



Smart Management for
Small Water Systems

WEBINAR: Preparing Winning Financing Applications for Water Infrastructure Projects

Thursday, March 9 2017
2:00 – 3:00 PM EST



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

www.efcnetwork.org

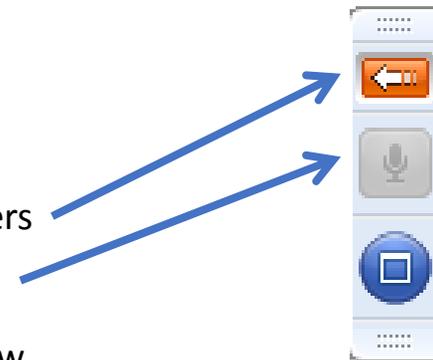


Logistics

At the top right corner of your screen:

Show your control panel to submit questions and see answers

Toggle between full screen/window screen view

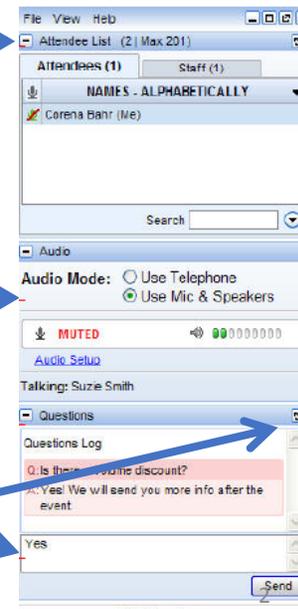


Control Panel:

Attendee List

Audio: please choose between speakers and telephone. If you do not hear audio right now, please check your speaker volume or enter #[audio pin]# if using phone.

Submit questions in the Questions box at any time, and press [Send]. To undock and increase the size of the box, click on top right corner icon.





About the Environmental Finance Center Network (EFCN)

The Environmental Finance Center Network (EFCN) is a university-based organization creating innovative solutions to the difficult how-to-pay issues of environmental protection and improvement. The EFCN works with the public and private sectors to promote sustainable environmental solutions while bolstering efforts to manage costs.

The Smart Management for Small Water Systems Program

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

What We Offer

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



CEU Certificates

If you need a CEU certificate, you will need to confirm the following on the roster today before you leave:

- Is your name spelled correctly?
- Did you provide an email address UNIQUE TO YOU? A unique email address is required to access your certificate on the AWWA website.
- Did you mark the checkbox that you need a certificate?

Within 30 days of the training, you will receive an email with instructions to print your certificate. Emails from AWWA may be blocked or go to your Junk mail. To avoid this issue, add educationservices@awwa.org to your email Contacts or check your Junk mail frequently.

AWWA will apply to the water operator state licensing agency for CEU preapproval when applicable. You may be awarded CEUs by your agency. It is your responsibility to confirm with the agency that training meets relevancy criteria established for your license type as some agencies may not apply CEUs to your license if the training topic is not relevant to your position.

AWWA follows the IACET Standard of CEU calculation.

0.1 CEU = 1 Contact Hour or 1 Professional Development Hour

Questions? Please contact educationservices@awwa.org



The Small Systems Program Team

- Environmental Finance Center at The University of North Carolina at Chapel Hill
- Environmental Finance Center at Wichita State University
- EFC West
- New England Environmental Finance Center at the University of Southern Maine
- Southwest Environmental Finance Center at the University of New Mexico
- Syracuse University Environmental Finance Center
- Environmental Finance Center at the University of Maryland
- American Water Works Association (AWWA)





Areas of Expertise

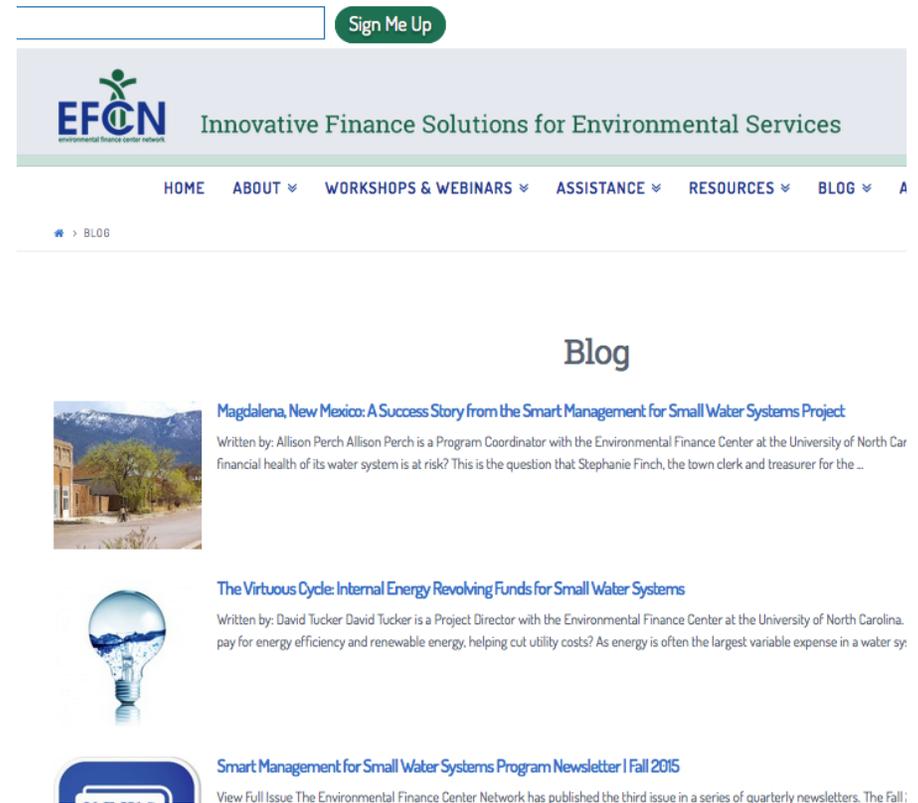
- Asset Management
- Energy Management Planning
- Rates and Finance
- Leadership Through Decision-making and Communication
- Managing Drought
- Water Loss Reduction
- Collaborating with Neighboring Communities
- Multi-funding
- Water Conservation
- Management and Finance Tools and Techniques
- Climate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

Small Systems Blog

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

Common Blog Topic Areas

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



The screenshot shows the EFCN website's Small Systems Blog page. At the top, there is a search bar and a "Sign Me Up" button. The EFCN logo is on the left, and the tagline "Innovative Finance Solutions for Environmental Services" is on the right. A navigation menu includes links for HOME, ABOUT, WORKSHOPS & WEBINARS, ASSISTANCE, RESOURCES, and BLOG. Below the menu, there is a breadcrumb trail: "» BLOG". The main heading is "Blog". Three blog posts are visible:

- Magdalena, New Mexico: A Success Story from the Smart Management for Small Water Systems Project**
Written by: Allison Perch Allison Perch is a Program Coordinator with the Environmental Finance Center at the University of North Carolina. The financial health of its water system is at risk? This is the question that Stephanie Finch, the town clerk and treasurer for the ...
- The Virtuous Cycle: Internal Energy Revolving Funds for Small Water Systems**
Written by: David Tucker David Tucker is a Project Director with the Environmental Finance Center at the University of North Carolina. pay for energy efficiency and renewable energy, helping cut utility costs? As energy is often the largest variable expense in a water sy...
- Smart Management for Small Water Systems Program Newsletter | Fall 2015**
View Full Issue The Environmental Finance Center Network has published the third issue in a series of quarterly newsletters. The Fall:

efcnetwork.org/small_systems_blog/

The screenshot shows a web browser window with the address bar containing "efcnetwork.org". Below the address bar is a subscription form with the text "Enter your email to subscribe..." and a "Sign Me Up" button. The EFCN logo and tagline "Innovative Finance Solutions for Environmental Services" are visible. The navigation menu includes "HOME", "ABOUT", "WORKSHOPS & WEBINARS", "ASSISTANCE", "RESOURCES", "BLOG", and "ARCHIVES". A dropdown menu is open under "RESOURCES", listing "Resource Library", "E-Learning Modules", "Funding Sources by State", and "Map of Water and Wastewater Rates Dashboards". The "Funding Sources by State" option is highlighted with a yellow box and an arrow. The main content area features a blue background with orange icons of a person thinking and a person sitting at a desk, with the text "Get Free Help" and "Small water systems can request free help from our experts on finance and management challenges."

