



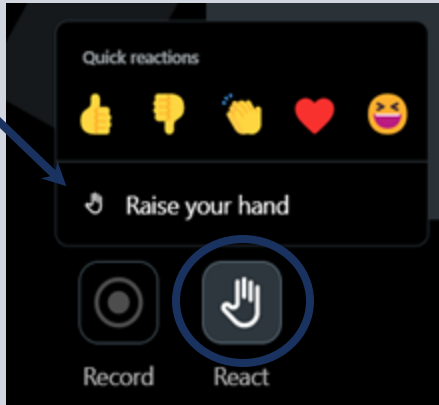
Managing your Wastewater System into the Future

Wednesday-Thursday, October 18-19, 2023

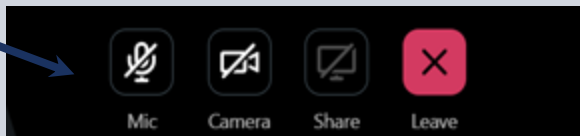
Logistics


Microphone, Camera & Reactions

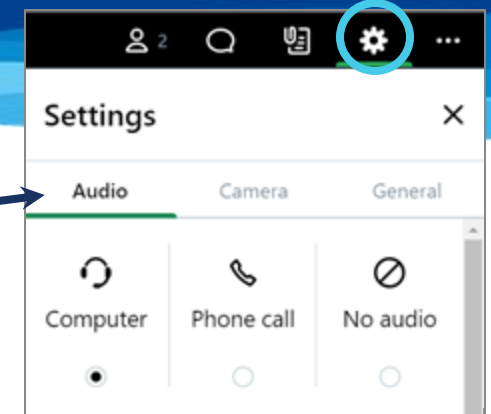
Open the 'React' tab in the **bottom left** corner of your screen to **raise your hand** to speak or use a reaction




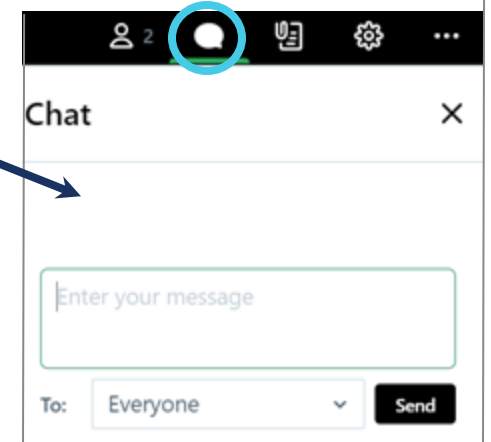
Mute/unmute and turn your **camera** off/on using the **toolbar** at the bottom of your screen




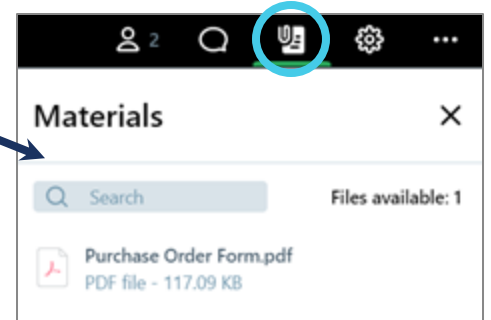
Audio: In the  icon in the **top right** corner of your screen, please choose between computer audio or phone call



Chat: In the  icon, open the chat to enter any questions or comments



Materials: In the  icon, open the 'Materials' tab to access any documents uploaded by trainer



Certificate of Completion

This session has been approved for 4.0 hours of Wastewater and Drinking Water Continuing Education Credits by the Kentucky EEC.

To receive a certificate:

- You must attend the entire session
- You must register and attend using your real name and unique email address - group viewing credit will not be acceptable
- You must participate in polls
- Certificates will be sent via email within 30 days

If you have questions or need assistance, please contact smallsystems@syr.edu.

About Us

The Environmental Finance Center Network (EFCN) is a university- and non-profit-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and environmental infrastructure.

The EFCN works collectively and as individual centers to address these issues across the entire U.S, including the 5 territories and the Navajo Nation. The EFCN aims to assist public and private sectors through training, direct professional assistance, production of durable resources, and innovative policy ideas.



MANAGING YOUR WASTEWATER SYSTEM INTO THE FUTURE

Kentucky Virtual Training
October 18-19, 2023
10AM – 12PM

Austin Thompson-Spain
Assistant Director
UNC EFC

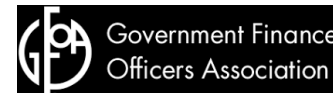
Melanie Sanchez
Project Director
UNC EFC



SCHOOL OF GOVERNMENT
Environmental Finance Center

THE ENVIRONMENTAL FINANCE CENTER NETWORK

- 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)





SCHOOL OF GOVERNMENT

Environmental Finance Center



*Supporting fair, effective,
and financially sustainable
delivery of environmental
programs through:*

- Applied Research
- Program Design and Evaluation
- Teaching and Outreach
- Advising
- Policy Analysis

AGENDA: DAYS 1-2

Day 1 (Wed, October 18th)

- 10:00 **Introductions**
- Part I **Financial Management**
- **Environmental Finance**
 - **Budgeting & Pricing for Full Cost Recovery**
 - **Assessing Financial Condition**
 - **Introduction to Rate Setting**
- 12:00 *Adjourn*

Austin Thompson-Spain

Day 2 (Thurs, October 19th)

- 10:00 *Day 2 Start*
- Part II **Asset Management**
- Part III **Workforce Strategies**
- Part IV **Communicating with Board and Stakeholders**
- 12:00 *Adjourn & Evaluations*

Melanie Sanchez

GETTING TO KNOW YOU, VIRTUALLY:



In the Chat, please write your:

1. Name
2. Town (or City/Organization)
3. Job Role
4. # years in the water sector
5. Favorite summer vacation spot or experience



Bonus: can you name where this photo was taken?



DAY 1: FINANCIAL





Austin Thompson-Spain

UNC Environmental Finance Center



WHY FINANCES MATTER

TODAY'S FINANCIAL PLANNING FOCUS

-  Review basics of water & wastewater system finances
-  Understand the importance of a realistic revenue requirement and pricing for full cost recovery
-  Learn key measures of financial performance benchmarks
-  Introduce rate setting philosophies and considerations for designing appropriate rate structures

WATER SYSTEMS CAN SERVE MULTIPLE PURPOSES

What are your objectives as a water system? What defines success for you?

System serves an important **environmental and health purpose** -- protecting community's water resources and supplying community with highest quality drinking water.

Environmental
Health

1

System serves an important **public service** – providing community with basic services that everyone in the community can afford.

Public Service

2

System serves as a well managed **public enterprise** – putting into practice forward-thinking sustainable business practices.

Public
Enterprise

3

WATER SYSTEMS SERVE MULTIPLE PURPOSES

To serve all these purposes, water/wastewater systems need to be sustainably financed –
how you pay for it matters!

Environmental
Health

1

Public Service

2

Public
Enterprise

3

WHAT KEEPS YOU UP AT NIGHT REGARDING YOUR UTILITY'S FINANCES?

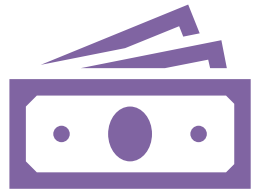
1. Revenues don't cover expenses
2. Capital needs
3. Unable to make debt/interest payments
4. Customer bills are unaffordable
5. Nothing – we're golden! (or not connected to a utility)





BASICS OF UTILITY FINANCE

ELEMENTS OF FINANCIAL MANAGEMENT



Understanding
your system
and its finances

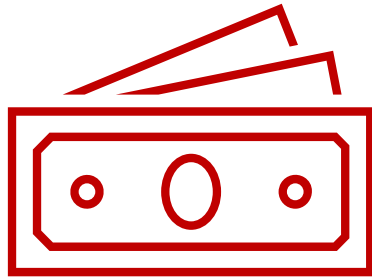


Asking questions



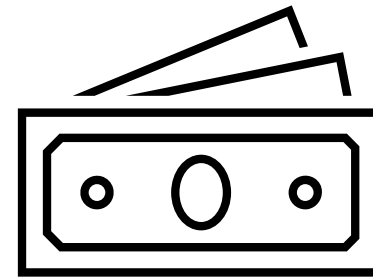
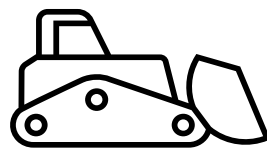
Making informed
decisions

ELEMENTS OF FINANCIAL MANAGEMENT



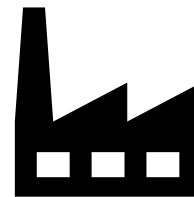
Understanding Costs

- What are the operations and maintenance costs?
- What are our capital needs? And capital costs?
- How do we expect our costs to change?

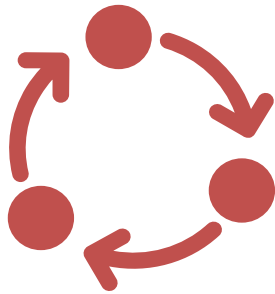


Understanding Revenues

- Who are our customers?
- Can our customers afford our rates?
- How do we expect our revenues to change?



ELEMENTS OF FINANCIAL MANAGEMENT



Financial
management
is an ongoing
process

- Things change! As such, financial management strategies should be regularly reassessed.

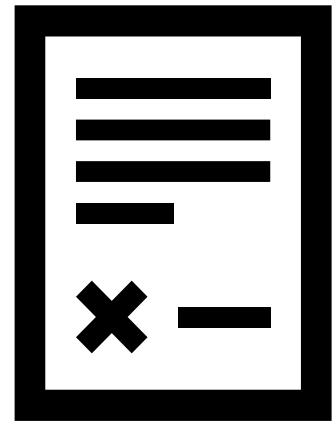
WATER AND WASTEWATER AS ENTERPRISE FUNDS



- Self-regulated monopolies
- Fees for services
- Separated from other funds
- REVENUES collected = COSTS expended
- Avoid or minimize transfers – Self-sufficiency!

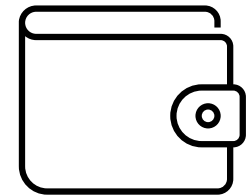
FINANCIAL POLICIES: WHAT ARE THEY?

- Guidelines for an organization's financial, operational, and strategic decision making
- Often focused on **financial stability and health of the utility**, with targets for cash management, risk management, debt, investment, revenues, spending, and more



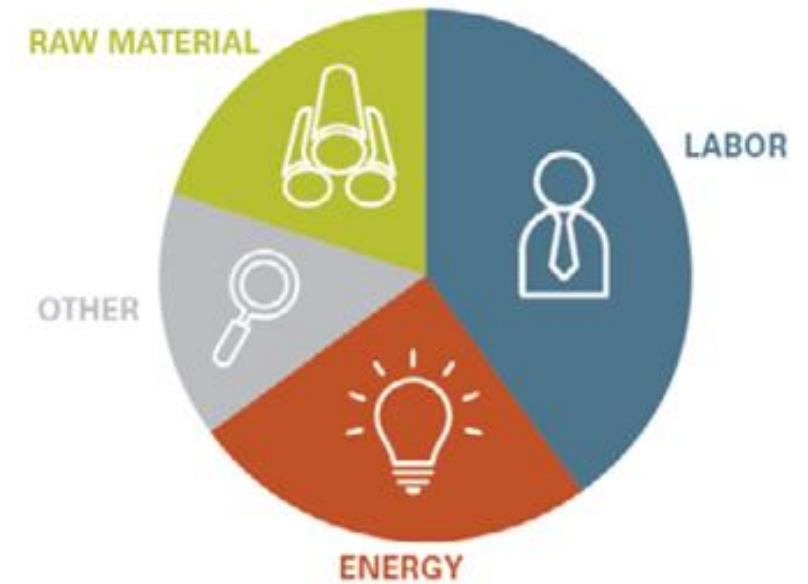
TRANSFERS TO THE GENERAL FUND

- Generally, your utility should not be subsidizing the tax base and vice versa
- However, if you receive services from the local government, it is appropriate for you to pay for them (time of town manager, attorney, payroll, etc.)



THREE TYPES OF COSTS

- **Operating Costs**—what you need to run the system day in and day out (O&M, etc.)
 - Look at *trends* from previous years and challenge your operators to look for cost savings
 - Look to the *future*
 - Don't forget *indirect costs* of running the system
 - shared management costs, shared facility costs, etc.



THREE TYPES OF COSTS

- **Operating Costs**—what you need to run the system day in and day out
- **Capital Costs**—rehabilitation and replacement of existing infrastructure and new infrastructure
 - Asset management and capital improvement plans are key
 - Be flexible in your spending but do not manage to failure



THREE TYPES OF COSTS

- **Operating Costs**—what you need to run the system day in and day out
- **Capital Costs**—rehabilitation and replacement of existing infrastructure and new infrastructure
- **Debt Service**—what you owe on loans and bonds
 - Principal and Interest

TWO TYPES OF REVENUES

- **System Income**—Money from rates, tap fees, system development charges, grants, penalties, other sources
 - Note: To be a pure enterprise fund, not taxes (unless explicitly permitted).

TWO TYPES OF REVENUES

- **System Income**—Money from rates, tap fees, system development charges, grants, penalties, other sources
 - Note: To be a pure enterprise fund, not taxes (unless explicitly permitted).
- **Debt**—Money from bonds and loans

DOES YOUR UTILITY CURRENTLY HAVE DEBT?

1. Yes! We are currently paying back at least 1 loan or bond.
2. Not currently, but we have had debt in the past.
3. Not yet, but we're considering taking on debt.
4. No, we don't have any debt, nor are we considering taking on any debt.
5. Unsure or N/A



MANY TYPES OF RESERVE FUNDS

- **Capital Reserve Fund**—Infrastructure rehabilitation and replacement
- **Repair Fund**—Known, ongoing maintenance issues
- **Emergency Fund**—Unknown, unanticipated maintenance issues
- **Rainy Day Fund**—Unexpected revenue shortfalls₂₉

DOES YOUR UTILITY HAVE A RESERVE FUND?

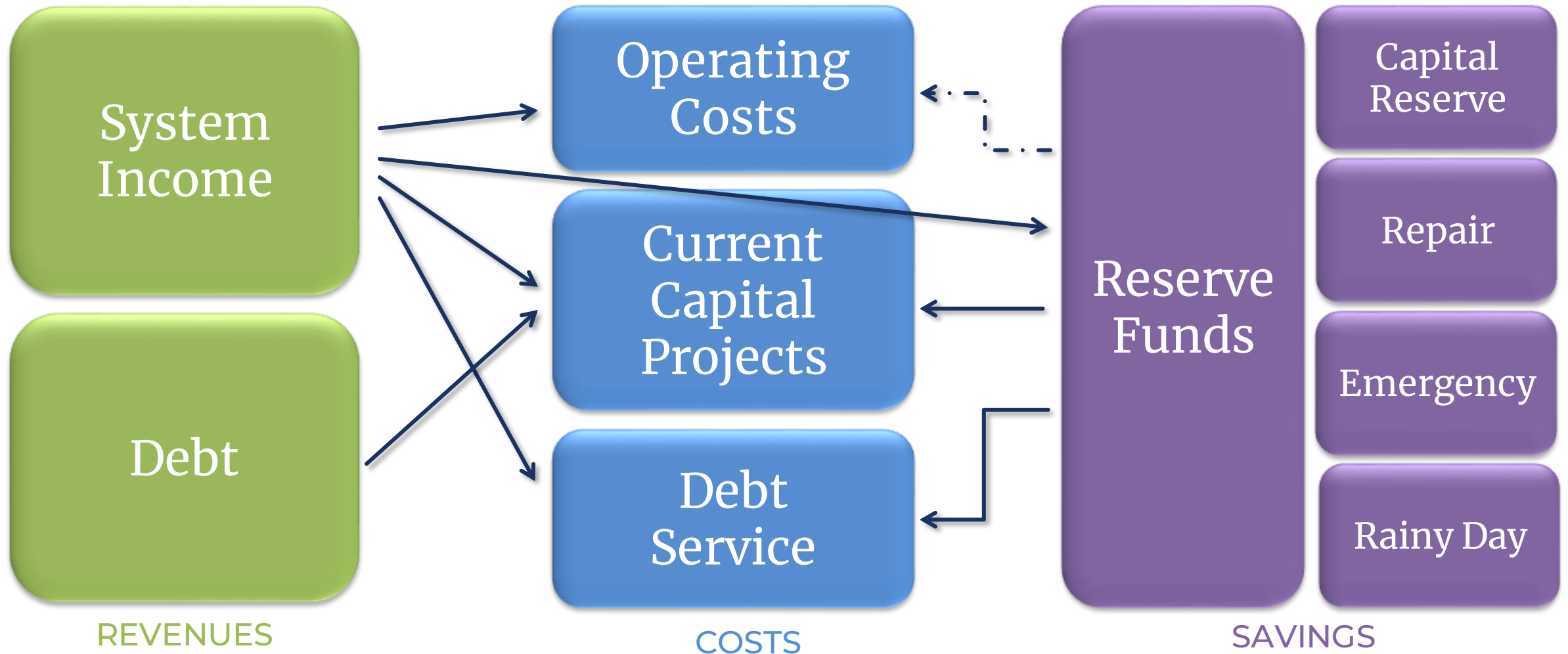
1. Yes! We have at least one reserve fund.
2. Not currently, but we had a reserve fund in the past.
3. Not yet, but we're considering one.
4. No, we don't have a reserve fund, nor are we considering one.
5. Unsure or N/A



HOW MUCH DO YOU NEED IN YOUR RESERVES?

