams D	Rail B
Drinking Water D	Roads D+
Energy D+	Schools D
Hazardous Waste D+	Solid Waste C+
Inland Waterways D	Transit D-
Levees D	**Wastewater D+**

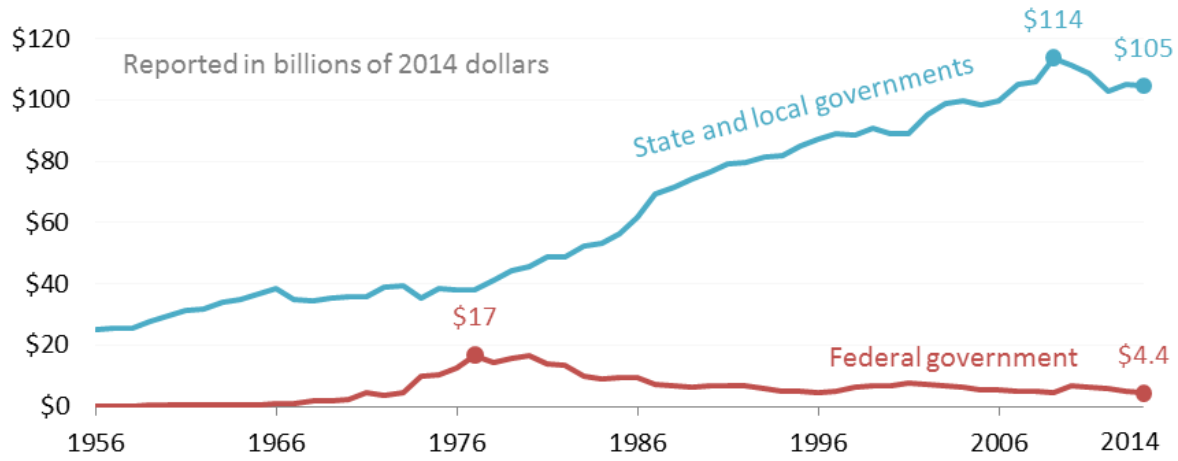
http://www.infrastructurereportcard.org/

A few hard truths

The onus will continue to be on local governments to pay for their own infrastructure

State and local government spending on water and wastewater utilities continued to grow while federal spending declined since the 1980s

State and local governments spent 24 times as much as the federal government in 2014



Graphed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Source: Congressional Budget Office supplemental data for the *Public Spending on Transportation and Water Infrastructure, 1956 to 2014* report (March 2015). Displays public spending on supply systems for distributing potable water as well as wastewater and sewage treatment systems and plants. Real spending is shown after adjusting nominal spending to their 2014 dollar equivalent using infrastructure-specific price indexes.

http://efc.web.unc.edu/2015/09/09/four-trends-government-spending-water/

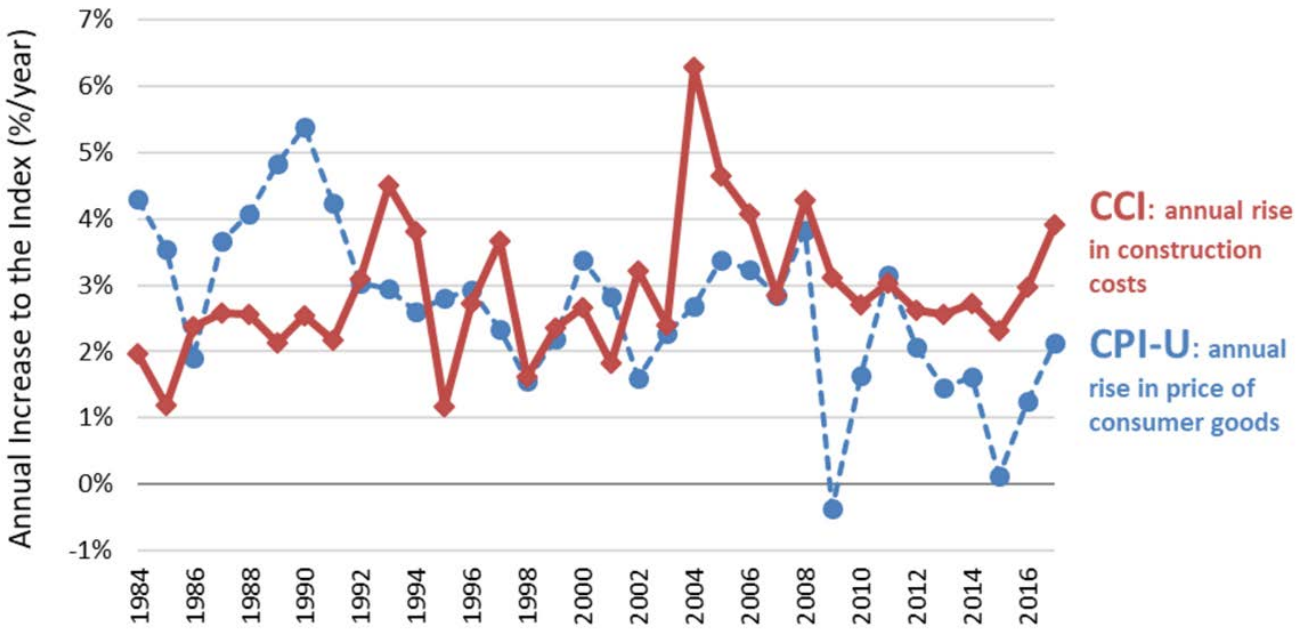
Construction costs will keep going up

Nationally, construction costs are growing at about 3%/year (CCI).

Faster than the "rate of inflation" (CPI-U).

The Construction Cost Index (CCI) has been rising faster than the Consumer Price Index-Urban (CPI-U) in recent years

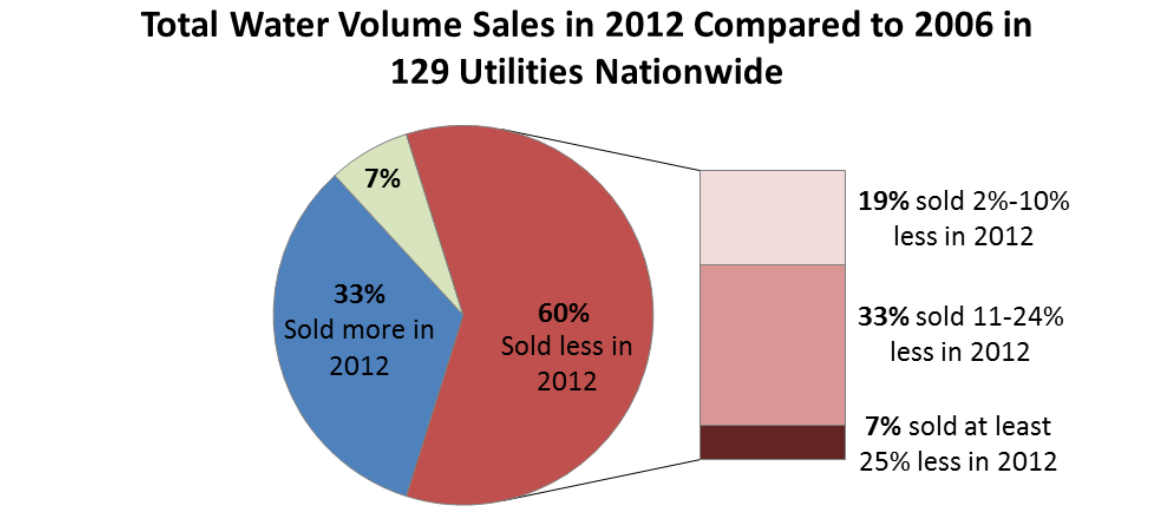
Construction costs (CCI) rose on average of 2.9%/year in the last five years, while consumer goods (CPI-U) only rose an average of 1.3%/year in the same period



Data graphed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Data sources: Bureau of Labor Statistics (CPI-U), Engineering News-Record ENR.com (CCI), InflationData.com (CPI-U), USDA Natural Resources Conservation Services (spreadsheet containing CCI and CPI-U).

http://efc.web.unc.edu/2012/09/26/using-an-index-to-help-project-capital-costs-into-the-future/

Water use is declining for many systems. Could mean lower revenues.



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill and Raftelis Financial Consultants, Inc. Data Source: Biennial, national AWWA-RFC Water and Wastewater Rate Surveys in 2006 and 2012. Water utilities that reported their total daily gallons sold (MGD) in 2006 and 2012 are included in this analysis. 81% of the sampled utilities increased total number of accounts from 2006 to 2012.

Source: EFC *Environmental Finance* blog post "Even Total Water Demand is on the Decline at Many Uti
http://efc.web.unc.edu/2014/04/15/total-water-demand-on-the-decline/

A few hard truths

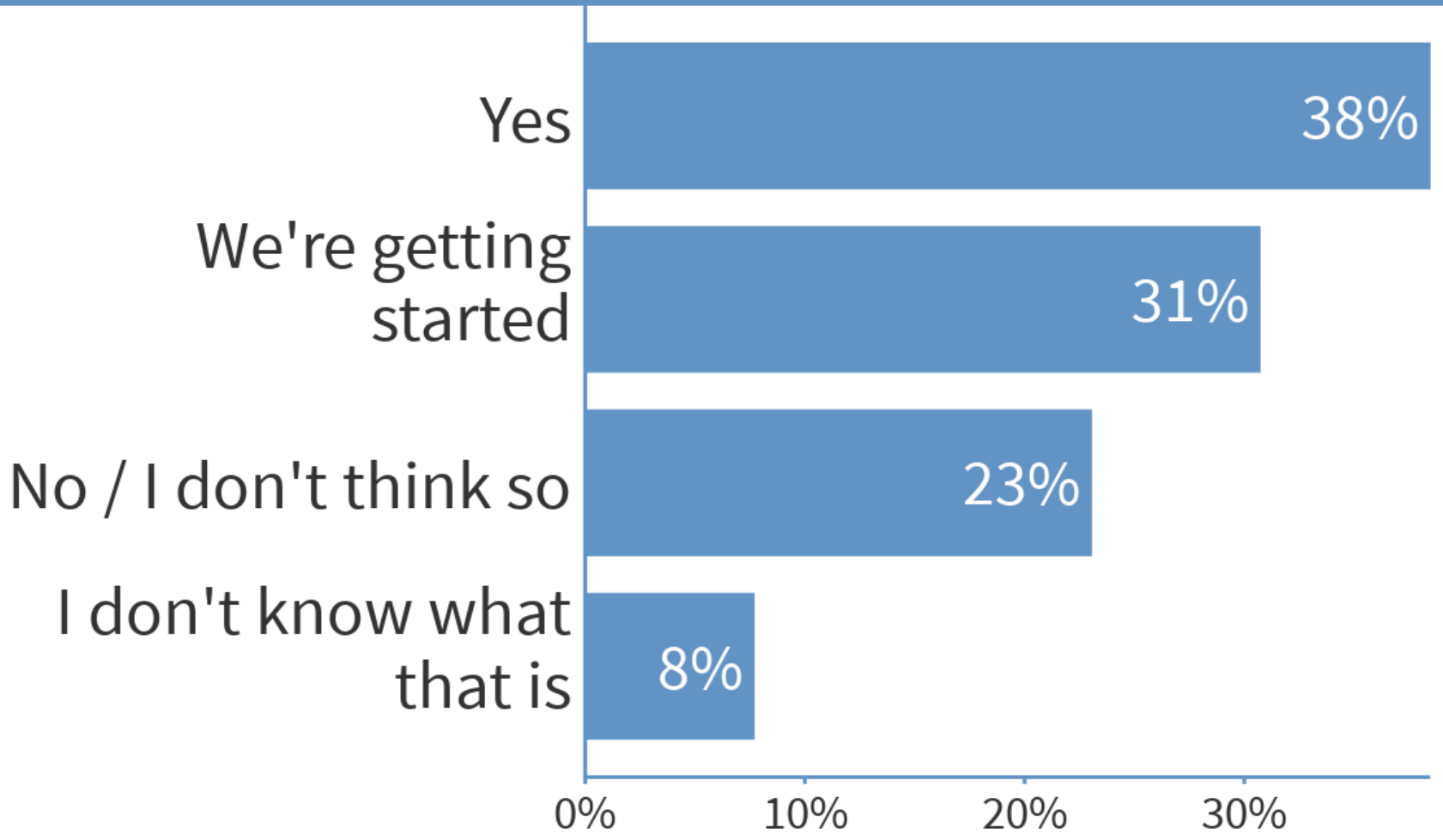
- Local governments need to incorporate capital costs in their budgets – do not rely (solely) on grants.
- Operations and capital costs are going up.
- Water demand (driver of main source of revenue) may be going down for many municipalities.
  - Assess your water billing data and run different (conservative) scenarios when budgeting.

