



# Assessing Financial Condition

Glenn Barnes

Environmental Finance Center

The University of North Carolina at Chapel Hill

919-962-2789

[glennbarnes@sog.unc.edu](mailto:glennbarnes@sog.unc.edu)



# Session Objectives

- Understanding where your water system is right now financially
- Learning some standard measures that funders will be concerned with



# Can You Sleep at Night?

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



# Can You Sleep at Night?

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

Operating Ratio

Debt Service  
Coverage Ratio

Days Cash on  
Hand

Current  
Ratio


Asset  
Depreciation



# Whiteboard Video: Financial Benchmarking

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





# 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

Bavaria

1313

Mayberry

1508

Service  
Connections

Bavaria

505

Mayberry

580



# They Have Similar Demographics

MHI



Percent  
Poverty





# 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		\$ 568,001	(a)
Receivables, net		60,346	(b)
Total Current Assets		5,856	(c)
Capital Assets		640,263	
Land and Improvements		177,208	
Distribution and Collection Systems		209,556	
Buildings		22,982	
Total Capital Assets		5,873,769	(d)
Total Assets		896,073	(e)
Liabilities		1,454,079	
Current Liabilities		(2,883,225)	
Accounts Payable		30,833	
Deferred Deposits		5,781,215	
Accounts Payable - Current		642,678	
Long-Term Liabilities			
Bonds Payable			
Total Liabilities			
Net Assets			
Invested in Capital Assets, net of related debt			
Restricted for debt service			
Unrestricted			
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 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

## 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>	
OPERATING REVENUES		
Charges for services	\$ 444,231	
Grants	0	
Total operating revenues	<u>444,231</u>	①
OPERATING EXPENSES		
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

1a.

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

Operating Revenues (1)

Operating Expenses (including depreciation) (2)



# Operating Ratio

## Excluding Depreciation

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

	<u>Enterprise Funds</u> <u>Water and Sewer</u>	
OPERATING REVENUES		
Charges for services	\$ 444,231	
Grants	0	
Total operating revenues	<u>444,231</u>	- ①
OPERATING EXPENSES		
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

## 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

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

# Debt Service Coverage Ratio

## MAYBERRY

### STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS 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)  
71,766

(60,000)  
(60,000)

0  
( 39,841)  
( 49,655)  
( 35,128)  
(124,624)

Page 1 of 2

④

# Debt Service Coverage Ratio

## – Mayberry

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

$$\frac{\$444,231 - \$368,985}{\$84,783} = 0.89$$

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



# Days of Cash on Hand

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

# Days of Cash on Hand

**MAYBERRY**  
STATEMENT OF NET ASSETS  
PROPRIETARY FUND  
DECEMBER 31, 2010

Enterprise Funds  
Water and Sewer

ASSETS

Current assets

Cash

107,706

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





# Current Ratio

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

# Current Ratio – Mayberry

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



# Now You Calculate For **Bavaria**



# Operating Ratio – Bavaria

## Including Depreciation

1a.

