



Smart Management for
Small Water Systems

Funding Opportunities for Small Water Systems

09/27/2018

Portland, Maine

www.efcnetwork.org



New England
Environmental
Finance Center



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



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<http://neefc.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)



UNC
ENVIRONMENTAL
FINANCE CENTER



WICHITA STATE
UNIVERSITY

HUGO WALL SCHOOL
OF PUBLIC AFFAIRS

Environmental Finance Center



EFCWest

Environmental Finance Center West



New England
Environmental
Finance Center



SOUTHWEST
ENVIRONMENTAL
FINANCE CENTER



Environmental
Finance
Center
Syracuse University



UNIVERSITY OF
MARYLAND
ENVIRONMENTAL
FINANCE CENTER



American Water Works
Association

Visit the EFCN Website – *www.efcnetwork.org*

for more information on upcoming events, funding, and resources.



The image shows a screenshot of the EFCN website homepage. At the top, the EFCN logo is displayed with the tagline "Innovative Finance Solutions for Environmental Services". Below the logo is a navigation menu with links for HOME, ABOUT, WORKSHOPS & WEBINARS, ASSISTANCE, RESOURCES, BLOG, and ARCHIVES, along with a search icon. The main banner is dark blue with yellow text and graphics. It features a person thinking on the left and a person working on a laptop on the right, connected by a dashed yellow line. The central text reads "Get Free Help Now!" and "Small water systems can request free technical assistance from our experts on finance and management challenges." Below this is a quote: "The thing about working with the EFCN is availability; I can call anytime with a quick question or to get outside advice." At the bottom of the banner are three small images: a woman presenting, a globe with water droplets, and hands holding a document with a bar chart.

EFCN Innovative Finance Solutions for Environmental Services

HOME ABOUT WORKSHOPS & WEBINARS ASSISTANCE RESOURCES BLOG ARCHIVES

Get Free Help Now!

Small water systems can request free technical assistance from our experts on finance and management challenges.

"The thing about working with the EFCN is availability; I can call anytime with a quick question or to get outside advice."



Preparing Winning Financing Applications





Grant v. Loans

Rate Setting & Billing

Benchmarking

Asset Management



How the Payments are Made For Infrastructure Projects

- Save in advance and pay
- Pay as you go (current receipts)
- **Pay afterwards (someone loans you money)**
- **Grants**



Compare and contrast grants vs loans: sustainable funding sources



About Grants

FREE Grant Money For You - Message (HTML)

File Edit View Insert Format Tools Actions Help

Reply Reply to All Forward [Icons]

From: Amy Cornett [suny@easypeasy.com]
To: jezter@email.unc.edu
Cc:
Subject: FREE Grant Money For You

Qualifying for a free cash grant is easy!

- ***\$10,000 to over \$500,000 in FREE Grant Money is Available NOW!***
- ***Never Repay***
- ***No Credit Checks***
- ***No Interest Charge***

To see if you meet the requirements, please visit our web site: [CLICK HERE NOW!](#)

With best regards,

The Grant Giveaway Team

← NOT a good way to find a grant!

Grants Aren't Completely Free Money

- Application for the grant can be expensive – staff time and money
- Applications can take months to process
- Often lots of strings attached
- Often require a percentage match
- Lots of competition
- Difficult to sustain



In the Old Days...

- Water systems took advantage of the federal government's ambitious construction grants program of the 1970s and 1980s
- It seemed like “free” money

