



Smart Management for  
Small Water Systems

# Assessing the Financial Condition of your Water System Fund



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cooperative agreement with EPA.

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# Session 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
- Learning some standard measures that funders (and the LGC) will be concerned with



# 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/>



**Key Financial Indicators**

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 [www.efcnetwork.org](http://www.efcnetwork.org) 



# Where Do We Get Started?

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

<b>BAVARIA</b> <b>STATEMENT OF NET ASSETS</b> <b>PROPRIETARY FUND</b> <b>JUNE 30, 2011</b>	
<b>Assets</b>	<b>Water and Sewer Enterprise Fund</b>
<b>Current Assets:</b>	
Cash - operating	\$ 368,101
Accounts Receivable (Net)	60,346
Prepaid Insurance	5,856
<b>Total Current Assets</b>	<b>434,293</b>
<b>Noncurrent Assets:</b>	
Restricted cash	177,208
<b>Capital assets</b>	
Land	209,556
Buildings	22,082
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	39,833
<b>Total noncurrent assets</b>	<b>5,781,215</b>
<b>Total Assets</b>	<b>6,421,478</b>
<b>Liabilities</b>	
<b>Current Liabilities:</b>	
Accounts Payable	21,090
Accrued Expenses	2,767
Due to Other Funds	8,176
Customer Deposits	62,625
Deferred Subsidy Revenue	460,505
Current Portion of Long Term Debt	343,811
<b>Total Current Liabilities</b>	<b>898,474</b>
<b>Noncurrent Liabilities:</b>	
Compensated Absences	15,609
Revenue Bonds (Net of current portion)	233,357
Notes Payable (Net of current portion)	646,873
<b>Total Noncurrent Liabilities</b>	<b>895,849</b>
<b>Total Liabilities</b>	<b>1,794,323</b>
<b>Fund Net assets</b>	
Invested in capital assets, net of related debt	4,355,133
Restricted for debt service	114,583
Unrestricted	163,261
<b>Total fund net assets</b>	<b>\$ 4,633,077</b>



# Quick Overview of Financial Statements

MAYTHERN STATEMENT OF NET ASSETS PROPRIETARY FUNDS DECEMBER 31, 2010	
ASSETS	
Current Assets	
Cash	10,200
Accounts receivable, net	5,732,769
Total current assets	5,742,969
Capital Assets	
Land and improvements	10,000
Distribution and collection systems	10,000
Less accumulated depreciation	(10,000)
Total capital assets	10,000
Total Assets	15,743,000
LIABILITIES	
Current Liabilities	
Accounts payable	15,695
Current payable to customers	233,357
Total current liabilities	249,052
Long-term Liabilities	
Bonds payable, net of premium	1,788,299
Total long-term liabilities	1,788,299
Total Liabilities	1,937,351
NET ASSETS	
Invested in capital assets, net of related debt	13,805,649
Restricted for debt service	114,583
Unrestricted	163,267
Total net assets	14,083,500
Total liabilities and net assets	15,743,000

BAYARIA STATEMENT OF NET ASSETS PROPRIETARY FUND JUNE 30, 2011	
Water and Sewer Enterprise Fund	
\$ 368,001	(a)
60,346	(b)
5,856	(c)
640,203	(d)
177,208	
209,556	
22,982	(e)
5,873,769	(f)
896,073	
1,454,079	
(2,883,225)	(g)
30,833	
5,781,214	
6,421,278	
15,695	
233,357	(h)
646,873	
889,924	
1,788,299	
4,355,133	
114,583	
163,267	
\$ 4,633,072	



# 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 fund



# Notes to Financial Statements

- Explanations, where needed, to the financial statements





# 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

**Financial Health Checkup for Water Utilities**



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

 **Small Water Systems**  
A resource for water systems through the Environmental Finance Center Network's Smart Management for Small Water Systems project, funded under a cooperative agreement with the U.S. Environmental Protection. <http://efcnetwork.org>