Capital planning efforts

Asset Management Plan: a long-term plan (20+ years) identifying when each existing asset may need to be replaced or rehabilitated.

Capital Improvement Plan: a multi-year plan identifying capital projects in the next few years, their costs, and how they will be funded.

Do you do Asset Management planning at your water system?



What does this type of analysis take?

- Nothing more than following a systematic approach for managing the assets
- 5 core components of Asset Management

Five core components of Asset Management

1) Current State of the Assets
2) Level of Service
3) Criticality
4) Life Cycle Costing
5) Long-Term Funding

Current state of the assets

List all of your assets:

- What do I own?
- Where are the assets?
- What condition are they in?
- How much useful life is remaining?
- What is the replacement value?

Example of an Asset Inventory

Asset Inventory

ID Number	Category	Type	Size	Manufacturer	Serial Number	Location	Installation Date	Condition	Energy user Y/N (if Yes, see Energy Inventory)	Comments

Source: A.M. KAN Work!

Level of Service

Involve Customers

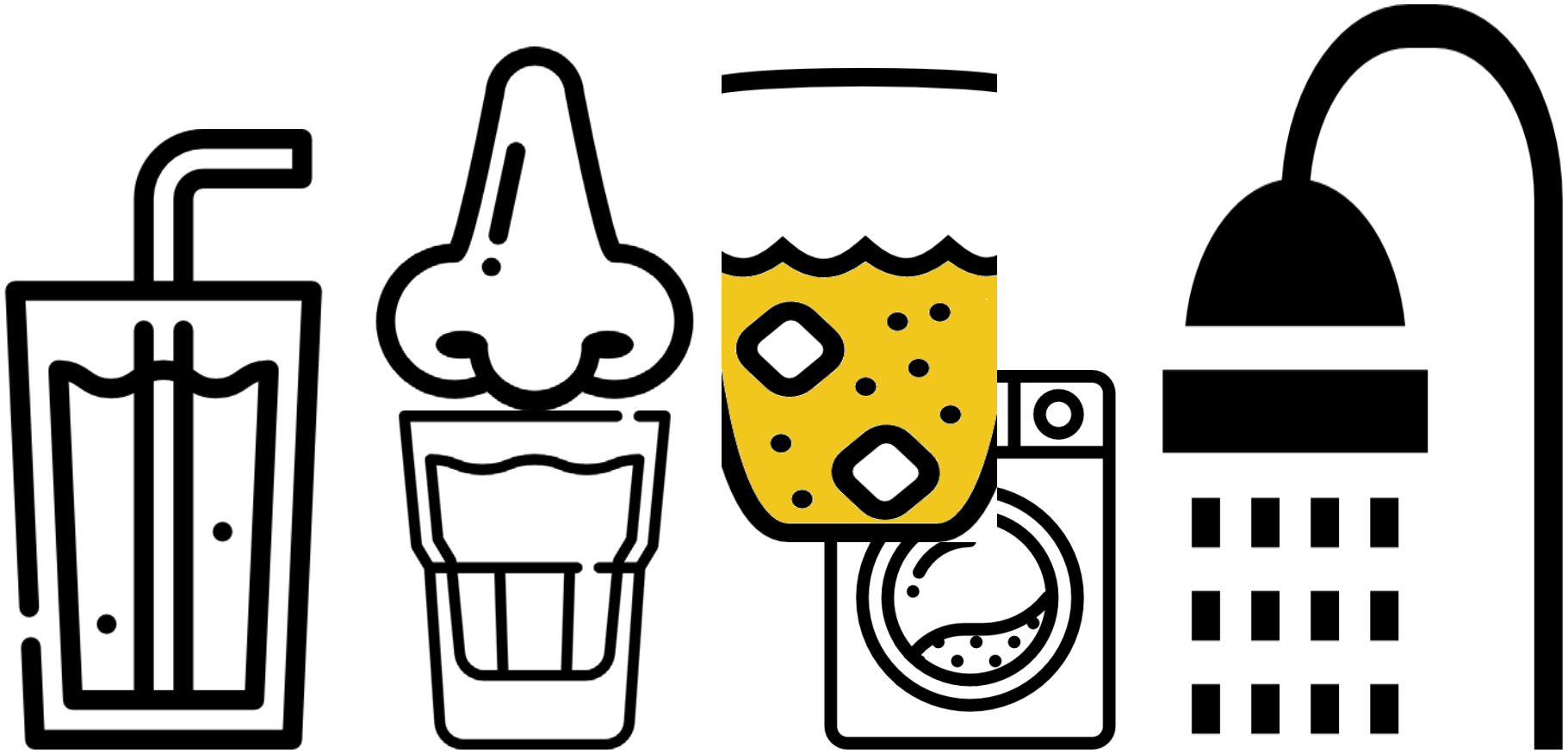
Measurable Goals: Internal and External

Track Progress Towards Meeting Goals

Involve Staff

What would my customers want?

What do customers care about?



Criticality – 2 parts

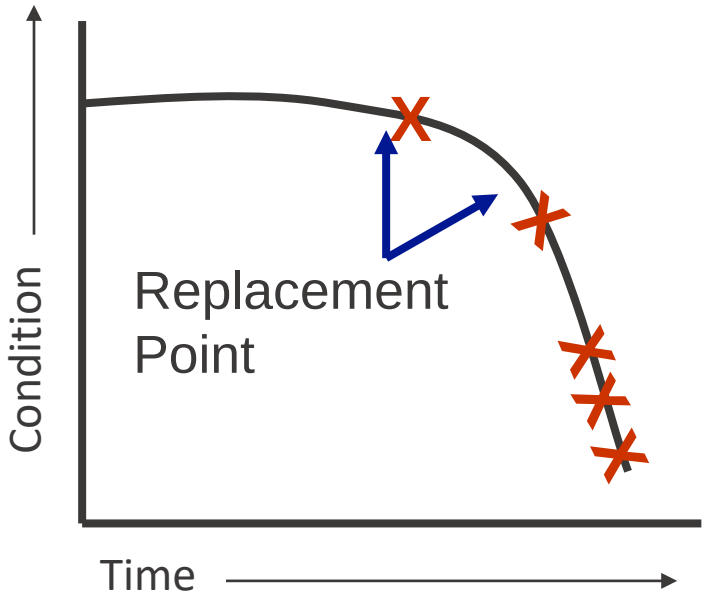
What is the **probability or likelihood** that a given asset will fail?

What is the **consequence** if the asset does fail?

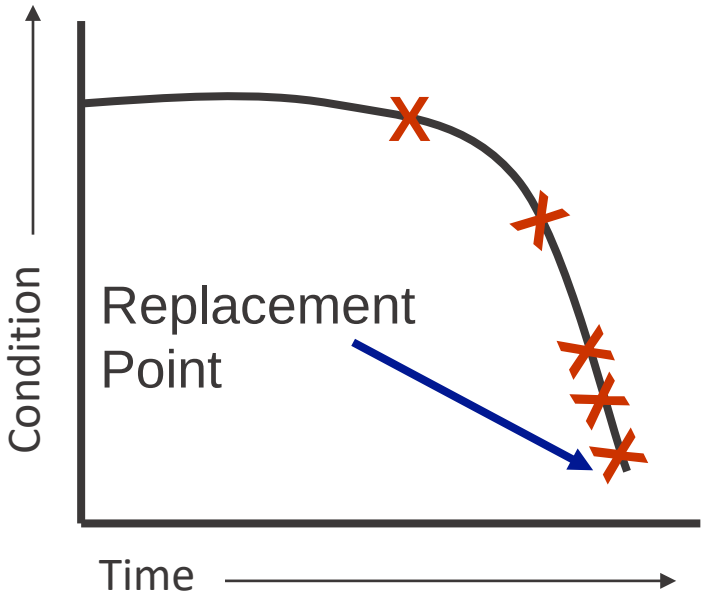
Asset Criticality

Life Cycle Costing & Risk

High risk assets:
replace assets early,
before failure



Low risk assets:
run to failure and
replace afterwards



Prioritize asset rehabilitation / replacement

Example System Inventory Worksheet						
Date Worksheet Completed/Updated: 8/14/02						
Asset	Expected Useful Life	Condition	Service History	Adjusted Useful Life	Age	Remaining Useful Life
Well 1 (1993)	30	Good		30	9	21
Well 1 pump	10	Good	Rehab (1996)	10	9	1
Well 2 (1993)	30	Good		30	9	21
Well 2 pump	10	Good	Rehab (1998)	10	9	1
Pumphouse (1993)	30	Good		30	9	21
Electrical components	10	Some corrosion	Rehab (1994)	10	9	1
Chlorinator (1993)	10	Good	Rehab (1998)	5	3	2
Storage tank 1 (1993)	40	Good	Rehab (2000) - $17,000	40	9	31
Storage tank 2 (1993)	40	Good	Rehab (2000) - $17,000	40	9	31
Storage tank 3 (2000)	40	Almost new		40	2	38
Distribution System:						
Hydrants (15)	40	Unknown		40	9	11
Valves (45)	40	Unknown	6 valves don't work	40	9	11
6-inch (PVC)	60	Unknown		60	9	51
4-inch (PVC)	60	Unknown		60	9	51
2-inch (PVC)	60	Unknown	Repair breaks (2/year)	60	9	51

Prioritization Worksheet		
Importance	Redundancy	Priority (1 is high)
Needed for service	Other well, but need backup	6
Needed for service	Other well, but need backup	3
Needed for service	Other well, but need backup	6
Needed for service	Other well, but need backup	3
Needed for service	Other well, but need backup	6
Needed for control	No redundancy - corrosion	2
Mandatory	No redundancy - need backup	1
eed for fire flow and demand	Other tanks	6
eed for fire flow and demand	Other tanks	6
eed for fire flow and demand	Other tanks	6
Needed for public safety	Other hydrants	5
Needed for isolation	Other valves, but some are out of service	4
Needed for delivery	No redundancy	6
Needed for delivery	No redundancy	6
Needed for delivery	No redundancy	6

Source: EPA's "Asset Management: A Handbook for Small Systems"

Long Term Funding

- This is where capital planning comes in
- Once you figure out how to get the longest life out of your assets, plan to have the money you need to replace them when necessary

Asset Management Plan – the summary

1. Inventory all of your assets
2. Assess their age, condition, and when do you expect the asset will need to be rehabilitated or replaced
3. Assess the criticality of each asset: likelihood of failure, and consequence of failure
4. Prioritize the assets into a timeline of when the system should aim to rehab/replace them
5. Focus on next few years and create a C.I.P.
6. Keep updating! Repeat steps 2-5.