- Beyond what is needed for debt service, it depends
- Enough to...
 - pay for your most expensive piece of equipment?
 - cover your costs if you had no revenue for two months?
 - cover the projects in your capital improvement plan?

WATER SYSTEM FINANCE DIAGRAM



IN SUMMARY...



Financial management is an ongoing process



Utilities are often set up as enterprise funds, meaning they should be setting rates/fees to cover the costs of providing service



Utilities staff should consider the connection between system costs, revenues, and reserve funds when managing the utility finances



BUDGETING

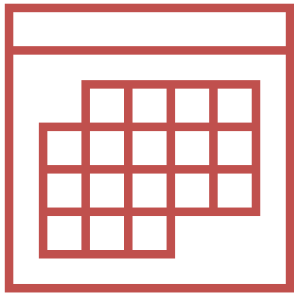
The process of projecting/planning system costs, revenues, and reserve funds

BUDGETS ACCOMPLISH MULTIPLE OBJECTIVES

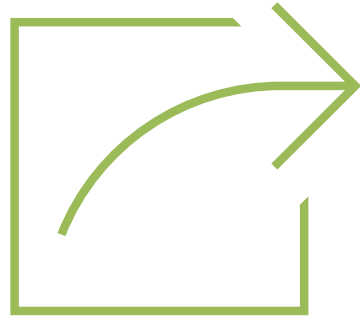
- Forward-looking policy document
- Appropriation of funds
- Measuring and promoting financial and operational performance
- Setting rates and fees
- Public education and communication



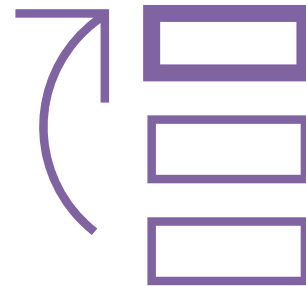
BUDGETS AND BUDGETING: THE PROCESS



Yearly plans



Future plans



Determine
priorities



Board reviews
& approves

CONNECTING BUDGETS TO UTILITY FINANCIAL MANAGEMENT: REVENUE REQUIREMENT

- This is the “science” part of the rate making process
- Sets the bar for how much you need to operate a financially sustainable utility
 - *How much does it cost to run the system?*
 - *How much revenue do you need to bring in to meet those costs and plan for the future?*

CONSEQUENCES OF NOT UNDERSTANDING REVENUE REQUIREMENT

- Financially unsustainable
- Collect too **much**
- Collect too **little**
- Sending the wrong message to your customers

BUDGETING FOR THE FULL COST

Operations & maintenance expenditures

Reserves for capital improvement

Long-term debt (principal and interest)

Contingencies for emergencies

Taxes and accounting costs

Contracts

Indirect costs

- fleet
- buildings
- shared expenditures
- etc.

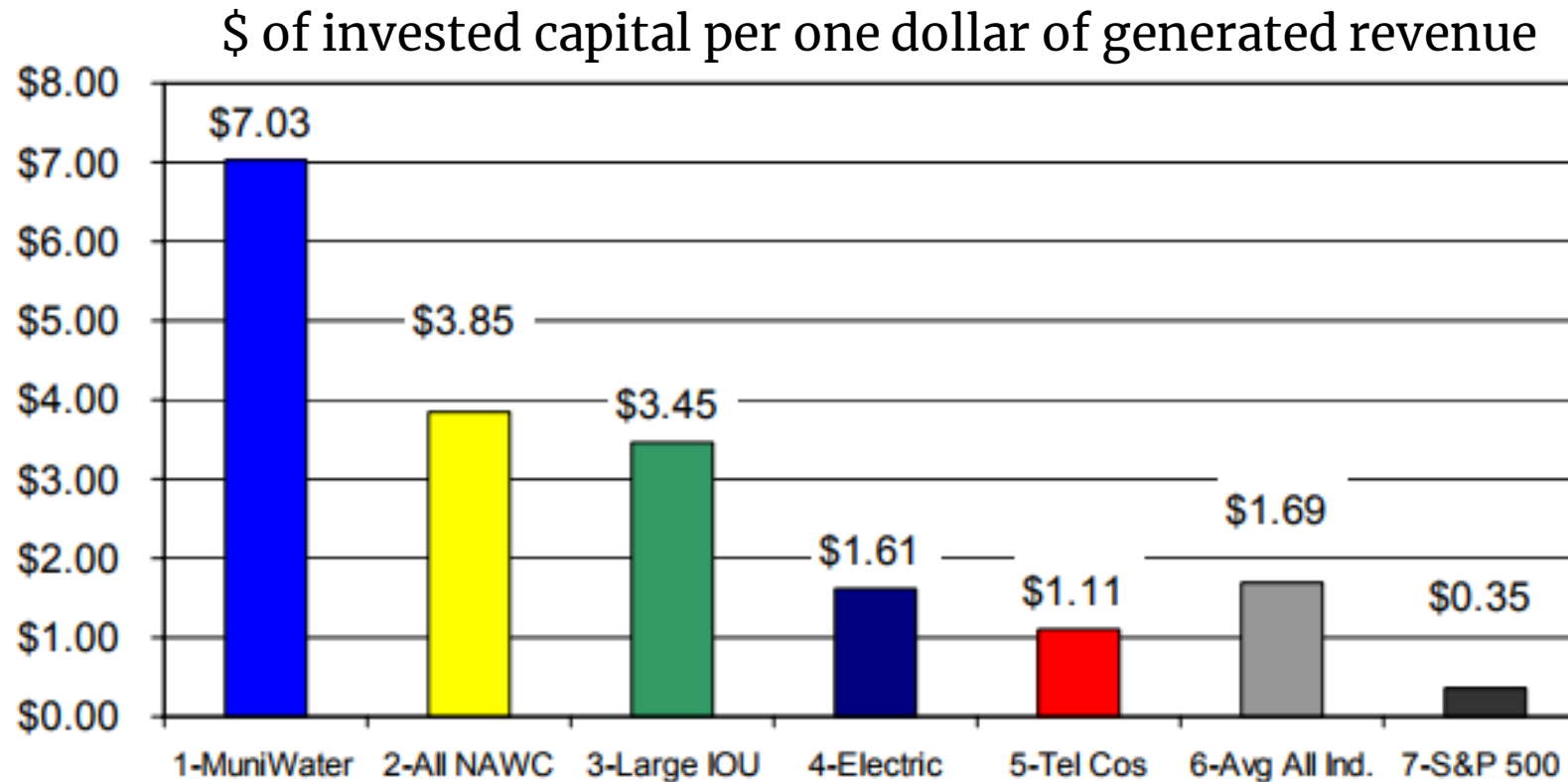
Retirement

Related services

- e.g., source water protection for drinking water enterprise fund

Opportunity Costs

REMEMBER: WATER & WASTEWATER ARE CAPITAL INTENSIVE



Source: Water Research Foundation, “Improving Water Utility Capital Efficiency” (2005 data)

MEETING THE REVENUE REQUIREMENT: *BUDGETING TIPS FOR UTILITIES*

REMEMBER

- Water use (and revenue) varies from year to year
- Suppliers can help predict future costs
- Reserve funds

ALWAYS

- Use several past years to project
- Budget based on necessary expenditures
- Consider the life cycle cost & criticality of assets

MEETING THE REVENUE REQUIREMENT: BUDGETING TIPS FOR UTILITIES

- Check budget against actuals monthly
- Think of each 'bucket' and not just whole budget
- Consider timing of spending and budget accordingly
- Look at all your costs



Energy



Chemicals



Shared Costs



Salaries



Infrastructure
Repairs



Cost of
Capital

IN SUMMARY...



Budgets are policy documents that serve a number of purposes, including setting rates/fees and projecting costs and revenues.



To meet revenue requirements, utility staff need to budget for the *full* cost of running the system



While historical data is helpful to project future costs and revenues, it is important to remember that things change!



ASSESSING FINANCIAL CONDITION USING AUDITED FINANCIAL STATEMENTS

Shifting from policy documents (budgets) to third-party evaluations (audits)

QUICK OVERVIEW OF FINANCIAL STATEMENTS

MAYHEWEN STATEMENT OF NET ASSETS PROPRIETARY FUNDS DECEMBER 31, 2010		EDUCATION FUND BASED AND TRUST	
ASSETS			
CURRENT ASSETS			
Cash	384,120	384,120	(1)
Receivables, net	15,225	15,225	(2)
Total current assets	399,345	399,345	(3)
Capital assets			
Land and improvements	8,370,400	8,370,400	(4)
Infrastructure and collection systems	2,071,300	2,071,300	(5)
Less accumulated depreciation	(2,071,300)	(2,071,300)	(6)
Total capital assets	8,370,400	8,370,400	(7)
Total Assets	8,769,745	8,769,745	(8)
LIABILITIES			
Current liabilities			
Accounts payable	2,222	2,222	(9)
Total current liabilities	2,222	2,222	(10)
Long-term liabilities			
Bonds payable	3,849,237	3,849,237	(11)
Total long-term liabilities	3,849,237	3,849,237	(12)
Total liabilities	3,851,459	3,851,459	(13)
NET ASSETS	4,918,286	4,918,286	(14)
Increase in capital assets, net of related debt			
Increase in current assets, net of related debt			
Decrease in current liabilities			
Decrease in long-term liabilities			
Total net assets	4,918,286	4,918,286	(15)
Total liabilities and net assets	8,769,745	8,769,745	(16)

BAVARIA STATEMENT OF NET ASSETS PROPRIETARY FUND JUNE 30, 2011	
Water and Sewer Enterprise Fund	
\$ 168,161	(17)
66,346	(18)
5,826	(19)
640,263	(20)
177,208	(21)
209,556	(22)
22,982	(23)
5,871,709	(24)
894,073	(25)
1,654,079	(26)
(2,887,223)	(27)
30,833	(28)
3,781,214	(29)
(421,038)	(30)
3,360,176	(31)
174,844	(32)
3,535,020	(33)
\$ 4,071,133	(34)
15,605	(35)
233,357	(36)
646,873	(37)
899,271	(38)
1,794,906	(39)
6,355,133	(40)
114,883	(41)
167,363	(42)
\$ 6,637,379	(43)

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

QUICK OVERVIEW OF FINANCIAL STATEMENTS OR "AUDITS"

- Audited financial statements are produced at the end of each fiscal year and reflect only that fiscal year.
 - Ex post – based on what actually happened
- Performed by a third-party
- Primarily interested in enterprise funds or proprietary funds

AUDITS – STATEMENT OF NET POSITION

- **The assets and liabilities** of the water system on the day the financial statements were prepared
 - Current assets
 - Unrestricted cash
 - Current liabilities



AUDITS – STATEMENT OF REVENUES, EXPENSES & CHANGES IN NET POSITION

- Annual operating and non-operating **revenues and expenses** for the water system
 - Depreciation and amortization expenses might be found here
- Any transfers to and from the general fund



AUDITS – STATEMENT OF CASH FLOWS

- Money in and money out of the water system
 - Debt principal and interest payments



AUDITS – NOTES

- Explanations, where needed, to the financial statements
- Detailed notes on capital assets
 - Total accumulated depreciation
 - Total depreciable capital assets



DOES YOUR UTILITY HAVE YEARLY AUDITED FINANCIAL STATEMENTS?

1. Yes, and I read them every year
2. Yes, but I don't read them every year
3. Sometimes, but we are behind
4. No
5. Unsure/other



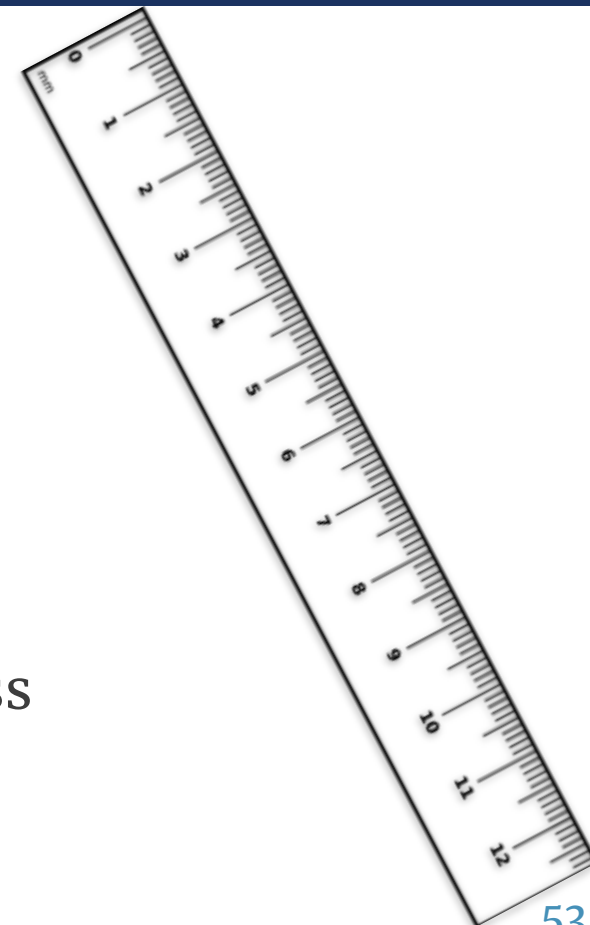


WHAT ARE FINANCIAL BENCHMARKS?

Using the data from financial statements to evaluate the financial health of the system

WHAT ARE FINANCIAL BENCHMARKS?

- **QUANTIFIABLE MEASURES OF PERFORMANCE**
 - Things we can measure
 - Things that people care about
- **MEASURE PROGRESS**
 - Assess operational performance
 - Set goals and understand growth
- **IMPACTS INVESTMENT CAPACITY**
 - Investors, particularly institutional investors, use to assess financial health



WHY CARE ABOUT FINANCIAL BENCHMARKS?

- Get a holistic picture of utility performance and needs
- Set future goals and understand growth
- Inform capital planning
- Understand affordability
- Financing options

FINANCIAL PERFORMANCE METRICS

Is your system self-sufficient?

Operating Ratio

How much of your utility's expected life has already run out (and how much is left)?

Asset
Depreciation

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?

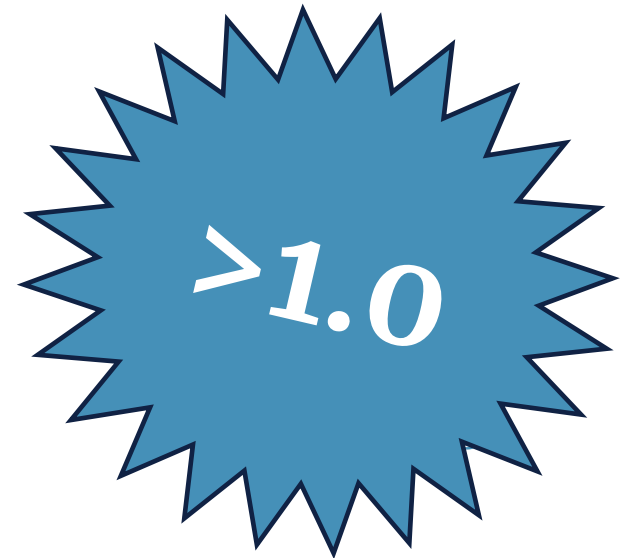
Quick / Current
Ratio

OPERATING RATIO

- A measure of self-sufficiency
- The revenue you get from daily operations, divided by the expenditures or expenses you make to keep operations running

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

including (or excluding) depreciation



OPERATING RATIO

Operating Revenues

Income from:

- Rates
- Late Fees
- Penalties
- Connection Fees
- Tap Fees

Operating Expenses

O&M Costs:

- Supplies
- Salaries and Benefits
- Overtime
- Taxes
- Insurance
- Depreciation
- **DOES NOT** include debt service or reserves

THIS FUNNY THING CALLED DEPRECIATION

- An accounting solution for a physical problem: aging infrastructure
- You have a “cost” every year of your infrastructure wearing out, a percentage of its value



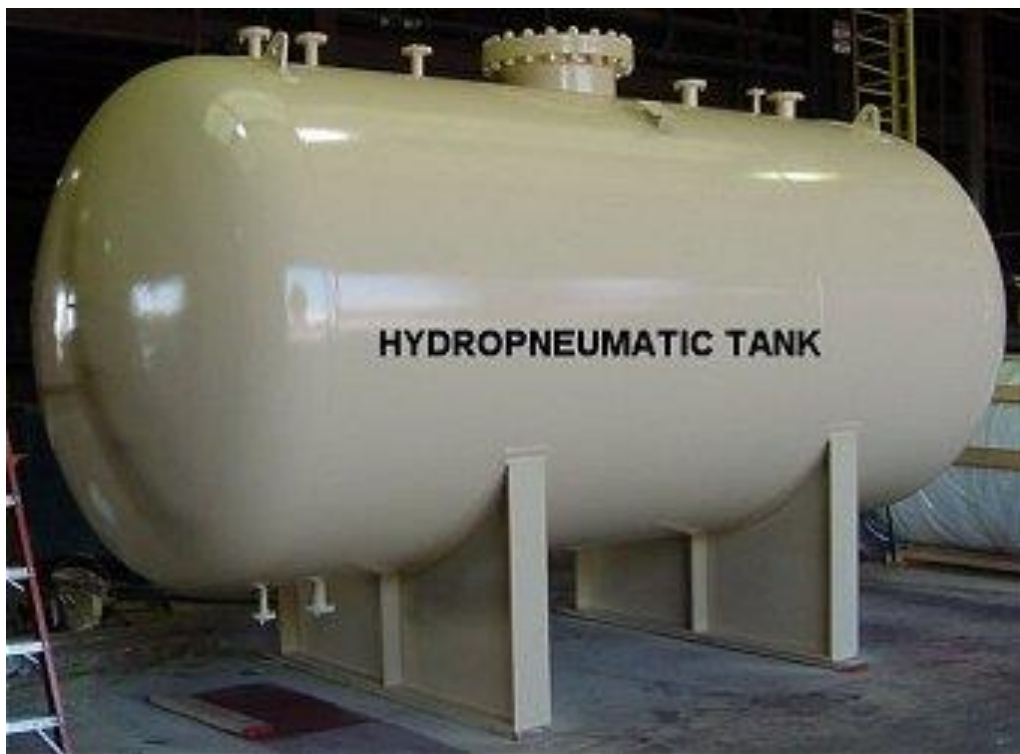
What is Depreciation?

