8 – Developing an asset replacement/refurbishment plan

MISSISSIPPI
Water and Pollution Control
Operators Association

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Introduction

- Once the system has developed the asset inventory, determined the levels of service that these assets are providing and that they should be providing, and have the assets prioritized, the **asset management team** should begin to develop the plan.
- There are three key factors that should be remembered
  - Wants are not scarce
  - Needs are not scarce
  - Funding (money) is scarce
- This is where the asset management team must work together for the benefit of the system!

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Initiating the plan

- The goal with this step is to determine which assets are going to be addressed within the next few years.
- Remember that the future costs of replacing/refurbishing the system's assets is estimated to be $35,013,668.
  - But that cost doesn't have to be realized in a single year
- The first step in determining assets to focus on is to determine how much will and can be spent ***each*** year
- If everything is funded in the example system (including the future fire hydrants and booster station), the cost will be $1,387,732 in the first year.
  - This would cause the system's liabilities would more than triple

See 8 – Choosing Asset Strategies in Comprehensive Asset Management Spreadsheet

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Cash flows need to self-fund asset management plan

It is important to remember that these cash flows are in addition to normal operational expenditures.

Year	Amount	Year	Amount	Year	Amount	Year	Amount	Year	Amount
2026	$1,431,877	**2035**	$1,466,868	**2044**	$2,336,850	**2053**	$7,105,762	**2062**	$10,112,420
2027	$1,431,877	**2036**	$1,732,613	**2045**	$2,349,640	**2054**	$7,105,762	**2063**	$10,112,420
2028	$1,431,877	**2037**	$1,735,758	**2046**	$2,581,328	**2055**	$7,105,762	**2064**	$10,191,720
2029	$1,431,877	**2038**	$1,769,397	**2047**	$2,581,328	**2056**	$7,208,794	**2065**	$10,242,231
2030	$1,431,877	**2039**	$1,783,784	**2048**	$2,581,328	**2057**	$7,208,794	**2066**	$15,804,011
2031	$1,441,499	**2040**	$1,797,059	**2049**	$2,581,328	**2058**	$7,546,561	**2067**	$15,834,256
2032	$1,441,499	**2041**	$2,295,438	**2050**	$2,581,328	**2059**	$7,615,185	**2068**	$15,834,256
2033	$1,441,499	**2042**	$2,317,185	**2051**	$7,094,815	**2060**	$7,675,660	**2069**	$15,834,256
2034	$1,466,868	**2043**	$2,317,185	**2052**	$7,105,762	**2061**	$10,020,086	**2070**	$15,909,860

See 8 – Choosing Asset Strategies in Comprehensive Asset Management Spreadsheet

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Asset management team decisions

- Most asset management teams would feel that this is too much liability to incur, at least in the first year.
- Therefore, decisions have to be made regarding what should be funded and what should be postponed.
- There are several pieces of the asset inventory and resulting costs that can be looked at; probably need to start with the prioritization of the assets.
- Begin the focus on high priority assets with short time lines; look for the lowest asset priority scores and then examine other assets in turn.

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Use of the spreadsheet tool

- One question might be "Why do you depend on a spreadsheet so much"
- It's important to remember that anything that can be accomplished on a spreadsheet can be done on paper
- **But it's even more important to remember that the spreadsheet is just a guide, not the decision maker**
- The asset management team has to accept the responsibility to make the final decisions

Spreadsheets are like Swiss Army knives; great for most things, but sometimes you have to have the right tool.

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Asset management team decisions

- The team should examine the assets not only in totality, but also by the particular type of asset and the line that is contained in the inventory.
- If everything is funded in the first year, the total liability to the system will be $1,431,877
- The team might consider postponing saving for some of the more major expenses
  - Well #1 – refurbishment will be another 40 years - $375,763 per year
  - Well #2 – refurbishment will be another 25 years - $217,605 per year
- Eliminating these two items will save $593,368 in the first year
- Total liability now equals $838,509

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Asset management team decisions

- The team should realize that not funding the replacement/ refurbishment of assets in any year simply “kicks the can down the road.”
  - This is likely the strategy that has been taken for some time
- But financial circumstances may dictate this type of strategy
- Perhaps a solution is to develop a spreadsheet in which specific assets can be turned on or off
- The spreadsheet example is formulated to divide the cost of the asset in the first funding cycle among the remaining years

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Factors to consider

- The information that you develop from an asset management plan is only as good as the data that you put into it
  - Garbage in, garbage out
- In order to have an effective plan, you have to adhere to the spirit of the plan, not just the letter of the regulation
  - Anything can be "slopped" onto a piece of paper to get a point on a capacity assessment survey. Effort must be made to develop a plan that is useful to the system.
- Remember from Module 6 that the asset management team must work together and cooperate to achieve the goal
- Everyone on the team must work together to supply data for the plan, but the key to the plan **being effective** is likely the operator and (if available) general manager

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Considerations from the case study

- The example system is covering its production and distribution costs, including system depreciation (about $62,000 per year)
- It's important to understand depreciation – it is a non-cash expense (money set aside) to cover the wear of the system's assets
  - If the system is already covering depreciation, it is already addressing part of the asset management plan
- The water rates for the case study include a $30.00 per month meter charge (no usage is included in the base rate amount) and a flow rate of $8.00 per 1,000 gallons
- While these rates may seem relatively high compared to some rates in the system there are other considerations

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Rate considerations from the case study

- The example system is a water association, not a municipality
- Using the hydrology study and the billing software information, the system has approximately 22 miles of distribution line and a monthly billing average of 253 customers (an average of 1 customer every 0.087 miles or every 458 feet)
  - Compare this with a municipality where the average density may be 1 customer every 150 feet (or less)
- The system has the potential to experience significant growth in the near future
- There has been talk of this system assuming a neighboring system, but that event has been put on hold for the foreseeable future

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Considerations from the case study

- There has been significant interest in expansion for this system
- Preliminary evidence suggests that four subdivisions are being considered for the system's area
  - Three developers are considering subdivisions of 20 houses each
  - One developer is considering a subdivision of 80 houses
- These (and other) subdivisions would be located at the west end of the system – higher elevation, 2" distribution line – where pressure is currently borderline for existing customers
- The booster pump station and upgrading the 2" distribution line to 4" would alleviate any pressure/volume problems
- The board would like to have these installed within 5 years

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Asset management considerations

- The spreadsheet example is a comprehensive list of the system's nonhuman assets
- The calculated asset replacement cost is allocated annually by the length of the specific funding cycle
  - Funding cycle 1 is the Remaining Useful Life of the asset
  - Funding cycle 2 is defined as the Adjusted Useful Life
- Not choosing to fund an asset in for one or more years in a particular funding cycle increases the amount for the years that are funded in that particular cycle
- Care should be used when deciding not to fund an asset in a particular year; make sure that other factors (Remaining Useful Life) is accurate for the asset

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