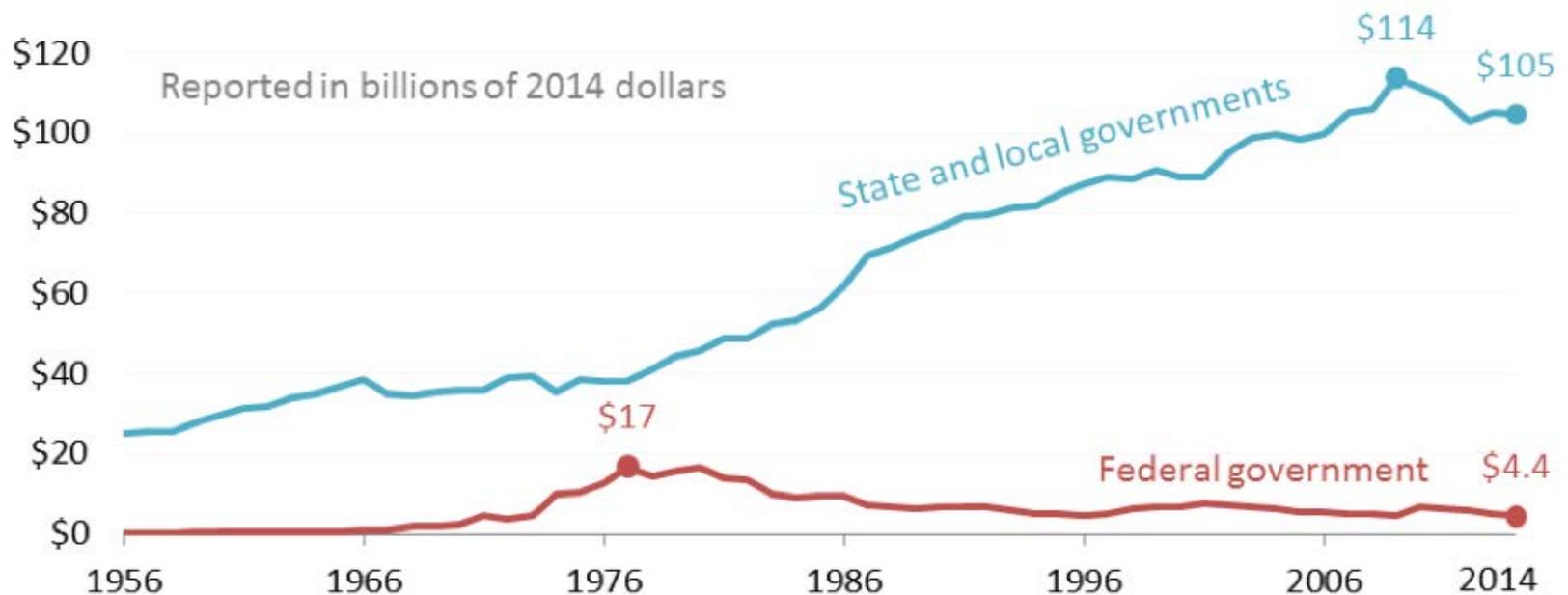


Capital Finance Today

- The money never really was “free” —it came from tax dollars
- Today, the financial burden has been shifted away from federal and state tax dollars (grants) to funds raised by the water system itself (customer sales and loans). For example...

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.



Loans

- Typically from a bank
- Can be from a government-sponsored program such as the Drinking Water State Revolving Fund



The Debt Market

- Why Borrow?
- Water infrastructure has a long useful life. You may wish to amortize the loan over the life of the equipment so that the people who benefit from the system pay for it

Bonds

- A written promise to repay borrowed money (on a defined schedule and usually at a fixed rate of interest for the life of the bond)
- Different types exist:
 - General Obligation (GO)
 - Revenue



Source: bettermondays.com



When You Need Cash Now: The Debt Market

- Lenders will look at your creditworthiness, your ability to repay the debt, in determining whether to loan to you and your interest rate
- Certain best practices can increase your chances of funding



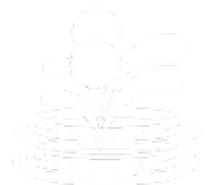
Generating Needed Revenue – Rates & Billing