Loss of value over time of an asset not restored by current maintenance

An economic fact for any water or wastewater system

Value lost from both declining physical factors and functional or non-physical factors (obsolescence)

STRAIGHT LINE DEPRECIATION EXAMPLE



Purchase Price: \$10,000

Useful Life: 10 years

Annual Depreciation: \$1,000

OPERATING RATIO AND DEPRECIATION

- Including depreciation in your operating ratio
 - “Fully funding” depreciation allows you to have saved for replacement at the time replacement is needed
 - (This isn’t as good as doing asset management and capital planning, but it is better than nothing)
- Less necessary if you have a comprehensive capital improvement plan and are actively budgeting for future infrastructure

OPERATING RATIO EXAMPLE – MAYBERRY

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 – EXCLUDING DEPRECIATION

\$444,231

Operating Revenues (1)

=

1.20

\$368,985

Operating Expenses (excluding depreciation) (2-3)

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

OPERATING RATIO – INCLUDING DEPRECIATION

\$444,231

Operating Revenues (1)

=

0.87

\$511,448

Operating Expenses (including depreciation) (2)

ASSET DEPRECIATION*

- A measure of how much of your total assets have **already** depreciated. As you approach 1.0, your system is near the end of its expected life.

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



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.

DEBT SERVICE COVERAGE RATIO

You need to be able to generate enough revenues to pay for O&M and principal and interest payments.

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

Operating revenue left over after daily operation expenditures, divided by debt service.

This metric is calculated by the funders and the debtors, it's a very common metric in the finance world.

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



>1.2

DEBT SERVICE COVERAGE RATIO – EXAMPLE

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

Page 1 of 2

	<u>Enterprise Funds</u> <u>Water and Sewer</u>
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	<u>71,766</u>
CASH FLOWS FROM NONCAPITAL FINANCING ACTIVITIES	
Transfers in (out)	<u>(60,000)</u>
Net cash (used) by noncapital financing activities	<u>(60,000)</u>
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	<u>(124,624)</u>

} (4)

DEBT SERVICE COVERAGE RATIO – CALCULATION

\$444,231

Operating Revenues (1)

\$368,985

Operating Expenses (2-3)
(excluding depreciation)

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

0.89

\$84,783

Principal & Interest on Long-Term Debt (4)

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

DAYS CASH ON HAND

How long you can continue to pay for O&M without any additional revenues coming in

To calculate cash on hand you need to know what your unrestricted cash and cash equivalents are

Unrestricted Cash and cash equivalents = Money that can be used for anything. Not all cash is unrestricted

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



DAYS OF CASH ON HAND – EXAMPLE

MAYBERRY
STATEMENT OF NET ASSETS
PROPRIETARY FUND
DECEMBER 31, 2010

	<u>Enterprise Funds</u> <u>Water and Sewer</u>
ASSETS	
Current assets	
Cash	107,706 (5)
Restricted cash	176,424
Receivables, net	<u>41,870 (6)</u>
Total current assets	<u>326,000</u>
Capital assets	
Land and improvements	10,229
Distribution and collection systems	5,732,845
Buildings	503,398
Less accumulated depreciation	<u>(2,514,933)</u>
Total capital assets	<u>3,731,539</u>
Total Assets	\$ 4,057,539 <u>=====</u>

DAYS OF CASH ON HAND – CALCULATION

\$107,706

Unrestricted Cash & Cash Equivalents (5)

=

107

\$368,985

/ 365

Operating Expenses (excluding depreciation) (2-3)

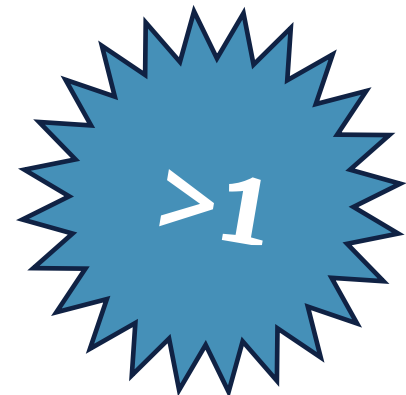
OE \$511,448
- Dep \$142,463

QUICK/CURRENT RATIO

- A measure of short-term liquidity: ability to pay your current bills

$$= \frac{\text{Quick Assets (unrestricted, excluding Inventories and Prepaid Items)}}{\text{Current Liabilities}}$$

**changes daily – routine calculations help!



CURRENT RATIO – CALCULATION

\$107,706

*Unrestricted Cash &
Cash Equivalents (5)*

+

\$41,870

Receivables, net (6)

=

1.38

\$108,390

Current Liabilities (7)

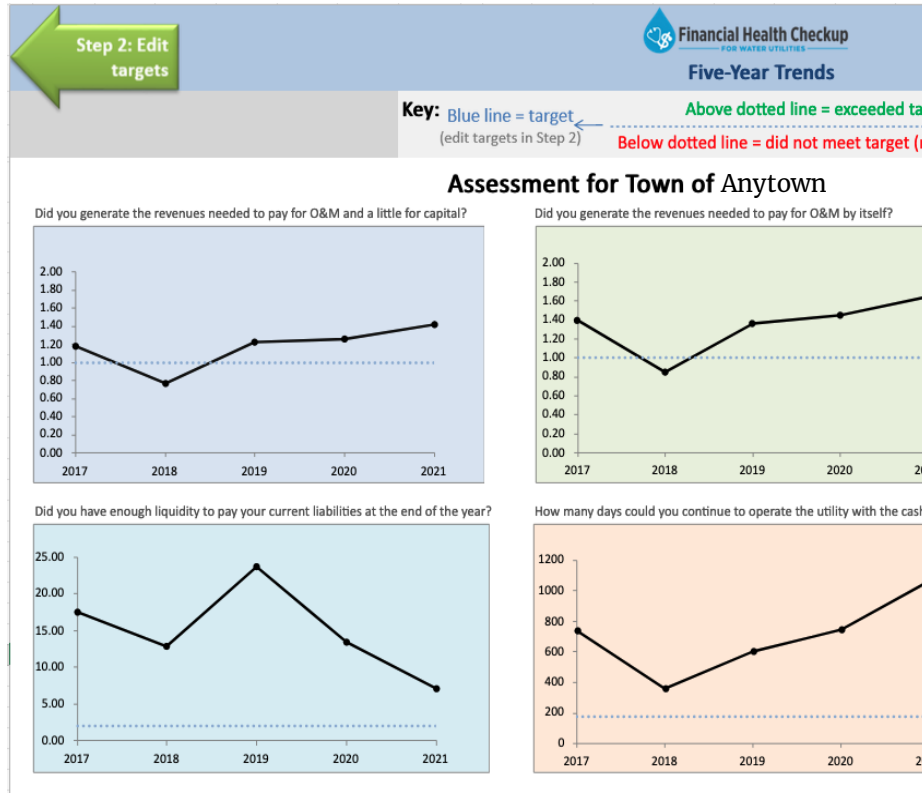
- Current assets and liabilities **change daily** as customers pay their bills
- This means current ratio changes daily
- One current ratio calculation is just a snapshot in time, so routine calculations will give a better idea whether current ratio stays healthy



Want to give it a try?

FINANCIAL HEALTH CHECKUP TOOL

5 years of Financial Audits



Values from Financial Statement/CAFR
Total Operating Revenues
Total Operating Expenses
Depreciation & Amortization Expenses
Debt Principal Payments
Debt Interest Payments
Current Assets, excluding inventories, restricted cash, prepaids
Current Liabilities, excluding deposits & bond anticipation notes
Unrestricted Cash & Investments
Total Accumulated Depreciation
Total Depreciable Capital Assets

Created by the Environmental Finance Center at the University of North Carolina, Chapel Hill

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

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



(THE ART OF) RATE SETTING

Setting rates to meet the revenue requirement for the system

WHEN WAS THE LAST TIME YOUR UTILITY RAISED RATES?

1. 1 year or less
2. 2-5 years
3. 6-10 years
4. >10 years
5. Unknown or N/A



RATES & RATE SETTING



- Simple
- Based on expenses
- Cover full costs
- Fair, affordable & equitable

RATES & RATE SETTING



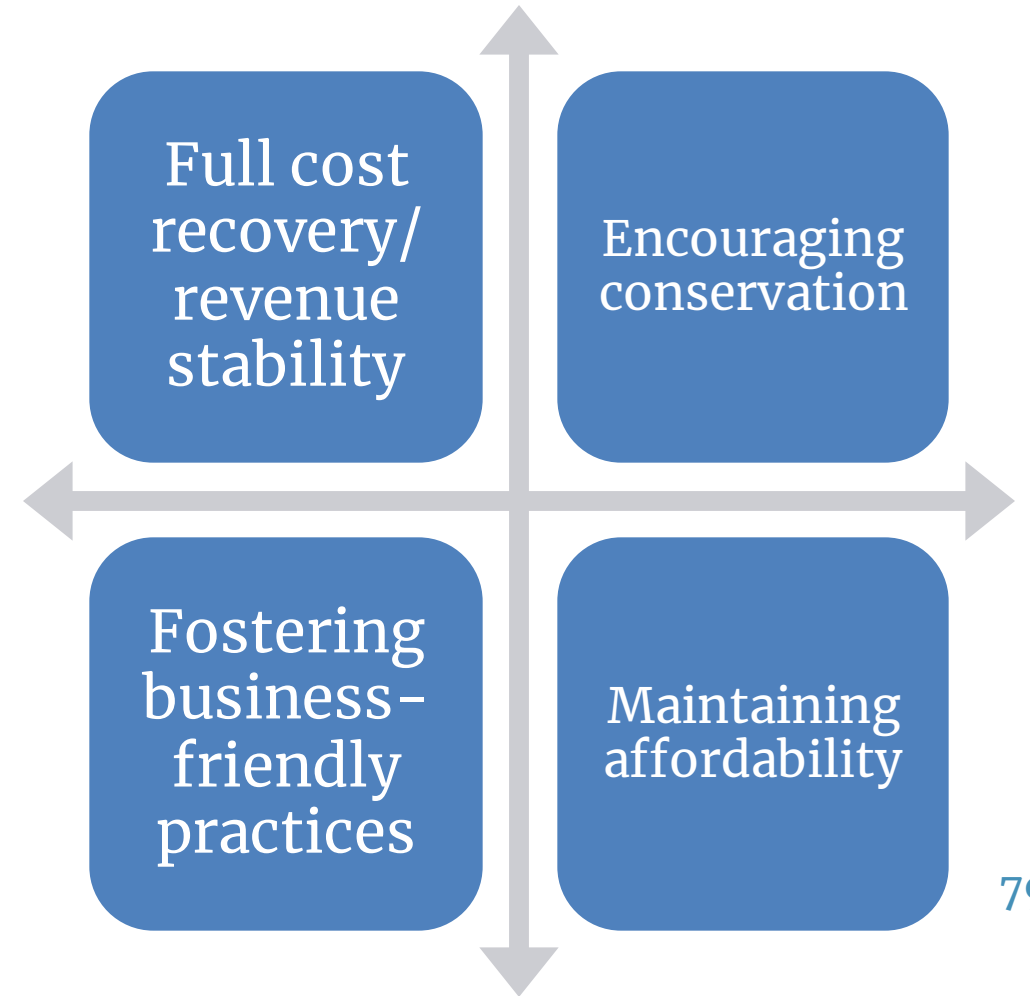
- Simple
- Based on expenses
- Cover full costs
- Fair, affordable & equitable

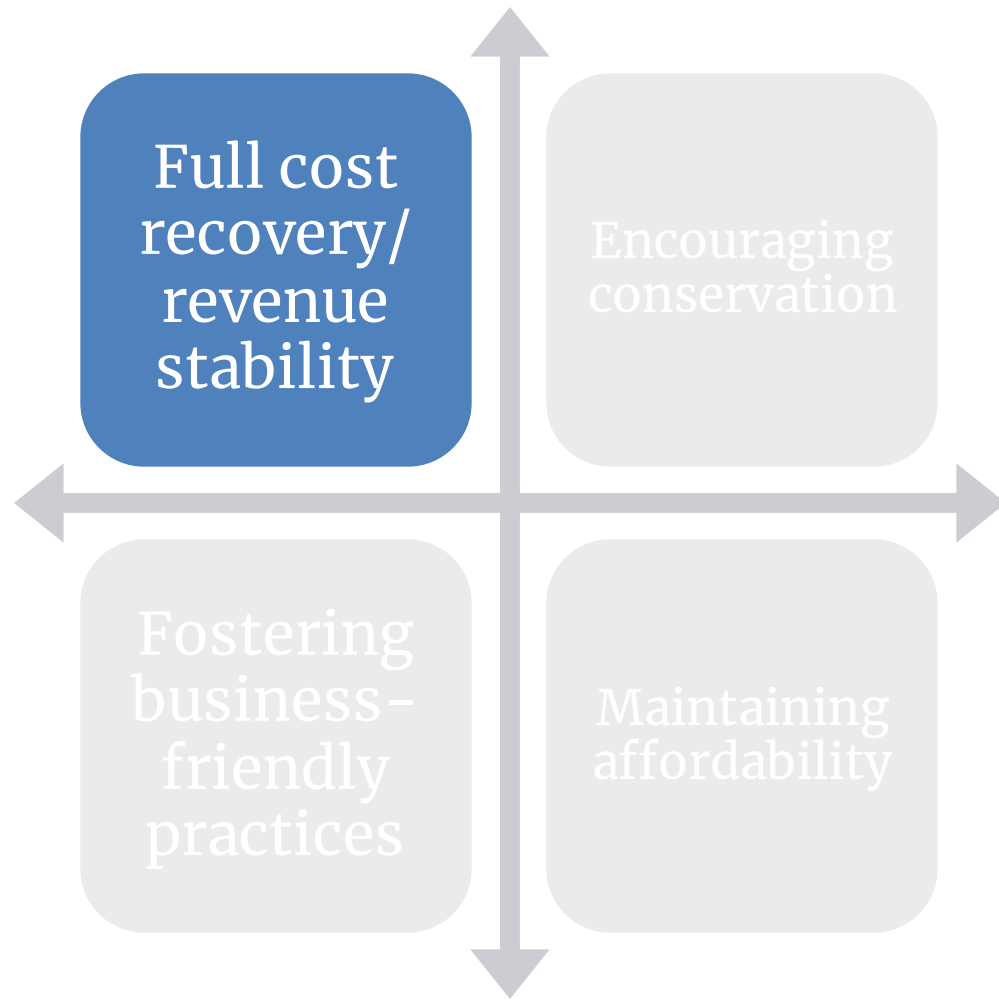


- Super complicated
- Frozen in time
- Based on political desires
- Based upon neighbors

WATER SYSTEM OBJECTIVES

The public and your Board or Council need to understand your rate setting objectives

