



## Water and Wastewater Rates and Rate Structures in Georgia

**March 2007**

*This document details the results of a survey of water and wastewater rates and rate structures conducted by the Georgia Environmental Facilities Authority and the Environmental Finance Center. Rates and rate structures are analyzed for public municipal and non-municipal service providers throughout the State. For more information, and to download a listing of water and wastewater rate tables please visit [www.gefa.org](http://www.gefa.org) and [www.efc.unc.edu](http://www.efc.unc.edu).*

### Introduction

Water and wastewater rate setting is one of a local government’s most important environmental and public health responsibilities. Water and wastewater rates ultimately determine how much revenue a community will have to maintain vital infrastructure. The purpose of this document is to help utilities in rate setting by providing an up-to-date, detailed survey of rate structures and to provide a basic analysis of some of the factors which may affect rates across the State.

This survey was funded by a grant awarded to the Environmental Finance Center by the U.S. Environmental Protection Agency to help water and wastewater utilities better serve their customers and assure the future integrity of their systems. Additional support for this project came from the Georgia Association of Water Professionals, the Georgia Municipal Association, the Georgia Department of Natural Resources’ Environmental Protection Division, the Georgia Department of Community Affairs, the Association County Commissioners of Georgia and the Georgia Rural Water Association.

Over the course of this survey, 574 public water and wastewater utilities were contacted by letter, email or phone, of which 43 utilities were discovered to not provide services. Of the remaining 531 utilities, 415 responded by submitting their rate information, yielding a response rate of 78 percent. 439 distinct rate schedules from those 415 utilities were collected, compiled and studied. Table 1 shows the composition of utilities whose rate structures were analyzed. Collectively, the utilities included in this study serve greater than 95 percent of public water consumers in the state.

**Table 1: Number of Participating Utilities with Rate Data for FY 2006-2007**

Institutional Arrangement	Provides Water and Wastewater	Provides Water Only	Provides Wastewater Only	Total
<b>Municipality</b>	245	86	5	336
<b>County</b>	18	12	0	30
<b>Authority</b>	19	18	1	38
<b>Utility Commission</b>	9	2	0	11
<b>Total</b>	<b>291</b>	<b>118</b>	<b>6</b>	<b>415*</b>

*\* Several systems have different rate structures for different portions of their service areas. These correspond to, e.g., systems with different pressure districts or multiple treated wastewater discharge locations. The 24 additional rate structures increase the number of total rate structures received to 439 for the 415 utilities.*

In addition to this report, tables of individual utility rate data are available at [www.gefa.org](http://www.gefa.org) and [www.efc.unc.edu](http://www.efc.unc.edu). **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 or avoid making necessary operational and capital expenditures. 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. **Therefore, policy decisions drawn from the comparative information in this document should also consider many other factors such as age of system, geographic location, site-specific regulatory requirements, sources of water, demand, and availability of resources.**

**High rates do not necessarily reflect poor or inefficient management**—in fact; some utilities have low rates at the expense of their assets by making short term sacrifices that are likely to have long term adverse cost and service impacts. Other systems may have low rates because they have not re-examined their rate structures in many years. Even when a utility customer base does not grow, operating costs rise every year and rates should be examined and readjusted on a yearly basis. In this survey, 51 percent of the water rate structures were made effective in the last year and 83 percent were made effective in the last 5 years.

## Overview of Rates and Rate Structures

Utilities employ a range of rate structures to determine what their customers pay. Almost all utilities use a combination of fixed base charges and usage charges in their rate structures. There is considerable variation in how the base charges and usage charges are calculated and how they are charged for different classes of customers.

### Base Charges

Base charges are a good way to increase revenue stability because they do not vary, regardless of consumption. However, they can also make it difficult for a utility to encourage conservation for the same reason. Base charges are very common. In this survey, 99.5 percent of water and 97 percent of wastewater utilities use them. They are only slightly less common among the largest wastewater utilities; only 86 percent of those with more than 15,000 customer connections use them. The number of utilities with base charges and the median charge for those systems are presented in Table 2 by utility size.

