



Smart Management for  
Small Water Systems

# Financial Planning for Small Water Systems

Franklin, VA  
October 24, 2019



UNC  
ENVIRONMENTAL  
FINANCE CENTER



NADO  
NATIONAL ASSOCIATION OF DEVELOPMENT ORGANIZATIONS  
RESEARCH FOUNDATION



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

# *Environmentalfinance.org*

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# Housekeeping and Project Introduction



# CEU Certificates

**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 mark the checkbox that you need a certificate?

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](mailto: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.

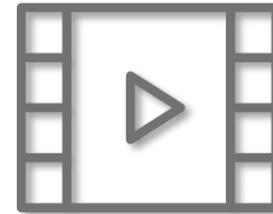
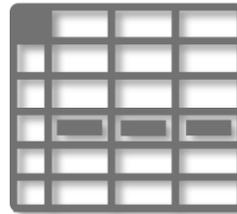
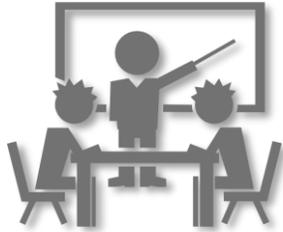
**EFCN follows the IACET Standard of CEU calculation.**

0.1 CEU = 1 Contact Hour or 1 Professional Development Hour

**Questions?** Please contact [Smallsystem@syr.edu](mailto:Smallsystem@syr.edu)



# Smart Management for Small Water Systems Program



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.

# Small Systems Program Team

- 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)



# 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



*This project has been funded wholly or in part by the United States Environmental Protection Agency under assistance agreement A18-0408-001 to the University of North Carolina at Chapel Hill. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency, nor does the EPA endorse trade names or recommend the use of commercial products mentioned in this document.*



# Workshop Objectives/Agenda

1. Assessing a utilities' financial position and performance with key financial indicators
2. Asset management and capital planning
3. Eat lunch with someone new
4. Analyzing rate setting objectives and the impact on customers
5. Financial planning tools and funding sources (CIPs, VA WBOP)



# Path Towards Financial Sustainability

- **Get to know your assets and financial condition**
- **Establish your priorities and goals**
- **Identify your “true”, “full”, or “fuller” costs**
- Get to know your customers (usage, characteristics)
- Consider future scenarios and changes
- **Establish rates (rate structure and prices)**
- Repeat as often as necessary.....



# Introductions

1. Name, organization, title?
2. What was your first car?
3. What about your water system management makes you most proud?
4. What is your water system's biggest financial challenge?
5. What indicators or metrics support your assessment?



# Assessing a Utility's Financial Position and Performance and Operating Environment

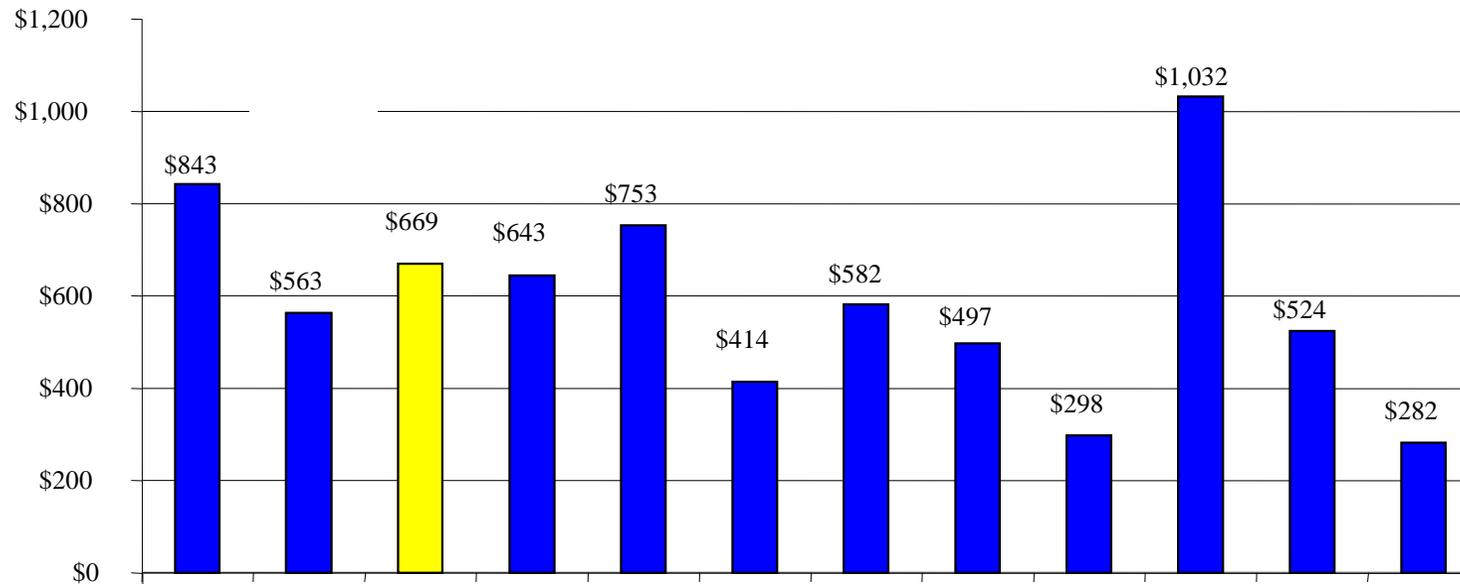
- Financial indicators
- Customer base demographics



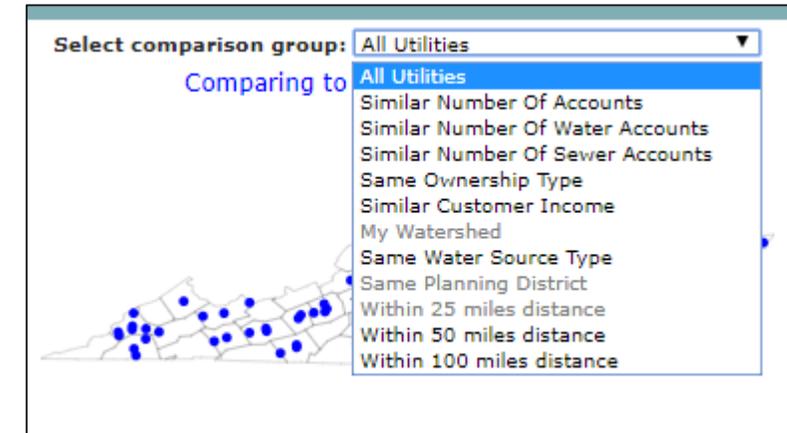
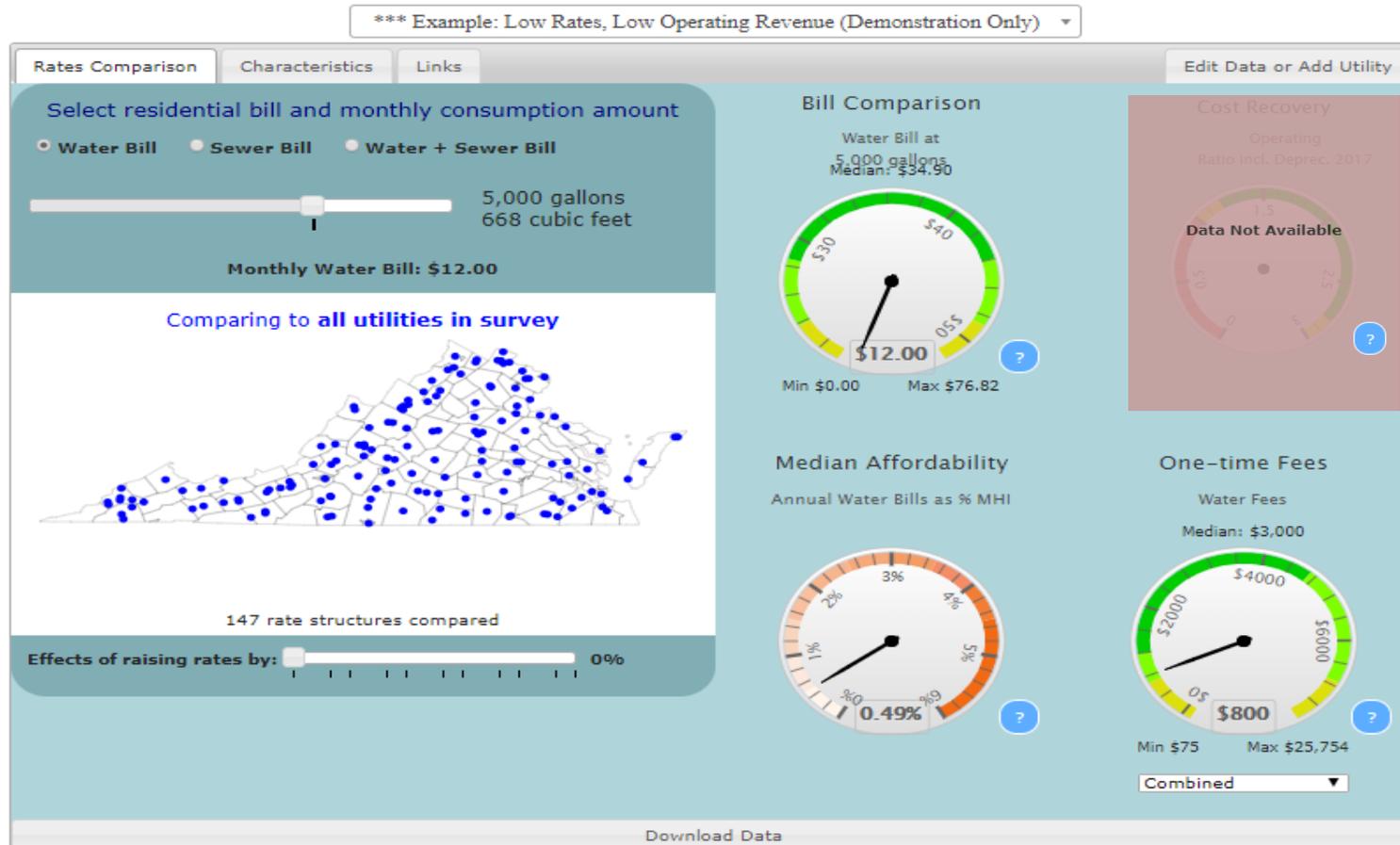
# What keeps you up at night?