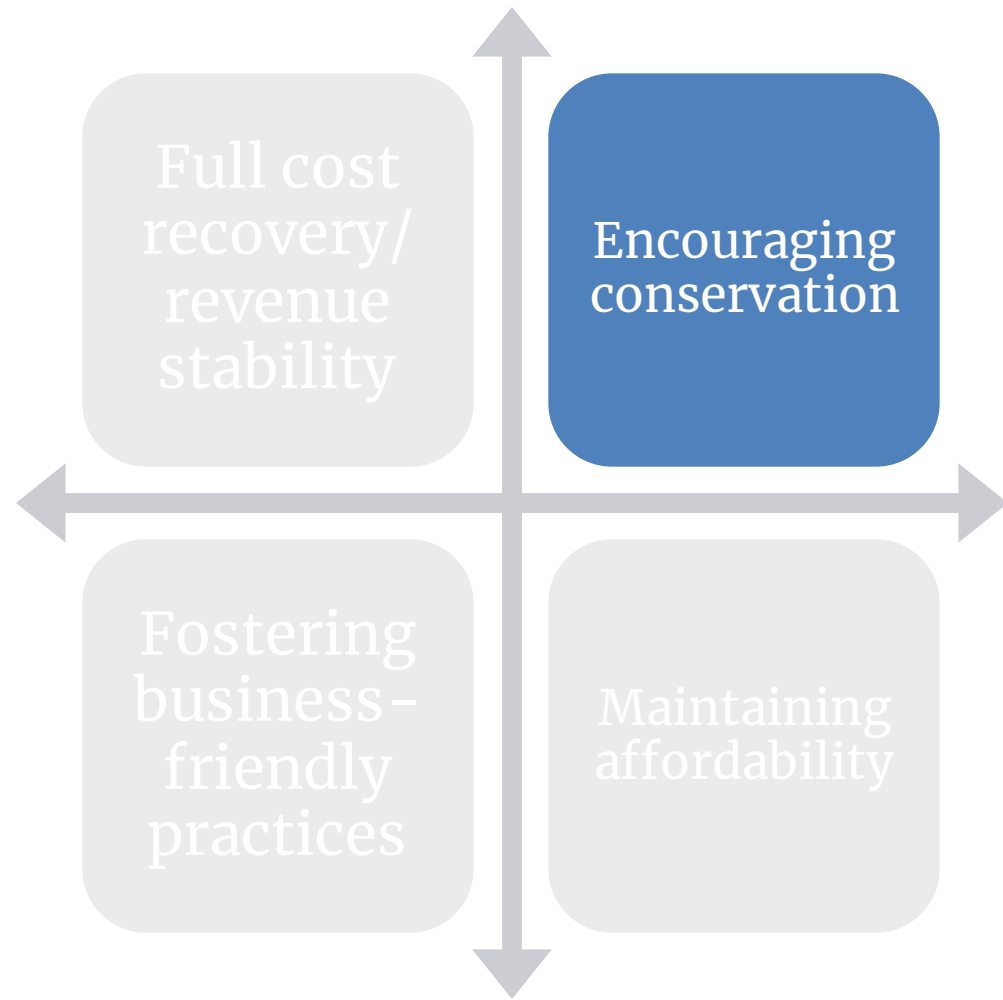




Bring in enough revenue to cover the full cost of running the water system:

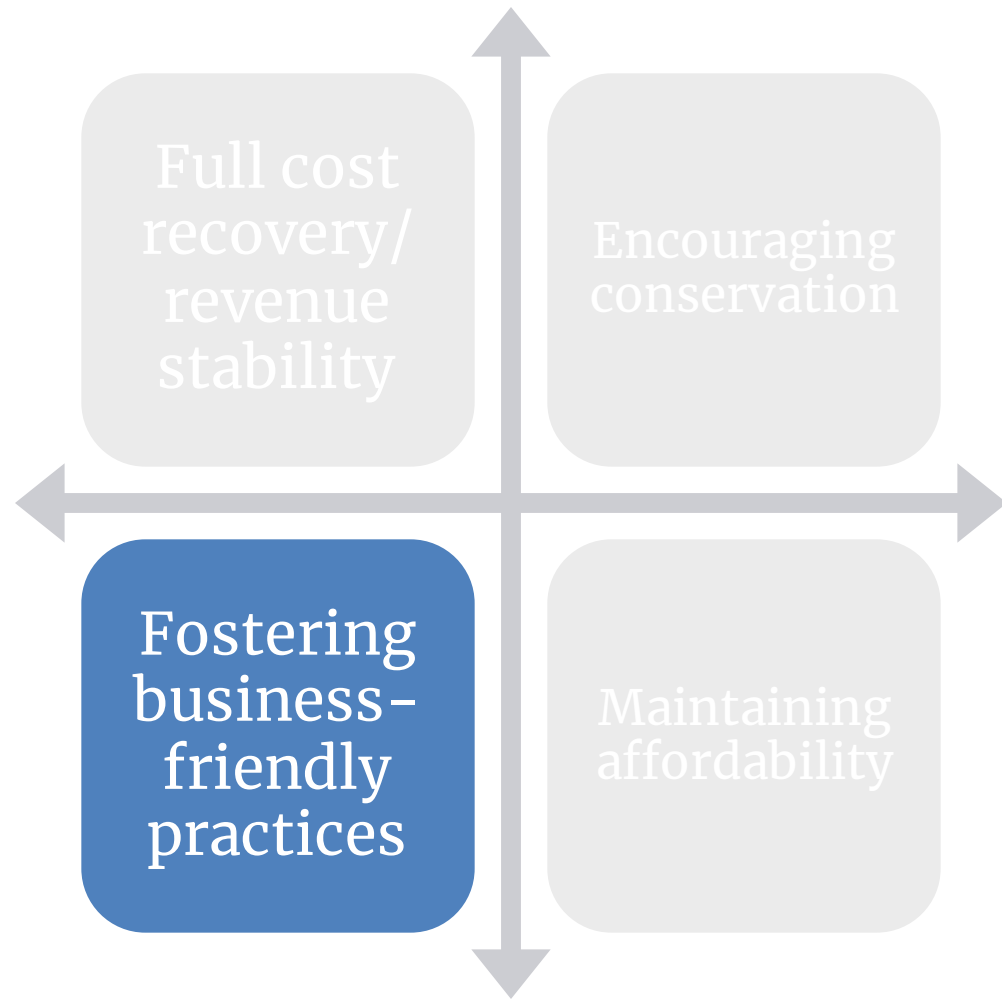
- O&M
- Capital needs
- Debt service

Why do this?



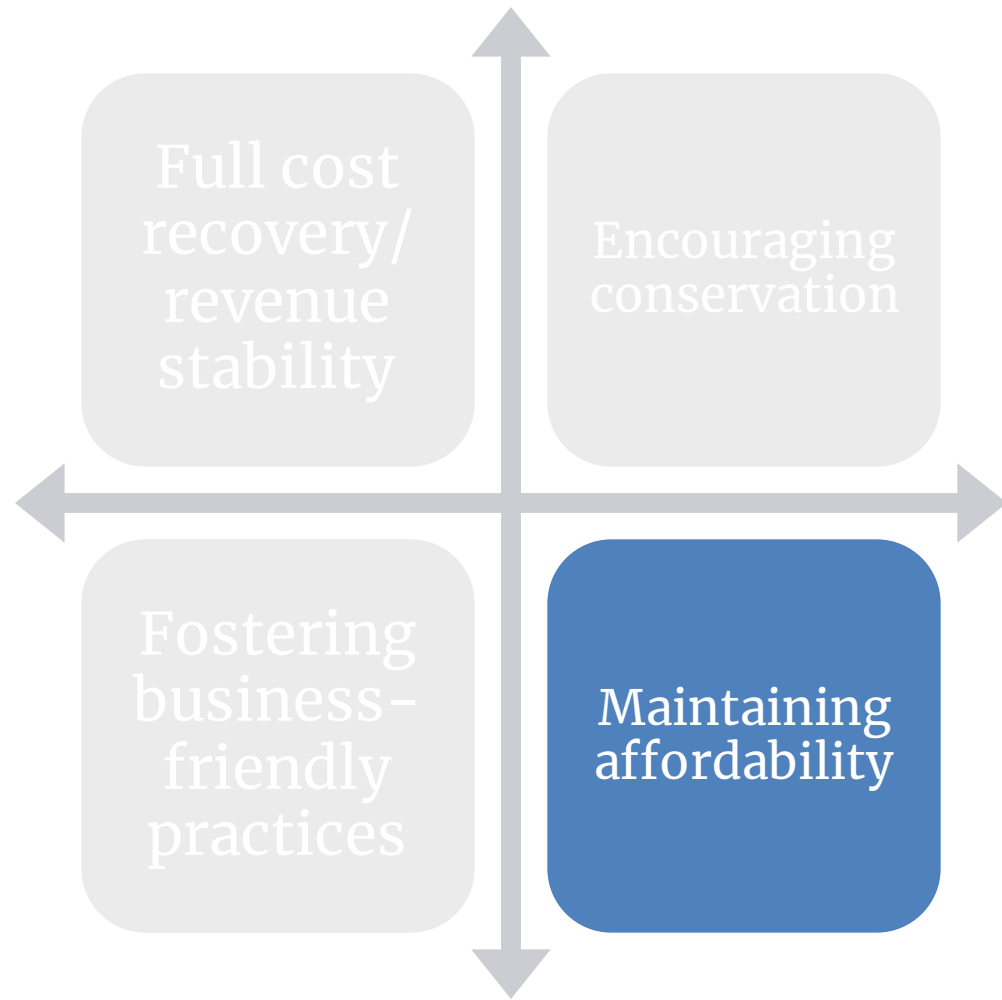
Use pricing to encourage customers to reduce their water consumption

Why do this? What challenges does this create?



Use pricing to encourage businesses and agriculture to locate to your community or stay in your community

Why do this?



Ensure that all customers in your water system are able to afford enough water to live on

Why do this?

AFFORDABILITY IS BEST ASSESSED LOCALLY

- There is no nationally-accepted standard for affordability of water and wastewater service.
- You know your own community the best. You should set the threshold for affordability.

WHAT IS YOUR #1 OBJECTIVE?

1. Full cost recovery
2. Encouraging conservation
3. Business friendly
4. Affordability
5. Something else

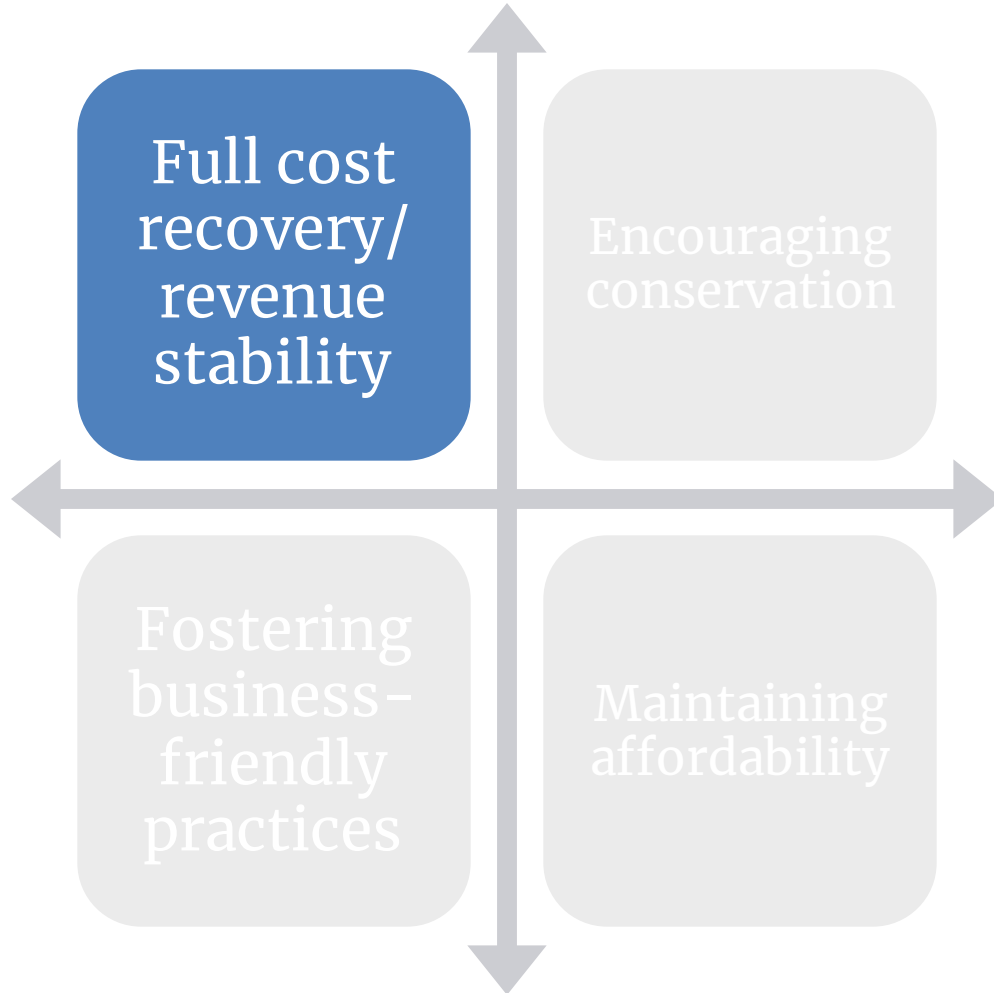


WHAT IS YOUR #2 OBJECTIVE?

1. Full cost recovery
2. Encouraging conservation
3. Business friendly
4. Affordability
5. Something else



FULL COST PRICING



- **Goal:** charges for water/sewer cover the **entire cost** of running the system today and into the future
- Many ways to calculate
- Rate setting philosophy

RATE SETTING PHILOSOPHIES



Payment for access vs. payment for volume of product received

Fixed charges for fixed costs and variable charges for variable costs



Some mix of the above ideas

POTENTIAL DO'S AND DON'TS IN RATE MAKING

DON'T:

- Design rates *without* understanding your revenue requirement
- Make your design too complex
- Save up your rate increases for 1 big increase
 - Incremental rate increases are key!
- Just count on growth


DO:

- Ideally, be conservative
- Consider risk
 - Make multiple forecasts based on different assumptions (e.g., some growth vs. no growth; water use stays the same vs. Water use decreases)
- Don't forget about price elasticity!
 - 10%  rates ~ 3-4%  consumption
- Give decision-makers options to consider
- Communication early and often!
 - Tell your story or someone else will


WATER AND WASTEWATER RATES ANALYSIS MODEL

Water & Wastewater Rates Analysis Model

Version 2.8.2 (last updated August 4, 2015)



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



Funded by the U.S. Environmental Protection Agency and the Public Water Supply Section of the North Carolina Department of Environment and Natural Resources

[Get Started](#)

Download a copy of the model populated with data from an example utility

DESCRIPTION

A do-it-yourself, simplified financial model to assist utility managers and private system owners in setting water and wastewater rates.

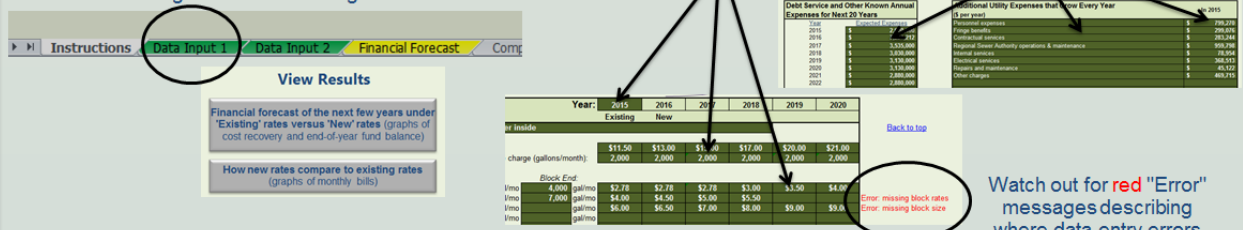
FEATURES

- Comparisons of annual fund balance projections (for up to 20 years) under proposed new rates vs. staying with existing rates
- Adjust rates for the next 1-5 years
- Up to 12 rate structures
- Uniform or block rates (up to 10 blocks)
- Model changes to accounts and water use
- Customizable list of operating and capital expenses
- Building up reserves through rates
- Compare monthly bills under new rates vs. existing rates
- Assess revenue sufficiency and fund balance
- Error notifications

INSTRUCTIONS

1) Navigate using worksheet tabs at bottom of screen or following arrows and clicking on buttons

2) In the green "Data Input" worksheets, input data in the dark green cells



The screenshot shows the 'Data Input' worksheet with a table of 'Block End' rates. The table has columns for 'Year' (2015-2020) and 'Existing' rates. The 'New' rates are being input in dark green cells. Red error messages are visible: 'Error missing block rates' and 'Error missing block size'.

Additional tables shown include 'Debt Service and Other Known Annual Expenses for Next 20 Years' and 'Additional Utility Expenses that Now Every Year'.

Buttons for 'View Results' and 'Back to top' are also visible.

Watch out for red "Error" messages describing where data entry errors

Created by the Environmental Finance Center at the University of North Carolina, Chapel Hill
Funded by the U.S. E.P.A. and the N.C. Department of Environment and Natural Resources

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

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

RESOURCES

- Financial Health Checkup Tool and Water & Wastewater Rates Analysis Model (free), plus other tools: <http://efc.sog.unc.edu> & <http://efcnetwork.org>
- SW EFC SRF Switchboard: <https://swefcsrfswitchboard.unm.edu/srf/>
- EFC Network Funding Tables: <https://efcnetwork.org/resources/funding-tables/>



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STATE REVOLVING FUND SWITCHBOARD

The [Southwest Environmental Finance Center](#) has partnered with [Spring Point Partners](#) to create a repository of documentation and tools related to State Revolving Funds.

