Smart Management for Small Water Systems

Is Your Water System Financially Healthy? Key Financial Indicators

Big Stone Gap, Virginia
Thursday, June 16, 2016

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

EFCN environmental finance center network

American Water Works Association

UNC ENVIRONMENTAL FINANCE CENTER

About the 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 Smart Management for Small Water Systems Program

This program is offered free of charge to all who are interested. The Project Team will conduct activities in every state, territory, and the Navajo Nation. All small drinking water systems are eligible to receive free training and technical assistance.

What We Offer

Individualized technical assistance, workshops, small group support, webinars, eLearning, online tools & resources, blogs

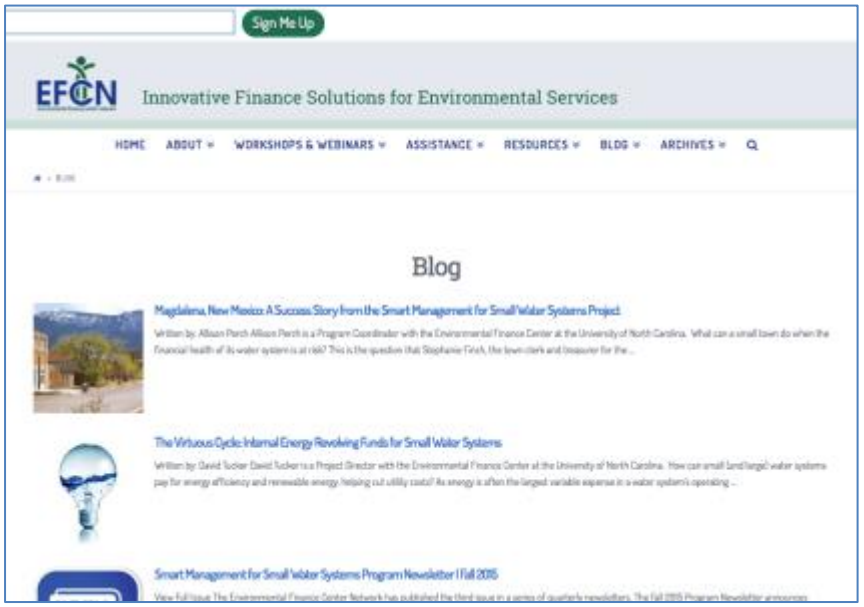
Areas of Expertise

http://efcnetwork.org

- Asset Management
- Energy Management Planning
- Financial Management
- Leadership Through Decision-making and Communication
- Managing Drought
- Water Loss Reduction
- Collaborating with Neighboring Communities
- Multi-funding
- Water Conservation
- Management and Finance 101
- Climate Resiliency
- Workforce Development

Small Systems Blog

Learn more about water finance and management through our Small Systems Blog! Blog posts feature lessons learned from our training and technical assistance, descriptions of available tools, and small systems “success stories.”



Common Blog Topic Areas

- Asset Management
- Energy Management
- Enhancing Regulatory Compliance
- Fiscal Planning & Rate Setting
- Funding Coordination
- Managerial & Financial Leadership
- Water Loss Reduction
- Water System Collaboration

efcnetwork.org/small_systems_blog/

UNC ENVIRONMENTAL FINANCE CENTER

UNC SCHOOL *of* GOVERNMENT

Dedicated to enhancing the ability of governments and other organizations to provide environmental programs and services in fair, effective, and financially sustainable ways through:

- Applied Research
- Teaching and Outreach
- Program Design and Evaluation

How you pay for it matters

Objectives

- Know how to translate data in your financial statements to indicators that assess the overall financial health of your utility fund

- Interpret the indicator values to determine the strengths and weaknesses of the utility fund

Can You Sleep at Night?

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?	Current Ratio
How much of your system's expected life has already run out?	Asset Depreciation

Whiteboard Video:
Financial Benchmarking for Water Utilities

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

Recording of a Webinar: Key Financial Indicators

http://efcnetwork.org/events/webinar-is-your-water-system-financially-healthy-key-financial-indicators/

Quick Review of Key Financial Indicators

Operating Ratio

Current Ratio

Debt Service Coverage Ratio

Days of Cash on Hand

Asset Depreciation

Is your system self-sufficient?

Operating Ratio

$$\frac{\text{OPERATING REVENUES}}{\text{OPERATING EXPENSES}}$$

Include or Exclude

DEPRECIATION

ANNUAL COST OF WEAR AND TEAR ON THE SYSTEM

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

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

Debt Service Coverage Ratio

$$\frac{\text{OPERATING REVENUES} - \text{OPERATING EXPENSES (EXCLUDING DEPRECIATION)}}{\text{PRINCIPAL} + \text{INTEREST PAYMENTS ON LONG TERM DEBT}}$$

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

Debt Service Coverage Ratio

$$\frac{\text{OPERATING REVENUES} - \text{OPERATING EXPENSES (EXCLUDING DEPRECIATION)}}{\text{PRINCIPAL} + \text{INTEREST PAYMENTS ON LONG TERM DEBT}}$$

> 1.2

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

Can your system meet its short term obligations?

Current Ratio

$$\frac{\text{UNRESTRICTED CURRENT ASSETS EXCLUDING INVENTORIES AND PREPAID ITEMS}}{\text{CURRENT LIABILITIES}}$$

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

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

Days Cash on Hand

UNRESTRICTED CASH AND INVESTMENTS

OPERATING EXPENSES EXCLUDING DEPRECIATION & AMORTIZATION / 365

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

How much of your system's expected life has already run out?

Asset Depreciation

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

Caveat: this indicator is only as accurate as your depreciation schedule, and even then historic pricing is likely to distort the results.

Where Do We Get Started?

- Local governments: audited financial statements
- Non-governments: balance sheets, shareholder reports, annual reports, etc.

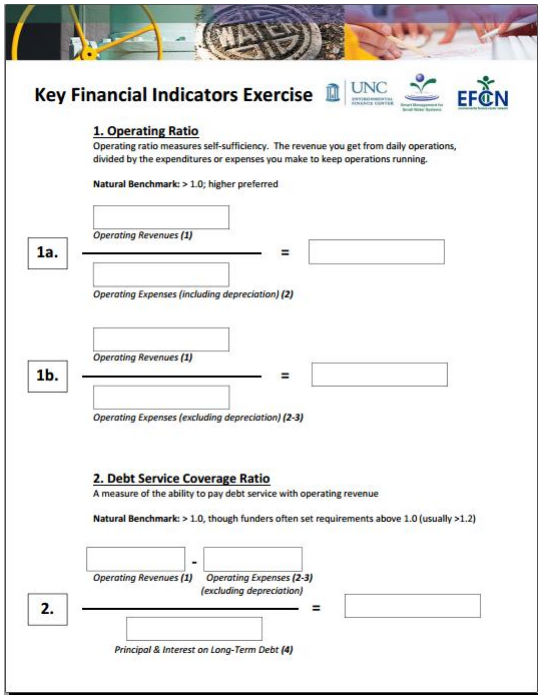
BAVARIA
STATEMENT OF NET ASSETS
PROPRIETARY FUND
JUNE 30, 2011

	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 Absenses	15,605
Revenue Bonds (Net of current portion)	233,357
Notes Payable (Net of current portion)	640,873
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

Key Financial Indicators Exercise

Use your own audited financial statements (if available)
or use the financial statements of Bavaria from the handouts

And use the worksheet in the handout



Key Financial Indicators Exercise

1. Operating Ratio

Operating ratio measures self-sufficiency. The revenue you get from daily operations, divided by the expenditures or expenses you make to keep operations running.

