

Repair and Replacement

Water and sewer utilities (all others, too) live in a sea of concepts and needs:

- ◆ Remaining sustainable as they provide healthful and useful service,
- ◆ Maintaining regulatory compliance,
- ◆ Assembling annual budgets,
- ◆ Setting adequate and fair rates,
- ◆ Maintaining good staffing,
- ◆ Operating and performing maintenance,
- ◆ Doing equipment repair and replacement, and
- ◆ Making capital improvements and acquiring financing for them, to name several.

These things plus others roll up into the notion commonly called, “asset management.” Asset management is a simple notion that is complex to pull off. But done right, it is not that hard. Let’s start with one part, repair and replacement (R&R).

Think of your entire water system. There is no clear “boundary” between R&R, capital improvements and operations and maintenance of the

system. You decide in which “pot” to place each activity. But if we back up one degree to the recoating of a water tower – that should be a bread and butter R&R item for all water utilities. Does your utility save to pay for tower recoats when their time comes? It should. And it should save for other R&R items, too.

The following questions lead to good R&R:

1. What do we have?
2. When did we put it into service?
3. What is its expected useful life, therefore, when will we likely need to replace it next?
4. What will it cost to replace it?
5. What must we save annually, to do all needed R&R?

That list takes in a lot of asset management tasks, doesn’t it?

Answering Questions 1 through 4 takes equipment and systems knowledge, experience, record keeping and some research. An experienced operator is well-suited for that. But operators, do not stop there. You should answer Question 5, too. I suggest using the spreadsheet called

(Equipment) Repair and replacement (R&R) is the act of refurbishing and renewing equipment within a system of equipment and facilities (a utility) to keep the utility functioning as desired.

Thus, R&R does not include “small” items that should be included in the annual budget. It also does not include “big” items, like replacement of an entire treatment plant that likely would be paid for with outside funding (grants and/or loans).



“ReplacementScheduler®,” a free download at <https://gettinggreatrates.com/Freebies>, to do that simply.

Why should operators calculate the annualized cost? Simple. The budgeters and rate setters need the annualized costs so they can budget for them and set rates to cover them. Having operators calculate that cost makes the budgeters’ and rate setters’ jobs easier, and defensible. Proper rate setting leads to proper R&R, so I hereby deputize you to advocate for proper rate setting.

In the following, I will describe replacement scheduling using ReplacementScheduler® as the example medium.

1. First, in a table not shown here (to save space), enter basic utility data and information, like the name of the utility, utility type, interest rates, and the replacement fund starting balance.

2. Next comes all the what, when, life expectancy and cost data you came up with. You enter that data in

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replacement cycle sections of the tool. Table 1 shows example 10-year replacement cycle data. Replacement cycles range from one through 20 years.

a. The yellow highlighted cells are where you would enter replacement data. The tool repeats replacements in later years, on the schedule you choose.

b. Note – in the example, the costs of some items were only attributed to the water utility at 50 percent because those items are shared equally with the sewer utility. The sewer utility should have its own replacement schedule and pay for

the other part of those costs. In fact, you should prepare a replacement schedule for all important equipment for each utility or major service your entity (district or town) provides, so every function can pay its own way.

3. Next comes the annual annuity calculation, shown in Table 2.

4. The last line of Table 2, the “Required Annual Deposit to Replacement Account” amount of \$85,712 is the annual savings needed to pay for everything in the example schedule (much of which was not

KRWA circuit riders know things about R&R needs and scheduling that you do not. And they will be glad to help you. Call or e-mail them, get their help and advice, and start doing great R&R right away.

shown), cover inflation and end up with a balance of nearly \$153,000 in 2039. You decide your own future balance target.

a. If all this R&R is to happen, when the budget preparers put together each year’s budget, they need to include the annual savings amount as a budget line item.

b. And that amount must be deposited into a savings account, or otherwise be saved, to pay for replacements as they come due.

ReplacementScheduler® is not a dumbed-down tool. I extracted it from my rate analysis template and just gave it some highlighting and instructions to guide do-it-yourselfers. In fact, if I were to analyze your rates, you could send me your R&R schedule and that data would transfer straight into my template.

Sustainable utility management is complicated. It is based on sound equipment repair and replacement. That requires systems and equipment expertise. As a long-time operator, you should have that in your head. You just need to get that into a form that decision-makers and others can also see and buy into. If they are to set aside substantial dollars every year, they need “proof” of need. ReplacementScheduler® does that proving, so check it out.

Start doing sustainable repair and replacement scheduling and you will be on the path to a sustainable utility.

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Table 1: Great Rates, KS, Water System Equipment Replacement Schedule - Detailed 10-Year Replacement Cycle

Year Beginning	Shared Generator on Trailer, 50% Water, 50% Sewer	Whitco Raider 4030H pressure washer	Shared 2013 Ford F250 4x4, 50% Water, 50% Sewer	Shared 2013 Ford F350 with crane, 25% Water, 25% Sewer, 50% Other	2013 GMC Utility Van
7/1/2020	\$0	\$0	\$0	\$0	\$0
7/1/2021	\$0	\$0	\$0	\$0	\$0
7/1/2022	\$0	\$0	\$0	\$0	\$0
7/1/2023	\$0	\$0	\$0	\$0	\$0
7/1/2024	\$20,000	\$0	\$0	\$0	\$0
7/1/2025	\$0	\$0	\$25,000	\$25,000	\$30,000
7/1/2026	\$0	\$5,595	\$0	\$0	\$0
7/1/2027	\$0	\$0	\$0	\$0	\$0
7/1/2028	\$0	\$0	\$0	\$0	\$0
7/1/2029	\$0	\$0	\$0	\$0	\$0
7/1/2030	\$0	\$0	\$0	\$0	\$0
7/1/2031	\$0	\$0	\$0	\$0	\$0
7/1/2032	\$0	\$0	\$0	\$0	\$0
7/1/2033	\$0	\$0	\$0	\$0	\$0
7/1/2034	\$20,000	\$0	\$0	\$0	\$0
7/1/2035	\$0	\$0	\$25,000	\$25,000	\$30,000
7/1/2036	\$0	\$5,595	\$0	\$0	\$0

Note: The displayed tables are a small part of the actual spreadsheet.

Table 2: Great Rates, KS, Water System Equipment Replacement Annuity Calculation

Average Inflation Rate for the Following Water System Equipment for the 2.00% Term of This Replacement Schedule

Average Interest Rate on Balances Invested for the Term of This 1.00% Replacement Schedule

Average Interest Rate on Amounts Borrowed for the Term of This 3.00% Replacement Schedule

Year Beginning	This Year's Current Dollars	Future Annual Inflated Net Costs	Interest Earned (or Paid) on Prior Balance	End of Year Balance in Future Dollars	Minimum Desired End of Year Balance in Future Dollars
7/1/2020	\$20,000	\$20,000	\$0	-\$20,000	\$122,955
7/1/2039	\$38,000	\$55,359	\$1,214	\$152,946	\$179,122
Required Annual Deposit to Replacement Account				\$85,712	