The Funding Navigator Model

- Ⓞ Funding Navigator Video
- Ⓞ Funding Navigator Concept – 1 page

(Click on a state to navigate to its resources)

Q&A: FINANCIAL PLANNING





Managing your Wastewater System into the Future

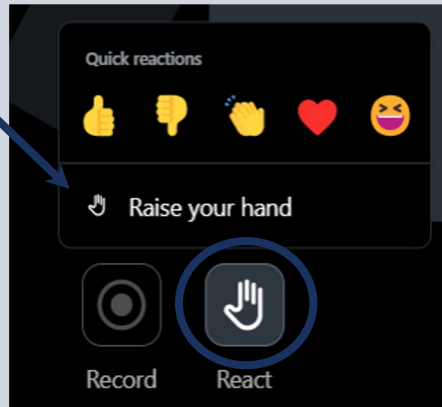
Wednesday-Thursday, October 18-19, 2023



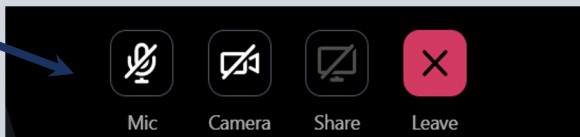
Logistics


Microphone, Camera & Reactions

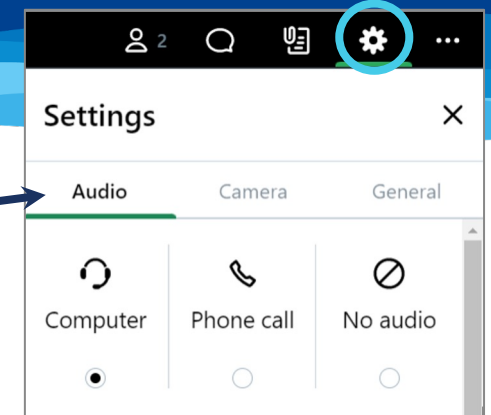
Open the 'React' tab in the **bottom left** corner of your screen to **raise your hand** to speak or use a reaction




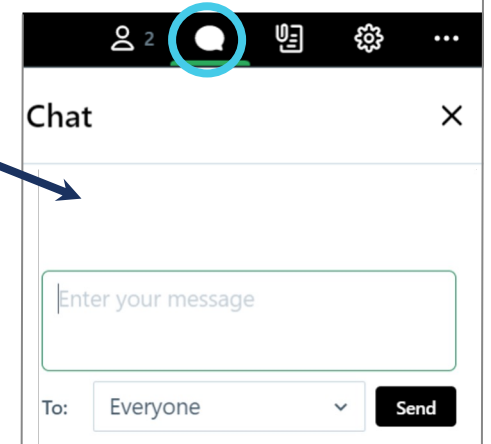
Mute/unmute and turn your **camera** off/on using the **toolbar** at the bottom of your screen




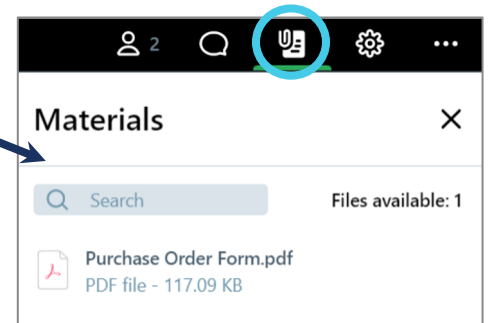
Audio: In the  icon in the **top right** corner of your screen, please choose between computer audio or phone call



Chat: In the  icon, open the chat to enter any questions or comments



Materials: In the  icon, open the 'Materials' tab to access any documents uploaded by trainer



Certificate of Completion

This session has been approved for 4.0 hours of Wastewater and Drinking Water Continuing Education Credits by the Kentucky EEC.

To receive a certificate:

- You must attend the entire session
- You must register and attend using your real name and unique email address - group viewing credit will not be acceptable
- You must participate in polls
- Certificates will be sent via email within 30 days

If you have questions or need assistance, please contact smallsystems@syr.edu.



DAY 2: ASSET MANAGEMENT, WORKFORCE, AND COMMUNICATION

Melanie Sanchez

UNC Environmental Finance Center

GETTING TO KNOW YOU, VIRTUALLY:



1. Raise your hand if you attended yesterday's session
2. If you weren't here yesterday type in the Chat:
 1. Your Name
 2. Your Utility (n/a if not with a utility)
 3. Your Role

DAY 2 AGENDA

 Recap of Day 1

 Asset Management

 Workforce Development

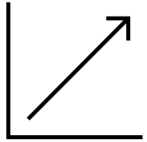
 Communication with the Board

 Partnerships & Communication with Stakeholders

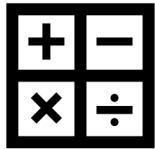
DAY 1 HIGHLIGHTS: FINANCIAL MANAGEMENT



Environmental Finance



Budgeting & Pricing for Full Cost Recovery



Assessing Financial Condition



Introduction to Rate Setting

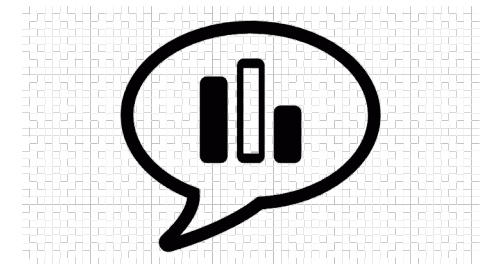


ASSET MANAGEMENT

POLL

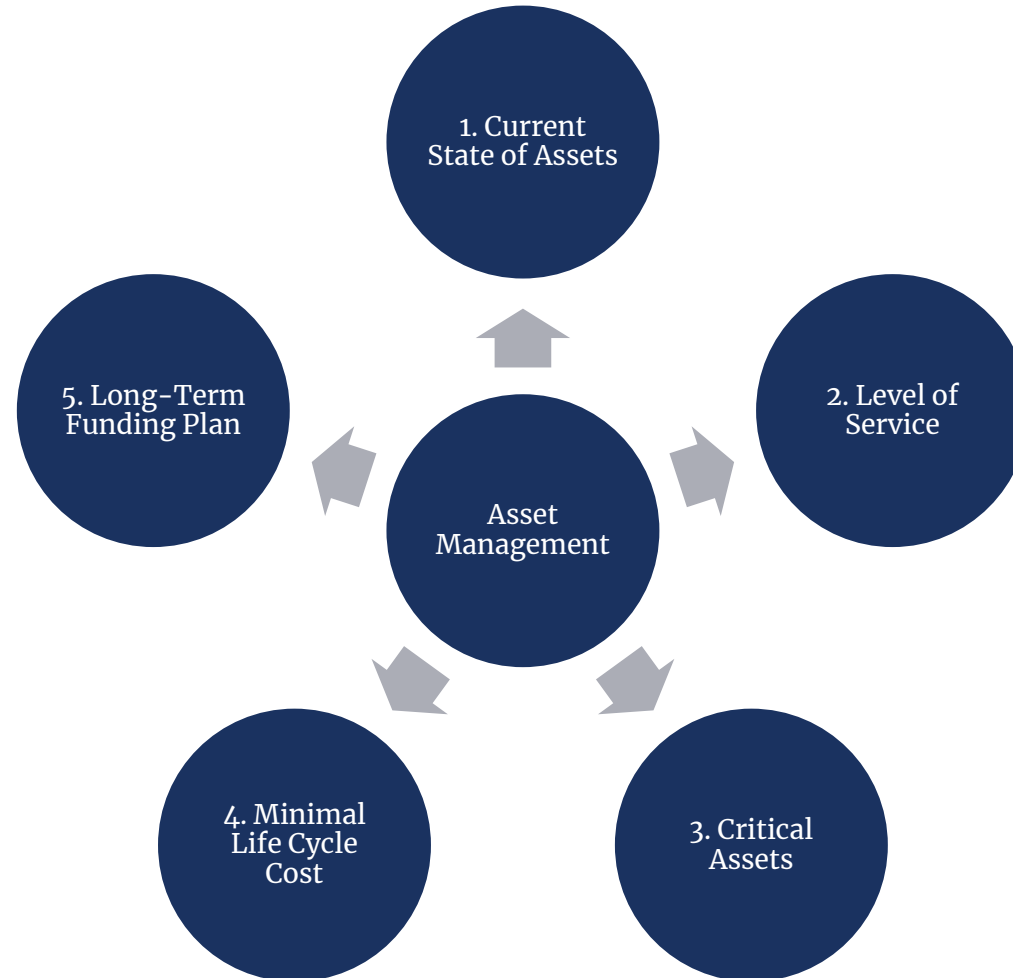
Does your utility have a Asset Management Plan? Does your asset management plan account for depreciating assets?

1. Yes, Yes
2. Yes, No
3. No, No
4. Not applicable – I don't work at a utility



US EPA DEFINITION OF ASSET MANAGEMENT PLANNING

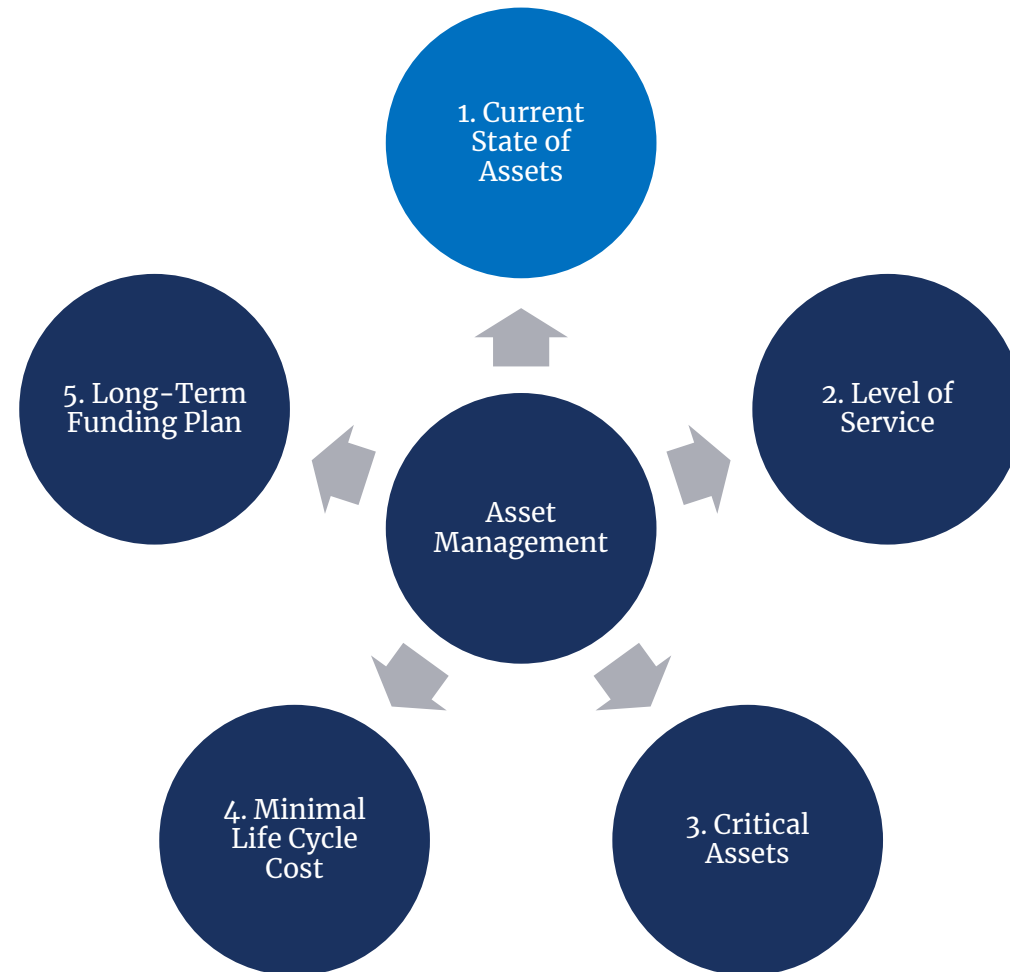
Core Framework – 5 Criteria



ASSET MANAGEMENT – 1. CURRENT STATE OF ASSETS

Key Questions

- What do I own?
- Where is it located?
- What is its condition?
- What is its useful life?
- What does it cost to own my assets?



ASSET MANAGEMENT – 1. CURRENT STATE OF ASSETS

Best Practices

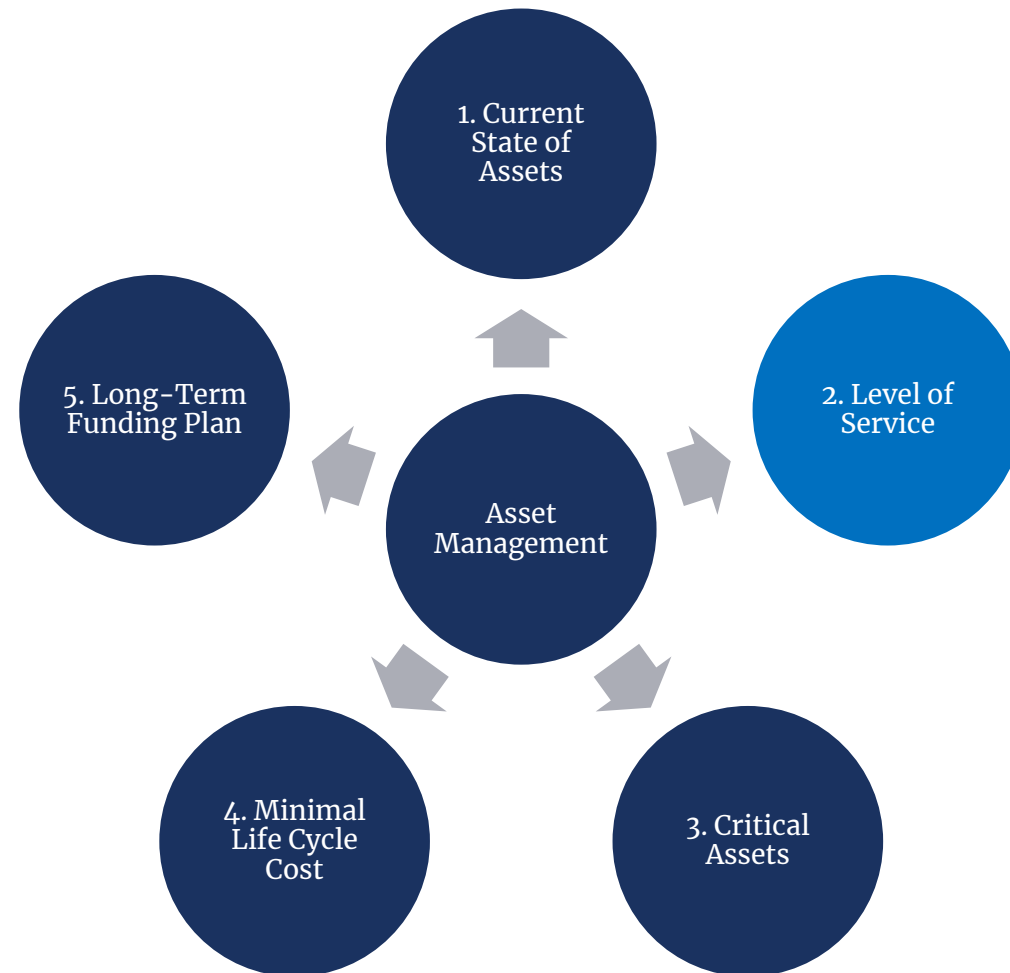
- Asset Inventory and System Map.
- Condition Assessment and Rating System.
- Projected Life tables or Decay Curves.
- Asset Values and Replacement Costs.



