



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.

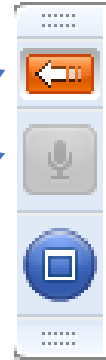
www.efcnetwork.org

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

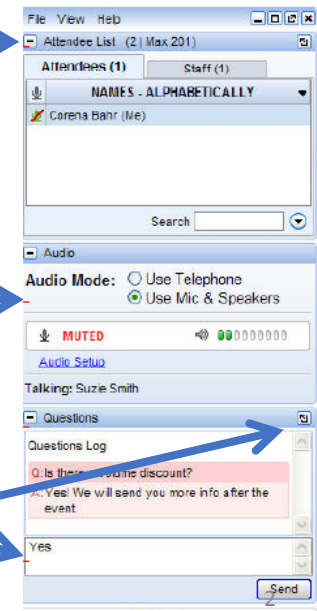


Control Panel:

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)



**SOUTHWEST
ENVIRONMENTAL
FINANCE CENTER**





Areas of Expertise

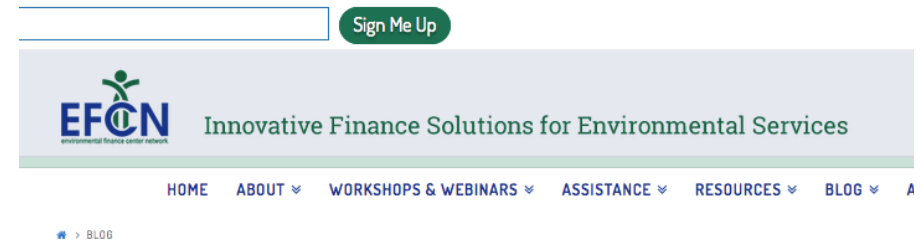
- Asset Management
- Energy Management Planning
- Rates and Finance
- Leadership Through Decision-making and Communication
- Managing Drought
- Water Loss Reduction
- Collaborating with Neighboring Communities
- Multi-funding
- Water Conservation
- Management and Finance Tools and Techniques
- Climate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



Blog



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. 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

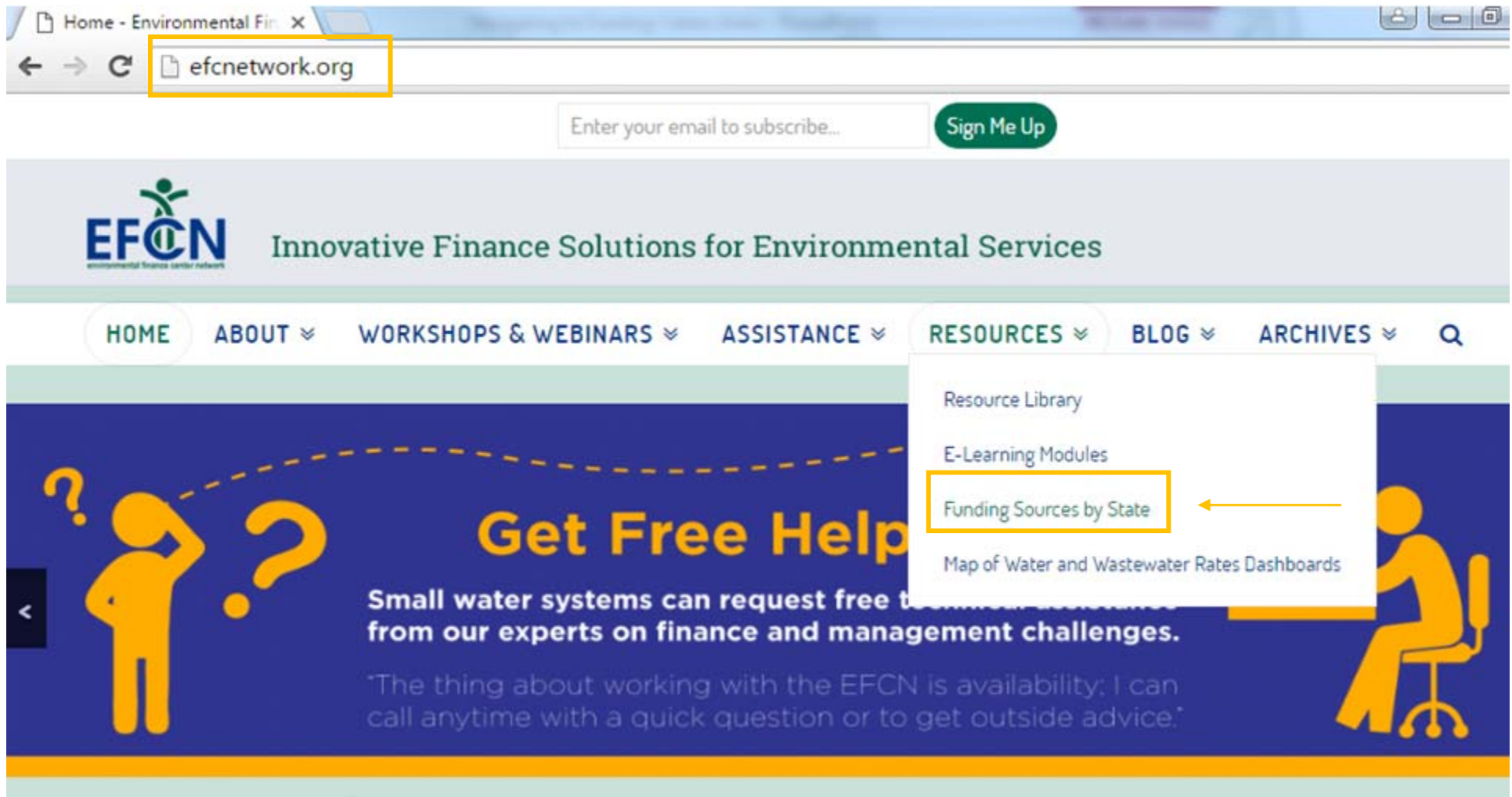
Written by: David Tucker David Tucker is a Project Director with the Environmental Finance Center at the University of North Carolina. pay for energy efficiency and renewable energy, helping cut utility costs? As energy is often the largest variable expense in a water sy...



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 i...