**Table 2: Base Charges in Water and Wastewater Rate Structures, by Utility Size**

Size of Utility (number of accounts)	Water Rate Structures		Wastewater Rate Structures	
	Number of Structures	Median Base Charge	Number of Structures	Median Base Charge
1 - 499	153	\$12.00	66	\$10.00
500 - 999	51	\$10.50	46	\$11.00
1,000 - 2,999	107	\$9.50	96	\$10.00
3,000 - 7,499	44	\$10.00	41	\$10.00
7,500 -14,999	21	\$8.00	18	\$8.00
15,000+	33	\$7.50	30	\$5.13
<b>All Rate Structures</b>	<b>409</b>	<b>\$10.00</b>	<b>297</b>	<b>\$10.00</b>

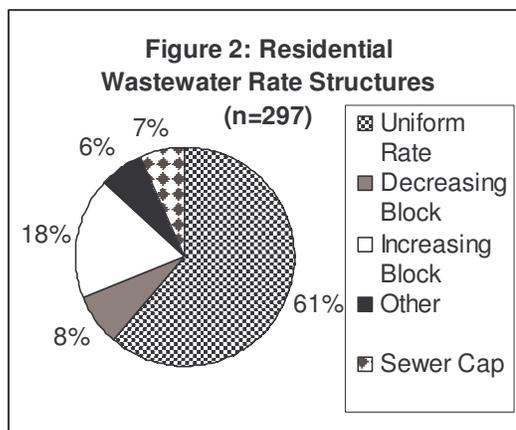
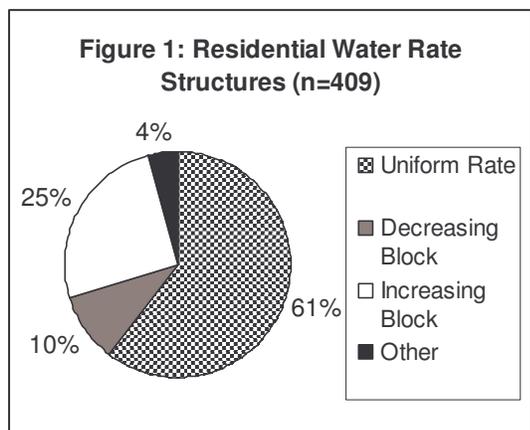
While nearly every utility in this survey has a base charge, their amounts vary by utility size. The largest utilities have smaller base charges than the smallest utilities. This may be a reflection of the fact that larger utilities have broad customer bases and so their revenues are naturally more stable. Smaller utilities may, on average, have less stable customer consumption and so they shift a greater fraction of their operating costs into the base charge. This could also explain why only 86 percent of the largest wastewater utilities have base charges. The other 14 percent have enough revenue stability that they do not require the stability that base charges provide. The median base charge is \$10.00 for both water and wastewater rate structures.

The majority of utilities (74 percent of water utilities and 64 percent of wastewater utilities) have base charges that include a minimum amount of water consumption or wastewater disposal. For these utilities, the usage portion of the rate structure only takes effect when a customer uses more than the minimum included in the

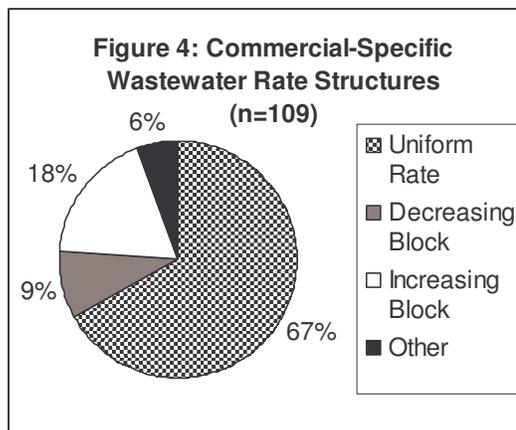
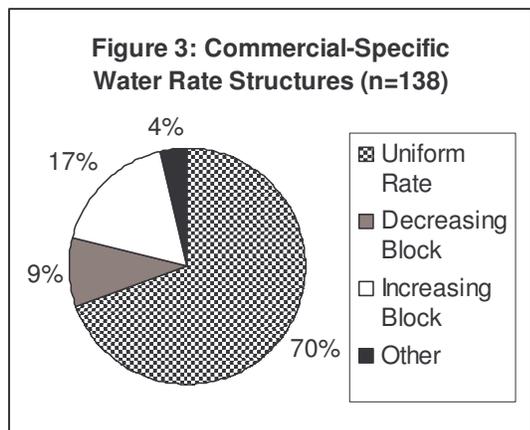
base charge. For both water and wastewater utilities, the median amount of consumption included is 2,000 gallons, however 5 percent of water utilities and 7 percent of wastewater utilities include 4,000 gallons or more of consumption. Other utilities (24 percent of water utilities and 28 percent of wastewater utilities) charge a fixed monthly fee that does not include any consumption.