Capital Improvement Plan (CIP)

An official multi-year document that identifies and prioritizes capital projects in the near future, identifies funding sources, and sets timelines for projects.

May include projects not listed in the Asset Management Plan.

Example of a simple Capital Improvement Plan

	Planning Years (Values in 000s)						
Project Name	**FY 02**	**FY 03**	**FY 04**	**FY 05**	**FY 06**	**Future**	**Total**
Water Supply & Treatment							
Water Treatment Objective							
Lime pumps and slakers	740						740
Chemical Enclosures		500					500
Filter 7-18 Control			330				330
Filter Gallery Rehab	1,140						1,140
High Service Pumps		1,500					1,500
Upgrade or Replace Reclaim System Drier	200						200
New Membrane Skids				5,700			5,700
Sodium Hypochlorite Plant	2,000						2,000
Additional Storage Tanks					5,000	3,300	8,300
Repair R/O Capacity		150					150
Filter Gallery Mech Parts	300						300
MMIS						150	150
VFDs - HSP		344					344
Membrane Replacement		1,600					1,600
Painting of Water Plant						3,000	3,000
Phase II Emergency Power Generator						1,500	1,500
Portable Generator - South Well Field				150			150
Repalcement of Fuel Tanks			170				170
Upgrade of Existing Control System @ WTP						580	580
Water Treatment Total	4,380	4,094	500	5,850	5,000	8,530	28,354

Capital Improvement Program - Timelines

- Use **Asset Management Plan** to plan for capital expenses in the long term (~20 years)

Capital Improvement Program - Timelines

- Create a **Capital Improvement Plan** with a narrower timeline (~5 years) in more detail. Specify the projects and accurate estimates of cost. Plan where money will come from.

Capital Improvement Program - Timelines

- Create a **Capital Improvement Budget** with an even narrower timeline (1 – 2 years) committing funds for the planned capital projects. Get it approved/adopted.

Where Can You Find the Prices?

- Call a vendor. Actually, call a few.
- Ask other systems
- Look at past expenses but adjust for increases in costs

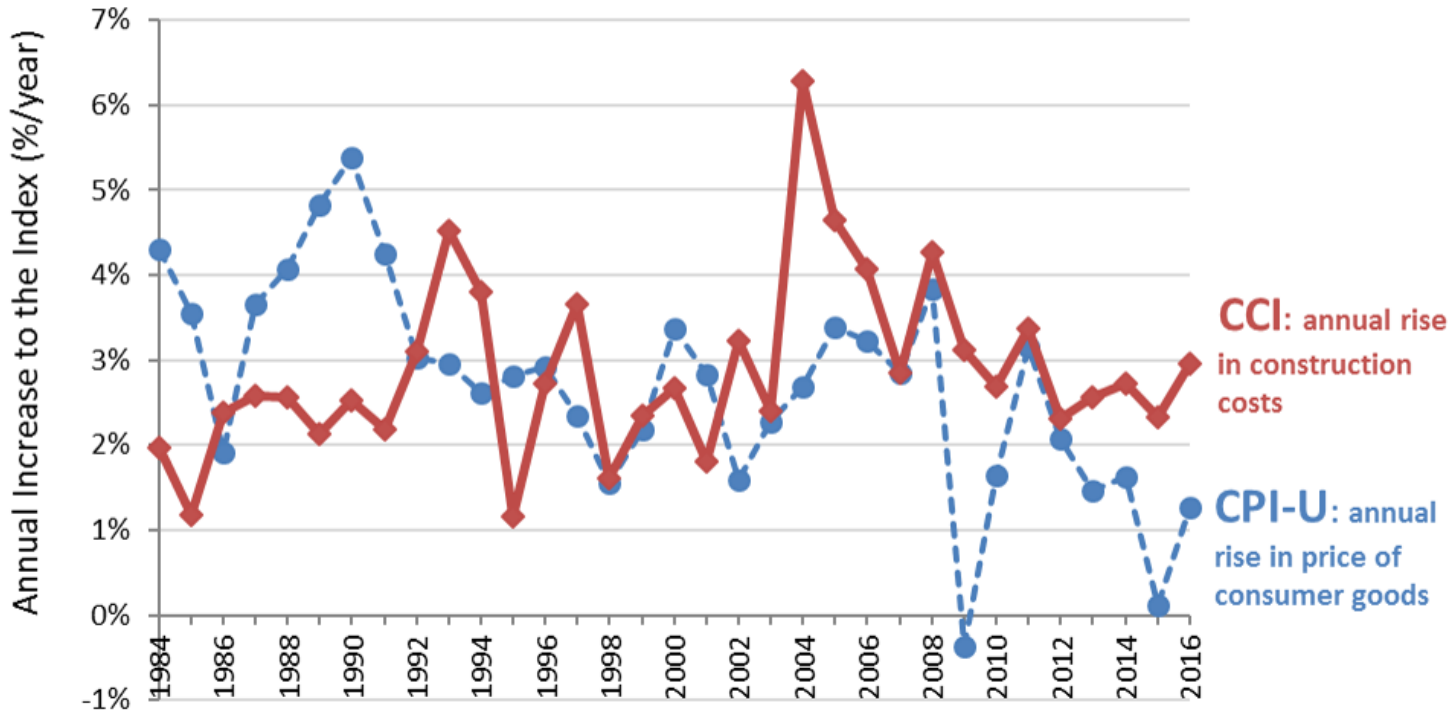
Measures of Inflation

- **Consumer Price Index (CPI)**—measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services

- **Construction Cost Index (CCI)**—average prices for labor and key construction materials from 20 cities across the United States

The Construction Cost Index (CCI) has been rising faster than the Consumer Price Index-Urban (CPI-U) in recent years

Construction costs (CCI) rose on average of 2.6%/year in the last five years, while consumer goods (CPI-U) only rose an average of 1.3%/year in the same period



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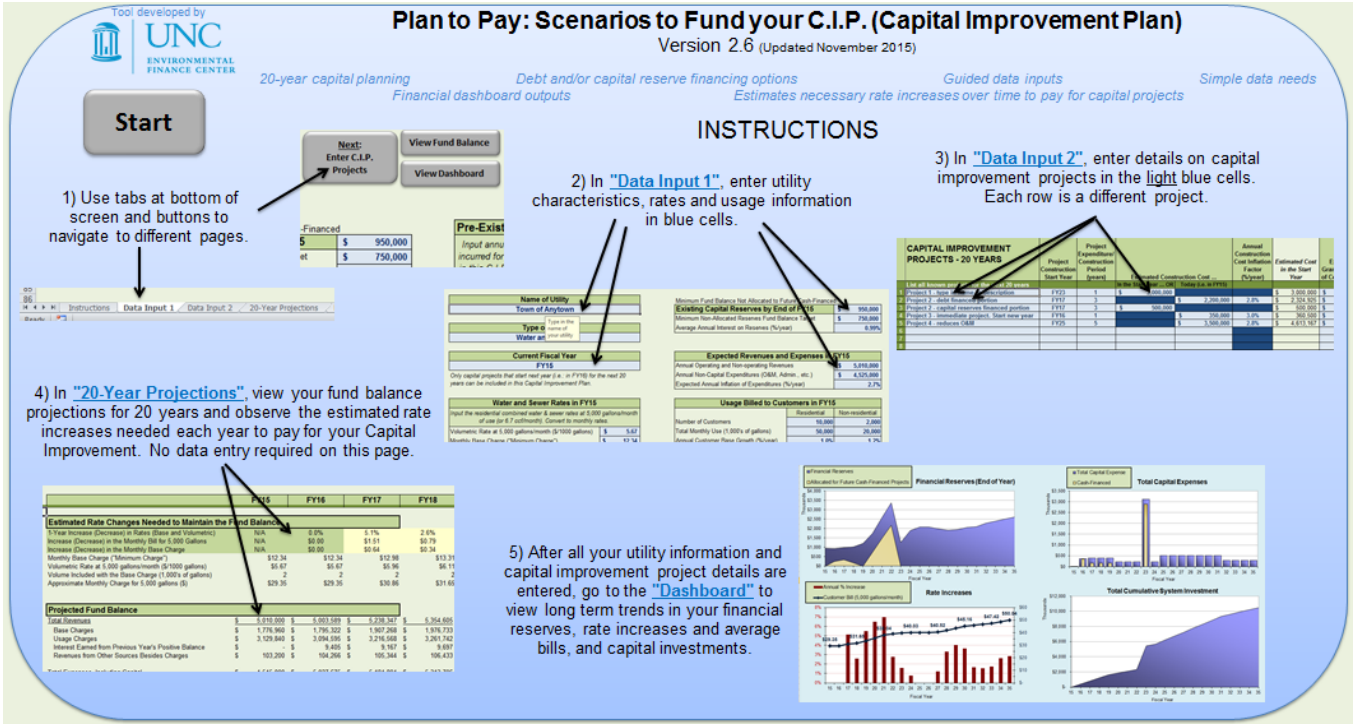
Source: *Environmental Finance* blog post available at http://efc.web.unc.edu/2012/09/26/using-an-index-to-help-project-capital-costs-into-the-future/

Plan to Pay: Scenarios to Fund your C.I.P.