efcnetwork.org/small_systems_blog/



Navigating to Funding Tables

Step 1: efcnetwork.org

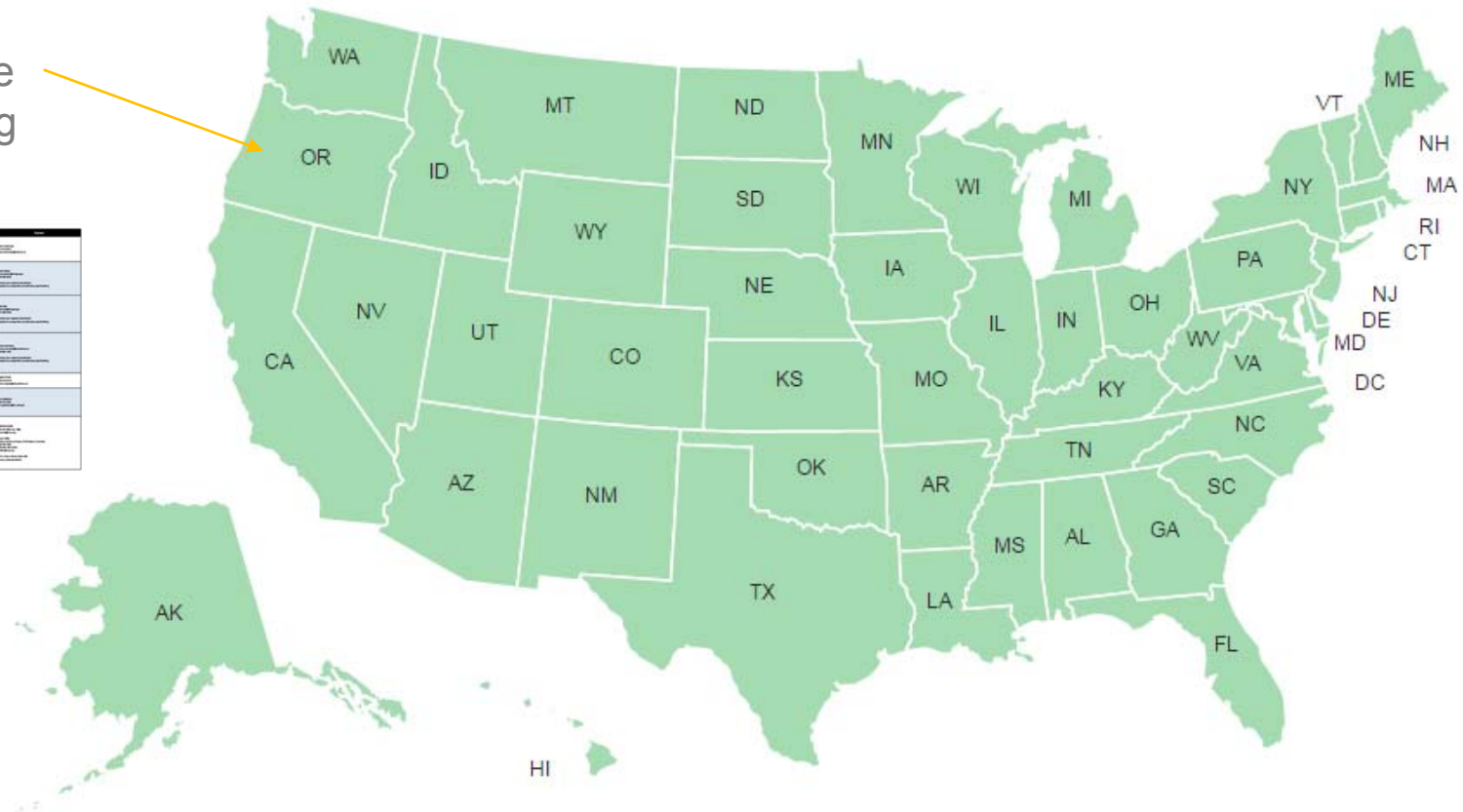
Step 2: Select "Funding Sources by State" under the Resources Tab

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.

[illegible]



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



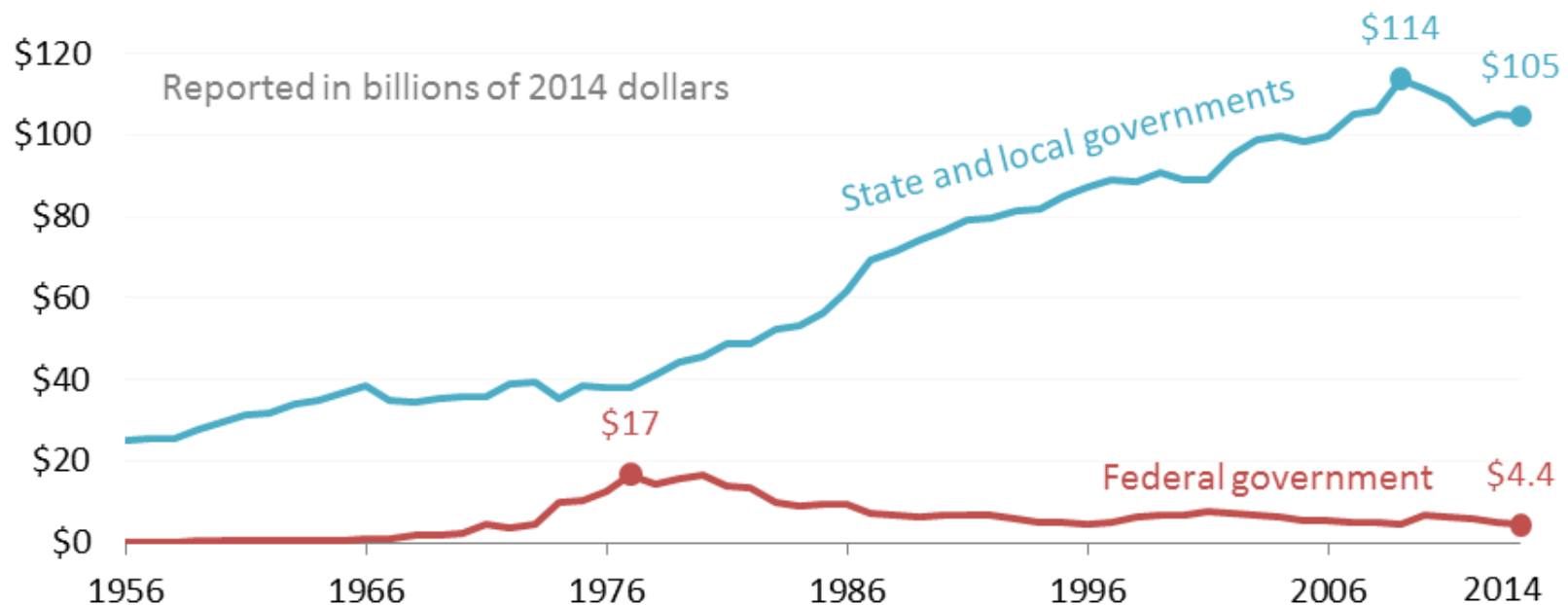
The Debt Market

- 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

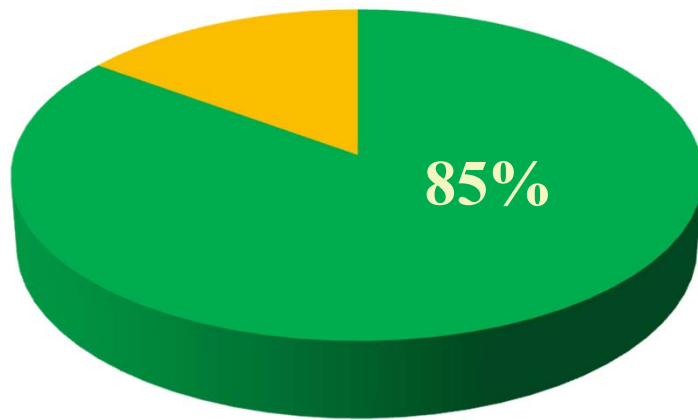
*Unable to obtain commercial credit
at reasonable rates and terms*

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

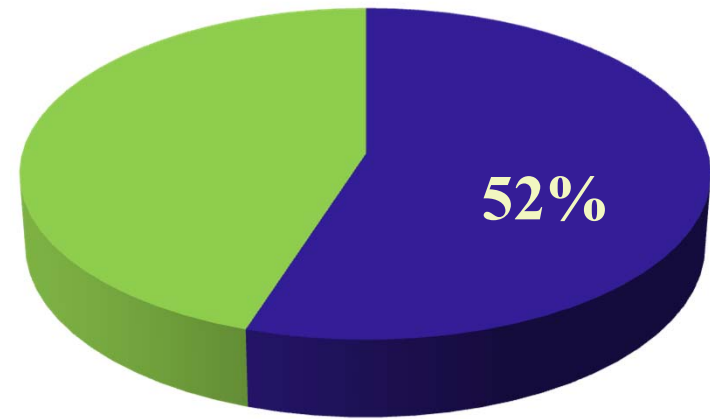


Rural Development - **Exclusively Rural Focus**

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



5,000 or Fewer



1,500 or Fewer



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



DEPRECIATION

ANNUAL COST OF WEAR
AND TEAR ON THE SYSTEM

Include or
Exclude

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



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	
Assets	Water and Sewer Enterprise Fund
Current Assets:	
Cash - operating	\$ 368,101
Accounts Receivable (Net)	60,346
Prepaid Insurance	5,856
Total Current Assets	434,293
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	(2,883,225)
Deferred Charge	39,833
Total noncurrent assets	5,781,215
Total Assets	6,215,508
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	899,974
Noncurrent Liabilities:	
Compensated Absences	15,695
Revenue Bonds (Net of current portion)	233,357
Notes Payable (Net of current portion)	646,873
Total Noncurrent Liabilities	895,925
Total Liabilities	1,795,899
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	\$ 4,633,077



