



Smart Management for  
Small Water Systems

# Assessing the Financial Condition of your Water System Fund



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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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# 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

Assets	Water and Sewer Enterprise Fund	
<b>Current Assets:</b>		
Cash - operating	\$ 568,001	③
Accounts Receivable (Net)	60,346	
Prepaid Insurance	5,856	⑤
<b>Total Current Assets</b>	<u>640,203</u>	
<b>Noncurrent Assets:</b>		
Restricted cash	177,208	
<b>Capital assets</b>		
Land	209,556	
Buildings	22,982	
Improvements other than buildings	5,873,769	⑦
Machinery and equipment	896,073	
Construction in progress	1,454,079	
Less: Accumulated depreciation	(2,883,225)	⑧
Deferred Charge	39,833	
<b>Total noncurrent assets</b>	<u>5,781,215</u>	
<b>Total Assets</b>	<u>6,421,418</u>	
<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>	<u>899,474</u>	⑥
<b>Noncurrent Liabilities:</b>		
Compensated Absences	15,605	
Revenue Bonds (Net of current portion)	233,357	
Notes Payable (Net of current portion)	646,823	
<b>Total Noncurrent Liabilities</b>	<u>895,825</u>	
<b>Total Liabilities</b>	<u>1,795,299</u>	
<b>Fund Net assets</b>		
Invested in capital assets, net of related debt	4,355,133	
Restricted for debt service	114,583	
Unrestricted	163,361	
<b>Total fund net assets</b>	<u>\$ 4,633,077</u>	



# Quick Overview of Financial Statements

MAYBERRY STATEMENT OF NET ASSETS PROPRIETARY FUNDS DECEMBER 31, 2010		BAYARIA STATEMENT OF NET ASSETS PROPRIETARY FUND JUNE 30, 2011	
ASSETS		Water and Sewer Enterprise Fund	
Current Assets		\$ 368,001	(a)
Cash		60,346	(b)
Accounts receivable, net		5,856	
Total Current		640,203	
Capital Assets		177,208	
Land and Improvements		209,556	
Distribution and Collection Systems		22,682	
Less accumulated depreciation		5,873,709	(c)
Total Capital Assets		896,073	
Total Assets		1,454,079	(d)
LIABILITIES		(2,883,225)	
Current Liabilities		30,833	
Accounts payable		5,781,214	
Other payable amounts		472,078	
Total Current Liabilities		6,253,105	(e)
Noncurrent Liabilities			
Bond proceeds not yet received			
Total noncurrent liabilities			
Total Liabilities		6,253,105	
NET ASSETS			
Assigned to capital assets not in bonded debt			
Restricted for other services			
Total net assets			
Total liabilities and net assets			



# 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**

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

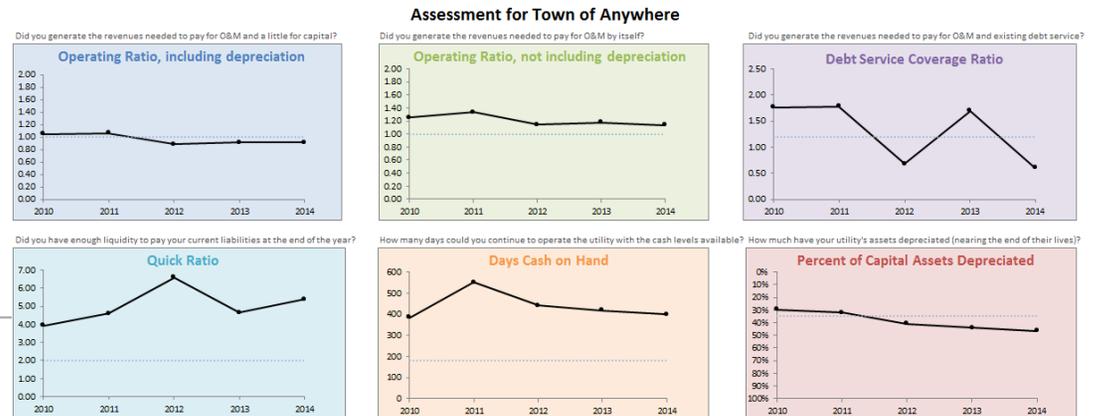
A resource for water systems through the Environmental Finance Center Network's Smart Management for Small Water Systems project, funded under a cooperative agreement with the U.S. Environmental Protection. <http://efcnetwork.org>

