

North Carolina Water and Sewer Rates and Rate Structures

A joint project by the NC League of Municipalities and the Environmental Finance Center at UNC-Chapel Hill

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Introduction

Setting water and sewer rates is one of a local government's most important environmental and public health responsibilities. Water and sewer rates ultimately determine how much revenue a community will have to maintain vital public health facilities. The purpose of this document is to help local governments with their rate setting by providing up-to-date information on current statewide rate setting practices and trends. We hope this document is useful, and we ask that you share this information with staff members to support them in their work.

The information presented in this document is part of a larger joint project by The League of Municipalities and the UNC School of Government's Environmental Finance Center (EFC). This project examines the impact of rate setting practices in North Carolina and provides local governments with a range of practical research information and tools.¹ The first phase of this project involved collecting and compiling a comprehensive inventory of close to 350 utility water and sewer rates and rate structures for fiscal year 2004-05. This set was divided into municipal and non-municipal utilities. The set of 283 municipal rate sheets supported the analyses in this document and the attached tables. This set will be combined with the non-municipal utilities in a future report.

It is important to stress that an examination of rates and rate structures only tells a part of the story. Pressure to maintain low or relatively low rates forces many utilities to run a deficit. Ideally, rates should reflect the cost of providing service, which depends on diverse factors including size of treatment facilities, customer base, age of assets, type of water supply, and quality of receiving waters. Two neighboring utilities with similar customer bases may have very different costs that justify very different rates and rate structures. Any comparisons drawn from the data in this document must take into consideration many outside factors such as geographic location, demand, availability of resources, and other demographic projections not included in this report.

High rates do not necessarily reflect poor or inefficient management—in fact, some utilities with low rates have done it at the expense of their assets ultimately leading to poorer service or higher costs. The NC Local Government Commission (LGC), in the annual compilation of municipal water and sewer financial indicators, found that many NC water utilities continue to collect insufficient revenues to cover their costs. In an effort to provide local governments with a more complete set of information, the League and the EFC have plans to include supplemental data such as financial information from the LGC in future analyses that will be distributed later in the year.

¹ Partial funding for these efforts has been provided by the NC Water Resources Research Institute, the Urban Water Consortium, and the Environmental Protection Agency.

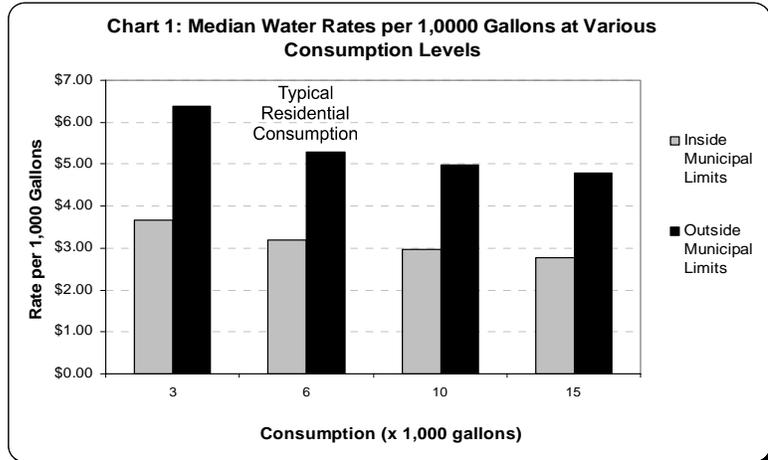
Median Rates and Bills at Various Consumption Levels

Median Water Rates

Chart 1 examines median water rates at various consumption levels. All rate figures reflect charges per 1,000 gallons of consumed water. These rates exclude all fixed charges (such as monthly billing or maintenance fees) but include all minimum consumption charges.

Chart 1 indicates that, in 2004, median water rates in North Carolina decreased as consumption increased. The median rate for customers inside municipal limits is \$3.67 at 3,000 gallons, \$3.20 at 6,000 gallons², \$2.96 at 10,000 gallons, and \$2.78 at 15,000 gallons. The median rate for outside customers is \$6.39 at 3,000 gallons, \$5.29 at 6,000 gallons, \$4.99 at 10,000 gallons, and \$4.80 at 15,000 gallons.