Financial Health Checkup for Water Utilities

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

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

Financial Health Checkup for Water Utilities

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

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>

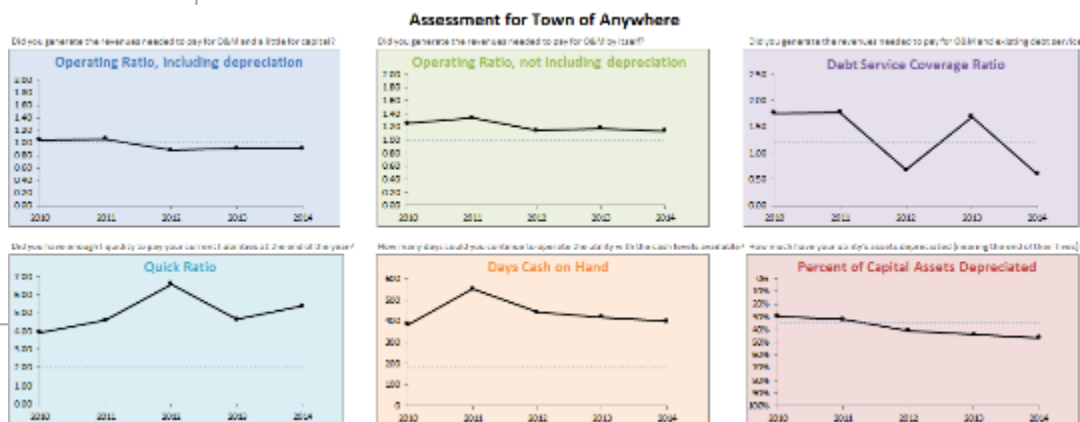
What does this tool do?
This tool assists in the assessment of the financial performance of a water (and/or wastewater) utility fund. Financial data readily available in annual financial statements are copied into this tool, which computes key financial indicators that measure a variety of important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

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

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

FINANCIAL BENCHMARKING [Play button]

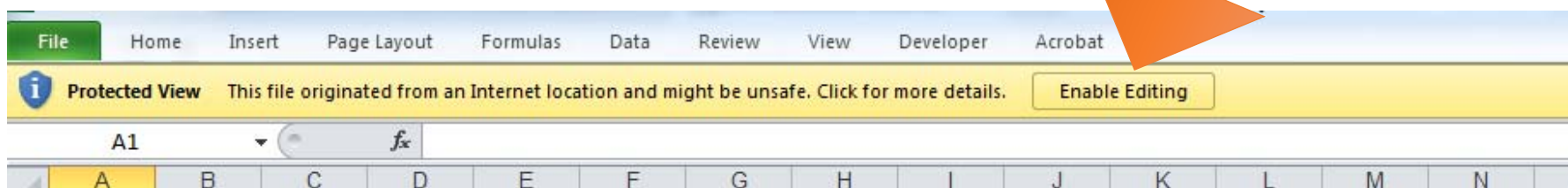
Excel®- based tool
Free to use



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



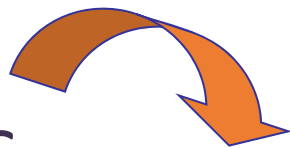
Current State of the Assets

- 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?

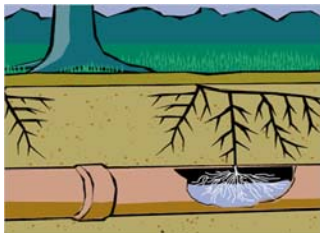


Asset Criticality

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?

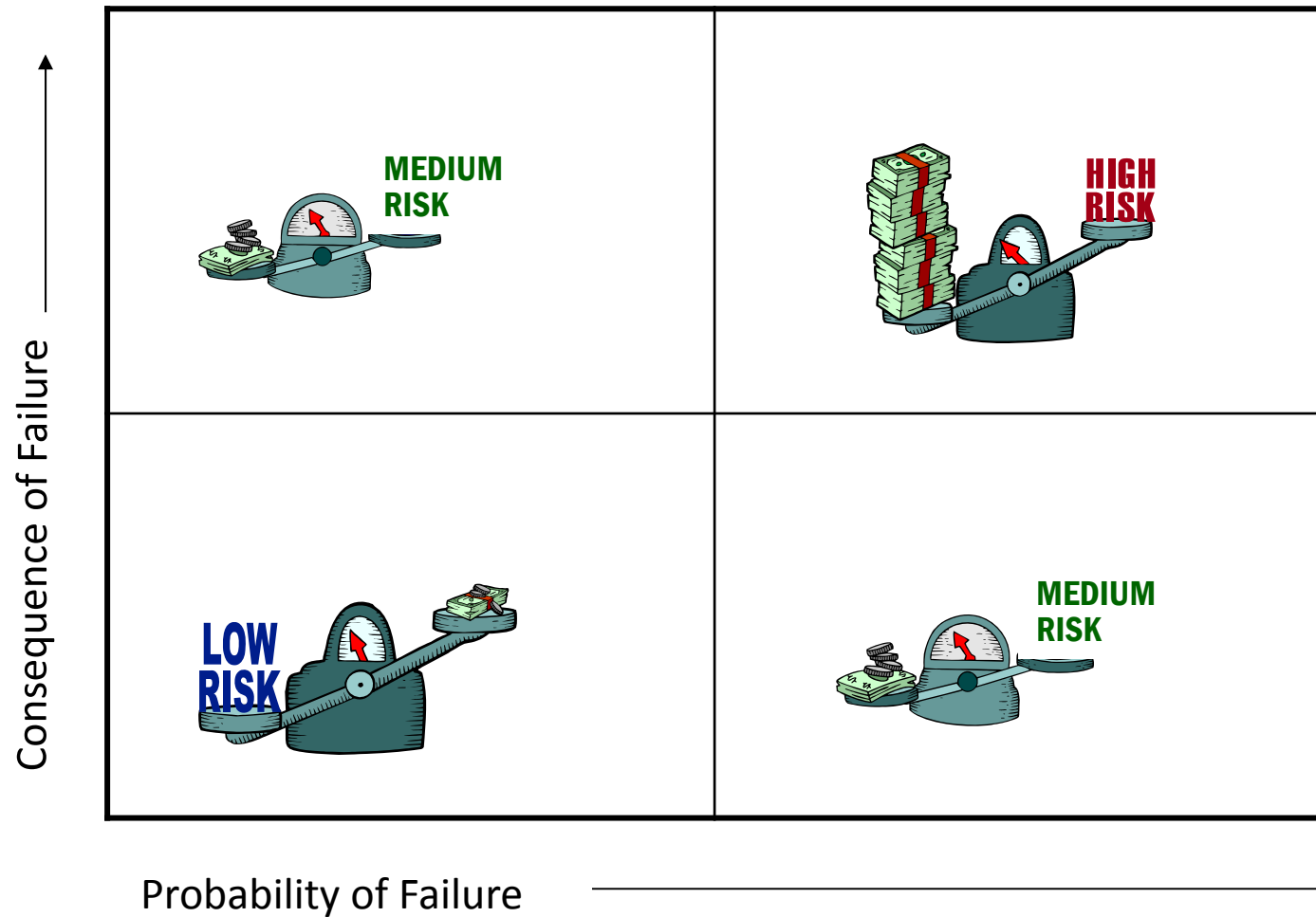
Are there legal consequences,
environmental consequences,
social consequences?