- Not being able to pay for operations
- Not being able to pay for needed capital investment
- Having rates that your customers can't or won't pay
- Being surprised and not resilient
- If you have revenue problems, how long can you maintain operations
- How much of your utility's expected life has already run out (and how much is left)

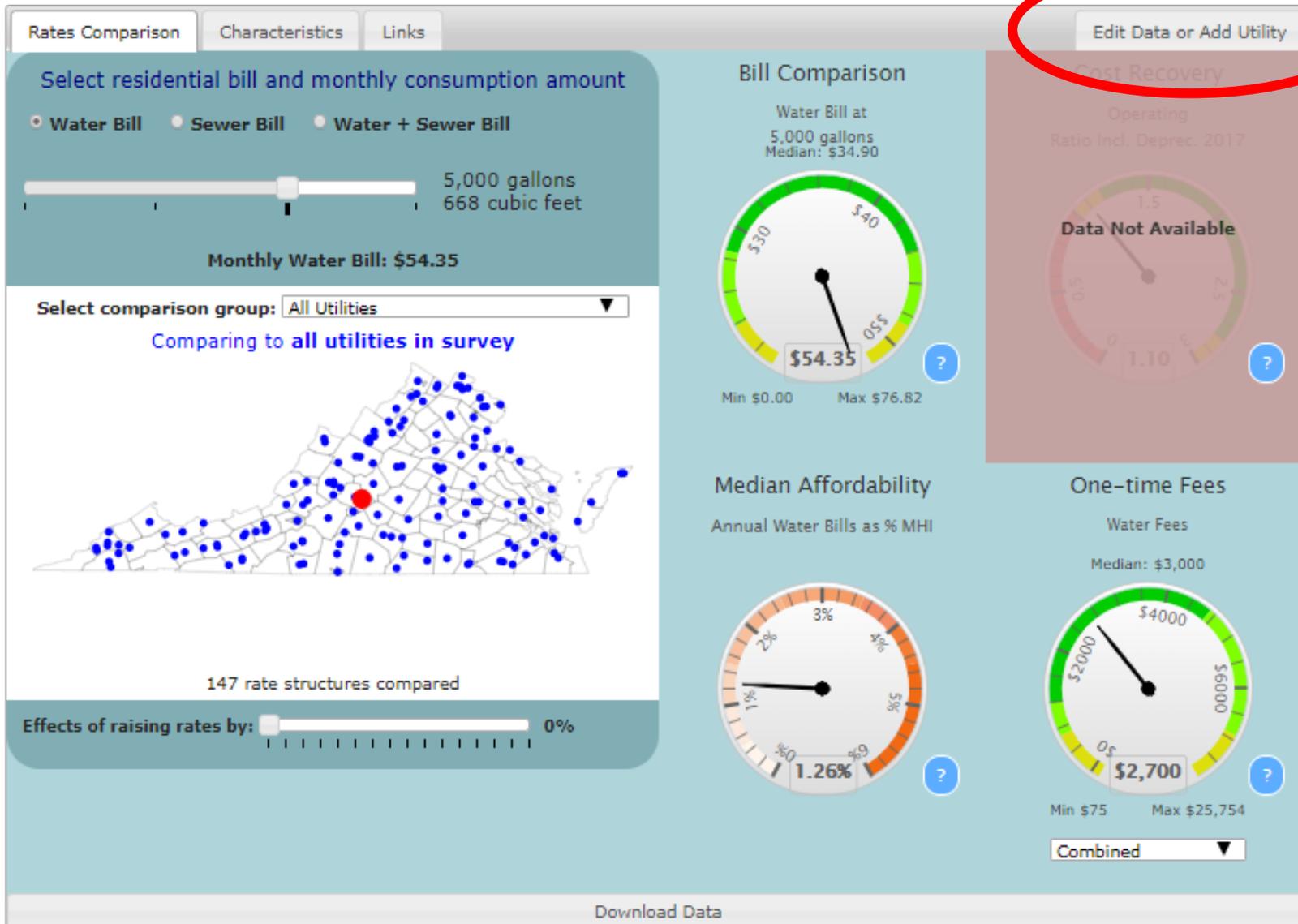
# Financial Benchmarking: Friend or Foe? What is missing from this analysis?



# Don't Race to the Bottom – Look Beyond Rates



<https://efc.sog.unc.edu/resource/virginia-water-and-wastewater-rates-dashboard-0>





\*\*\* Example Utility (Demonstration Only) ▼

Rates Comparison

Characteristics

Links

Edit Data or Add Utility

Note: Data will only be available locally on this computer/ web browser.  
Your Utilities will show up in the drop-down list above.  
Some functions of the dashboard are disabled for user-defined utilities.

- Example: Low Rates, Low Operating Revenue (Demonstration Only) [Edit](#) [Use](#)
- Example Utility (Demonstration Only) [Edit](#) [Use](#)
- Example: Affordability Issue (Demonstration Only) [Edit](#) [Use](#)

Create a new Utility

Clone Utility 'Example Utility (Demonstration Only)'

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\*\*\* Example Utility (Demonstration Only)

Rates Comparison

Characteristics

Links

Edit Data or Add Utility

Note: Data will only be available locally on this computer/ web browser.  
Your Utilities will show up in the drop-down list above.  
Some functions of the dashboard are disabled for user-defined utilities.

## Input all data on your utility here

Utility Name

Select residential bill and monthly consumption amount  5,000 gallons

Monthly water bill at 5,000 gallons

No water service

Monthly sewer bill at 5,000 gallons

No sewer service

### One Time Fees

Capital Recovery

Connection

**Water**

**Sewer**

Annual Median Household Income

Annual Operating Revenues

Annual Operating Expenses Including Depreciation

Fiscal Year of Financial Data

Save

Cancel

\*\*\* Example Utility (Demonstration Only) ▼

Rates Comparison
Characteristics
Links
Edit Data or Add Utility

Select residential bill and monthly consumption amount

Water Bill  
  Sewer Bill  
  Water + Sewer Bill

5,000 gallons  
 668 cubic feet

**Monthly Water Bill: \$28.00**

Comparing to **all utilities in survey**

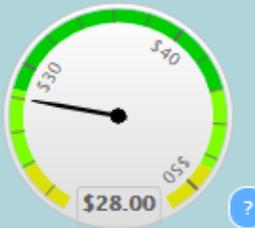


147 rate structures compared

Effects of raising rates by:  0%

**Bill Comparison**

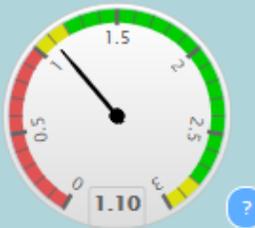
Water Bill at  
5,000 gallons  
Median: \$34.90



