

Town of Conway Water Department

Community: Conway, NC

Population: 734

Number of Accounts: 380

Annual Revenues: \$335,000

Issue: *Understanding the impact of capital improvement plans on water rates*

Background

The Town of Conway is a small, rural community with stable population (-2.9% growth in Northampton County between 2000 and 2010)¹ that has suffered recent job losses through the closing of textile and other manufacturing plants in the region. As with any water utility, Conway requires resources for on-going capital rehabilitation and replacement. High on Conway's capital priority list are such projects as constructing a new \$500,000 elevated storage tank and rehabilitating \$2,000,000 of 8 inch collection system lines. However, as is also common with many small and medium sized communities in North Carolina, Conway must fund these projects despite losing some of its larger industrial customers and, therefore, a significant fraction of its revenue stream.

Conway's past and present leaders have attempted to manage their community water service in a financially sustainable way, taking such measures as establishing a large capital reserve fund and building and maintaining a comprehensive, forward-looking 20 year capital improvement plan. However, prior to the Environmental Finance Center's work there, town officials had only a crude understanding of the impact their CIP would have on future water rates. Their core CIP document, for example, called simplistically for a 1.67% per year average rate increase over the next twenty years. It was impossible to estimate year-to-year rate impacts.

Also, because Conway's CIP document is in paper form, community leaders could not evaluate alternative scenarios or predict the impacts for rate payers. For example, they could not test the impact of deferring projects or implementing projects sooner. They were also unable to evaluate whether it was more cost effective to pay for projects from capital reserves or use debt. All of these limitations made it difficult for Conway's community leaders to manage future capital outlays, plan rate increases and communicate the need for those increases to the public.

Solution

To enable Conway's leadership to test alternative CIP scheduling and financing scenarios, the EFC developed an interactive, Excel-based tool: the "User-Friendly CIP." The User-Friendly CIP is structured like a conventional CIP with a column of capital projects followed by columns showing capital outlays in subsequent years, however the model is unique in that it allows the user to select project start years, whether the project will be paid out of capital reserves or debt, the terms of debt financing and also cost impacts of inflation on delayed or advanced projects.

¹ US Census Bureau

25	CAPITAL IMPROVEMENT PROJECTS - 10 YEAR	Annual Construction Cost Inflation Factor	Project Start Year	Project Expenditure/Construction Period (Yrs)	Estimated Cost if Constructed in FY06	Cost Inflated to Start Year	Less Grants at Time of Construction	Total Cost Inflated to Start Year	Financing
27	Replace ACP lines with PVC	5%	FY21	1	\$ 76,000	\$ 157,999	\$ -	\$157,999	CR
28	Replace small diameter lines	5%	FY18	1	\$ 107,500	\$ 193,055	\$ -	\$193,055	CR
29	Backup emergency generators for wells	5%	FY16	1	\$ 80,000	\$ 130,312	\$ -	\$130,312	CR
30	Critical valve replacement at water tank	5%	FY06	1	\$ 10,000	\$ 10,000	\$ -	\$10,000	CR
31	Critical valve replacement in distribution system	5%	FY07	1	\$ 10,000	\$ 10,500	\$ -	\$10,500	CR
32	Upgrade to automated water meters	5%	FY23	1	\$ 70,000	\$ 160,441	\$ -	\$160,441	CR
33	Telemetry for wells and storage tank	5%	FY08	1	\$ 10,000	\$ 11,025	\$ -	\$11,025	CR
34	Construct new elevated storage tank	5%	FY18	1	\$ 300,000	\$ 538,757	\$ -	\$538,757	CR
35	Waterline extension Phillips Hall Road Hwy 158	5%	FY24	1	\$ 120,000	\$ 288,794	\$ -	\$288,794	CR
36							\$ -		
37	Upgrade 10 sanitary sewer pump stations	5%	FY17	1	\$ 190,230	\$ 325,358	\$ -	\$325,358	CR
38	CCTV Inspection of Sewer System	5%	FY07	2	\$ 45,000	\$ 47,250	\$ -	\$47,250	CR
39	Rehabilitate 8-inch SS Lines	5%	FY24	3	\$1,088,000	\$ 2,618,402	\$ -	\$2,618,402	CR
40	Rehabilitate 140 SS Manholes	5%	FY14	1	\$ 200,000	\$ 295,491	\$ -	\$295,491	CR
41	Annual Sanitary Sewer Inspection	5%	FY06	20	\$ 70,000	\$ 70,000	\$ -	\$70,000	CR