Are there redundant assets?



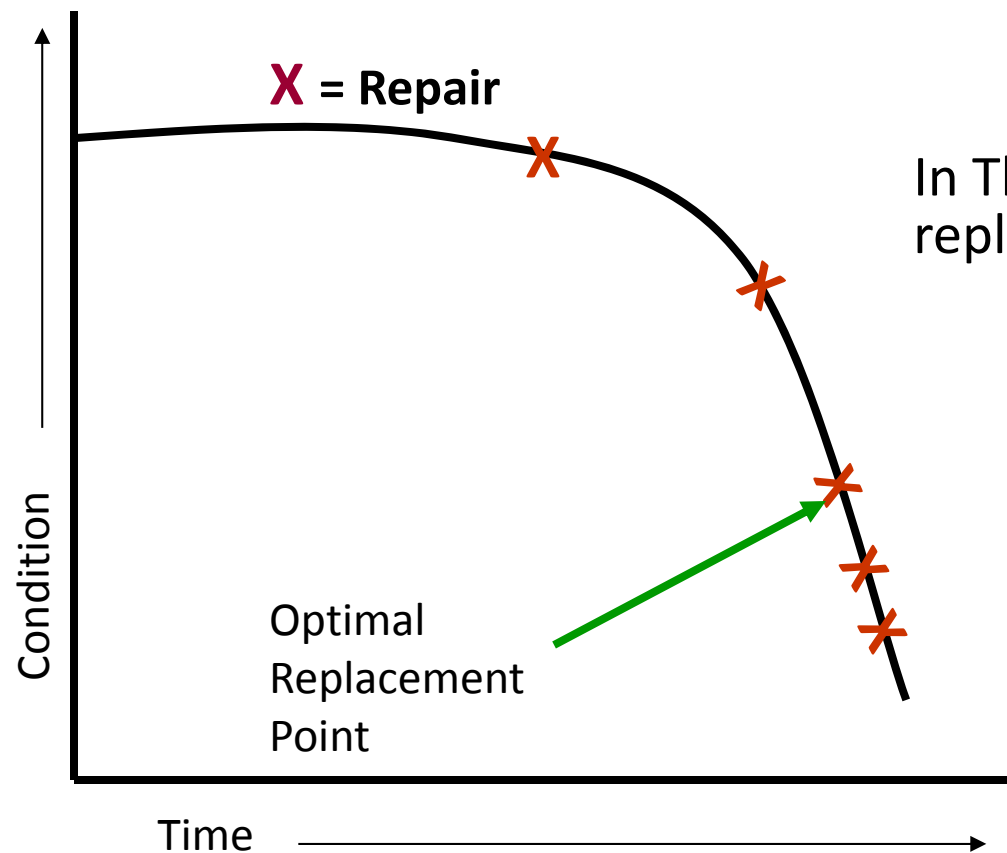


Asset Criticality



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

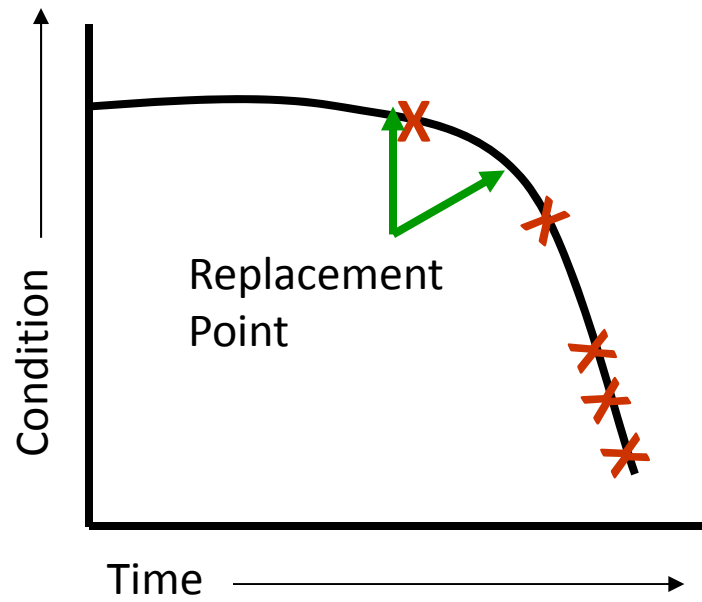
Not possible to know the optimal time to replace every asset