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

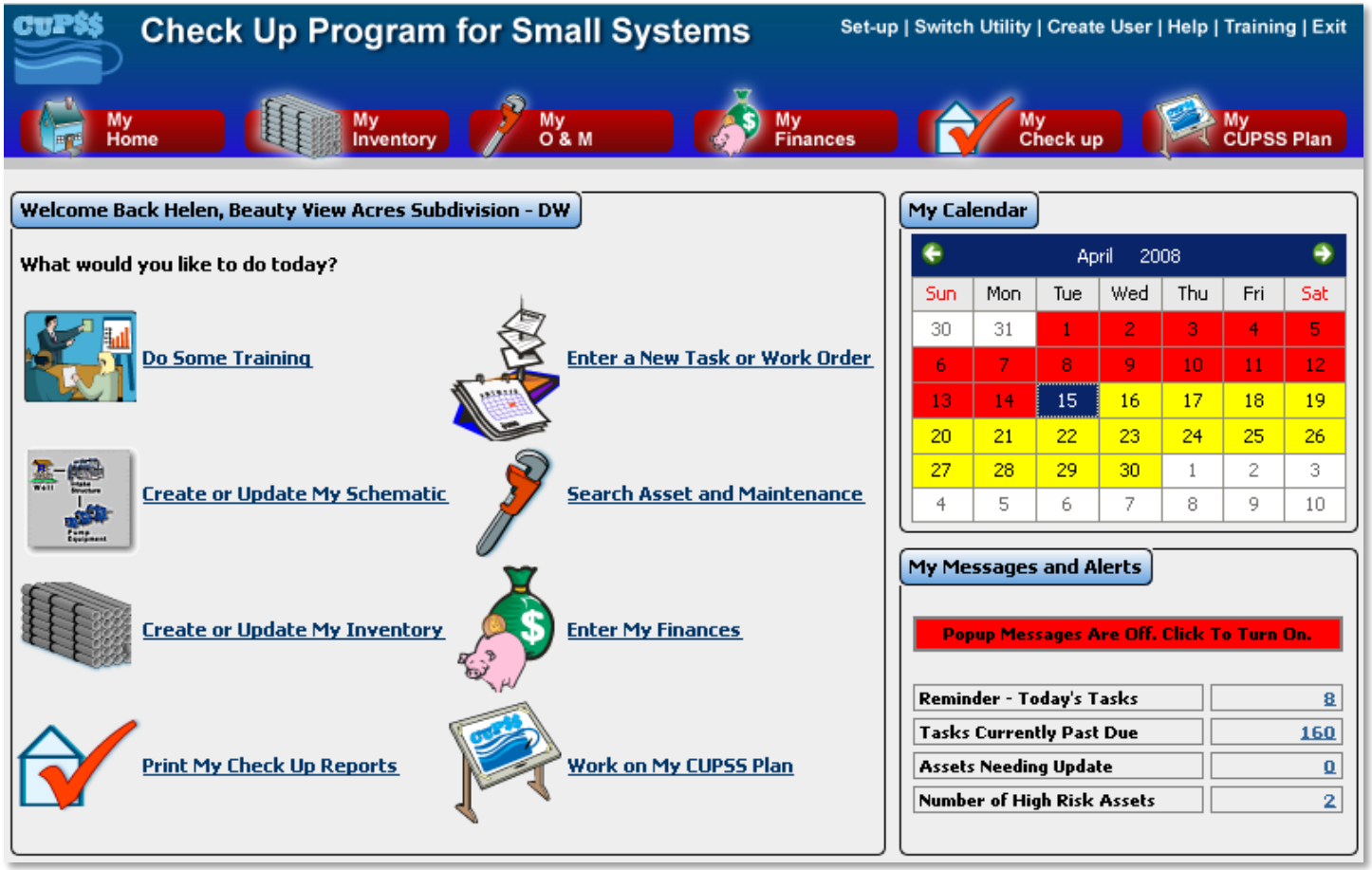
Find the most up-to-date version in Resources / Tools

Free, simplified Excel tool allowing you to list your capital projects and plans for funding them, and automatically estimates rate increases



Software: CUPSS (EPA)

http://www.epa.gov/cupss/



How to pay for capital improvements

- Pay as you go (current receipts)
- Save in advance and pay (reserve funds)
- Pay later (someone loans you money)
- Grants (let someone else pay)

Example from an actual budget of 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

Note: the budgeted revenues were also $382,932.87

What not including money for capital looks like

How to budget for cash capital expenses

- ~~Don't budget for it~~ … NO!
- Have a CIP, know how much cash you will need and when for capital projects in the next few years, break it up into each year's budget, then budget for those amounts to build up (and spend down) your reserves for capital projects
- Know how much you expect to spend – on average – every year for capital projects and budget that annually
- Budget for depreciation

Depreciation

- A “cost” every year of your infrastructure wearing out; a percentage of its value.
- Accounting tool. May not be reflective of actual conditions.
- Depreciation underestimates replacement costs.
- Depreciation can and should be adjusted over time, but how often does that happen?
- At best, is an imperfect (likely low) method to budget for capital costs.
- Ignores possibility that you might use debt to pay for replacement.

Using depreciation as a mechanism to budget for cash capital expenses

- If you are not doing any capital improvements in the next year and don’t use another method to budget for future capital costs, you should at least include depreciation in your budget.

- If you are implementing a CIP and budgeting for it directly, you don’t necessarily need to include depreciation in your budget, except for assets that are not planned for in the AMP or CIP.

Using depreciation as a mechanism to budget for cash capital expenses

- By including depreciation into rates, you collect revenues for future cash capital improvements
  - Could put it all into fund balance and keep track of it with a spreadsheet
  - Better is to put it into a capital reserve fund that is separate and only for capital projects

- Capital costs higher than depreciation, so maybe budget for a little more than depreciation

Recorded webinar on depreciation for water systems

https://www.youtube.com/watch?v=d8A7MJXFV1U&t=1115s

Typical sources of external funding

Bonds	Revenue bonds, GO bonds
Loans	From banks, or can be subsidized: e.g. WIFIA, USDA, SRFs, State agencies
Grants	From agencies: e.g. CDBG (HUD), EDA, State agencies

Working Effectively with Decision Makers

Session Overview

- Differentiate the roles of boards and staff
- Discuss strategies for getting buy-in for needed rate increases

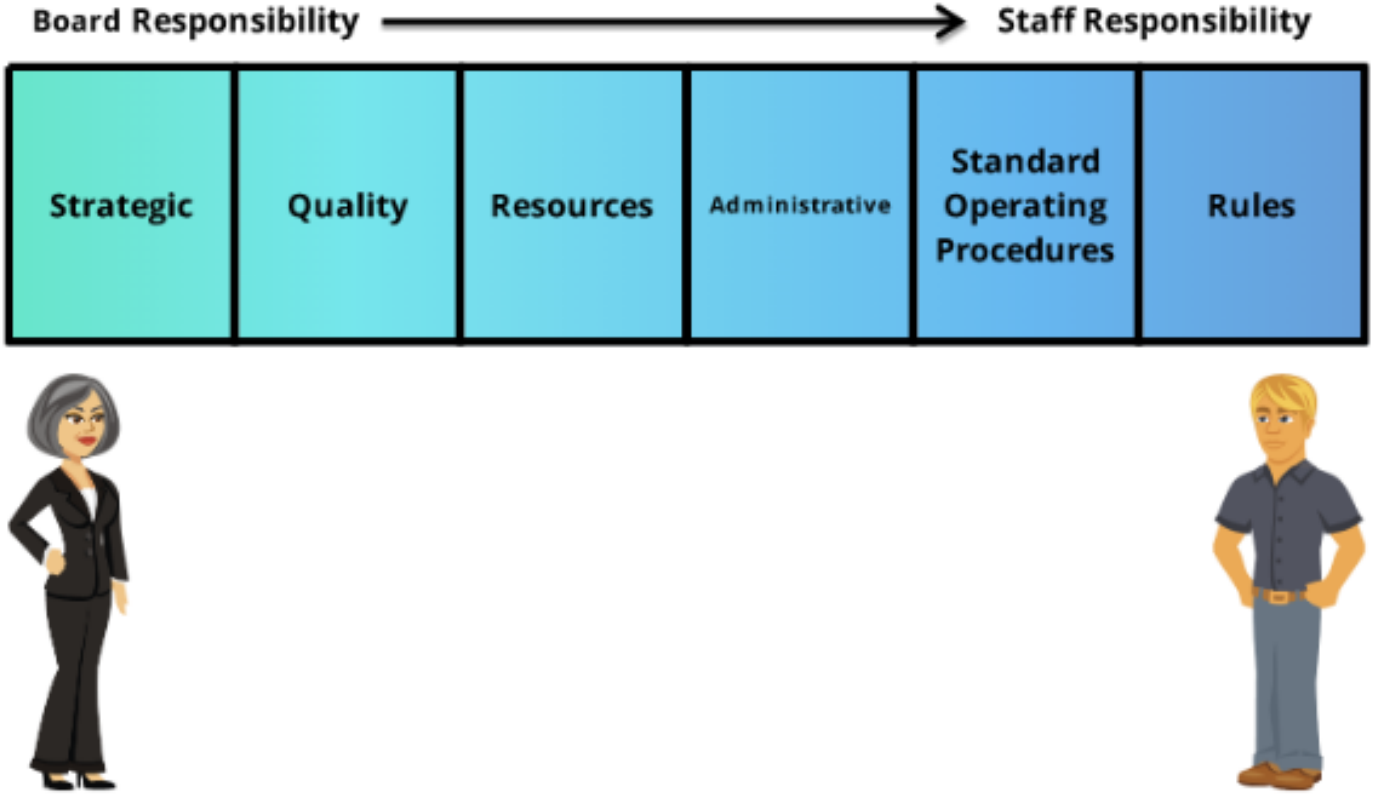
General water system tasks

- Managerial:
  - Prioritization/decision-making • Staffing • Training • Legal and regulatory • Communication • Contracting
- Operational:
  - Treatment and delivery • Billing and collections • Customer Service • Maintenance and capital projects • Asset management • Security
- Financial:
  - Budgeting • Accounting • Fund and debt management • Planning capital projects • Rate-setting

And much more

What is the difference between Board and Staff roles and responsibilities?

Difference Between Board and Staff Roles and Responsibilities



Difference Between Board and Staff Roles and Responsibilities

Board Responsibility → Staff Responsibility

Strategic	Quality	Resources	Administrative	Standard Operating Procedures	Rules

Decisions affecting long-term priorities such as mission, institutional direction, values, priorities and principles.

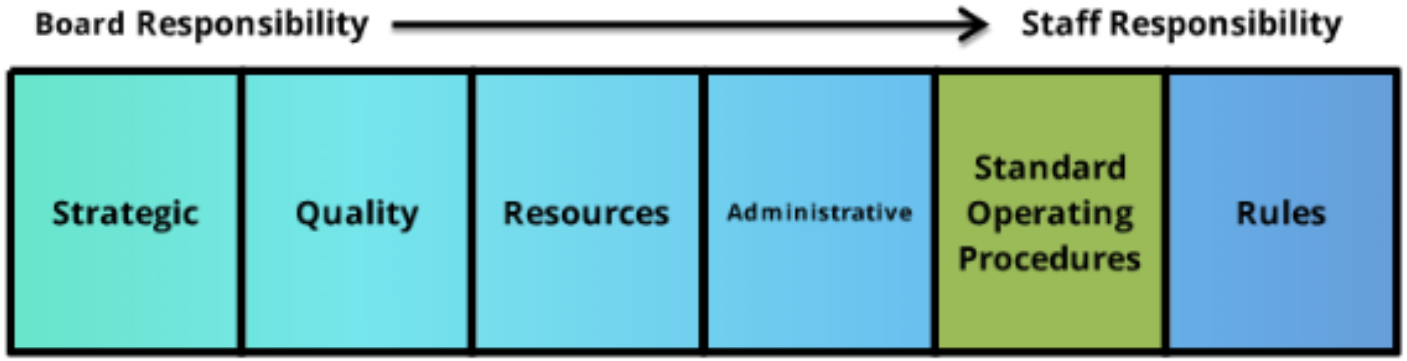
Difference Between Board and Staff Roles and Responsibilities

Board Responsibility → Staff Responsibility

Strategic	Quality	Resources	Administrative	Standard Operating Procedures	Rules

Decisions affecting planning, budgeting, financing, marketing, and personnel. Budget approval process, setting rates and fees.