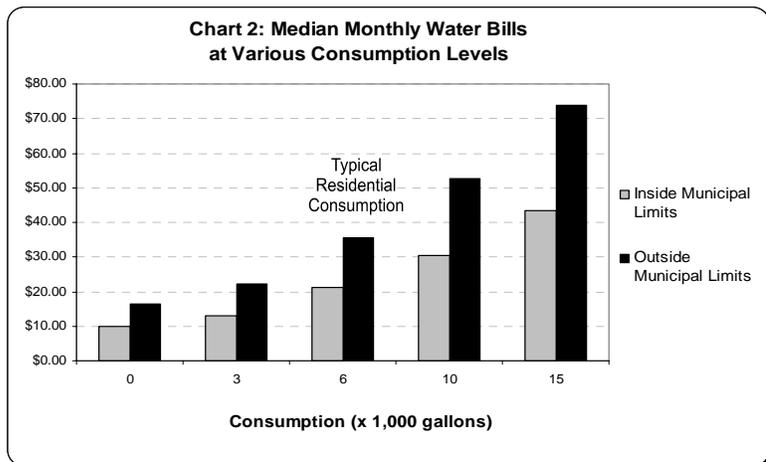
Compared to data from 2002,³ water rates for inside customers decreased at lower consumption levels (from \$3.83 to \$3.67 at 3,000 gallons) and increased at higher consumption levels (from \$2.65 to \$2.96 at 10,000 gallons). Conversely, water and sewer rates for outside customers increased at lower *and* higher consumption levels (from \$6.35 to \$6.39 at 3,000 gallons; from \$4.65 to \$4.99 at 10,000 gallons).



Median Monthly Water Bills

Chart 2 presents information on median monthly water bills at various consumption levels. These bills include all fixed, minimum consumption, and volumetric charges.

The median monthly bill for inside and outside customers consuming zero gallons of water is \$10.00 and \$16.42, respectively. Median bills for 3,000 gallons total \$13.11 for inside customers and \$22.12 for outside customers. At 6,000 gallons, the median bill is \$21.08 for inside customers and \$35.50 for outside customers. Median bills for 10,000 gallons total \$30.47 and \$52.65 for inside and outside customers, respectively. Median bills for 15,000 gallons total \$43.52 and \$74.00 for inside and outside customers, respectively. The median outside bill for 6,000 gallons is 196% higher for outside customers than for inside customers.



Compared to data from 2002, water bills for inside and outside customers increased at lower and higher consumption levels. For inside customers, water bills increased from \$11.50 to \$13.11 at 3,000 gallons and from \$26.50 to \$30.47 at 10,000 gallons. For outside customers, water bills increased from \$19.06 to \$22.12 at 3,000 gallons and from \$46.50 to \$52.65 at 10,000 gallons.

² 6,000 gallons is the typical level of monthly residential consumption, as indicated in the shown charts.

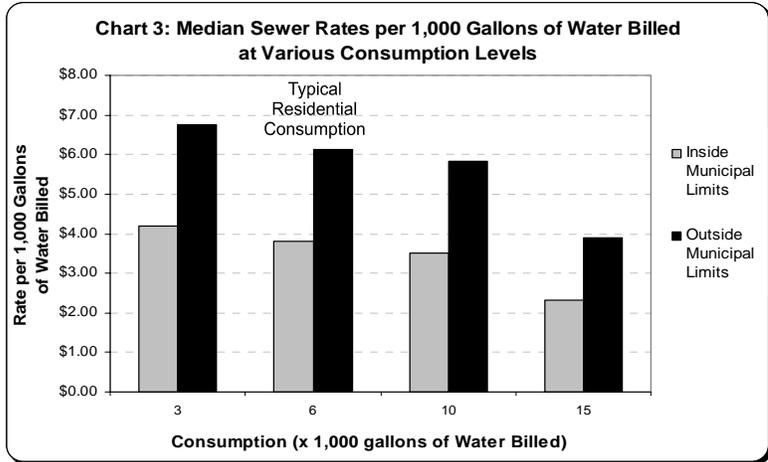
³ "How Much Does Clean Water Cost? - 2002", North Carolina League of Municipalities. It is important to note that while the 2002 and 2005 analyses used many of the same utilities, the sample groups are not identical.

Median monthly bills for inside customers are generally higher at all consumption levels in smaller municipalities than in larger municipalities. For example, the median bill for zero gallons ranges from \$11.44 in municipalities with populations less than 1,000, to \$9.69 where populations range between 2,500 to 4,9999, to \$3.96 where populations are 25,000 or larger. At 6,000 gallons, these bills are \$22.30, \$20.50, and \$17.89. This trend is not repeated in median bills for outside customers.

Median Sewer Rates

Chart 3 examines median sewer rates at various levels of water billing. All rate figures reflect charges per 1,000 gallons of water billed. These rates exclude all fixed charges (such as monthly billing or maintenance fees) but include all minimum consumption charges.