**Usage Charges: Uniform, Increasing Block, Decreasing Block, and Other Rate Structures**

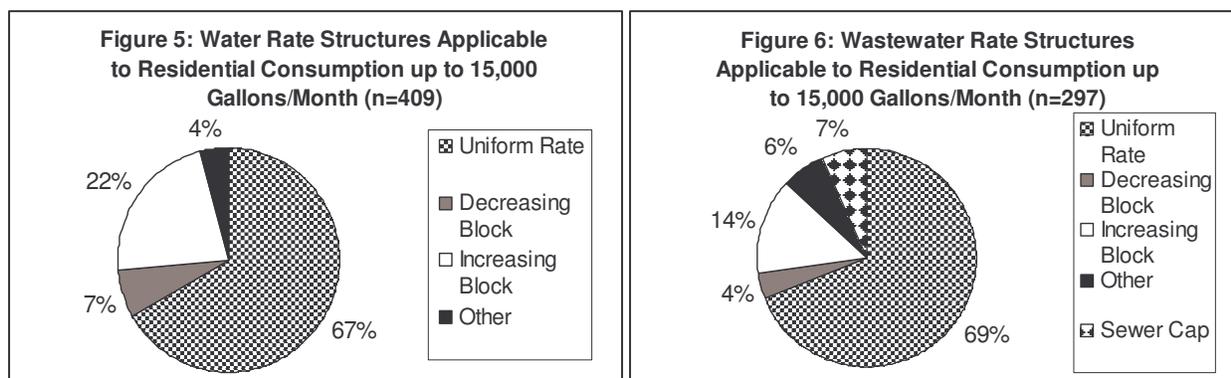
Figures 1-4 present information on water and wastewater rate structures for “inside” customers (those who live within a utility’s political jurisdiction). The three most common rate structures are uniform, increasing block, and decreasing block. In a uniform rate structure, the rate at which water is charged does not change as the customer uses more water. In an increasing block structure, the rate increases with greater water consumption. This structure is often employed by utilities that want to encourage conservation. In a decreasing block structure, water rates reduce as consumption rises. This structure might be used to encourage economic development. Wastewater bills are almost always calculated based on the amount of metered water consumption, however a significant fraction of wastewater utilities use rate structures with a cap on residential wastewater consumption (i.e., a customer who uses 15,000 gallons per month of water may only be charged for 10,000 gallons for their wastewater bill). Other rate structures used in Georgia include a hybrid of increasing and decreasing blocks where rates increase or decrease for specific targeted blocks of consumption amounts, seasonal rate structures applying different rates at different times of the year, and flat fees. Seasonal rate structures support conservation, especially for those utilities that experience great seasonal consumption changes (e.g. tourist locations).



In this survey, 34 percent of water utilities have a separate rate structure for their commercial customers, and a fraction of these utilities also have a separate structure that pertains to their industrial customers. Information on the rate structures that pertain to commercial customers is presented in Figures 3 and 4.



While some utilities design separate rate structures for commercial users, other utilities use only one rate structure but design the blocks so that they inherently discriminate between residential and commercial customers. A common practice is to set the first block high enough so that all practical residential consumption is charged one rate (which is equivalent to a uniform rate for these customers) while most large commercial customers will typically exceed the first block thus paying an increasing block rate. An examination of consumption levels between zero and 15,000 gallons per month (an average household in Georgia may consume 6,000 gallons per month) shows that an even greater majority of utilities apply uniform water rates to charge residential customers (Figures 5 and 6). This analysis also reveals that utilities generally apply the same rate structure (predominantly uniform) to commercial and residential accounts.