\$709,972

*Operating Revenues (1)*

\$671,333

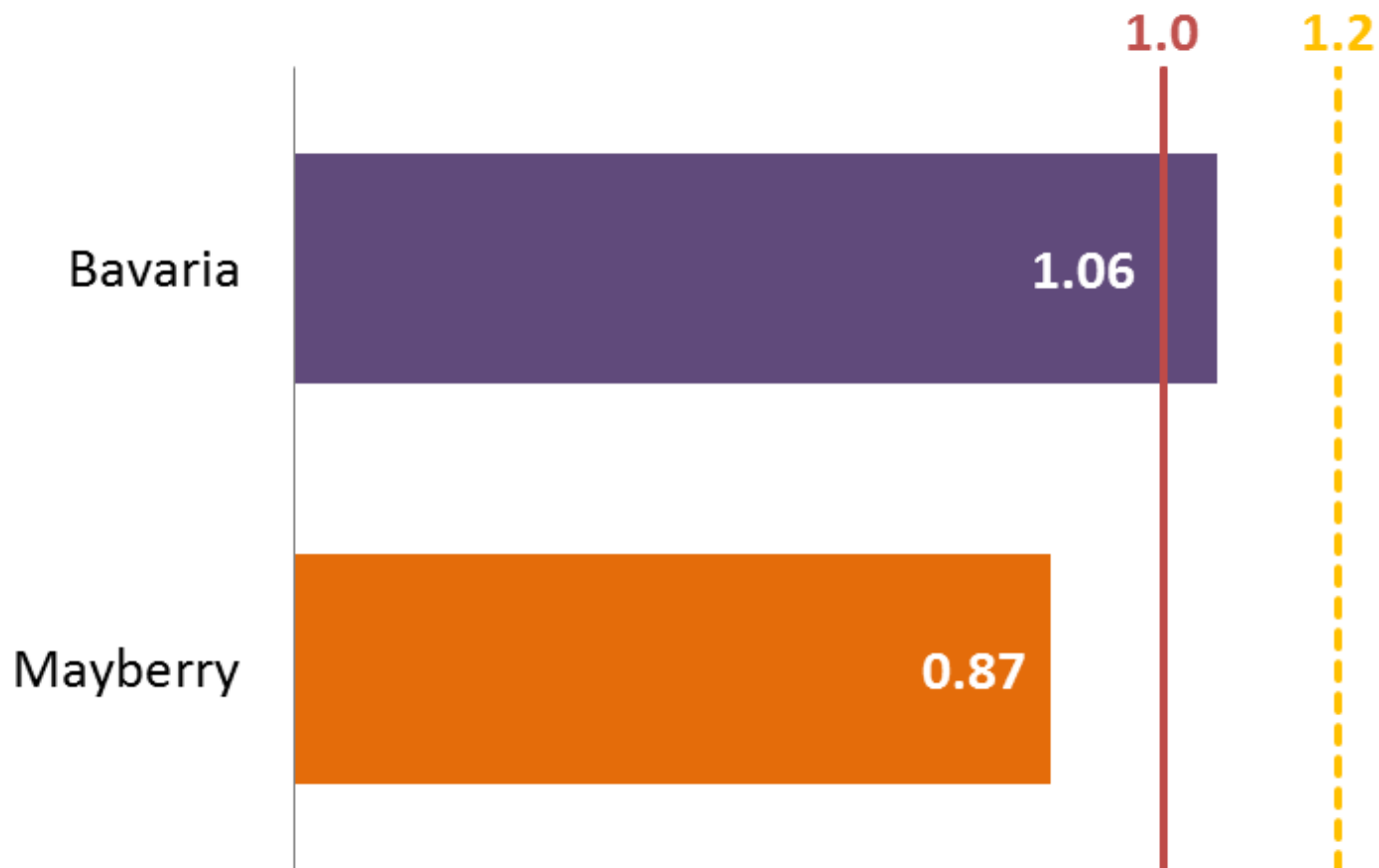
*Operating Expenses (including depreciation) (2)*

=

1.06

# Operating Ratio

## Including Depreciation



# Operating Ratio – Bavaria

## Excluding Depreciation

**1b.**

\$709,972

Operating Revenues (1)