Navigating to Funding Tables

Step 1: efcnnetwork.org

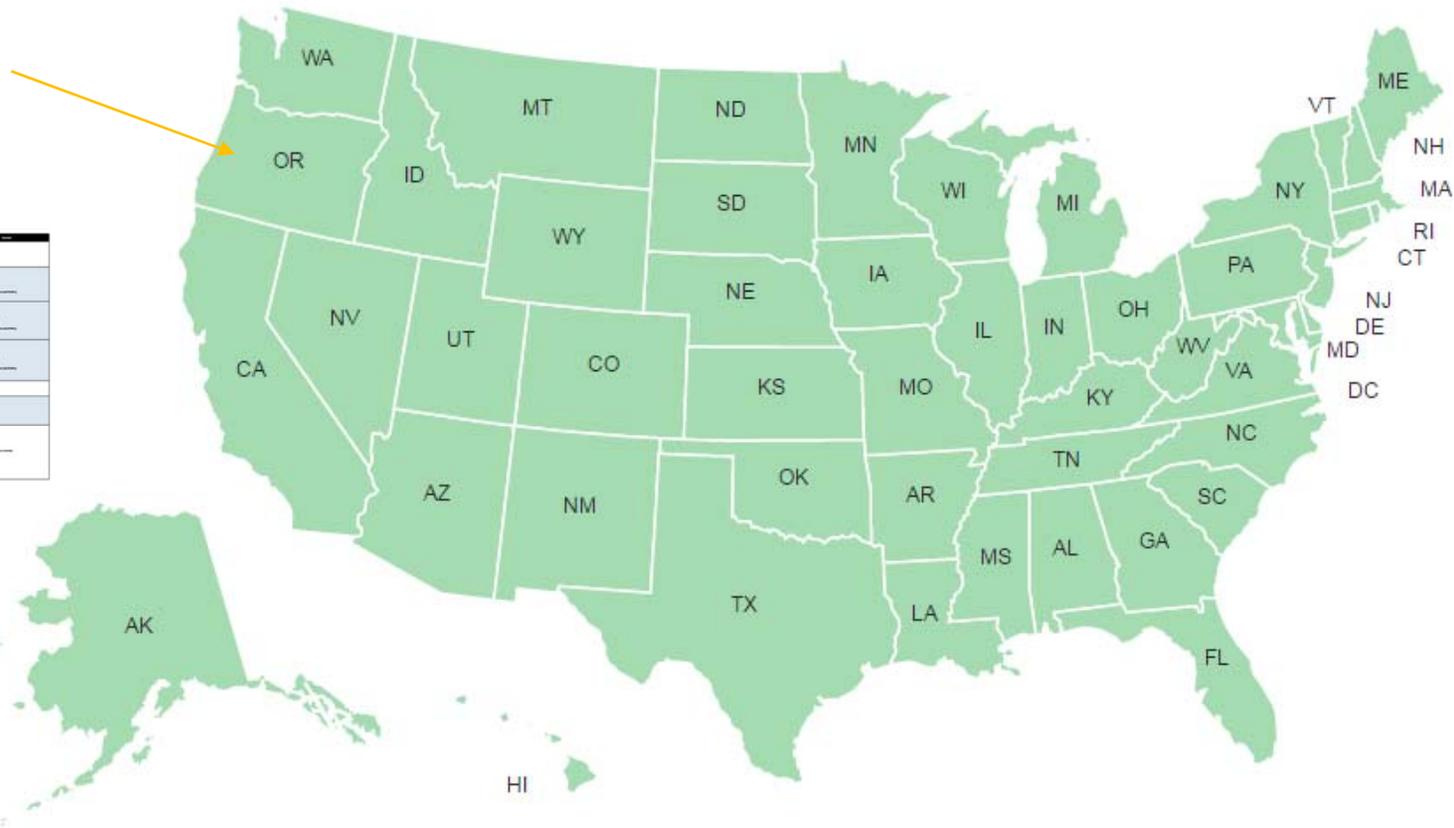
Step 2: Select "Funding Sources by State" under the Resources Tab

Funding Sources by State

Note: Some states may have additional resources listed below the map.

Click on the map below to view funding sources for each state:

Click on an individual state to view funding table.



State	Agency	Program	Website
AK
AL
AR
AZ
CA
CO
CT
DC
DE
FL
GA
IA
IL
IN
KS
KY
LA
MA
MD
ME
MI
MN
MO
MS
MT
NC
ND
NH
NJ
NM
NV
NY
OH
OK
OR
PA
RI
SC
SD
TN
TX
UT
VA
VT
WA
WI
WV
WY



Presenter

Stacey Isaac Berahzer



Senior Project Director
Environmental Finance Center
at the University of North
Carolina on Chapel Hill



UNC

ENVIRONMENTAL FINANCE CENTER



UNC SCHOOL of GOVERNMENT

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

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



How you pay for it matters



UNC

ENVIRONMENTAL FINANCE CENTER

<http://efc.sog.unc.edu>

 @EFCatUNC



Objectives

- Learn about the different financing programs available to drinking water systems
- Understand some of the requirements related to federal funding programs
- Learn tips on how to score higher on your application for financing



INTRODUCTION



Polling Question 3

From which of the following does your water system currently have the most financing?

(choose one)

- State Revolving Fund (SRF) loan
- USDA loan/grant
- Community Development Block Grant
- Bank
- Bonds
- NA



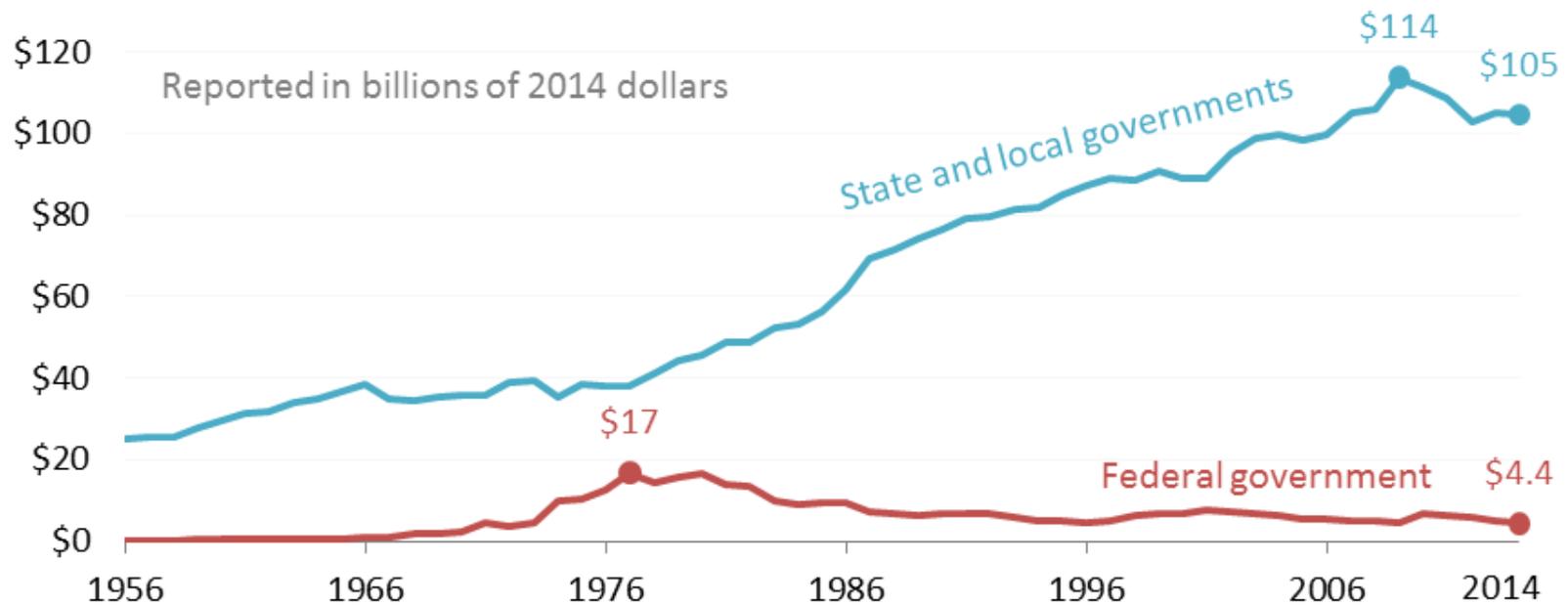
The Debt Market

- Why Borrow?

Grant money is not likely coming from the federal government

State and local government spending on water and wastewater utilities continued to grow while federal spending declined since the 1980s

State and local governments spent 24 times as much as the federal government in 2014



Graphed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Source: Congressional Budget Office supplemental data for the *Public Spending on Transportation and Water Infrastructure, 1956 to 2014* report (March 2015). Displays public spending on supply systems for distributing potable water as well as wastewater and sewage treatment systems and plants. Real spending is shown after adjusting nominal spending to their 2014 dollar equivalent using infrastructure-specific price indexes.



The Debt Market

- Why Borrow?
- Water infrastructure has a long useful life
- Amortizing the loan over the life of the equipment allows your customers to benefit from system improvements now and pay for them over time



When You Need Cash Now: The Debt Market

- Lenders consider the following when determining whether to loan money and at what interest rate:
 - your creditworthiness,
 - your ability to repay the debt



The Debt Market

- Two types—Loans and Bonds
 - Loans, can be more universally available, depending on the state
 - Bonds



Loans

- Typically from a bank
- Can be from a government-sponsored program



SRF Program



SRF - What is the State Revolving Fund (SRF) Program?

- There are 2 programs:
 - Drinking Water State Revolving Fund (DWSRF) – for “drinking water”
 - Clean Water State Revolving Fund (CWSRF) – traditionally for wastewater and other water quality projects
- A federal-state partnership:
 - States provide a 20% match on federal funds
 - Programs are administered by staff in the specific state



Drinking Water SRF

- Established by the 1996 amendments to the Safe Drinking Water Act (SDWA)
- All 50 states and PR have a DW SRF
- Congress appropriates funding for the DWSRF
- EPA then awards capitalization grants to each state based on the results of the Drinking Water Infrastructure Needs Survey and Assessment
- Bulk of money goes into a revolving loan fund
- Provides loans and other authorized assistance to water systems for eligible infrastructure projects





SRF - The Intended Use Plan (IUP)

- IUP – describes how the state plans to use available funds, includes list of *potential* projects
- A draft IUP must be posted for public comment
- Includes the Project Priority List ...



SRF - Green Infrastructure Projects Reserve?

- Green Projects include:
 - Water efficiency, including meters
 - Energy efficiency
- Congress decides from year to year whether to include the Green Project Reserve as a requirement



SRF - Disadvantaged Communities?

