Long Term Capital Planning

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Session Objectives

- Learn about two aspects of long-term system planning: asset management and capital planning

- Figure out how to pay for the future needs

In the Old Days...

- Water systems took advantage of the federal government's ambitious construction grants program of the 1970s and 1980s

- Everybody loved their "free" money

Capital Finance Today

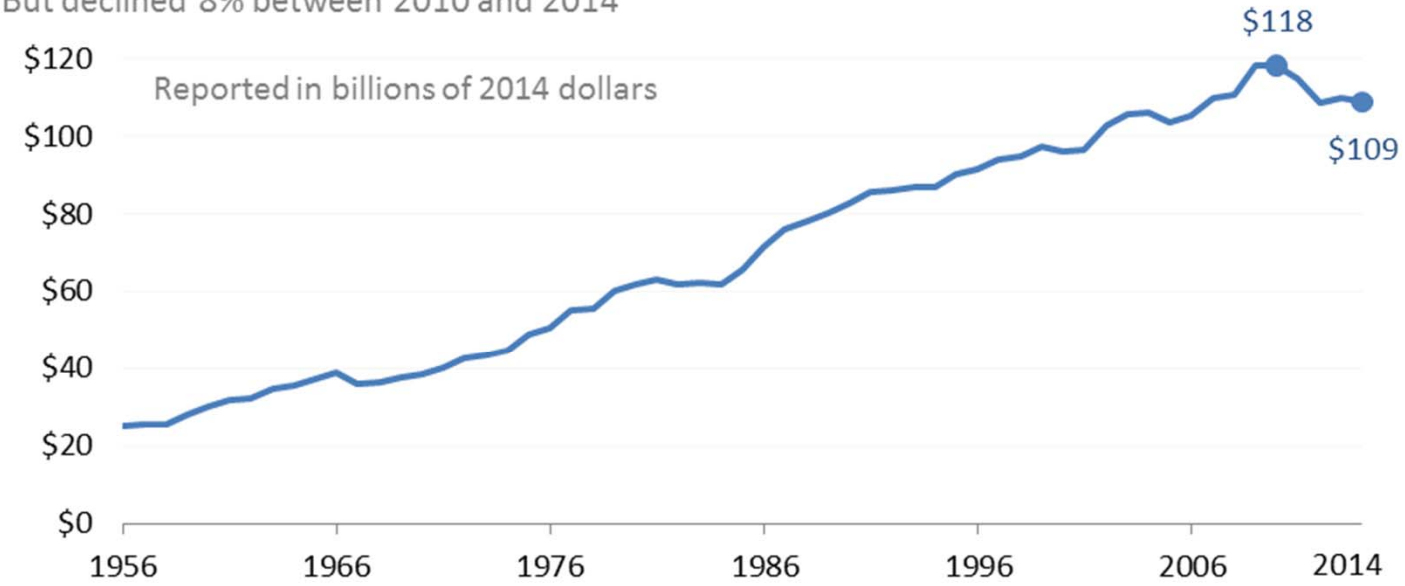
- The money never really was “free”—it came from tax dollars

- Today, there is a different philosophy of how to pay for water system capital improvements

Total Public Spending Has Grown...

Total federal, state and local government spending on water and wastewater utilities grew steadily over time

But declined 8% between 2010 and 2014

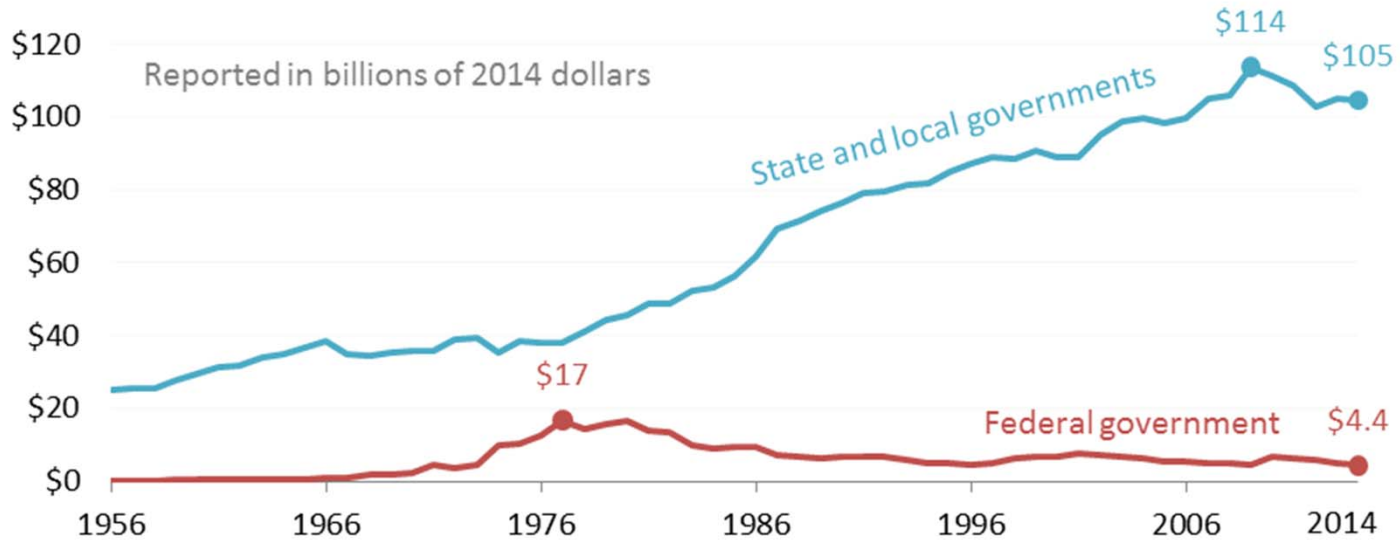


Graphed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Source: Congressional Budget Office supplemental data for the *Public Spending on Transportation and Water Infrastructure, 1956 to 2014* report (March 2015). Displays public spending on supply systems for distributing 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.