So... need to use the concept of risk

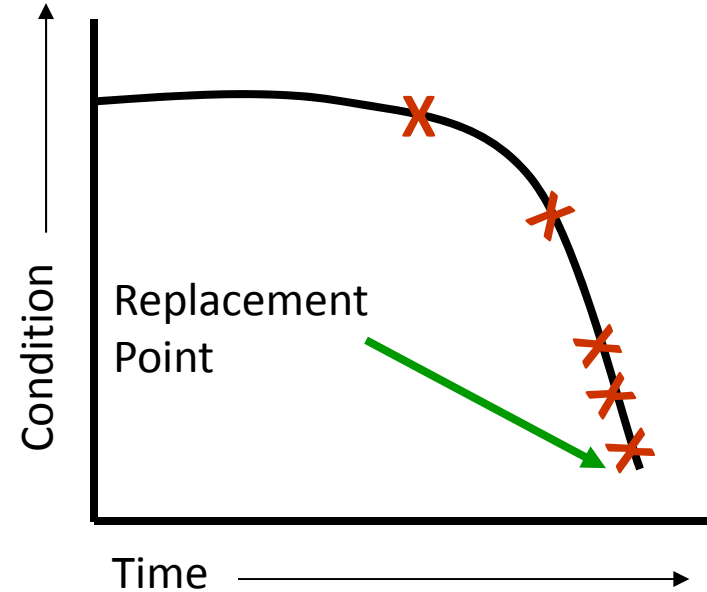


Life Cycle Costing & Risk

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

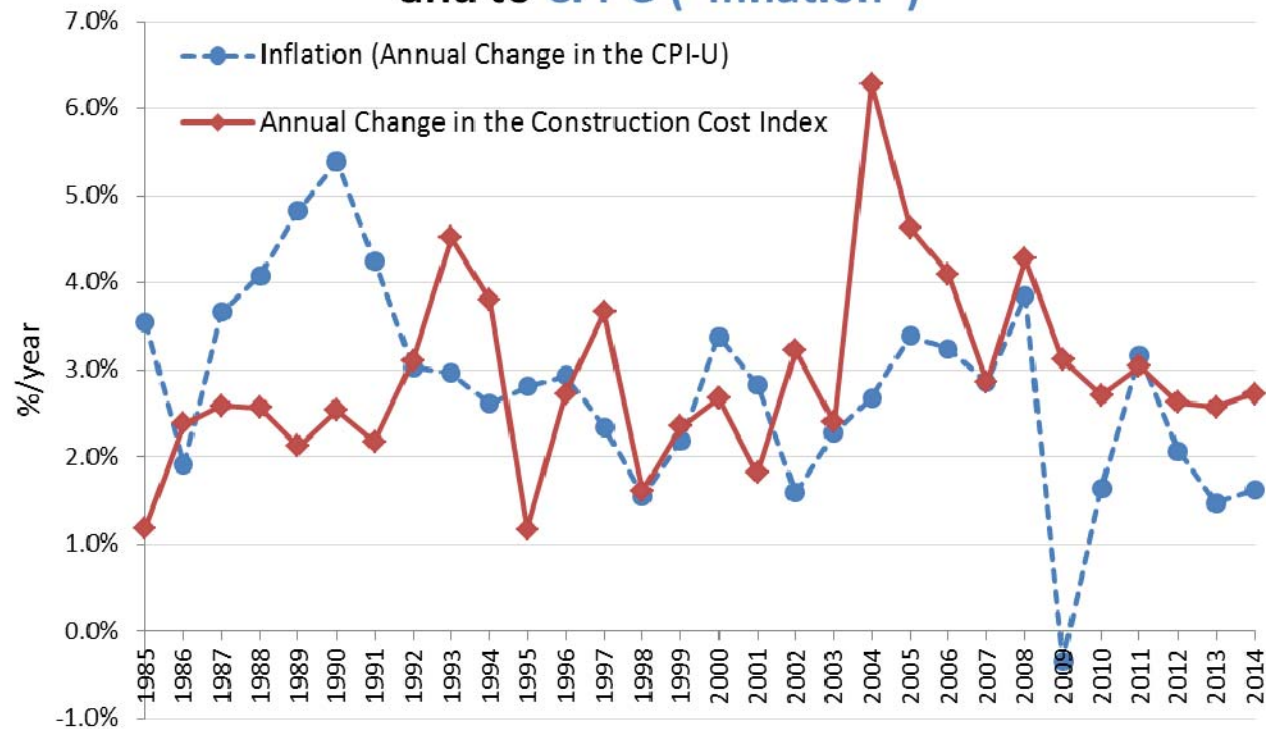


Measures of Inflation

- **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

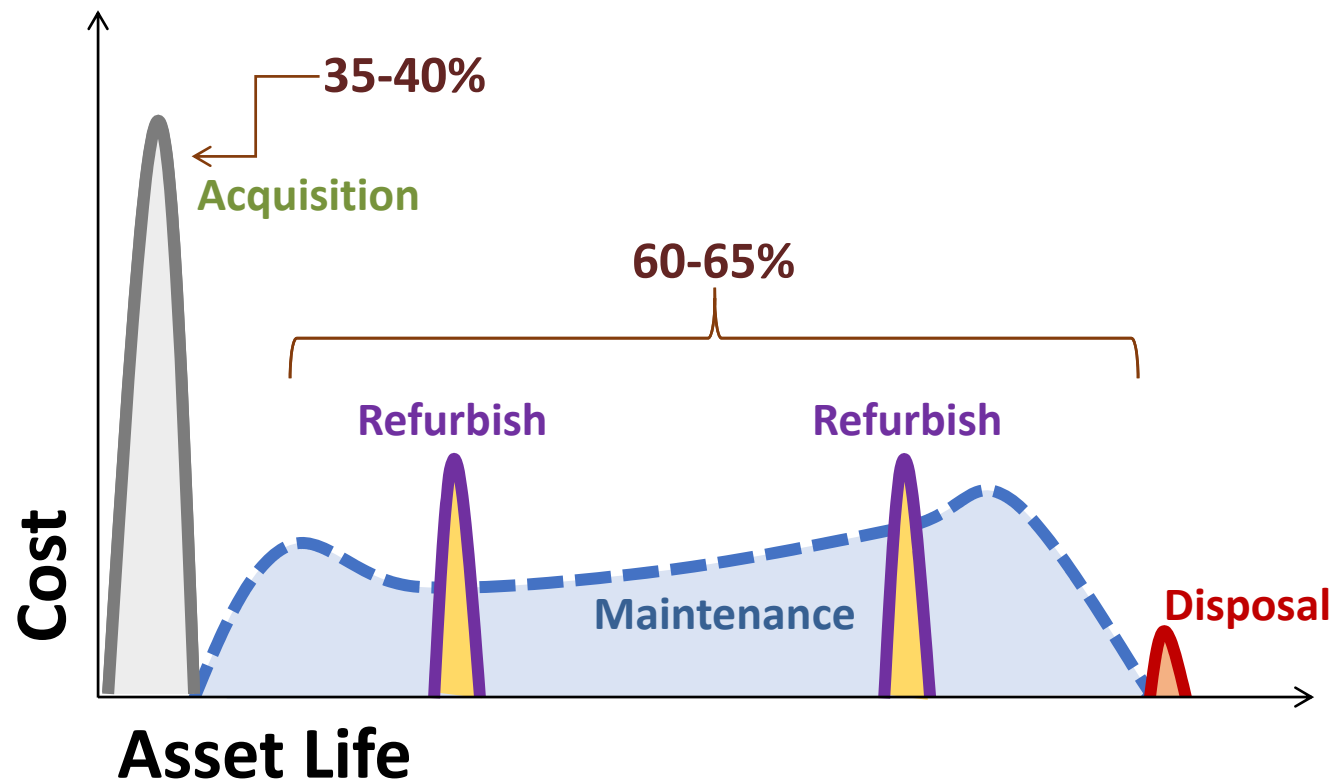
- Is it possible to
 - Eliminate projects?
 - Defer projects?
 - Repair or refurbish instead of replace?
 - Find a non-asset solution?
 - Find collaboration/partnerships alternatives with neighboring systems?
 - Improve balance of cash vs. debt-financed?
- Re-evaluate water demands of your customers. 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...





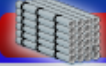




Source: Adapted from Steve Allbee, USEPA

Software: CUPSS (EPA)




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


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

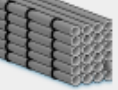
 **My Home** **My Inventory** **My O & M** **My Finances** **My Check up** **My CUPSS Plan**


Welcome Back Helen, Beauty View Acres Subdivision - DW


What would you like to do today?


 [Do Some Training](#)


 [Create or Update My Schematic](#)


 [Create or Update My Inventory](#)

 [Print My Check Up Reports](#)

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

 [Search Asset and Maintenance](#)

 [Enter My Finances](#)

 [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

UNC SCHOOL of GOVERNMENT

About the School | Courses and Resources | Library | MPA | Publications



UNC
ENVIRONMENTAL FINANCE CENTER

search this site

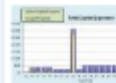
About Services Programs Resources Events

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 projec
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 selecting an appropriate

Summary of

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

Last updated: February 2011

	EPIC Asset Management: A Handbook for Rural Water Utilities	EPIC Asset Management: A Handbook for Urban Water Utilities	EPIC Asset Management: A Handbook for Wastewater Utilities	EPIC Asset Management: A Handbook for Stormwater Utilities	EPIC Asset Management: A Handbook for Sewerage Utilities	EPIC Asset Management: A Handbook for Solid Waste Utilities	EPIC Asset Management: A Handbook for Air Quality Utilities	EPIC Asset Management: A Handbook for Hazardous Waste Utilities	EPIC Asset Management: A Handbook for Environmental Health Utilities	EPIC Asset Management: A Handbook for Public Works Utilities	EPIC Asset Management: A Handbook for Other Utilities
Goal Statement/Introduction to your capital plan											
Date of documentation of capital plan											
Capital planning time period											
Description of systems											
Existing capacity and demand											
Description of customers											
Inventory of existing assets (details on each asset)											
Condition of systems											
Project-specific details (complete for each project in every year)											
Financial planning (complete for each year in time period)											
Long term planning descriptions (may be not project-specific)											
Approvals											
Updating the capital plan											
Ties or links to other studies											

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.

Tool developed by
UNC
ENVIRONMENTAL
FINANCE CENTER

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

Start

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.