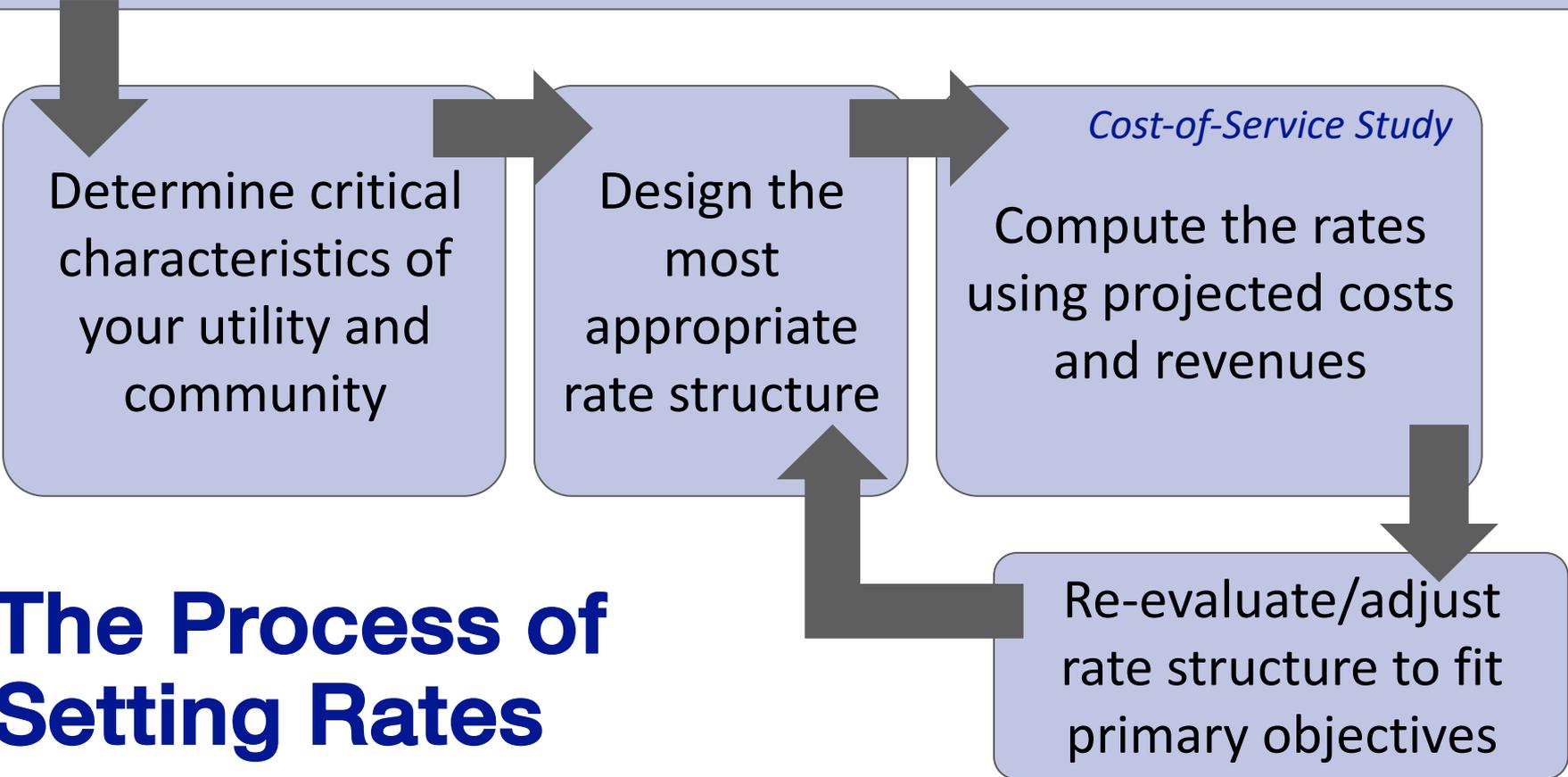
© 2004 Ted Goff



“This part of the plan will be funded with all the unused money we must have laying around someplace.”



How much money do you need? Essential background information about rates



The Process of Setting Rates



Basic Principles

- Aim at full cost pricing
- Set equitable rates
- Share rate structure with customers
- Rate should be easy to understand
- Rates should be examined annually
- Consider fixed costs vs. variable costs
- Allow for reserve account(s)
- *Promote water conservation?*
- *Promote economic development?*





“Full Cost Pricing”

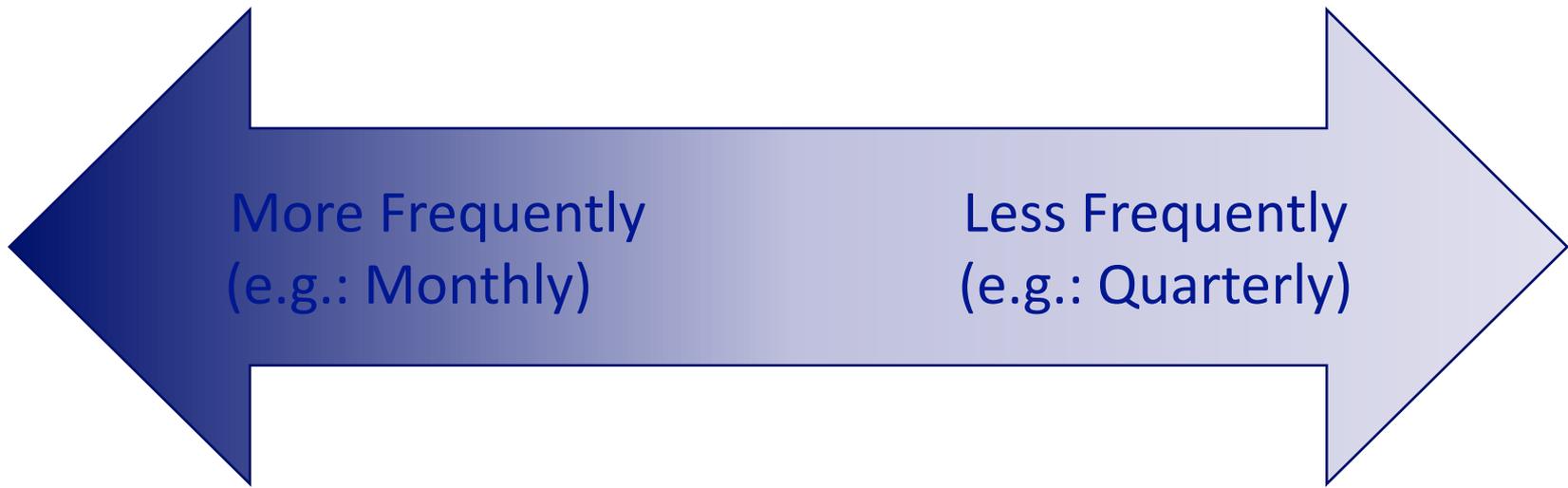
- Operations & maintenance expenditures
- Taxes and accounting costs
- Contingencies for emergencies
- Principal and interest on long-term debt
- Reserves for capital improvement
- Source water protection