ASSET MANAGEMENT – 2. LEVEL OF SERVICE

Key Questions

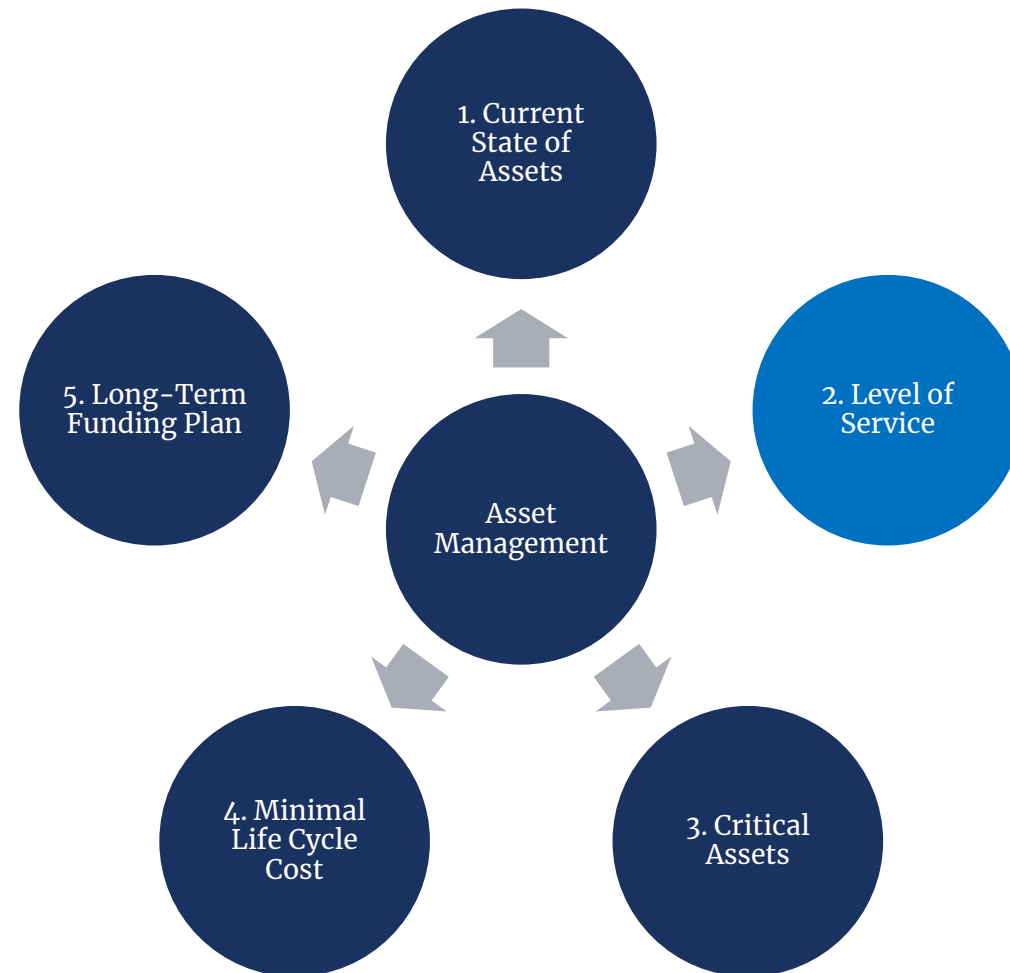
- What do stakeholders and customers demand?
- What can my system do?
- What are my permit and regulation requirements?
- How well/bad does my system perform?



ASSET MANAGEMENT – 2. LEVEL OF SERVICE

Best Practices

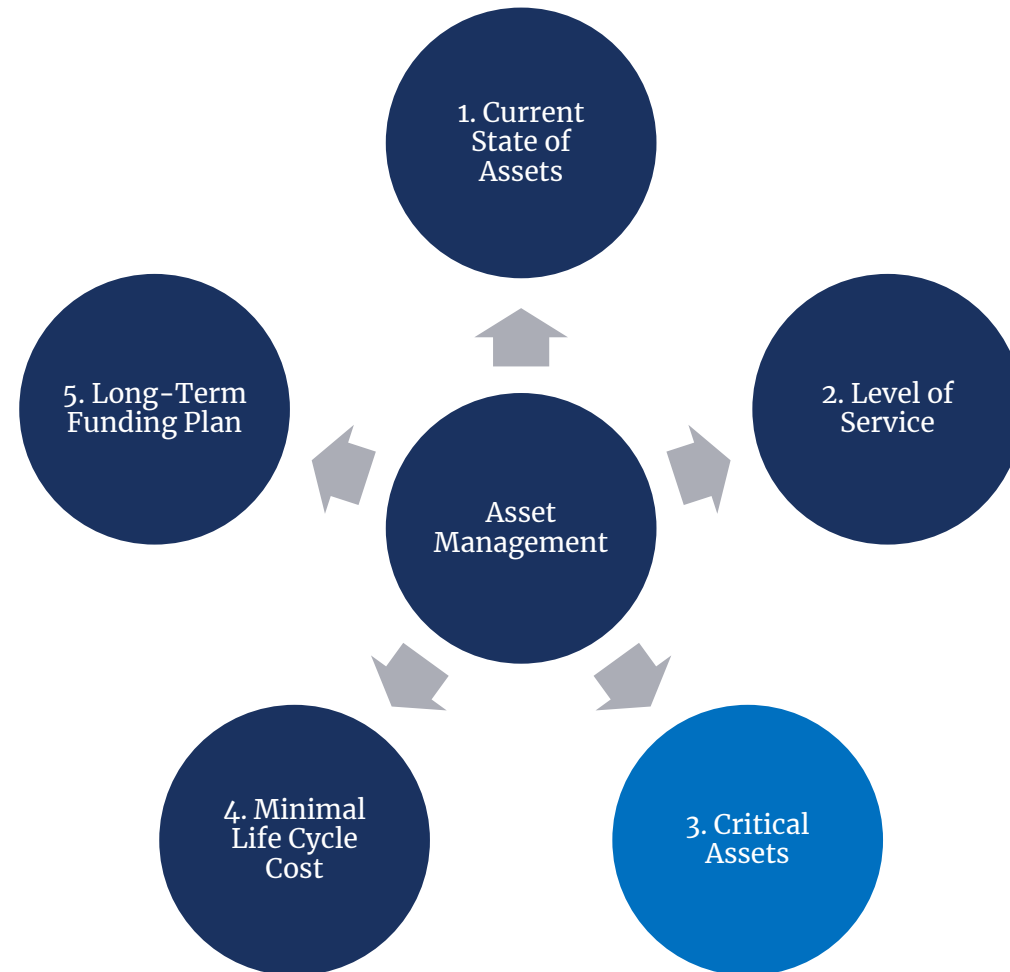
- Analyze Customer Demand and Satisfaction with the System.
- Regulatory Requirements.
- Writing and Communicating to the Public your System's KPI's.
- Track System Performance Over Time.
- SMART Goals



ASSET MANAGEMENT – 3. CRITICAL ASSETS

Key Questions

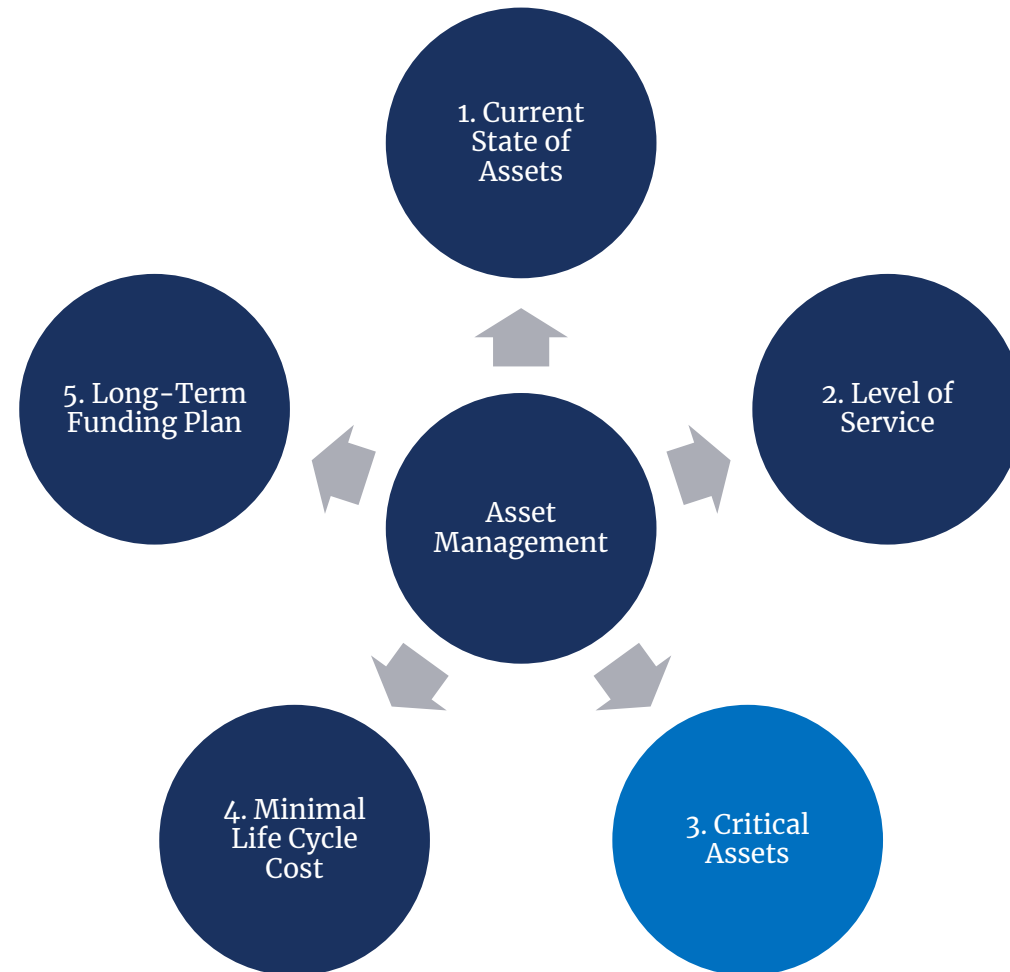
- How can and do assets fail?
- What are the likelihoods and consequences of failure?
- What are the repair costs?
- What are the indirect (environmental, social, etc.) costs of asset failure?



ASSET MANAGEMENT – 3. CRITICAL ASSETS

Best Practices

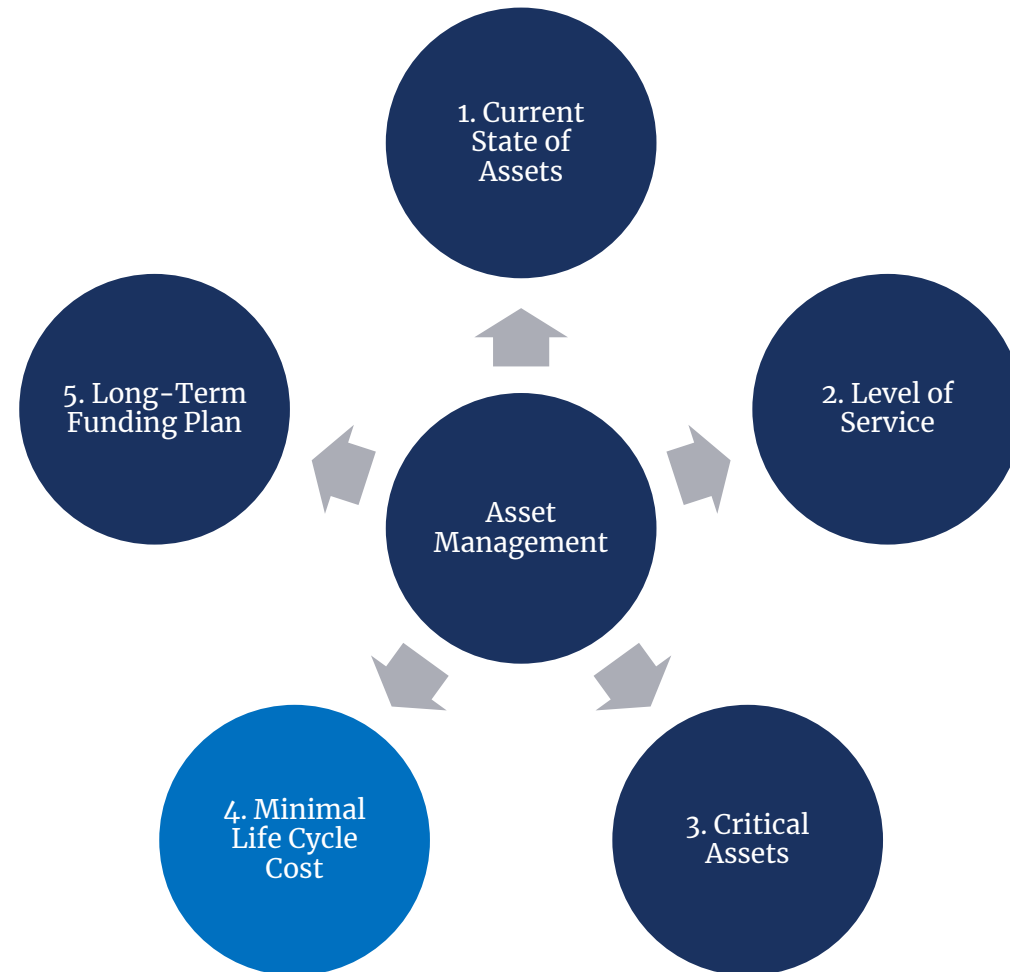
- Listing Assets According to how Critical.
- Analyzing Failure Risk and Consequences.
- Asset Decay Curves.
- Updating Vulnerability Assessment



ASSET MANAGEMENT – 4. MINIMUM LIFE CYCLE COST

Key Questions

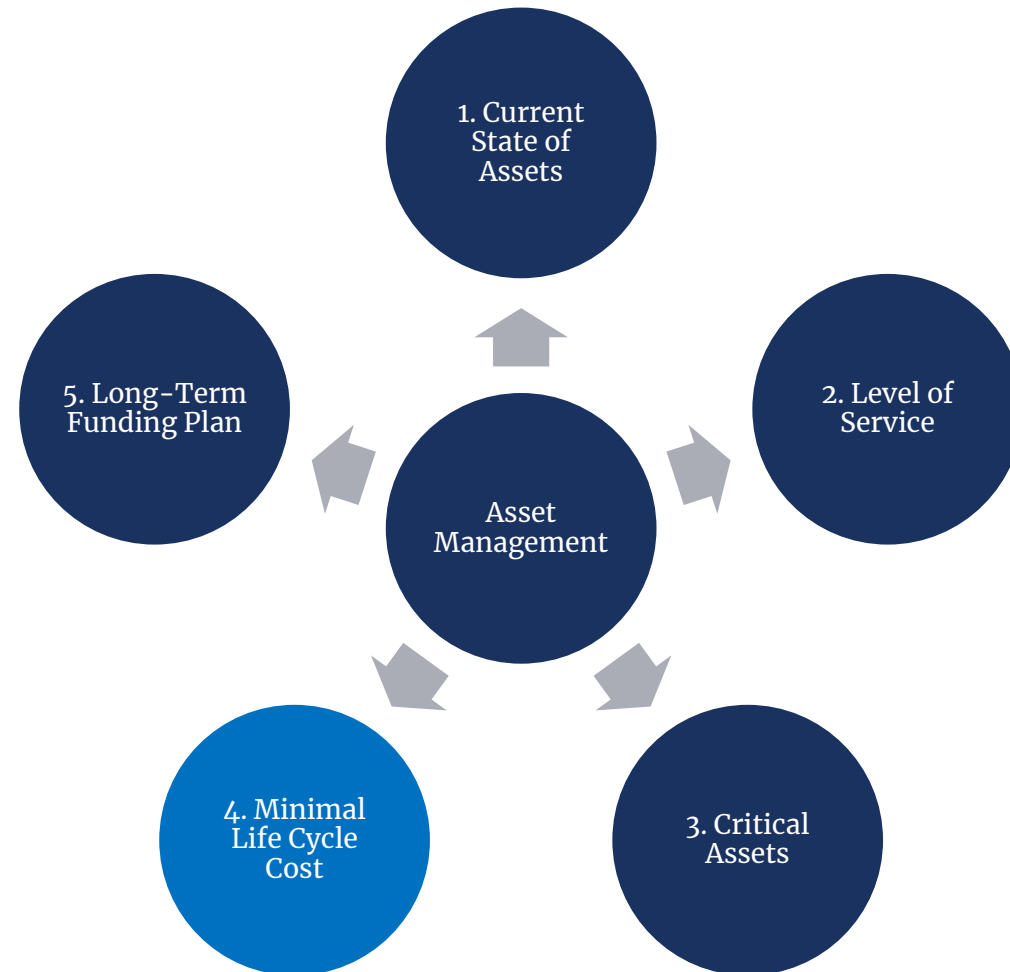
- What are our Operation and Maintenance strategies?
- How do we manage our utility's enterprise fund?
- What are our minimum personnel requirements?
- What are rehab/repair/replace costs for our critical assets?



