



Smart Management for  
Small Water Systems

# The Role of Asset Management in Rates and Finance of Small Drinking Water Systems

05/18/17 | Dalton, GA

*[www.efcnetwork.org](http://www.efcnetwork.org)*



UNC  
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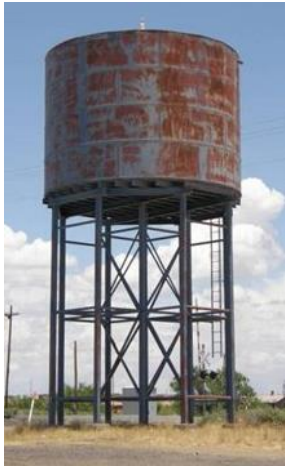
American Water Works  
Association

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



Can you relate to any  
of the following  
scenarios?

# You are a water system manager faced with the following requests



Storage Tank  
Rehabilitation

\$650,000



Intake Structure  
Repairs

\$820,000



Filter Rehab

\$300,000



Pipe  
Replacement

\$950,000

Which One?

You only have enough money  
to do one project



# You're operating a water system and have to decide what maintenance to perform...

- Should you:
  - Exercise Valves?
  - Flush Hydrants?
  - Clean Water Lines?
  - Operate Hydrants?

What do you do?  
How do you decide?

You don't have enough money or staff to do everything you want to do



# **You're the manager of a water system**

Your water distribution piping is breaking and an engineering consultant has recommended that the solution is to replace all the piping in the system



The project is very expensive and will cause a large rate increase. How do you know if this is the best way to deal with the problems?



# You're system includes both water and wastewater

Water System has the priority projects of:

- 2 New Wells
- Water Piping
- New Pumps
- Chlorine system improvements

Wastewater system has the priority projects of:

- Chlorine system upgrades
- Aeration system upgrades
- Pipe replacement
- Grit system improvements

Which project is the highest priority? How do you decide?



## **Decision-making is required, so...**

- Do you have enough information to make these decisions?
- How confident are you that the decision you make is the right one?
- Are these decisions harder now that money and budgets are tighter?



# The choices you make

- Impact
  - Operations
  - Infrastructure replacement
  - Customers
- Poor choices can:
  - Negatively impact the ability of the operator to run the system
  - Waste your money or state or federal money
  - Reduce customer services unnecessarily





## **A systematic approach...**

Asset Management is designed to help make these types of decisions in a more systematic, objective, and data-driven way to give more confidence that the best decisions are being made



# Asset Management Is...

- Customer focused – defines what your customers want
- Provides information regarding what you have to manage – asset inventory
- Focused on highest criticality assets
- Based on least cost method of operation and capital improvements
- Examining operations over time to ensure that goals are being met



# Asset Management relies on:

- What you already know
- Resources you have available to you
- Knowledge of the **ENTIRE** workforce

Think of Asset Management as “Applied Common Sense”



# A Quick Review

Asset Management is achieving a desired level of service (what you want your assets to do) at the lowest overall life cycle cost

Simply put: Knowing how and where to spend your money to give your customers what they want

A blue-tinted photograph of industrial machinery, possibly a pump or engine, with various pipes and mechanical components visible.

# Asset Management Is:

- A new way of thinking
- Applicable to all types of assets
- Customer focused
- Working smarter not harder
- Able to be done by any system of any size
- Beneficial to everyone involved: systems, state regulatory agencies, funding agencies





# **Asset Management Isn't:**

- A computer program
- Heavy duty engineering modeling
- Only for the very large systems
- A waste of time
- A passing fad

# Five Core Components of AM



Current State of the Assets



Level of Service



Criticality



Life Cycle Costing



Long-Term Funding



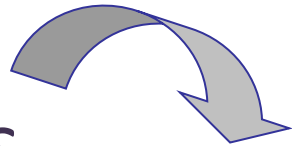
# Current State of the Assets

- 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?

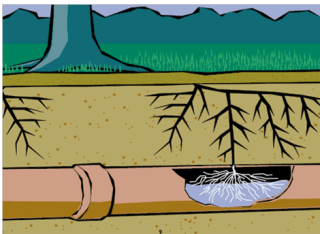


# Asset Criticality

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?