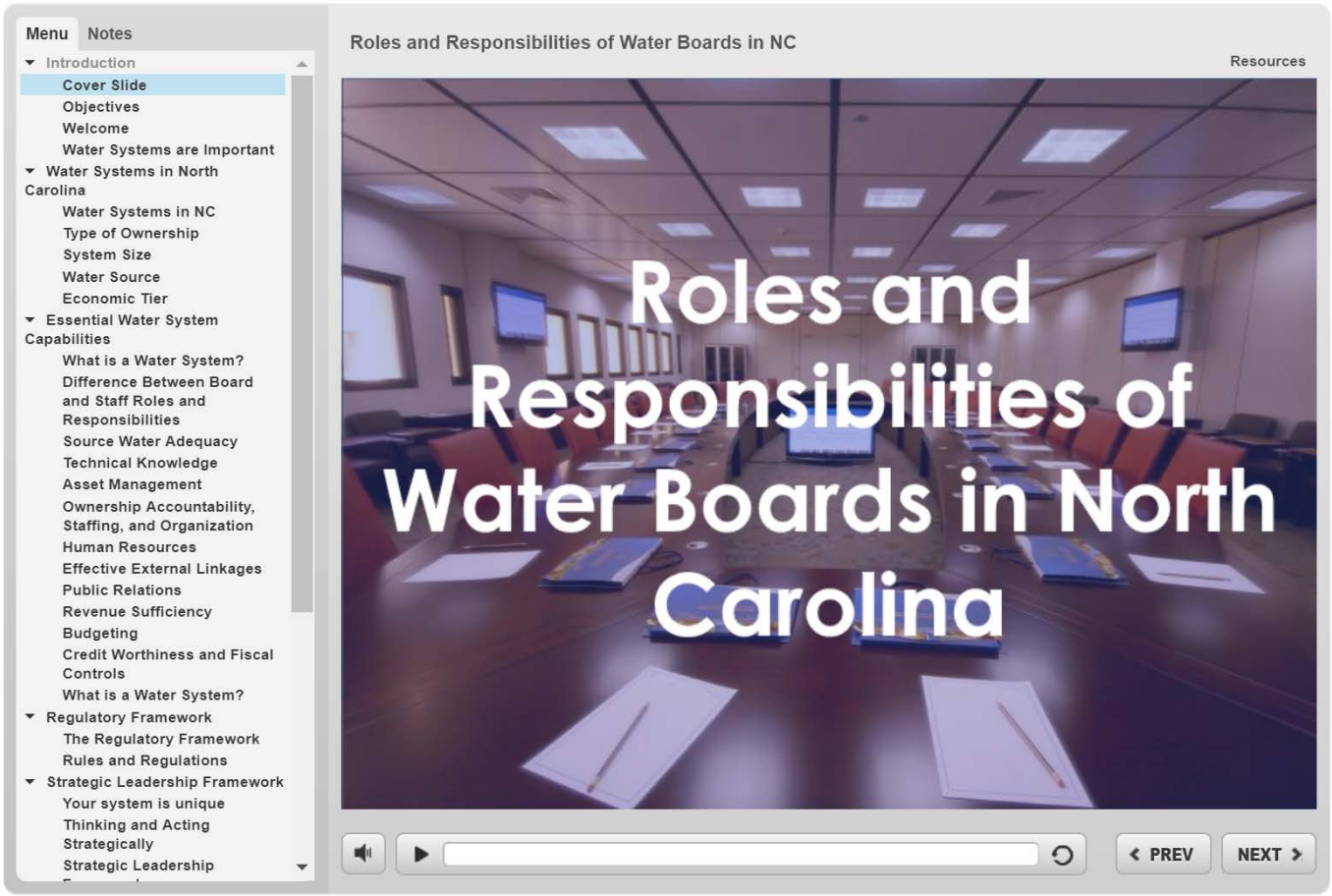
Difference Between Board and Staff Roles and Responsibilities



Decisions affecting procedures used to handle routine transactions and normal form, process, method and application of policies.

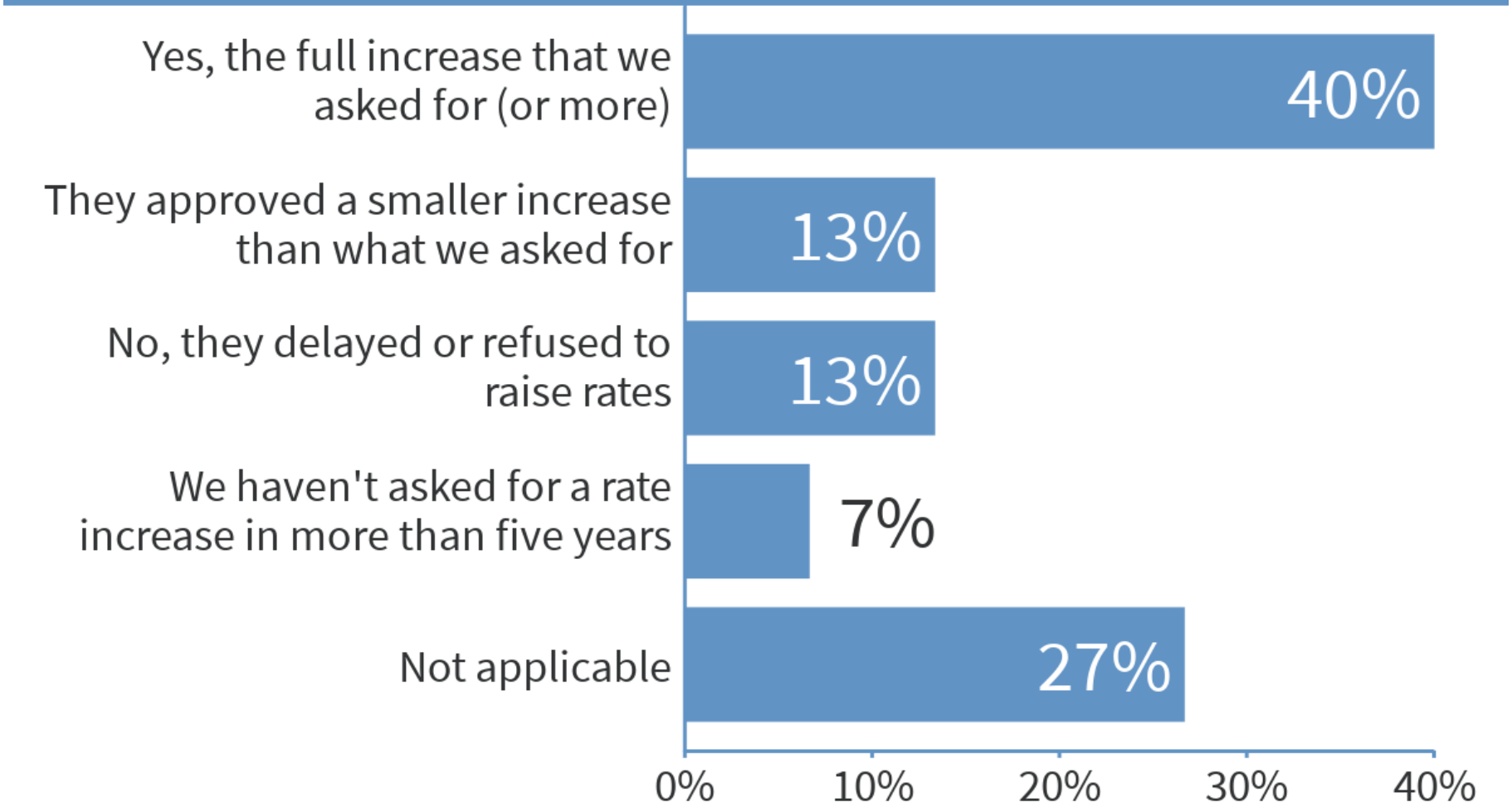
Interactive E-learning Module for Elected Officials and Board Members

http://go.unc.edu/Wo57D

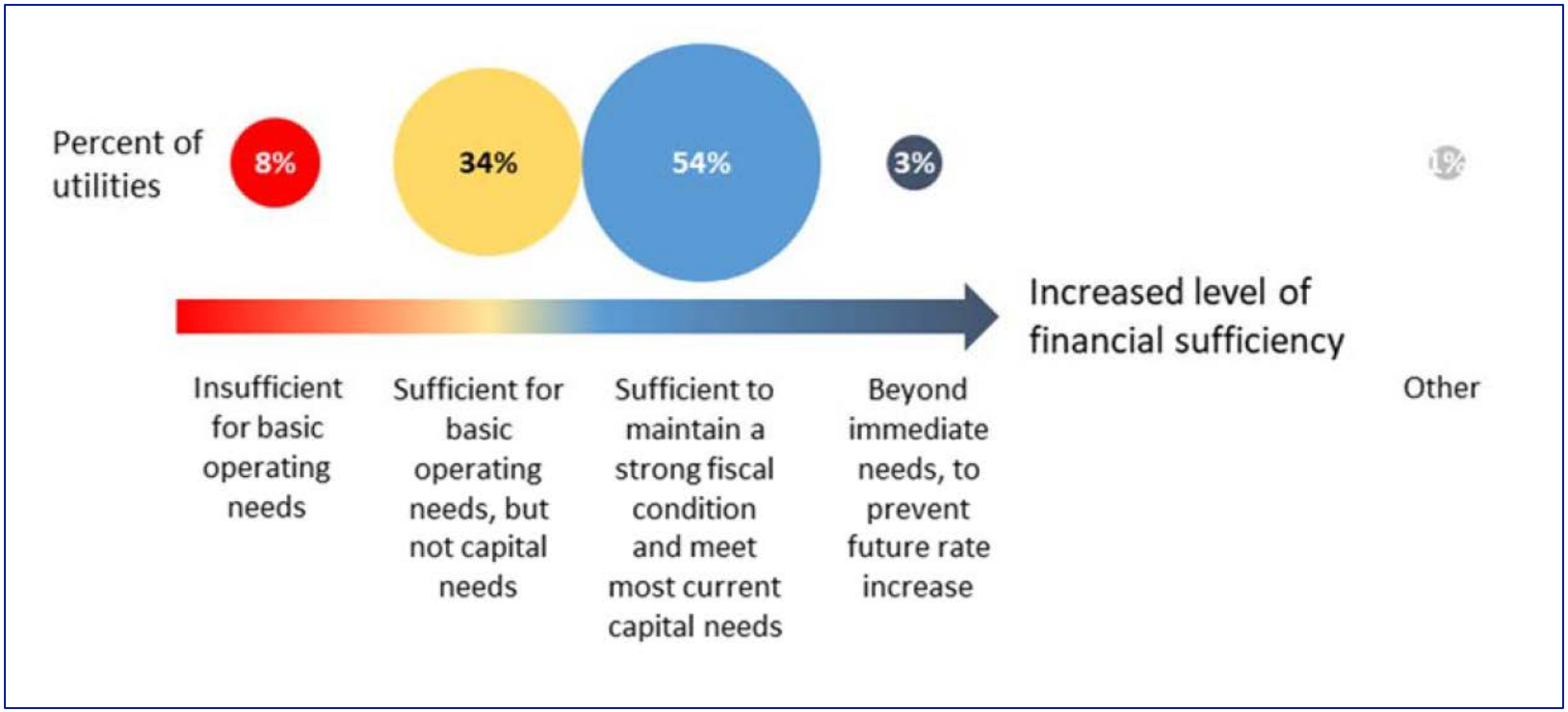


Getting buy-in

Did the board approve the last rate increase you requested?



