Long Term System Planning

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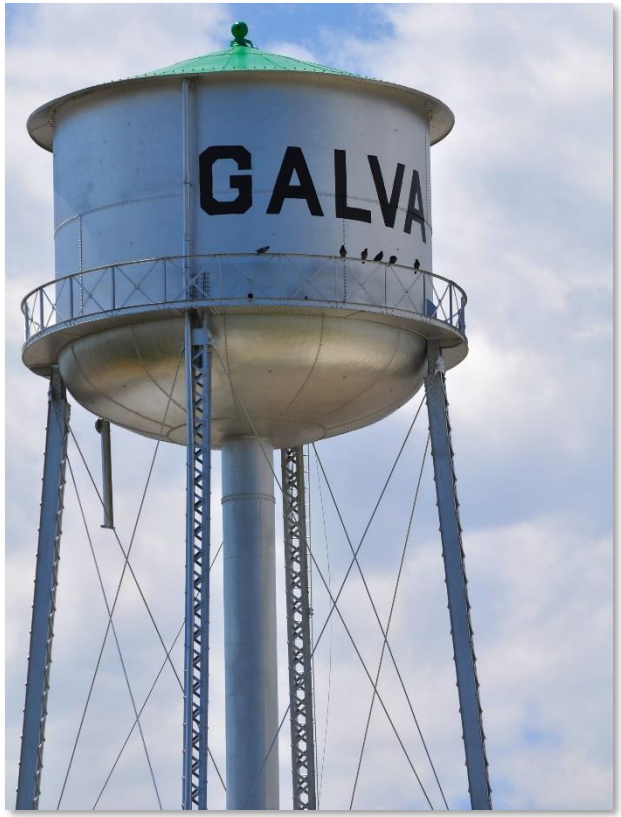
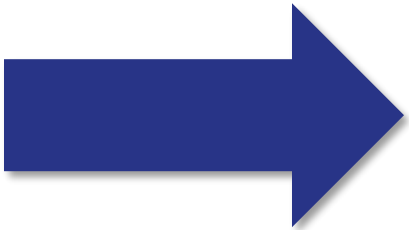
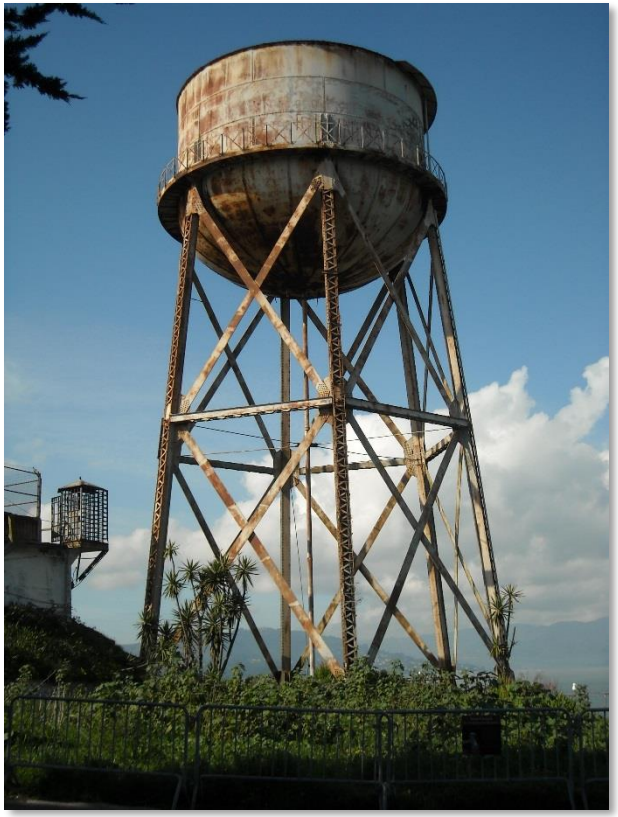
Infrastructure or Capital Assets

Infrastructure Wears Out







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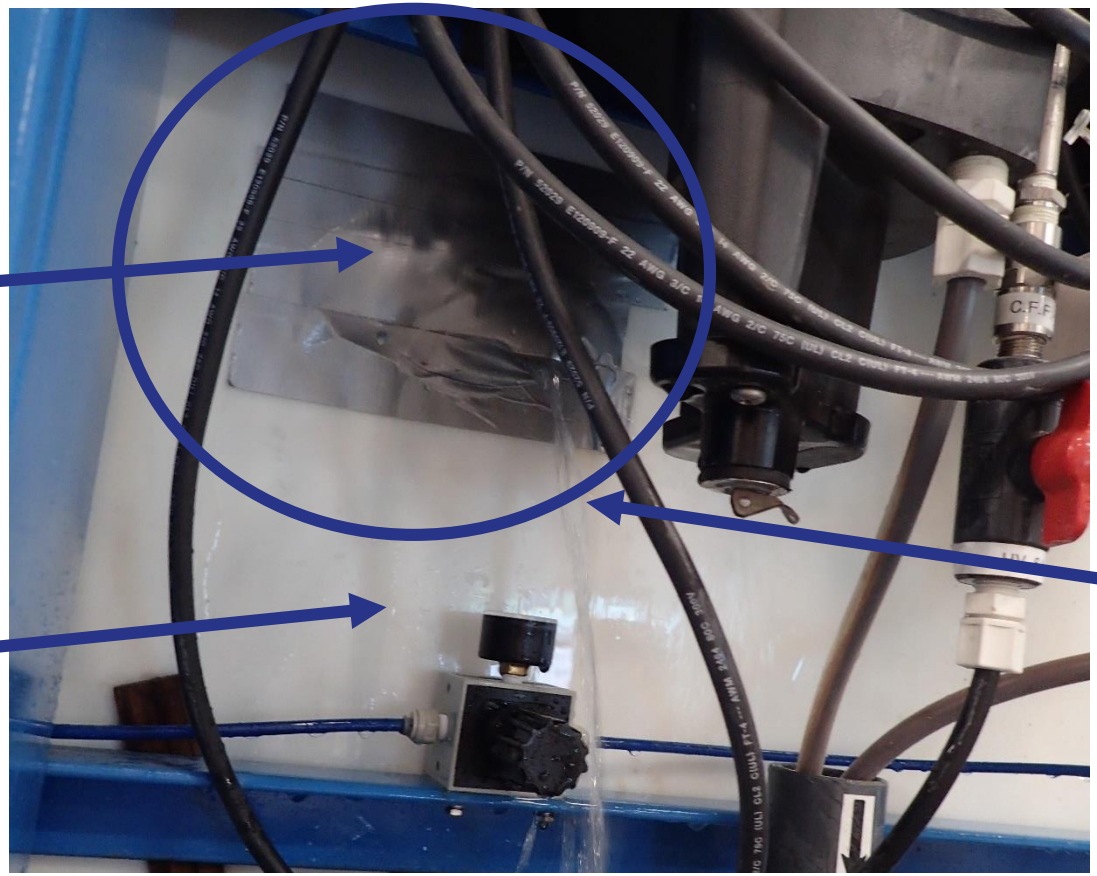


Water Tank

Leak

There are two ways to keep up your infrastructure...