**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.

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**



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/>



# 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	142,463	- ②
Total operating expenses	<u>511,448</u>	
Operating income (loss)	<u>(67,217)</u>	



# 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

## Excluding 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
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Personnel services	178,885	
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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

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



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)

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**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

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

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)
<u>71,766</u>

(60,000)

(60,000)

0
( 39,841)
( 49,655)
<u>( 35,128)</u>
(124,624)

④





# Debt Service Coverage Ratio – Mayberry

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

\$444,231	-	\$368,985	=	0.89
Operating Revenues (1)		Operating Expenses (2-3) (excluding depreciation)		
2.		\$84,783		
		Principal & Interest on Long-Term Debt (4)		

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**

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**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  
Restricted cash  
Receivables, net  
Total current assets

107,706

176,424

41,870

326,000

⑤  
⑥

Capital assets

Land and improvements  
Distribution and collection systems  
Buildings  
Less accumulated depreciation  
Total capital assets

10,229

5,732,845

503,398

(2,514,933)

3,731,539

Total Assets

\$ 4,057,539

LIABILITIES



# Days of Cash on Hand – Mayberry

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

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



# Can the system meet its short term obligations?



# Current Ratio

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

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**CURRENT LIABILITIES**



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

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# Current Ratio – **Mayberry**

$$4. \frac{\$107,706 + \$41,870}{\$108,390} = 1.38$$

*Unrestricted Cash & Cash Equivalents (5)*      *Receivables, net (6)*

*Current Liabilities (7)*



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

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

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



# 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

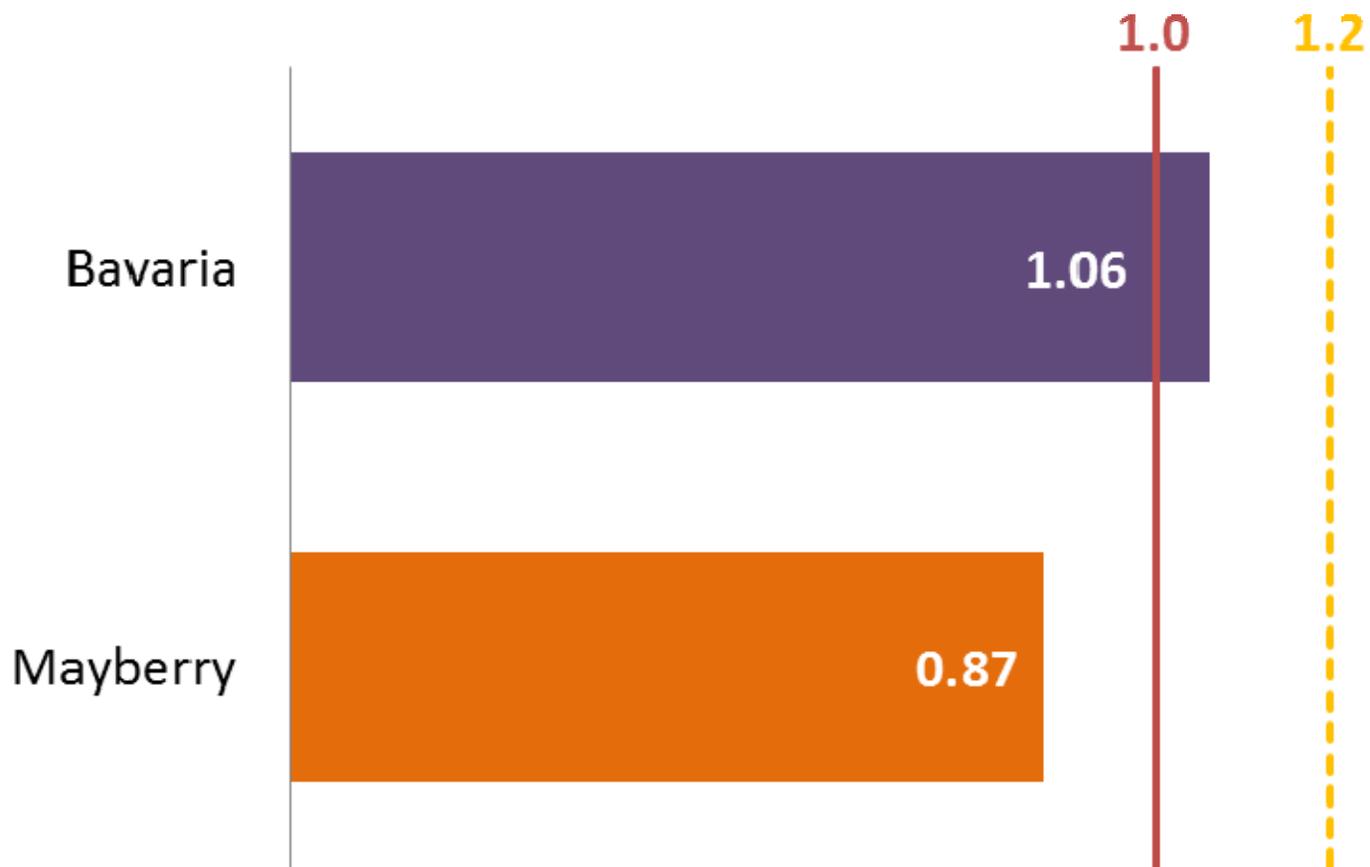
$$\begin{array}{r} \boxed{\$709,972} \\ \text{Operating Revenues (1)} \\ \hline \boxed{\$671,333} \\ \text{Operating Expenses (including depreciation) (2)} \end{array} = \boxed{1.06}$$