Natural Benchmark: > 1.0; higher preferred

1a. *Operating Revenues (1)* / *Operating Expenses (including depreciation) (2)* =

1b. *Operating Revenues (1)* / *Operating Expenses (excluding depreciation) (2-3)* =

2. Debt Service Coverage Ratio

A measure of the ability to pay debt service with operating revenue

Natural Benchmark: > 1.0, though funders often set requirements above 1.0 (usually >1.2)

2. (*Operating Revenues (1)* - *Operating Expenses (2-3) (excluding depreciation)*) / *Principal & Interest on Long-Term Debt (4)* =

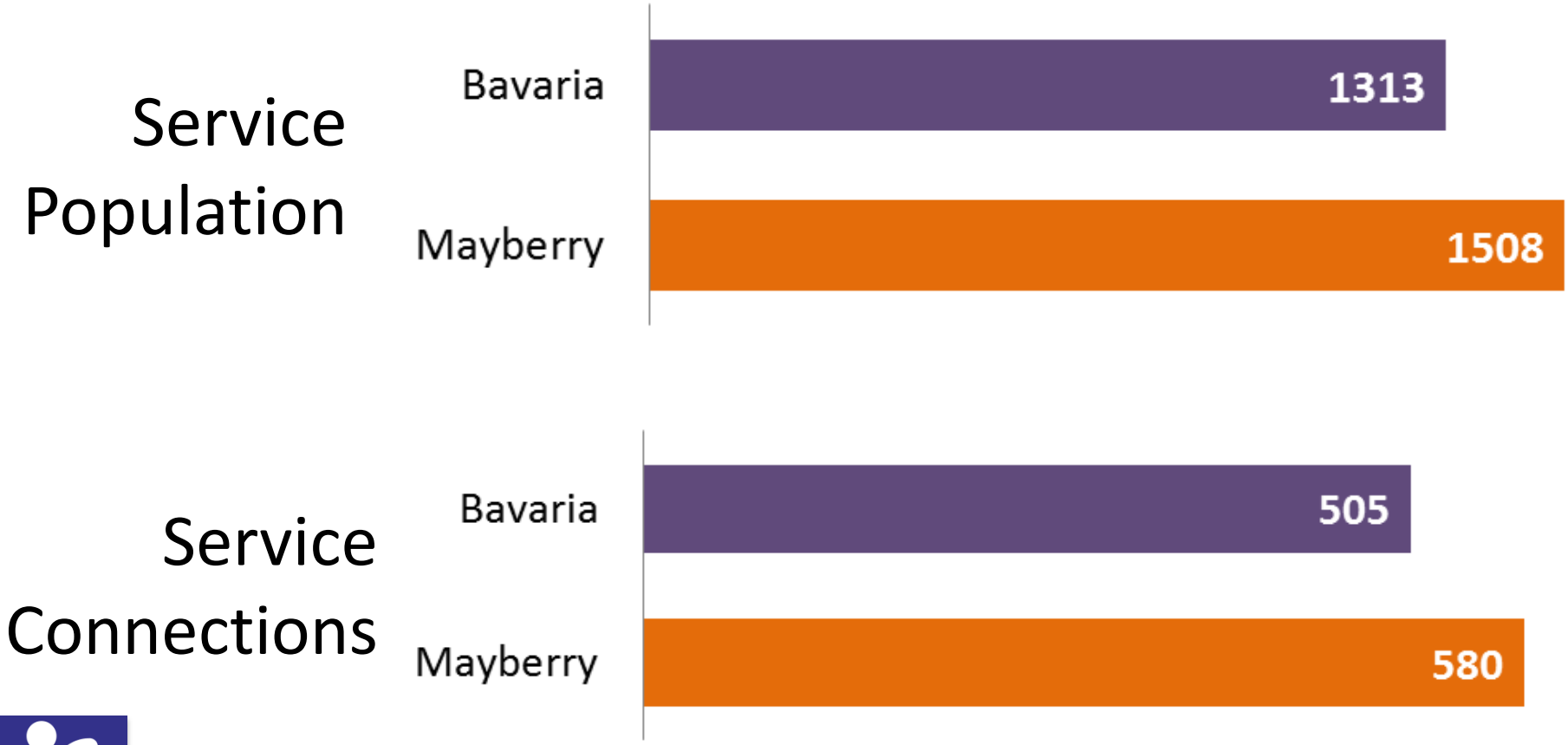
A Tale of Two Systems That Look Similar On Paper...

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

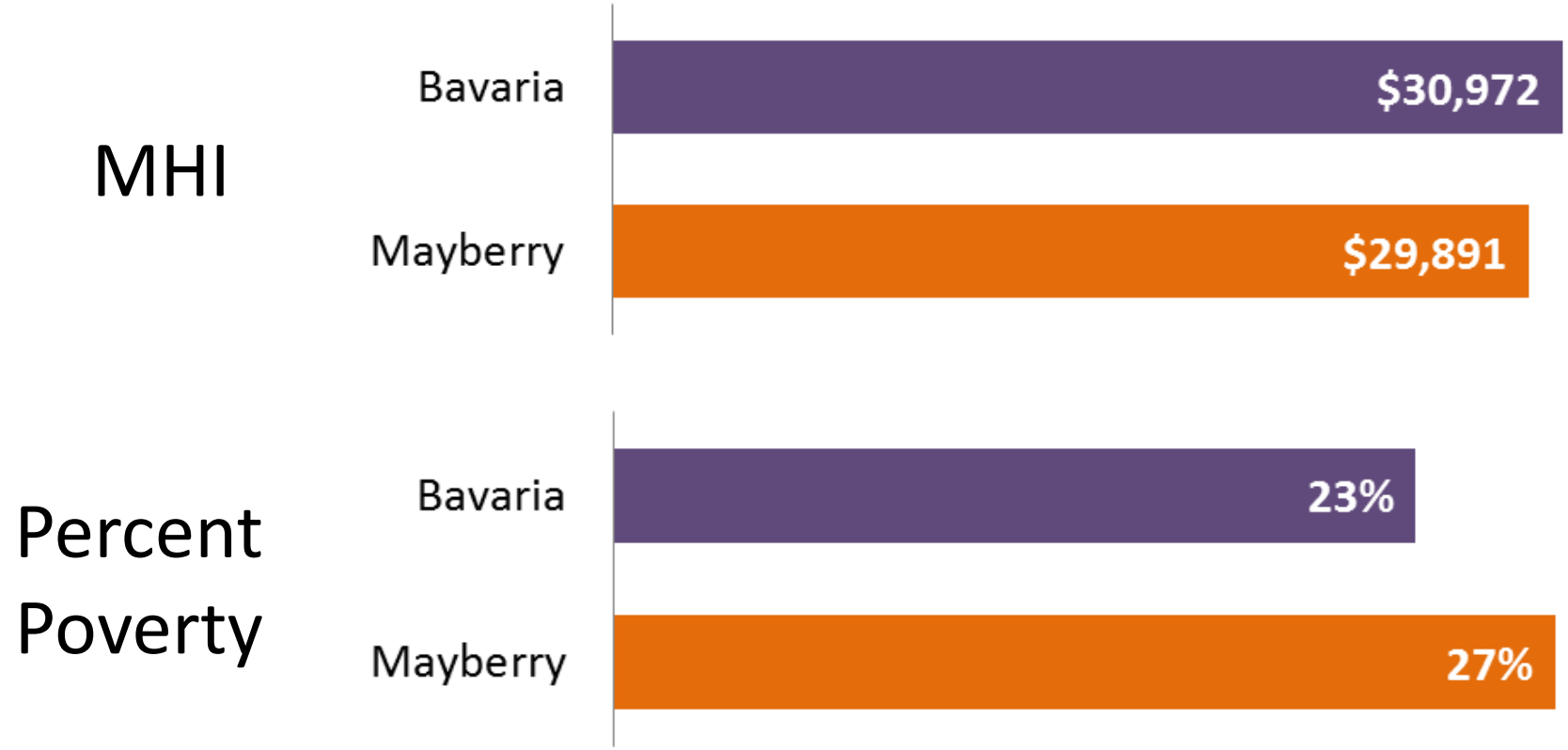
- Two average small town community water systems from the same state