Ways to Keep Up Infrastructure

Mike Daly · White Cliffs MDWUA, NM

Ways to Keep Up Infrastructure

Source: https://www.youtube.com/watch?v=rH867Y-8-VM

Two Ways to Fix Things

Proactively
Repair, rehabilitation and replacement on a set schedule

Reactively
You wait for it to break

Being Proactive

- Requires long term system planning—Asset Management and Capital Planning

- Has its advantages, according to people in the field...

Measuring Needs, Not Guessing

Ted Riehle · Old Forge, NY

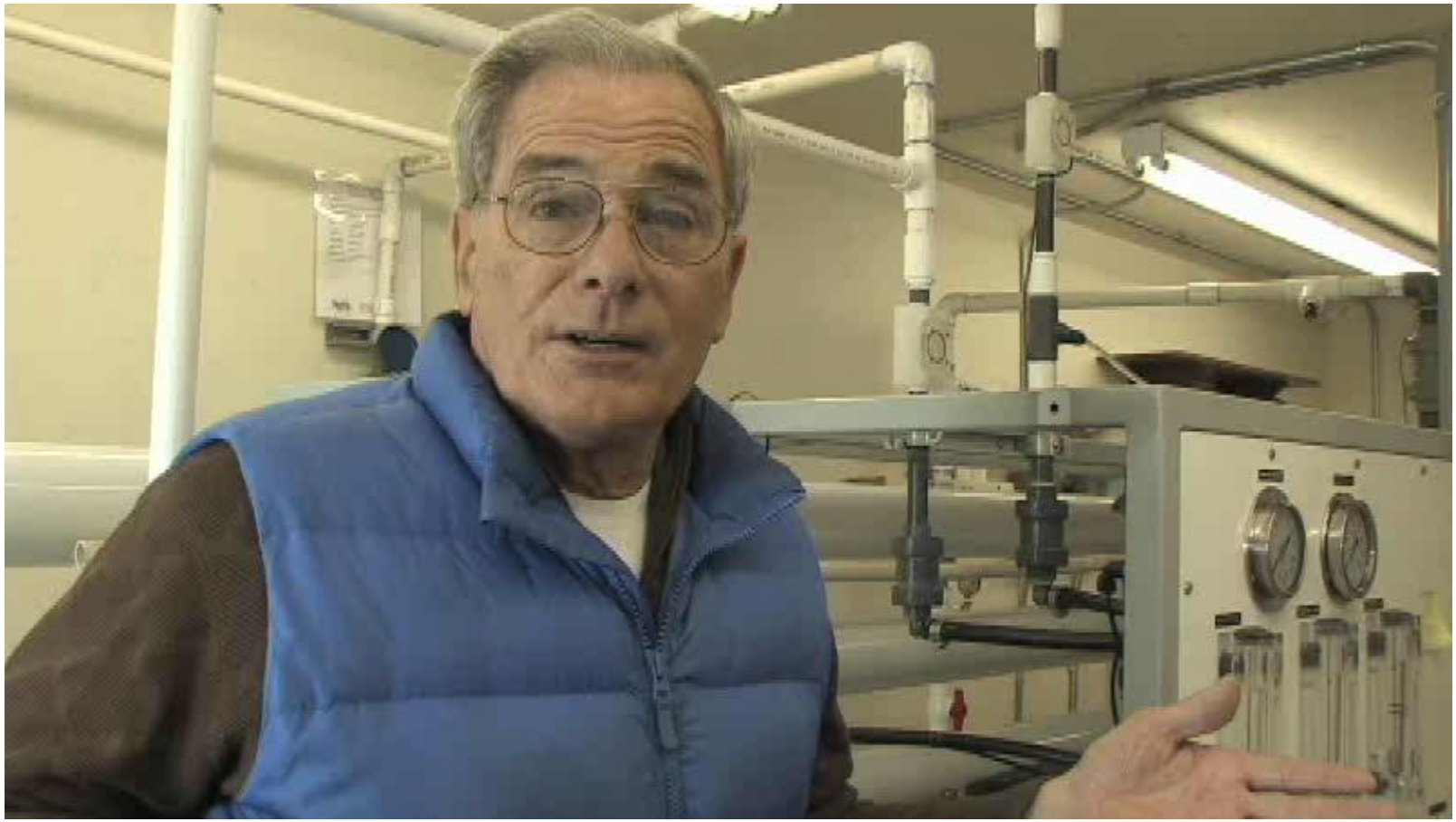
Better Board Communication

Chris Jacobs · Somersworth, NH

Efficient System Management

Doug Powers · Tucumcari, NM

Fewer Emergencies

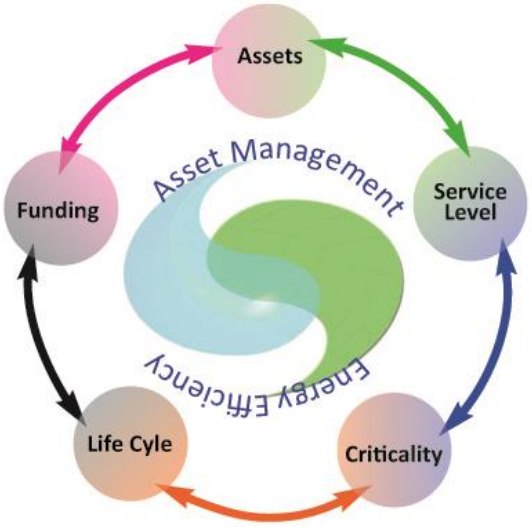