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





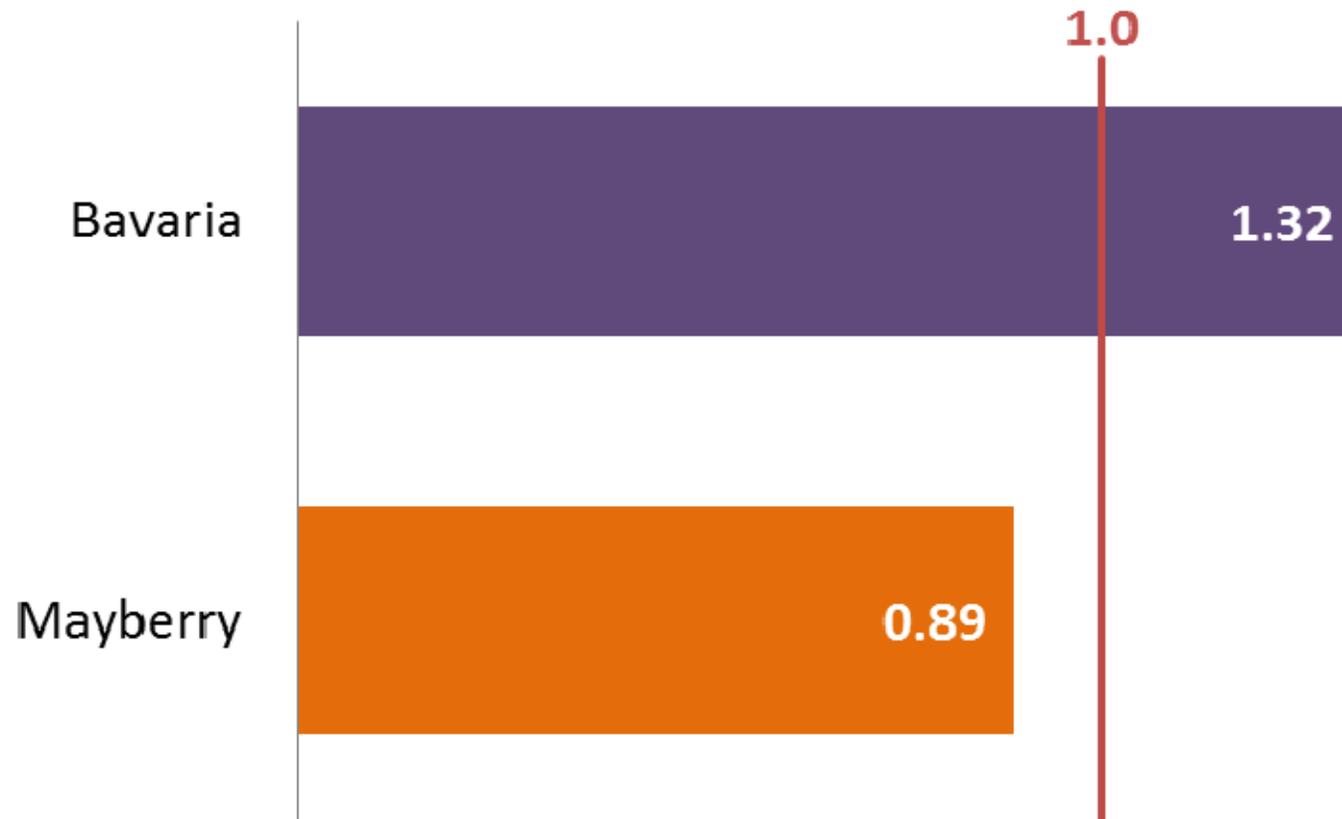
# Debt Service Coverage Ratio – Bavaria

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

*Handwritten notes:*  