- Some states offer additional incentives for low-income communities
- Eligibility criteria depends on the state



SRF - Additional subsidization may be provided as:

- Grants
- Principal forgiveness
- Negative interest rate loans



USDA – Rural Development



Rural Development - Addressing Rural Water and Waste Disposal Infrastructure Needs

- Rural areas rely on USDA, Rural Development's RUS to finance water and waste infrastructure improvements.
- Many programs to serve rural America
 - Water and Waste Disposal (WWD) Loans & Grants
 - Emergency Community Water Assistance Grants
 - Technical Assistance and Training Grants
 - Other programs



Slide provided by Benjamin Shuman, Senior Engineer
USDA, Rural Utilities Service



Rural Development - Applicant Eligibility

- Not for Profit Entities
- Native American Tribes
- Cities, Towns and rural areas under 10,000 population

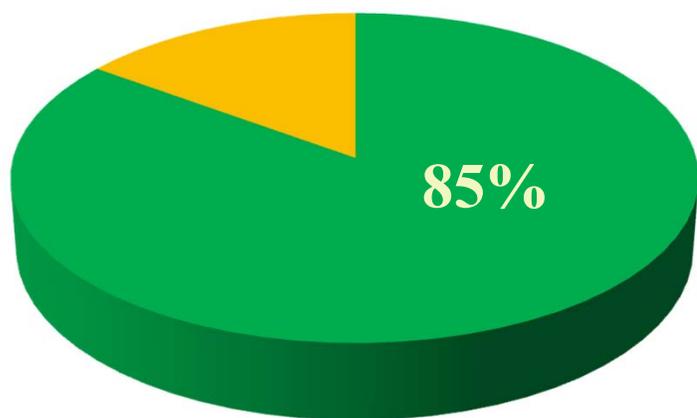
*Unable to obtain commercial credit
at reasonable rates and terms*

Slide provided by Benjamin Shuman, Senior Engineer
USDA, Rural Utilities Service

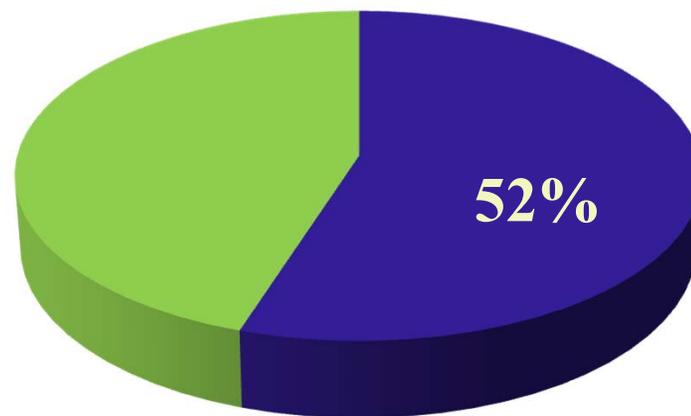


Rural Development - **Exclusively Rural Focus**

The majority of RUS projects funded serve populations well below 10,000.



5,000 or Fewer



1,500 or Fewer

Slide provided by Benjamin Shuman, Senior Engineer
USDA, Rural Utilities Service



Rural Development - Interest Rates (adjusted quarterly)

- For Current Rates, see <https://www.rd.usda.gov/files/UWP-InterestRates.pdf>
 - Poverty example: 2.000%
 - Intermediate example: 2.750%
 - Market example: 3.375%
- Terms: 40 years, state law, or useful life



Rural Development - Preliminary Engineering Reports

- Engineering analysis of need for the project, alternative solutions, and detailed description of the proposal
- Limited grant funds may be available to communities to assist in paying for PERs
 - Preliminary Planning Grants
 - SEARCH grants



Other Funding Programs – Federal and State

Navigate to Funding Tables

Step 1: efcnetwork.org

Step 2: Select “Funding Sources by State” under the Resources Tab



REQUIREMENTS RELATED TO FEDERAL FUNDING



Application Requirements

- Preliminary Engineering Report (PER)
- Environmental Report
- Financial and other documentation



Slide provided by Benjamin Shuman, Senior Engineer
USDA, Rural Utilities Service



Davis-Bacon Act Wage Rules

- Must use the most recent wage determination, found here:
 - <http://www.wdol.gov/dba.aspx>
- Select the appropriate state and county
- Select Construction Type “Heavy”
- Click “Search”
- Print the determination page and include it in project specifications and bid documents



American Iron and Steel Provision

- Requires iron and steel products in construction of projects be produced in the United States
- Waivers may be requested for an exception when necessary
- EPA Q&A document may be found here:
 - <https://www.epa.gov/cwsrf/american-iron-and-steel-requirement-guidance-and-questions-and-answers>
- EPA Training Material may be found here:
 - <https://www.epa.gov/cwsrf/american-iron-and-steel-requirement-training-materials>



Disadvantaged Business Enterprises (DBE)

- Typically Minority or Woman-Owned
- Must be given the opportunity to bid on any federally-funded project
- Assistance recipient must show a “good faith effort” to allow DBE’s to bid
- Not required to hire DBE



Reporting

- 3 major areas for federal programming
 - DBE
 - American Iron & Steel
 - Davis-Bacon



Project Signage

- Required for federally funded projects
- Options
 - Standard Signs
 - Posters or flyers hung in a public place
 - Newspaper or periodical advertisement
 - Online “sign” on community webpage or social media
 - Press release



TIPS ON HOW TO SCORE HIGHER ON YOUR FUNDING APPLICATION



Capacity Assessment

- Example from Utah: Worksheets for Public Water Systems
- Online at:

<http://www.deq.utah.gov/forms/water/dw/docs/2014/03Mar/pdf/e-capassworksheet.pdf>

The Technical Portion of your System

Please mark () the appropriate box: *Yes, No, or Unknown* for each section. Please try to determine the answer to every question. *If a section or question does not apply to your system, please write NA for not applicable.*

Water Supply and Existing Demands	Yes	No	Unknown
Do you know how much water you pump on an average day ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amount <input type="text"/>			
Do you know how much water you pump on a peak day ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amount <input type="text"/>			
Have you been able to provide adequate volumes of water during drought cycles ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you have an Emergency Response Plan that will allow you to meet system demand during a drought or shortage, such as the loss of the largest source ? <i>If Yes, please attach.</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do you have a contract to purchase water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If yes, with who ? <input type="text"/>			
Do you know the terms affecting your supply during drought conditions ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sytem Maintenance			
Are locations, size, and type of mains and service lines detailed on records ?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



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>





Quick Review of Key Financial Indicators

Operating Ratio

Current Ratio

Debt Service
Coverage Ratio

Days of Cash
on Hand

Asset Depreciation



Is your system self-sufficient?



Operating Ratio

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/>



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



Debt Service Coverage Ratio

OPERATING REVENUES - OPERATING EXPENSES
(EXCLUDING DEPRECIATION)

PRINCIPAL + INTEREST PAYMENTS
ON LONG TERM DEBT

GREATER THAN 1.25

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



Can your system meet its short term obligations?



Current Ratio

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



CURRENT LIABILITIES

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



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



Days Cash on Hand

UNRESTRICTED CASH AND INVESTMENTS

**OPERATING EXPENSES EXCLUDING
DEPRECIATION & AMORTIZATION / 365**

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



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



Asset Depreciation

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

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



Where Do We Get Started?

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

BAVARIA	
STATEMENT OF NET ASSETS	
PROPRIETARY FUND	
JUNE 30, 2011	
	Water and Sewer Enterprise Fund
Assets	
Current Assets:	
Cash - operating	\$ 568,001
Accounts Receivable (Net)	60,346
Prepaid Insurance	5,856
Total Current Assets	640,203
Noncurrent Assets:	
Restricted cash	177,208
Capital assets	
Land	209,556
Buildings	22,982
Improvements other than buildings	5,873,769
Machinery and equipment	896,073
Construction in progress	1,454,079
Less: Accumulated depreciation	(2,887,225)
Deferred Charge	39,833
Total noncurrent assets	5,781,215
Total Assets	6,421,418
Liabilities	
Current Liabilities:	
Accounts Payable	21,090
Accrued Expenses	2,767
Due to Other Funds	8,176
Customer Deposits	62,625
Deferred Subsidy Revenue	460,505
Current Portion of Long Term Debt	343,811
Total Current Liabilities	899,474
Noncurrent Liabilities:	
Compensated Absences	15,605
Revenue Bonds (Net of current portion)	233,357
Notes Payable (Net of current portion)	646,823
Total Noncurrent Liabilities	895,825
Total Liabilities	1,795,299
Fund Net assets	
Invested in capital assets, net of related debt	4,355,133
Restricted for debt service	114,583
Unrestricted	163,261
Total fund net assets	\$ 4,632,977



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
efc@unc.edu

Smart Management for 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 Agency.
http://efcnetwork.org

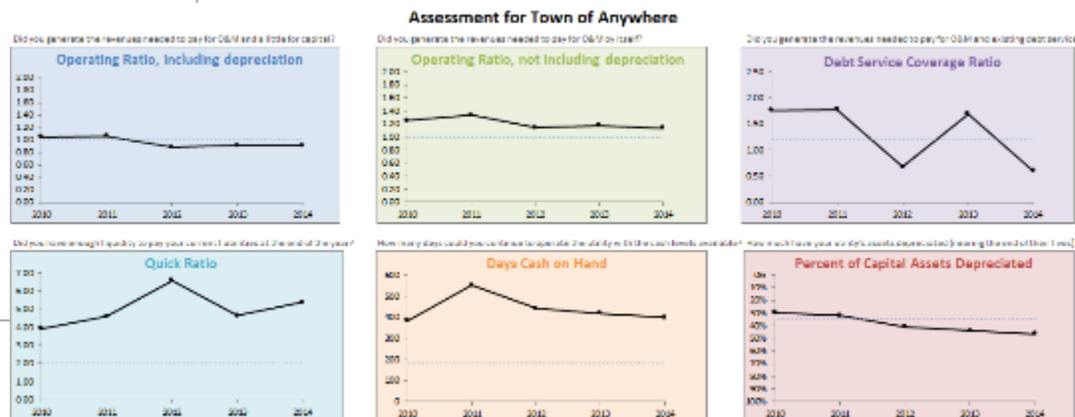
What does this tool do?
This tool assists in the assessment of the financial performance of a water (and/or wastewater) utility fund. Financial data readily available in annual financial statements are copied into the tool, which compares key financial indicators that measure a variety of important metrics, 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)
8 financial performance indicators with explanations
Set your own targets
Assessment of last year's financial ratios (improvement since previous year) and five-year trends
Guided navigation through hyperlinked images