Are utilities asking for enough?



Source: UNC-EFC: Results of the 2017-2018 North Carolina Water and Wastewater Utility Management Survey

What are some strategies that worked for you?

What doesn’t work?

Appeal based on what's good

Water has MWRA bubbling with joy

New process said to improve taste

By Michael Levenson
GLOBE CORRESPONDENT

It is flowing, 275 million gallons a day into our homes, and, boy, is it delicious, state officials say.

Tap water flowing to 2.3 million people in Greater Boston is now dramatically better tasting, officials say, thanks to a new treatment plant in Marlborough that uses ozone to remove contaminants with a decrease in chlorine.

"It's clean, and it's crisp, and it's refreshing, and it's a great product; we'd put the taste of our water up against any bottled water," said Frederick A. Laskey, executive director of the Massachusetts Water Resources Authority. "Put our water in the refrigerator, and it's great. And our water is great out of the tap."

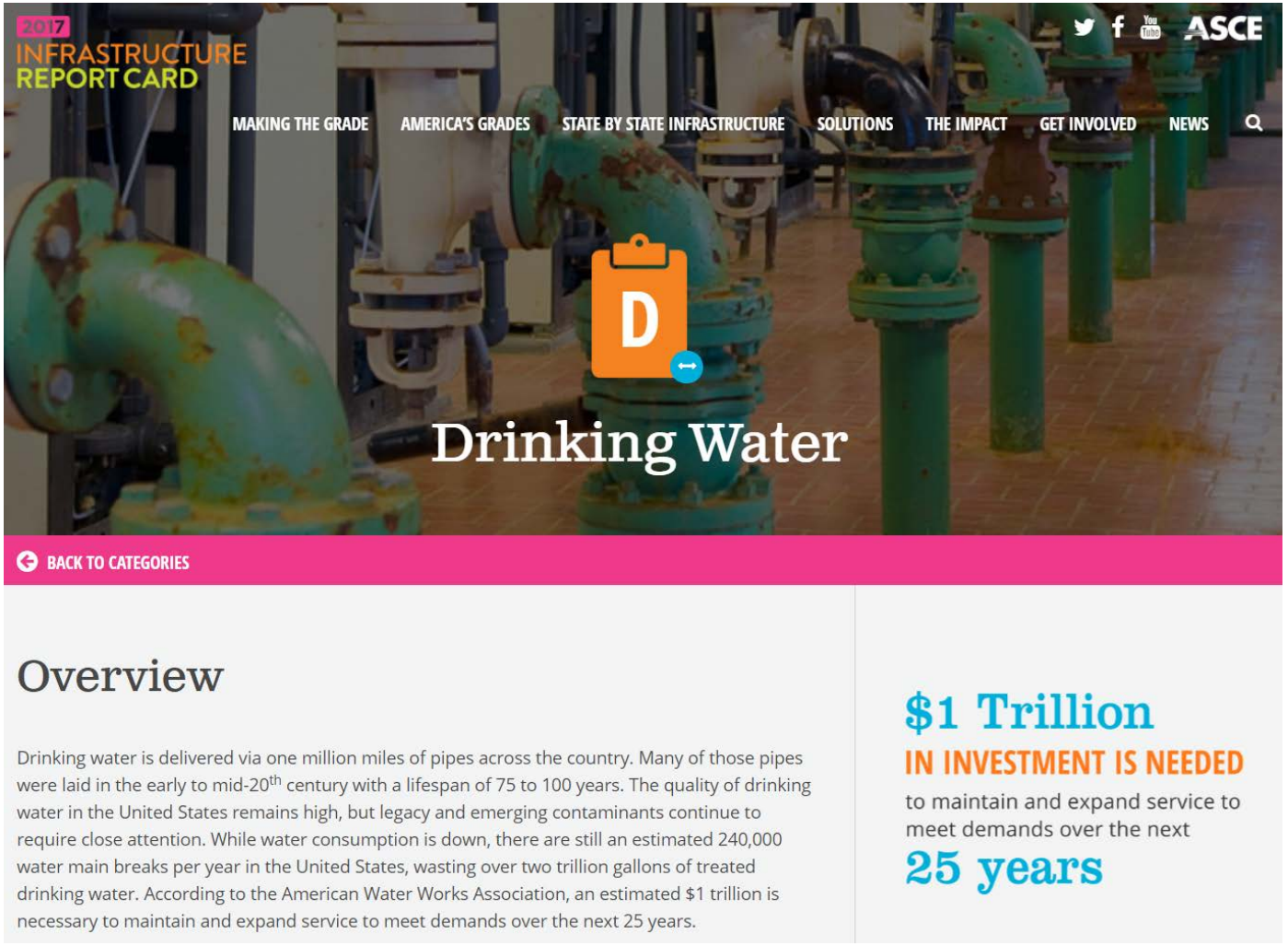
The ozone treatment not only affects taste, it also makes the water safer and cleaner than the stuff Greater Bostonians have been quaffing for generations, Laskey said.

A 2001 federal appeals court ruling spurred the MWRA to use ozone as a water purifier. The US Environmental Protection Agency had asked the authority to build a more sophisticated water filtration plant to remove contaminants. But the MWRA successfully argued that an ozone system could be built that would make the wa-

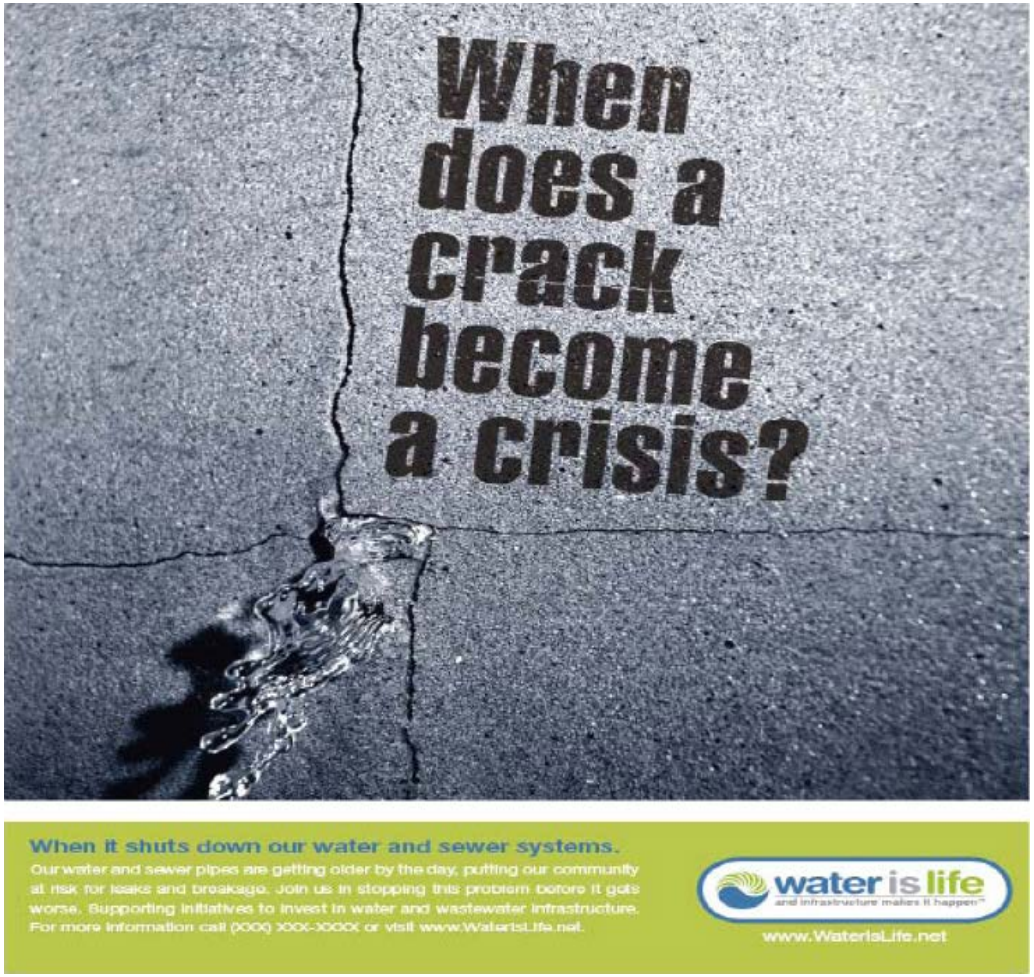
WATER, Page A12

"It's clean, and it's crisp, and it's refreshing, and it's a great product…"

Appeal based on what's wrong



Warn of consequences



A ‘good’ crisis…

EurekAlert! The Global Source for Science News | AAAS

Flint's Water Still Has Too Much Lead

k from the tap.

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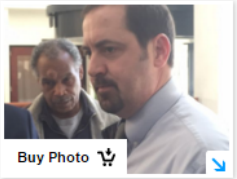
242 7 38

Water plant official: Move to Flint River 'bad decision'

Paul Egan, Detroit Free Press Lansing Bureau 9:15 p.m. EDT March 29, 2016



(Photo: Paul Egan/Detroit Free Press)

FLINT — A Flint water treatment plant official testified at a legislative hearing Tuesday he wanted to double his staff and run the plant on a test basis for six months when the city began taking its drinking water from the Flint River in 2014, but his requests were denied by the city, which was under the control of a state-appointed emergency manager.

Mike Glasgow's name is well-known to close followers of the Flint public health crisis because of the earlier release of an e-mail he sent to Michigan Department of Environmental Quality officials on April 17, 2014, saying the Flint water treatment plant was not ready to start treating Flint River water and would do so only "against my direction."

