The Environmental Finance Center and the Georgia Environmental Finance Authority conducted a survey of stormwater utilities in Georgia between August 2016 and February 2017. Sixty-two stormwater utilities across the state were contacted over the course of the survey. Utilities were asked for their stormwater fees structures, and to complete an online questionnaire of supplementary questions. Forty-eight stormwater utilities (77.4 percent) from twenty-seven counties completed the survey. Thirty-seven (77.1 percent) of the participating utilities are municipalities, while eleven (22.9 percent) of the participating utilities are counties.

The following pages contain the results and analyses of the 2016 Georgia Stormwater Fees Survey. More information on Stormwater Utility Management in Georgia can be found here. In addition to this report, there is an accompanying set of tables and an online, interactive Fees Dashboard where users can compare utilities against various attributes such as geographic location, system characteristics, and customer demographics.

The Environmental Finance Center would like to extend a thank you to GEFA and the stormwater utilities that participated in this year’s survey.

Contributors to the 2016 Georgia Stormwater Fees Survey:

Stacey Isaac Berahzer, Senior Project Director
Annalee Harkins, Data Specialist & Project Manager
Evan Kirk, Student Data Analyst
Caitlin Seyfried, Student Data Analyst
David R. Tucker, Project Director
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Stormwater Fee Structures

Stormwater utilities in Georgia employ a variety of fee structures to determine what their customers pay. There is notable variation among utilities in how each customer type is charged for stormwater services.

How Are Stormwater Fees Structured in Georgia?

Figure 1 displays the single-family residential, nonresidential, and multi-family residential fee structures, by structure type, for participating stormwater utilities in Georgia. Only utilities with unique multi-family residential fee structures are included in this chart. 15 of the 48 participating utilities (31.2%) have unique multi-family residential fee structures. In Georgia, flat fee structures are more commonly used to assess fees for single-family residential and multi-family residential properties. 27 of the 48 single-family residential fee structures (56.3%) and 10 of the 15 multi-family residential fee structures (66.7%) are flat fee structures. Only two of the 48 nonresidential fee structures (4.2%) are flat fee.

Fees charged per Equivalent Residential Unit (ERU), described below, are more commonly used to assess fees for nonresidential properties. 45 of the 48 nonresidential fee structures (93.8%) charge customers a fee per ERU, while 12 of the 48 single-family residential fee structures (25%) charge per ERU. This difference may exist because residential parcel sizes tend to have a similar amount of impervious surface, at least compared to nonresidential parcels. Since nonresidential parcels may be as large as a shopping mall, or as small as a restaurant, charging per ERU ensures that each
establishment pays a fee proportional to the amount of impervious surface within its parcel. Additionally, tiered flat fees are more common for single-family residential properties than nonresidential and multi-family residential properties. Nine of the 48 utilities (18.8%) charge single-family residential customers using a tiered flat fee, while just one of the 48 utilities (2.1%) charge nonresidential customers using a tiered flat fee. No multi-family residential customers in this survey are charged by tiered flat fees; however, two utilities charge multi-family residential customers using a decreasing block fee, which is labeled as “other” in Figure 1.

**Flat Fees**

Utilities that use fees charge all properties the same fee regardless of the estimated amount of impervious surface on the property. Communities might implement a flat fee for residential customers because residential parcels within the city’s jurisdiction do not vary significantly in size. This eliminates the city or county’s need to estimate the size of each parcel individually, cutting down on data collection and administration costs. Prior to the establishment of a stormwater utility, many communities conduct studies to determine the average size of a residential parcel. Many communities that implement a residential flat fee structure charge nonresidential customers using a different structure, such as “per ERU” or tiered flat fees. In the example provided above in Table 1 and Equation 1, all residential customers are charged $4.00 per month.