=

1.55

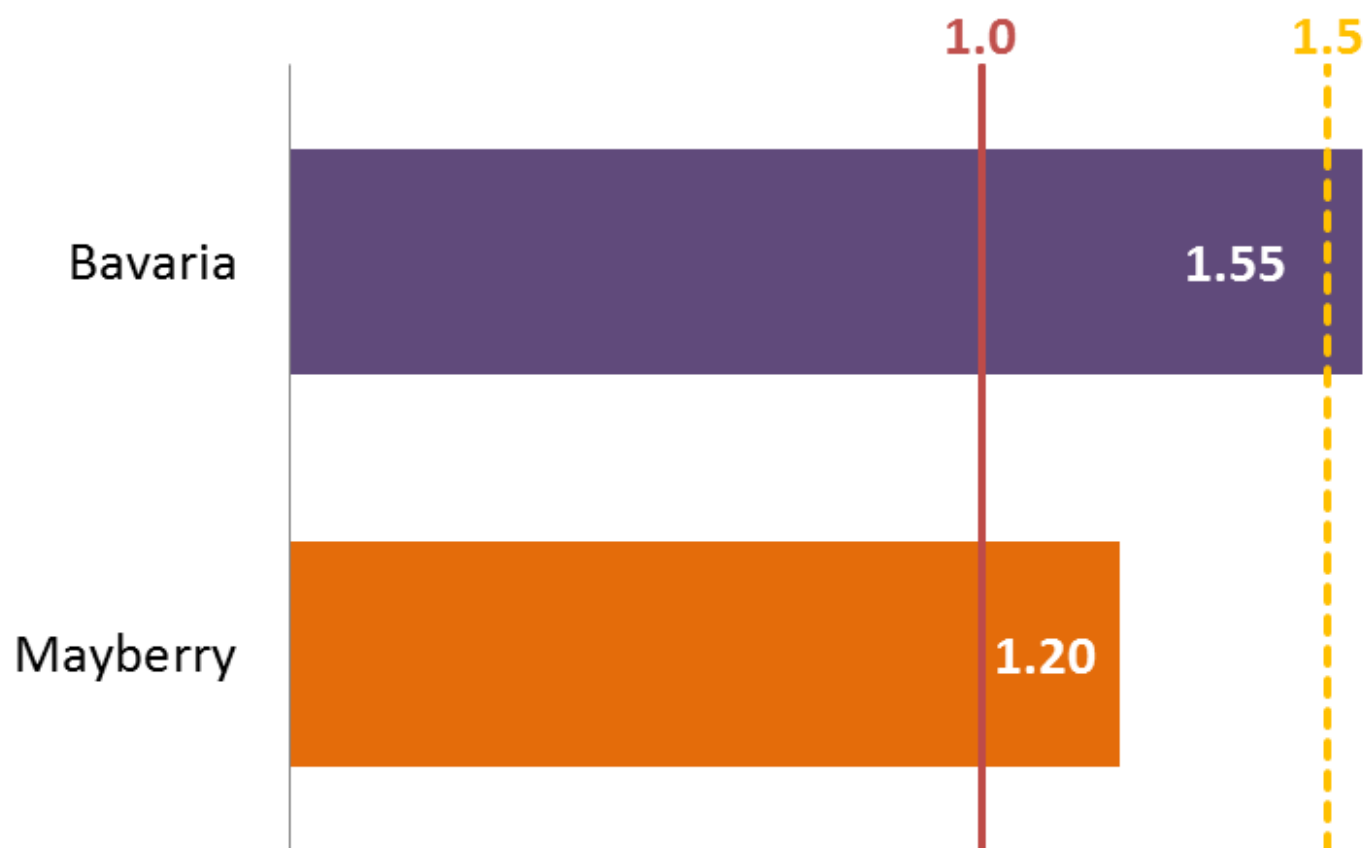
\$459,082

Operating Expenses (excluding depreciation) (2-3)