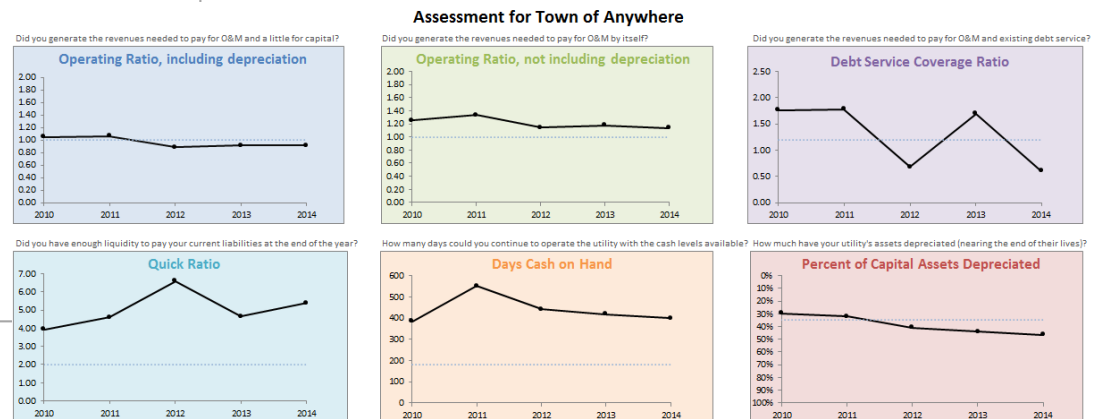
**What does this tool do?**  
This tool assists in the assessment of the financial performance of a water (and/or wastewater) utility fund. Financial data readily available in annual financial statements are copied into this tool, which computes key financial indicators that measure a variety of important metrics, such as the ability to pay debt service, availability of cash to pay for operations and maintenance, the sufficiency of revenues generated, etc. Each metric is compared against targets that are specified by the user. The tool demonstrates the financial strengths and weaknesses of the utility fund in the past 5 years.

**Features:**  
Simple data entry (uses data already reported in your audited financial statements)  
6 financial performance indicators with explanations  
Set your own targets  
Assessment of last year's financial ratios, improvements since previous year, and five-year trends  
Guided navigation through hyperlinked images

**What are financial indicators?**  
Watch a whiteboard video explaining financial performance indicators in lay terms.

 **FINANCIAL BENCHMARKING** 

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.



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# Example of **Mayberry** (actual small town's finances)



# Is the system self-sufficient?



# Operating Ratio

**OPERATING REVENUES**



**OPERATING EXPENSES**



**DEPRECIATION**

ANNUAL COST OF WEAR  
AND TEAR ON THE SYSTEM

Include or  
Exclude

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



# Operating Ratio

## Including Depreciation

**MAYBERRY**  
**STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS**  
**PROPRIETARY FUNDS**  
**FOR THE YEAR ENDED DECEMBER 31, 2010**

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





# Operating Ratio – Mayberry

Including Depreciation

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



# Operating Ratio

## Excluding Depreciation

**MAYBERRY**  
**STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS**  
**PROPRIETARY FUNDS**  
**FOR THE YEAR ENDED DECEMBER 31, 2010**

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Total operating expenses	<u>511,448</u>	
Operating income (loss)	<u>(67,217)</u>	



# Operating Ratio – Mayberry

Excluding Depreciation

$$\begin{array}{rcl} \boxed{1b.} & \frac{\boxed{\$444,231}}{\boxed{\$368,985}} & = \boxed{1.20} \\ & \text{Operating Revenues (1)} & \\ & \text{Operating Expenses (excluding depreciation) (2-3)} & \end{array}$$

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



Is the system able to cover its  
debt service after paying for its  
day-to-day operations?





# Debt Service Coverage Ratio

**OPERATING REVENUES – OPERATING EXPENSES**  
(EXCLUDING DEPRECIATION)

---

**PRINCIPAL + INTEREST PAYMENTS**  
ON LONG TERM DEBT

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



# Debt Service Coverage Ratio

## MAYBERRY

### STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS

#### PROPRIETARY FUNDS

FOR THE YEAR ENDED DECEMBER 31, 2010

## MAYBERRY

### STATEMENT OF CASH FLOWS

#### PROPRIETARY FUNDS

FOR THE YEAR ENDED DECEMBER 31, 2010

Page 1 of 2

#### OPERATING REVENUES

Charges for services

Grants

Total operating revenues

#### OPERATING EXPENSES

Personnel services

Contractual services

Other supplies and expense

Depreciation

Total operating expenses

Operating income (loss)

#### CASH FLOWS FROM OPERATING ACTIVITIES

Receipts from customers

Payments to suppliers

Payments to employees

Net cash provided by operating activities

#### CASH FLOWS FROM NONCAPITAL

##### FINANCING ACTIVITIES

Transfers in (out)