Chart 3 indicates that, overall, sewer rates in North Carolina decrease as consumption increases. The median rate for customers inside municipal limits is \$4.19 at 3,000 gallons, \$3.81 at 6,000 gallons, \$3.50 at 10,000 gallons, and \$2.33 at 15,000 gallons. The median rate for outside customers is \$6.75 at 3,000 gallons, \$6.13 at 6,000 gallons, \$5.83 at 10,000 gallons, and \$3.89 at 15,000 gallons.

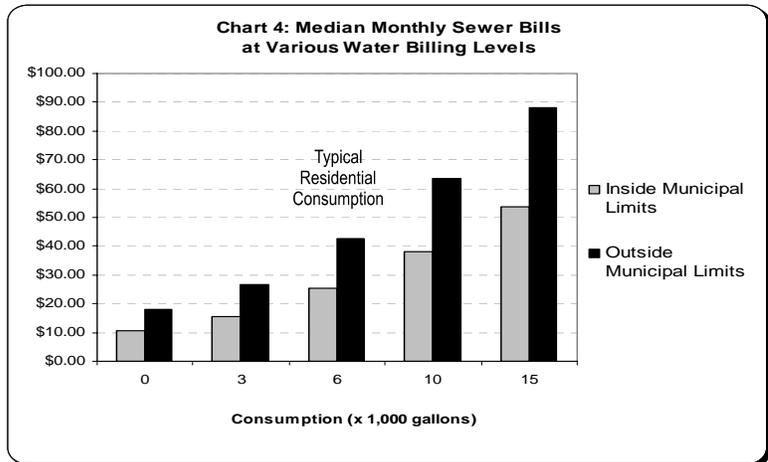


Compared to data from 2002, sewer rates for inside and outside customers decreased at lower consumption levels and increased at higher consumption levels. For inside customers, sewer rates decreased from \$4.67 to \$4.19 at 3,000 gallons and increased from \$3.45 to \$3.50 at 10,000 gallons. For outside customers, sewer rates decreased from \$7.30 to \$6.75 at 3,000 gallons and increased from \$5.40 to \$5.83 at 10,000 gallons.

Median Monthly Sewer Bills

Chart 4 presents information on median monthly sewer bills at various consumption levels for customers that are either inside or outside municipal limits. These bills include all fixed, minimum consumption, and volumetric charges.

The median monthly bill for inside and outside customers consuming zero gallons of water is \$10.75 and \$18.00, respectively. Median bills for 3,000 gallons total \$15.65 for inside customers and \$26.45 for outside customers. At 6,000 gallons, the median bill is \$25.54 for inside customers and \$42.80 for outside customers. Median bills for 10,000 gallons total \$38.12 and \$63.55 for inside and outside customers, respectively. Median bills for 15,000 gallons total \$53.51 and \$87.95 for inside and outside customers, respectively. The median bill for outside customers is 195% higher than the median bill for inside customers.



Compared to data from 2002, sewer bills for inside and outside customers increased at both lower and higher consumption levels. For inside customers, sewer bills increased from \$14.00 to \$15.65 at 3,000 gallons and from \$34.54 to \$38.12 at 10,000 gallons. For outside customers, sewer bills increased from \$21.19 to \$26.45 at 3,000 gallons and from \$54.00 to \$63.55 at 10,000 gallons.

Rate Structures

Water: Uniform, Increasing, Decreasing, and Seasonal Uniform Structures

Table 1 presents information on commonly used water rate structures. The four most common are uniform, increasing block, decreasing block, and seasonal uniform. A uniform rate exists when the cost of water does not change as the customer uses more water. An increasing block exists when the cost of water increases with greater water consumption. This structure often underpins a water conservation strategy. Decreasing blocks provide for reduced water rates with greater consumption, and often support economic development strategies. Seasonal uniform rates provide for different water rates at different times of the year. This structure supports conservation, especially for those municipalities that experience great seasonal consumption changes, such as tourist locations. Table 1 indicates that the uniform rate structure occurs most frequently in all population groups, except the largest. This structure supports 155 of the 276 water providers included in this research. Decreasing blocks exist in less than half as many utilities, and increasing blocks are used at 49 utilities. Seasonal uniform rates were rare.

	Uniform	Increasing Block	Decreasing Block	Seasonal Uniform	Total
<1,000	44	16	15	0	75
1,000-2,499	39	14	13	0	66
2,500-4,999	29	9	10	0	48
5,000-9,999	19	2	12	1	34
10,000-24,999	16	2	11	0	29
25,000+	8	6	9	1	24
Total	155	49	70	2	276

Minimum Water Charges

Table 2 outlines median minimum monthly water charges. These charges come in two typical forms; consumption charges, which include a consumption allowance, and fixed charges, which do not provide for any water consumption. This research found that, in general, relatively more of the smaller municipalities use minimum consumption charges than do larger municipalities, and relatively more of the larger municipalities use fixed charges than do smaller municipalities. Table 2 indicates that smaller municipalities generally administer higher minimum consumption and fixed charges than do larger municipalities.