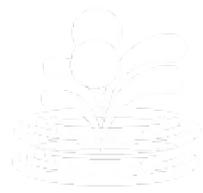
Elements of Rate Structure Designs

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

Billing Period

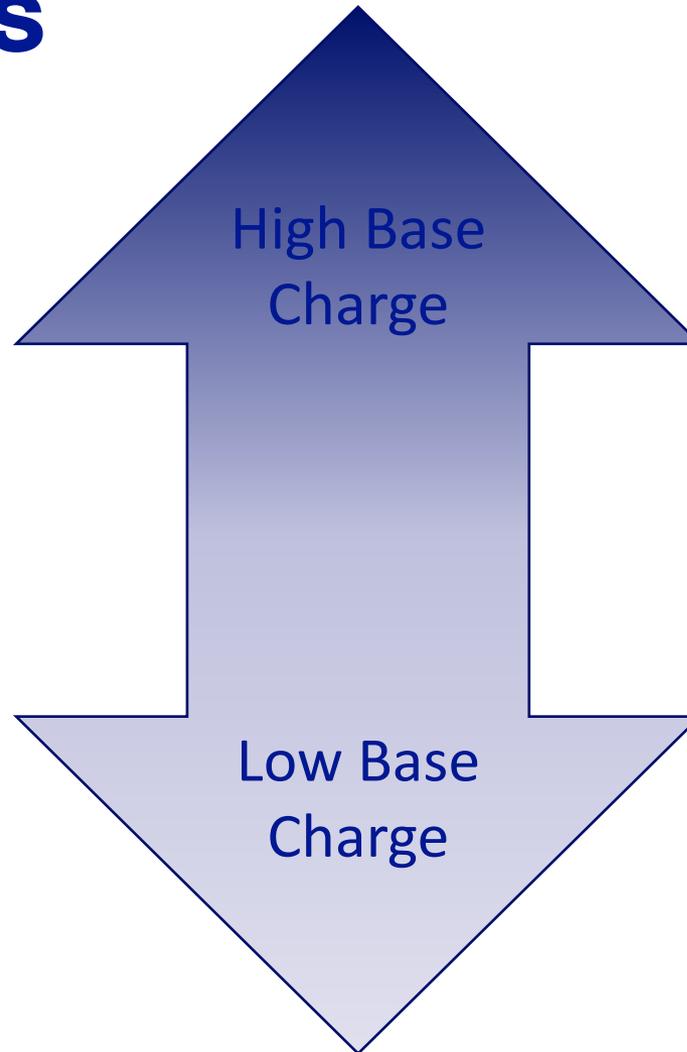


Suggestion: Use a monthly billing period if you can afford it

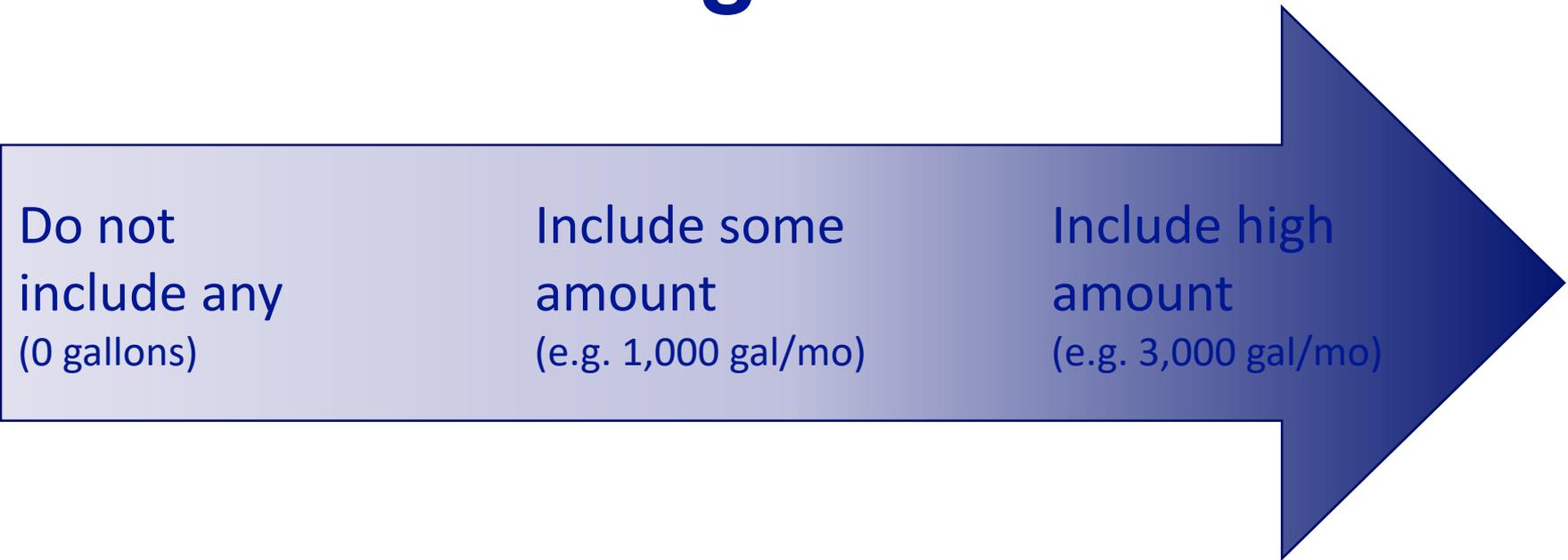


Base Charges

*Suggestion:
Smaller utilities
should lean
towards higher
base charges*



Consumption Allowance with Base Charge

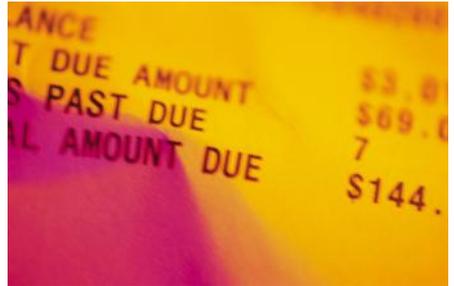
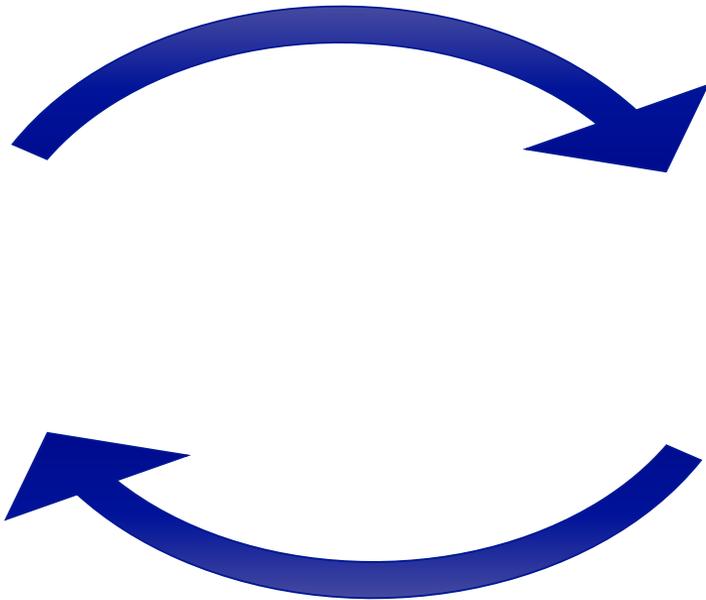


Suggestion: For systems with low base charges, do not include any consumption allowance. For systems with high base charges but wish to encourage conservation, keep consumption allowance low, if any.