<table>
<thead>
<tr>
<th>Residential Flat Fee Per Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>$4.00</td>
</tr>
</tbody>
</table>

**Equation 1: Example Calculation for 3,000 ft² of impervious Surface**

*All Properties Pay the Same Fee*

*Monthly Fee = $4.00*

**Tiered Flat Fees**

Properties that are charged based on tiered flat fees are assessed a fee based on the estimated amount of impervious surface on the parcel. However, unlike per ERU fee structures, the amount of impervious surface on a parcel is not multiplied by the size of an ERU. Instead, each property is categorized into a single tier based on the amount of impervious surface estimated to be within
that parcel. Thus, within the fees structure illustrated in Table 2, a property with 1,900 square feet of impervious surface will pay the same fee as a property with 5,000 square feet of impervious surface. Typically tiered flat fee structures will create small, medium, and large categories for properties, but some utilities may have more than three tiers. In the example provided in Table 2 and Equation 2, a property with 3,000 square feet of impervious surface will fall in the “medium” category and pay a fee of $2.50 per month. This is an example of a tiered flat fees free structure with three tiers. Figure 2 provides a visual representation of how tiered flat fees are charged. The horizontal axis displays the impervious service on a fee payer’s property, while the vertical axis displays the monthly fee owed. As impervious surface increases along the horizontal axis, the fee only changes when passing 1,500 ft² and 5,000 ft².

**Figure 2: Tiered Flat Fees Example Fee Structure Visualized**

<table>
<thead>
<tr>
<th>Single Family</th>
<th>Monthly Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 1,500 ft²</td>
<td>$1.50</td>
</tr>
<tr>
<td>1,500 ft² – 4,999 ft²</td>
<td>$3.00</td>
</tr>
<tr>
<td>5,000 ft² or more</td>
<td>$4.50</td>
</tr>
</tbody>
</table>

**Equation 2: Example Calculation at 3,000 ft² of Impervious Surface**

\[
1,500 ft^2 < 3,000 ft^2 < 4,999 ft^2
\]

\[
\text{Monthly Fee} = 3.00
\]
**Per Equivalent Residential Unit**

Properties that are charged per Equivalent Residential Unit (ERU) are assessed a fee based on the estimated amount of impervious surface on the property. A “per ERU” stormwater fee structure may include a base charge, which may or may not include a certain number of square feet of impervious surface included in this charge. Additionally, a utility may have a “per ERU” with a cap fee structure. This stipulates that any parcel with more impervious surface that the cap will pay the fee at which the structure is capped. A cap of 4,000 square feet means any residential property with more than 4,000 square feet of impervious surface will be charged for 4,000 square feet. Stormwater utilities with “per ERU” fees structures estimate the amount of impervious surface on individual properties, using GIS or other methods. The area of impervious surface on a property is divided by the size of the ERU, to get the number of ERUs on that property. A utility may also round up or down to the nearest ERU. The number of ERUs, rounded or not, is then multiplied by the price per ERU to get the stormwater fee owed for the individual property. In the example calculation provide above in Table 3 and Equation 3, a property with 3,000 square feet of impervious surface will pay a fee of $4.44 per month because it is 1.11 ERUs.

### Table 3: Example Fee Per Residential Unit

<table>
<thead>
<tr>
<th>ERU Size</th>
<th>Monthly Fee Per ERU</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,700 square ft.</td>
<td>$4.00</td>
</tr>
</tbody>
</table>

### Equation 3: Example Calculation at 3,000 ft² of impervious surface

\[
\frac{3,000 \text{ ft}^2}{2,700 \text{ ft}^2 \text{ per ERU}} = 1.11 \text{ ERU}
\]

\[
1.11 \text{ ERU} \times \$4.00 \text{ per ERU} = \$4.44 \text{ fee per month}
\]
Stormwater Billing

Residential Fees

Table 4 shows that at 3,000 square feet of impervious surface, the median monthly residential stormwater bill is $4.00, while the largest is $8.58 and the smallest is $0.45. The median bill at 6,000 square feet of impervious surface is $4.31, just a $0.31 increase from the median bill at 3,000 square feet. The minimum and maximum bills at 6,000 square feet are $1.00 and $19.20, respectively.