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

FINANCIAL BENCHMARKING [Play button]

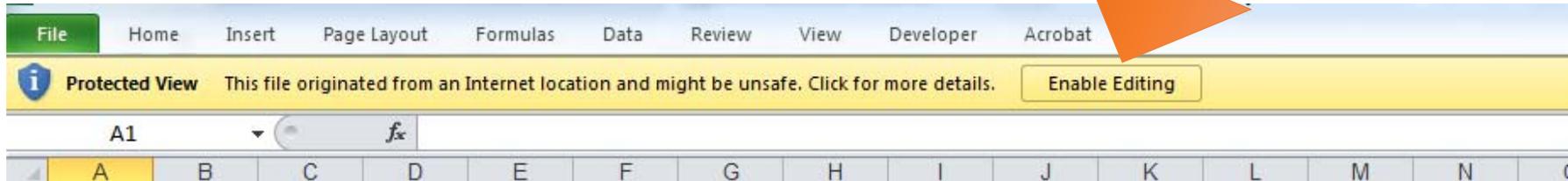
Excel®- based tool
Free to use



Created by the Environmental Finance Center at the University of North Carolina, Chapel Hill's School of Government
A resource for water systems from the EFCN's Smart Management for Small Water Systems project
funded under a cooperative agreement with the U.S. E.P.A.



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





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



So....

- Now that we know where we are, let's decide where we are going...
- How do we estimate the future costs and revenues?



Two Related Concepts:

Asset Management
&
Capital Planning



Working **smarter** *not harder* is the essence of Effective Management / Asset Management



Asset Management Helps
You Have the Most Impact
in Your System By
Spending Your Limited
Dollars in the Best Way
Possible



Five Core Components of AM



Current State of the Assets



Level of Service



Criticality



Life Cycle Costing



Long-Term Funding



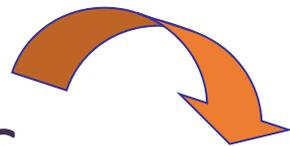
Current State of the Assets

- What do I own?
- Where are the assets?
- What condition are they in?
- How much useful life is remaining?
- What is the replacement value?



Level of Service

Involve
Customers



Measurable
Goals: Internal
and External



Track Progress
Towards
Meeting Goals

Involve
Staff



What would my customers want?

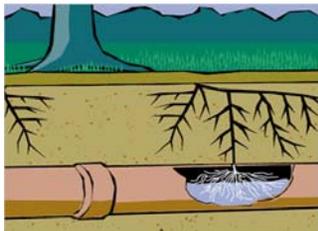


Asset Criticality

What is the probability or likelihood that a given asset will fail?

How do my assets fail?

What's the condition of my assets?





Asset Criticality

What is the consequence if the asset does fail?

What is the cost of the repair?

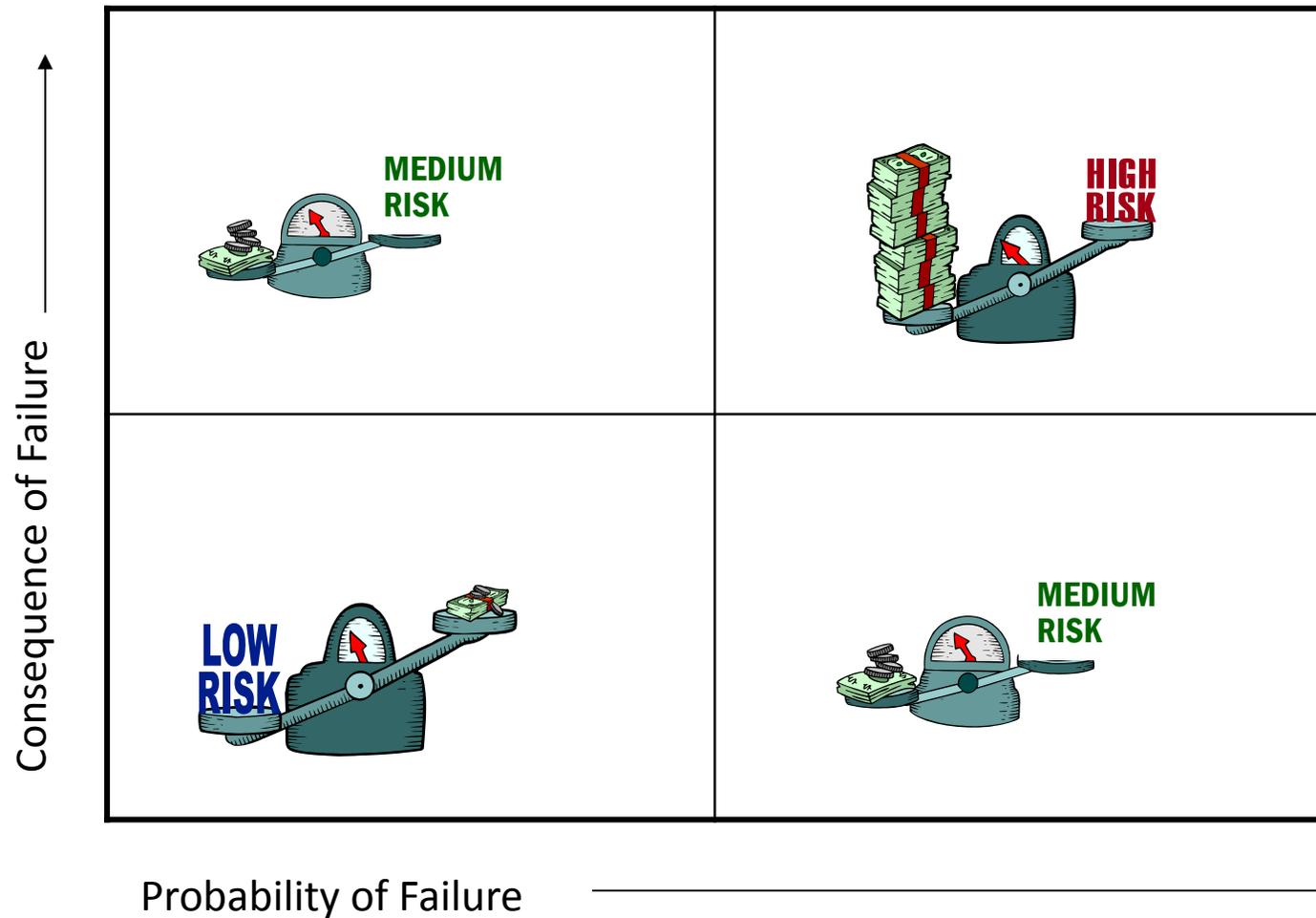
Are there legal consequences, environmental consequences, social consequences?

Are there redundant assets?



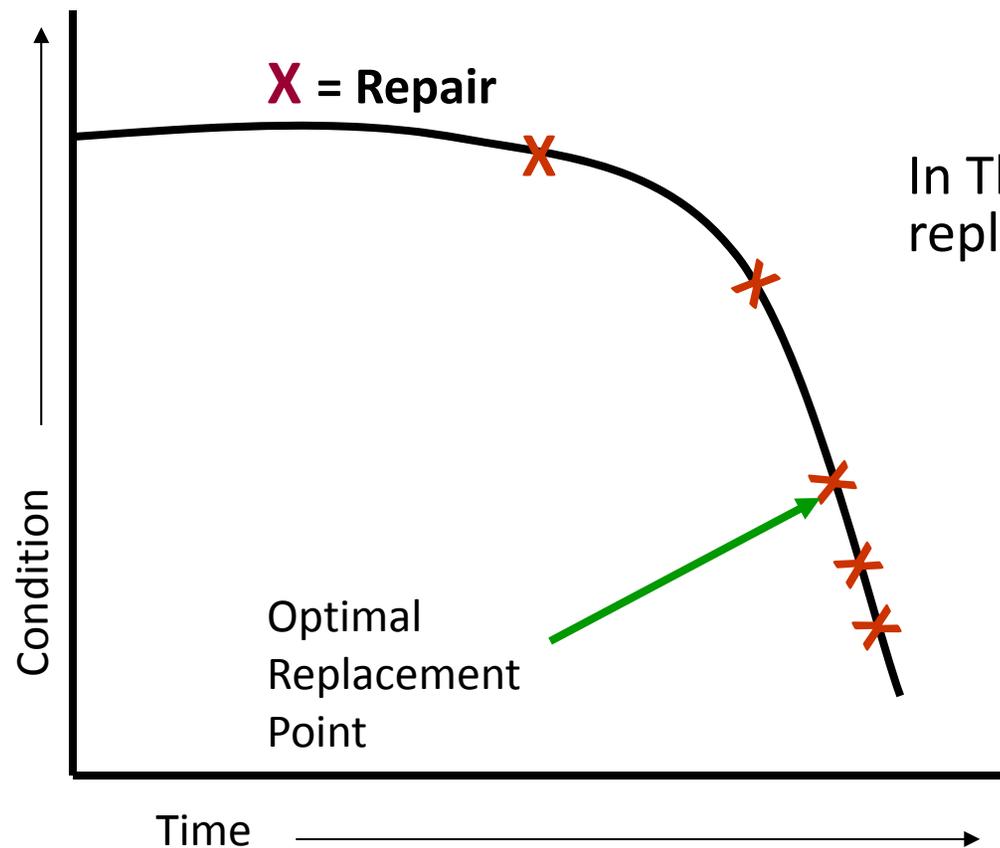


Asset Criticality



Which category of assets do I care the most about? The least?