Min \$0.00   Max \$76.82

**Cost Recovery**

Operating  
Ratio Incl. Deprec. 2017



Min 0   Max 3

**Median Affordability**

Annual Water Bills as % MHI



Min 0%   Max 5%

**One-time Fees**

Water Fees  
Median: \$3,000



Min \$75   Max \$25,754

Download Data

# Whiteboard Video: Financial Benchmarking





# Potential Sources of Information

- Financial reports (current and future)
- Actual past budgets/spending
- Asset management plans, capital budgets
- Billing software
- US Census
- Reports with peer data

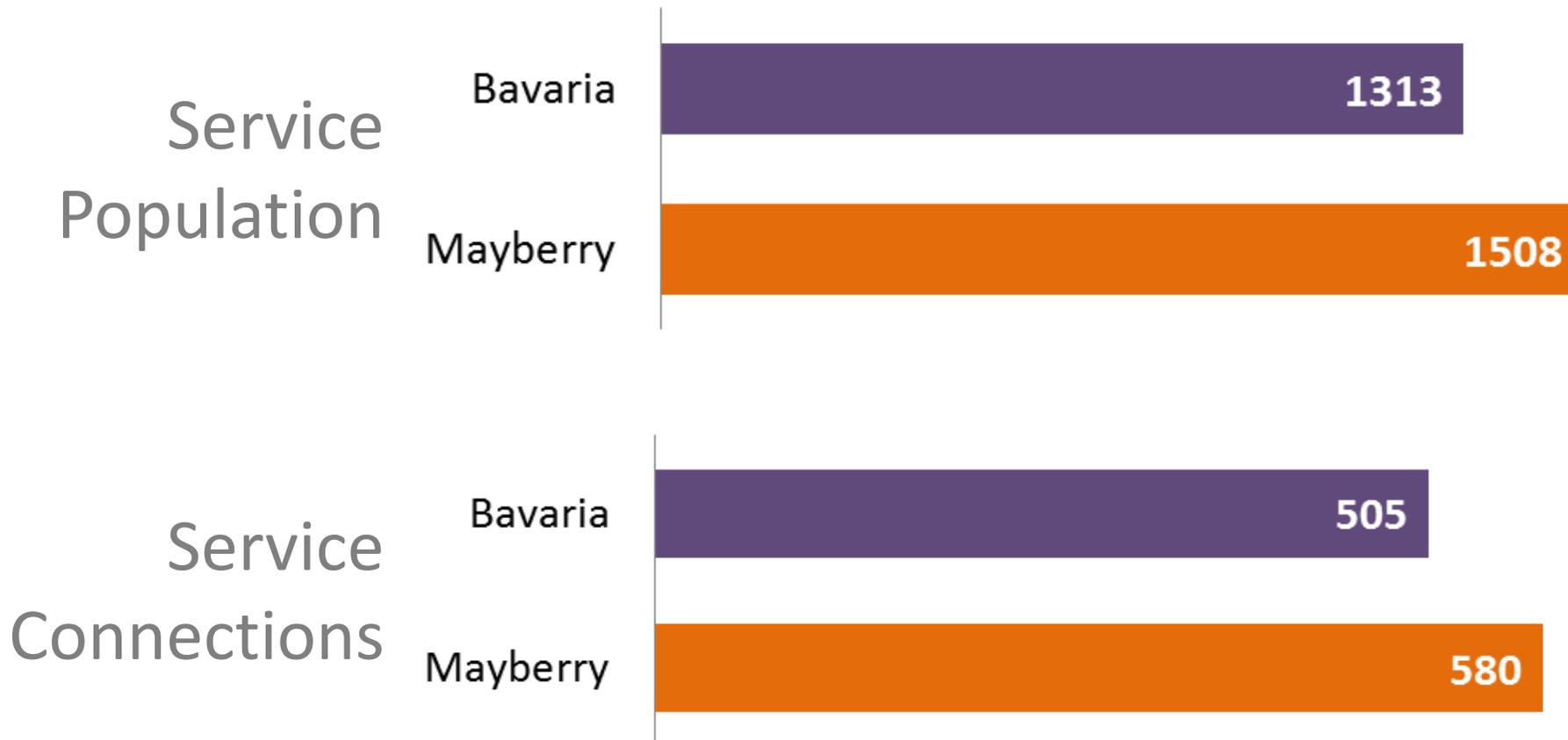


# A Tale of Two Systems That Look Similar On Paper...

- **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

MHI



Percent Poverty



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



Mayberry



Bavaria

# Quick Overview of Financial Statements

MAYERBERG STATEMENT OF NET ASSETS PROPRIETARY FUNDS DECEMBER 31, 2010		BAYARIA STATEMENT OF NET ASSETS PROPRIETARY FUND JUNE 30, 2011	
<b>ASSETS</b>			
Current Assets			
Cash	284,130	368,001	(7)
Accounts receivable, net	414,800	60,346	(8)
Total current assets	698,930	5,856	(5)
Capital Assets			
Land and improvements	30,229	209,556	(9)
Distribution and collection systems	5,735,840	22,982	(9)
Multiple	500,334	5,873,709	(9)
Less accumulated depreciation	(2,331,334)	(896,073)	(9)
Total capital assets	4,000,539	1,454,079	(9)
<b>Total Assets</b>	<b>\$ 4,697,539</b>	<b>(2,883,225)</b>	(9)
<b>LIABILITIES</b>			
Current Liabilities			
Accounts payable	9,252	209,556	(9)
Customer deposits	44,225	22,982	(9)
Total current liabilities	53,477	5,873,709	(9)
Noncurrent Liabilities			
Bond payable	100,000	896,073	(9)
Total noncurrent liabilities	100,000	1,454,079	(9)
<b>Total Liabilities</b>	<b>\$ 153,477</b>	<b>(2,883,225)</b>	(9)
<b>NET ASSETS</b>			
Invested in capital assets net of related debt	2,848,279	30,833	(9)
Unrestricted for debt service	176,424	5,781,214	(9)
Total net assets	3,024,703	5,812,047	(9)
<b>Total liabilities and net assets</b>	<b>\$ 4,697,539</b>	<b>(2,883,225)</b>	(9)

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

4,355,133  
114,583  
163,267  
\$ 4,632,983



# 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

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

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

# Operating Ratio – Mayberry

## Including Depreciation

$$\begin{array}{r} \boxed{\$444,231} \\ \text{Operating Revenues (1)} \\ \hline \boxed{\$511,448} \\ \text{Operating Expenses (including depreciation) (2)} \end{array} = \boxed{0.87}$$

1a.

# Operating Ratio – Mayberry

## Excluding Depreciation

**1b.**

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

Operating Revenues (1)

Operating Expenses (excluding depreciation) (2-3)

OE \$511,448  
- DEP \$142,463



# Debt Service Coverage Ratio

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

# Debt Service Coverage Ratio

## – Mayberry

OE \$511,448  
- Dep \$142,463

\$444,231 - \$368,985

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

2. \_\_\_\_\_ = 0.89

\$84,783

Principal & Interest on Long-Term Debt (4)

P \$49,655  
+ I \$35,128



# Days of Cash on Hand

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

# Days of Cash on Hand – Mayberry

$$\begin{array}{r} \boxed{\$107,706} \\ \text{Unrestricted Cash \& Cash Equivalents (5)} \\ \hline \boxed{3.} \quad \boxed{\$368,985} \quad / \quad 365 \\ \text{Operating Expenses (excluding depreciation) (2-3)} \end{array} = \boxed{107}$$