Figure 1. Image of User-Friendly CIP input screen. Users can input capital project names, costs, start date and information on financing method

Model outputs include estimates of the capital reserve fund balance for the planning period, and a graph which shows the extent of public investment in the community water and/or wastewater system as a result of the CIP. The primary output of the model, however, is a year-to-year prediction of the impact of the CIP on average water rates over the planning period. To predict annual rate impacts, the tool only requires simple information on the utility's rate structure, the size and anticipated growth of the customer base, water demand, capital reserves and the CIP. The result is a detailed graph of the annual percentage increase in the rate and the rise in the average customer bill (based on 5,000 GPM consumption) needed to fully fund the CIP.

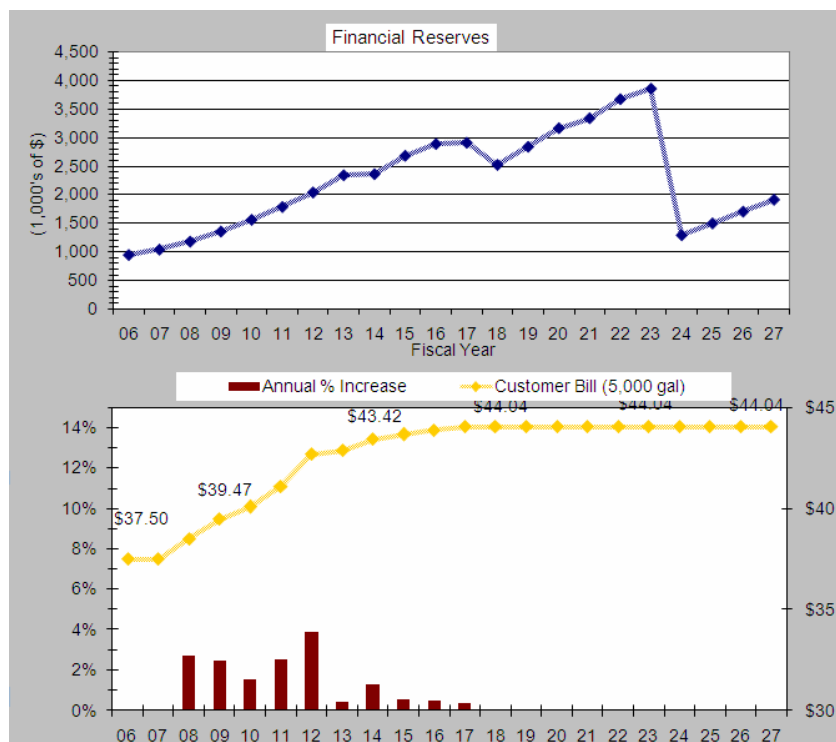


Figure 2. Image of User-Friendly CIP output screen. Rate and capital reserve impacts are shown

The model is a limited substitute for annual rate setting decision making, but it does provide a rough prediction of rate impacts by averaging future cash needs for debt service or capital outlays. It also allows the user to demonstrate the impact of scheduling changes and financing changes on user rates and reserve fund balances in order to find an optimum balance of cost and expediency in the CIP. Finally, it provides an intuitive, interactive way for elected officials and other rate setting authorities to understand the impact of CIP approval on rate payers.

Outcome

Once Conway's leaders entered their CIP and basic information on their customers and system finances it became obvious that, because of their large capital reserve fund (\$950,000), the community had much more flexibility in their CIP scheduling than they previously assumed. Most significantly, the leaders were able to accelerate some of their most pressing capital projects by several years and project that they would still have sufficient funds in the future without raising rates significantly. Finally, Conway leaders were able to demonstrate to the voting public that their approved list of capital projects, vital to the quality of service provision, would not impose too great a burden on rate payers.