ASSET MANAGEMENT – 4. MINIMUM LIFE CYCLE COST

Best Practices

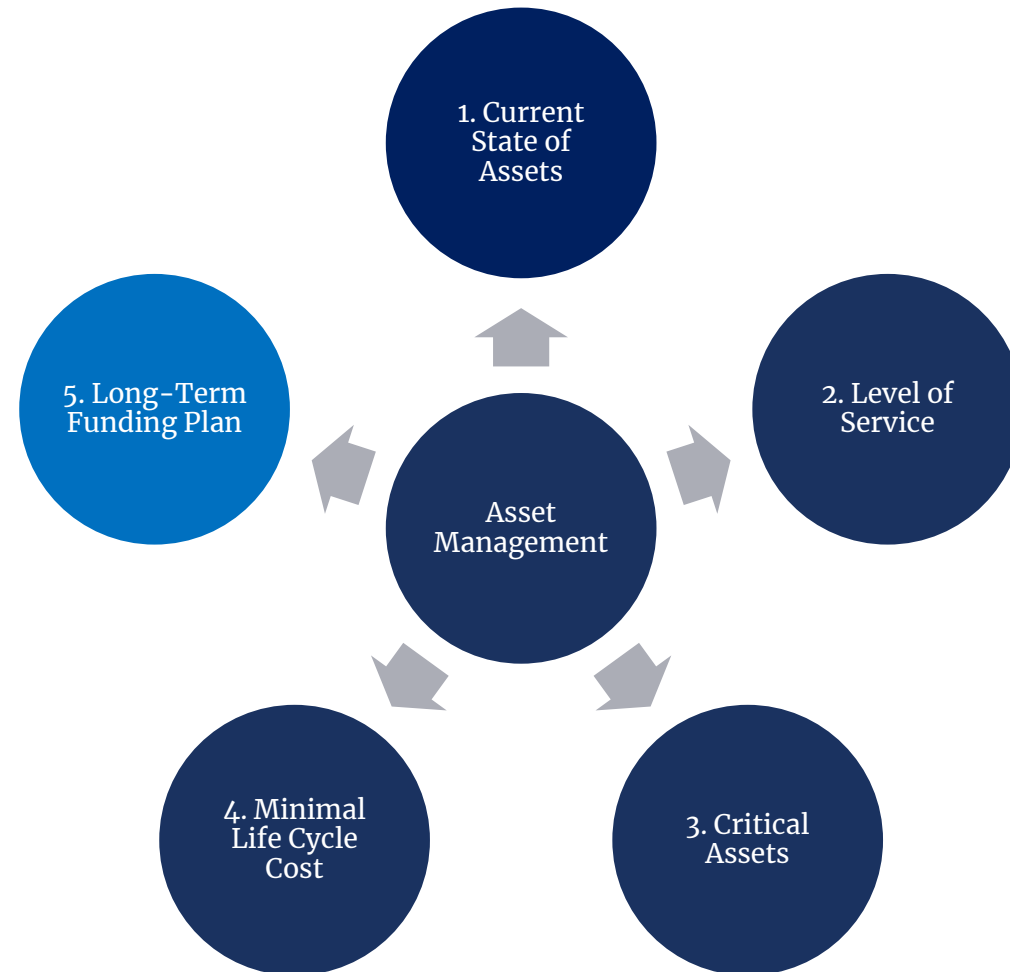
- Predictive Maintenance.
- Rehabilitation VS. Replacement.
- Lifecycle Costs.
- Analyzing the Causes of Asset Failure.



ASSET MANAGEMENT – 5. LONG-TERM FUNDING PLAN

Key Questions

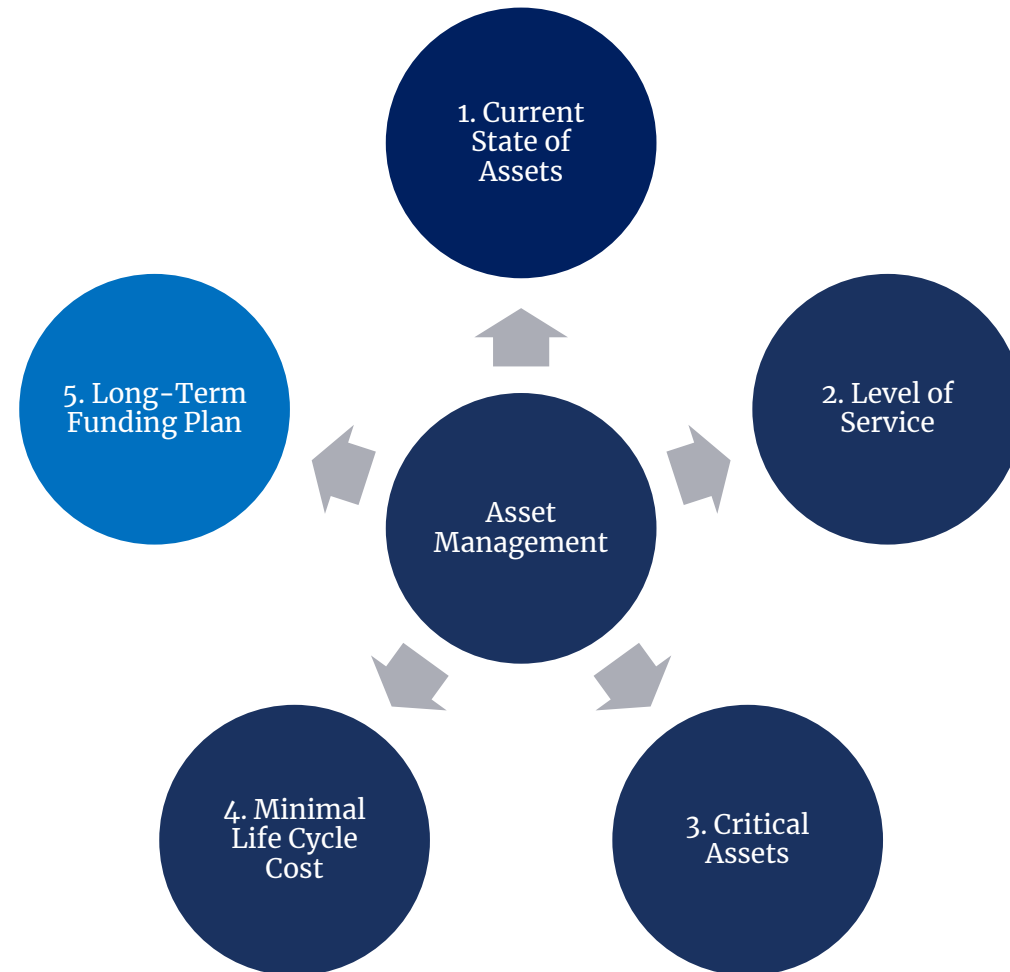
- Are our rates sufficient to meet our Level of Service?
- Can our customers afford their bills today *and* tomorrow?
- How do we plan for future investments while keeping our system going?



ASSET MANAGEMENT – 5. LONG-TERM FUNDING PLAN

Best Practices

- Revise Rate Structure.
- Asset Annuity.
- Borrowing and Financial Assistance.





PLAN



DO



CHECK



ACT

HTTPS://SWEFCAMSWITCHBOARD.UNM.EDU/AM/



Asset Management Switchboard

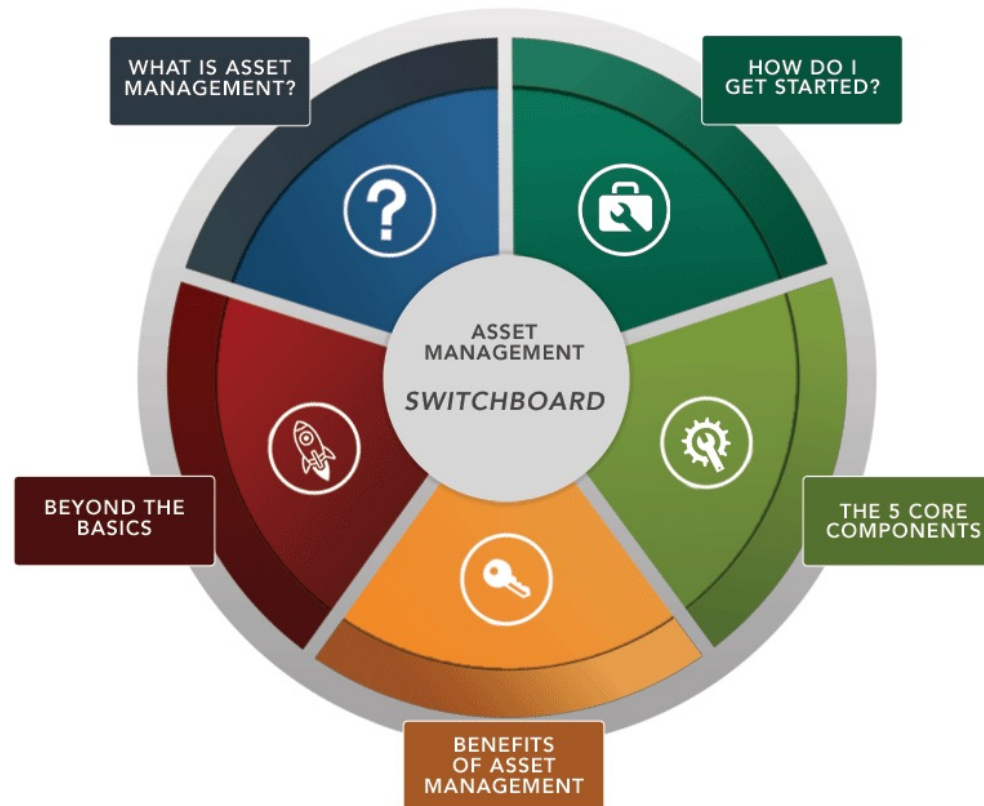
The Southwest Environmental Finance Center has partnered with EPA to create a repository of documentation and tools related to Asset Management.

Whether you are [new to the Asset Management process](#) or just need a refresher on a specific topic, the resource you are looking for is probably here. If you're unable to find what you're looking for, reach out and tell us about it.

If you would like to contribute by having a resource added to the repository, please email the Southwest Environmental Finance Center (by clicking on the link below) and tell us about it. We welcome your feedback and strive to serve your utility and water systems at large.

This is a collection of Asset Management Resources from a variety of sources. Some of them are from the SW EFC, many are not.

[↻ Email SW EFC](#)



[Why should I Implement Asset Management?](#)



WORKFORCE DEVELOPMENT



TODAY'S WATER WORKFORCE FOCUS

- The 4 components of workforce development
 1. Succession Planning
 2. Retention
 3. Recruitment
 4. Messaging
- Water workforce challenges
- Succession planning tips for public utilities

POLL

Which of the 4 components of workforce development does your utility struggle with the most?

1. Succession Planning
2. Retention
3. Recruitment
4. Messaging

1 SUCCESSION PLANNING

A systematic approach to **building replacement workers** to **ensure continuity**,
by identifying potential successors in *critical* work processes



2 RETENTION

- Easier to **retain** current members of your team than **recruit and train** new ones
- Strategies
- Mind the (Generational) Gap

GENERATIONS: Best Work Traits



BABY BOOMERS
Optimistic
Enjoy mentoring
Strong work ethic



GENERATION X
Independent
Innovative
Strong communicators



MILLENNIALS
Tech-savvy
Collaborative
Focused on the greater good



GENERATION Z
Digitally fluent
Practical
Flourish in diverse workforces

3 RECRUITMENT



- Think outside the box!
- Re-Framing Benefits of Working in the Water Industry
- Community colleges, technical schools
- Economic Development Organization (EDOs) and Workforce Development Boards (WDBs)
- Unions and labor groups
- Community-based groups, Non-profits
- Increasingly mobile workforce

3 RECRUITMENT

- Professional Development & Training
- Job Security
- Quality of Life
- Dedicated to a Larger Purpose



4 MESSAGING

- Communicating **value** across generations
- Demonstrating **thought leadership** in your community
- Inviting residents and businesses to **share in your success**

Pure Tap® Helps Grow Pumpkins at Kentucky Kingdom

<https://louisvillewater.com/news/pure-tap-helps-grow-pumpkins-at-kentucky-kingdom/>



4 MESSAGING

- Share to increase public support for:
 - Infrastructure Upgrades
 - Public Health
 - Compensation
 - Growth
- Leverage local nonprofits
- Co-creation of content
- Tell their story



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WATER WORKFORCE CHALLENGES

How do we prepare?

- Aging workforce
(“*Silver Tsunami*”)
- Lack of public recognition
- Diversity



POLL

Has your utility begun to think about succession planning?

- Yes, we have a plan and are fully prepared for a major departure
- Yes, we have a plan but are not sure we are ready for a major departure
- Yes, we have thought of a plan but have not implemented it
- No, we have not begun to think of a plan

SUCCESSION PLANNING TIPS FOR PUBLIC UTILITIES

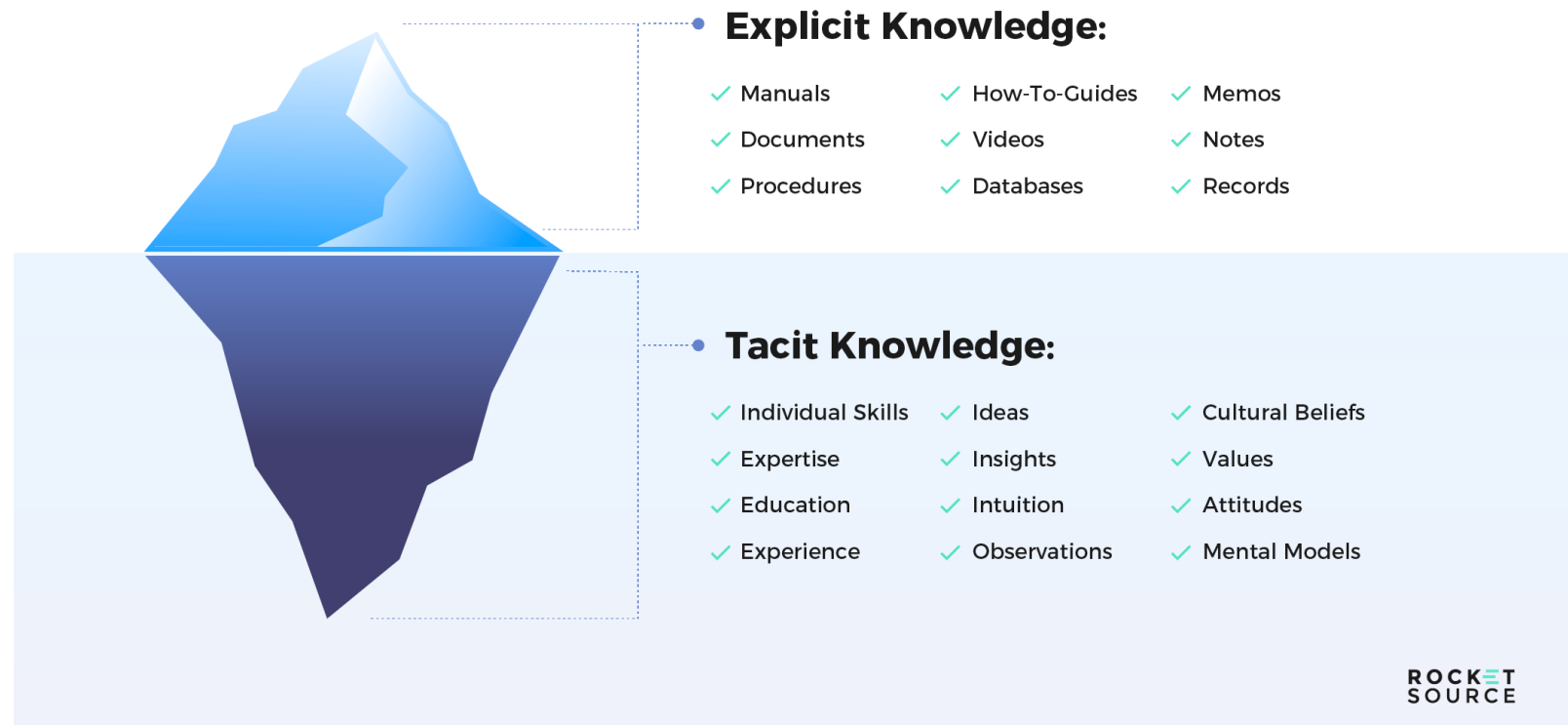
- Knowledge transfer
 - Position knowledge survey
- Gap analysis
 - Who is leaving and when?
 - Next 5-10 years
- Focus on critical tasks
- Community demographics
 - EJ Screen
 - Social Explorer
- Regulatory changes



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TYPES OF KNOWLEDGE: EXPLICIT VS. TACIT

EXPLICIT vs. TACIT KNOWLEDGE



- Explicit
 - Readily transferrable to others
- Tacit:
 - Known
 - Has not been or cannot always be articulated