...Mostly from States and Locals

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



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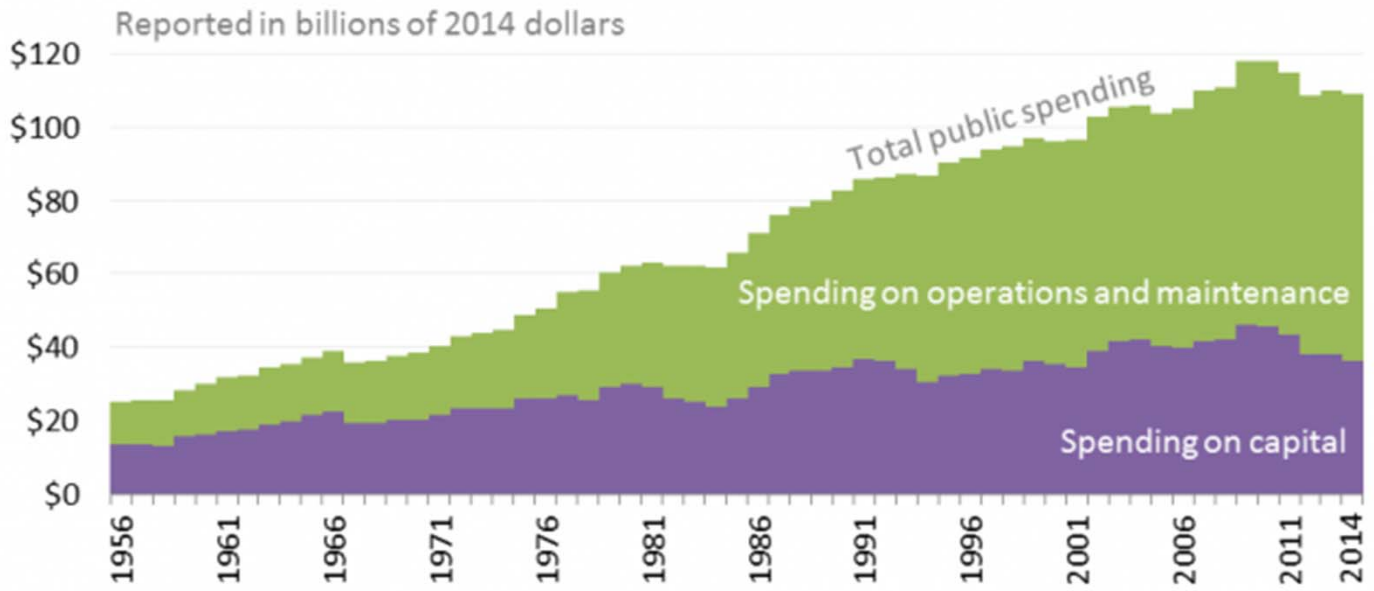
...And Mostly for O&M, not Capital

Federal, state and local government spending on water and wastewater utilities, 1956 - 2014



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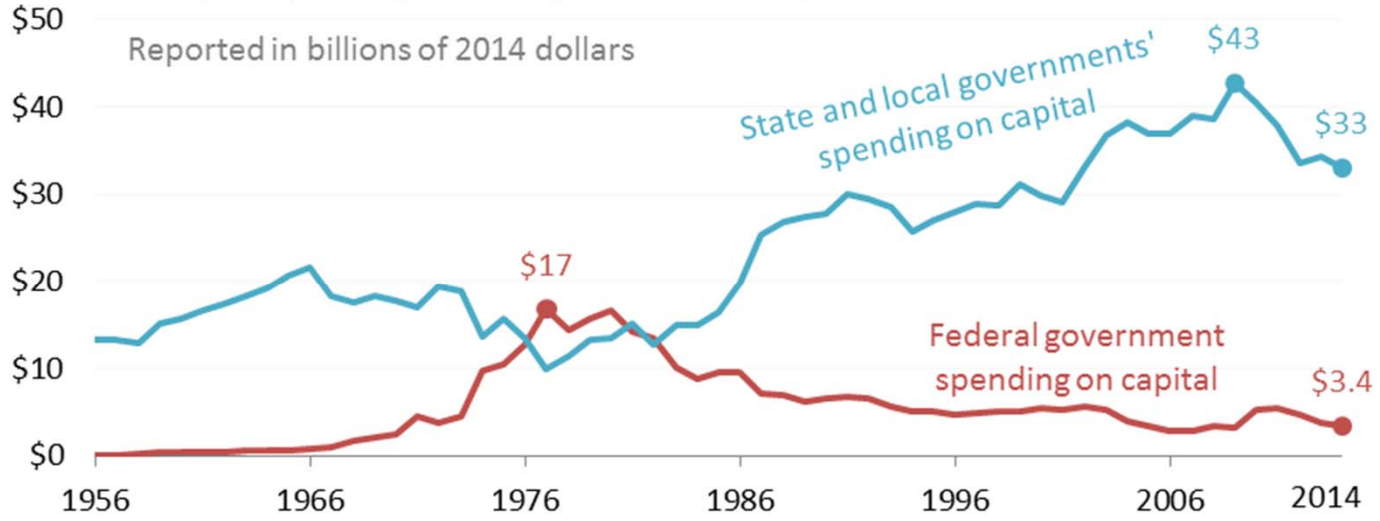
Feds Used to Spend More on Capital

Spending on capital infrastructure for water and wastewater utilities has increasingly been provided by state and local governments while federal spending on capital infrastructure declined since the 1980s

Over 90% of capital spending occurs by state and local governments



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Capital Finance Today

- In other words, you pay (no sense in sugar-coating this)

- The reality is that water and wastewater infrastructure is expensive, regardless of the size of your system. Smaller or poorer systems will likely have a hard time paying for capital improvements

http://efc.web.unc.edu/2015/09/09/four-trends-government-spending-water/

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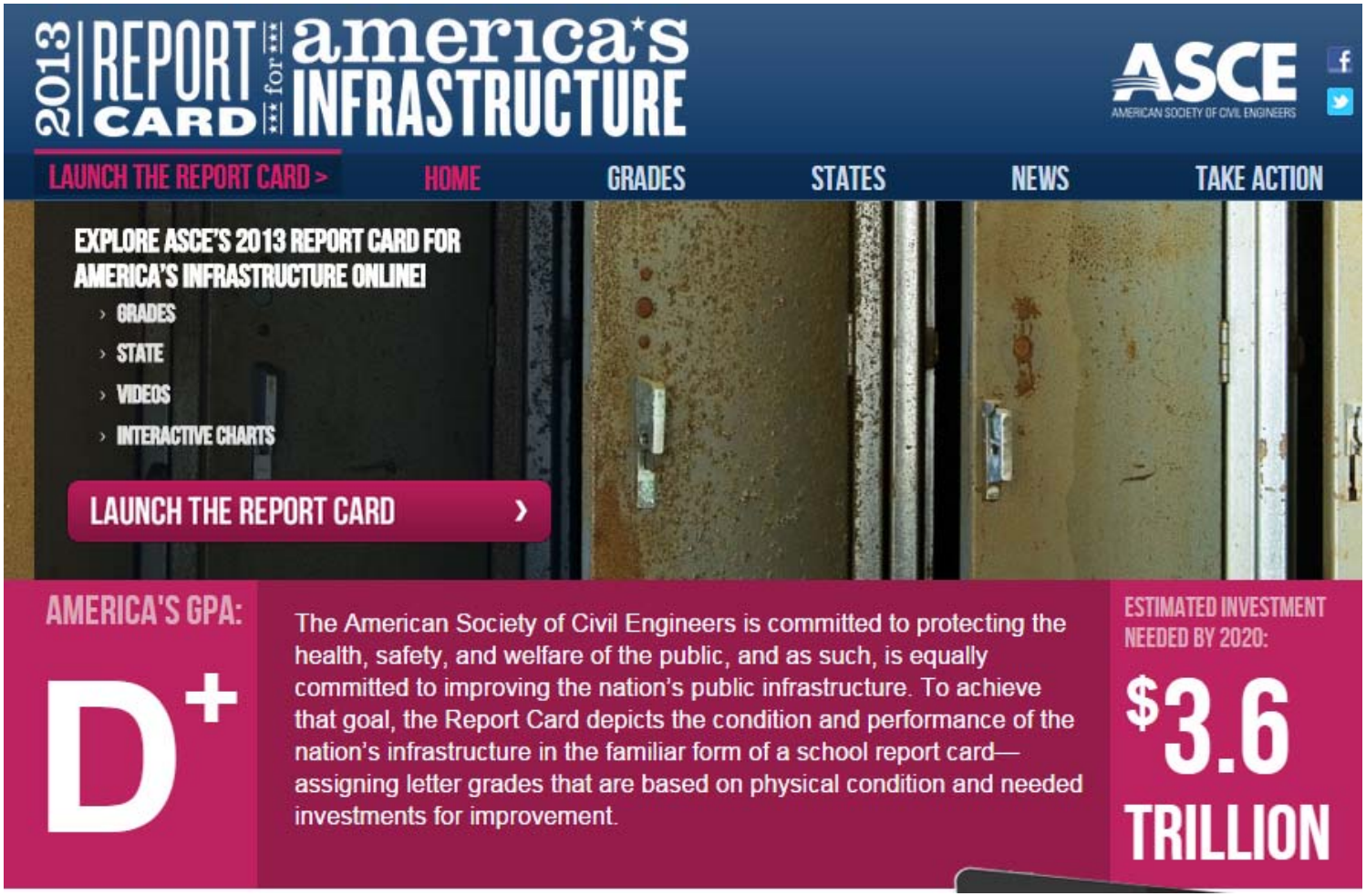
Four Trends in Government Spending on Water and Wastewater Utilities Since 1956