Note: Actual numbers from actual towns

They Serve Similar Populations



They Have Similar Demographics

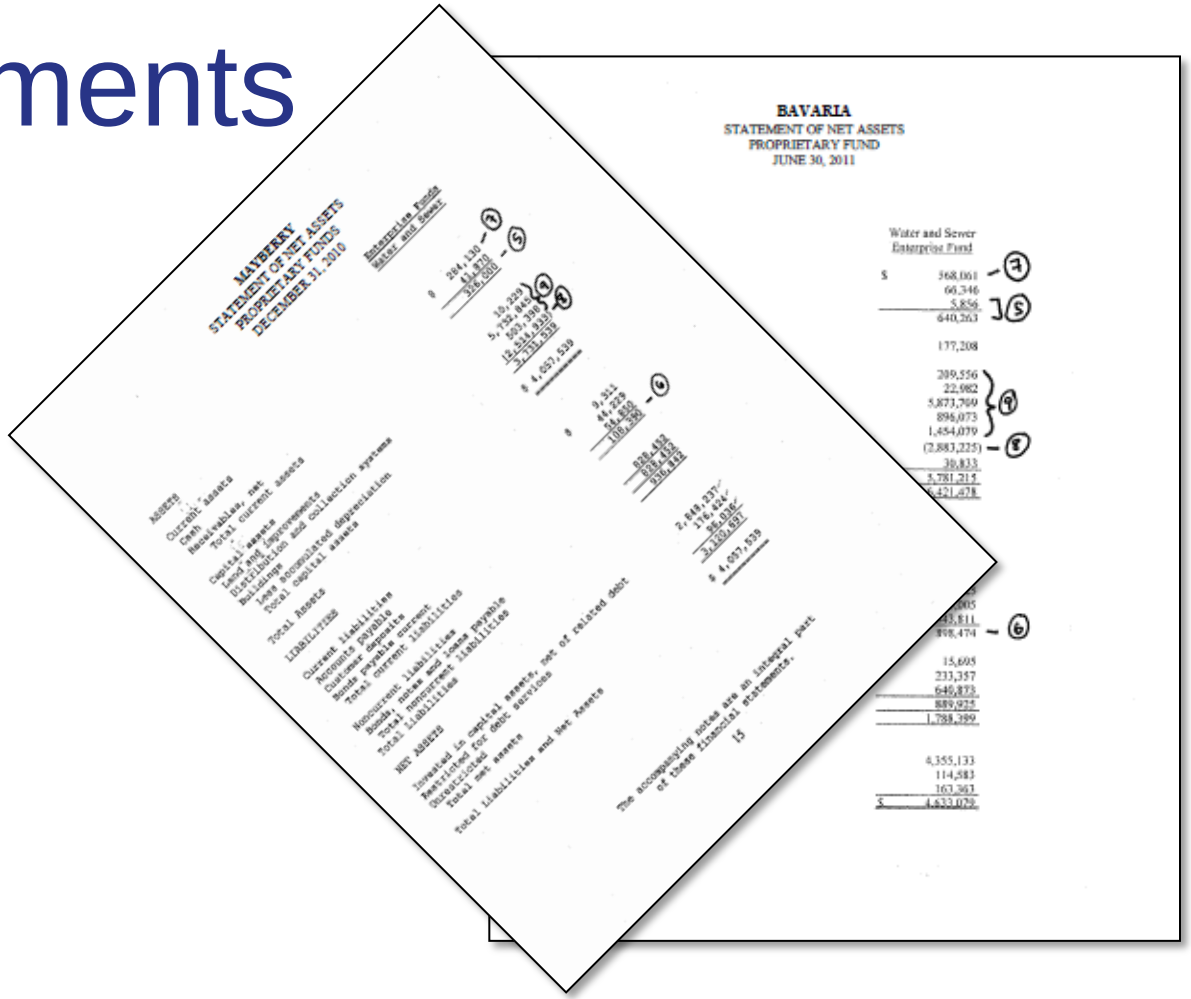


...Though Vastly Different in Financial Indicators (and In Actual Appearance)

Mayberry

Bavaria

Quick Overview of Financial Statements



BAVARIA
STATEMENT OF NET ASSETS
PROPRIETARY FUND
JUNE 30, 2011

Water and Sewer Enterprise Fund

MAYBERRY
STATEMENT OF NET ASSETS
PROPRIETARY FUNDS
DECEMBER 31, 2010

Enterprise Funds
Water and Sewer

Statement of Net Assets

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

Statement of Revenues, Expenses & Changes in Net Assets

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

- Also transfers to and from the general fund

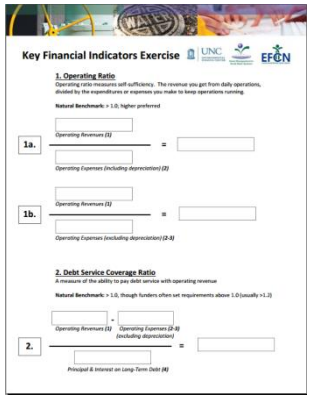
Statement of Cash Flows

- Money in and money out of the water system

Notes to Financial Statements

- Explanations, where needed, to the financial statements

Calculate the Operating Ratio



Key Financial Indicators Exercise

1. Operating Ratio

Operating ratio measures self-sufficiency. The revenue you get from daily operations, divided by the expenditures or expenses you make to keep operations running.

Natural Benchmark: > 1.0, higher preferred

1a. Operating Revenues (1) / Operating Expenses (including depreciation) (2) =

1b. Operating Revenues (1) / Operating Expenses (excluding depreciation) (2-3) =

2. Debt Service Coverage Ratio

A measure of the ability to pay debt service with operating revenue

Natural Benchmark: > 1.0, though funders often set requirements above 1.0 (usually >1.2)

2. (Operating Revenues (1) - Operating Expenses (2-3) (excluding depreciation)) / Principal & Interest on Long-Term Debt (4) =

OPERATING REVENUES

OPERATING EXPENSES

Include or Exclude

DEPRECIATION

ANNUAL COST OF WEAR AND TEAR ON THE SYSTEM

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

Operating Ratio – Mayberry

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	
Contractual 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.

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

Operating Revenues ***(1)***

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

Operating Ratio – Mayberry

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
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

Excluding Depreciation

1b.

$444,231

Operating Revenues ***(1)***

÷

$368,985

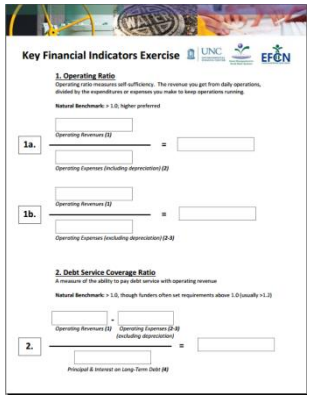
Operating Expenses (excluding depreciation) ***(2-3)***

=

1.20

OE $511,448
- Dep $142,463

Calculate the Debt Service Coverage Ratio



Key Financial Indicators Exercise

1. Operating Ratio

Operating ratio measures self-sufficiency. The revenue you get from daily operations, divided by the expenditures or expenses you make to keep operations running.

Natural Benchmark: > 1.0, higher preferred

1a. Operating Revenues (1) / Operating Expenses (including depreciation) (2) =

1b. Operating Revenues (1) / Operating Expenses (excluding depreciation) (2-3) =

2. Debt Service Coverage Ratio

A measure of the ability to pay debt service with operating revenue

Natural Benchmark: > 1.0, though funders often set requirements above 1.0 (usually >1.2)

2. (Operating Revenues (1) − Operating Expenses (2-3) (excluding depreciation)) / Principal & Interest on Long-Term Debt (4) =

$$\frac{\text{OPERATING REVENUES} - \text{OPERATING EXPENSES (EXCLUDING DEPRECIATION)}}{\text{PRINCIPAL} + \text{INTEREST PAYMENTS ON LONG TERM DEBT}}$$

Debt Service Coverage Ratio –
Mayberry

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**

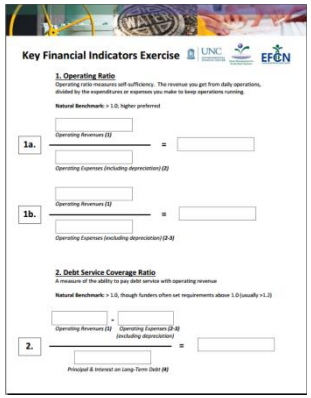
OE $511,448
- Dep $142,463

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

- \$444,231 — *Operating Revenues* **(1)**
- \$368,985 — *Operating Expenses* **(2-3)** *(excluding depreciation)*
- \$84,783 — *Principal & Interest on Long-Term Debt* **(4)**

P $49,655
+ I $35,128

Calculate Days of Cash on Hand



Key Financial Indicators Exercise

1. Operating Ratio

Operating ratio measures self-sufficiency. The revenue you get from daily operations, divided by the expenditures or expenses you make to keep operations running.