Mike Daly · White Cliffs MDWUA, NM

Justification for Rate Increases

Ted Riehle · Old Forge, NY

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

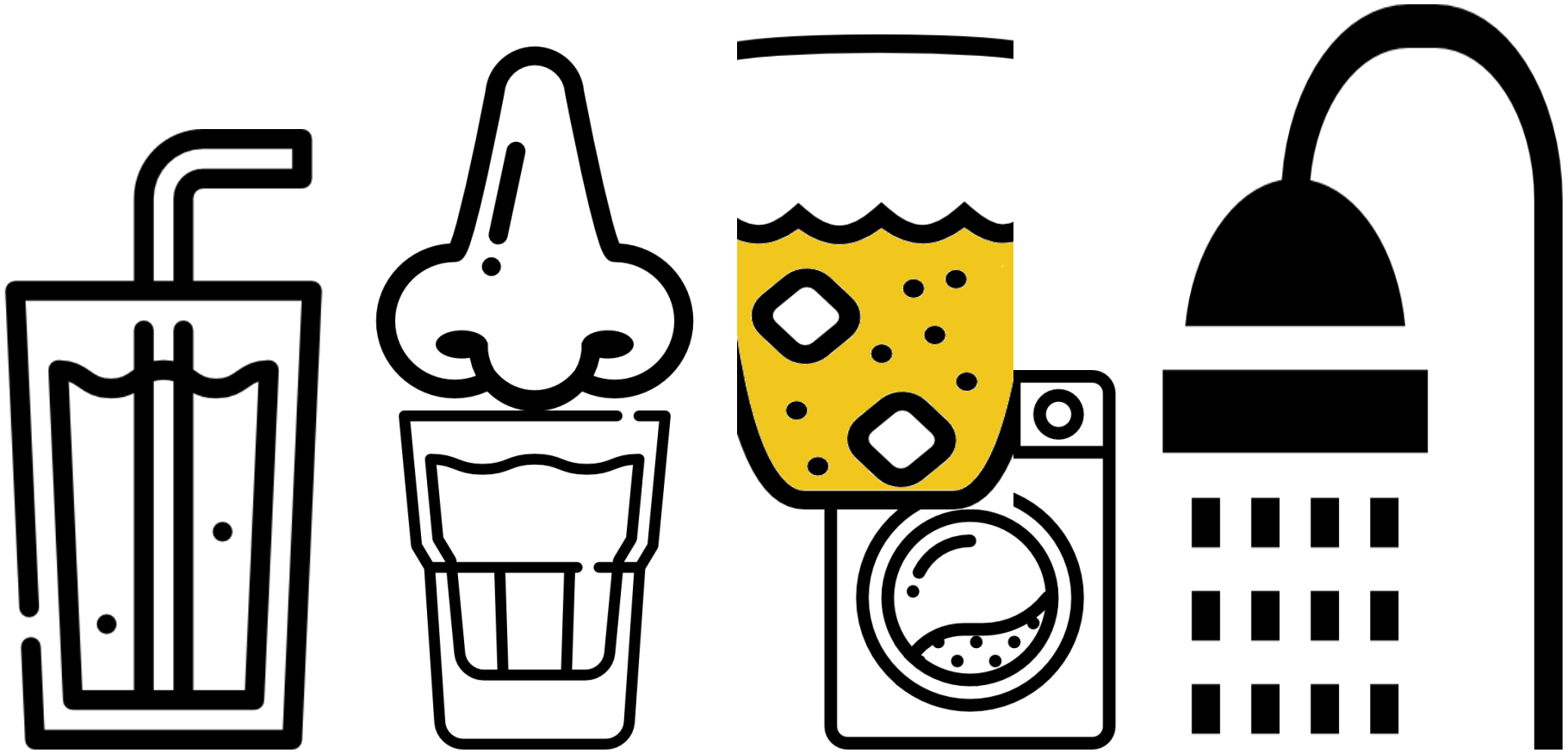
Measurable Goals: Internal and External

Track Progress Towards Meeting Goals

Involve Staff

What would my customers want?

What do customers care about?

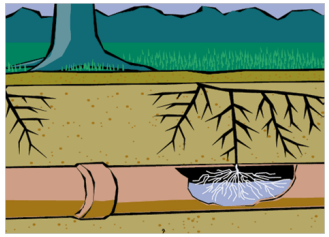


Asset Criticality

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?

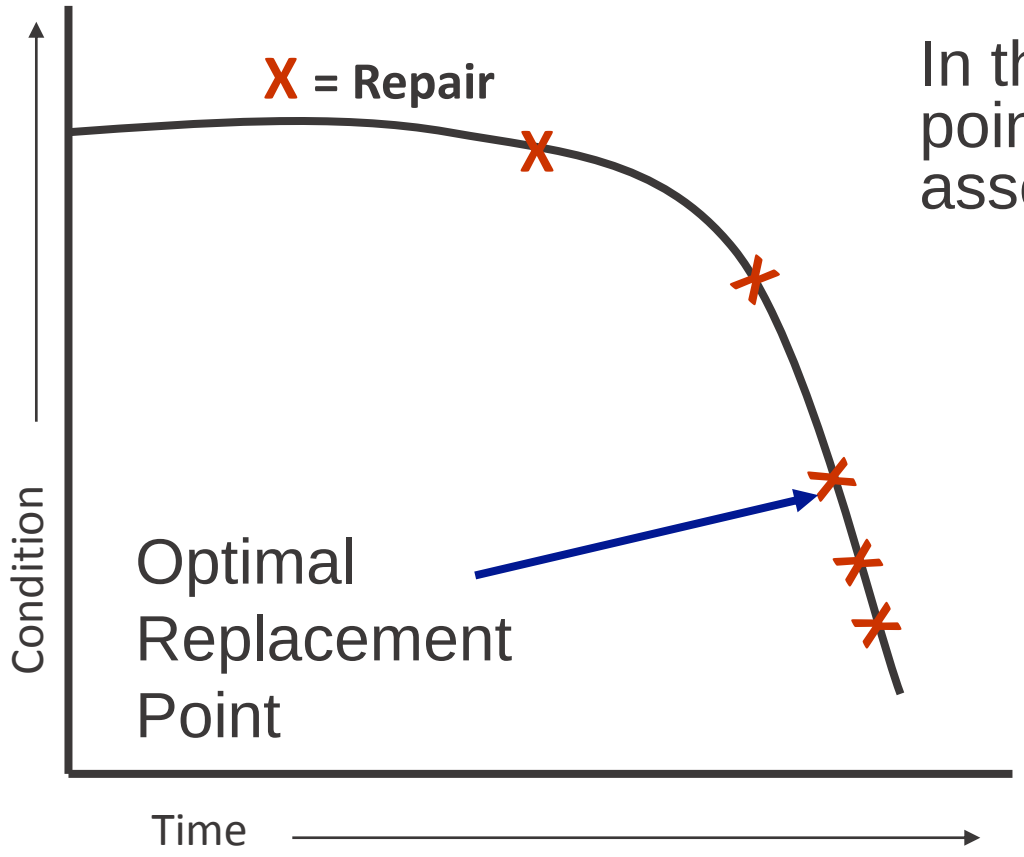
Asset Criticality

Quick Exercise—4 Assets

1. Brand new well
2. Aging portable generator used in emergencies in an area with a hospital and a 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