<table>
<thead>
<tr>
<th></th>
<th>3,000 ft²</th>
<th>6,000 ft²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>$0.45</td>
<td>$1.00</td>
</tr>
<tr>
<td>Median</td>
<td>$4.00</td>
<td>$4.31</td>
</tr>
<tr>
<td>Maximum</td>
<td>$8.58</td>
<td>$19.20</td>
</tr>
</tbody>
</table>

Figure 3 displays the variation in single-family residential stormwater billing at 3,000 square feet of impervious surface. Note that these comparisons do not include level of service provided, which can vary widely based on the stormwater utility’s goals, regulatory mandates, service area, and...
population. For example, the level of service provided by a utility may be high in municipalities and counties where stakeholders demand greater infrastructure investment, usually to address issues such as flooding. In areas where the water quality is impaired, the federal government’s requirements may involve higher levels of stormwater management at the local level. Please see the 2016 Georgia Stormwater Fees Dashboard and the Georgia Stormwater Fees and Fee Structures Tables for more complete billing information.

Multi-family Fees

Table 5 at right displays 15 of the 48 participating utilities that have separate, distinct multi-family rates. For four living units, or 6,000 square feet for utilities that charge multi-family rates “per ERU,” the minimum monthly stormwater bill is $1.34, while the maximum is $16.60, and the median bill is $7.50. The median bill at 10 units or 15,000 square feet of impervious surface is $18.75, the minimum is $3.35, and the maximum is $41.51.

Table 5: Multi-family Minimum, Median, and Maximum Bills at 4 and 10 Units

<table>
<thead>
<tr>
<th></th>
<th>4 Units (6,000 ft²)</th>
<th>10 Units (15,000 ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>$1.34</td>
<td>$3.35</td>
</tr>
<tr>
<td>Median</td>
<td>$7.50</td>
<td>$18.75</td>
</tr>
<tr>
<td>Maximum</td>
<td>$16.60</td>
<td>$41.51</td>
</tr>
</tbody>
</table>

Figure 4: Monthly Multi-family Stormwater Fees at 4 Units (Estimated 6,000 sq ft of Impervious Surface) (n = 15)
Figure 4 above displays the variation in multi-family residential stormwater billing at four living units or 6,000 square feet of impervious surface. Note that these comparisons do not include level of service provided, which can vary widely based on the stormwater utility’s goals, regulatory mandates, service area, and population. For example, the level of service provided by a utility may be high in municipalities and counties where stakeholders demand greater infrastructure investment, usually to address issues such as flooding. In areas where the water quality is impaired, the federal government’s requirements may involve higher levels of stormwater management at the local level. Please see the 2016 Georgia stormwater dashboard and the Georgia stormwater fees and fee structures tables for more complete billing information.

**Nonresidential Fees**

Table 6 shows that at 10,000 square feet of impervious surface for nonresidential properties the largest monthly bill is $20.36 and the smallest is $2.68. The median bill is $9.33 per month. At 50,000 square feet of impervious surface the median bill is $66.46, the minimum is $4.74, and the maximum is $145.45.

**Table 6: Nonresidential Minimum, Median, and Maximum Bills at 10,000 and 50,000 ft² of Impervious Surface**

<table>
<thead>
<tr>
<th></th>
<th>10,000 ft²</th>
<th>50,000 ft²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum</td>
<td>$2.68</td>
<td>$4.74</td>
</tr>
<tr>
<td>Median</td>
<td>$9.31</td>
<td>$66.46</td>
</tr>
<tr>
<td>Maximum</td>
<td>$20.36</td>
<td>$145.45</td>
</tr>
</tbody>
</table>
Figure 5: Monthly Nonresidential Stormwater Fees at 10,000 Square Feet of Impervious Surface (n = 48) above displays the variation in nonresidential stormwater billing at 10,000 square feet of impervious surface. Again, note that these comparisons do not include level of service provided, which can vary widely based on the stormwater utility’s goals, regulatory mandates, service area, and population. For example, the level of service provided by a utility may be high in municipalities and counties where stakeholders demand greater infrastructure investment, usually to address issues such as flooding. In areas where the water quality is impaired, the federal government’s requirements may involve higher levels of stormwater management at the local level. Please see the 2016 Georgia stormwater dashboard and the Georgia stormwater fees and fee structures tables for more complete billing information.