SEPTEMBER 9, 2015 / SHADI ESKAF / 0 COMMENTS

Print PDF

According to data collected and published by the Congressional Budget Office (CBO), federal, state and local governments in the United States spent more than $2.2 trillion in the last 59 years on operations, maintenance and capital infrastructure of water and wastewater utilities. That equates to more than $4,131,000,000,000 in 2014 dollars, adjusting for inflation of infrastructure-

Poor Investment → Poor Infrastructure



REPORT CARD

Aviation	D	Ports	C
Bridges	C+	Public Parks	C-
Dams	D	Rail	C+
Drinking Water	**D**	Roads	D
Energy	D+	Schools	D
Hazardous Waste	D	Solid Waste	B-
Inland Waterways	D-	Transit	D
Levees	D-	**Wastewater**	**D**

http://www.infrastructurereportcard.org/

Hope for Divine Intervention

the ONION®

Pope Francis Lays Hands On Ailing U.S. Infrastructure

NEWS IN BRIEF

September 25, 2015

VOL 51 ISSUE 38

News · Religion · World Leaders · Pope

NEW YORK—Treating the frail, long-overlooked structures with an unparalleled display of compassion, Pope Francis reportedly inspired a crowd of onlookers Friday by laying his hands upon the ailing United States infrastructure. "My heart just melted when I watched the pope

ONION VIDEO

Two Related Concepts:

Asset Management
&
Capital Planning

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

Let's hear from a practitioner...

Mike Daly, White Cliffs, NM Video Profile

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

Involve Staff

Measurable Goals: Internal and External

Track Progress Towards Meeting Goals

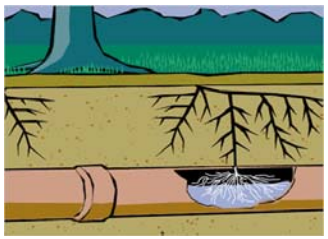
What would my customers want?

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?