INSTRUCTIONS

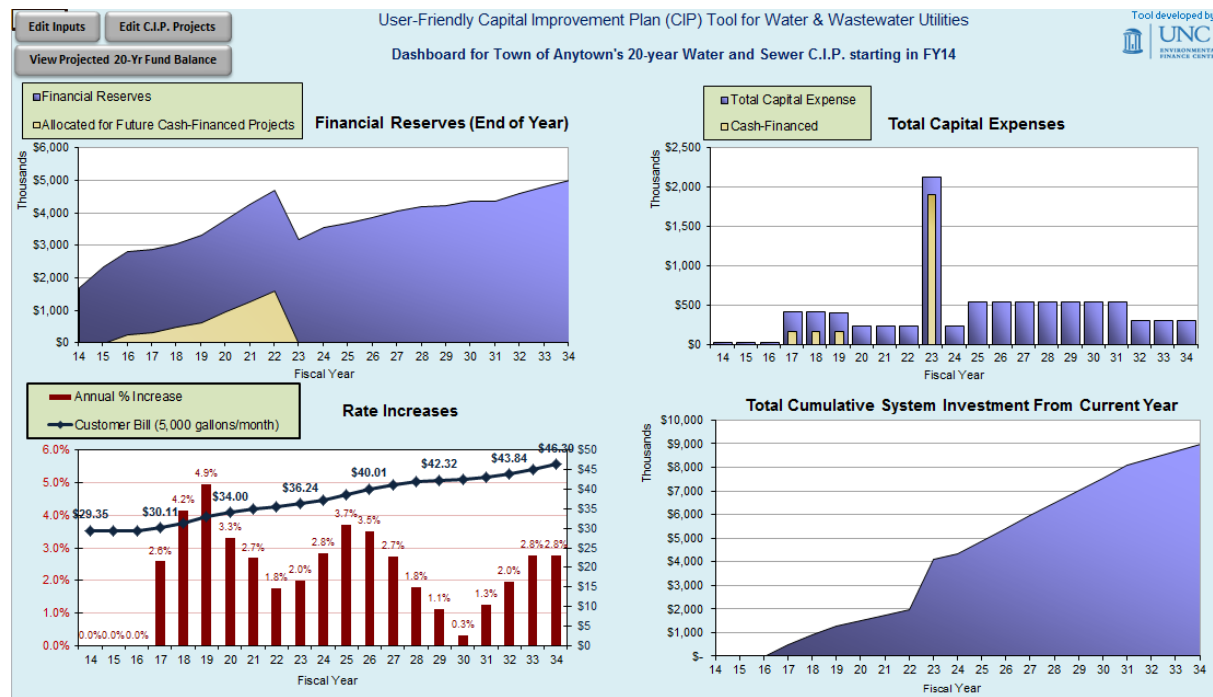
Capital Improvement Projects - 25 Years

Project Name	Start Year	End Year	Estimated Cost	Estimated Cost per Year
Water Main Replacement	2015	2020	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2018	2025	\$2,500,000	\$500,000
Water Distribution System Expansion	2020	2025	\$1,500,000	\$300,000
Wastewater Collection System Expansion	2022	2028	\$2,000,000	\$400,000
Water Treatment Plant Upgrade	2025	2030	\$1,200,000	\$240,000
Wastewater Treatment Plant Upgrade	2028	2033	\$1,800,000	\$360,000
Water Distribution System Expansion	2030	2035	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2033	2038	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2035	2040	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2038	2043	\$1,500,000	\$300,000
Water Distribution System Expansion	2040	2045	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2043	2048	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2045	2050	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2048	2053	\$1,500,000	\$300,000
Water Distribution System Expansion	2050	2055	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2053	2058	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2055	2060	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2058	2063	\$1,500,000	\$300,000
Water Distribution System Expansion	2060	2065	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2063	2068	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2065	2070	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2068	2073	\$1,500,000	\$300,000
Water Distribution System Expansion	2070	2075	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2073	2078	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2075	2080	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2078	2083	\$1,500,000	\$300,000
Water Distribution System Expansion	2080	2085	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2083	2088	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2085	2090	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2088	2093	\$1,500,000	\$300,000
Water Distribution System Expansion	2090	2095	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2093	2098	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2095	2100	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2098	2103	\$1,500,000	\$300,000
Water Distribution System Expansion	2100	2105	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2103	2108	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2105	2110	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2108	2113	\$1,500,000	\$300,000
Water Distribution System Expansion	2110	2115	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2113	2118	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2115	2120	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2118	2123	\$1,500,000	\$300,000
Water Distribution System Expansion	2120	2125	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2123	2128	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2125	2130	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2128	2133	\$1,500,000	\$300,000
Water Distribution System Expansion	2130	2135	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2133	2138	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2135	2140	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2138	2143	\$1,500,000	\$300,000
Water Distribution System Expansion	2140	2145	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2143	2148	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2145	2150	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2148	2153	\$1,500,000	\$300,000
Water Distribution System Expansion	2150	2155	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2153	2158	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2155	2160	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2158	2163	\$1,500,000	\$300,000
Water Distribution System Expansion	2160	2165	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2163	2168	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2165	2170	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2168	2173	\$1,500,000	\$300,000
Water Distribution System Expansion	2170	2175	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2173	2178	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2175	2180	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2178	2183	\$1,500,000	\$300,000
Water Distribution System Expansion	2180	2185	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2183	2188	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2185	2190	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2188	2193	\$1,500,000	\$300,000
Water Distribution System Expansion	2190	2195	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2193	2198	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2195	2200	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2198	2203	\$1,500,000	\$300,000
Water Distribution System Expansion	2200	2205	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2203	2208	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2205	2210	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2208	2213	\$1,500,000	\$300,000
Water Distribution System Expansion	2210	2215	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2213	2218	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2215	2220	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2218	2223	\$1,500,000	\$300,000
Water Distribution System Expansion	2220	2225	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2223	2228	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2225	2230	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2228	2233	\$1,500,000	\$300,000
Water Distribution System Expansion	2230	2235	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2233	2238	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2235	2240	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2238	2243	\$1,500,000	\$300,000
Water Distribution System Expansion	2240	2245	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2243	2248	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2245	2250	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2248	2253	\$1,500,000	\$300,000
Water Distribution System Expansion	2250	2255	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2253	2258	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2255	2260	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2258	2263	\$1,500,000	\$300,000
Water Distribution System Expansion	2260	2265	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2263	2268	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2265	2270	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2268	2273	\$1,500,000	\$300,000
Water Distribution System Expansion	2270	2275	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2273	2278	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2275	2280	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2278	2283	\$1,500,000	\$300,000
Water Distribution System Expansion	2280	2285	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2283	2288	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2285	2290	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2288	2293	\$1,500,000	\$300,000
Water Distribution System Expansion	2290	2295	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2293	2298	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2295	2300	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2298	2303	\$1,500,000	\$300,000
Water Distribution System Expansion	2300	2305	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2303	2308	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2305	2310	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2308	2313	\$1,500,000	\$300,000
Water Distribution System Expansion	2310	2315	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2313	2318	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2315	2320	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2318	2323	\$1,500,000	\$300,000
Water Distribution System Expansion	2320	2325	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2323	2328	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2325	2330	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2328	2333	\$1,500,000	\$300,000
Water Distribution System Expansion	2330	2335	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2333	2338	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2335	2340	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2338	2343	\$1,500,000	\$300,000
Water Distribution System Expansion	2340	2345	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2343	2348	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2345	2350	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2348	2353	\$1,500,000	\$300,000
Water Distribution System Expansion	2350	2355	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2353	2358	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2355	2360	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2358	2363	\$1,500,000	\$300,000
Water Distribution System Expansion	2360	2365	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2363	2368	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2365	2370	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2368	2373	\$1,500,000	\$300,000
Water Distribution System Expansion	2370	2375	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2373	2378	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2375	2380	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2378	2383	\$1,500,000	\$300,000
Water Distribution System Expansion	2380	2385	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2383	2388	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2385	2390	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2388	2393	\$1,500,000	\$300,000
Water Distribution System Expansion	2390	2395	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2393	2398	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2395	2400	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2398	2403	\$1,500,000	\$300,000
Water Distribution System Expansion	2400	2405	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2403	2408	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2405	2410	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2408	2413	\$1,500,000	\$300,000
Water Distribution System Expansion	2410	2415	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2413	2418	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2415	2420	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2418	2423	\$1,500,000	\$300,000
Water Distribution System Expansion	2420	2425	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2423	2428	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2425	2430	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2428	2433	\$1,500,000	\$300,000
Water Distribution System Expansion	2430	2435	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2433	2438	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2435	2440	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2438	2443	\$1,500,000	\$300,000
Water Distribution System Expansion	2440	2445	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2443	2448	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2445	2450	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2448	2453	\$1,500,000	\$300,000
Water Distribution System Expansion	2450	2455	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2453	2458	\$1,500,000	\$300,000
Water Treatment Plant Upgrade	2455	2460	\$1,000,000	\$200,000
Wastewater Treatment Plant Upgrade	2458	2463	\$1,500,000	\$300,000
Water Distribution System Expansion	2460	2465	\$1,000,000	\$200,000
Wastewater Collection System Expansion	2463			