Net cash (used) by noncapital

financing activities

#### CASH FLOWS FROM CAPITAL AND RELATED

##### FINANCING ACTIVITIES

Loan proceeds

Purchases of capital assets

Principal paid on capital debt

Interest paid on capital debt

Net cash (used) by capital and

related financing activities

#### Enterprise Funds Water and Sewer

\$ 437,947

(187,296)

(178,885)

71,766

(60,000)

(60,000)

0

( 39,841)

( 49,655)

( 35,128)

(124,624)

④



# Debt Service Coverage Ratio – Mayberry

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

$$\begin{array}{r} \$444,231 \\ \text{Operating Revenues (1)} \end{array} - \begin{array}{r} \$368,985 \\ \text{Operating Expenses (2-3)} \\ \text{(excluding depreciation)} \end{array}$$

2.

$$\frac{\$84,783}{\text{Principal \& Interest on Long-Term Debt (4)}}$$

0.89

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



If the customers stop paying their bills, how long can the system 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/>

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# 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

Restricted cash

176,424

Receivables, net

41,870

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

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

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



# Can the system meet its short term obligations?



# Current Ratio

**UNRESTRICTED CURRENT ASSETS  
EXCLUDING INVENTORIES AND  
PREPAID ITEMS**

---

**CURRENT LIABILITIES**



# Current Ratio – Mayberry

$$\begin{array}{rcl} \boxed{4.} & \frac{\boxed{\$107,706} + \boxed{\$41,870}}{\boxed{\$108,390}} & = \boxed{1.38} \\ & \begin{array}{l} \text{Unrestricted Cash \& Cash Equivalents (5)} \\ \text{Receivables, net (6)} \\ \text{Current Liabilities (7)} \end{array} & \end{array}$$







# Exercise: Now You Calculate the Ratios

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

And use this worksheet →

**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. 
$$\frac{\text{Operating Revenues (1)}}{\text{Operating Expenses (including depreciation) (2)}} =$$

1b. 
$$\frac{\text{Operating Revenues (1)}}{\text{Operating Expenses (excluding depreciation) (2-3)}} =$$

**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. 
$$\frac{\text{Operating Revenues (1)} - \text{Operating Expenses (2-3) (excluding depreciation)}}{\text{Principal \& Interest on Long-Term Debt (4)}} =$$



# Calculate the Following Ratios

- Operating Ratio including depreciation
- Operating Ratio excluding depreciation
- Debt Service Coverage Ratio
- Days Cash on Hand
- Current Ratio