OE \$511,448  
- Dep \$142,463

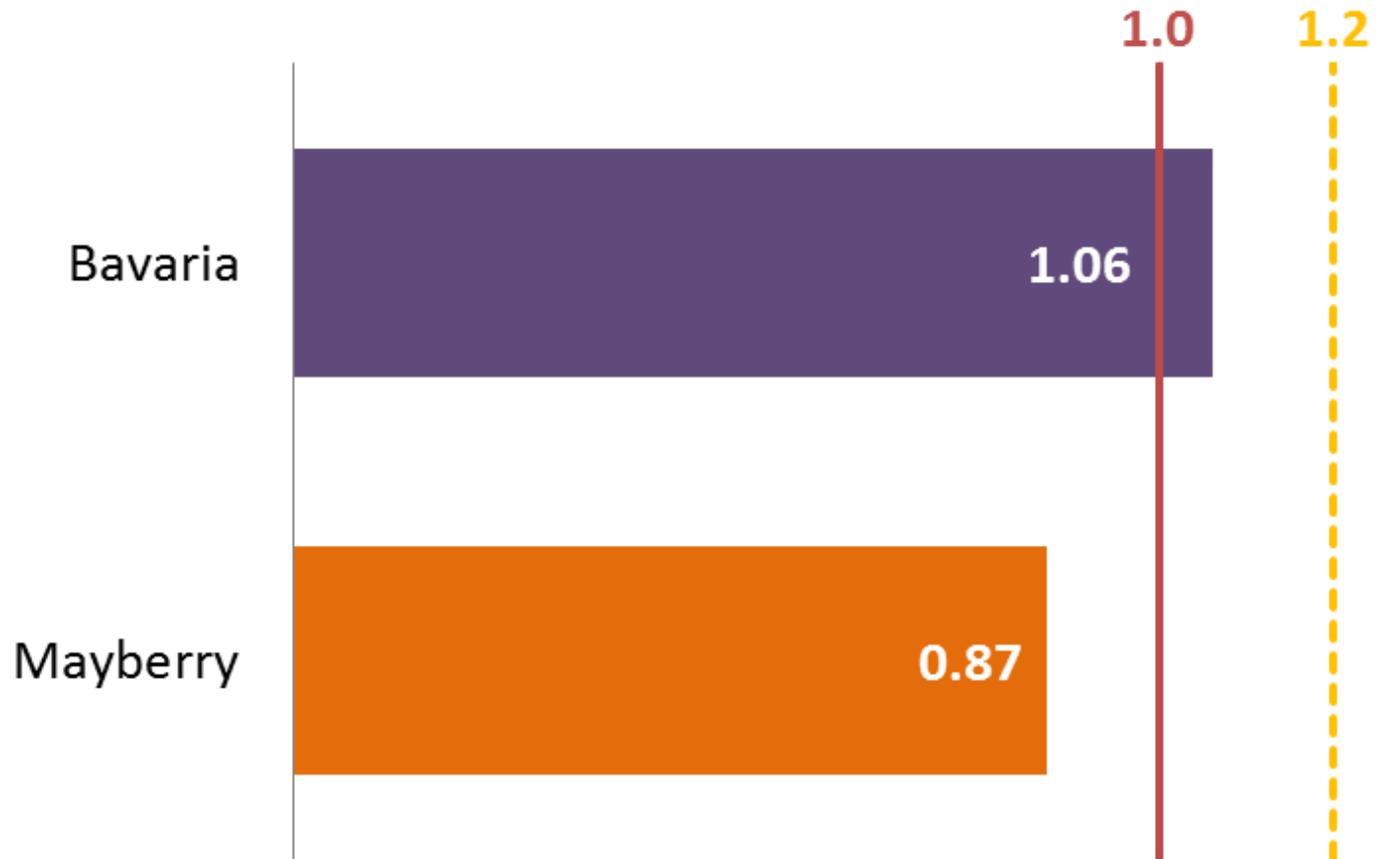
# Operating Ratio – Bavaria

## Including Depreciation

$$\begin{array}{r} \boxed{\$709,972} \\ \text{Operating Revenues (1)} \\ \hline \boxed{\$671,333} \\ \text{Operating Expenses (including depreciation) (2)} \end{array} = \boxed{1.06}$$

**1a.**

# Operating Ratio Including Depreciation



# Operating Ratio – Bavaria

## Excluding Depreciation

**1b.** 
$$\frac{\$709,972}{\$459,082} = 1.55$$

Operating Revenues (1)

Operating Expenses (excluding depreciation) (2-3)

OE \$671,333  
- Dep \$212,251

# Operating Ratio Excluding Depreciation



# Debt Service Coverage Ratio – Bavaria

OE \$671,333  
- Dep \$212,251

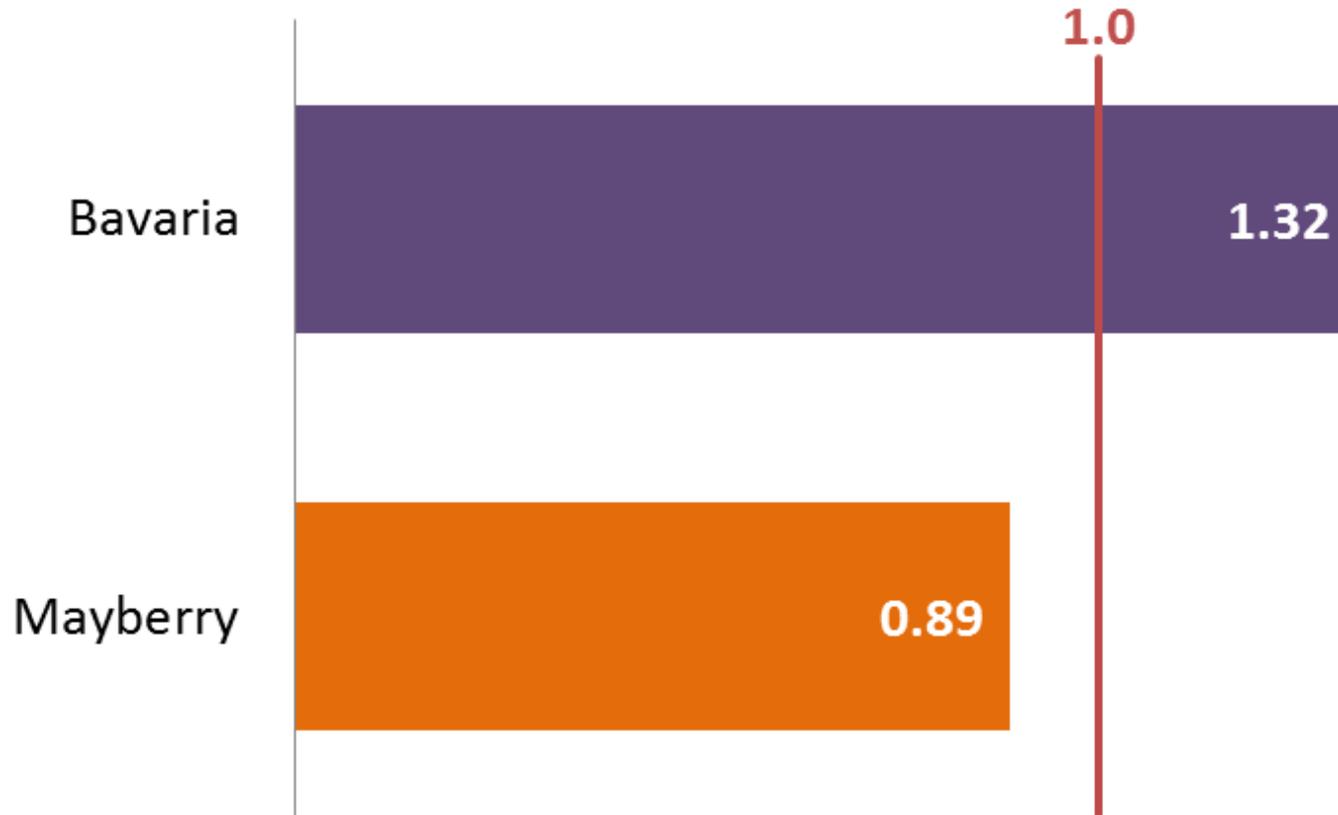
$$\frac{\$709,972 - \$459,082}{\$190,633} = 1.32$$

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

Principal & Interest on Long-Term Debt (4)

2.