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



Frequency of Rate Changes

- *Important: Avoid maintaining low rates at the expense of your utility's financial health. It will either lead to a sudden, massive rate increase in the future or to failing systems and endangering public health.*



Benchmarking

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

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

https://www.youtube.com/watch?v=pfs0brT_jkU





So....

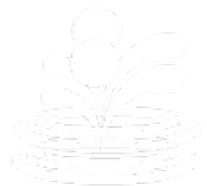
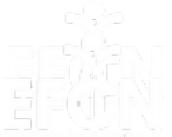
- Now that we know where we are, let's decide where we are going...
- How do we estimate the future costs and revenues?



Quick overview of Asset Management

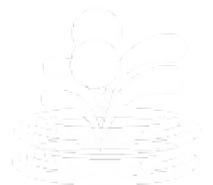
What is Asset Management?

Working **smarter** *not harder* is the essence of Effective Management. Asset Management is the first step to help you.





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

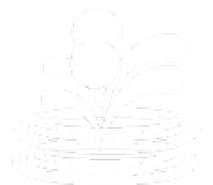


What you want to do....

Replace all the assets



- New tank
- New pipe
- New pump
- New filter



\$5 Million

Elected Officials/
Decision-Makers Say No



Second Choice: \$3 M

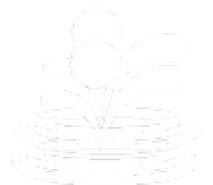
Replace
Some of the
Assets
w Pump



**Elected Officials/
Decision-Makers Still Say No**

Now What?

Repair and
Rehabilitate



Rehab Option: \$1 M

Rehab
Assets



Reduced
risk almost
as low as
new assets
for 1/5 the
cost



What does this type of analysis take?

- Nothing more than following a systematic approach for managing the assets
- 5 core components of Asset Management
 - Current State of the Assets
 - Level of Service
 - Asset Criticality
 - Life-cycle costing
 - Long-term funding

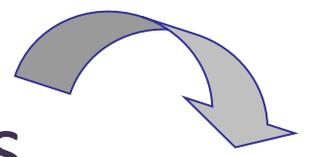


Current State of the Assets

- 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

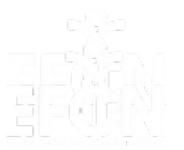


Track Progress
Towards
Meeting Goals

Involve
Staff



What would my customers want?

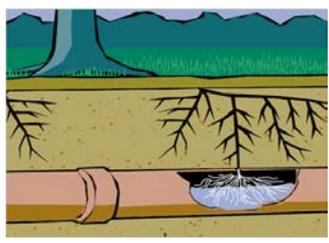


Asset Criticality

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?

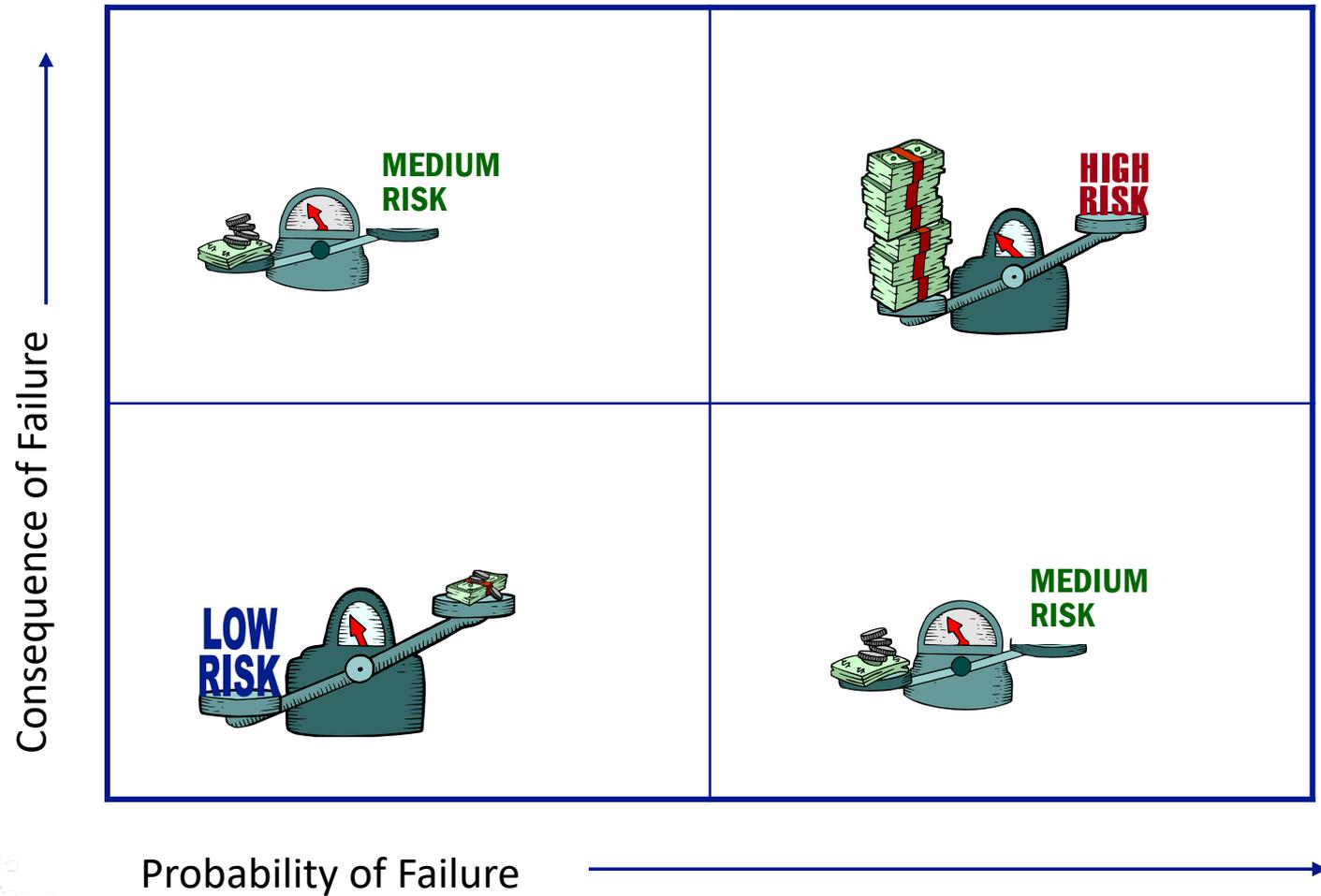
What is the cost of the repair?