Natural Benchmark: > 1.0, higher preferred

1a. Operating Revenues (1) / Operating Expenses (including depreciation) (2) =

1b. Operating Revenues (1) / Operating Expenses (excluding depreciation) (2-3) =

2. Debt Service Coverage Ratio

A measure of the ability to pay debt service with operating revenue

Natural Benchmark: > 1.0, though funders often set requirements above 1.0 (usually >1.2)

2. (Operating Revenues (1) - Operating Expenses (2-3) (excluding depreciation)) / Principal & Interest on Long-Term Debt (4) =

UNRESTRICTED CASH AND INVESTMENTS

OPERATING EXPENSES EXCLUDING DEPRECIATION & AMORTIZATION / 365

Days of Cash on Hand – **Mayberry**

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**

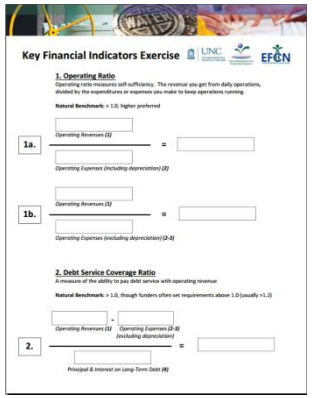
3. $\dfrac{\text{\$107,706}}{\text{\$368,985}} = 107$

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

Operating Expenses (excluding depreciation) ***(2-3)*** **/ 365**

OE $511,448
- Dep $142,463

Calculate the Current Ratio



Key Financial Indicators Exercise

1. Operating Ratio

Operating ratio measures self-sufficiency. The revenue you get from daily operations, divided by the expenditures or expenses you make to keep operations running.

Natural Benchmark: > 1.0; higher preferred

1a. Operating Revenues (1) / Operating Expenses (including depreciation) (2) =

1b. Operating Revenues (1) / Operating Expenses (excluding depreciation) (2-3) =

2. Debt Service Coverage Ratio

A measure of the ability to pay debt service with operating revenue

Natural Benchmark: > 1.0, though funders often set requirements above 1.0 (usually >1.3)

2. (Operating Revenues (1) - Operating Expenses (2-3) (excluding depreciation)) / Principal & Interest on Long-Term Debt (4) =

UNRESTRICTED CURRENT ASSETS EXCLUDING INVENTORIES AND PREPAID ITEMS

CURRENT LIABILITIES

Current Ratio – Mayberry

4.

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

Now let's do Bavaria!

Operating Ratio - **Bavaria**

1a.

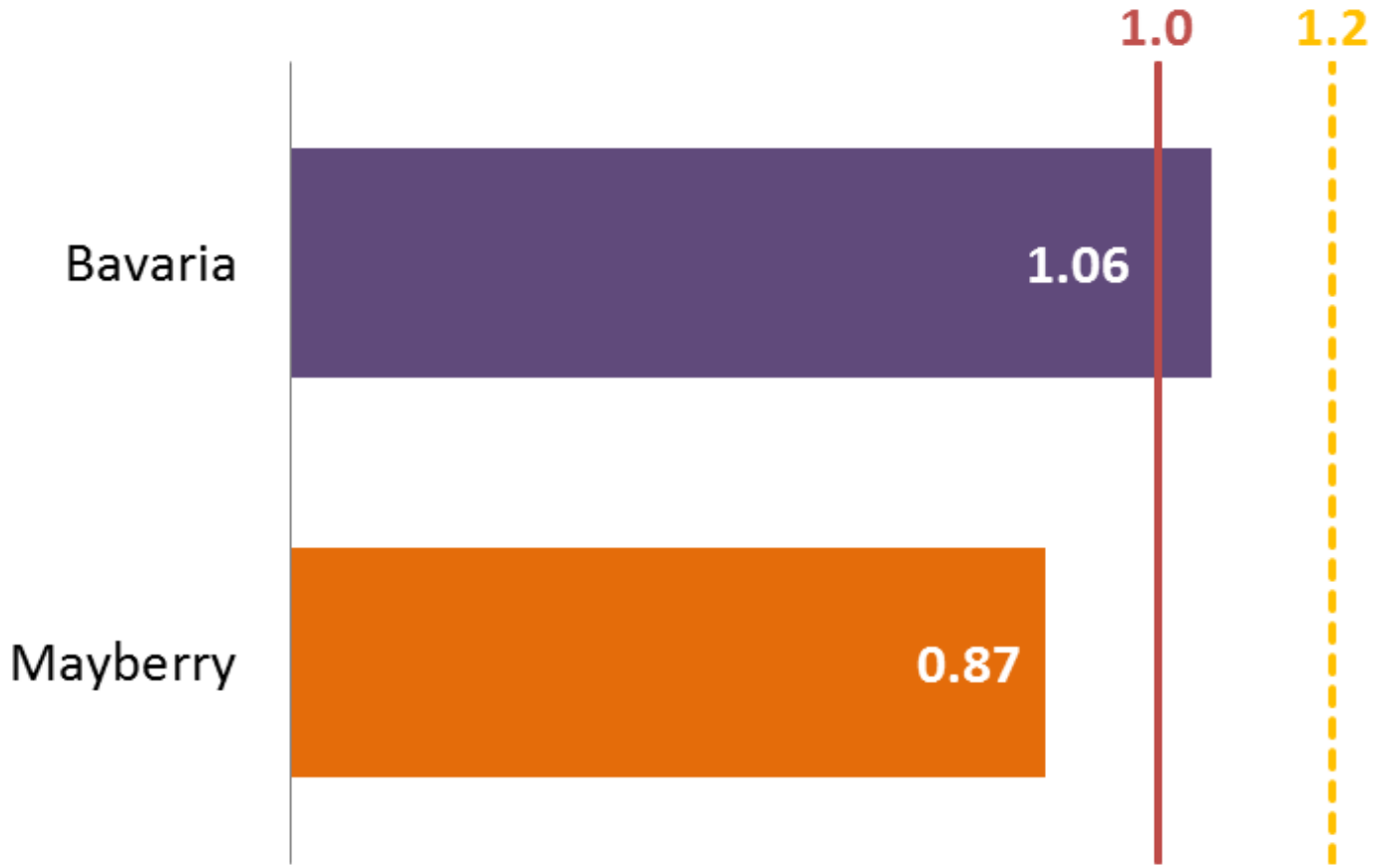
$$\frac{\text{\$709,972}}{\text{\$671,333}} = 1.06$$

Operating Revenues ***(1)***

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

Operating Ratio

Including Depreciation



Operating Ratio – **Bavaria**

Excluding Depreciation

1b.