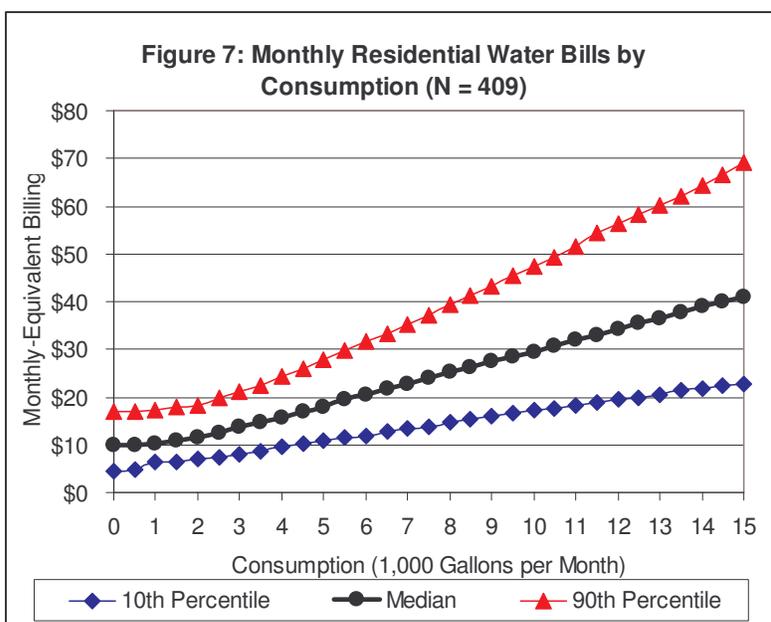


Among the 409 water rate structures in the sample, the median price (not including base charges) at 6,000 gallons per month of water is \$2.25 per 1,000 gallons. At that same level of consumption, 80 percent of the water rate structures have a price that is between \$1.00 and \$4.17 per 1,000 gallons. The price for wastewater is slightly higher. Among the 297 wastewater rate structures in the sample, the median wastewater price (not including base charges) at 6,000 gallons per month is \$2.38 per 1,000 gallons; 80 percent of the wastewater rate structures have a price that is between \$0.94 and \$4.65 per 1,000 gallons.

## What Utilities Charge their Customers

### Residential Water

Figure 7 shows the median amount utilities bill their residential water customers for a range of consumption amounts on a monthly basis<sup>1</sup>. These calculations include base charges. The 10<sup>th</sup> (lower) and 90<sup>th</sup> (upper) percentile lines are also included to indicate the highest 10% of charges and the lowest 10% of charges across the consumption spectrum. In other words, 80% of all bill amounts fall between these two lines. The median monthly amount charged for zero gallons of water is \$10.00, \$20.50 for 6,000 gallons, and \$29.50 for 10,000 gallons. As a point of comparison, a gallon of potable water at a major



<sup>1</sup> For utilities that bill on a non-monthly basis (bi-monthly or quarterly), charges have been calculated and presented on a monthly basis to allow for comparison.

grocery retailer is \$1.20 per gallon while the median bill for 6,000 gallons is \$0.0034 per gallon which is approximately 350 times cheaper.

Table 3 demonstrates that median water bills are similar for all utility sizes with the exception that median bills are lower among utilities with between 7,500 and 14,999 customer accounts. This price data shows very little evidence of economies-of-scale among Georgia’s water utilities. This is surprising since larger systems are thought to have lower operating costs per unit of water produced. One explanation could be that smaller utilities are more likely to use groundwater which is cheaper to produce and that this balances the economies-of-scale of the larger utilities. In fact, the median bill for 6,000 gallons for utilities that use groundwater is \$18.18, for surface water it is \$23.80 and for purchased water it is \$25.90. Table 4 shows that municipal utilities generally have lower median water bills than other service providers. It is not surprising that the median bill for county utilities is the highest because county systems are typically more spread out and have to pay significantly more for distribution per customer.