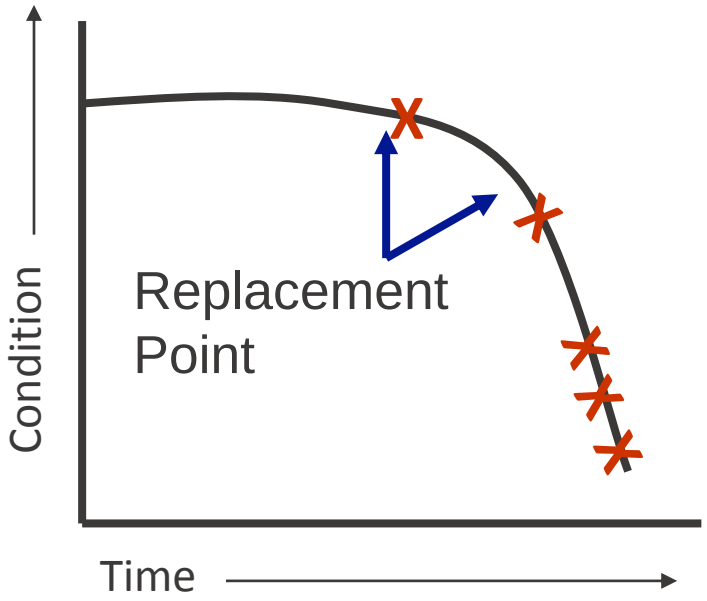
In theory, there is an exact right point at which to replace an asset