$$\frac{\text{\$709,972}}{\text{\$459,082}} = 1.55$$

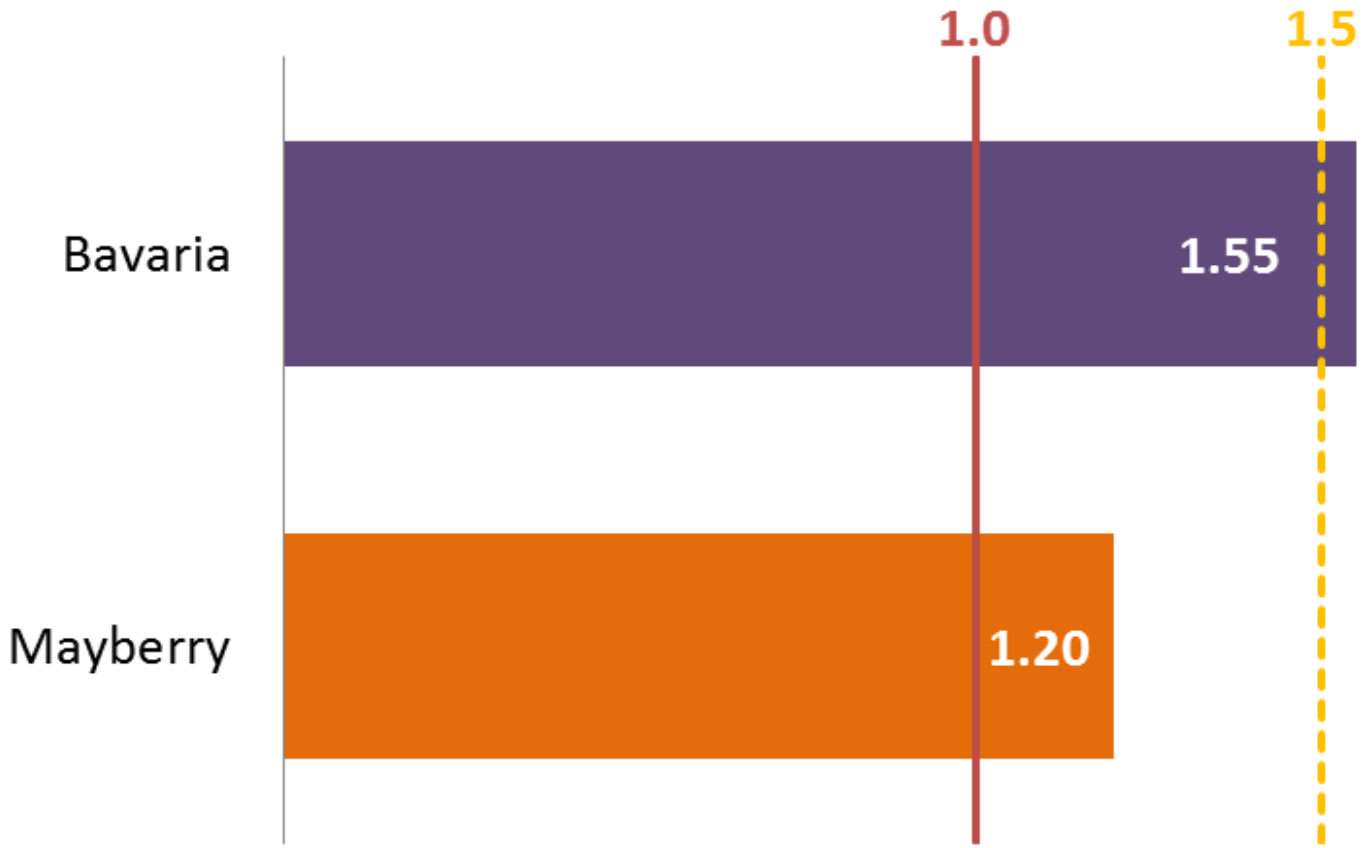
Operating Revenues ***(1)***

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

OE $671,333
- Dep $212,251

Operating Ratio

Excluding Depreciation

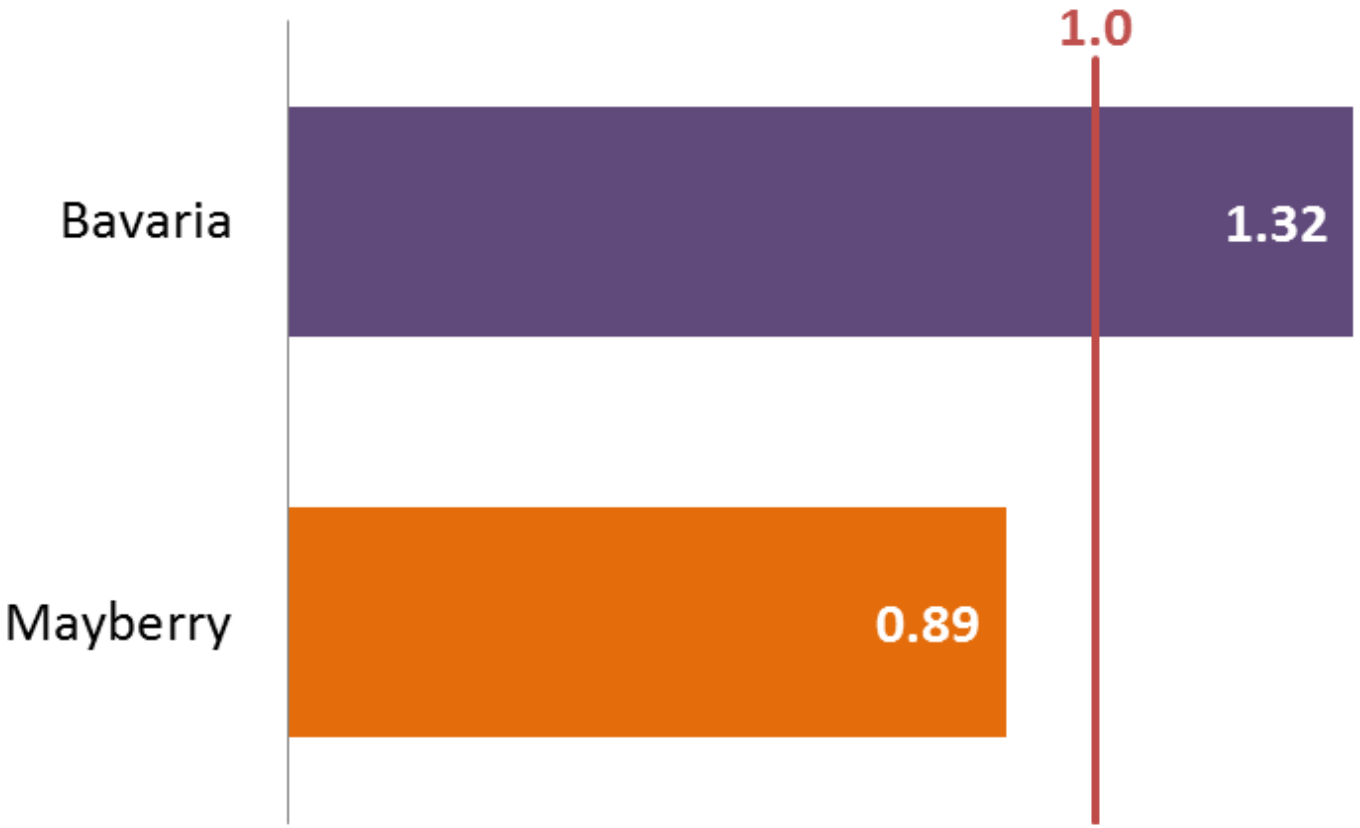


Debt Service Coverage Ratio – **Bavaria**

OE $671,333
- Dep $212,251

2.	$709,972 (Operating Revenues (1)) - $459,082 (Operating Expenses (2-3) (excluding depreciation))	=	1.32
	$190,633 (Principal & Interest on Long-Term Debt (4))		