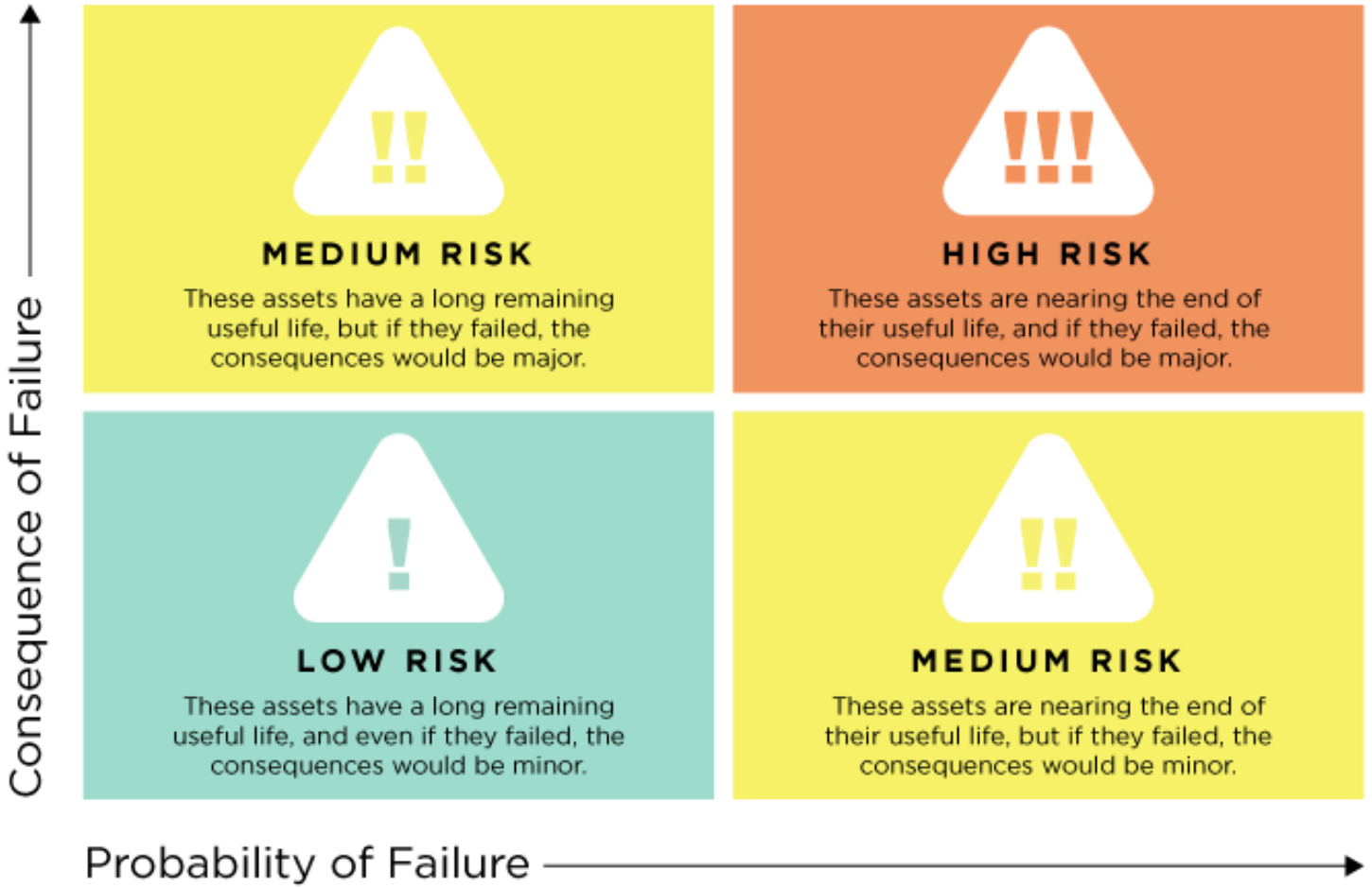


Asset Criticality

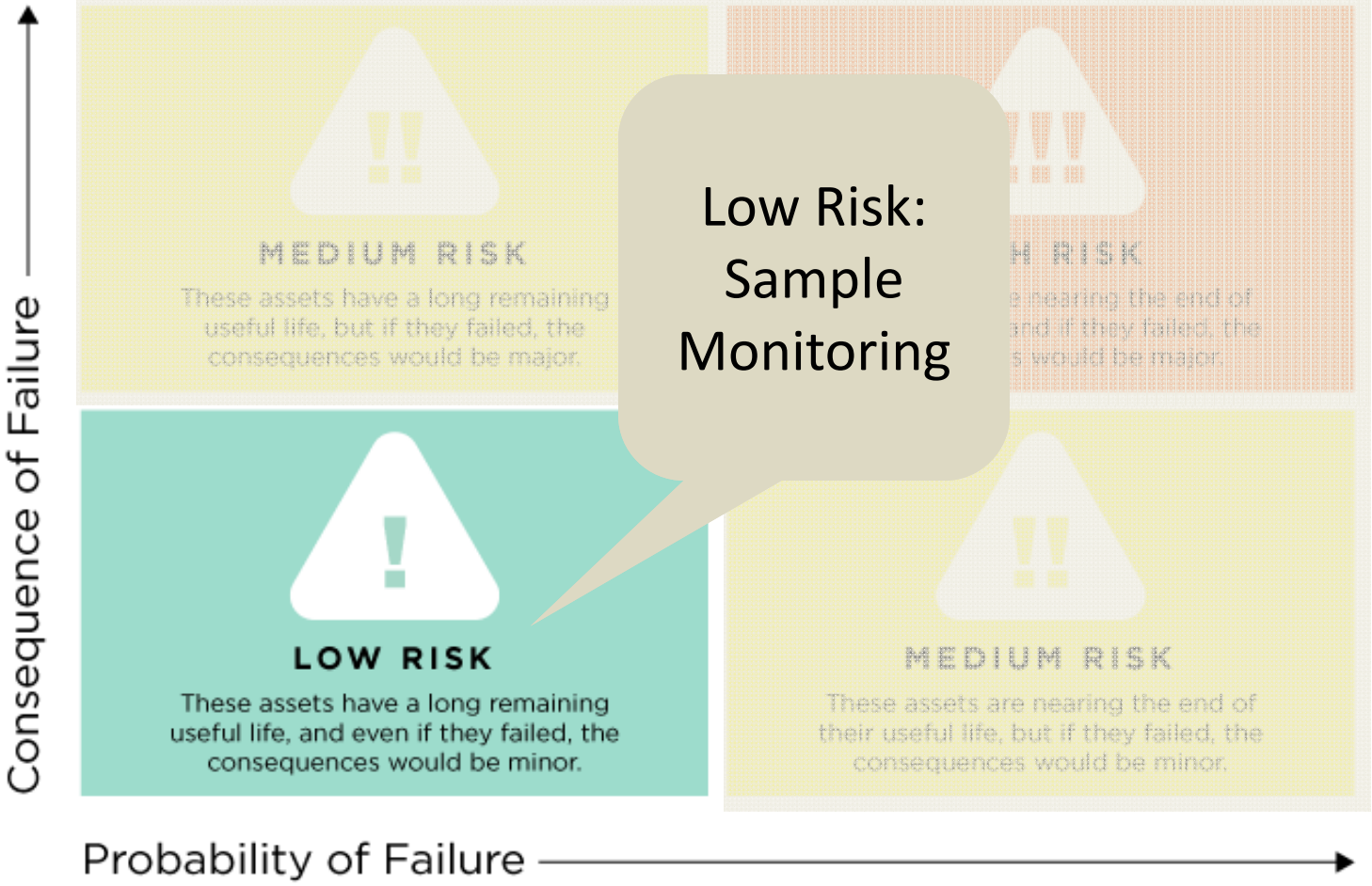
What is the consequence if the asset does fail?

- What is the cost of the repair?
- Are there legal consequences, environmental consequences, social consequences?
- Are there redundant assets?

