Reducing Water and Sewer Costs

By Larry Spielvogel, P.E.

In some areas, water and sewer costs are increasing at a faster rate than energy costs. This article will address some often unnoticed means to reduce those costs without any reductions in water consumption.

GET INVOLVED

Water and sewer costs are influenced by the supply and treatment costs, as well as increasingly stringent government requirements. Water is often provided by regulated utilities or municipal utilities. Scant attention is paid to how their rates and charges are set, with more attention paid to electric and gas rates. Especially with municipal water suppliers, the rates are set by appointed, usually political officials. Their main focus tends to be on rates and charges for residential customers, who elect the municipal officials, who in turn appoint the water officials. The majority of sewer utilities are municipal, and have similar structures. Thus, it is common to find that water and sewer rates and charges for non-residential customers (since they do not vote) are higher than comparable residential rates.

Some municipalities base sewer charges for non-residential buildings on the number and types of fixtures that discharge into the sewer system. The assumptions often used are based on older style fixtures that have higher water and sewer consumption than modern fixtures, while residential sewer rates are often based on water consumption. Therefore, it can be important to get involved in the water and sewer ratemaking process. Support and participation by other non-residential user groups can help offset the costs and show broad concern.

The Main Division of Aqua Pennsylvania is a state regulated water supplier that serves hundreds of thousands of customers in many suburbs of Philadelphia. Their current charges for residential water use are:

- "Water consumed will be charged for at the following rates: For water consumed up to 2,000 gallons per month $9.071 per thousand gallons."

For commercial and public customers:

- "Water consumed will be charged for at the following rates: For water consumed up to 10,000 gallons per month $10.00 per thousand gallons."

Residential rates for over 2,000 gallons per month are inclining block charges (higher charges for higher use), while non-residential rates for over 10,000 gallons per month are declining block charges (lower charges for higher use). Thus, for small non-residential customers the water rates are higher than residential, while the opposite is true for larger non-residential customers.

BILLING DIFFERENCES

The Aqua monthly water meter charges, regardless of how sewer and stormwater are billed, are:

Size	Charge
⅝"	$16.00
¾"	27.50
1"	46.70
1½"	89.90
2"	127.90
3"	257.00
4"	418.00
6"	862.00
8"	1,508.00
10"	2,229.00

In the City of Philadelphia (often across the street from Aqua), the water consumption charges are the same for all customers with the same consumption, and they are declining block, so the larger users pay less per gallon. Until recently, and for many years, Philadelphia included their cost of dealing with stormwater in the sewer meter charges.

Recent monthly sewer meter charges, in addition to water meter charges, based on water meter size were:

Size	Charge
⅝"	$18.07
¾"	89.93
1"	146.61
1½"	287.43
2"	457.44
3"	853.00
4"	1,425.52
6"	2,845.25
8"	4,545.46
10"	6,537.71
12"	12,176.09

Thus, there is strong incentive to have the smallest water meter size installed, consistent with providing adequate service and pressure. Having a 12" water meter meant paying over $146,000 per year in sewer charges before the first gallon of water went to the sewer. For customers with multiple water services, just the sewer meter charges alone could be substantial.

METER SIZE MATTERS

Plumbing designers and water companies have been heavy handed when setting water meter sizes. It is common to find existing water services with meters that are two, three, and even four sizes larger than needed. It is a rarity to find undersized water meters. It is common to find buildings with 2" meters that successfully consume more water than similar buildings with 4" and even 6" meters. I have a 1.6 million square foot building with a 4" water meter. Thus, water meter downsizing is almost always successful, both functionally and economically. Most water utilities provide any size meter desired at no cost, provided the customer makes the appropriate plumbing connections.

While many water suppliers will not release information on the amount of water consumed by each water meter size, this information can often be obtained by intervening in water company rate cases. Compare your own water consumption and meter size to see how much smaller water meters can be used. Verify that water pressure is sufficient to maintain adequate service. If a water service is used for fire protection, insurance carriers may impose minimum water meter sizes.

Following are data from a water company rate case showing frequent examples where water consumption was measured and billed for various meter sizes.

Size	Gallons/Month
⅝"	150,000
¾"	200,000
1"	400,000
1½"	1,000,000
2"	2,000,000
3"	4,000,000
4"	8,000,000
6"	15,000,000

Most sewer providers base their consumption charges on the amount of water consumed. Another infrequently used but common option is to get sewer charge credits for water consumed that does not go to the sewer, usually as measured by subtraction meters. This can include consumptive use of water for things like irrigation, cooling tower makeup, and swimming pool makeup. Installation of subtraction meters is usually worthwhile. The sewer credit can be either an annual average percentage reduction based on subtraction meter data, or monthly or quarterly subtraction meter readings sent to the sewer provider. Depending on the building type and occupancy, consumptive use of water can be as much as two-thirds of the total water use, making the implementation of subtraction meters economical.

Of course, reducing water consumption is always worthwhile. Depending on water and sewer rates, replacing perfectly good existing plumbing fixtures with new water conserving units can often be justified.

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