**Table 3: Median Water Bill by Utility Size (6,000 Gallons/Month)**

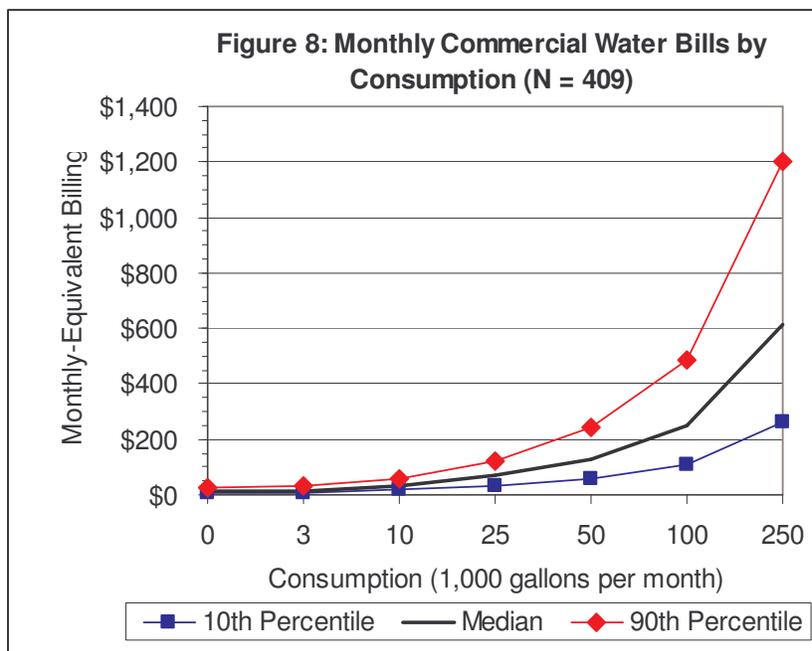
Utility Size (Number of Accounts)	Number of Rate Structures	Median Bill
1 - 499	153	\$20.35
500 - 999	51	\$20.25
1,000 - 2,999	107	\$20.02
3,000 - 7,499	44	\$21.26
7,500 -14,999	21	\$16.40
15,000+	33	\$20.73
<b>All Rate Structures</b>	<b>409</b>	<b>\$20.50</b>

**Table 4: Median Water Bill by Utility Type (6,000 Gallons/Month)**

Utility Type	Number of Rate Structures	Median Bill
Authority	37	\$29.00
County	30	\$27.92
Municipality	331	\$19.50
Utility Commission	11	\$20.73
<b>All Systems</b>	<b>409</b>	<b>\$20.50</b>

**Commercial Water**

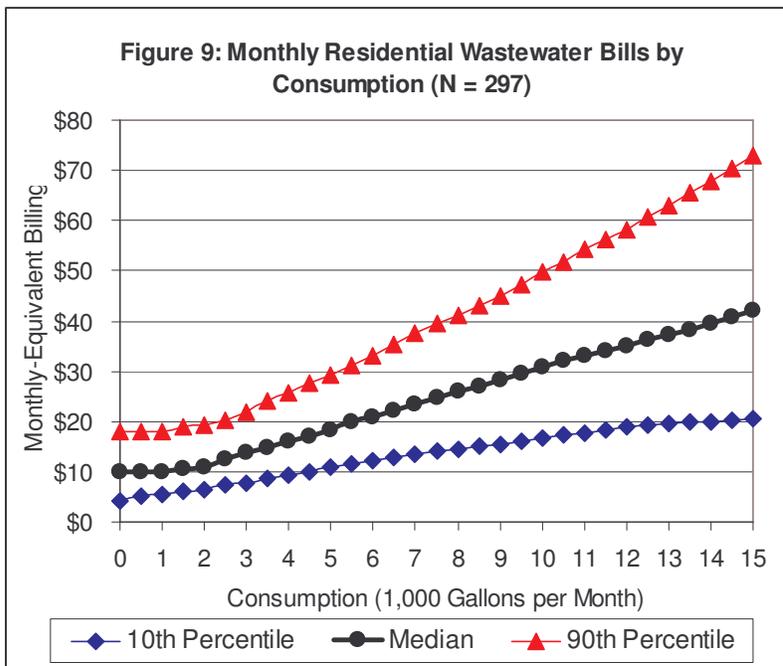
Figure 8 shows monthly median water bills for commercial water customers at different levels of consumption<sup>2</sup>. Median bills for those in the 10<sup>th</sup> and 90<sup>th</sup> percentiles are also included. The median monthly bill for inside customers consuming zero gallons is \$11.45. The median bill for 25,000 gallons is \$67.70, for 100,000 gallons is \$245.79, and \$611.54 for those consuming 250,000 gallons.



<sup>2</sup> The residential rate structure is used to calculate the billings for commercial customers except for the service providers that specify different rates and rate structures for commercial or non-residential customers.