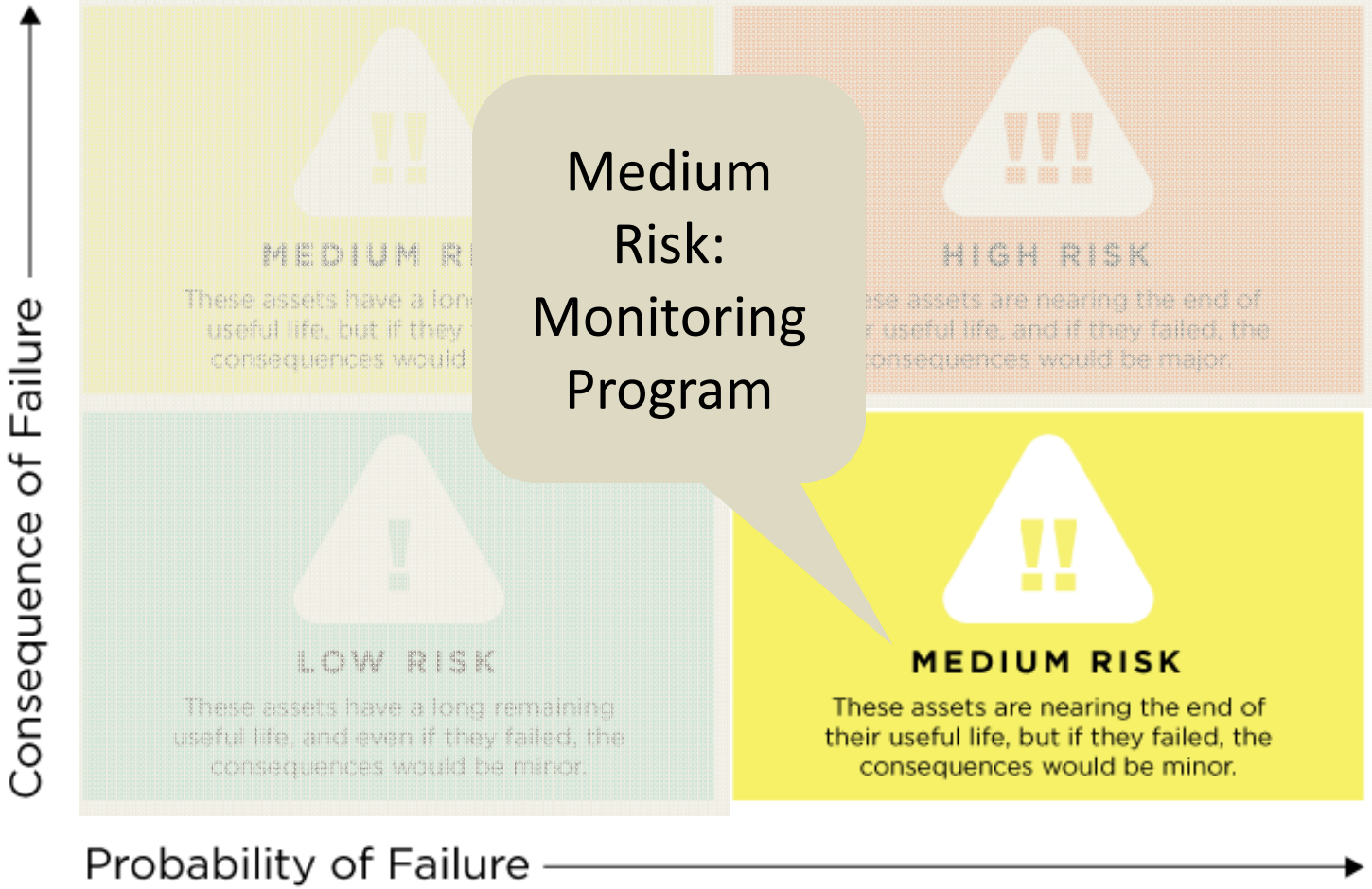
Asset Criticality



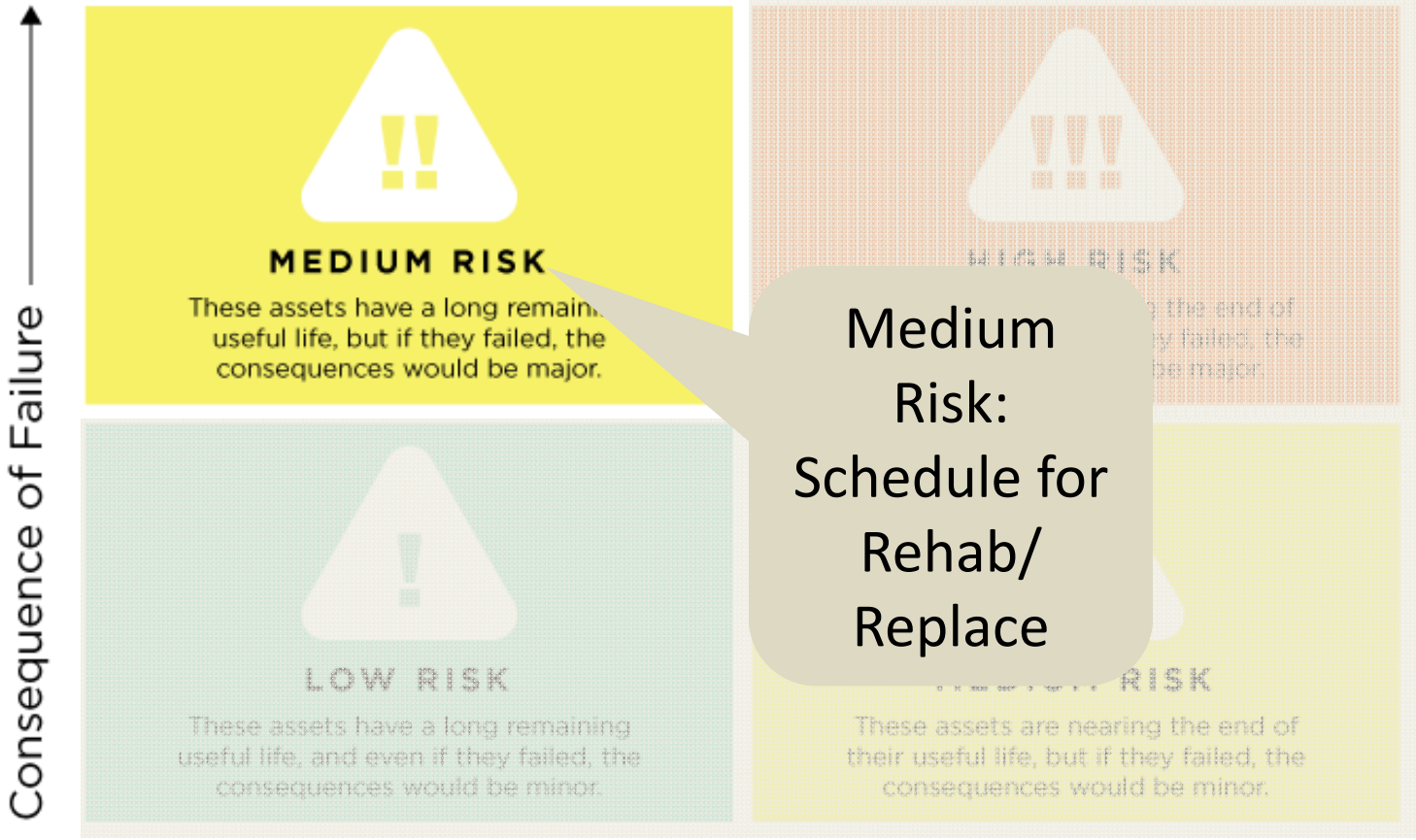
Asset Criticality



Asset Criticality

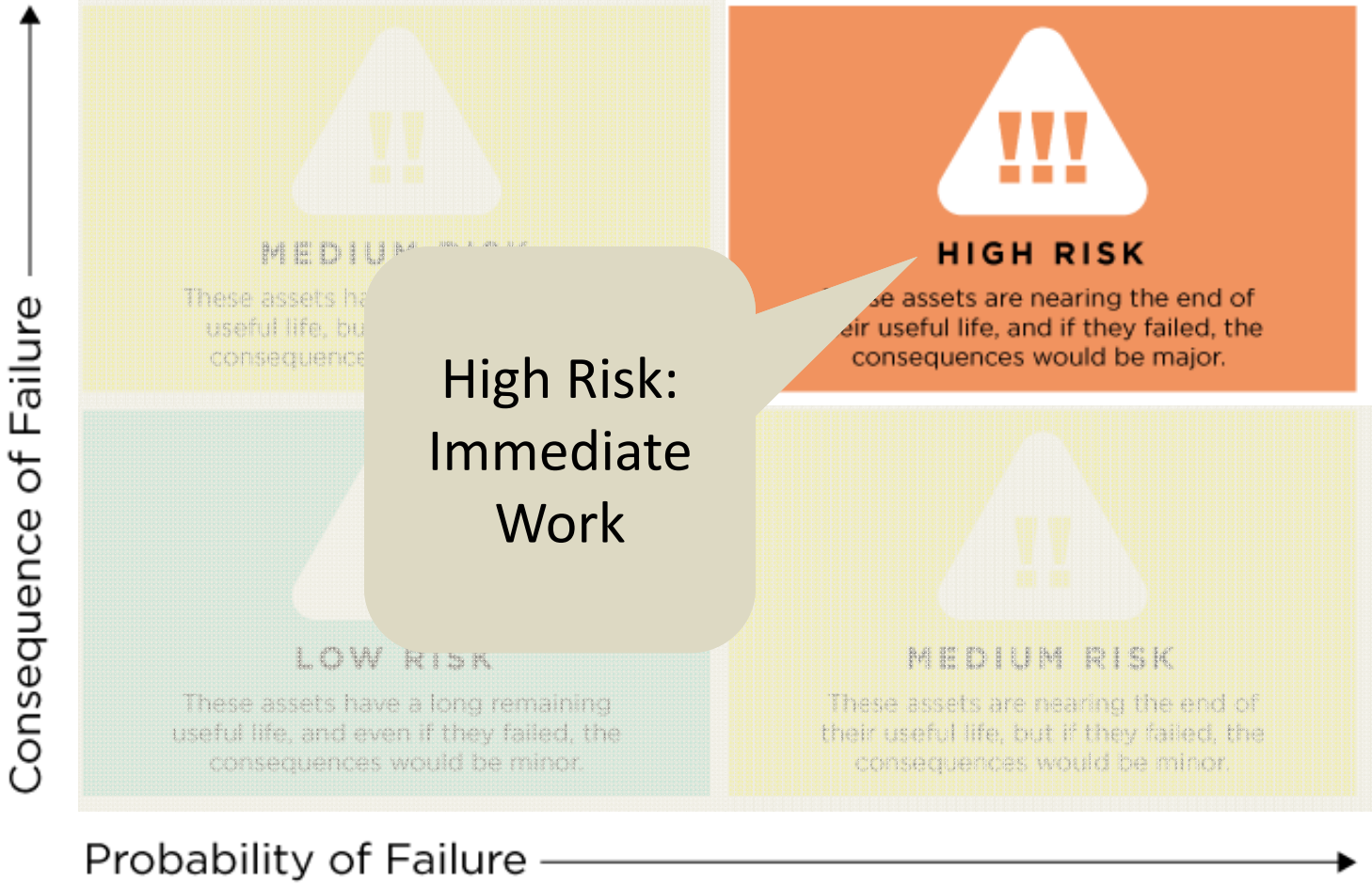


Asset Criticality



Medium Risk: Schedule for Rehab/ Replace

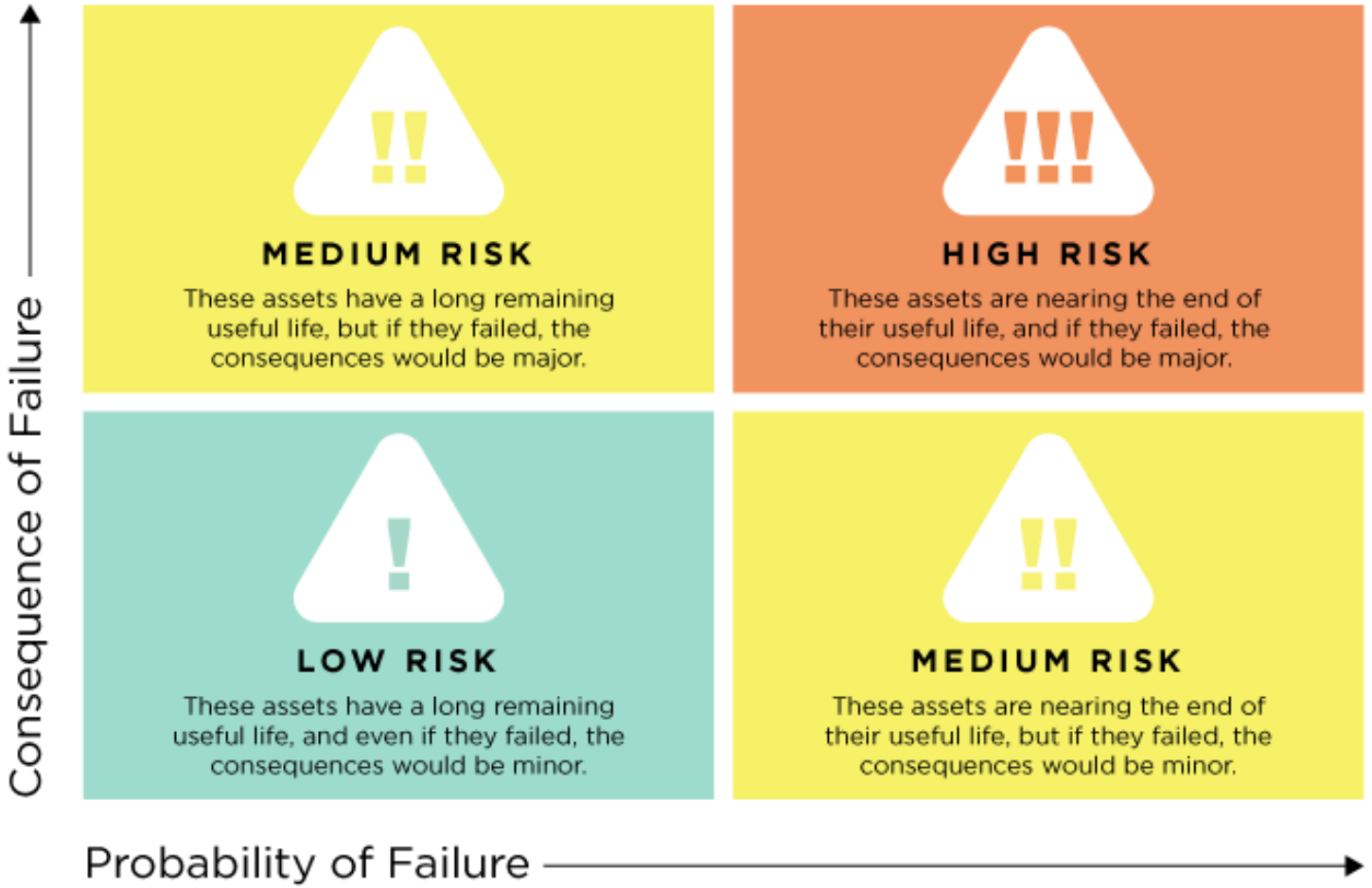
Asset Criticality



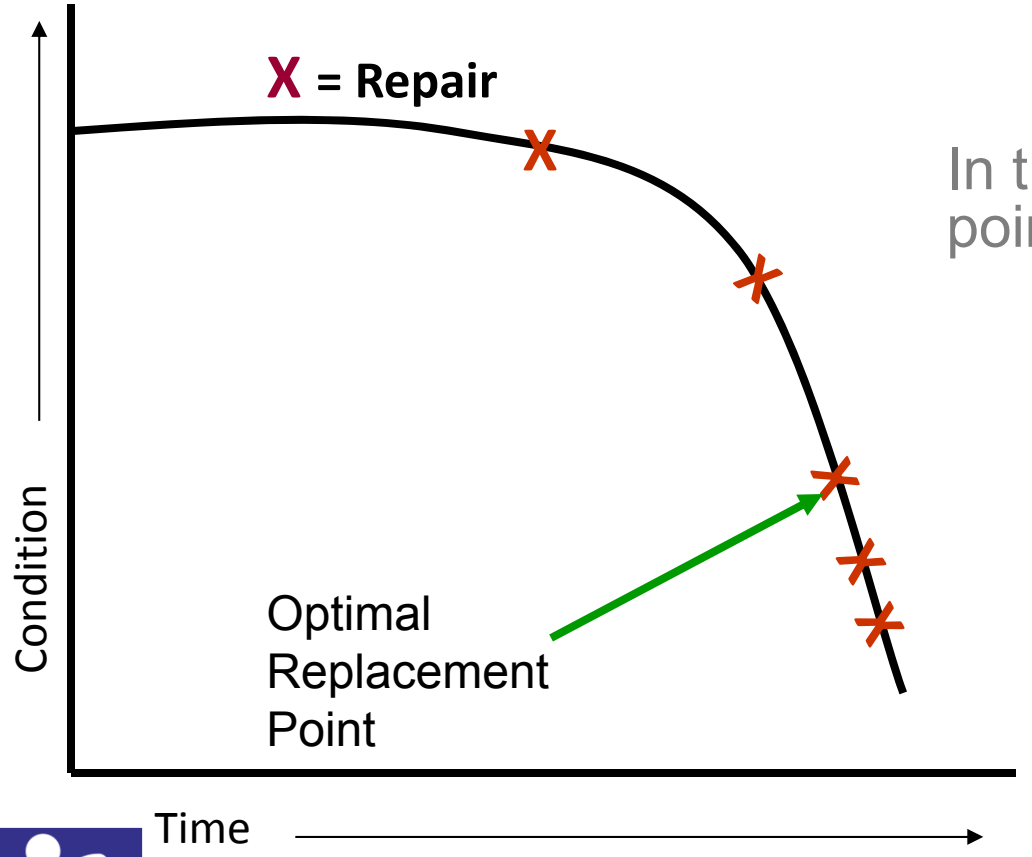
Quick Exercise—4 Assets

1. Brand new overhead storage tank