Visualizing the Increase in Bills as Impervious Surface Increases

Figure 6 displays the effect of an increase in the amount of impervious surface by a magnitude of five within all three billing types. The difference between the maximum and minimum bills increases very rapidly for nonresidential properties between 10,000 and 50,000 square feet of impervious surface. This is because the most common fee structure for nonresidential billing is “per ERU.” Residential and multi-family structures are far more likely to be either a flat fee or a per unit charge (as is the case for multi-family billing). Utilities may opt for a “per ERU” charge for nonresidential properties for many reasons. One reason is the diversity in the amount of impervious surface area is much
greater among nonresidential properties than among residential and multi-family properties. Another reason may be a municipality or county may want to incentivize development that limits the introduction of new impervious surfaces and incentivizes nonresidential property owners to install best management practices in exchange for stormwater credits.

**Figure 6: Increase in Monthly Bills Across Bill Type due to Increased Impervious Surface or Units (n = 48)**
Supplementary Utility Information

Population Served

Most of the stormwater utilities in Georgia have service populations between 10,000 and 50,000 people. As of the 2015 census, the largest stormwater service population was 650,000, served by Gwinnett County. The smallest service population was 3,000 in Senoia. Overall, 6 utilities service more than 100,000 people, 6 service between 50,000 and 100,000 people, 27 service between 10,000 and 50,000, and 9 service fewer than 10,000 people. In total, the 48 participating utilities service 2.98 million of the 10 million Georgians, representing 30% of the population of Georgia.

Service Area

Figure 8 shows that 11 utilities (22.9%) have service areas less than 10 square miles, 19 utilities (39.5 percent) have service areas between 10 and 25 square miles, and 5 utilities (10.4%) have service areas between 25 and 50 square miles. There is just one utility with a service area between 50 and 100 square miles, yet there are 11 (22.9 percent) with service areas above 100 square miles. This is because 11 of the 48 utilities are counties, which serve all of the unincorporated area in addition to, for some of the counties, selected municipalities.
Figure 9 at left shows the relationship between utility service area and annual expenses for stormwater utilities in Georgia. This graph also shows that the level of service varies by utility, as mentioned above in the stormwater billing section. Utilities above the regression line have more expenses per square mile than the average, which may be an indication of a higher level of service. However, utilities below the regression line do not necessarily provide a lower level of service. There are many variables that play into a utility’s expenses, such as a longer history of neglected infrastructure, higher levels of flooding etc.

NPDES Permitting

An MS4 permit (Municipal Separate Storm Sewer System) is issued to a municipality under the National Pollutant Discharge Elimination System (NPDES). Based on EPA policies, Phase I communities are larger municipal separate stormwater systems that generally serve populations over 100,000, have a greater number of acres disturbed by development, or have certain types of industrial activities. These entities have been required to have stormwater permits and maintain stormwater management programs (SWMPs) since 1990. Smaller municipalities may be issued Phase II MS4
permits and be required to maintain similar SWMPs. Within this survey, 27 of the stormwater utilities (56.2 percent) have Phase I MS4 permits, while 17 (35.4 percent) have Phase II. Municipalities and counties with MS4 permits make up 44 of the 48 (91.7 percent) stormwater utilities that participated in this survey. The remaining four stormwater utilities exist in counties or municipalities that do not have MS4 permits. These communities have elected to create a stormwater utility to manage their stormwater challenges in the absence of the regulatory pressures associated with the NPDES program.

**Year of Utility Creation**
The first stormwater utility in Georgia was created in 1998 in the city of Griffin. Figure 11 shows that, of the 48 utilities in the survey, the majority (50 percent) were created during the period between 2005 and 2010, while only 9 (18.8%) were created between 2000 and 2005. Fourteen stormwater utilities (29.1 percent) were created in the last five years, including four that were created in 2016.

**Figure 11: Year of Stormwater Utility Creation (n = 48)**
Billing Methods

Stormwater utilities can charge for their services through a variety of methods, including through stand-alone, utility, and property tax bills. Figure 11 displays that, in Georgia, 43% of stormwater utilities charge their customers through a combined utility bill as their primary method of fee collection, however, not every stormwater utility operates in a county or municipality that offers water, sewer, or electric service. Therefore, some utilities rely on other methods of fee collection. Additionally, stormwater utilities that bill for their services on the county or municipality’s utility bill may still have to send separate stand-alone bills to fee payers that are not connected to the other utility systems. 9% of utilities charge their customers on a stand-alone bill. Stand-alone billing may increase administrative costs for a utility because of the need to send out separate bills to each customer. An additional 38% of stormwater utilities charge for their services on the customer’s property tax bill.