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

# Operating Ratio

## Excluding Depreciation



# Debt Service Coverage Ratio

## – Bavaria

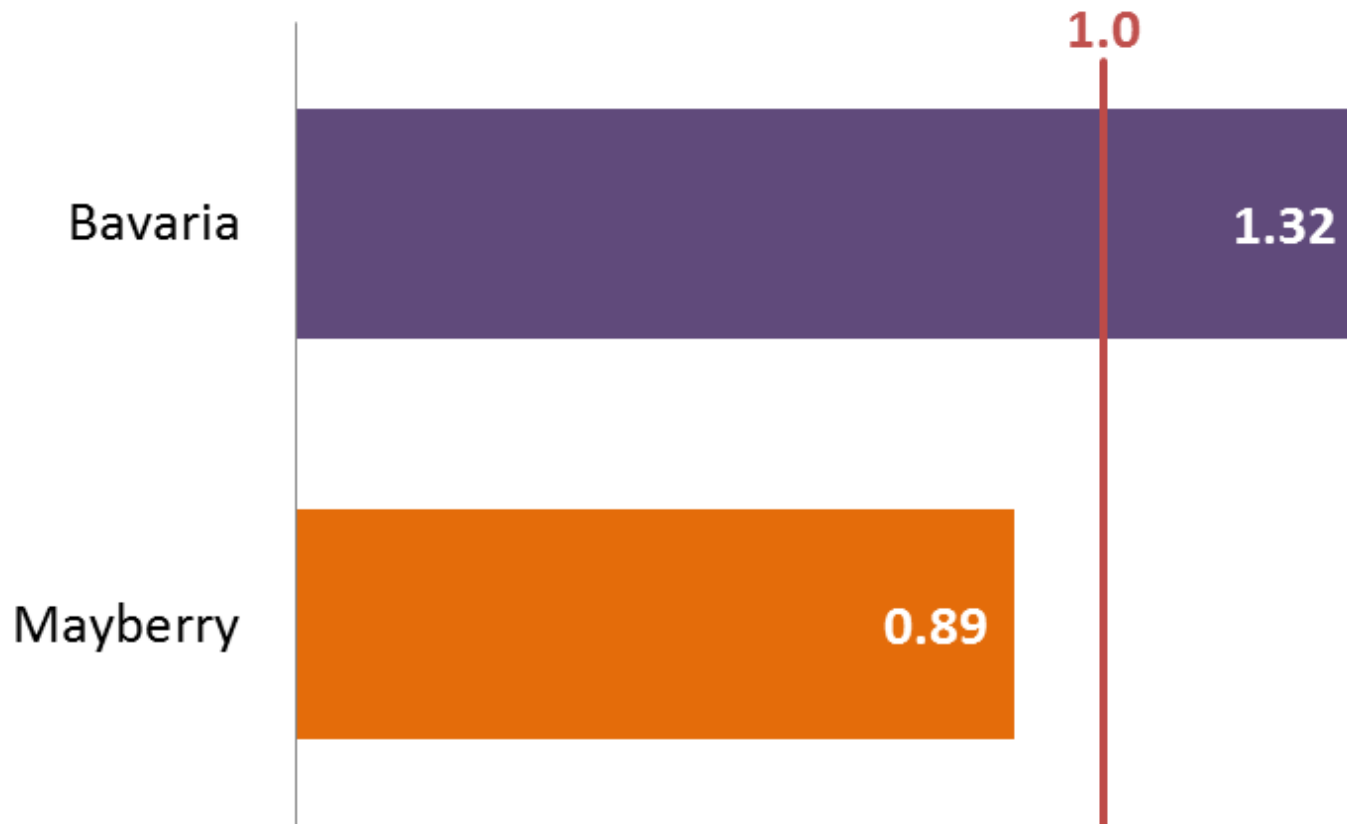
OE \$671,333  
- Dep \$212,251  
          

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

2.