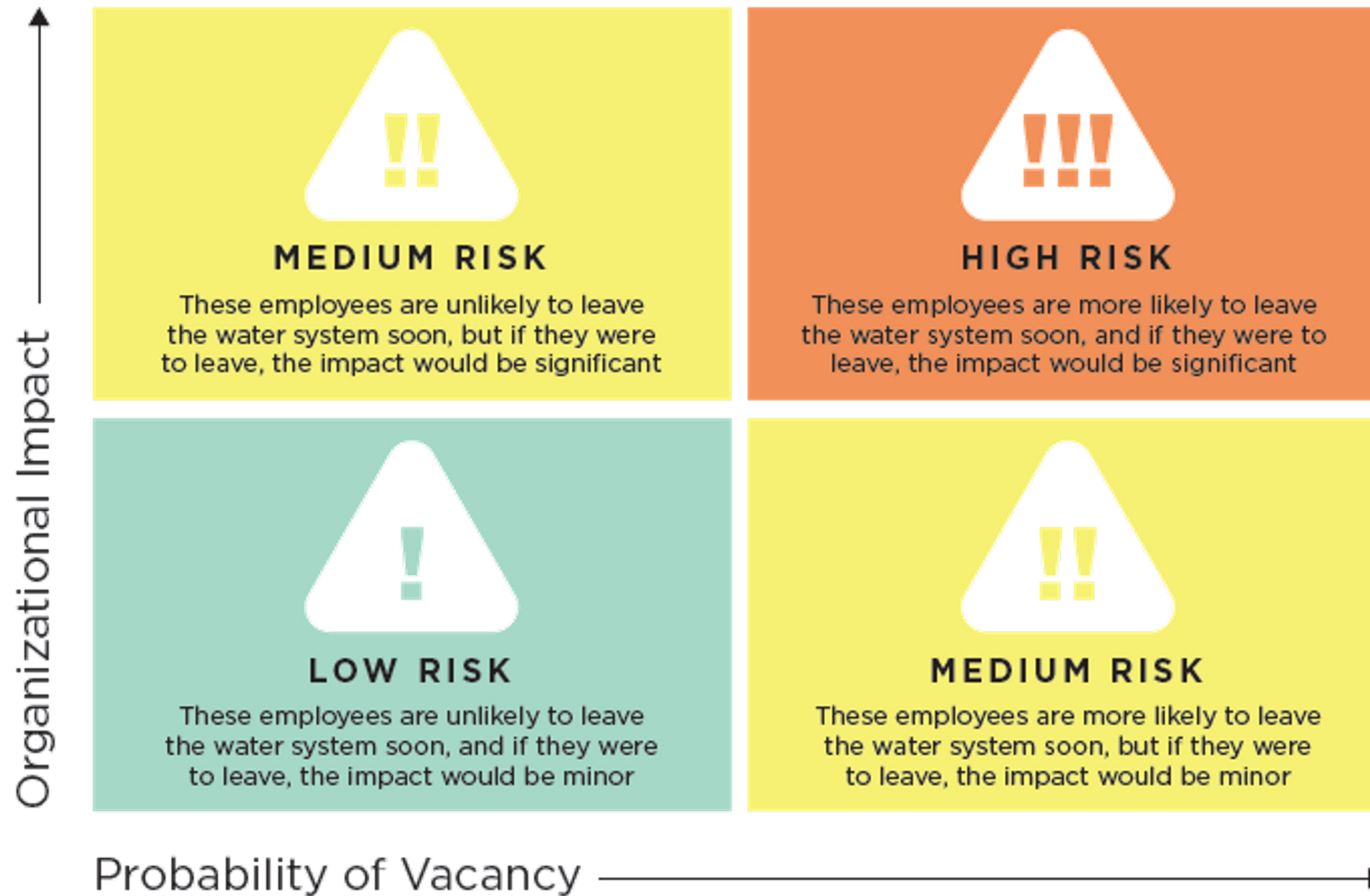
GAP ANALYSIS



MIND THE GAP

- Focus on critical tasks
- Community demographics
- Regulatory changes
- Who is leaving and when?
- Next 5-10 years

GAP ANALYSIS



POSITION KNOWLEDGE SURVEY

Name: _____

Job Title: _____

Community/Organization/Department:

Years in your current position: _____

Years since you first started at your Community/Organization/Department:

Step 1: Organizational Goals

Step 2: Critical Responsibilities and Activities

POSITION KNOWLEDGE SURVEY

Step 1: Organizational Goals

The purpose of this Inventory is to get an idea of the knowledge and responsibilities required to fulfill your current job position.

Before we get to your specific knowledge, it's important to think about your organization's mission or goals so that the community can continue receiving all the services your job provides long after you leave that position.

Attach a copy of your community, organization, or department's overall **mission, vision, and/or goals.**

Highlight the sections of these organizational documents **to which you⁴⁰ have contributed** during your tenure.

POSITION KNOWLEDGE SURVEY

Step 2: Critical Responsibilities and Activities

Some aspects of your work only you know how to address. In this step you create a list of those tasks and activities. Use questions below to help guide you in creating your list.

- What are you the “go to” person for in your current position?
- What things in your position do **only you know** how to do?
- What **responsibilities** does your office rely on you for?



POSITION KNOWLEDGE SURVEY

Step 2: Critical Responsibilities and Activities (cont.)

- When you return from vacation or otherwise being away from work, **what work is usually waiting for you** because no one else knows how to do it?
- When you're not working, is there **anything you worry won't be done** well while you're gone?
 - If so, what?



METHODS FOR TRANSFERRING KNOWLEDGE

- Overlapping positions
- Desk manuals
- Pictures & video
- Interviews
- Work teams
- Job shadowing



DOCUMENTS



Manuals



Maps



Photos



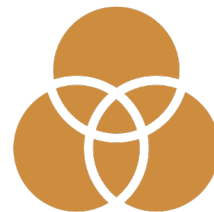
Videos



Notebooks



GIS



*System
Diagrams*



*As-built
drawings*



Policy Guides

TRAINING AND DEVELOPMENT



Online



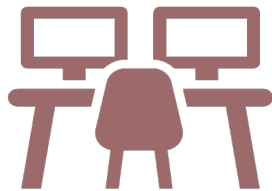
Workshops



Mentoring



*Computer
simulations*



Classroom



Inter-agency

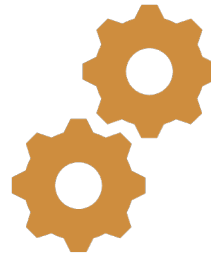


*In-house
training*

PROCESSES AND PRACTICES



Maintenance
schedules



Day-to-day
Operations



Regulated
Work



Technology



Training &
Mentoring



Job Sharing

INVENTORY CHECKLIST

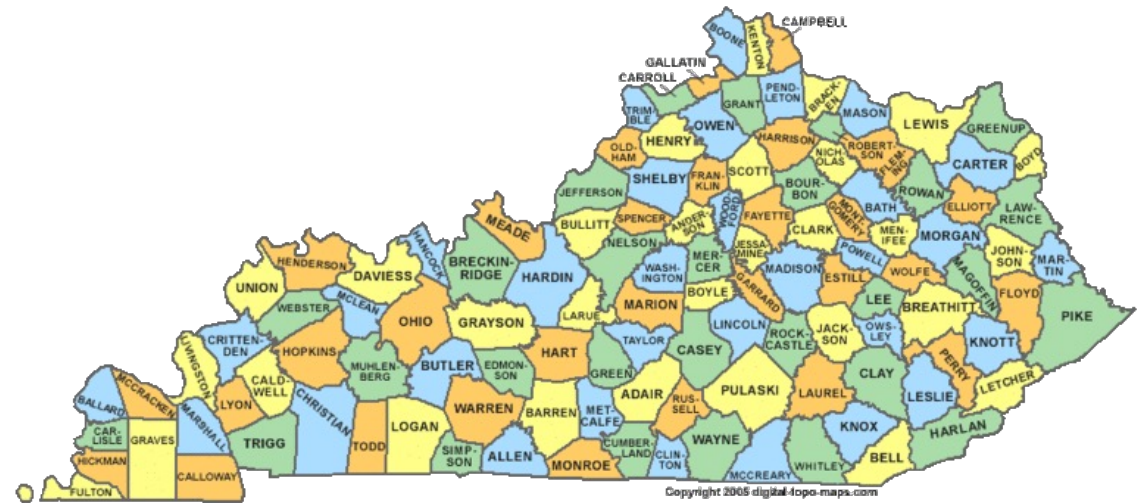
- Usernames & Passwords
 - Password manager?
- Assets assigned to you
- Manuals
 - Updated?
- Contacts with vendors & third parties
- And more!



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DON'T OVERLOOK REGIONAL COLLABORATION

- Similar needs
- Similar benefits
- Demographics change together
- Consider:
 - Town Identities
 - Change in Budgets



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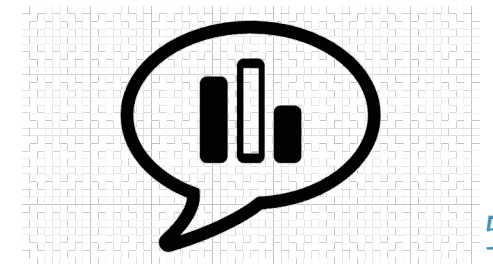


COMMUNICATION BETWEEN A UTILITY AND ITS BOARD

POLL

Have you ever experienced challenges presenting information about your water or wastewater utility to your community?

1. Yes – when presenting to Boards/Comms
2. Yes – when presenting at Town Meeting/City Council
3. No
4. Not applicable – I don't work at a utility

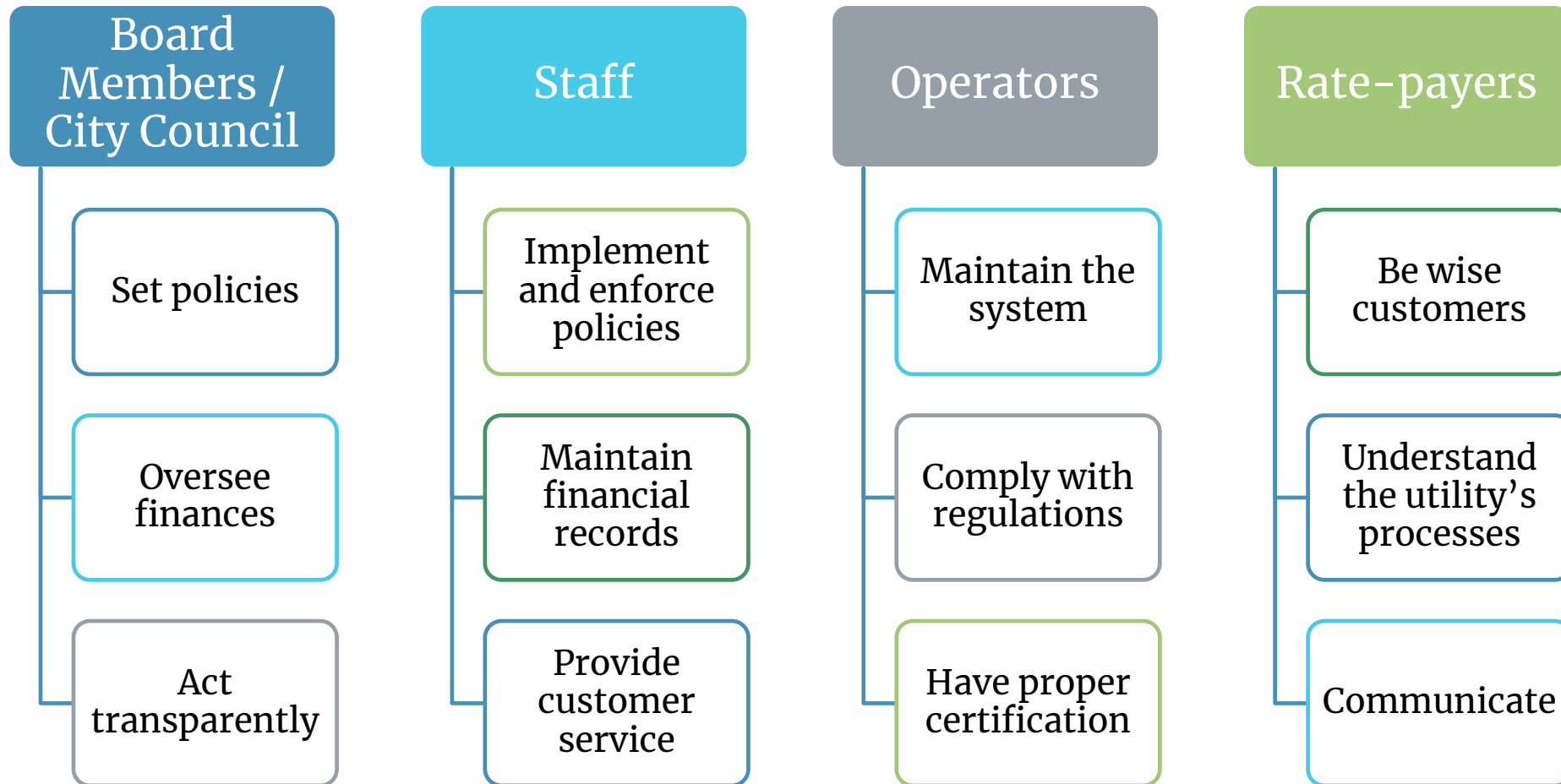


WHAT IS A BOARD OR COMMISSION?

- Board of Directors, Commissions, and Councils oversee activities, and all have duties to provide
 - Oversight
 - Direction and policies
 - Fiduciary duty
 - Follow applicable laws



ROLES AND RESPONSIBILITIES



HOW TO EFFECTIVELY COMMUNICATE



WHEN TO COMMUNICATE

- Mostly at regular meetings
 - Maintains compliance with open meetings
- Prior to meeting, include:
 - Place on meeting agenda
 - Presentation materials
 - Costs
 - Written summary covering 5 W's and H
 - Who, What, When, Where, Why, How

Monthly

- Pressing issues and income/ water sales

Quarterly

- Capital purchases and plans

Annually

LEVEL OF DETAIL

- ❌ Micromanagement
 - Avoid too many options
 - Focus on substantive items



- Highlight:
 - Life expectancy
 - Warranty
 - Maintenance costs
 - Energy usage
 - Labor needs
 - Public engagement

HOW TO EFFECTIVELY COMMUNICATE?



- Use Visuals
- Show Impact on the Community
- The Power of Storytelling
- Building Consensus about Action

HOW TO PROCEED



**Boards need Reasonable
Options:**

HOW TO PRESENT OPTIONS

Do

- Be honest
- Detail life cycle costs
- Evaluate fairly
- Explain “do nothing”
- Provide financing options
- Provide graphics/photos, etc.
- Give strong opinion

Do Not

- Jump to conclusions
- Assume board will not have good input
- Risk compliance
- Unfairly burden some options
- Believe council/board members cannot take bad news



COMMUNICATION WITH STAKEHOLDERS

POLL

Reflecting on past interactions, how has your utility typically engaged with stakeholders in terms of partnerships and communication?

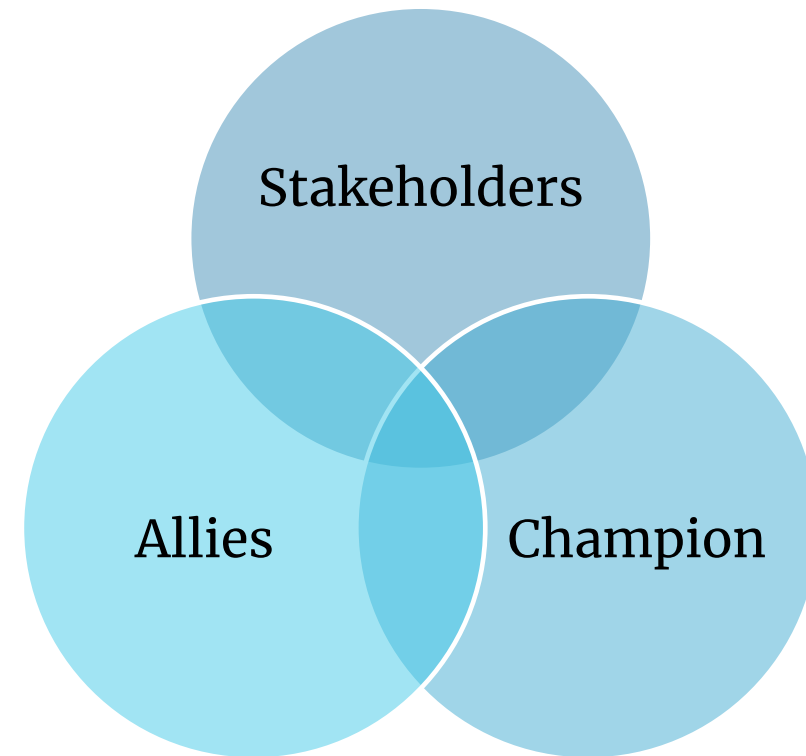
- Frequently, with open and transparent communication, fostering strong partnerships.
- Occasionally, with limited communication and minimal partnership efforts.
- Rarely, with no significant communication or partnership initiatives.
- Inconsistently, with varying levels of engagement depending on the stakeholder group.

WHO ARE STAKEHOLDERS?

Stakeholders: Anyone impacted by changes associated with the utility

Allies: Organizations or individuals with an interest in the success of the utility

Champion: A trusted community member



COMMUNICATING WITH STAKEHOLDERS

1

Identifying the
Right
Messenger

2

Communicating
with
Stakeholders

3

Addressing
Community
Concerns

4

Communicating
Community
Benefits



IN SUMMARY

REQUEST TECHNICAL ASSISTANCE




[About Us](#) [Training & Events](#) [Resources](#) [Our Initiatives](#) [Contact](#)

[Get Help](#)



Request assistance now or contact us for more information.



Technical Assistance Request Form

The EFCN offers no cost assistance to drinking water systems serving 10,000 or fewer people and wastewater systems that treat 1 million gallons per day or less. Examples of assistance we can provide include:

- Conducting a water loss audit
- Assessing options for lowering energy use
- Starting an asset management plan
- Identifying next steps in your asset management process
- Creating an asset inventory
- Mapping your water system
- Rate setting
- Near-term financial & long-term capital planning
- Analyzing your revenues and expenses
- Resiliency planning
- Preparing for an operator certification exam
- Helping understand water/wastewater math
- Integrating green infrastructure into your gray asset management plant

To request assistance, please fill out the form below. You will be asked a few questions to help us understand your system and what kind of assistance you need.

Name *

Title/Position *

<http://efcnetwork.org>

Q&A: WORKFORCE DEVELOPMENT

Thank you!



CONTACT US

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