2. Aging booster pumps that serve a hospital and neighborhood
3. 20 year old lines on Forest Drive, a typical residential neighborhood
4. 20 year old meters

Asset Criticality



Life Cycle Costing: Replacement of Assets



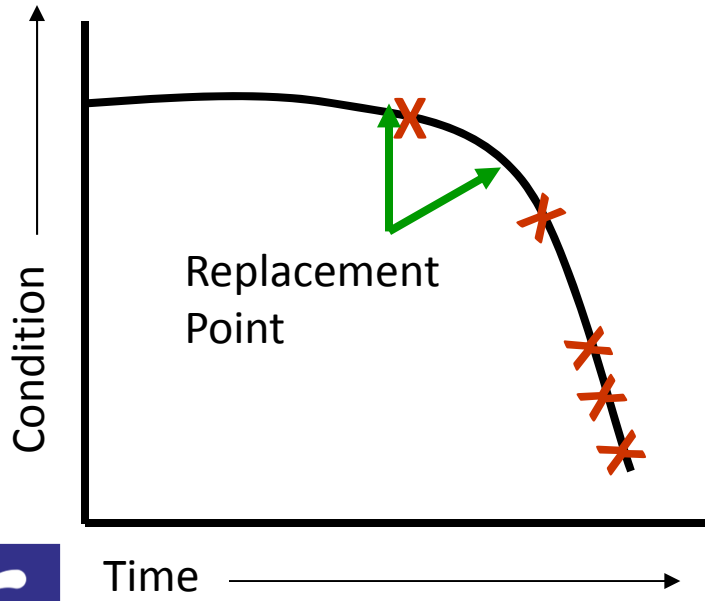
In theory, there is an exact right point at which to replace an asset

Not possible to know the optimal time to replace every asset