OE \$671,333  
- Dep \$212,251



# Debt Service Coverage Ratio





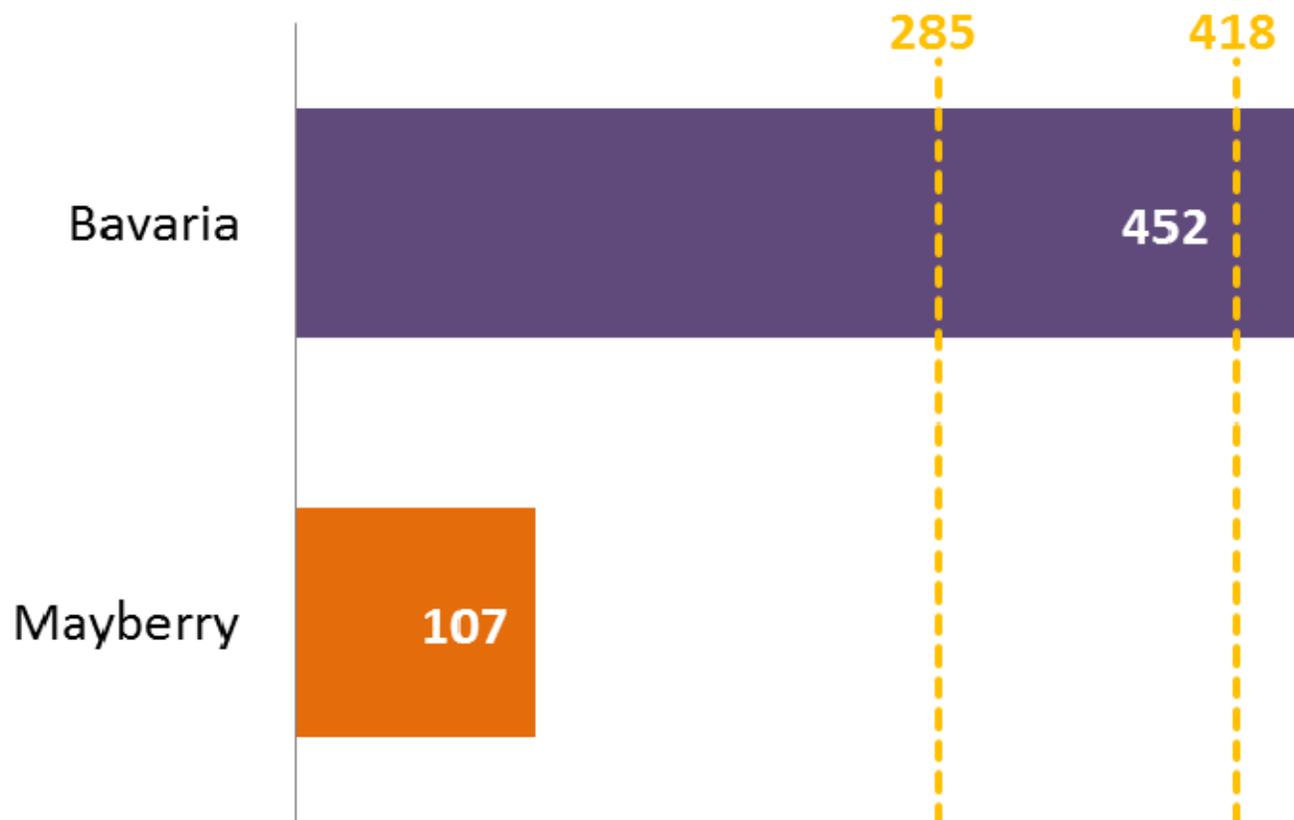
# Days of Cash on Hand – Bavaria

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