# 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

## Service Population



## Service Connections





# They Have Similar Demographics

MHI



Percent Poverty







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



Mayberry



Bavaria



# Operating Ratio - Bavaria

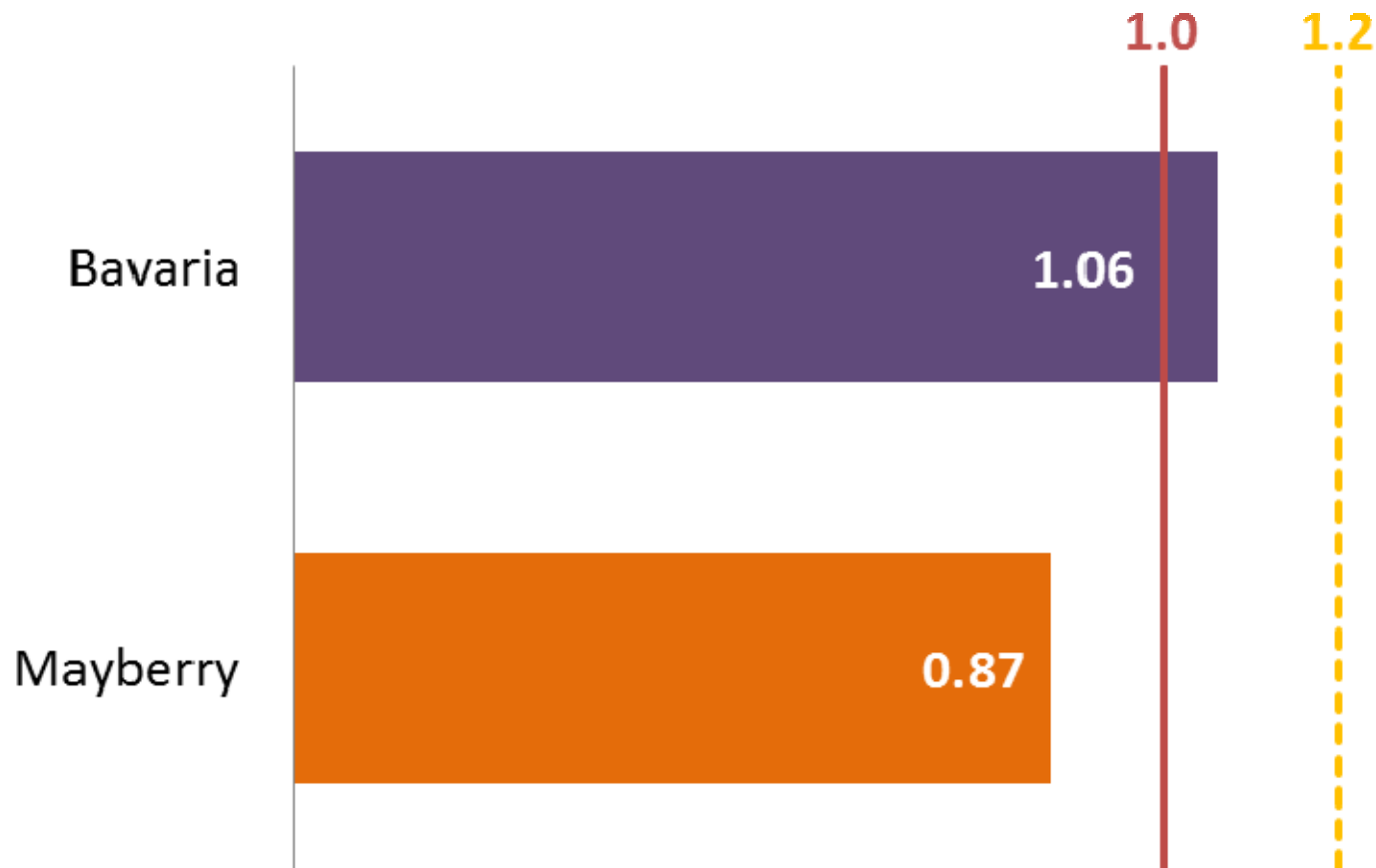
Including Depreciation

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



# Operating Ratio

Including Depreciation





# Operating Ratio - Bavaria

Excluding Depreciation

$$\begin{array}{rcl} \boxed{1b.} & \frac{\boxed{\$709,972}}{\boxed{\$459,082}} & = \boxed{1.55} \\ & \text{Operating Revenues (1)} & \\ & \text{Operating Expenses (excluding depreciation) (2-3)} & \end{array}$$