Life Cycle Costing: Replacement of Assets



In Theory, there is an exact right time to replace an asset

Not possible to know the optimal time to replace every asset

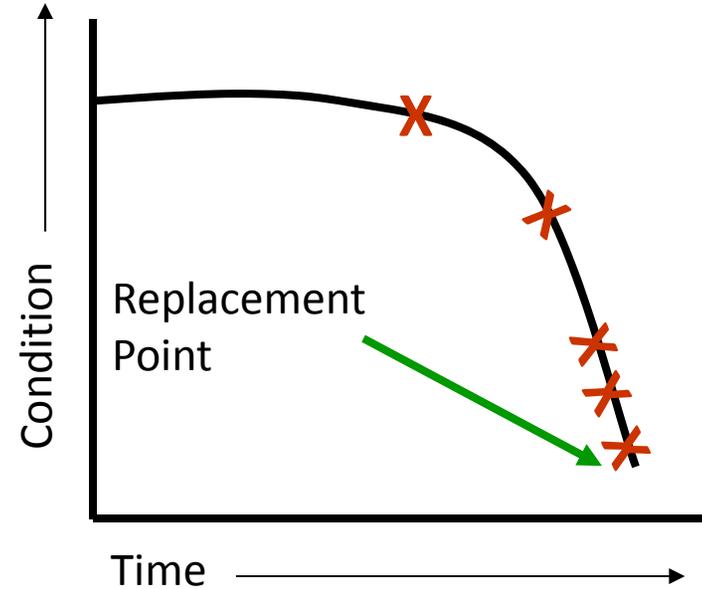
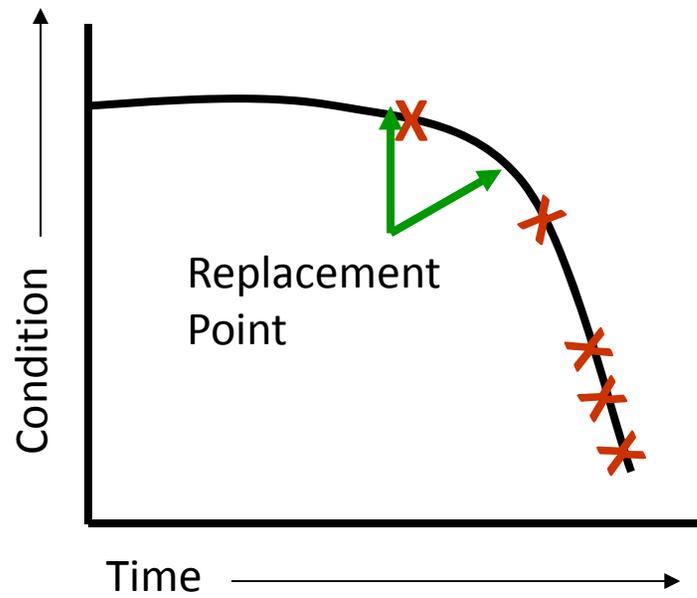
So... need to use the concept of risk



Life Cycle Costing & Risk

High risk : replace assets early,
before failure

Low risk assets: run to failure and
replace afterwards





Long Term Funding

- This is where capital planning comes in
- Once you figure out how to get the longest life out of your assets, plan to have the money you need to replace them when necessary
- More on this Asset Management Framework at:
<https://www.env.nm.gov/dwb/assistance/documents/AssetManagementGuide.pdf>



Long Term Capital Plan

- An official multi-year document that identifies and prioritizes capital projects, identifies funding sources, and sets timelines



Capital Improvement Program

- Identify regulatory deficiencies (discuss with regulatory agencies, look at proposed regulations, talk to consultants), in a 10-20 year window
- Identify growth needs, expansion



Capital Improvement Program

- Identify deferred maintenance problems or where current service is inadequate
- Prioritize based on need realizing that “hidden” infrastructure tends to be ignored



Capital Improvement Program - Timelines

- Use **Asset Management Plan** to plan for capital expenses in the long term (~20 years)



Capital Improvement Program - Timelines

- Create a **Capital Improvement Plan** with a narrower timeline (~5 years) in more detail. Specify the projects and accurate estimates of cost. Plan where money will come from.



Capital Improvement Program - Timelines

- Create a **Capital Improvement Budget** with an even narrower timeline (1 – 2 years) committing funds for the planned capital projects. Get it approved/adopted.



Example Capital Improvement Plan (CIP)

Project Name	Planning Years (Values in 000s)					Future	Total
	FY 02	FY 03	FY 04	FY 05	FY 06		
Water Supply & Treatment							
Water Treatment Objective							
Lime pumps and slakers	740						740
Chemical Enclosures		500					500
Filter 7-18 Control			330				330
Filter Gallery Rehab	1,140						1,140
High Service Pumps		1,500					1,500
Upgrade or Replace Reclaim System Drier	200						200
New Membrane Skids				5,700			5,700
Sodium Hypochlorite Plant	2,000						2,000
Additional Storage Tanks					5,000	3,300	8,300
Repair R/O Capacity		150					150
Filter Gallery Mech Parts	300						300
MMIS						150	150
VFDs - HSP		344					344
Membrane Replacement		1,600					1,600
Painting of Water Plant						3,000	3,000
Phase II Emergency Power Generator						1,500	1,500
Portable Generator - South Well Field				150			150
Replacement of Fuel Tanks			170				170
Upgrade of Existing Control System @ WTP						580	580
							81
Water Treatment Total	4,380	4,094	500	5,850	5,000	8,530	28,354



Where Can You Find the Prices?

- Call a vendor. Actually, call a few.
- Ask other systems
- Look at past expenses but adjust for increases in costs

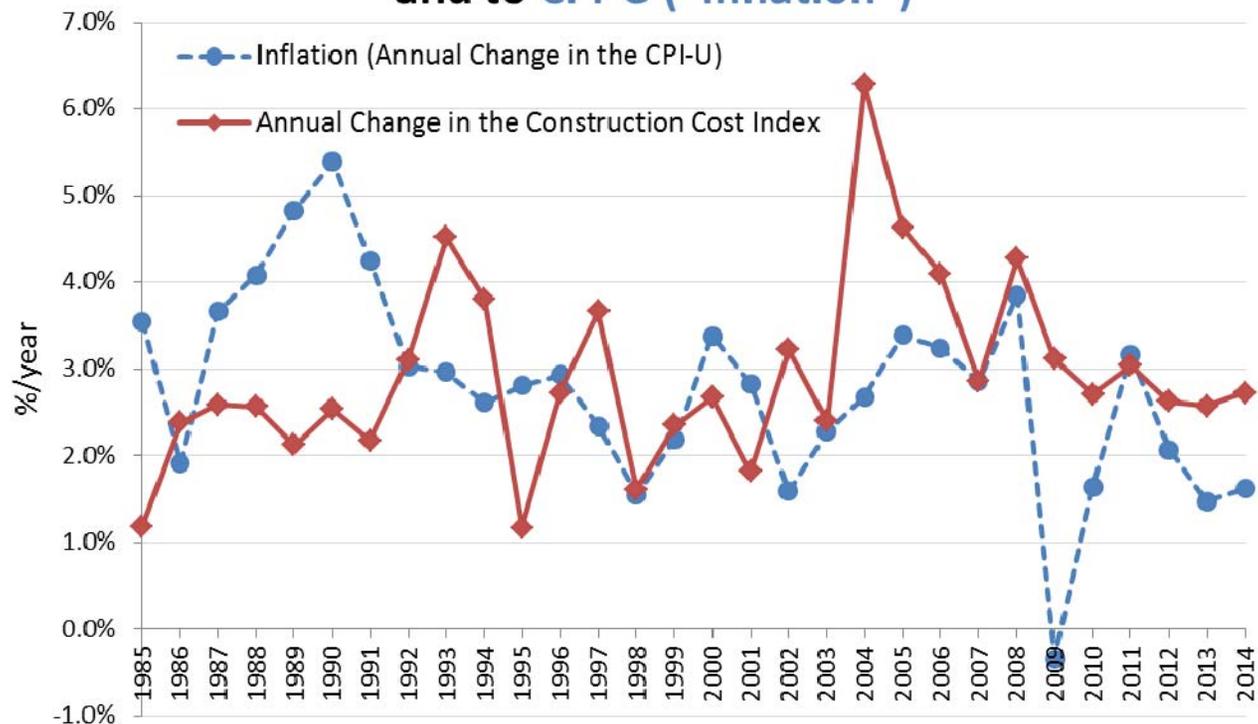


Measures of Inflation

- **Consumer Price Index (CPI)**—measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services
- **Construction Cost Index (CCI)**—average prices for labor and key construction materials from 20 cities across the United States



Annual Changes to the **Construction Cost Index** and to **CPI-U ("Inflation")**



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Data Sources: Bureau of Labor Statistics, Engineering News-Record ENR.com, InflationData.com, USDA Natural Resources Conservation Services.

<http://efc.web.unc.edu/2012/09/26/using-an-index-to-help-project-capital-costs-into-the-future/>



Drive Down the CIP Cost

- Is it possible to
 - Eliminate projects?
 - Defer projects?
 - Repair or refurbish instead of replace?
 - Find a non-asset solution?
 - Find collaboration/partnerships alternatives with neighboring systems?
 - Improve balance of cash vs. debt-financed?
- Re-evaluate water demands of your customers. Many systems are now noticing that *total* demand is *decreasing* over time.