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



# Days of Cash on Hand





# Current Ratio – Bavaria

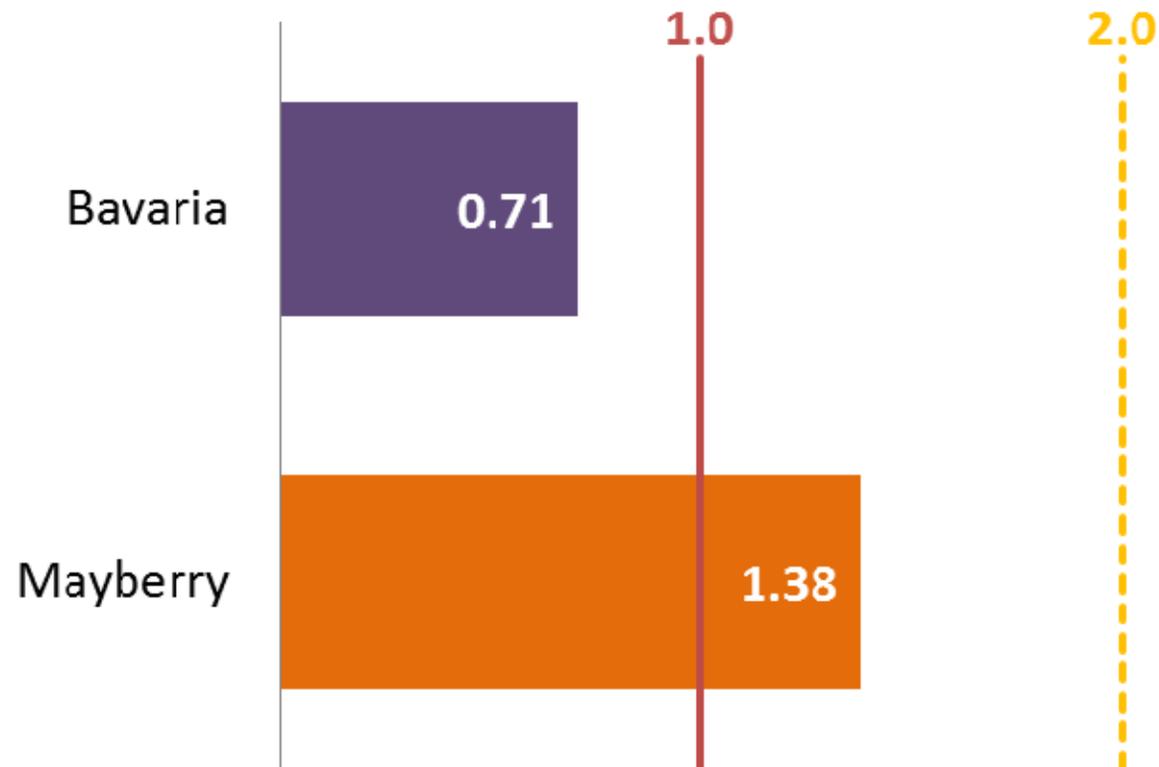
$$4. \frac{\$568,061 + \$66,346}{\$898,474} = 0.71$$