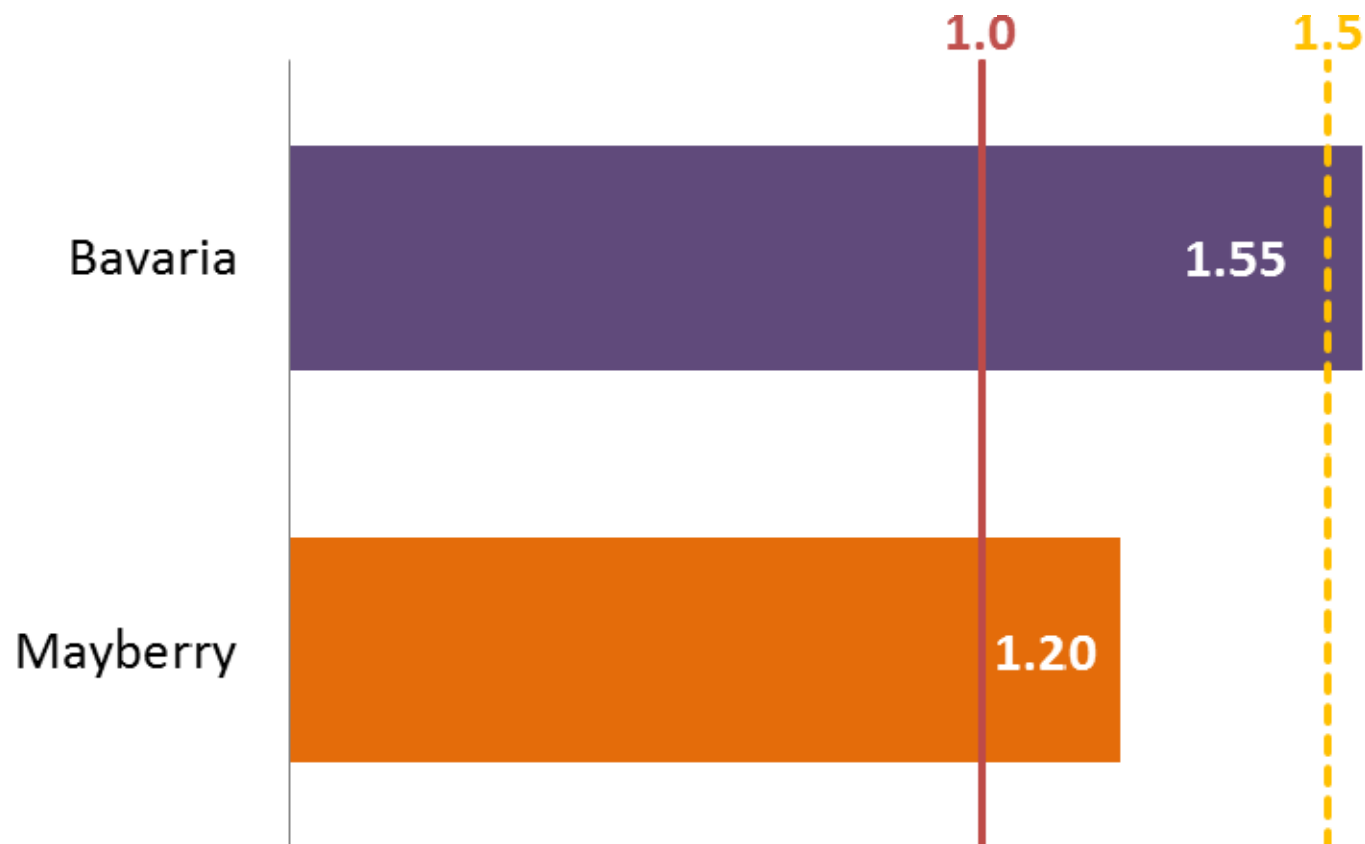
OE \$671,333  
- DEP \$212,251





# Operating Ratio

Excluding Depreciation







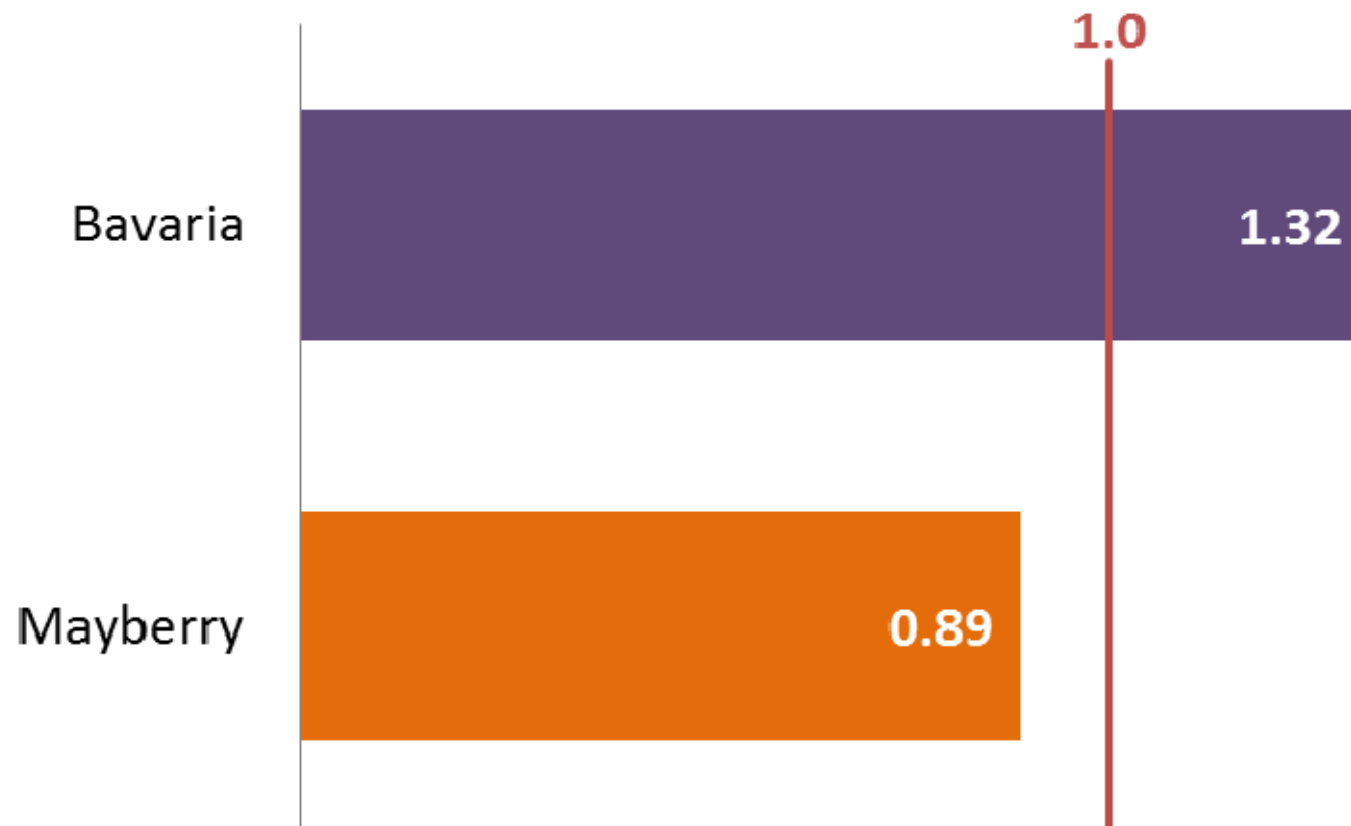
# Debt Service Coverage Ratio – Bavaria

$$\begin{array}{rcl} \boxed{\$709,972} & - & \boxed{\$459,082} \\ \text{Operating Revenues (1)} & & \text{Operating Expenses (2-3)} \\ & & \text{(excluding depreciation)} \\ \hline \boxed{2.} & & \boxed{1.32} \\ & & \boxed{\$190,633} \\ & & \text{Principal \& Interest on Long-Term Debt (4)} \end{array}$$