# Debt Service Coverage Ratio

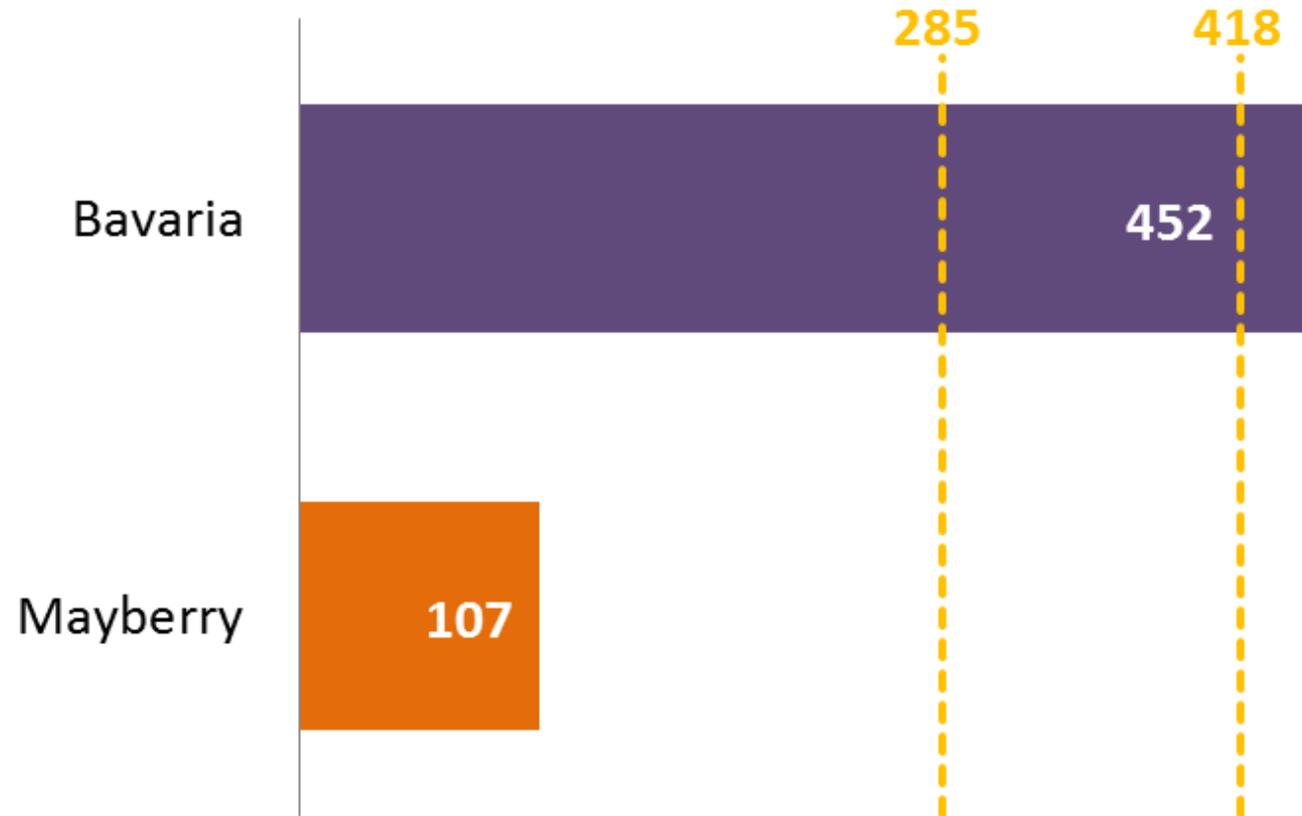


# Days of Cash on Hand – Bavaria

$$\begin{array}{r} \boxed{\$568,061} \\ \text{Unrestricted Cash \& Cash Equivalents (5)} \\ \hline \boxed{3.} \quad \boxed{\$459,082} \quad / \quad 365 \\ \text{Operating Expenses (excluding depreciation) (2-3)} \end{array} = \boxed{452}$$

OE \$671,333  
- Dep \$212,251

# Days of Cash on Hand





# One More to Mention: Asset Depreciation\*

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

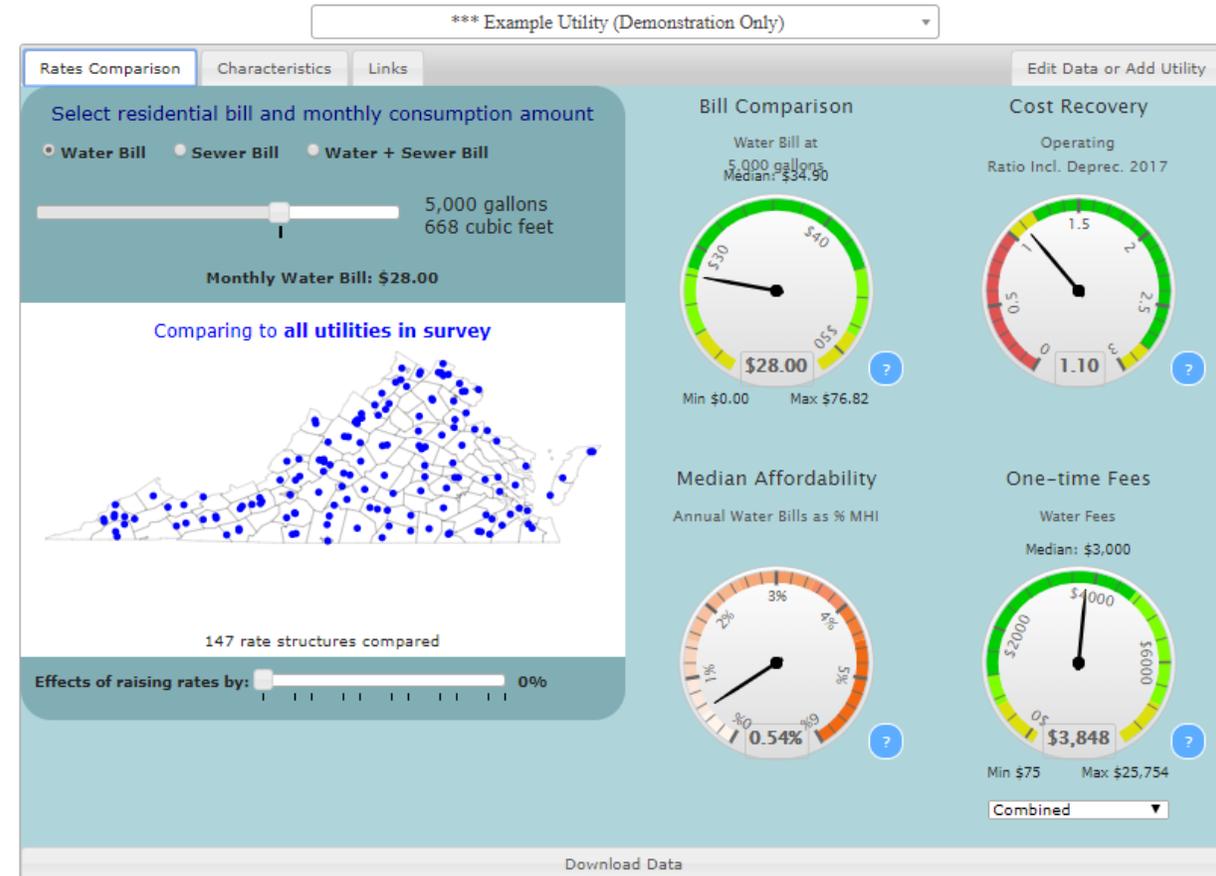
**Benchmark? Don't get close to 1.0**

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

# Assessing your customer's financial health

- Poverty rates
- Income distribution
- Unemployment
- Senior citizens on fixed income

		Median for all utilities in survey	Statewide Stats
Number of Systems		147	
Est. Number of Connections	753	2,561	
Est. Service Population	unknown	5,759	
Average Household Size	n/a	2.44	2.62
Median Household Income	\$62,500	\$46,435	\$68,766
Poverty Rate	11.50%	14.93%	11.17%





# 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

# Financial Health Checkup Tool

## What do you need?


**Financial Health Checkup**  
FOR WATER UTILITIES



**Step 1:** Type in your utility's information in the green cells below.

Prepared by:

Date prepared:

Utility / Organization:

End date of the most recent financial statement used:

Key	Field in the financial statement/CAFR	Fiscal Year End				
		2014	2015	2016	2017	2018
[1]	Total Operating Revenues	\$ 2,341,857	\$ 2,556,399	\$ 2,271,777	\$ 2,334,236	\$ 2,501,286
[2]	Total Operating Expenses	\$ 2,229,208	\$ 2,403,938	\$ 2,565,282	\$ 2,555,504	\$ 2,740,266
[3]	Depreciation & Amortization Expenses	\$ 362,047	\$ 490,007	\$ 569,998	\$ 568,179	\$ 534,000
[4]	Debt Principal Payments	\$ 185,000	\$ 279,242	\$ 333,558	\$ 132,742	\$ 436,459
[4b]	Debt Interest Payments	\$ 84,859	\$ 81,330	\$ 72,808	\$ 71,620	\$ 55,535
[5]	Current Assets, excluding inventories, restricted cash, prepaids	\$ 2,986,691	\$ 3,565,601	\$ 3,266,234	\$ 3,050,573	\$ 2,941,629
[6]	Current Liabilities, excluding deposits & bond anticipation notes	\$ 757,776	\$ 776,266	\$ 495,555	\$ 656,257	\$ 547,019
[7]	Unrestricted Cash & Investments	\$ 1,961,851	\$ 2,883,569	\$ 2,411,154	\$ 2,273,697	\$ 2,415,013
[8]	Total Accumulated Depreciation	\$ 5,125,329	\$ 5,520,510	\$ 7,661,024	\$ 8,229,207	\$ 8,763,207
[9]	Total Depreciable Capital Assets	\$ 17,221,067	\$ 17,144,542	\$ 18,697,849	\$ 18,744,028	\$ 18,854,157