Are there legal consequences, environmental consequences, social consequences?

Are there redundant assets?



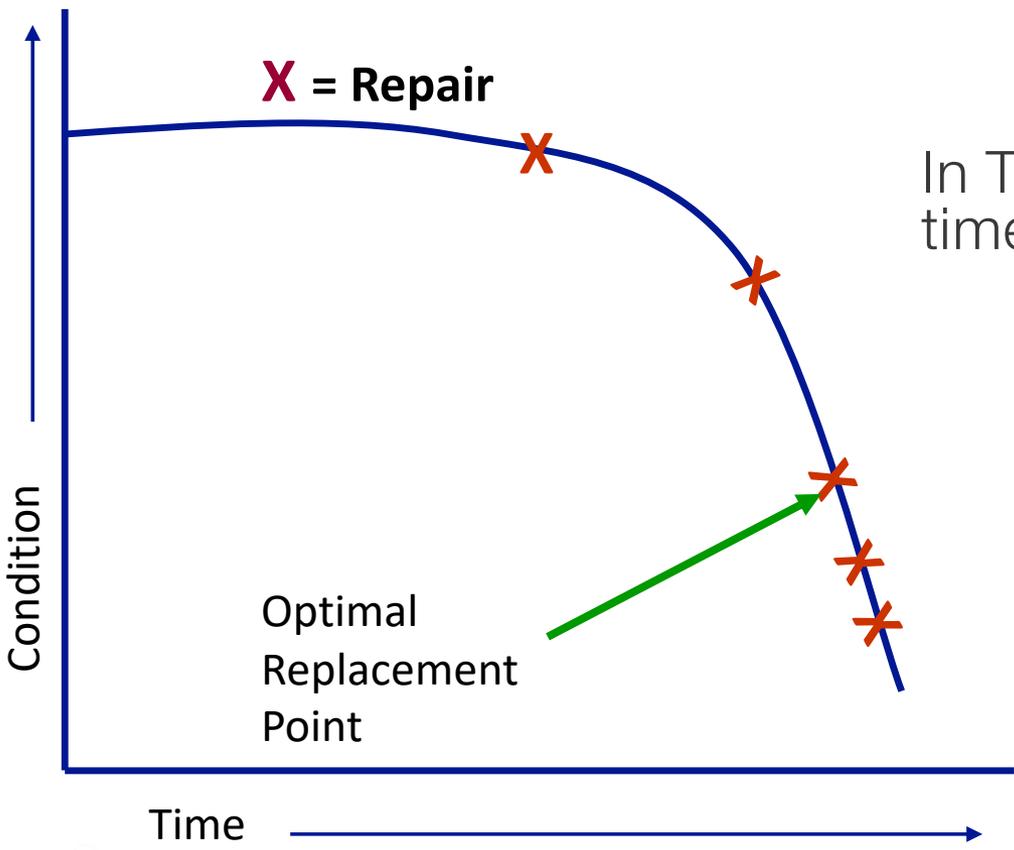
Asset Criticality



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

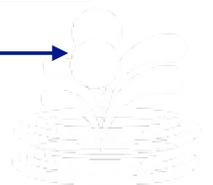
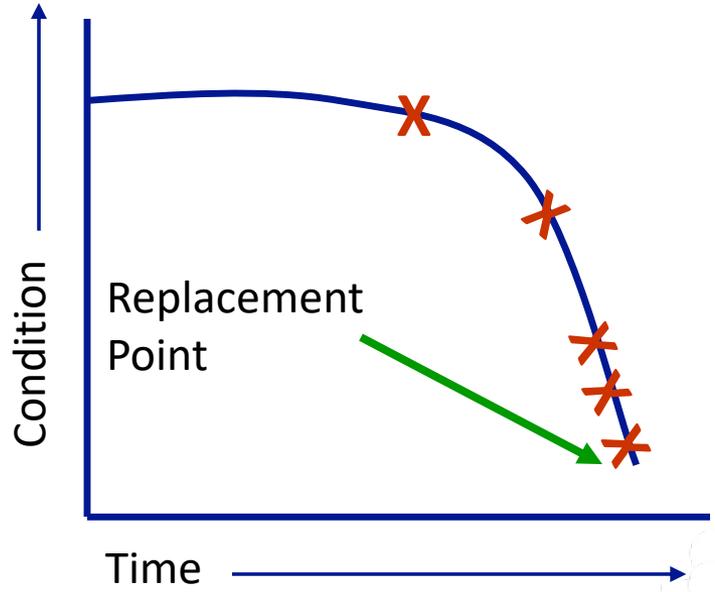
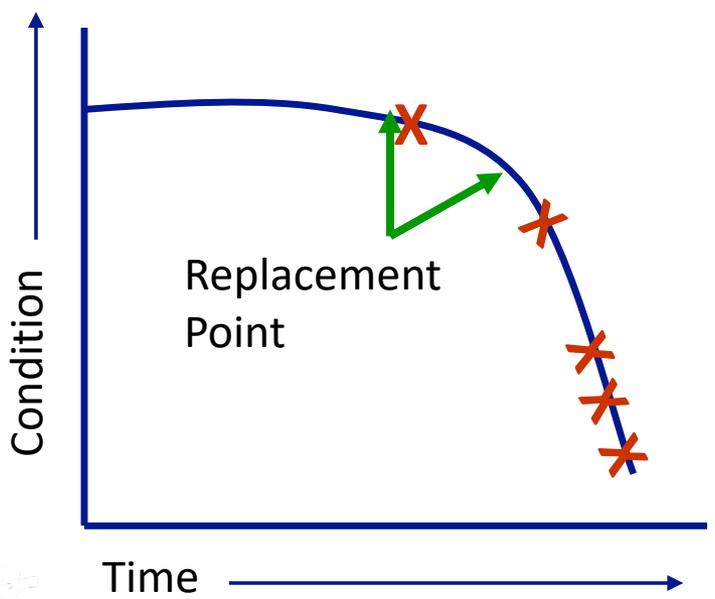
So... need to use the concept of risk



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



Long Term Capital Planning

- This is strongly influenced by asset management