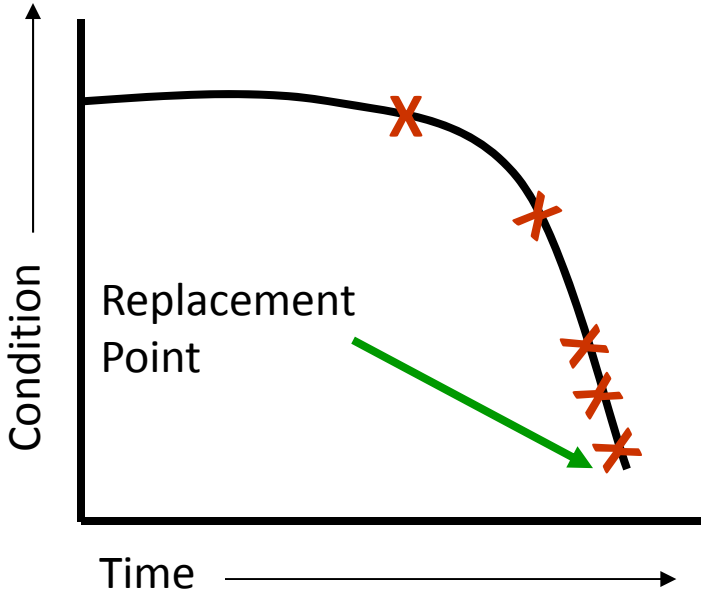
So… need to use the concept of risk

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

Capital Improvement Program

- Identify regulatory deficiencies (discuss with regulatory agencies, look at proposed regulations, talk to consultants), in a 10-20 year window
- Identify changes in service population

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.