Debt Service Coverage Ratio



Days Cash on Hand – **Bavaria**

3. $\dfrac{\text{\$568,061}}{\text{\$459,082}} = 452$

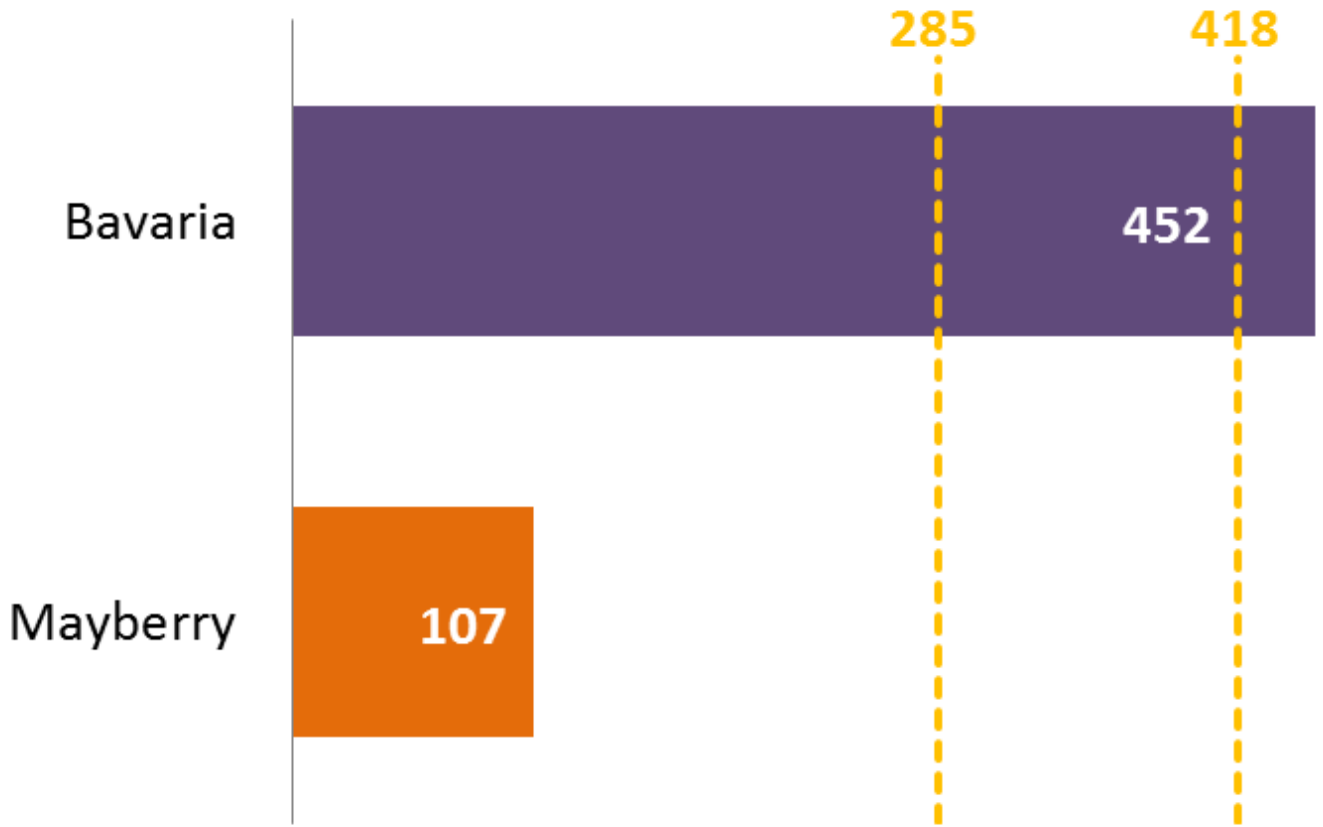
Unrestricted Cash & Cash Equivalents ***(5)***

/ 365

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

OE $671,333
- Dep $212,251

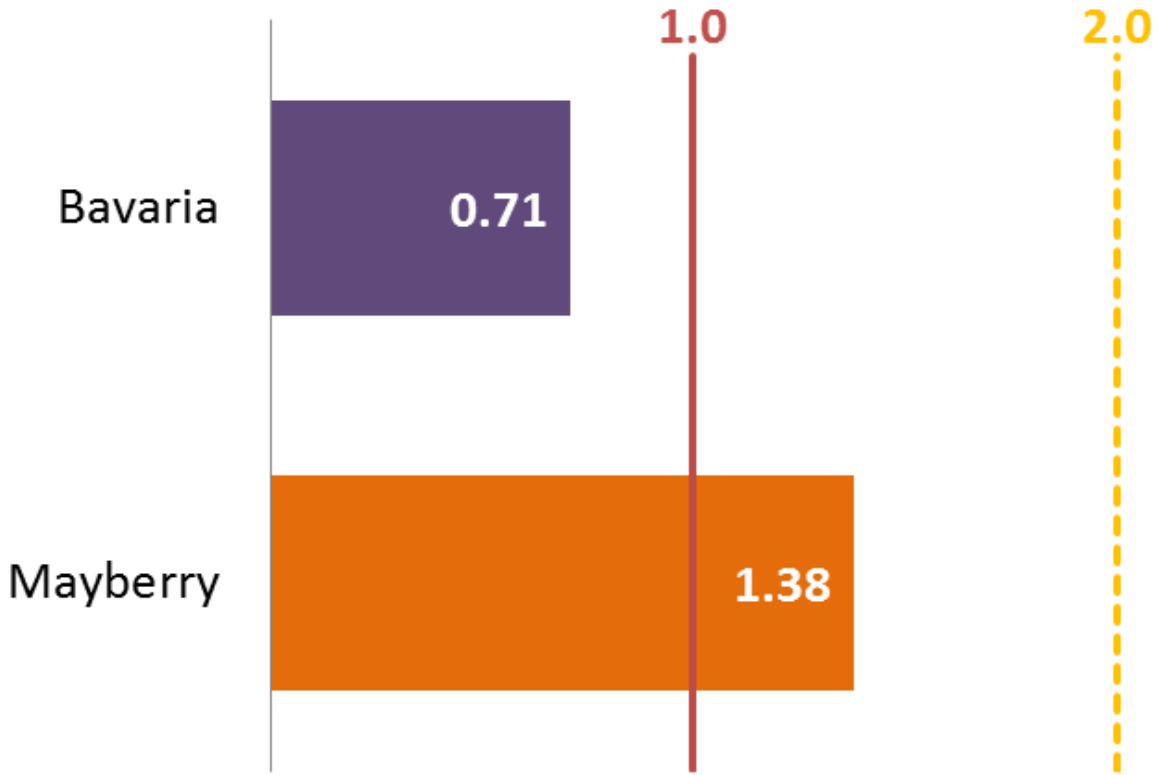
Days of Cash on Hand



Current Ratio – **Bavaria**

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

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's Current Ratio corrected

C $568,061
+ G $460,005

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

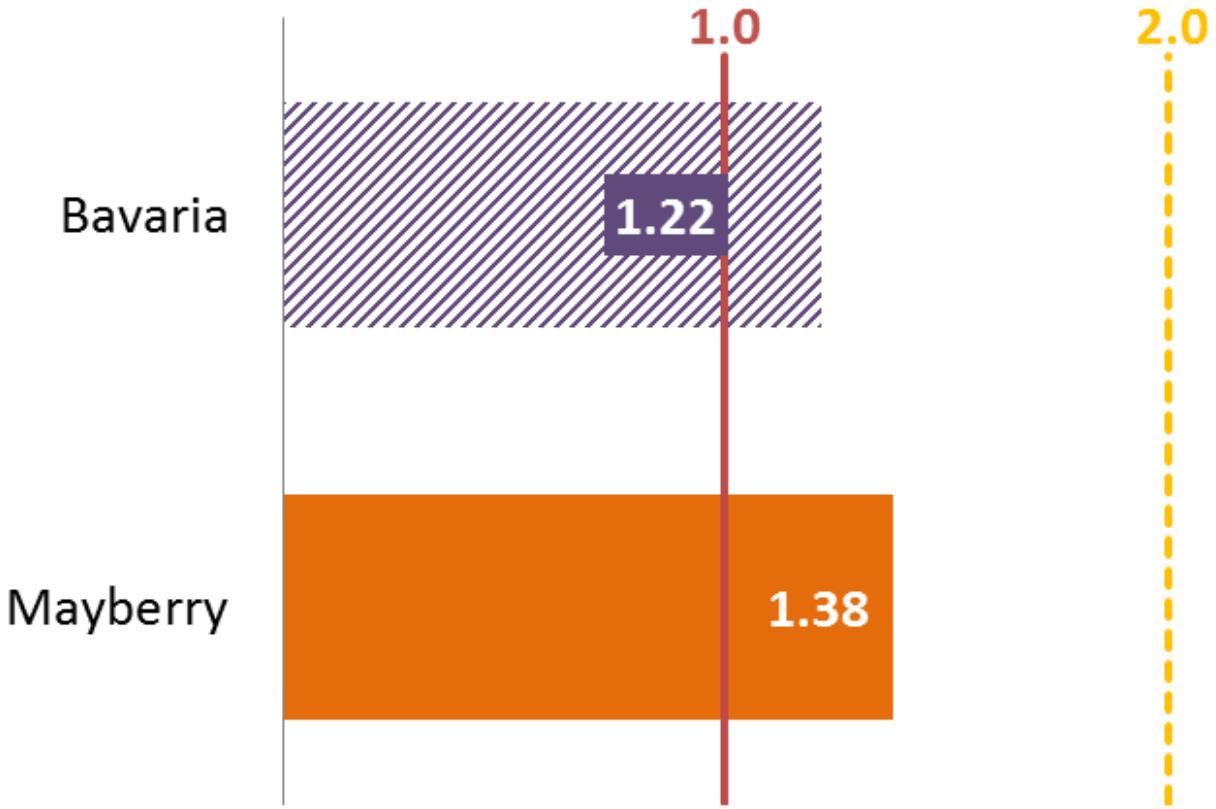
Unrestricted Cash & Cash Equivalents ***(5)***