- 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)
- 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.

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
Water Treatment Total	4,380	4,094	500	5,850	5,000	8,530	28,354



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.



Where Can You Find the Prices?

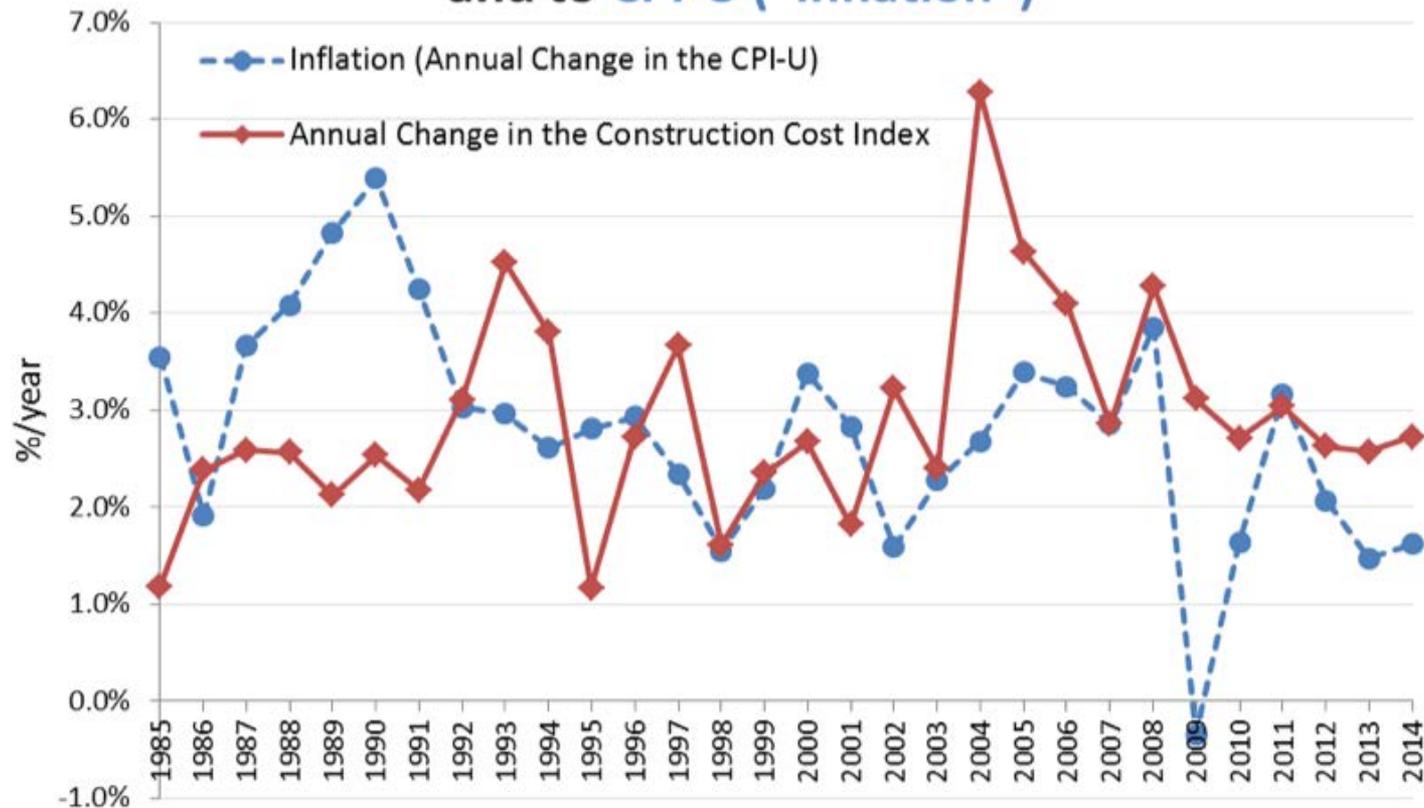
- Call a vendor. Actually, call a few.
- Ask other systems
- Look at past expenses but adjust for increases in costs