Step 2: Edit targets



Five-Year Trends

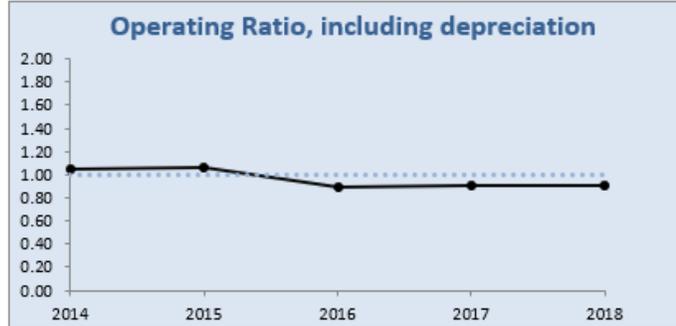
Key: Blue line = target  
(edit targets in Step 2)

Above dotted line = exceeded target (good)

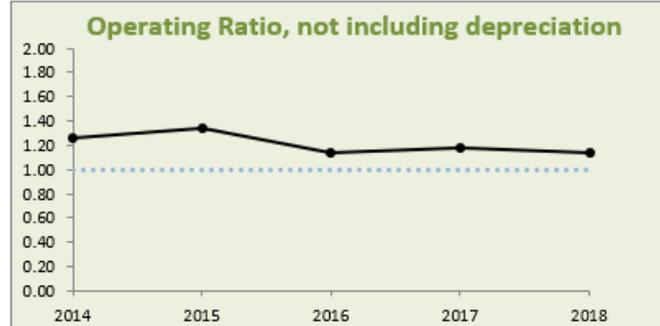
Below dotted line = did not meet target (needs improvement)

Assessment for Town of Anywhere

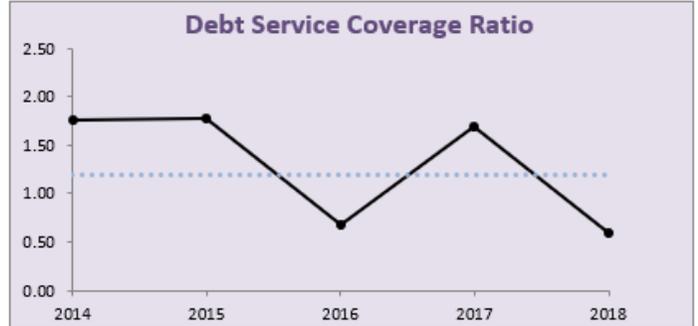
Did you generate the revenues needed to pay for O&M and a little for capital?



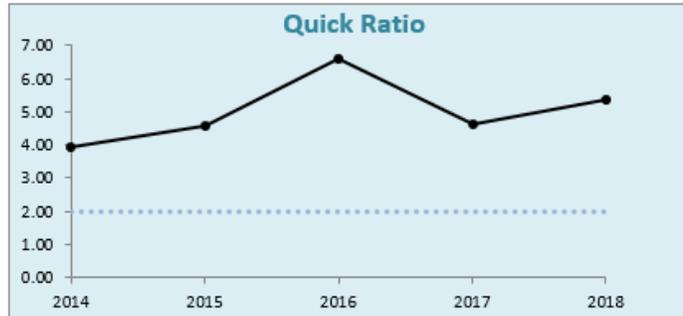
Did you generate the revenues needed to pay for O&M by itself?



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



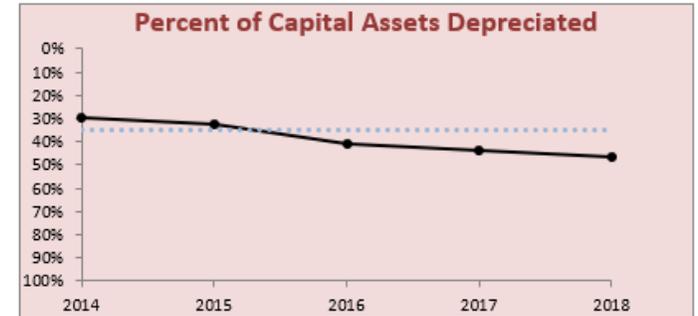
Did you have enough liquidity to pay your current liabilities at the end of the year?



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



How much have your utility's assets depreciated (nearing the end of their lives)?





# Small Group Assessment Time

- Calculate or find your metrics?
- Discuss what you think are current metrics that are used – what would you like to add?
- What are hidden problems or challenges you would like to shine light on?



# WBOP and Other Assessment Tools

- Have you heard of the Waterworks Business Operation Plan (WBOP)?
- Are you using the WBOP or other planning tools?
- What aspects do you find most helpful about the tools you use?

A blue-tinted photograph of industrial waterworks machinery, including large pipes and valves, serving as a background for the top of the slide.

# Waterworks Business Operations Plan

- Virginia Department of Health Office of Drinking Water assess a system's...
  - **Technical Capacity** – physical assets, as well as knowledge and skills to operate the system
  - **Managerial Capacity** – planning and organizational expertise
  - **Financial Capacity** – the ability to generate enough revenue, leverage funding, and manage funds to meet operational, maintenance, and expansion costs

## WATERWORKS BUSINESS OPERATIONS PLAN

Please download one of the following files depending on your waterworks type:

[Community Business Operations Plan.zip](#)

[NTNC Business Operations Plan.zip](#)

[NTNC EZ Plan.zip](#)

[TNC Form \(Word Document\)](#)

[Serving residential populations](#)

[Serving the same non-residential population](#)

[Serving Pre-school/Daycare Facilities](#)

[Serving differing non-residential populations](#)



# Documents Downloaded

- Community Excel Workbook (Excel)
  - Community Form (Word)
- Planning tools
- Community Instructions Appendices A-E (PDF)
  - Community Staff Review Guide (Word)
- Informative



# WBOP – Community Form

- Part 1 – Waterworks Information
- Part 2 – Staffing
- Part 3 – Management, Operations & Procedures
- Part 4 – Planning
- Part 5 – Financial Information
- Part 6 – Sustainability Improvements
- Part 7 – Worksheets and Supporting Documents
- Part 8 – Statements for Owner Signature



# WBOP – Excel Spreadsheet

- Data needed to populate the spreadsheet:
  - Financial reports
  - Up-to-date budget
  - Rate sheet
  - Capital improvement plan, if you have one
  - Census data





## Explanation of Analyses

**Line 27: Revenues > Expenditures:** A "Not Sustainable" result on this analysis could mean the waterworks does not have adequate financial capacity. The waterworks should review the submittal for errors and/or consider the following:

1. Identify any expenses that can be eliminated or reduced
2. Review the revenues to determine if the rate structure can be modified to increase revenues, increase water rates, evaluate assessment of "special charges" when applicable, etc.
3. Consider whether or not consolidation or transfer of the waterworks is a better option.

If after reviewing the data this remains "Not Sustainable," document **Sustainability Improvements** which the waterworks will take in order to address the shortfall.

# WBOP – Excel Spreadsheet

## Supplemental Worksheet – Budget Documentation

- Provides a template to breakdown budget or import numbers from an existing budget

<b>1</b>	<b>REVENUES</b>	
2	Water Sales	\$ 315,000.00
3	Fees and Service	\$ 7,000.00
4	Other Revenue	\$ 10,000.00
<b>5</b>	<b>TOTAL REVENUES (Add 2-4)</b>	<b>\$ 332,000.00</b>
<b>6</b>	<b>EXPENSES</b>	
<b>7</b>	<b>Operation &amp; Maintenance Expenses</b>	
8	Salaries & Other Benefits (Operator)	
9	Power & Other Utilities	\$ 16,850.00
10	Chemical & Treatment	
11	Monitoring	
12	Materials, Supplies and Parts	
13	Transportation Expenses	\$ -
14	Miscellaneous Expenses	\$ 27,100.00
<b>15</b>	<b>Total Operation &amp; Maintenance Expenses(Add 8-14)</b>	<b>\$ 43,950.00</b>
<b>16</b>	<b>General and Administrative Expenses</b>	
17	Salaries & Benefits	\$ 305,681.00
18	Office Supplies & Postage	\$ 25,725.00
19	Insurance-Vehicle, Liability, and Workers Comp.	\$ -
20	Legal & Accounting	\$ 2,000.00
21	Engineering & Professional Services	\$ 6,000.00
22	Fees - and Taxes (VDH Waterworks, etc)	\$ -
23	Miscellaneous Expenses	\$ 700.00
<b>24</b>	<b>Total General Administrative Expenses (Add 17-23)</b>	<b>\$ 340,106.00</b>
25	Depreciation Expense (See Instructions)	\$ -
<b>26</b>	<b>TOTAL O, M &amp; ADMIN EXPENSES (Add 15+24)</b>	<b>\$ 384,056.00</b>