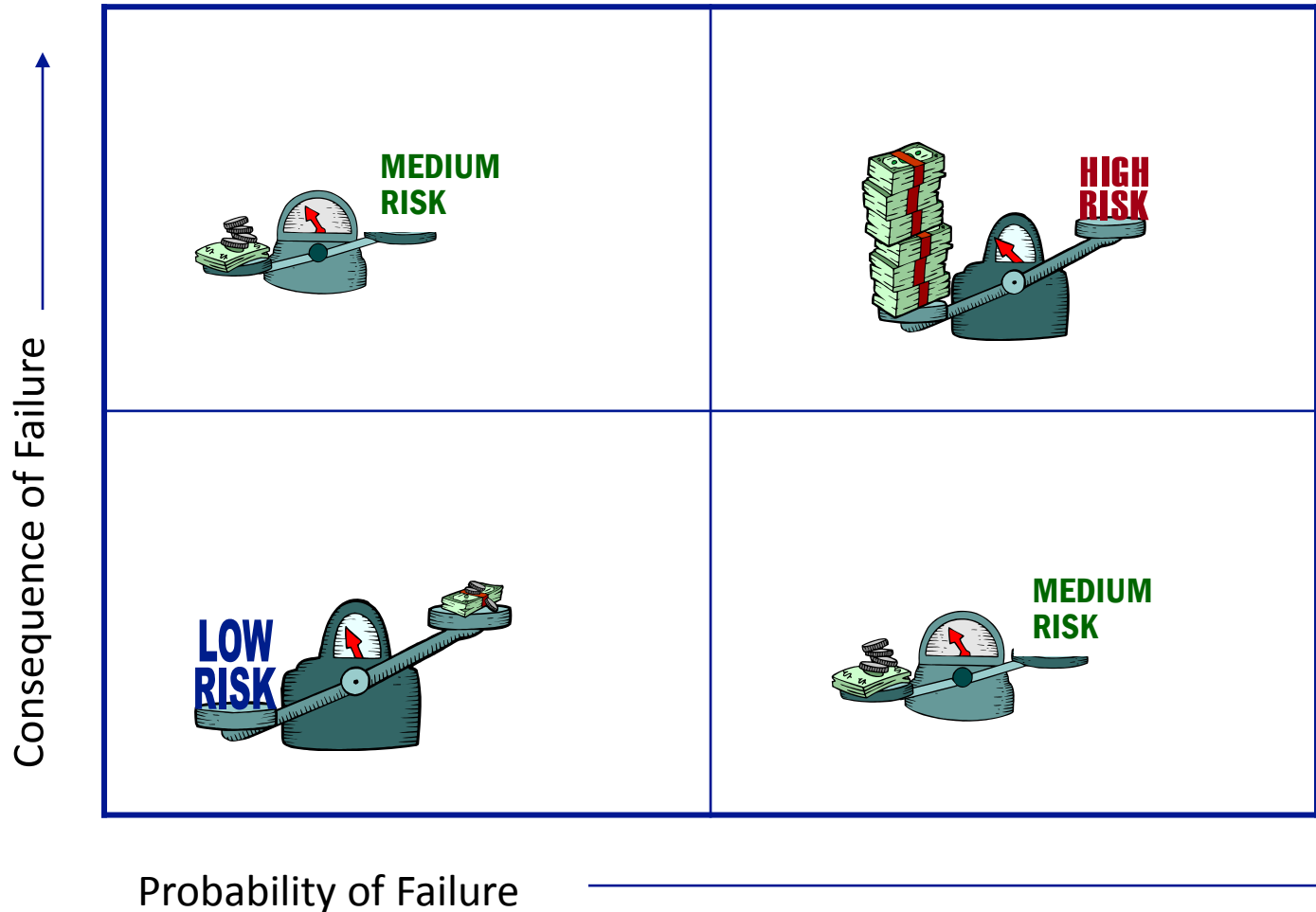
What is the cost of the repair?

Are there legal consequences,  
environmental consequences,  
social consequences?

Are there redundant assets?