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

Current Liabilities ***(7)***

Current Ratio

Bavaria Corrected for Missing Grant Funds



One More to Mention: Asset Depreciation*

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

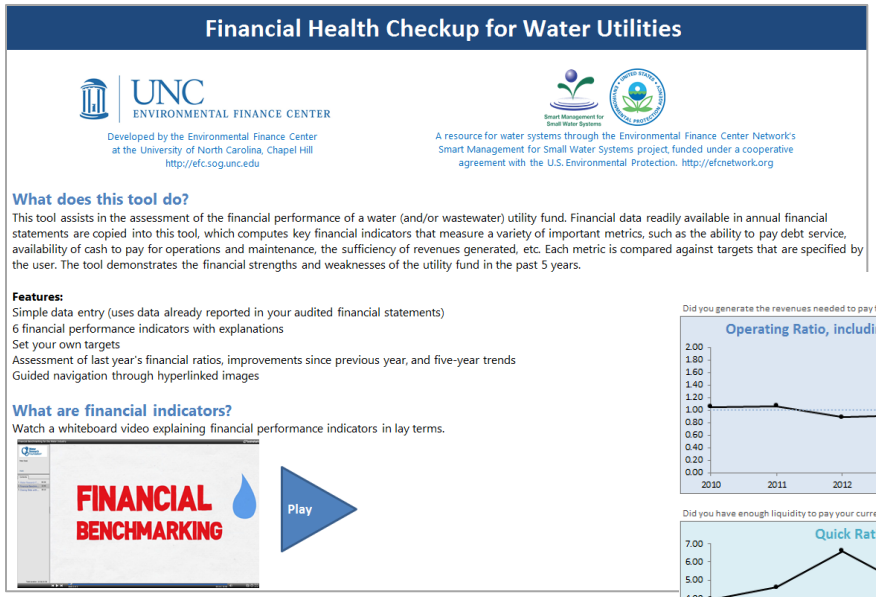
Benchmark? Don't get close to 1.0

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

Financial Health Checkup for Water Utilities

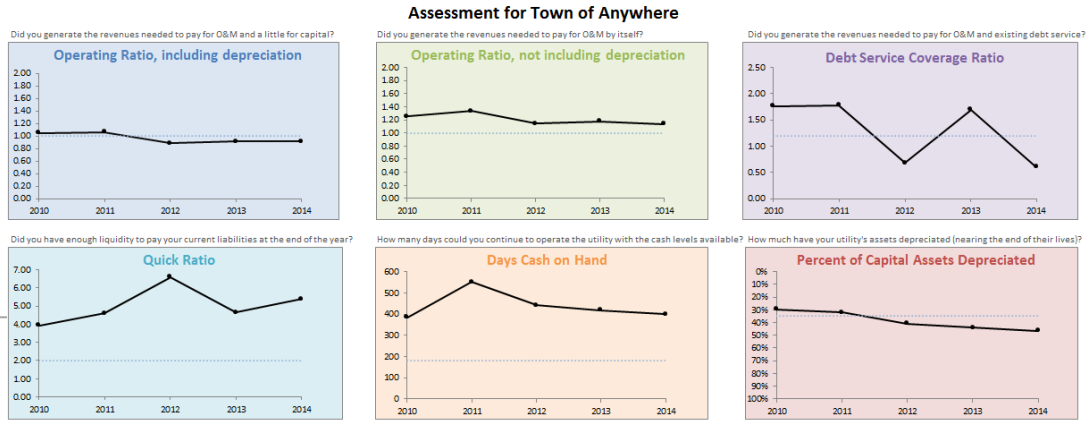
http://efc.sog.unc.edu or http://efcnetwork.org

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



Excel®- based tool

Free to use

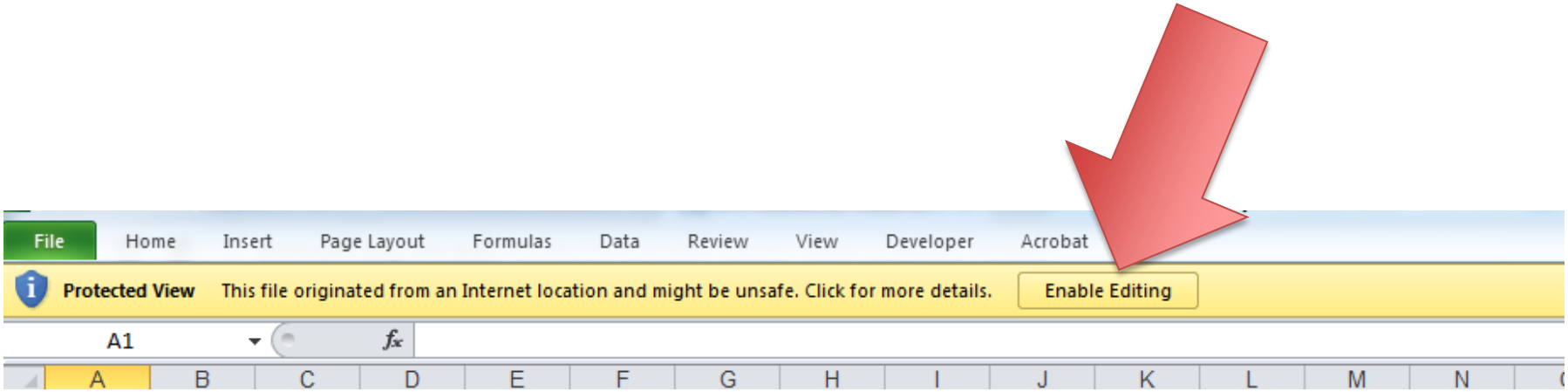


Created by the Environmental Finance Center at the University of North Carolina, Chapel Hill's School of Government

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.

Tip: when you first use this file after downloading from our website, click on “Enable Editing” at the top



Demonstration of the tool

with examples from small water systems

Interpretation of the results and discussion

Direct link to the tool:
http://www.efc.sog.unc.edu/reslib/item/financial-health-checkup-water-utilities

Financial Health Checkup for Water Utilities: Using the New, Free Spreadsheet Tool

January 27, 2016

Webinar by the Environmental Finance Center Network

Smart Management for Small Water Systems

Financial Health Checkup for Water Utilities

A new Excel®-based tool by the EFC-UNC

January 27, 2016

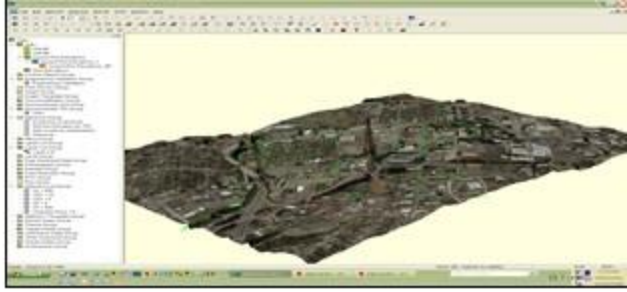
Shadi Eskaf
Environmental Finance Center at the
University of North Carolina, Chapel Hill
School of Government
eskaf@sog.unc.edu
http://efc.sog.unc.edu

Why Care About This?