Glasgow, who was then a lab supervisor and is now the city utilities administrator

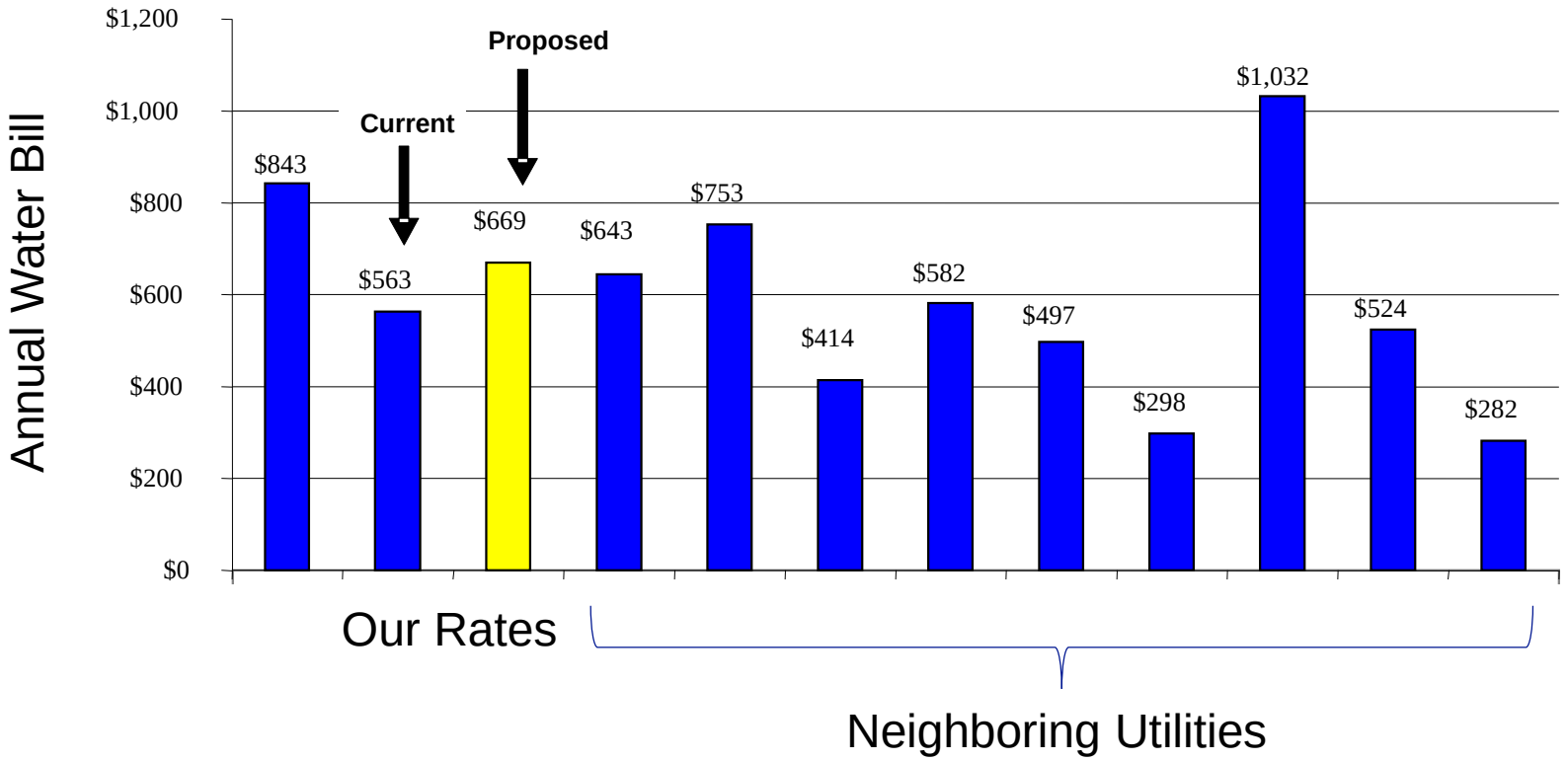
Use visuals

Photo Source: http://www.wuc.on.ca/information/distribution.our_watermains.cfm

Talk numbers

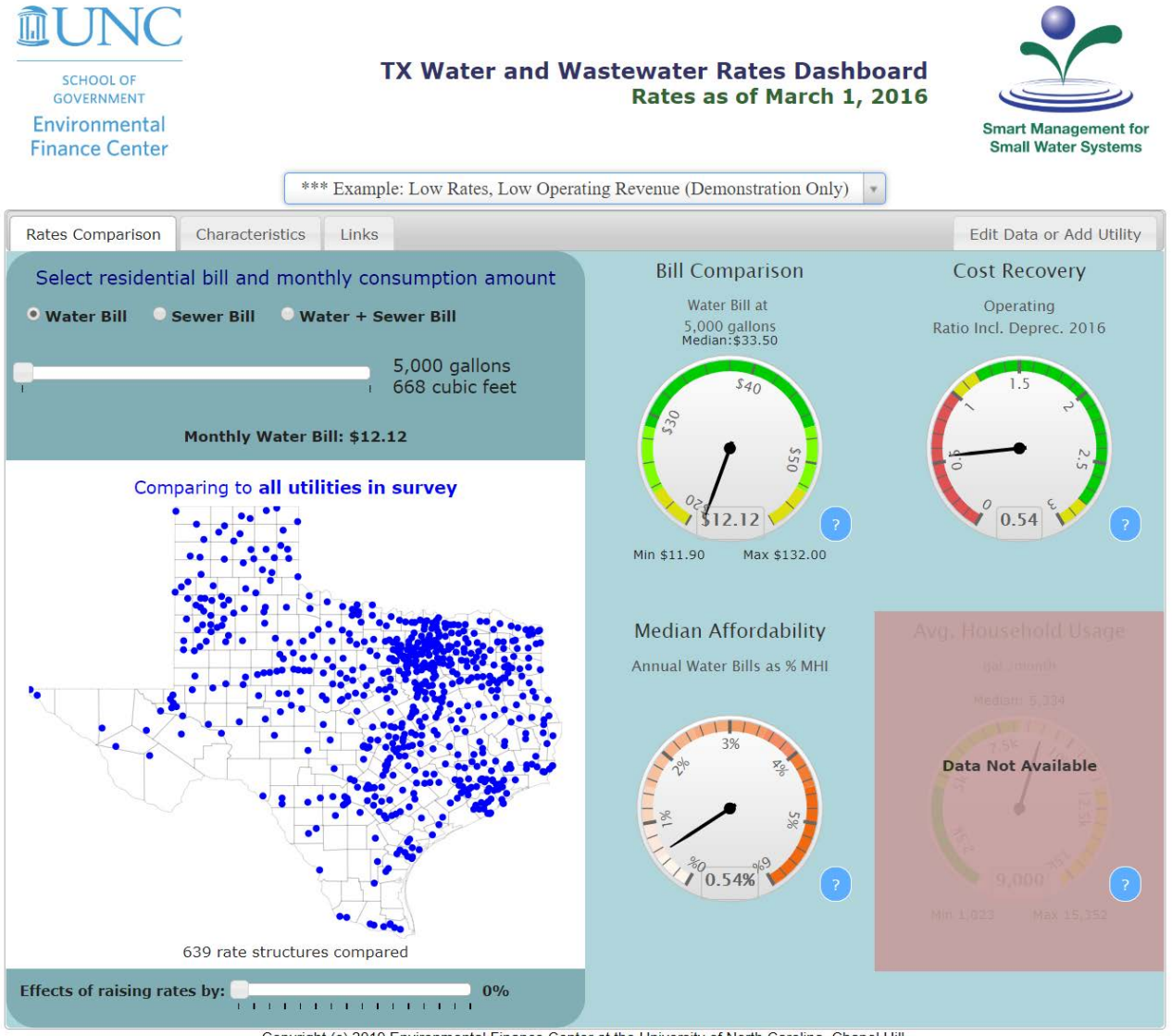
Annual Capital Improvement Budget for Water System	Total Value of Water System	Replacement Schedule
$226,000		

Benchmark and compare - cautiously



What's missing here?

Don’t race to the bottom: look beyond rates



Lessons from a national survey on communicating a rate case (2014)

ICMA
Leaders at the Core of Better Communities

Water Research Foundation

UNC ENVIRONMENTAL FINANCE CENTER

- 1,408 utility managers and 329 elected officials completed the survey
- Identified methods and information shared while communicating the need for a rate increase
- Created a toolkit for communicating rate cases to Boards

Identified key factors

- Trust (a good working relationship)
- Public involvement
- Appropriate information conveyed

Information Conveyed to Governing Boards

	Description	Utility Interviewed 1	2	3	4	5	6	7	8	9	10
1.	How much the average bill would change	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.	How changing circumstances affects finances	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3.	Anticipated capital expenses	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.	The financial condition of the water utility	✓	✓	✓	✓	✓		✓	✓	✓	✓
5.	The physical condition of the water utility	✓				✓			✓	✓	
6.	How proposed rates compare to customer incomes	✓							✓		✓
7.	Comparisons of rates with other utilities	✓	✓	✓	✓	✓		✓	✓		
8.	Bond covenants	✓	✓	✓	✓	✓			✓	✓	
9.	Multiple rate scenarios				✓			✓			✓
10.	Projected impact of rate adjustments on demand							✓		✓	
11.	Previous history of water rate adjustments	✓	✓			✓				✓	
12.	Rate adjustments needed in the next few years	✓	✓			✓		✓		✓	✓
13.	Comparisons of rate adjustments with other services	✓			✓			✓			
14.	Initiatives that improve efficiency				✓			✓	✓	✓	✓
15.	Customer satisfaction surveys					✓			✓		✓

Information Conveyed to Governing Boards

	Description	Utility Interviewed 1	2	3	4	5	6	7	8	9	10
1.	How much the average bill would change	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2.	How changing circumstances affects finances	✓	✓	✓	✓	✓	✓	✓	✓	✓	
3.	Anticipated capital expenses	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4.	The financial condition of the water utility	✓	✓	✓	✓	✓		✓	✓	✓	✓
5.	The physical condition of the water utility	✓				✓			✓	✓	
6.	How proposed rates compare to customer incomes	✓							✓		✓
7.	Comparisons of rates with other utilities	✓	✓	✓	✓	✓		✓	✓		
8.	Bond covenants	✓	✓	✓	✓	✓			✓	✓	
9.	Multiple rate scenarios				✓			✓			✓
10.	Projected impact of rate adjustments on demand							✓		✓	
11.	Previous history of water rate adjustments	✓	✓			✓				✓	
12.	Rate adjustments needed in the next few years	✓	✓			✓		✓		✓	✓
13.	Comparisons of rate adjustments with other services	✓			✓			✓			
14.	Initiatives that improve efficiency				✓			✓	✓	✓	✓
15.	Customer satisfaction surveys					✓			✓		✓

Highlighted were reported by Governing Boards as most helpful.

Funding Programs

Funding programs in TX

Last Revised: 04/10/2019

Funding Resources Guide

	Program	Funding Source	Eligible Applicants	Purpose	Access / Eligibility	Terms/Interest Rates	Contact
TWDB	Clean Water State Revolving Fund (CWSRF) *31 TAC 375*	Federal	• Political Subdivisions • Private entities are eligible to apply for non-point source pollution control projects	Planning, Acquisition (limited) and Design (PAD) and Construction of wastewater treatment, estuary management, stormwater and nonpoint source pollution control, and reclamation/reuse projects.	• Submit Project Information Forms (PIFs) before each year's solicitation deadline (typically in March). • Principal Forgiveness available for disadvantaged communities, emergency relief, and "green" projects	• Up to 30 years • Loan interest rates subsidized 130-165 basis points below market rates	Issa McDaniel CWSRF Program Coordinator (512) 463-1706 issa.mcdaniel@twdb.texas.gov
	Texas Water Development Fund (DFUND) *31 TAC 363*	State	• Political Subdivisions • Non-Profit Water Supply Corporations	Funding of planning, design and construction of water, wastewater and flood control projects.	First-come, first-serve. Applications accepted throughout the year.	• Typically 20-25 years • Loan interest rates based on TWDB's cost of funds (AAA bond rating)	Kimberly Rhodes State Programs Coordinator (512) 463-7277 kimberly.rhodes@twdb.texas.gov
	Drinking Water State Revolving Fund (DWSRF) *31 TAC 371*	Federal	• Political Subdivisions • Non-Profit Water Supply Corporations • Investor Owned Utilities	PAD and Construction of water projects to bring systems in compliance with water standards as set out by the Safe Drinking Water Act.	• Submit PIFs before each year's solicitation deadline. • Partial principal Forgiveness available for disadvantaged communities, projects with Green components, projects serving Very Small Systems (< 1,000 population), and Urgent Need projects.	• Up to 30 years • Loan interest rates subsidized 135 basis points below market rates	Tom Entsminger Program Administration Manager (512) 936-0802 tom.entsminger@twdb.texas.gov
	Economically Distressed Areas Program (EDAP) *31 TAC 355 and 363*	State	• Political Subdivisions • Non-Profit Water Supply Corporations	PAD and Construction of water and wastewater projects in areas designated as an economically distressed area.	• Project area must have: - Annual Median Household Income (AMHI) ≤ 75% of the Statewide AMHI - Water and or wastewater services that are inadequate to meet minimal needs of residential users (inadequate to provide services as of 6/2005) - Adopted Model Subdivision Rules (MSR)	• 20 years • Loan/Grant ratio depends on several factors including project phase, comparison to similar projects in the area, and public health nuisance determination	Kimberly Rhodes State Programs Coordinator (512) 463-7277 kimberly.rhodes@twdb.texas.gov