# Debt Service Coverage Ratio

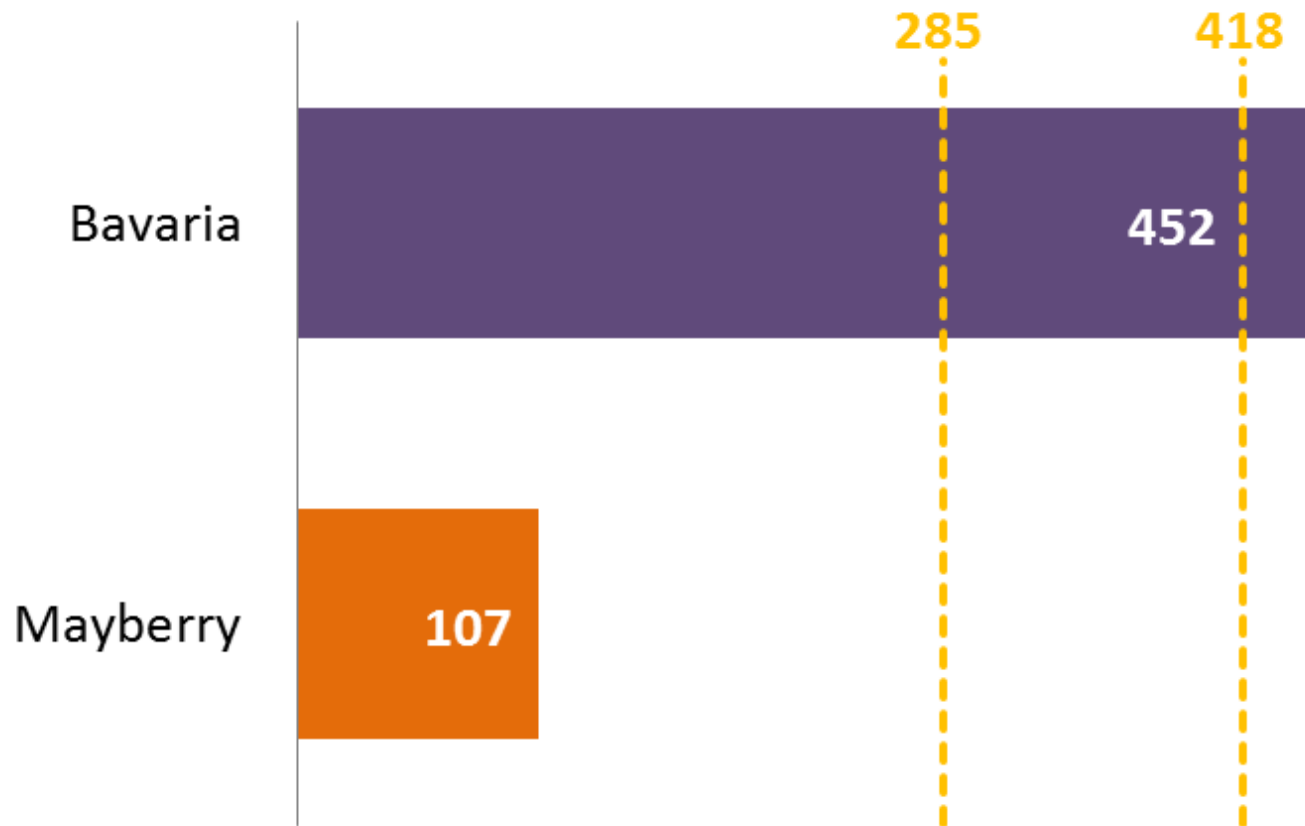


# Days of Cash on Hand – Bavaria

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

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

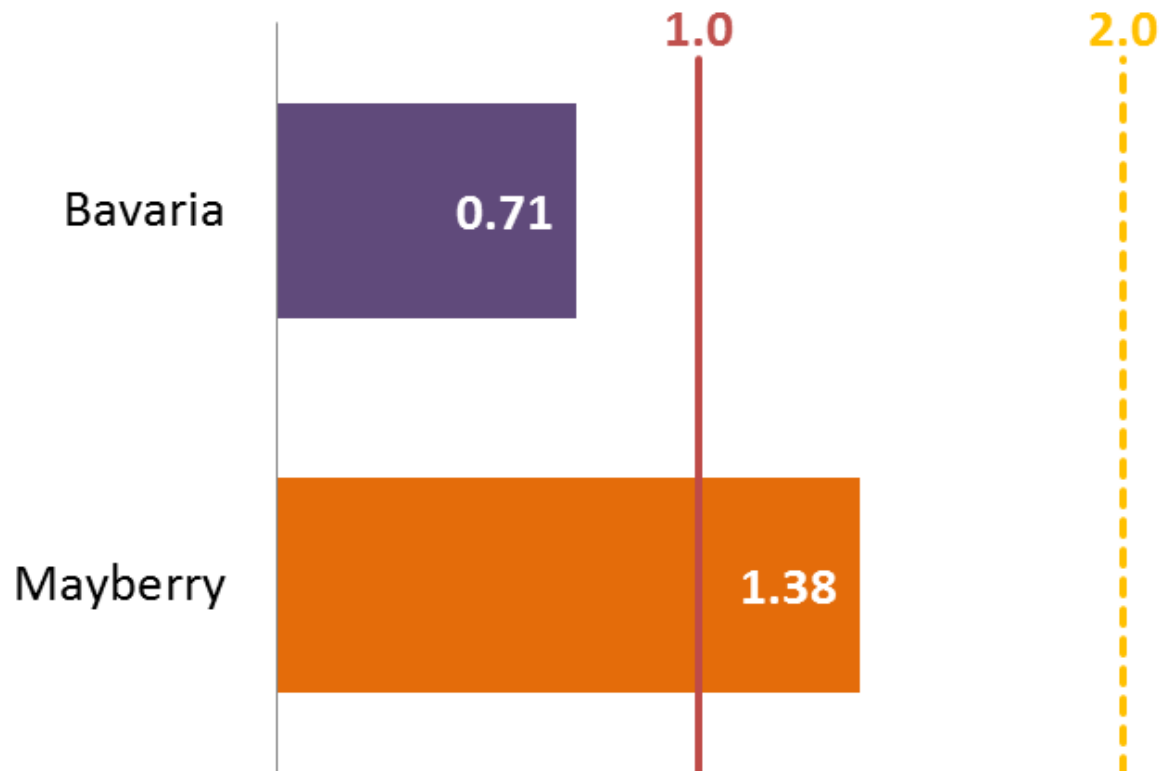
# Days of Cash on Hand



# Current Ratio – Bavaria

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

# Current Ratio



A blue-tinted photograph of industrial machinery, possibly a large pipe or valve, serves as the background for the top portion of the slide.