**Residential Wastewater**

Figure 9 presents information on median monthly wastewater bills at various consumption levels. The median monthly wastewater bill for customers consuming zero gallons of water is \$10.00. At 6,000 gallons, the median bill is \$20.97. The median bill for 10,000 gallons is \$30.75. Tables 5 and 6 show differences in median residential wastewater bills by utility size and type. Median wastewater bills increase with the utility size range.



**Table 5: Median Wastewater Bill by Utility Size (6,000 Gallons/Month)**

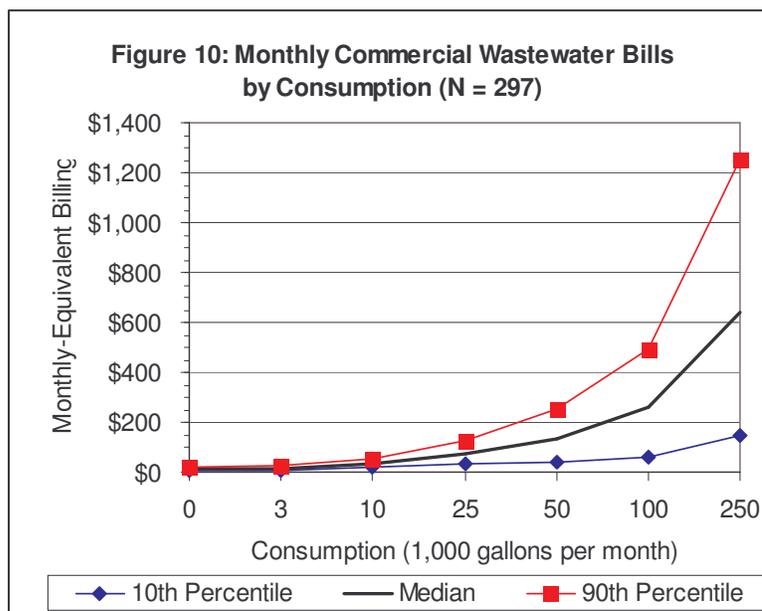
Number of Accounts	Number of Wastewater Rate Structures	Median Bill
1 – 499	66	\$17.45
500 – 999	46	\$19.84
1,000 - 2,999	96	\$20.00
3,000 - 7,499	41	\$21.40
7,500 -14,999	18	\$22.60
15,000+	30	\$24.95
<b>All Rate Structures</b>	<b>297</b>	<b>\$20.97</b>

**Table 6: Median Wastewater Bill by Utility Type (6,000 Gallons/Month)**

Utility Type	Number of Wastewater Rate Structures	Median Bill
Authority	20	\$27.29
County	18	\$24.62
Municipality	250	\$20.00
Utility Commission	9	\$20.40
<b>All Systems</b>	<b>297</b>	<b>\$20.97</b>

**Commercial Wastewater**

Figure 10 depicts the estimated monthly wastewater bills for inside commercial customers at different consumption levels. The median bill for commercial customers is \$10.27 for zero consumption, \$72.10 at 25,000 gallons, \$259.79 at 100,000 gallons, and \$638.78 at 250,000 gallons.



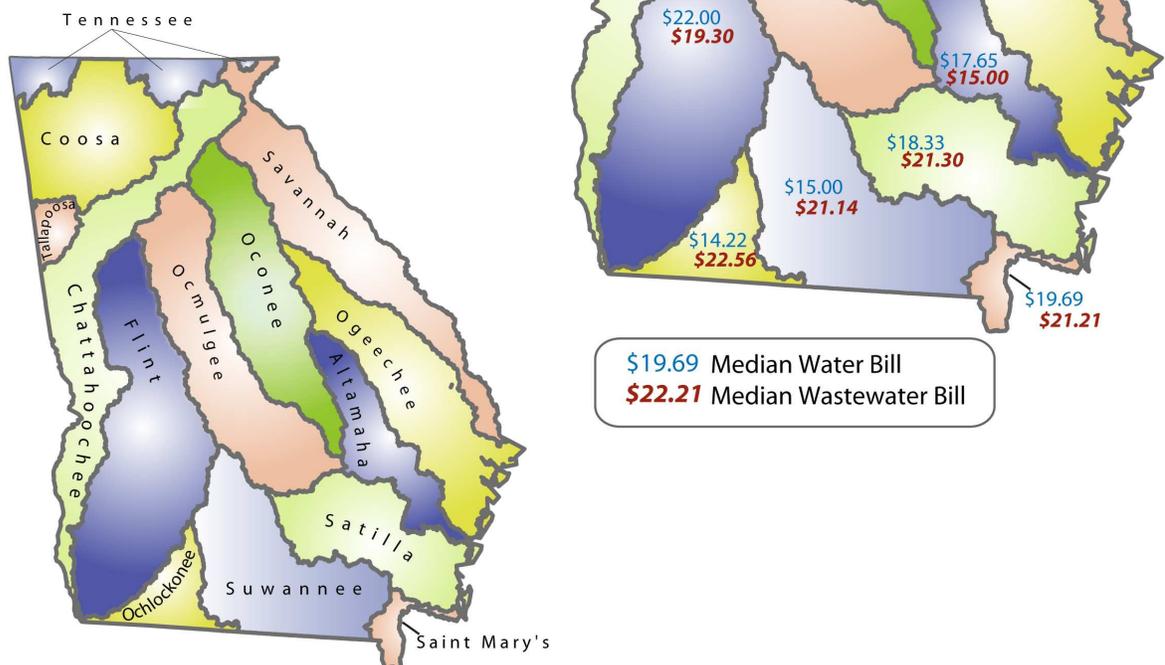
### What Utilities Charge by River Basin