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.

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 was creation of a C Management P

Blog Post on "Using an Index to Future"

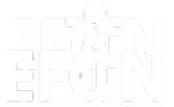
Read a short blog post on selecting an appropriate

Summary of "What to Include in Your Capital Plan: A Reference Guide for NC Water and Wastewater Utilities"
Last updated: February 2013

Categories	Water & Wastewater Management & Treatment for Rural Water Utilities	Water & Wastewater Management & Treatment for Urban Water Utilities	Water & Wastewater Management & Treatment for Rural Water Utilities	Water & Wastewater Management & Treatment for Urban Water Utilities	Water & Wastewater Management & Treatment for Rural Water Utilities	Water & Wastewater Management & Treatment for Urban Water Utilities	Water & Wastewater Management & Treatment for Rural Water Utilities	Water & Wastewater Management & Treatment for Urban Water Utilities	Water & Wastewater Management & Treatment for Rural Water Utilities	Water & Wastewater Management & Treatment for Urban Water Utilities
Executive Summary/Introduction to your capital plan										
Scope of documentation of capital plan										
Capital planning time period										
Description of systems										
Determining 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										

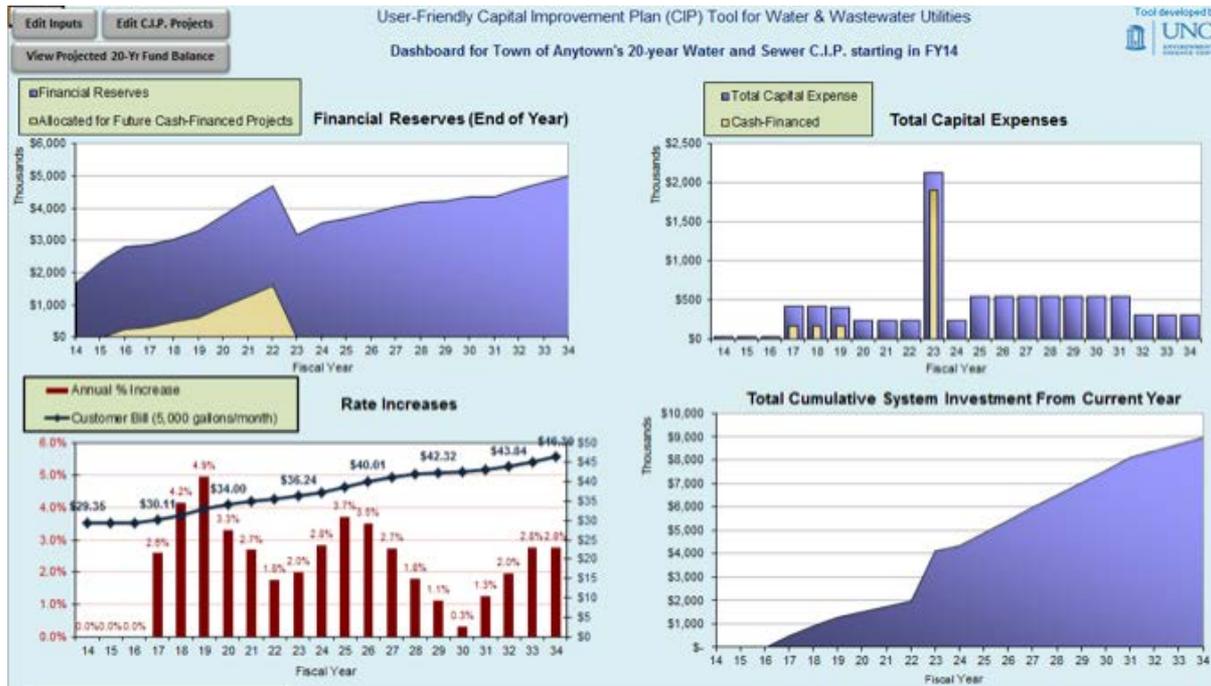
For updates and to view details in each category, go to <http://www.efs.unc.edu/projects/capitalplanning.html>

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



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





Review

Grant v. Loans

Rate Setting & Billing

Benchmarking

Asset Management





Thank You!

And please let us know if you have any questions.

Martha Sheils

New England Environmental Finance Center

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<http://neefc.org/>