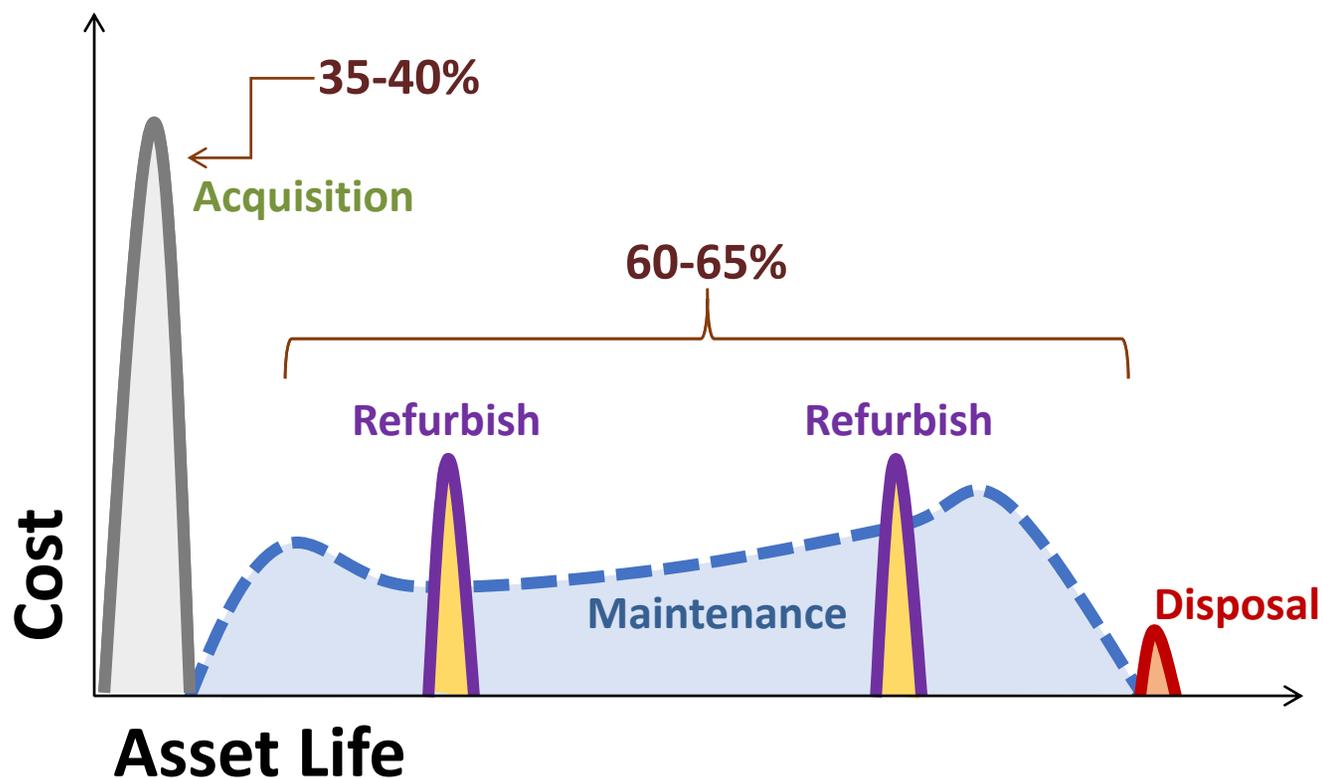


Reminder: Life Cycle Costing

- Purchase Price \neq Total Price



Capital Investments are Just the Tip of the Iceberg...



Source: Adapted from Steve Allbee, USEPA

Software: CUPSS (EPA)



<http://www.epa.gov/cupss/>

Check Up Program for Small Systems
Set-up | Switch Utility | Create User | Help | Training | Exit

My Home
 My Inventory
 My O & M
 My Finances
 My Check up
 My CUPSS Plan

Welcome Back Helen, Beauty View Acres Subdivision - DW

What would you like to do today?

[Do Some Training](#)

[Enter a New Task or Work Order](#)

[Create or Update My Schematic](#)

[Search Asset and Maintenance](#)

[Create or Update My Inventory](#)

[Enter My Finances](#)

[Print My Check Up Reports](#)

[Work on My CUPSS Plan](#)

My Calendar

April 2008

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	1	2	3
4	5	6	7	8	9	10

My Messages and Alerts

Popup Messages Are Off. Click To Turn On.

Reminder - Today's Tasks	8
Tasks Currently Past Due	160
Assets Needing Update	0
Number of High Risk Assets	2

Resource Webpage for Capital Planning

Mission Statement

We work to enhance the ability of governments and other organizations to provide environmental programs and services in fair, effective and financially sustainable ways.

Project Tools

User-friendly Capital Improvement Plan (CIP) Tool for Water & Wastewater Utilities

Calculator, 03/20/2014 (MS Excel, 802 Kb)

Enter in all capital projects and this tool will project your fund balance (revenues, expenses and reserves), and necessary rate increases for the next 20 years, and more!

What to Include in your Capital Plan:

PROJECT CAPITAL PLANNING AND WASTEWATER



This project, p... Support project... Department of... together many... water and wast... creation of a C... Management P...

Blog Post on "Using an Index to Future"

Read a short blog post on creating an...

Summary of "What to Include in Your Capital Plan: A Reference Guide for NC Water and Wastewater Utilities"

Last updated: February 2011

Categories	EPIC - Asset Management: A Handbook for Rural Water Utilities	2010 Year 2000 Project - Capital Budgeting and Financial Analysis	DUW (PWS) Capacity Development Program	DUW (PWS) Loans and Grants	W&W 2004-2008	W&W Loans and Grants	NC Water Economic Development Center	Local Government Commission (LGC) Form	EPA Drinking Water Needs Survey	DUW Draft Local Water Supply Plan	EPA Software: CUPW
Goal statement/introduction to your capital plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Date of documentation of capital plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Capital planning time period	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Description of systems	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Existing capacity and demand	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Description of customers	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Inventory of existing assets (details on each asset)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Condition of systems	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Project-specific details (complete for each project in every year)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Financial planning (complete for each year in time period)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Long term planning descriptions (may be not project-specific)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Approvals	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Updating the capital plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ties or links to other studies	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

For updates and to view details in each category, go to <http://www.efc.unc.edu/projects/capitalplanning.html>

Created by the Environmental Finance Center at the UNC School of Government

User-Friendly Capital Improvement Plan (C.I.P.) for Water & Wastewater Utilities Tool

Free, simplified CIP tool using only MS Excel, developed by the Environmental Finance Center at UNC.

User-friendly Capital Improvement Plan (CIP) for Water and Wastewater Utilities
Version 2.5 (Updated March 2014)

20-year capital planning | Debt and/or capital reserve financing options | Guided data inputs | Simple data needs
Financial dashboard outputs | Estimates necessary rate increases over time to pay for capital projects

INSTRUCTIONS

- 1) Use tabs at bottom of screen and buttons to navigate to different pages.
- 2) In "Data Input 1", enter utility characteristics, rates and usage information in blue cells.
- 3) In "Data Input 2", enter details on capital improvement projects in the light blue cells. Each row is a different project.
- 4) In "20-Year Projections", view your fund balance projections for 20 years and observe the estimated rate increases needed each year to pay for your Capital Improvement. No data entry required on this page.
- 5) After all your utility information and capital improvement project details are entered, go to the "Dashboard" to view long term trends in your financial reserves, rate increases and average bills, and capital investments.

20-Year Projections

	2014	2015	2016	2017	2018
Unencumbered Fund Balance	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Rate Changes	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Capital Expenditures	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Reserve Earnings from Previous Year's Positive Balance	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Reserve Losses from Previous Year's Negative Balance	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Unencumbered Fund Balance	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000

CAPITAL IMPROVEMENT PROJECTS - 20 YEAR

Project Name	Start Year	End Year	Estimated Cost	Estimated Revenue	Net Cost
Water Treatment Plant Upgrade	2015	2018	1,000,000	500,000	500,000
Wastewater Treatment Plant Upgrade	2016	2019	1,000,000	500,000	500,000
Water Distribution System Upgrade	2017	2020	1,000,000	500,000	500,000
Wastewater Distribution System Upgrade	2018	2021	1,000,000	500,000	500,000

Download the latest version at <http://efc.sog.unc.edu>. Find it in Resources / Tools.