It is important to consider operating environment when comparing rates among utilities. Source water quality and quantity can have a significant impact on the cost to produce water. Likewise, receiving water quality can have a major impact on the cost of wastewater treatment. In an attempt to consider these impacts, median water and wastewater rates for 6,000 gallons of consumption were calculated for each of Georgia's 14 major river basins; they are displayed in Figure 11.

The highest median water charge (\$23.86) can be found in the Tennessee River Basin. The mountainous topography of this basin might be the cause of higher water production and distribution costs there. The lowest median water charges, by contrast, are found in Southern Georgia in the Suwannee (\$15.00) and Ochlocknee (\$14.22) River Basins. These basins are mostly rural and lower water rates could be related to the high fraction of small, groundwater using utilities therein. The highest median wastewater charges can be found in the highly urbanized Tallapoosa (\$25.75) and Chattahoochee (\$26.18) River Basins while the lowest median wastewater charges can be found in the lower coastal plain Ogeechee (\$18.30) and Altamaha (\$15.00) River Basins.

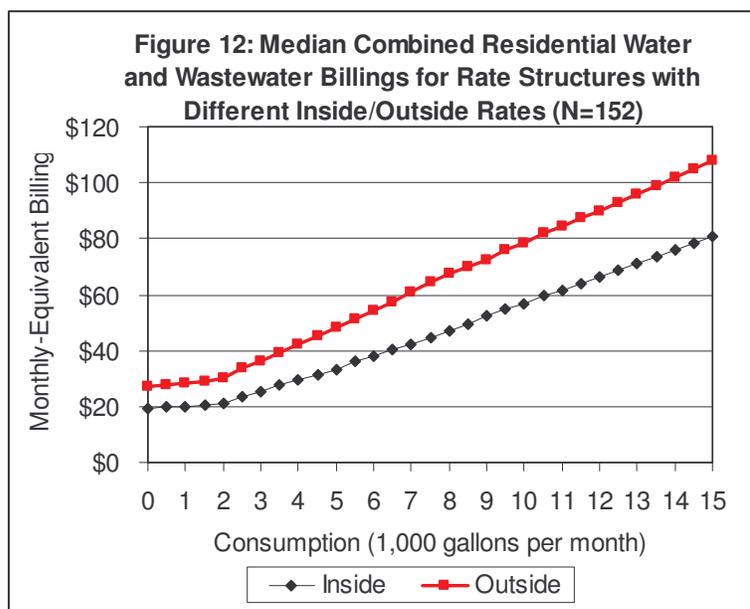
Figure 11: Median Water and Wastewater Charges for 6,000 Gallons/Month by River Basin

River Basin	Water Bill	Number of Utilities	Sewer Bill	Number of Utilities
Altamaha	\$17.65	18	\$15.00	13
Chattahoochee	\$22.26	47	\$26.18	34
Coosa	\$21.44	34	\$20.65	28
Flint	\$22.00	63	\$19.30	44
Ochlocknee	\$14.22	11	\$22.56	6
Ocmulgee	\$20.62	46	\$21.72	37
Oconee	\$22.75	42	\$21.00	26
Ogeechee	\$16.80	31	\$18.30	24
Saint Mary's	\$19.69	2	\$21.21	1
Satilla	\$18.33	18	\$21.30	15
Savannah	\$21.42	42	\$22.00	31
Suwannee	\$15.00	35	\$21.14	20
Tallapoosa	\$22.50	11	\$25.75	8
Tennessee	\$23.86	12	\$19.90	10