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



# Debt Service Coverage Ratio





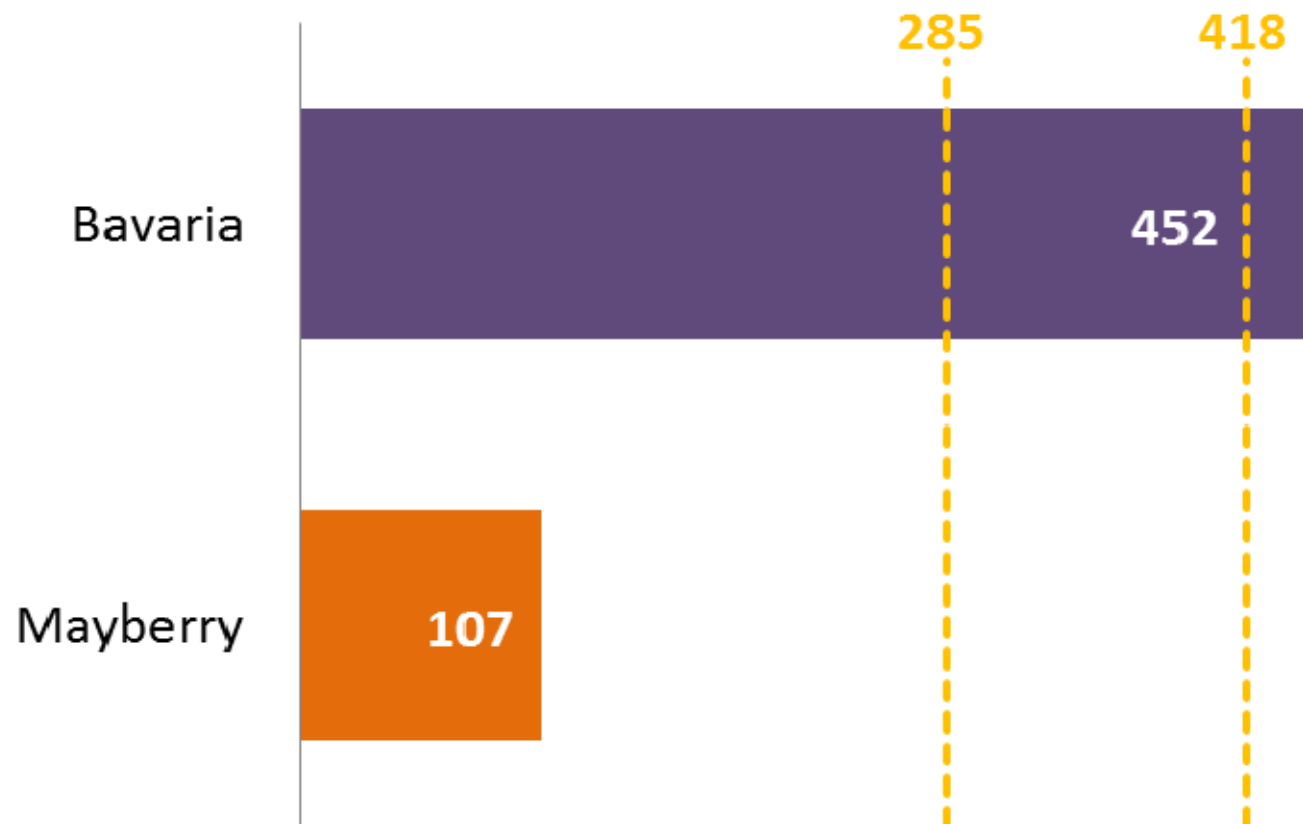
# Days of Cash on Hand – Bavaria

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

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



# Days of Cash on Hand





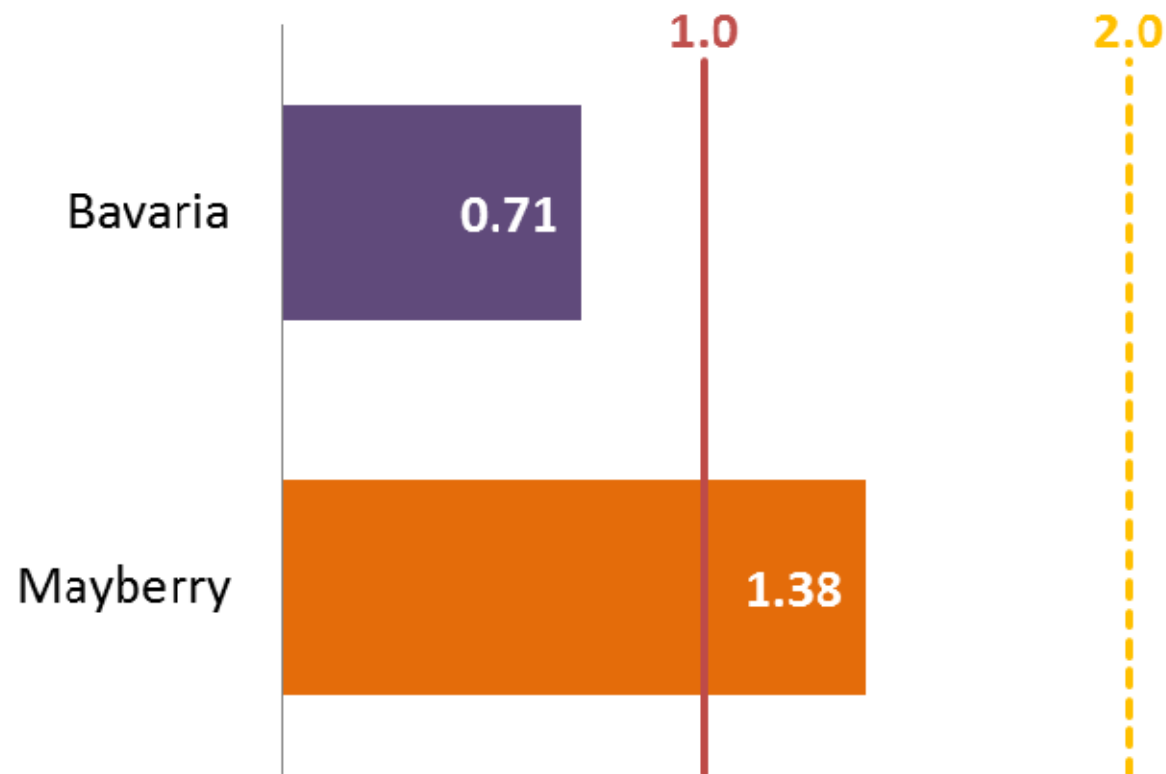
# Current Ratio – Bavaria

$$\begin{array}{rcl} \boxed{4.} & \frac{\boxed{\$568,061} + \boxed{\$66,346}}{\boxed{\$898,474}} & = \boxed{0.71} \\ & \begin{array}{l} \text{Unrestricted Cash \& Cash Equivalents (5)} \\ \text{Receivables, net (6)} \\ \text{Current Liabilities (7)} \end{array} & \end{array}$$