*Unrestricted Cash & Cash Equivalents (5)*      *Receivables, net (6)*

*Current Liabilities (7)*



# 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

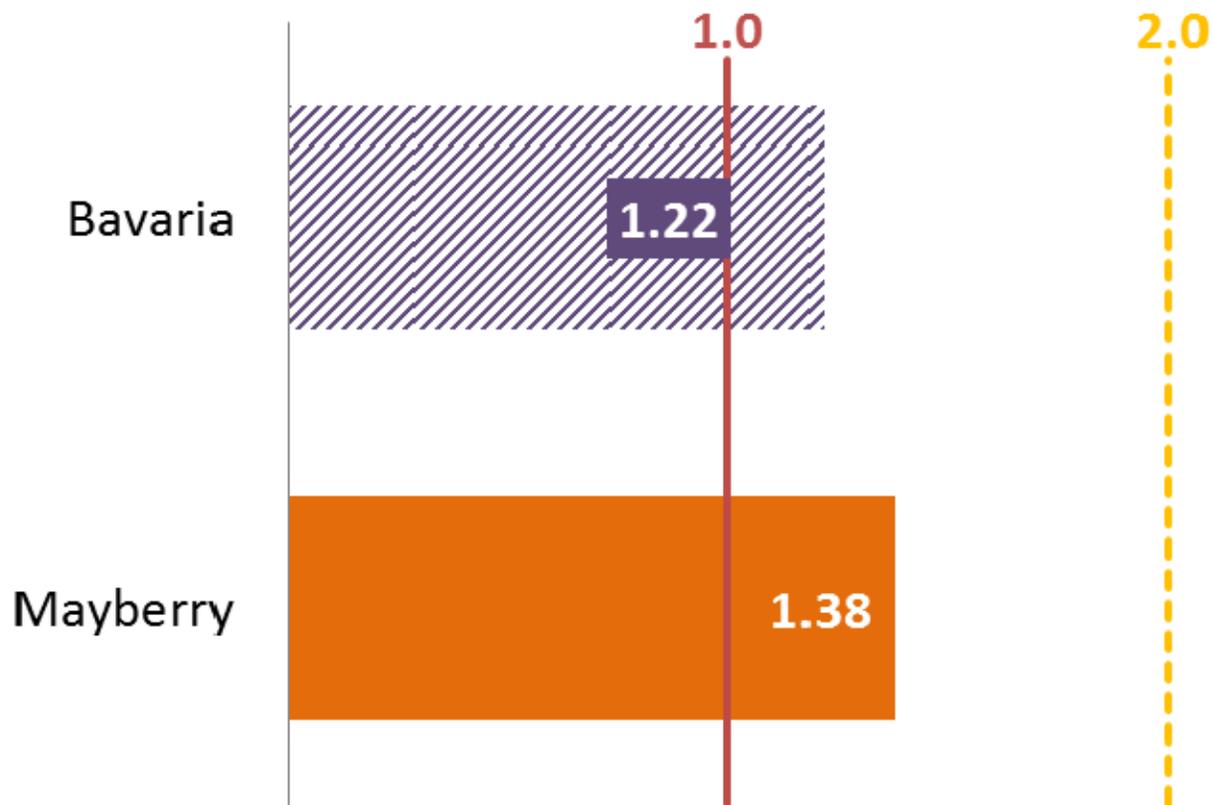
C \$568,061  
+ G \$460,005

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



# 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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