## What Utilities Charge Customers that Live Outside their Political Boundaries (Inside vs. Outside)

All of the charges presented above refer to what utilities charge customers who live within their political boundaries. Municipal utilities often serve customers who live outside city limits, and a handful of county systems and county authorities serve customers in neighboring counties. Overall, 42 percent of water and wastewater utilities in this survey charge outside customers more than inside customers and the majority of these are municipalities. Approximately 49 percent of municipal utilities charge the same and 51 percent charge differently for inside and outside customers. Figure 12 shows median charges for combined residential water and wastewater service for all utilities that have separate rate schedules for outside customers. The median bill



charged to inside customers for 6,000 gallons per month of water and wastewater combined is \$38.08 compared to \$54.12 for outside customers. In other words, outside water customers pay approximately 142 percent of what inside residential customers pay.

There are at least two reasons why utilities would charge more for outside customers. First: inside customers, as citizens of the unit of local government that provides the utility service, bear more of the investment risks of owning and operating a utility. They also bear more of the burden of financing and facilitating its operations through their local government unit<sup>3</sup>. Second: for all utilities, outside customers are inherently more expensive to serve because they reside farther, on average, from the water or wastewater treatment plant than inside customers. Extra costs for distribution and collection systems justify higher rates for outside customers.

### Connection Fees

Many utilities (93 percent in this survey) charge one-time fees for new water and wastewater service connections. These connection fees are used to cover the cost of service installation which may include a tap, service line, water meter, excavation or boring costs, paving costs, etc. These fees are also used to expand system capacity, or offset the impact of the new customer connections on system-wide capacity. When fees are used for the latter purpose, they are legally considered impact fees subject to the Georgia Development Impact Fee Act<sup>4</sup> which dictates the method for calculating and implementing such fees. No effort was made to distinguish between impact and non-impact fees in this survey; all are aggregated and referred to as “connection fees.”

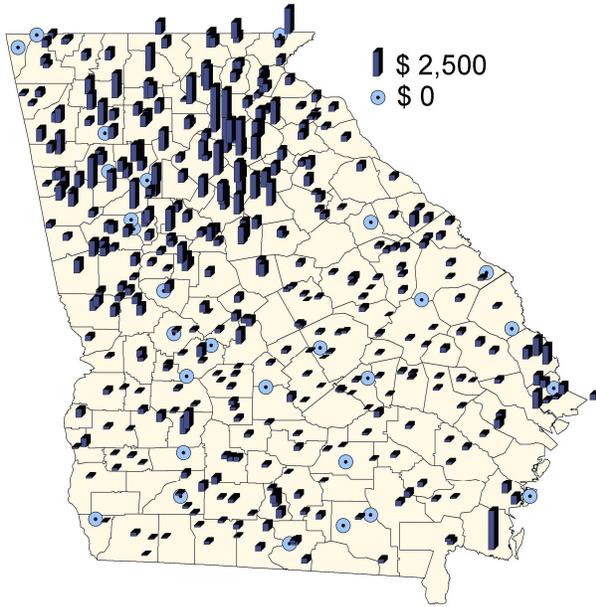
Figures 13 and 14 show examples of connection fees and their amounts for single family homes across the State. These maps do not display all connection fees among surveyed utilities. Some utilities responded that they have a connection fee for service line installation costs however the amount is project specific so no value was entered in the survey database. The most notable trend for both water and wastewater connection charges is that they are highest in the urban areas of the State and along the coastline where development is

<sup>3</sup> AWWA. Principles of Water Rates, Fees, and Charges. Manual of Water Supply Practices: M1. 5th Ed. 2000.

<sup>4</sup> Official Code of Georgia Annotated § 36-71

also most rapid. The median water connection fee is \$550.00 and the median wastewater connection fee is \$612.50.

**Figure 13: Connection Fees for New Residential Water Service**



**Figure 14: Connection Fees for New Residential Wastewater Service**