# 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

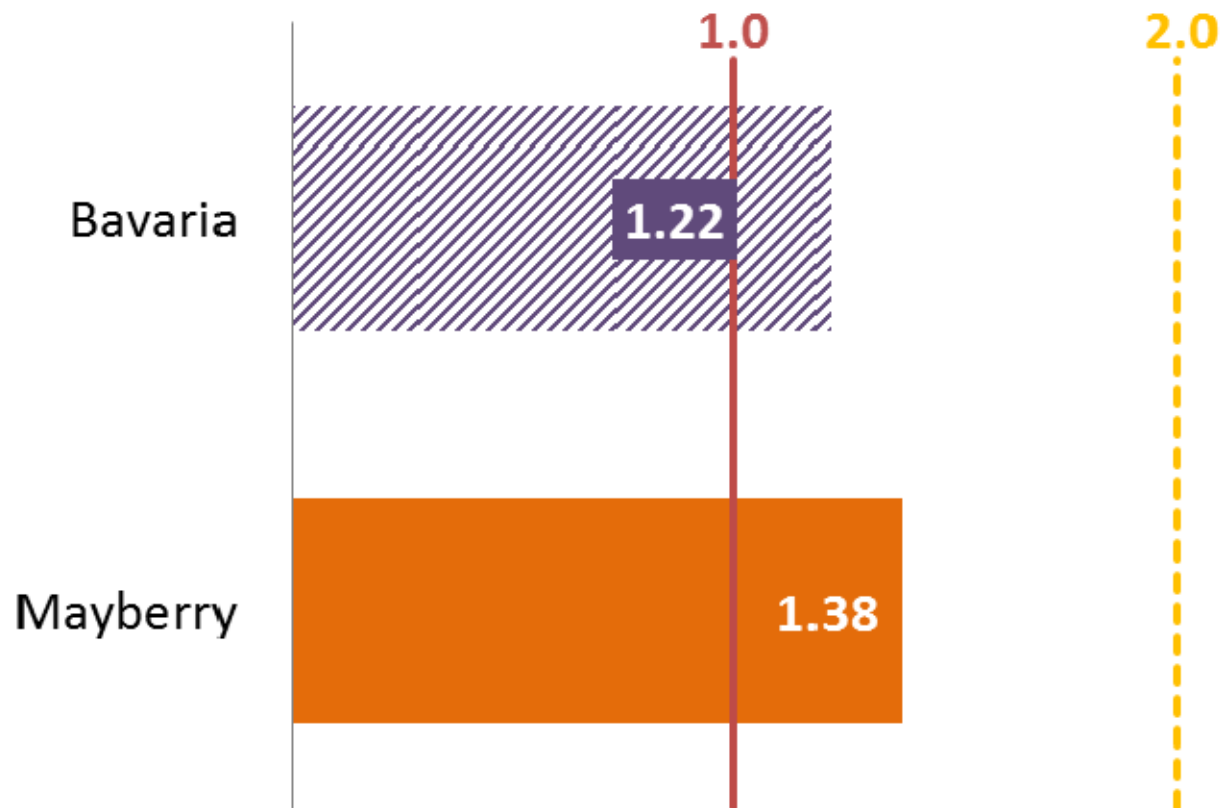
C \$568,061  
+ G \$460.005

$$\begin{array}{rcl} \boxed{\$1,028,066} & + & \boxed{\$66,346} \\ \text{Unrestricted Cash \& Cash Equivalents (5)} & & \text{Receivables, net (6)} \\ \hline \boxed{4.} & = & \boxed{1.22} \\ \boxed{\$898,474} & & \\ \text{Current Liabilities (7)} & & \end{array}$$



# Current Ratio

Bavaria Corrected for Missing Grant Funds





# How did YOUR water system do?

- Use the LGC's Benchmarking Tool for Municipalities and Counties

<https://www.nctreasurer.com/slg/lfm/financial-analysis/Pages/Financial-Statistics-Tool.aspx>

- Use the EFC's Rates Dashboard

<http://www.efc.sog.unc.edu/reslib/item/north-carolina-water-and-wastewater-rates-dashboard>





# 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



# For More Information

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