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?



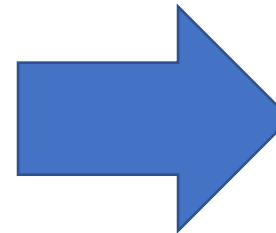
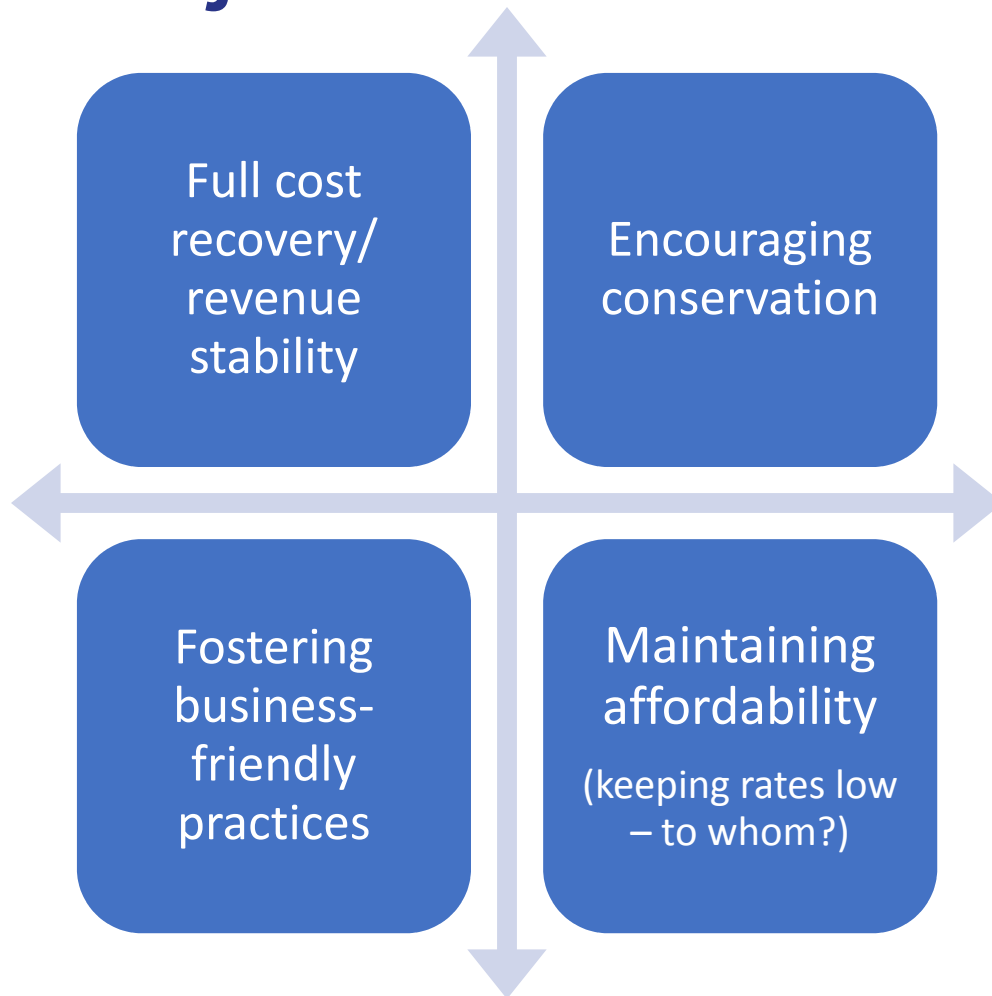


“Full Cost Pricing”

- 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.



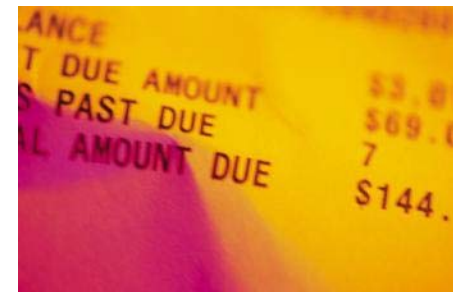
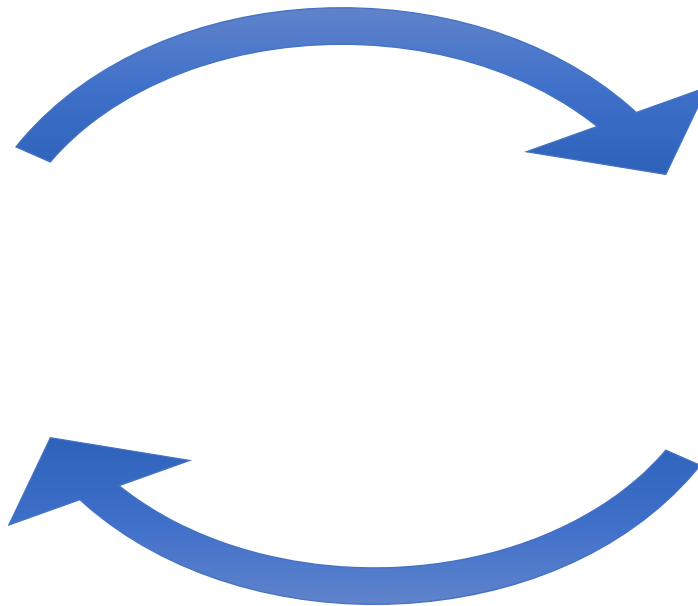
Elements of Rate Structure Designs

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 using only MS Excel,
developed by the Environmental Finance Center at UNC.




Water and Sewer Rates Analysis Model

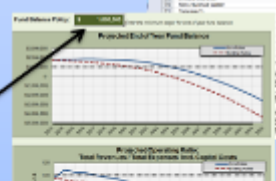
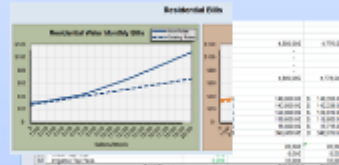
Version 2.7 (updated March 24, 2014)

70-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.