Not possible to know the optimal time to replace every asset

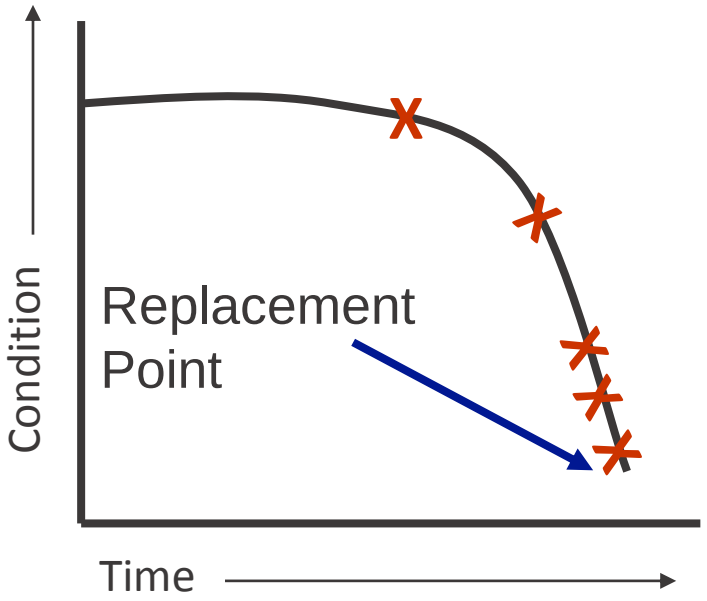
So… need to use the concept of risk

Life Cycle Costing & Risk

High risk assets:
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

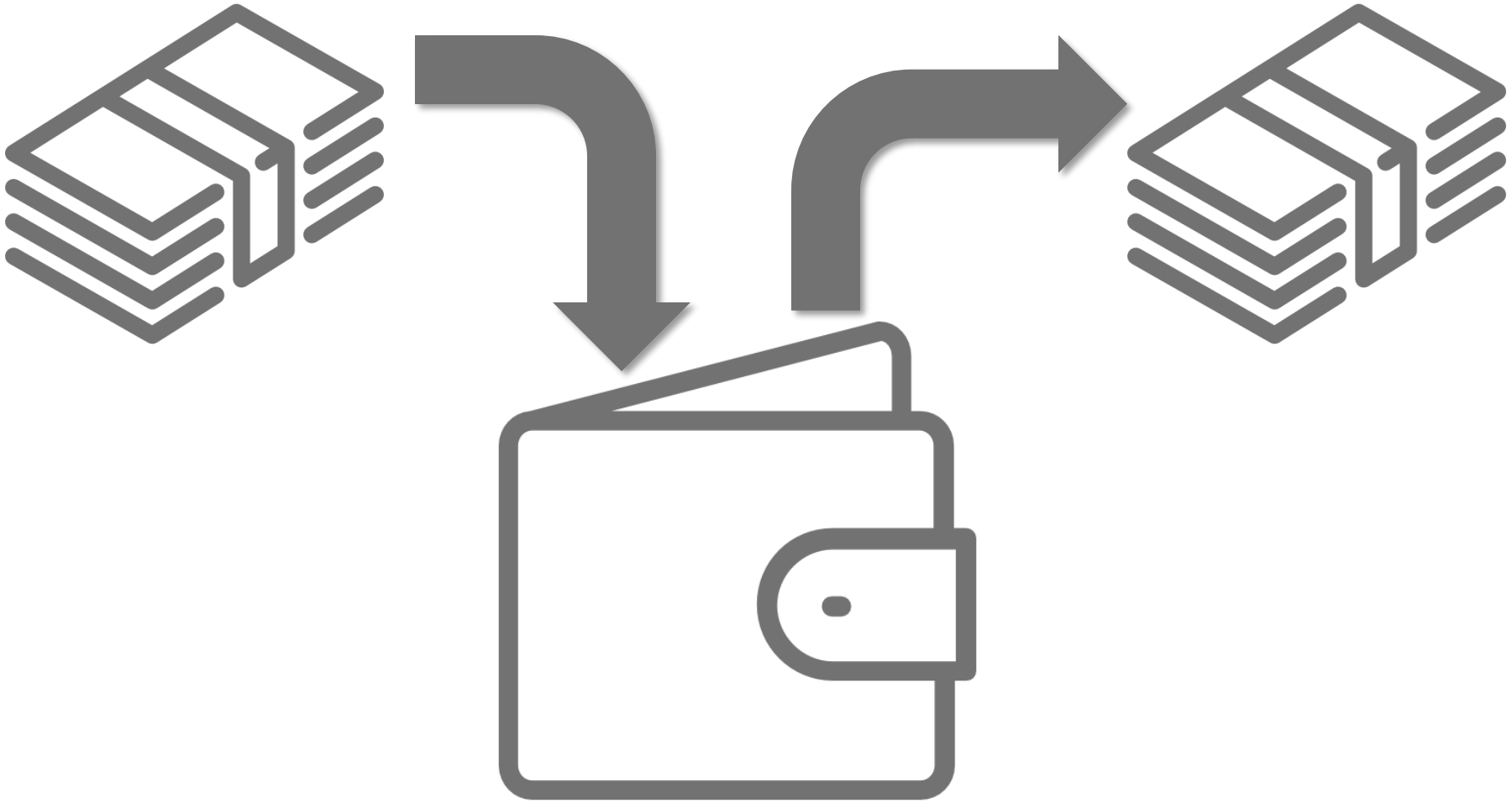
Long Term Capital Planning

- This is strongly related to asset management

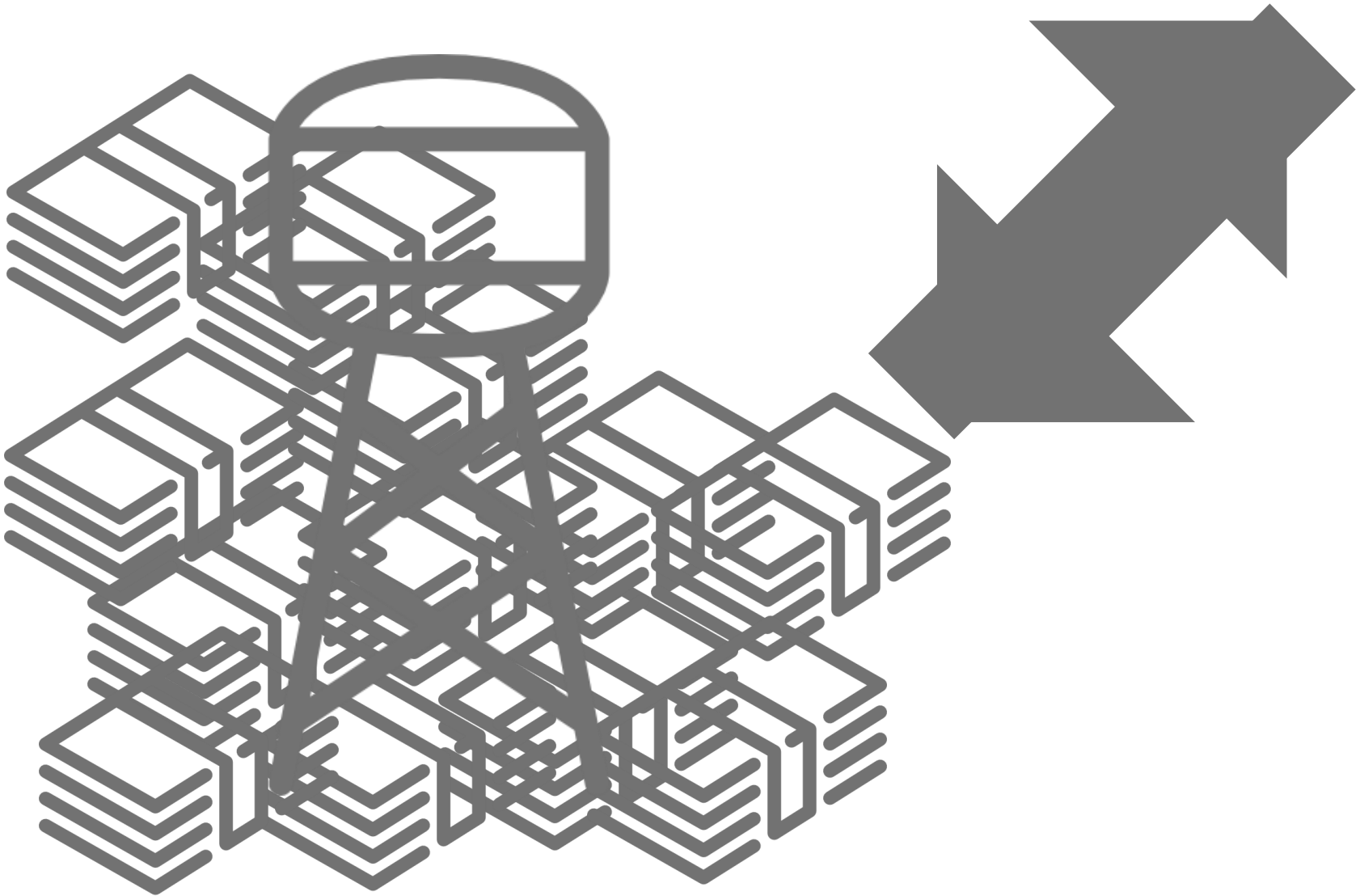
- An official multi-year document that identifies and prioritizes capital projects, identifies funding sources, and sets timelines