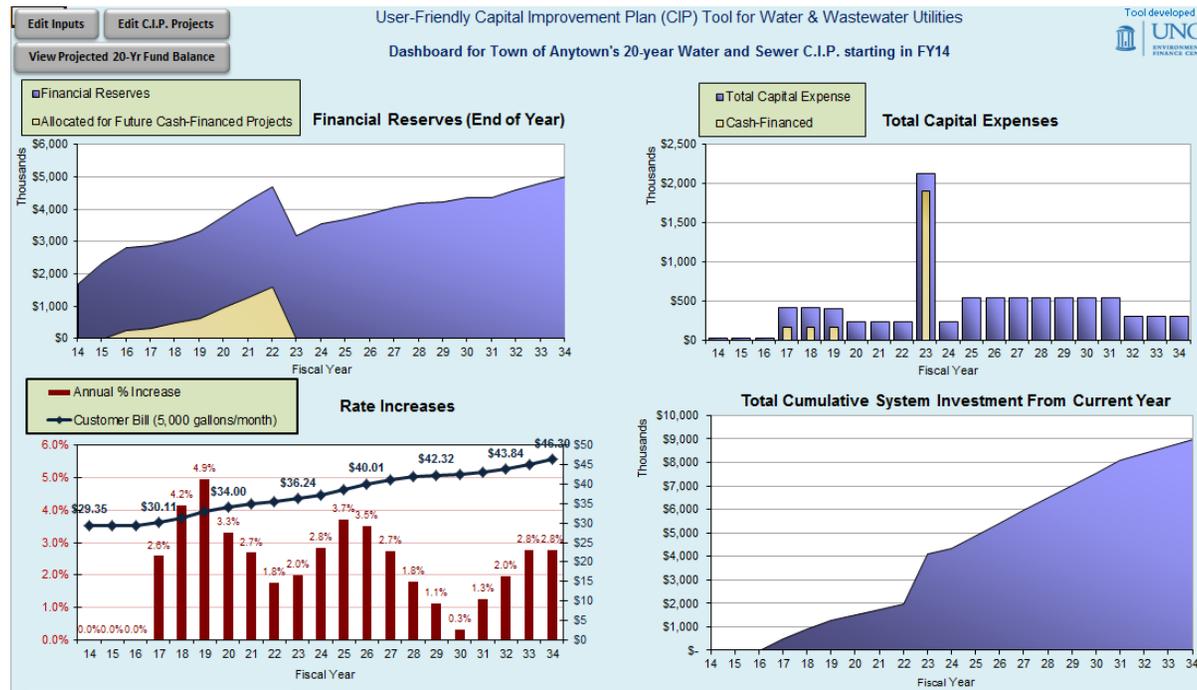
Tool development was funded by the Public Water Supply Section of DWR/ NCDENR and partly by the USEPA.





What the Tool Does

Summarizes your utility's capital needs in the next 20 years, and estimates rate increases needed to fully fund the capital projects, based on debt and/or cash funding requirements





Rate setting

Will it provide sufficient cost recovery?

What exactly does this include?

Are we following the applicable laws?

Will revenues be resilient to changing water demands?

Are we allocating the costs to the right customers?

Do these rates send the right signals to our customers, based on our objectives?

Will our customers understand these rates?

Will our customers be able to pay these rates?



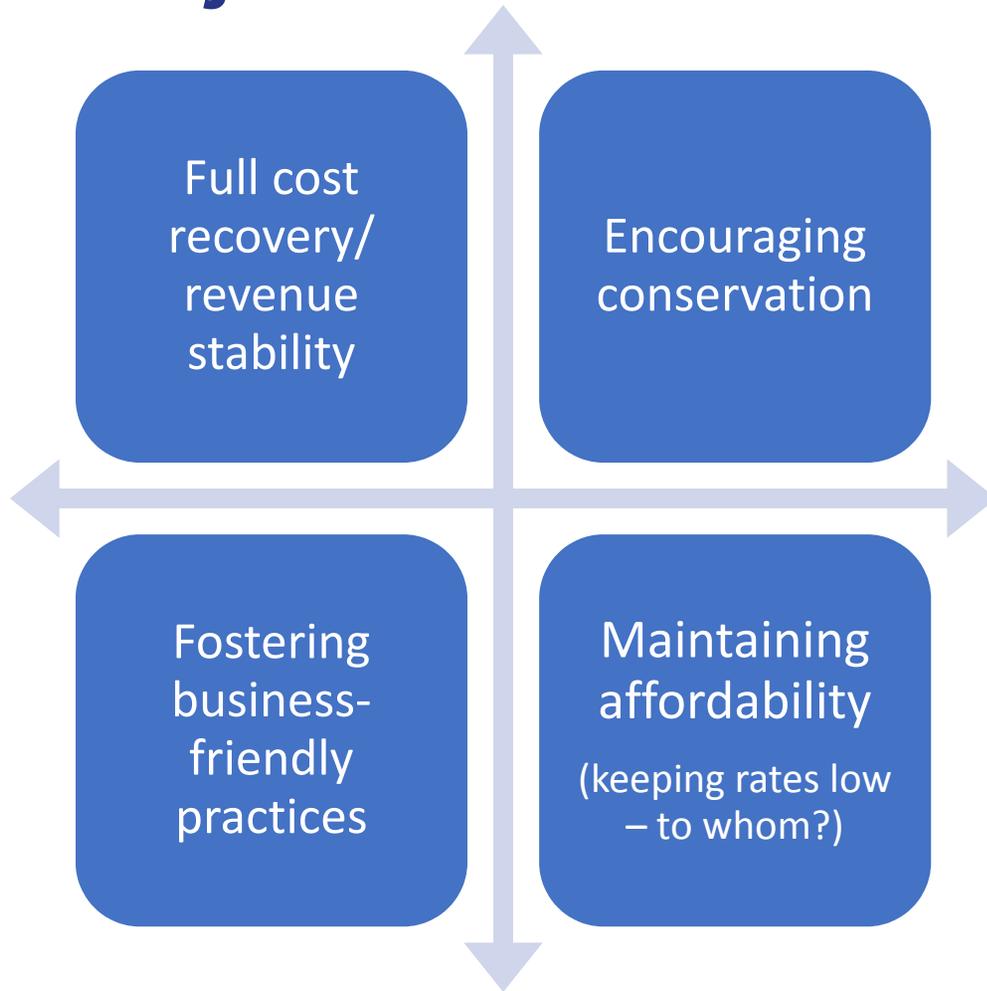


“Full Cost Pricing”

- Operations & maintenance expenditures
- Taxes and accounting costs
- Contingencies for emergencies
- Principal and interest on long-term debt
- Reserves for capital improvement
- Source water protection



Rank Your Rate Setting Objectives



1. _____
2. _____
3. _____
4. _____

Refer to this list and focus on the highest ranked objectives when following the guidelines for selecting the appropriate rate structure design.



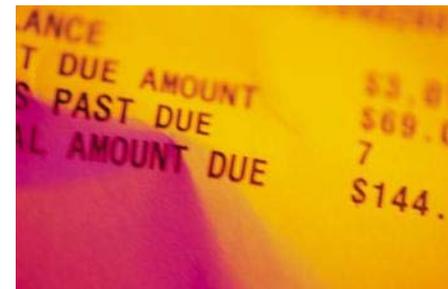
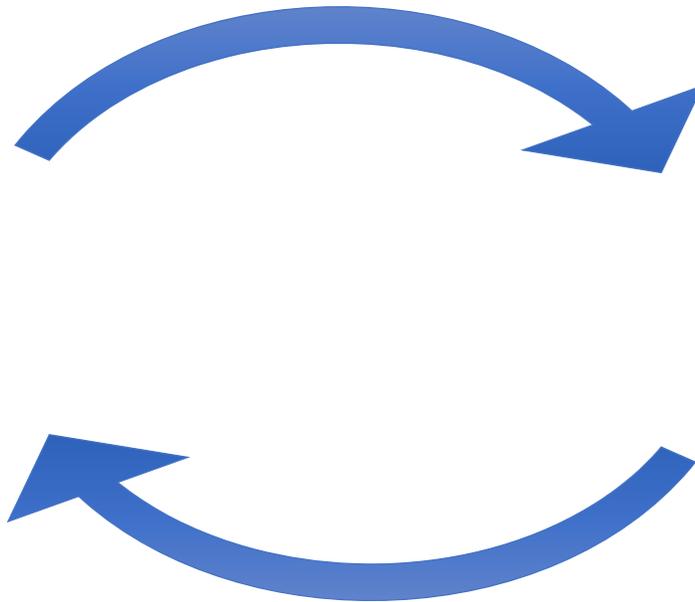
Elements of Rate Structure Designs

1. Customer classes/distinction
2. Billing period
3. Base charge
4. Consumption allowance included with base charge
5. Volumetric rate structure
6. (If applicable) Number of blocks, block sizes and rate differentials
7. (Optional) Drought Rates
8. Frequency of rate changes



How Rates and Usage Interact

Set rates based on projected water use



Raising rates lowers water use

Rule of thumb: water use declines ~2-6% as rates increase 10%



Frequency of Rate Changes

- Always review your rates annually (recommended)
- Review your financial health indicators annually, and then review your rates if any of the indicators reflect poor financing
- Perhaps less politically charged option: Raise rates each year automatically based on inflation



Water and Sewer Rates Analysis Model



Free, rate-setting tool compare using only MS Excel, developed by the Environmental Finance Center at UNC.



Water and Sewer Rates Analysis Model

Version 2.7 (updated March 24, 2014)

20-year fund balance estimates under proposed new rates vs. existing rates • compare side-by-side
Uniform or block rates • Residential and non-residential rates • Changes to customers and demands

INSTRUCTIONS

- 1) Click on tabs at bottom of screen to navigate to different pages.
- 2) On the "Data Input 1" tab enter current and new rate details in the dark green cells.
- 3) On the "Data Input 2" tab enter current consumption levels, utility finances, and other assumptions in the dark green cells.
- 4) On the "Charts" tab, see projections of the End of Year Fund Balance, and input a Fund Balance Policy in the dark green cell at the top of the page.
- 5) Compare new rates to existing rates in "Compare Monthly Bills" and their impacts on costs and revenues in "Existing Rates" or "New Rates".