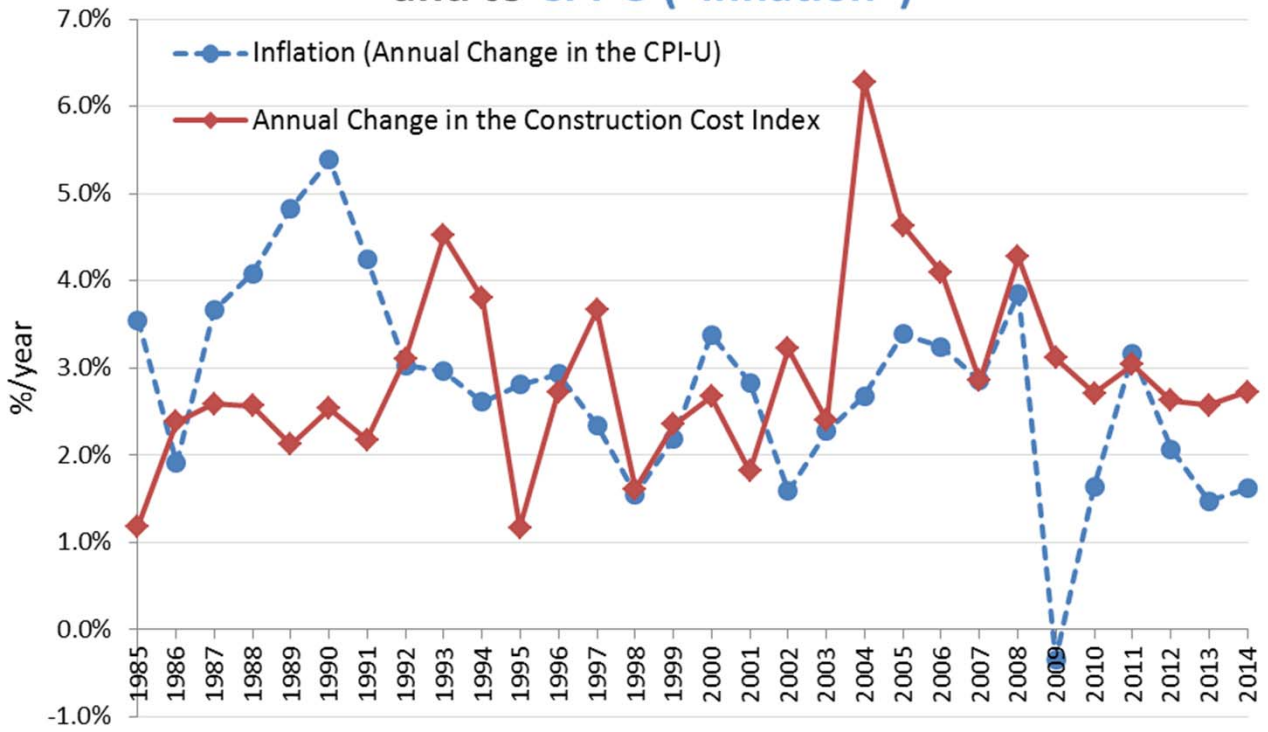
Capital Improvement Program - Timelines

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

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")



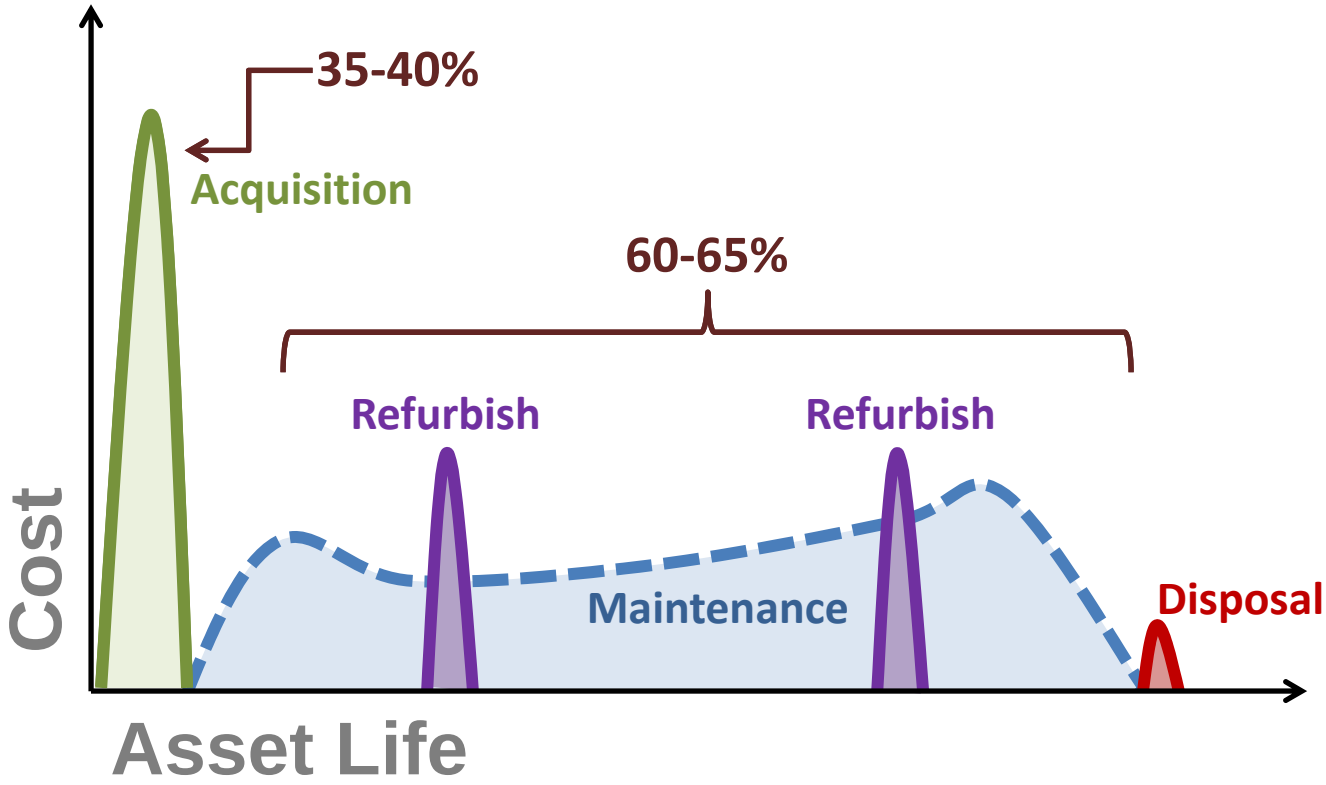
Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Data Sources: Bureau of Labor Statistics, Engineering News-Record ENR.com, InflationData.com, USDA Natural Resources Conservation Services.

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

Reminder: Life Cycle Costing

- Purchase Price ≠ Total Price

Capital Investments are Just the Tip of the Iceberg…



Source: Adapted from Steve Allbee, USEPA

Resource Webpage for Capital Planning

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About Services Programs Resources Eve

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 F Future"

Read a short blog post on selecting an appropria

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

Last updated: February 2011

Categories	EPA's "Asset Management: A Handbook for Small Water Systems"	Jack Vogt (SOG Faculty)'s "Capital Budgeting and Finance Guide"	DENR PWSS Capacity Development Program	DENR PWSS Loans and Grants	DENR DWQ Construction Grants and Loans	G.S. 159G-23	USDA Loans and Grants	NC Rural Economic Development Center	Local Government Commission 108-C Form	EPA Drinking Water Needs Survey	DENR DWR Local Water Supply Plans	EPA Software: CUPSS
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

EFC C.I.P. Tool

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

Free, simplified CIP tool using only MS Excel (EFC @ UNC)

Tool developed by UNC ENVIRONMENTAL FINANCE CENTER

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

Version 2.0 (Created September 2012)

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

Next: Enter C.I.P. Projects | View Fund Balance | View Dashboard

INSTRUCTIONS

1) Use tabs at bottom of screen and buttons to navigate to different pages.

2) In "Data Input 1", enter utility characteristics, rates and usage information in blue cells.

3) In "Data Input 2", enter details on capital improvement projects in the light blue cells. Each row is a different project.

4) In "20-Year Projections", view your fund balance projections for 20 years and observe the estimated rate increases needed each year to pay for your Capital Improvement. No data entry required on this page.

5) After all your utility information and capital improvement project details are entered, go to the "Dashboard" to view long term trends in your financial reserves, rate increases and average bills, and capital investments.

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Development of this tool was funded by the NC Department of Environment and Natural Resources and the U.S. Environmental Protection Agency

Download this tool at www.efc.unc.edu/tools

Software: CUPSS (EPA)

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