Four approaches to paying for capital improvements

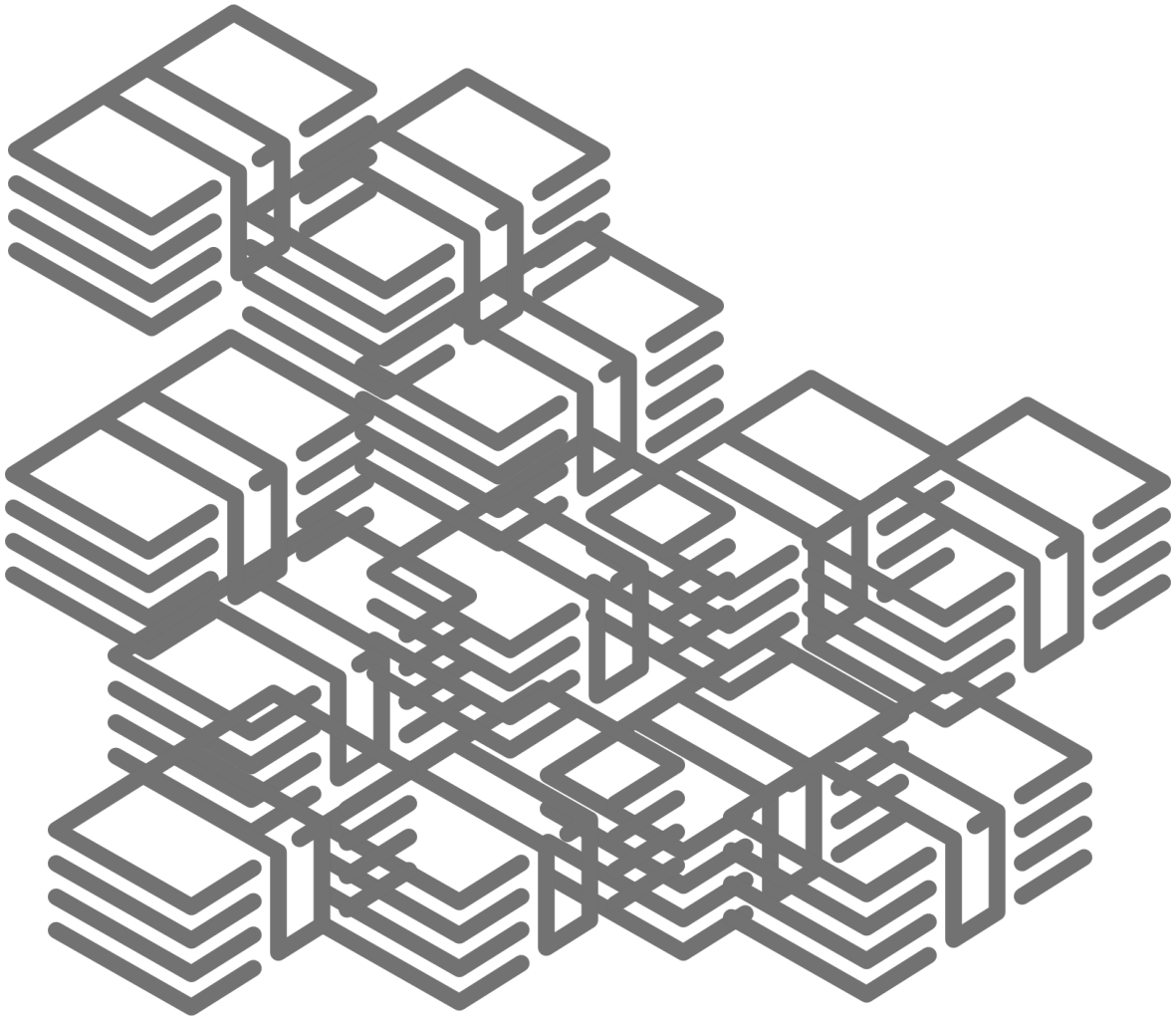
Pay As You Go



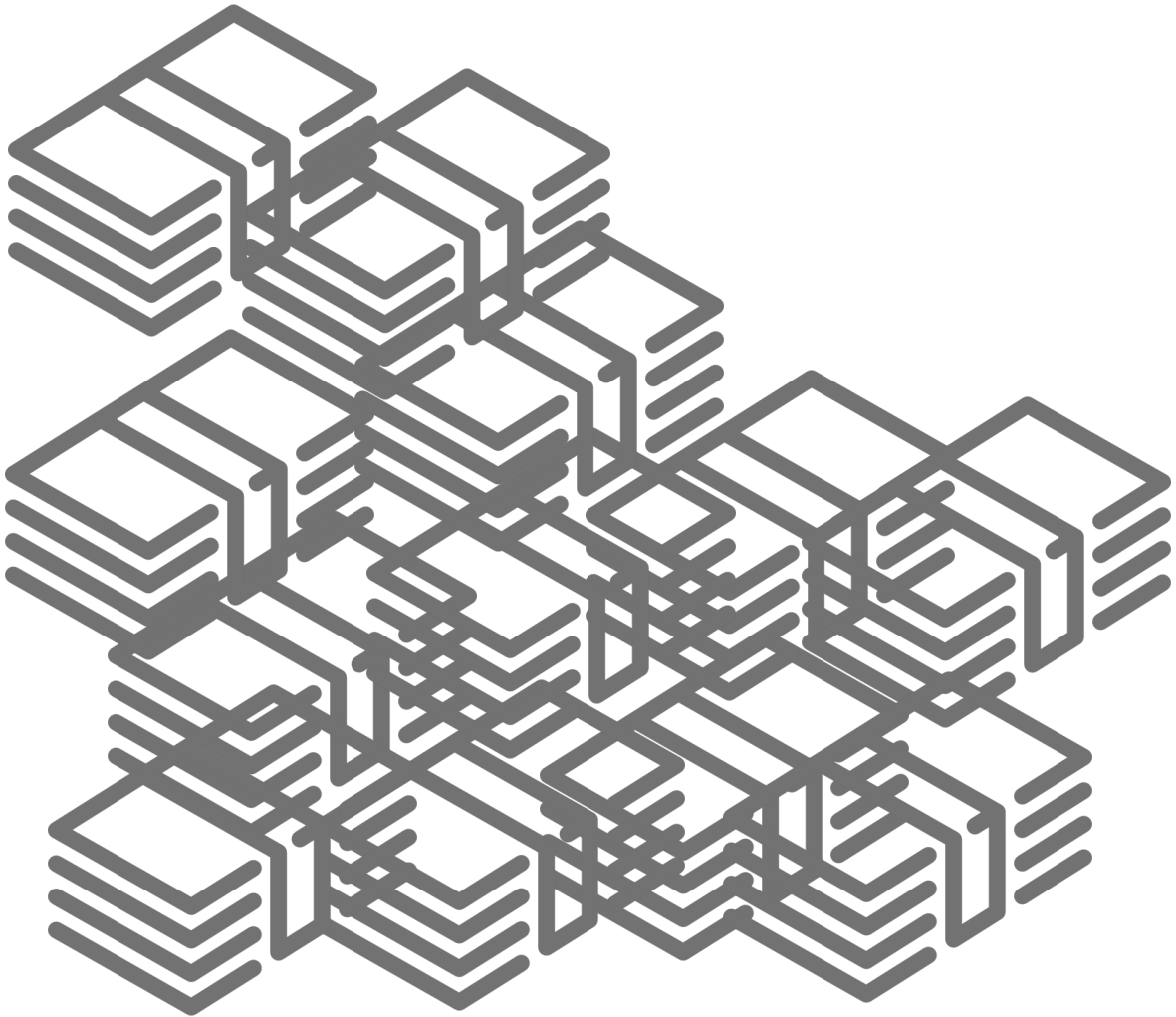
Save In Advance and Pay

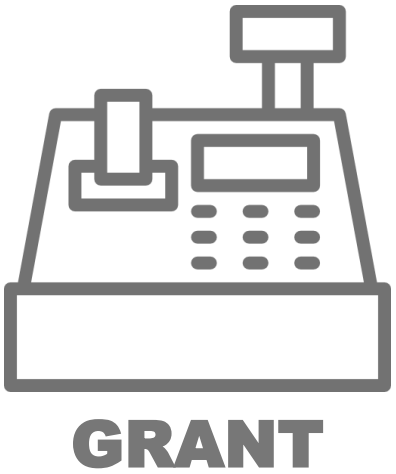


Borrow and Pay Later



Get 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

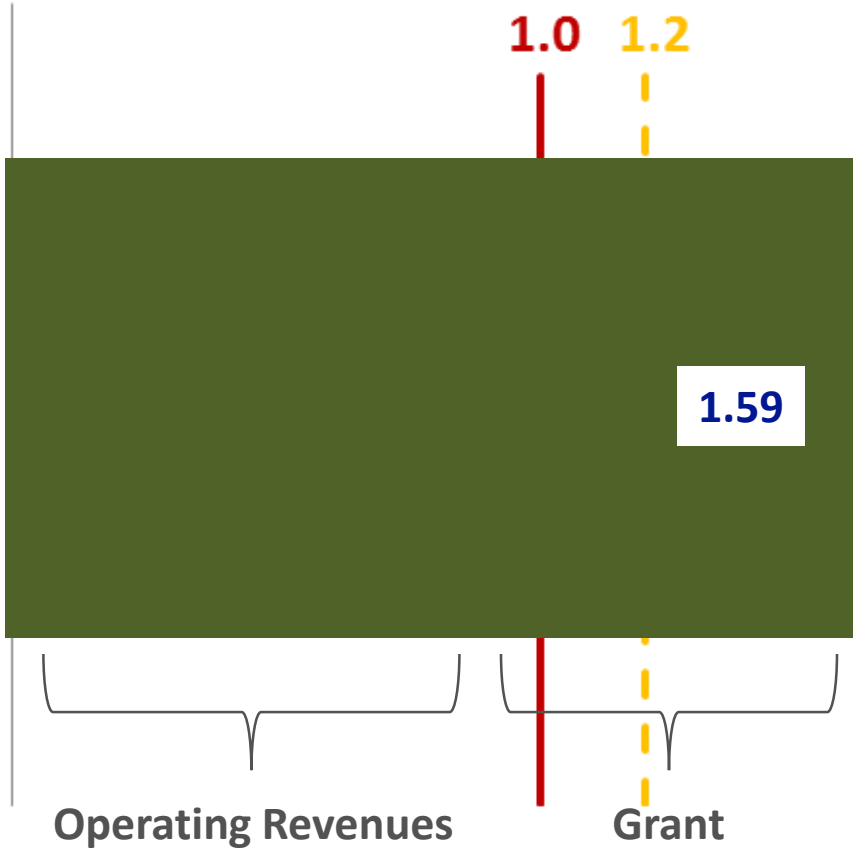
Quick Thought on Grants

- This presentation is about ***sustainable*** program finance

- Grants are not sustainable finance

Grants Can Distort Operating Ratio

Sewer Program from Michigan



Ways To Pay

- Pay as you go
- Save in advance and pay
- Borrow and pay later

Money from your customers

- Grants (let someone else pay)

Not easy to come by

What is Depreciation?

- Loss of value of an asset not restored by current maintenance
- An economic fact for any water system
- From both physical factors and functional or non-physical factors

Causes of Depreciation

Physical Factors

- Wear and tear resulting from use
- Decay, rot, rust, and corrosion from the passage of time and the elements