Rate Structure				2012	
Residential Rates				Existing	2012
Water Base Rate				\$10.06	
Water:					
Block Rate 1 (\$1,000 gal)	2,000 gal/mo	2,000 gal/mo	\$1.00		
Block Rate 2 (\$1,000 gal)	2,361 gal/mo	3,000 gal/mo	\$2.00		
Block Rate 3 (\$1,000 gal)	5,361 gal/mo	7,000 gal/mo	\$3.00		
Block Rate 4 (\$1,000 gal)	7,361 gal/mo	12,000 gal/mo	\$4.00		
Final Block Rate (\$1,000 gal)	12,361 gal/mo		\$5.00		
Sewer Base Rate				\$10.06	
Sewer:					
Block Rate 1 (\$1,000 gal)	2,000 gal/mo	2,000 gal/mo	\$1.00		
Block Rate 2 (\$1,000 gal)	2,361 gal/mo	3,000 gal/mo	\$2.00		
Block Rate 3 (\$1,000 gal)	5,361 gal/mo	7,000 gal/mo	\$3.00		
Block Rate 4 (\$1,000 gal)	7,361 gal/mo	12,000 gal/mo	\$4.00		
Final Block Rate (\$1,000 gal)	12,361 gal/mo		\$5.00		

Rate Structure				2012	
Residential Rates				Existing	2012
Water Base Rate				\$10.06	
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Final Block Rate (\$1,000 gal)	12,361 gal/mo		\$5.00		
Sewer Base Rate				\$10.06	
Sewer:					
Block Rate 1 (\$1,000 gal)	2,000 gal/mo	2,000 gal/mo	\$1.00		
Block Rate 2 (\$1,000 gal)	2,361 gal/mo	3,000 gal/mo	\$2.00		
Block Rate 3 (\$1,000 gal)	5,361 gal/mo	7,000 gal/mo	\$3.00		
Block Rate 4 (\$1,000 gal)	7,361 gal/mo	12,000 gal/mo	\$4.00		
Final Block Rate (\$1,000 gal)	12,361 gal/mo		\$5.00		

Note: This tool models the impact on a utility's fund balance of a one time increase in rates, rather than an ongoing series of rate increases. Update this tool every year and do not rely on analysis conducted more than one year ago.

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Funded by the Public Water Supply Section, Division of Water Resources at the NC Department of Environment and Natural Resources, and the U.S. Environmental Protection Agency

[Download the latest version of this tool at http://efc.sog.unc.edu](http://efc.sog.unc.edu). Find it in Resources / Tools.

Provide feedback or ask questions by emailing Sheri Fisher at efc@efc.sog.unc.edu

Download the latest version at <http://efc.sog.unc.edu>. Find it in Resources / Tools.

Tool development was funded by the Public Water Supply Section of DWR/ NCDENR and partly by the USEPA.



<http://efc.sog.unc.edu/reslib/item/water-sewer-rates-analysis-model>

Data Input 1

Water and Sewer Rates Analysis Model, Version 2.0

Inputs: Rates and Rate Structures

Input current rate and account information in the dark green cells to analyze projected cashflows from rate changes.

Rate Structure FY: 2012 2013

Residential Rates	Existing	New
Water Base Rate	\$10.00	\$12.00
Water:		
Block Rate 1 (\$/1,000 gal)	\$1.00	\$1.25
Block Rate 2 (\$/1,000 gal)	\$2.00	\$2.25
Block Rate 3 (\$/1,000 gal)	\$3.00	\$3.25
Block Rate 4 (\$/1,000 gal)	\$4.00	\$4.25
Final Block Rate (\$/1,000 gal)	\$5.00	\$5.25
Sewer Base Rate	\$10.00	\$12.00
Sewer:		
Block Rate 1 (\$/1,000 gal)	\$1.00	\$1.25
Block Rate 2 (\$/1,000 gal)	\$2.00	\$2.25
Block Rate 3 (\$/1,000 gal)	\$3.00	\$3.25
Block Rate 4 (\$/1,000 gal)	\$4.00	\$4.25
Final Block Rate (\$/1,000 gal)	\$5.00	\$5.25

Rate Structure 2012 2013

Commercial Rates	Existing	New
Water Base Rate	\$10.00	\$12.00
Water:		
Block Rate 1 (\$/1,000 gal)	\$1.00	\$1.25
Block Rate 2 (\$/1,000 gal)	\$2.00	\$2.25
Block Rate 3 (\$/1,000 gal)	\$3.00	\$3.25
Block Rate 4 (\$/1,000 gal)	\$4.00	\$4.25
Final Block Rate (\$/1,000 gal)	\$5.00	\$5.25
Sewer Base Rate	\$10.00	\$12.00
Sewer:		
Block Rate 1 (\$/1,000 gal)	\$1.00	\$1.25
Block Rate 2 (\$/1,000 gal)	\$2.00	\$2.25
Block Rate 3 (\$/1,000 gal)	\$3.00	\$3.25
Block Rate 4 (\$/1,000 gal)	\$4.00	\$4.25
Final Block Rate (\$/1,000 gal)	\$5.00	\$5.25

Irrigation Rates 2012 2013

Irrigation Rates	Existing	New
Irrigation Base Rate	\$0.00	\$0.00
Irrigation:		
Block Rate 1 (\$/1,000 gal)	\$3.50	\$3.50
Block Rate 2 (\$/1,000 gal)		
Block Rate 3 (\$/1,000 gal)		
Block Rate 4 (\$/1,000 gal)		
Final Block Rate (\$/1,000 gal)		

Tap Fees 2012 2013

Tap Fees	Existing	New
Average Sewer Tap Fee	\$2,000.00	\$2,400.00
Average Water Tap Fee	\$500.00	\$600.00
Average Irrigation Tap Fee	\$2,200.00	\$2,500.00

Number of Accounts 2012 Growth Rate:

Account Type	2012	Growth Rate
Residential Water	3000	0.50%
Residential Sewer	2500	0.50%
Commercial Water	200	0.50%
Commercial Sewer	80	0.50%
Irrigation Water	3000	0.50%

Miscellaneous 2012

Miscellaneous	2012
Uncollected Bills	8.0%
Non-revenue Water	15.0%

Data Input Color Explanation:

- White: Data to be entered, can be changed
- Black: Automatically calculated data; do not change!
- Red: Important Results

cubic feet to gallons converter

100 cubic feet = 748 gallons

\$/ccf to \$/1000 gallons converter

\$ 1.00 /hundred cubic feet = \$1.34 /1,000 gallons

Input block sizes (state and end) in gallons/month
Input rates in \$/1000 gallons
Use the converters above for converting from cubic feet units

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Funded by the NC Department of Environment and Natural Resources and the U.S. Environmental Protection Agency



Water and Sewer Rates Analysis Model - Results

- Results are Excel Spreadsheet with:
 - The Fund Balance Under **Existing** Rates
 - The Fund Balance Under **Proposed** Rates

...Projected for the next 20 years

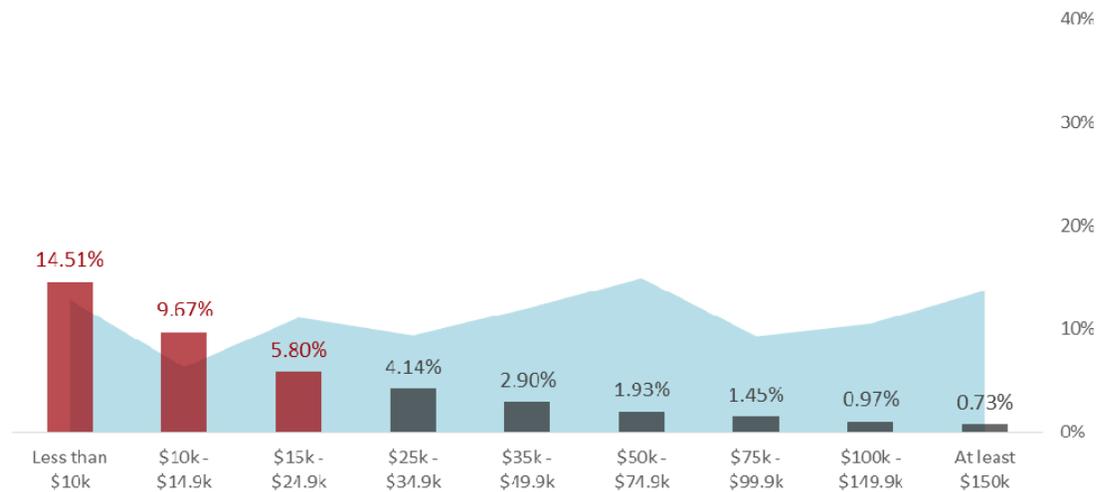


Affordability

Water and Wastewater Residential Rates Affordability Assessment Tool

Affordability of Water & Wastewater Rates in *Sample Community* Assessed at 5,000 Gallons/Month and 2015 Income Levels

Under CURRENT Rates





Affordability

The table below shows key socioeconomic indicators for *Atlanta*, with the state and national averages available for comparison. Values in red indicate that the indicator is “most stressed,” as compared to both the state and national average.

Example: Affordability for Low-Income Customers in *Atlanta*

	Atlanta City, Georgia in 2015	Georgia in 2014	United States in 2014
Median Household Income	\$47,527	\$49,342	\$53,482
% Unemployment	7.5%	6.7%	5.8%
% Not in the labor force	35.0%	36.7%	36.1%
% of all people with income below poverty	24.6%	18.5%	15.6%
% with Social Security income	22.4%	27.0%	29.3%
% with Supplemental Security income	5.9%	5.2%	5.3%
% with cash public assistance income	2.6%	1.9%	2.8%
% with Food Stamp/SNAP benefits	17.5%	15.2%	13.0%

To access the tool that generated this chart and table see

<http://www.efc.sog.unc.edu/reslib/item/water-wastewater-residential-rates-affordability-assessment-tool>



Polling Question 4

Would you like to subscribe to the
Environmental Finance Center blog?
(choose one)

- Yes
- No



Polling Question 5 and Evaluation Survey Link

Are you interested in receiving in-depth technical assistance for your small water system? (*choose one*)

- Yes
- No
- Would Like More Information About This



QUESTIONS



Thank You!

And please let us know if you have any questions.

Stacey Isaac Berahzer

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