	Consumption Charge			Fixed Charge	
	Inside	Outside	Gallons	Inside	Outside
<1,000	\$13.00	\$18.00	2,250	\$8.23	\$12.25
1,000-2,499	\$11.00	\$20.00	2,000	\$9.00	\$15.00
2,500-4,999	\$12.15	\$19.30	2,375	\$8.00	\$15.01
5,000-9,999	\$10.01	\$18.41	2,375	\$6.32	\$9.00
10,000-24,999	\$8.55	\$17.51	2,000	\$5.50	\$9.59
25,000+	\$4.73	\$8.38	2,125	\$4.67	\$9.28

Sewer: Uniform, Increasing, Decreasing, Flat Fee, and Incremental Fees by Blocks

Table 3 presents information on five sewer rate structures used in North Carolina. Uniform rates are common among all population categories, though this type of rate structure is most common in municipalities with more than 25,000 residents. Increasing and decreasing block rates are more common in municipalities with fewer than 10,000 residents. Uniform, increasing, and decreasing rates function similarly between water and sewer programs. Flat fees and incremental fees by blocks, however, are used primarily by sewer service programs. Only five municipalities, all with populations less than 5,000, use flat fees and incremental fees by blocks.

	Uniform	Increasing Block	Decreasing Block	Flat Fee	Incremental Fees	Total
<1,000	40	9	5	2	0	56
1,000-2,499	52	6	5	1	1	65
2,500-4,999	35	6	6	1	0	48
5,000-9,999	26	2	5	0	0	33
10,000-24,999	24	1	4	0	0	29
25,000+	21	2	0	0	0	23
Total	198	26	25	4	1	254

Minimum Sewer Charges

Table 4 outlines median minimum monthly water charges. Similar to minimum water charges, relatively more of the smaller municipalities use minimum consumption charges than do larger municipalities, and relatively more of the larger municipalities use fixed charges than do the smaller municipalities.

	Consumption Charge			Fixed Charge	
	Inside	Outside	Gallons	Inside	Outside
< 1000	\$14.00	\$23.37	2,000	\$10.35	\$13.50
1000 - 2499	\$12.25	\$22.00	2,000	\$11.00	\$19.00
2500 - 4999	\$12.15	\$22.48	2,500	\$8.29	\$10.79
5000 - 9999	\$13.12	\$23.53	2,750	\$8.00	\$13.04
10000 - 24999	\$8.85	\$17.19	2,000	\$6.16	\$9.88
> 25000	\$3.93	\$5.90	3,000	\$6.12	\$10.20

Contents of Attached Tables

All tables are organized in the following population groups:

- 25,000 or more
- 10,000 to 24,999
- 5,000 to 9,999
- 2,500 to 4,999
- 1,000 to 2,499
- Less than 1,000

Table 5: Residential Monthly Water Bills at Various Consumption Levels (Includes Fixed Charges)

- Municipality and Municipal Population*
- Zero Gallons (Inside and Outside) **
- 3,000 Gallons (Inside and Outside)
- 6,000 Gallons (Inside and Outside)
- 10,000 Gallons (Inside and Outside)
- 15,000 Gallons (Inside and Outside)

Table 6: Residential Water Rate Structure

- Municipality and Municipal Population*
- Water Rate Structure
- Number of Water Blocks
- Percent Outside Rates are of Inside Rates at 6,000 Gallons
- Minimum Consumption Charge and Fixed Charge (Inside, Outside, Gallons Provided) **

Table 7: Residential Monthly Sewer Bills at Various Consumption Levels (Includes Fixed Charges)

- Municipality and Municipal Population*
- Zero Gallons of Water Billed (Inside and Outside) **
- 3,000 Gallons of Water Billed (Inside and Outside)
- 6,000 Gallons of Water Billed (Inside and Outside)
- 10,000 Gallons of Water Billed (Inside and Outside)
- 15,000 Gallons of Water Billed (Inside and Outside)

Table 8: Residential Sewer Rate Structure

- Municipality and Municipal Population *
- Sewer Rate Structure
- Number of Sewer Blocks
- Percent Outside Rates are of Inside Rates at 6,000 Gallons of Water Billed
- Minimum Consumption Charge and Fixed Charge (Inside, Outside, Gallons Provided) **

* It is important to note that the municipal population is not equal to the service population.

** If a municipality assigns a different minimum consumption or fixed charge to different meter sizes, this analysis included the charge assigned to the smallest available meter.