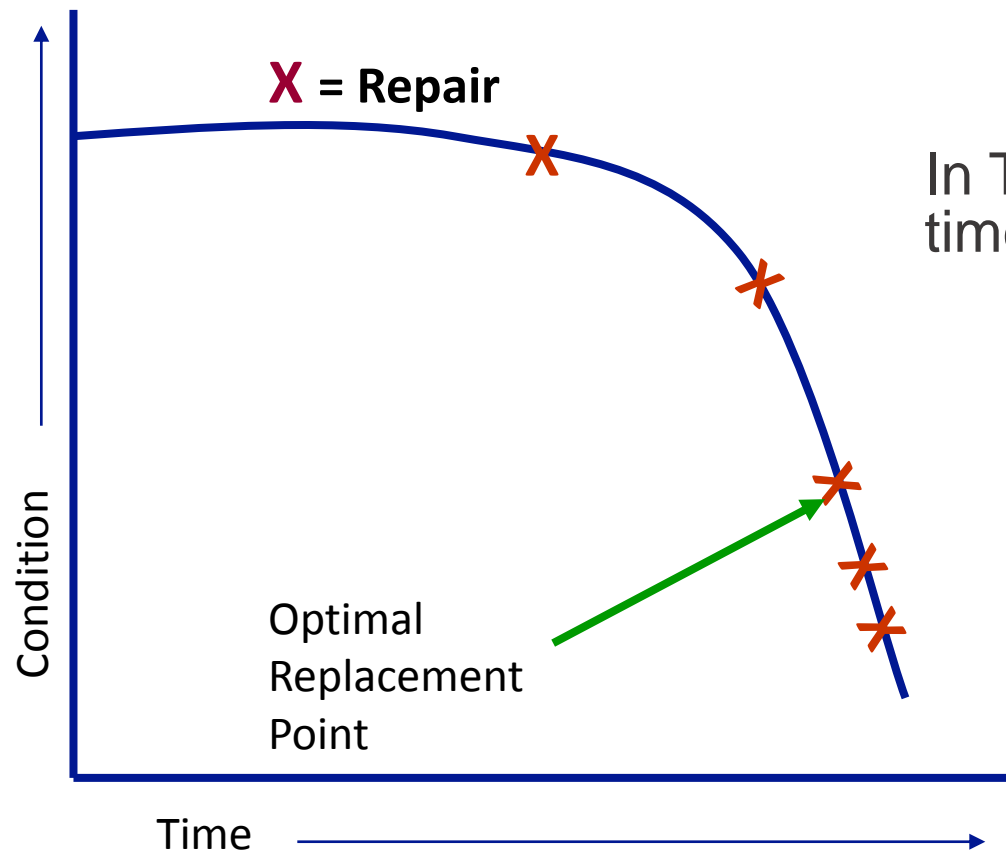


# Asset Criticality



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

# Life Cycle Costing: Replacement of Assets



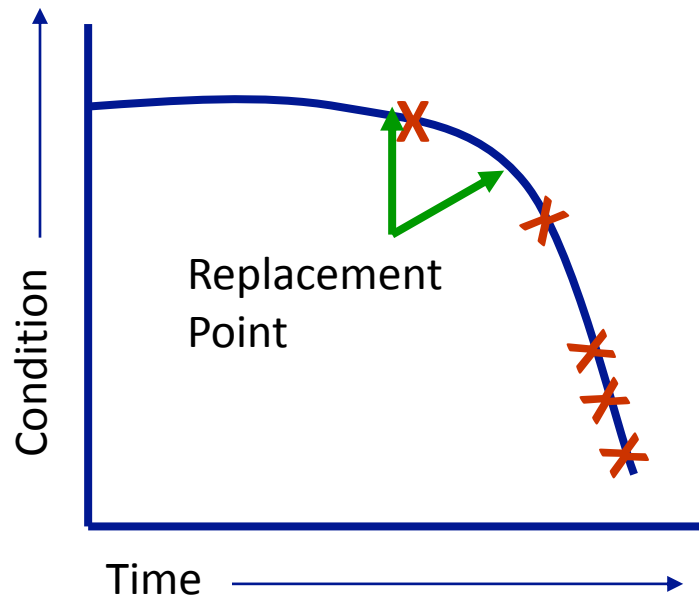
In Theory, there is an exact right time to replace an asset

Not possible to know the optimal time to replace every asset

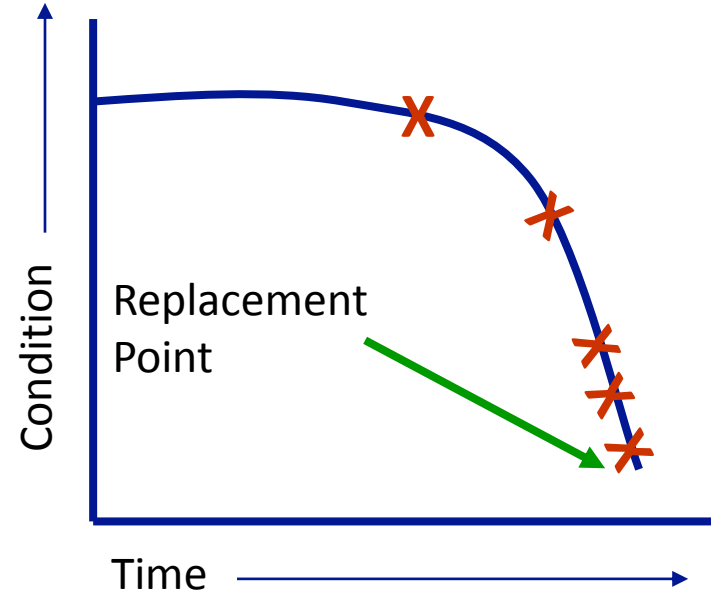
So... need to use the concept of risk

# 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






# CUPSS

From EPA

# 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

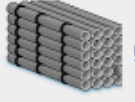
 My CUPSS Plan


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



# Check Up Program for Small Systems (CUPSS)

- CUPSS is a desktop software for small to medium water and wastewater utilities
  - Includes free download, technical support, and training opportunities
- Using CUPSS will allow utilities to:
  - Create an asset inventory list
  - Create an asset schematic
  - Be aware of capital improvement projects
  - Track tasks and work orders
  - View a 10-year financial projection
  - Create a customized asset management plan

Visit the CUPSS website:  
[www.epa.gov/cupss](http://www.epa.gov/cupss)

Email questions/comments:  
[cupss@epa.gov](mailto:cupss@epa.gov)

Source:

<https://www.epa.gov/dwcapacity/resources-cupss-users>

# CUPSS User Guide

Available at:

<https://www.epa.gov/dwcapacity/resources-cupss-users>

## User's Guide



**Check Up Program for Small Systems**

Release 1.3.8

October 2014