# What Happened to **Bavaria**?

*Or*

## Why the Notes to Financial Statements are Crucial

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

# Bavaria corrected

C \$568,061  
+ G \$460.005

$$\boxed{\$1,028,066} + \boxed{\$66,346}$$

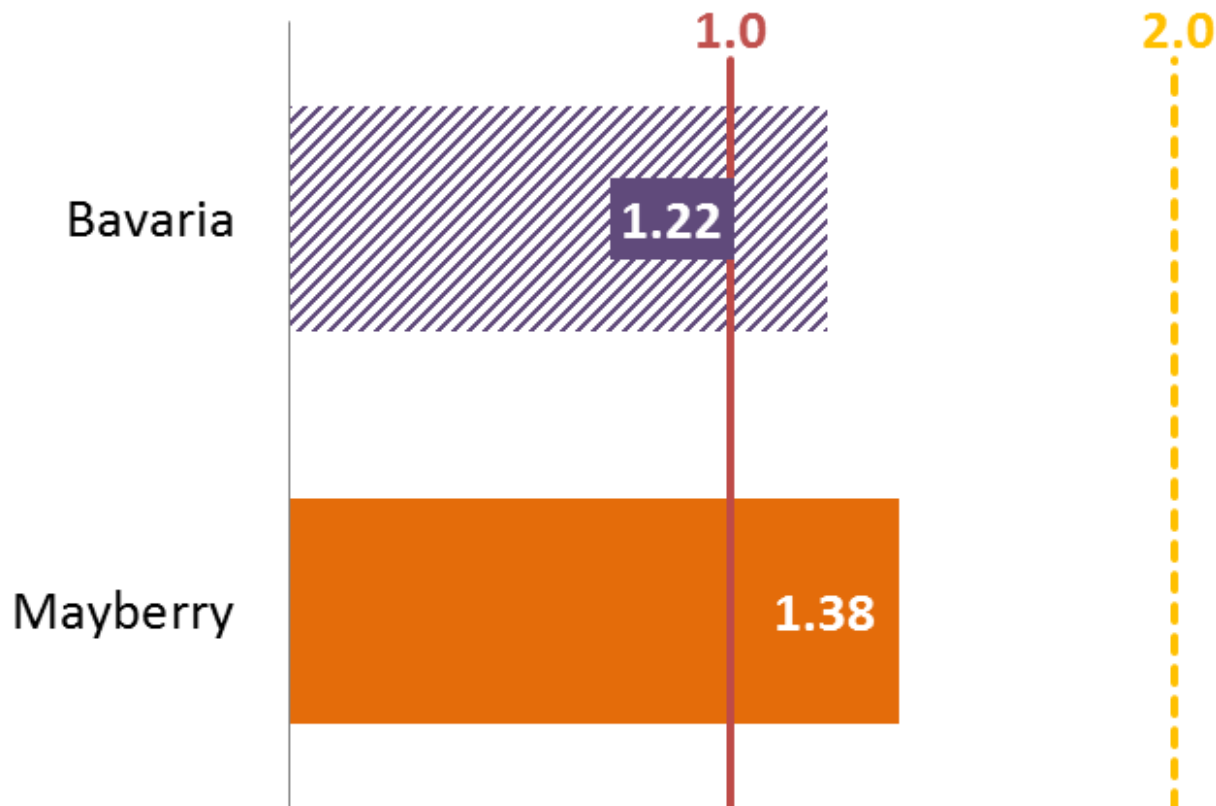
*Unrestricted Cash & Cash Equivalents (5)*      *Receivables, net (6)*

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

*Current Liabilities (7)*

# Current Ratio

Bavaria Corrected for Missing Grant Funds







# 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.



# Why Care About This?



- Funders and ratings agencies care about this
- As you think about the future needs of your system, you have to know where you are starting from

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



# Key Financial Indicators for Water and Wastewater Systems: Operating Ratio

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

 Print  PDF

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

SUBSCRIBE

[Sign Up](#)

TOPICS

[Drinking](#)

[Energy](#)

[Financial](#)

[General](#)

[Smart Meters](#)

[Wastewater](#)

[Waters](#)

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



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

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

 Print  PDF

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

SUBS

Sign U

TOPIC

[Drinki](#)

[Ener](#)

[Finan](#)

[Gener](#)

[Smart  
System](#)

[Waste](#)


[Water](#)

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



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

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

 Print  PDF

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

SUBS

Sign L

TOPIC

[Drinki](#)

[Ener](#)

[Finan](#)

[Gener](#)

[Smart  
System](#)

[Waste](#)

[Water](#)

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



# Key Financial Indicators for Water and Wastewater Systems: Current Ratio

OCTOBER 1, 2015 / GLENN BARNES / 0 COMMENTS

 Print  PDF

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

Search

SUBSCRIBE

Sign Up

TOPICS

[Drinking](#)

[Energy](#)

[Financial](#)

[General](#)

[Smart Meters](#)

[Waste](#)

[Waters](#)