Funding programs in TX

- Texas Water Development Board (TWDB)
- Texas Commission on Environmental Quality (TCEQ)
- USDA – Rural Development
- Texas Department of Agriculture (TDA)
- Texas Department of State Health Services (TDSHS)
- Texas Association of Resources Conservation & Development Areas (RC&D)
- Communities Unlimited
- National Rural Water Association (NRWA)
- North American Development Bank (NADB)
- Rural Assistance Center (RAC)
- U.S. Environmental Protection Agency (EPA)
- Federal Emergency Management Agency (FEMA)
- U.S. Bureau of Reclamation (USBR)
- CoBank

Presentation by the Texas Water Development Board

Eligible Applicants

	SWIFT	CWSRF	DWSRF	EDAP	RWAF	SP	DFund
Political Subdivisions							
Non-profit WSC's							
Investor-owned Utilities							
Private Entities							

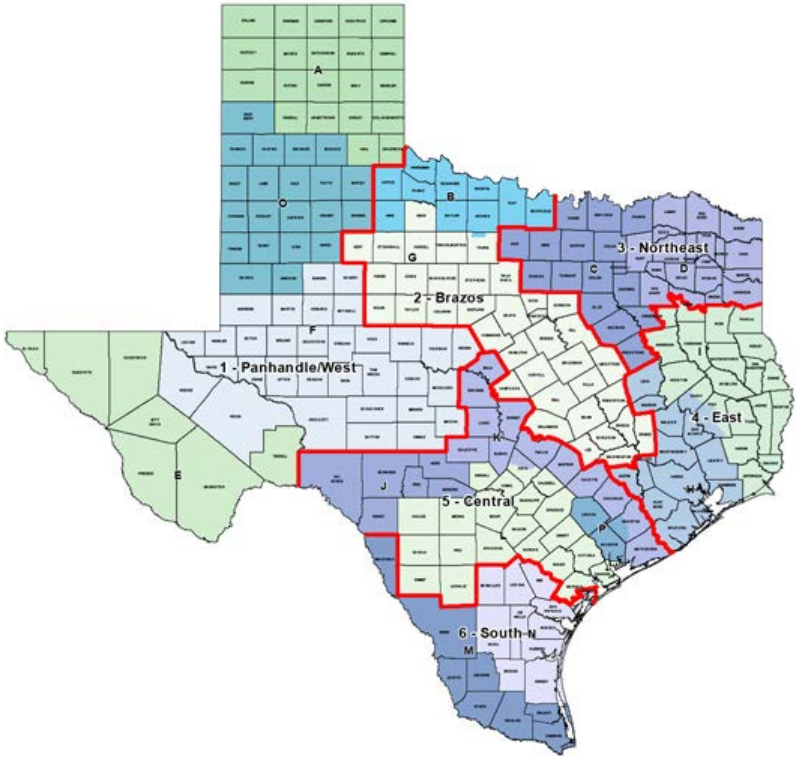
Nonpoint Source Pollution Control Projects Only

Eligible Projects

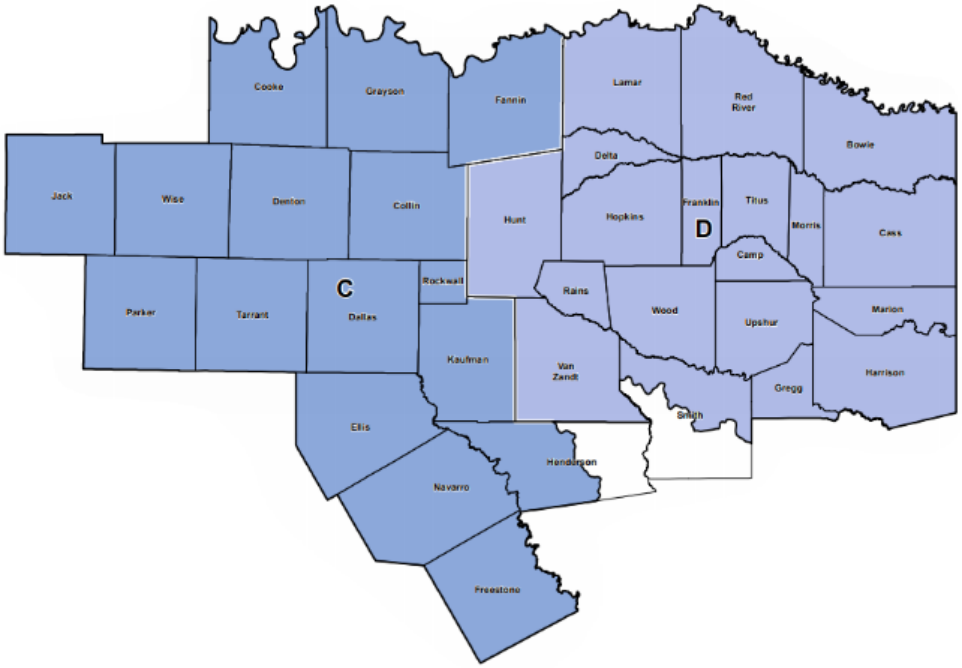
	SWIFT	CWSRF	DWSRF	EDAP	RWAF	SP	DFund
Water Supply: Current Need	●		●	●	●	●	●
Water Supply: Future Need	●				●	●	●
Water Treatment	●		●	●	●	●	●
Water Transmission & Distribution	●		●	●	●		●
Potable Reuse	●	●	●	●	●	●	●
Wastewater Collection		●		●	●	●	●
Wastewater Treatment		●		●	●	●	●
Nonpoint Source Pollution Control		●					
Flood Control & Storm Water Management		●	●				●

How to Get Started

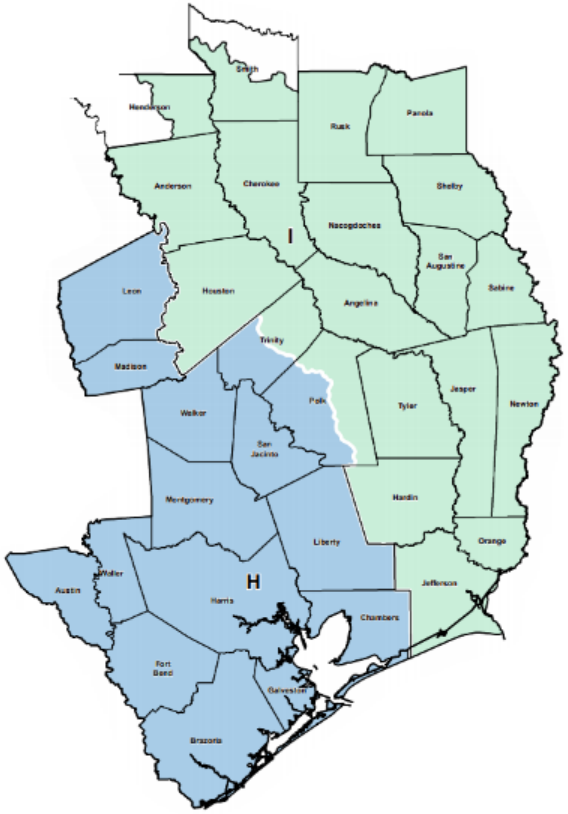
CONTACT US!	
Team 1 Panhandle/West Regions: A/O/E/F	**Lee Huntoon** (512) 463-6021
Team 2 Brazos Regions: G/B	**Caaren Skrobarczyk** (512) 475-1128
Team 3 Northeast Regions: C/D	**Luis Farias** (512) 475-4816
Team 4 East Regions: H/I	**Nancy Richards** (512) 463-0250
Team 5 Central Regions: J/K/L/P	**Dain Larsen** (512) 463-1618
Team 6 South Regions: M/N	**Mireya Loewe** (512) 475-0590



Team 3: Northeast Texas



Team 4: East Texas



Questions

Taylor Christian
Drinking Water SRF Coordinator
512-463-8430
Taylor.Christian@twdb.Texas.gov

Presentation by TCEQ / TWICC

Resources for public water systems

What makes a public water system healthy?

Planning

Knowledgeable staff

Solid financing

Customer & management support

Partners

How do we get there?

F M T

Financial

Managerial

Technical

Free on-site assistance

- Operator training
- Sampling & reporting
- Water loss
- Disinfection
- Consolidation assessment

For more information - TCEQ

- https://www.tceq.texas.gov/drinkingwater/fmt

Phone: 512-239-4691 – FMT contract team
E-mail: **FMT@tceq.texas.gov**

For more information - PUC

Water Utilities Division
Phone: 512-936-7405
E-mail: water@puc.texas.gov

Rates & budgets Consolidation assistance

TWICC

Texas Water Infrastructure Coordination Committee

One-stop shopping for

funding & other assistance

TWICC

Texas Water Infrastructure Coordination Committee

United States Environmental Protection Agency

Department of Agriculture Texas

TCEQ

Communities Unlimited

TRWA
Texas Rural Water Association

USDA Rural Development
Committed to the future of rural communities.

Texas Water Development Board

Texas AWWA
American Water Works Association

U.S. Department of the Interior
Bureau of Reclamation

North American Development Bank
Banco de Desarrollo de América del Norte

BECC
COCEF

Public Utility Commission of Texas


BOAT
RAMP
CLOSED

www.twicc.org

Local organizations

- Council of Governments
- Local officials
- Planning groups

Neighbors


CAROL'S
CAFE
Thursday Night
Fried Catfish & Live Music
5pm - 9pm

Education & training

2019 Public Drinking Water Conference
Free

August 8 - 9, 2019
Austin, Texas

Water operators can earn continuing education unit (CEU) credits.

PDW Conference Registration will open in May 2019

Questions?

Thank you for your time!

Dorothy Young

dorothy.young@tceq.texas.gov

512.239.6064

Closing

Small water systems: www.EFCNetwork.org

Workshops, webinars, and recordings

Sign up for free in-depth (multi-day or multi-hour) direct assistance

Collection of resources for small water systems (tools, guides)

Free, thanks to a cooperative agreement with the U.S. E.P.A.

Thank you and don’t be a stranger!

- Please fill out an evaluation form
- Contact us anytime for direct assistance on any finance and management topic

http://efcnetwork.org

Shadi Eskaf
919-962-2785
eskaf@sog.unc.edu