Rate Structure		2012		Existing	
Residential Rates					
Water Base Rate \$10.00					
Water					
Block Rate 1 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$1.00		
Block Rate 2 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$2.00		
Block Rate 3 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$3.00		
Block Rate 4 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$4.00		
Block Rate 5 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$5.00		
Block Rate 6 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$6.00		
Block Rate 7 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$7.00		
Block Rate 8 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$8.00		
Block Rate 9 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$9.00		
Block Rate 10 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$10.00		
Block Rate 11 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$11.00		
Block Rate 12 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$12.00		
Block Rate 13 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$13.00		
Block Rate 14 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$14.00		
Block Rate 15 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$15.00		
Block Rate 16 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$16.00		
Block Rate 17 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$17.00		
Block Rate 18 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$18.00		
Block Rate 19 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$19.00		
Block Rate 20 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$20.00		
Block Rate 21 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$21.00		
Block Rate 22 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$22.00		
Block Rate 23 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$23.00		
Block Rate 24 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$24.00		
Block Rate 25 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$25.00		
Block Rate 26 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$26.00		
Block Rate 27 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$27.00		
Block Rate 28 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$28.00		
Block Rate 29 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$29.00		
Block Rate 30 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$30.00		
Block Rate 31 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$31.00		
Block Rate 32 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$32.00		
Block Rate 33 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$33.00		
Block Rate 34 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$34.00		
Block Rate 35 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$35.00		
Block Rate 36 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$36.00		
Block Rate 37 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$37.00		
Block Rate 38 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$38.00		
Block Rate 39 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$39.00		
Block Rate 40 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$40.00		
Block Rate 41 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$41.00		
Block Rate 42 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$42.00		
Block Rate 43 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$43.00		
Block Rate 44 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$44.00		
Block Rate 45 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$45.00		
Block Rate 46 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$46.00		
Block Rate 47 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$47.00		
Block Rate 48 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$48.00		
Block Rate 49 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$49.00		
Block Rate 50 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$50.00		
Block Rate 51 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$51.00		
Block Rate 52 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$52.00		
Block Rate 53 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$53.00		
Block Rate 54 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$54.00		
Block Rate 55 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$55.00		
Block Rate 56 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$56.00		
Block Rate 57 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$57.00		
Block Rate 58 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$58.00		
Block Rate 59 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$59.00		
Block Rate 60 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$60.00		
Block Rate 61 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$61.00		
Block Rate 62 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$62.00		
Block Rate 63 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$63.00		
Block Rate 64 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$64.00		
Block Rate 65 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$65.00		
Block Rate 66 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$66.00		
Block Rate 67 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$67.00		
Block Rate 68 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$68.00		
Block Rate 69 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$69.00		
Block Rate 70 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$70.00		
Block Rate 71 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$71.00		
Block Rate 72 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$72.00		
Block Rate 73 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$73.00		
Block Rate 74 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$74.00		
Block Rate 75 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$75.00		
Block Rate 76 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$76.00		
Block Rate 77 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$77.00		
Block Rate 78 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$78.00		
Block Rate 79 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$79.00		
Block Rate 80 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$80.00		
Block Rate 81 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$81.00		
Block Rate 82 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$82.00		
Block Rate 83 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$83.00		
Block Rate 84 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$84.00		
Block Rate 85 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$85.00		
Block Rate 86 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$86.00		
Block Rate 87 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$87.00		
Block Rate 88 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$88.00		
Block Rate 89 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$89.00		
Block Rate 90 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$90.00		
Block Rate 91 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$91.00		
Block Rate 92 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$92.00		
Block Rate 93 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$93.00		
Block Rate 94 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$94.00		
Block Rate 95 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$95.00		
Block Rate 96 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$96.00		
Block Rate 97 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$97.00		
Block Rate 98 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$98.00		
Block Rate 99 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$99.00		
Block Rate 100 (\$1,000 gal)	2,000 gallons	2,000 gallons	\$100.00		
- 3) On the "Data Input 2" tab enter current consumption levels, utility finances, and other assumptions in the dark green cells.

Utility Expenses Excluding Debt Service		FY2012		Existing	
Salaries and Wages, including Paid Time and Overtime	\$ 1,000,000	\$ 1,000,000			
Supplies	\$ 1,000,000	\$ 1,000,000			
Utilities	\$ 1,000,000	\$ 1,000,000			
Administrative Expenses	\$ 1,000,000	\$ 1,000,000			
Lease	\$ 1,000,000	\$ 1,000,000			
Repairs & Maintenance	\$ 1,000,000	\$ 1,000,000			
Water Purchase	\$ 1,000,000	\$ 1,000,000			
Storage Facility Service	\$ 1,000,000	\$ 1,000,000			
Other Treatment & Delivery Expenses	\$ 1,000,000	\$ 1,000,000			
Depreciation on Capital Equipment Excluding Debt Service	\$ 1,000,000	\$ 1,000,000			
Miscellaneous Annual Expenses	\$ 1,000,000	\$ 1,000,000			
- 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".


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.

Copyright © 2014 Environmental Finance Center at the University of North Carolina, Chapel Hill. efc.sog.unc.edu
 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 Shadi Fakar at shadi@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

Rate_Analysis-version2 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View

Clipboard Font Alignment Number Styles Cells Editing

Q3 100

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

Rate Structure

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 Existing	2013 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

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

Number of Accounts

	Existing	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 Existing
Uncollected Bills	8.0%
Non-revenue Water	15.0%

Copyright © 2012 Environmental Finance Center at The University of North Carolina, Chapel Hill. www.efc.unc.edu
Funded by the NC Department of Environment and Natural Resources and the U.S. Environmental Protection Agency

Instructions Data Input 1 Data Input 2 Charts Fund Balance - Existing Rates Fund Balance - New Rates

Ready Calculate Split Lock

100%

100



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

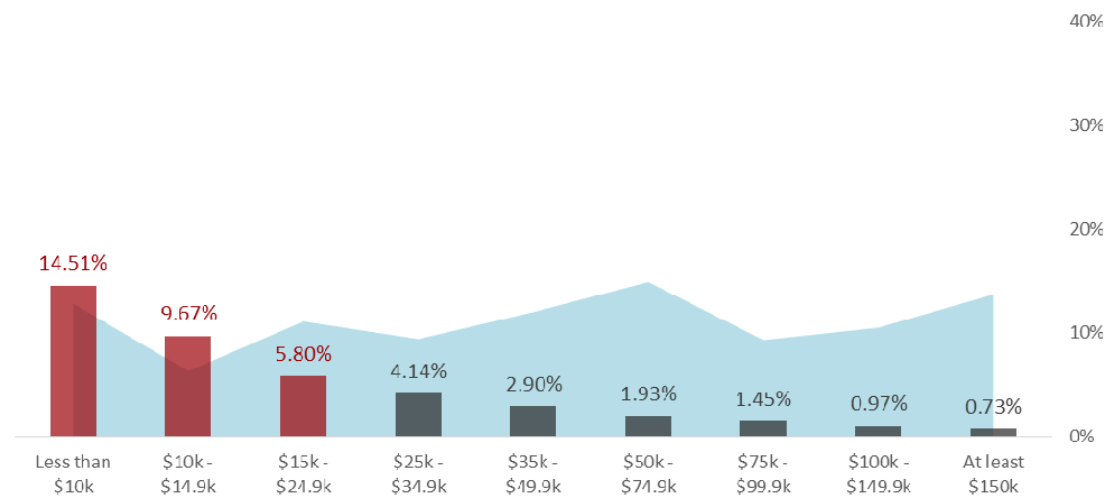


Affordability

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

UNC Environmental Finance Center

berahzer@unc.edu

Skype: StaceyBerahzer

Twitter: https://twitter.com/staceyib_enviro