<b>TOTAL REVENUE REQ.(Add 26+28+40+44+48+52+ 56)</b>	<b>\$ 384,056.00</b>
<b>BUDGET SURPLUS (DEFICIT) (Subtract 5-58)</b>	<b>\$ (52,056.00)</b>



# WBOP – Excel Spreadsheet

## Supplemental Worksheet – Revenue Projection

- Input:
  - Connections
  - Minimum charges
  - Commodity/volumetric rate
  - Minimum use
  - Breakdown of residential and commercial customers
  - Total gallons produced
  - Total gallons sold for residential and commercial

# WBOP – Excel Spreadsheet

## Supplemental Worksheet – Revenue Projection

- Output:

CALCULATED RESULTS PAGE						
FOR PROJECTED FISCAL YEAR	2018	2019	2020	2021	2022	2023
<b>SECTION IV - WATER USE EVALUATION</b>						
18. Gallons of Water Produced	3,500,000	3,552,500	3,605,788	3,659,874	3,714,772	3,770,494
19. Gallons associated with Res min use bills	0	0	0	0	0	0
20. Gallons associated with Non-Res min use bills	0	0	0	0	0	0
21. Residential Customers with > min use bill	585	590	598	606	612	620
22. Gallons Associated with minimum use portion of all non-minimum use Residential Customers	0	0	0	0	0	0
23. Non-Residential Customers with > minimum bill	0	0	0	0	0	0
24. Gallons Associated with minimum use portion of all non-minimum non-residential customers	0	0	0	0	0	0
25. Gallons applied to Residential commodity charge	2,991,695	3,036,570	3,082,119	3,128,351	3,175,276	3,222,905
26. Gallons Applied to the Non-Residential commodity	0	0	0	0	0	0
<b>SECTION V - REVENUE SUMMARY</b>						
27. Annual Revenue from Res Min Bills	\$ 8,820.00	\$ 10,495.80	\$ 11,668.86	\$ 12,592.64	\$ 18,942.00	\$ 21,801.00
28. Annual Revenues from Non-Res Min Bills	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
29. Revenues From Res Non-min customers	\$ 189,940.17	\$ 208,316.96	\$ 220,205.53	\$ 233,182.30	\$ 309,930.60	\$ 341,818.52
30. Revenues from Non-Res Non Min customers	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
31. Revenues from Sale of Water	\$ 198,760.17	\$ 218,812.76	\$ 231,874.39	\$ 245,774.94	\$ 328,872.60	\$ 363,619.52
32. Total Annual Projected Revenues For the PWS	\$ 215,260.17	\$ 235,312.76	\$ 248,374.39	\$ 262,274.94	\$ 345,372.60	\$ 380,119.52
<b>SECTION VII - AFFORDABILITY EVALUATION</b>						
33. Annual Average User Charge, AUC (Bill Per Residence)	\$ 344.40	\$ 361.62	\$ 379.70	\$ 398.69	\$ 418.62	\$ 439.55
34. Monthly Average User Charge (Bill Per Residence)	\$ 28.70	\$ 30.14	\$ 31.64	\$ 33.22	\$ 34.89	\$ 36.63
35. Median Household Income, MHI (From US Census)	\$ 36,836.00	\$ 36,836.00	\$ 36,836.00	\$ 36,836.00	\$ 36,836.00	\$ 36,836.00
36. Household Affordability Ratio (AUC/MHI)	0.93%	0.98%	1.03%	1.08%	1.14%	1.19%
37. Is the actual HAR <=2%?	YES	YES	YES	YES	YES	YES

# WBOP – Excel Spreadsheet

## Supplemental Worksheet – Household Affordability

COMMUNITY Waterworks						
Supplemental Worksheet: Household Affordability						
<i>Calculated cells are highlighted in Green ~ All financial figures automatically rounded to the nearest whole number ~</i>						
OWNER:			PWSID NUMBER/S:			
FISCAL YEAR ENDING	2018	2019	2020	2021	2022	2023
<b>HOUSEHOLD AFFORDABILITY RATIO</b>						
1. Annual Average User Charge, AUC (Bill Per Residence)	\$ 279.00	\$ 306.00	\$ 318.00	\$ 339.00	\$ 357.00	\$ 372.00
2. Monthly Average User Charge (Bill Per Residence)	\$ 23.25	\$ 25.50	\$ 26.50	\$ 28.25	\$ 29.75	\$ 31.00
3. Median Household Income, MHI (From US Census)	\$ 41,163.00	\$ 41,163.00	\$ 41,163.00	\$ 41,163.00	\$ 41,163.00	\$ 41,163.00
4. Household Affordability Ratio (AUC/MHI)	0.68%	0.74%	0.77%	0.82%	0.87%	0.90%
<b>AFFORDABILITY INDICATOR</b>						
5. Is the actual HAR <=2%?	YES	YES	YES	YES	YES	YES



# Affordability Assessment Tool

## What do you need?

### 1) Utility Information

Name of the utility:

Example Town

Select the state, District of Columbia, or Puerto Rico from the dropdown menu:

North Carolina

Assess affordability of water, wastewater or combined water & wastewater rates?

Water

### 2) Monthly Charges at [Near] the Average Residential Water Use

What is the approximate average residential monthly consumption?

4,000

gallons/month

or

cubic feet/month

In this analysis, assess the rates charged at the rounded consumption of 4000 gallons/month (530 cubic feet/month)

Enter in the current monthly water residential charge at 4000 gallons/month:

Water

\$28.70

If you wish to assess affordability under different rates, enter alternative monthly water residential charge at 4000 gallons/month, otherwise copy the current rates from above:

Water

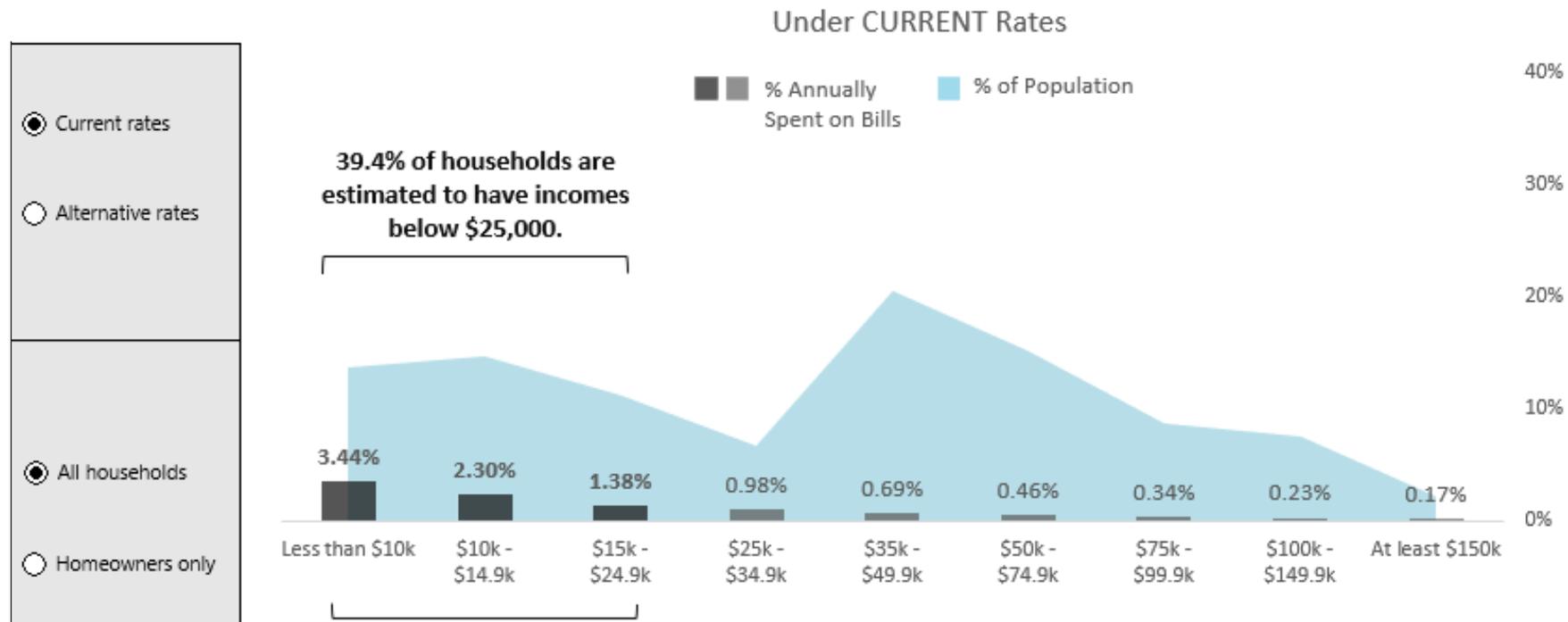
\$28.70

# US Census Data

	Estimate	Margin of Error	Percent	Percent Margin of Error
<b>EMPLOYMENT STATUS</b>				
In labor force	not needed	not needed	not needed	not needed
Unemployed	not needed	not needed	3.8%	not needed
Not in labor force	not needed	not needed	43.4%	not needed
<b>2017 INFLATION-ADJUSTED DOLLARS)</b>				
Less than \$10,000	not needed	not needed	13.6%	not needed
\$10,000 to \$14,999	not needed	not needed	14.6%	not needed
\$15,000 to \$24,999	not needed	not needed	11.2%	not needed
\$25,000 to \$34,999	not needed	not needed	6.7%	not needed
\$35,000 to \$49,999	not needed	not needed	20.5%	not needed
\$50,000 to \$74,999	not needed	not needed	15.1%	not needed
\$75,000 to \$99,999	not needed	not needed	8.6%	not needed
\$100,000 to \$149,999	not needed	not needed	7.5%	not needed
\$150,000 to \$199,999	not needed	not needed	1.7%	not needed
\$200,000 or more	not needed	not needed	0.5%	not needed
mean household income (dollars)	\$36,836	not needed	not needed	not needed
With Social Security	not needed	not needed	35.1%	not needed
With Supplemental Security Income	not needed	not needed	11.5%	not needed
With cash public assistance income	not needed	not needed	3.0%	not needed
With Food Stamp/SNAP benefits in the past 12 months	not needed	not needed	31.4%	not needed
<b>PERCENTAGE OF FAMILIES AND PEOPLE WHOSE INCOME IN THE PAST 12 MONTHS IS BELOW THE POVERTY LEVEL</b>				
All people	not needed	not needed	29.6%	not needed

	Estimate	Margin of Error
Total:	not needed	not needed
Owner occupied:	465	not needed
Less than \$5,000	3	not needed
\$5,000 to \$9,999	27	not needed
\$10,000 to \$14,999	59	not needed
\$15,000 to \$19,999	26	not needed
\$20,000 to \$24,999	2	not needed
\$25,000 to \$34,999	22	not needed
\$35,000 to \$49,999	111	not needed
\$50,000 to \$74,999	58	not needed
\$75,000 to \$99,999	68	not needed
\$100,000 to \$149,999	68	not needed
\$150,000 or more	21	not needed
Renter occupied:	not needed	not needed
Less than \$5,000	not needed	not needed
\$5,000 to \$9,999	not needed	not needed
\$10,000 to \$14,999	not needed	not needed
\$15,000 to \$19,999	not needed	not needed
\$20,000 to \$24,999	not needed	not needed
\$25,000 to \$34,999	not needed	not needed
\$35,000 to \$49,999	not needed	not needed
\$50,000 to \$74,999	not needed	not needed
\$75,000 to \$99,999	not needed	not needed
\$100,000 to \$149,999	not needed	not needed
\$150,000 or more	not needed	not needed

## Affordability of Water Rates Assessed at 4000 Gallons/Month and the 2017 Income Levels



39.4% of residential customers are estimated to have had less than \$25,000 in annual income. These households will have spent more than 1.38% of their income under the current rates for water bills at 4000 gallons/month. 13.6% of households will have spent more than 3.44% of their income. However, a substantial number of low-income households may be living in rental homes and apartments and do not pay water bills, which may be included in their rent.



### Key Socioeconomic Indicators

	Selected Census geography	North Carolina in 2017	United States in 2017
Median Household Income	\$36,836	\$50,320	\$57,652
% Unemployment	3.8%	4.4%	4.1%
% Not in the labor force	43.4%	37.4%	36.6%
% of all people with income below poverty	29.6%	16.1%	14.6%
% with Social Security income	35.1%	31.7%	30.6%
% with Supplemental Security income	11.5%	5.0%	5.4%
% with cash public assistance income	3.0%	1.8%	2.6%
% with Food Stamp/SNAP benefits	31.4%	13.7%	12.6%

**Key:**

If any value for the selected Census geography is shown in red, its value is 'more stressed' than the state and national averages.

# More Resources

## The Environmental Finance Blog

*How you pay for it matters.*



SCHOOL OF GOVERNMENT  
Environmental Finance Center

**Financial Health Checkup**  
FOR WATER UTILITIES

Financial data input worksheet

**Step 1:** Type in your utility's information in the green cells below.

**Step 2:** Enter targets

Prepared by:

Date prepared:

Utility / Organization:

End date of the most recent financial statement used:

- Key** Field in the financial statement/CAFR
- [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

	Fiscal Year End				
	2010	2011	2012	2013	2014
[1] Total Operating Revenues	\$ 2,341,857	\$ 2,556,399	\$ 2,271,777	\$ 2,334,236	\$ 2,501,286
[2] Total Operating Expenses	\$ 2,229,208	\$ 2,403,938	\$ 2,565,282	\$ 2,555,504	\$ 2,740,266
[3] Depreciation & Amortization Expenses	\$ 362,047	\$ 490,007	\$ 569,998	\$ 568,179	\$ 534,000
[4] Debt Principal Payments	\$ 185,000	\$ 279,242	\$ 333,558	\$ 132,742	\$ 436,459
[4b] Debt Interest Payments	\$ 84,859	\$ 81,330	\$ 72,808	\$ 71,620	\$ 55,535
[5] Current Assets, excluding inventories, restricted cash, prepaids	\$ 2,986,691	\$ 3,565,601	\$ 3,266,234	\$ 3,050,573	\$ 2,941,629
[6] Current Liabilities, excluding deposits & bond anticipation notes	\$ 757,776	\$ 776,266	\$ 495,555	\$ 656,257	\$ 547,019
[7] Unrestricted Cash & Investments	\$ 1,961,851	\$ 2,883,569	\$ 2,411,154	\$ 2,273,697	\$ 2,415,013
[8] Total Accumulated Depreciation	\$ 5,125,329	\$ 5,520,510	\$ 7,661,024	\$ 8,229,207	\$ 8,763,207
[9] Total Depreciable Capital Assets	\$ 17,221,067	\$ 17,144,542	\$ 18,697,849	\$ 18,744,028	\$ 18,854,157

Line	FISCAL YEAR ENDING	ACTUAL PREVIOUS		PROJECTED for Fiscal Year Ending June 30,			
		2018	2019	2020	2021	2022	2023
<b>FINANCIAL EVALUATION</b>							
23	TOTAL REVENUE REQ.(Add 9+13+19B+20B+21B+22B)	\$ 2,499,067.00	\$ 2,764,510.00	\$ 662,648.00	\$ 2,759,866.00	\$ 3,232,260.00	\$ -
24	NET INCOME-BUDGET SURPLUS / DEFICIT (Line 4-23)	\$ (157,210.00)	\$ (208,111.00)	\$ 1,609,129.00	\$ (425,630.00)	\$ (730,974.00)	\$ -
<b>ANALYSES</b>							
27	Revenues ≥ expenses	Not Sustainable	Not Sustainable	Sustainable	Not Sustainable	Not Sustainable	Sustainable
28	Operating Cash Reserve ≥ Minimum Balance	Not Sustainable	Not Sustainable	Not Sustainable	Not Sustainable	Not Sustainable	Sustainable
29	Emergency Reserve ≥ Minimum Balance	Sustainable	Sustainable	Sustainable	Sustainable	Sustainable	Sustainable
30	Debt Service Coverage Ratio	0.42	0.42	4.96	(1.08)	(0.49)	#DIV/0!
31	Debt Service Coverage Ratio > 1.15XDebt Service Household Affordability Ratio (from Revenue Projection Wksht)	Not Sustainable	Not Sustainable	Sustainable	Not Sustainable	Not Sustainable	#DIV/0!
32		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