Average fee collection rate by method

On average, 93.7% of the customers that are billed for stormwater service pay the stormwater fee. However, Figure 12 displays that, in Georgia, not all bill collection methods result in the same collection percentages. Among the 37 utilities that provided a collection rate, customers billed on their property tax and utility bills were 7.7% and 5.8% more likely to pay stormwater fees than customers billed on stand-alone bills. Please see the for a complete list of questions and the specific question dictons provided in the EFC’s 2016 Georgia
Credit Programs

A credit program is a legal framework to provide a reduction in a stormwater fee for property owners who install certain best management practices (BMPs) on their land. Credit programs allow land owners to control and reduce their service fee, while encouraging private and non-profit participation in water quality and flood relief efforts. Additionally, the installation of BMPs reduces the magnitude of expenditure needed to finance stormwater infrastructure on public land by decreasing the runoff and nutrient pollution from private and non-profit owned lands. Compared to data available in a national stormwater survey conducted by Black and Veatch in 2014, percentage-wise, Georgia stormwater utilities are far more likely to have credit programs than the national average. Figure 13 and Figure 14 show that, while just 44% the 78 national utilities that participated in Black and Veatch’s 2014 survey had credit programs, 85% of the 48 utilities in Georgia that participated in this survey reported having credit programs. Please see the for a complete list of questions and the specific question wordings provided in the EFC’s 2016 Georgia stormwater survey questionnaire.
Additional Resources for Georgia Stormwater Utilities

This report is one of a series of stormwater fees and stormwater fee structures surveys in Georgia, compiled by the Georgia Environmental Finance Authority (GEFA) and the Environmental Finance Center (EFC). Visit http://www.efc.sog.unc.edu/project/georgia-stormwater-utility-management, where, in addition to survey results, you will also be able to access the free, interactive fee dashboard which facilitates fee comparisons among utilities and gives benchmarks for every fee structure in this survey.

For more information on making appropriate fee comparisons, please contact Stacey Isaac Berahzer (berahzer@unc.edu) in the Georgia office of the Environmental Finance Center at the UNC School of Government.
This survey was funded by GEFA.

Additional support 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, the Georgia Rural Water Association, and the US Environmental Protection Agency.
2016 Georgia Stormwater Survey

1. How is your stormwater fee collected?
   How are customers billed for stormwater service?
   
   A. Stormwater stand-alone bill
   B. Other combined utility bill
   C. Property tax bill
   D. Other (write in) __________

2. How many people are served by your stormwater utility?

   Please provide the approximate service population of your stormwater utility (e.g. “15,500”).

3. In what year were stormwater fees first collected?

   Please provide the year in which stormwater fees were first collected for your stormwater utility.

4. In what year were stormwater fees last increased?

   Please provide the year in which stormwater fees (for any customer class) were increased for your stormwater utility customer (e.g. “2013). If the fee has never been increased, please write “NA.”

5. What percentage of all customers who are billed for a stormwater fee pay the stormwater fee?

   As a reference point, collection rates received in the past survey range from 80 to 99%. Please report the Collection Rate as a percentage (e.g. “93” for a 93% Collection Rate).

6. Does your utility have a formalized Asset Management Program?

   An Asset Management Program is a formally constructed framework used to manage assets in order to deliver a certain service or set of goals. If you are unsure of whether your stormwater utility has an Asset Management Program, please
choose "Other" below and elaborate.

A. Yes
B. No
C. Other (write in) __________

6a. (Optional) Please describe your Asset Management Program, or provide a link to information about it.

7. Does your stormwater utility have a credit program?
The term "credit program" is typically used to describe a system in which stormwater utility customers can apply to have their stormwater fee reduced if the customer shows that they are meeting certain criteria, such as implementing stormwater Best Management Practices on their property. If your utility has a program in which customers can apply to reduce their fee, but it is not called a "credit program" or somehow differs from the description above, please choose "Other" below and elaborate.

A. Yes
B. No
C. Other (write in) __________

7a. (Optional) Please describe your credit program, or provide a link to information about it.

8. (Optional) If you have additional information on any related topics, please feel free to provide those below.