- Setting rates and financial planning: as you think about the future needs of your system, you have to know where you are starting from
- Monitor system's financial performance to detect any negative trends (long-term)
- Funders care about these ratios → lower interest rates
- Accountable to your customers

Virginia Rates Dashboard

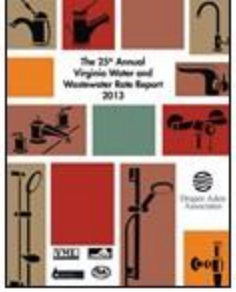
Utilities Engineering



Draper Aden Associates

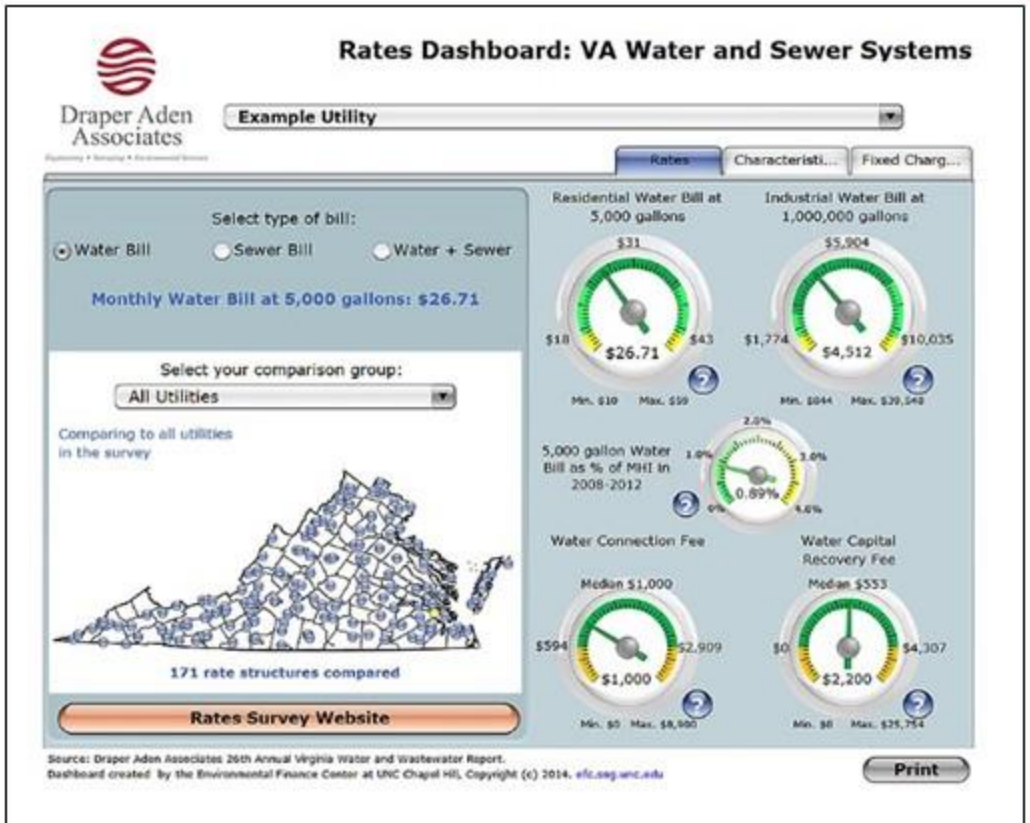
Engineering • Surveying • Environmental Services

Annual Water and Wastewater Rate Survey

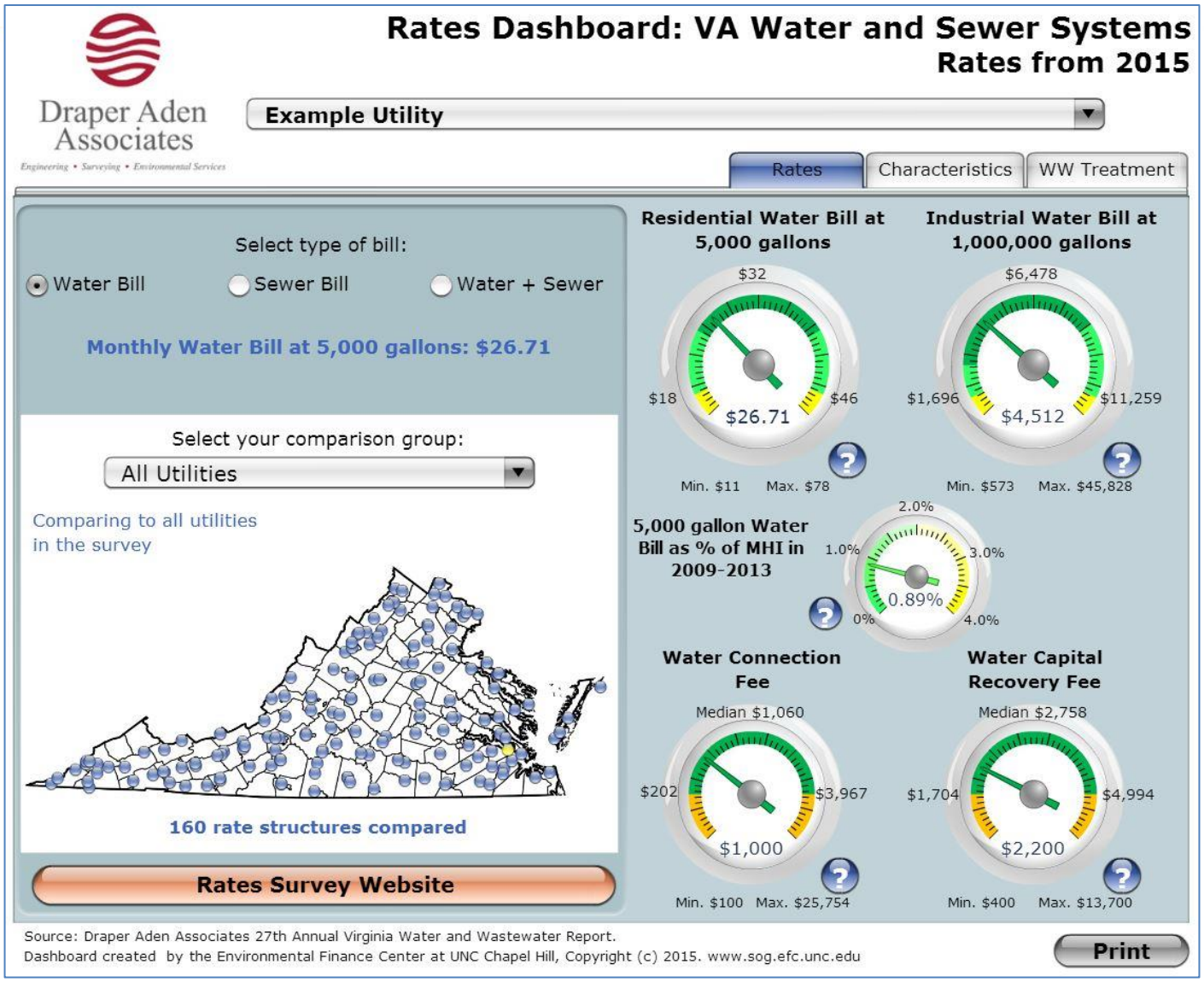


Draper Aden Associates

Engineering • Surveying • Environmental Services



Virginia Rates Dashboard



For More Information

David Tucker
Project Director
Environmental Finance Center
University of North Carolina
919-966-4199
drtucker@sog.unc.edu