- Related to the extent that there is regular maintenance

Source: AWWA's Financial Management for Water Utilities: Principles of Finance, Accounting, and Management Controls

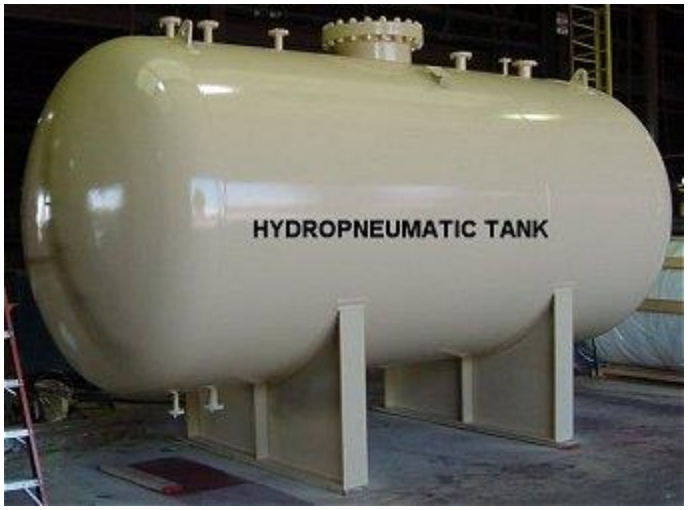
Causes of Depreciation

Functional or Non-Physical Factors

- Obsolescence due to new designs, innovations, and other improvements
- Inadequacy to meet current demand
- Changes in regulations

Source: AWWA's Financial Management for Water Utilities: Principles of Finance, Accounting, and Management Controls

Straight Line Depreciation Example



Large Hydropneumatic Tank

Purchase Price:

$10,000

Useful Life:

10 years

Annual Depreciation:

($1,000)

“Fully Funding” Depreciation

- By the time the asset is scheduled to wear out, you will have saved the purchase price of the asset

- This isn’t as good as doing asset management and capital planning, but it is better than nothing

https://www.youtube.com/watch?v=d8A7MJXFV1U&t=1115s

So What Can Systems Do?

- Pay as you go
- Save in advance and pay
- Borrow and pay later
- Grants (let someone else pay)
- Defer rehabilitation/replacement

Tip!
You can mix and match approaches

Capital Planning Exercise

- For this example small town, let’s look at their annual budget

Find Budget Expenses

What here is related to regular repair and maintenance, if anything?
(Operating cost)

What here is related to asset rehabilitation or replacement, if anything?

(Capital cost)

Note: Don’t include salaries

Repairs and Maintenance

25	30-810-07 W/S OVERTIME	$4,500.00
26	30-810-08 MERIT BONUS	$3,000.00
27	30-810-09 HOLIDAY/EMPLOYEE APREC	$1,200.00
28	30-810-10 POSTAGE	$2,700.00
29	30-810-11 Office Supplies/Repairs	$4,700.00
30	30-810-12 PHONE	$3,400.00
31	30-810-13 W/S UTILITES	$30,000.00
32	30-810-14 TRAINING	$2,400.00
33	30-810-15 Employee Screening	$105.00
34	30-810-16 MAINT/REPAIR:SYST-EQUIP	$30,000.00
35	30-810-17 Mayor Salary	$1,800.00
36	30-810-18 Board Salary	$10,500.00
37	30-810-20 W/S UNIFORMS	$2,000.00
38	30-810-30 GAS AND OIL FOR VEHICLES	$4,500.00
39	30-810-31 TIRES FOR VEHICLES	$600.00
40	30-810-32 REPAIRS TO VEHICLES	$1,000.00
41	30-810-33 SUPPLIES & MATERIALS	$3,000.00
42	30-810-34 CHEMICALS AND SALT	$20,000.00
43	30-810-45 CONTRACTED SERVICES	$36,500.00

Rehabilitation and Replacement

40	30-810-32 REPAIRS TO VEHICLES	$1,000.00
41	30-810-33 SUPPLIES & MATERIALS	$3,000.00
42	30-810-34 CHEMICALS AND SALT	$20,000.00
43	30-810-45 CONTRACTED SERVICES	$36,500.00
44	30-810-46 STATE PERMITS	$1,700.00
45	30-810-48 DUES/SUBSCRIPTIONS	$1,500.00
46	30-810-50 DEPRECIATION	$0.00
47	30-810-54 INSURANCE	$13,608.00
48	30-810-55 HOSPITAL INSURANCE	$22,443.00
49	30-810-57 MISC EXPENSE	$500.00
50	30-810-60 W/S - LGERS	$9,272.00
51	30-810-70 WATER STUDY EXPENSES	$24,000.00
52	30-810-74 Online Payments SVC	$1,600.00
53	30-810-75 ARRA LOAN PRINCIPAL	$8,875.00
54	30-810-76 PURCHASE WATER BILL	$2,400.00
55	30-810-79 Banking Fees	$500.00
56	30-810-89 CAPITAL OUTLAY NEW EQUIP	$0.00
57	30-810-90 TRANSFER TO OTHER FUND	$0.00
58	30-810-95 FINES AND PENALTIES	$1,500.00

Capital Planning Exercise

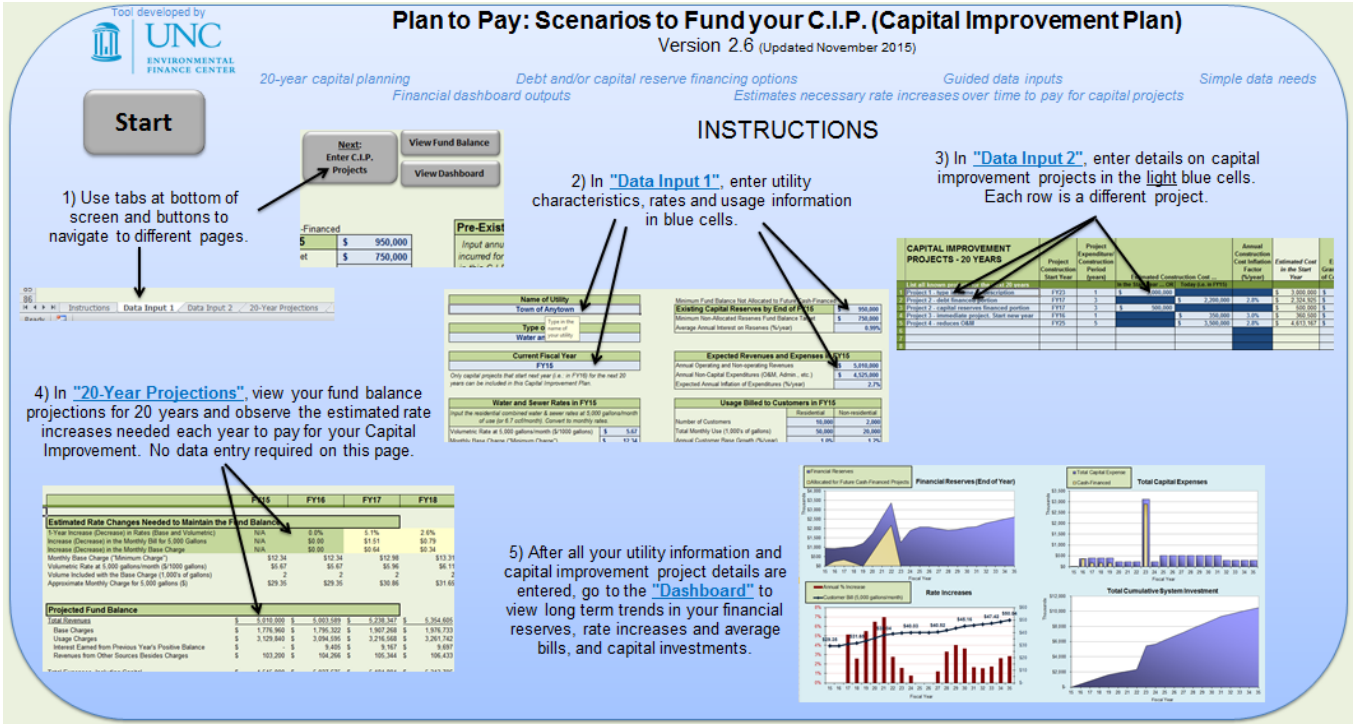
- Using the assets we discussed earlier, come up with a plan of how to pay for their replacement

Plan to Pay: Scenarios to Fund your C.I.P.

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

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

Free, simplified Excel tool allowing you to list your capital projects and plans for funding them, and automatically estimates rate increases



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