



**BENEATH**

**THE**

**SURFACE**

**A Primer on Stormwater Fees in New Orleans**

**February 2017**

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## BENEATH THE SURFACE

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## EXECUTIVE SUMMARY

Few would question the idea that flood protection is a top public priority in New Orleans. Since Hurricane Katrina, the federal government has made major investments to expand the City's flood protection and drainage capacity. These investments include improved drainage infrastructure as part of the Southeast Louisiana Urban Flood Control Project (SELA) and new pumping complexes at the three Lakefront outfall canals.

The improvements collectively represent an extraordinary, once-in-a-lifetime investment by the federal government in local drainage infrastructure. But it will be up to the people of New Orleans to maintain them and, in some cases, provide local matching funds. This greatly expands the responsibilities and funding needs for the Sewerage & Water Board of New Orleans (S&WB). As a result, the public faces large new costs.

In addition, both the S&WB and the City have significant unmet maintenance needs for the pre-existing drainage systems. In total, the S&WB and City say they need \$54.5 million per year by 2026 in new revenue to meet impending obligations and properly maintain both of their drainage systems. This would nearly double the local annual spending on stormwater management through these entities.

However, BGR notes that the S&WB's estimates have fluctuated significantly. Given the magnitude of the potential costs, it will be critical for the board to reach firm estimates, ensure their accuracy and clearly justify all new expenses.

Yet it is clear that major new financial obligations lie ahead. With these cost burdens in mind, the S&WB and City are considering whether to pursue stormwater fees, rather than new property taxes, as a means of raising the additional revenue.

In recent decades, stormwater agencies have increasingly turned to stormwater fees, rather than property taxes alone, to meet stormwater management costs. Today, stormwater fees are in effect in 39 states and almost 1,600 jurisdictions nationwide. New Orleans is not among them, though state law gives municipal drainage systems the authority to impose a stormwater fee.

## IMPERVIOUS AREAS

Measuring impervious areas effectively can be a central component in determining stormwater fees. Streets, parking lots, sidewalks, concrete driveways and roof tops are examples of impervious surfaces that prevent stormwater absorption into the ground. Stormwater may run directly from these surfaces into the drainage system. Pervious areas, by contrast, include lawns, ditches, green roofing and gravel driveways; ponds and pools may provide water retention or detention. Because these surfaces absorb or impede runoff, they ease the burden on the drainage system.

The absence of stormwater fees in one of the nation's most stormwater-challenged cities becomes more striking in light of the advantages such fees offer. The greatest advantage stormwater fees have over property taxes is the broader base of contributors. A stormwater fee typically extends to properties that are exempt from ad valorem property taxes, such as nonprofit and government-owned properties, allowing the cost burden of stormwater management to be shared more broadly among the beneficiaries of the stormwater system. But maximizing the reach of a stormwater fee demands a strong nexus between the runoff a property generates and the amount of the charge. Also, fee revenue must go solely to stormwater management purposes that benefit ratepayers.

Ideally, a stormwater fee would be structured to encourage property owners to build in a manner that minimizes runoff. Such a fee would diversify existing revenue sources and provide accuracy and consistency in the fee calculation. It would also allow for a comprehensive funding approach across the entire stormwater management system, including both the S&WB-controlled infrastructure and the thousands of miles of drain pipes under the City's control.

In this report, BGR delves into stormwater fees. The report compares stormwater fees to property taxes, analyzes various types of fee structures, describes potential exemptions and credits against the fees, explores the legal parameters for imposing stormwater fees, and investigates the issues surrounding their implementation in New Orleans. The purpose is to provide a clear understanding of how stormwater fees work and to begin the discussion of their potential to bridge the funding gap.



For administrative simplicity or to address differences among properties, many stormwater utilities have structured fees to group properties together by tiers, land use type or other administrative categories, such as service level. Grouping properties into tiers based on the applicable square footage allows the stormwater utility to apply a single fee to an entire range of properties.

BGR examined the following range of fee structures:

- *Flat Per-Parcel Fees.* A uniform fee where every parcel pays the same amount.
- *Gross Area.* A fee based on a property's gross area.
- *Total Impervious Area.* A fee based on a property's total impervious area.
- *Equivalent Residential Unit (ERU).* A fee based on the average impervious area of a single-family residence within the service area. The fee imposed on residential properties is equal to one ERU. Other property types, such as commercial, industrial and institutional uses, are charged based on actual measurements of impervious area, using ERUs as the unit of measurement.
- *Intensity of Development.* A fee based on a property's impervious area as a percentage of gross area. This takes into account a property's pervious area. Rates are lower for vacant or undeveloped properties, but increase as properties become more developed.
- *Equivalent Hydraulic Area.* A fee based on the combined effect of a property's impervious and pervious areas. Typically, higher rates are charged for impervious areas while lower rates are charged for pervious areas.
- *Runoff Factor.* A fee based on a property's runoff. The fee is calculated by using formulas to calculate runoff volume and rate based on data such as impervious area, pervious area, slope, soil type, storm models and other relevant factors.

## Fee Structures

Stormwater fees can take a variety of forms. At one end of the spectrum are simplistic approaches, such as a Flat Per-Parcel Fee, or a rate based on a parcel's total area. While fees under these approaches are easy to calculate, they do a poor job of linking a property's runoff and burden on the drainage system to the amount of the fee. At the other end of the spectrum are more complex approaches based on a property's runoff. Fees under these approaches provide a more precise nexus between a property's runoff and the amount of the fee; however, they require more intense data collection and more complex calculations. They may be difficult to administer and hard for the public to understand.

## Exemptions

Exemptions are an important consideration in crafting stormwater fees. Examples of exemptions from stormwater fees include public streets and rights of way, properties owned by the stormwater utility, properties outside the perimeter of the public stormwater management system, undeveloped land and properties that manage their own stormwater.

In some cases, pre-existing laws exempt certain types of properties from newly imposed stormwater fees. In other cases, the entity imposing the fee may itself create exemptions.

But the greater the number of properties that are exempt from a stormwater fee, the greater the amount of the fee paid by nonexempt properties – diminishing the broad base of ratepayers that is a key benefit of stormwater fees. Further, exempt property owners have no financial incentive to reduce impervious areas.

## Credits

Credits give ratepayers the opportunity to reduce or perhaps even eliminate a stormwater fee. A ratepayer can reduce the amount of a stormwater fee by taking specific measures recognized as best practices for stormwater management to decrease the burden his property places on the drainage system. An incentive-based credit program might promote fairness by rewarding the reduced impacts to the drainage system.

However, if not administered stringently, such credits may lead to unnecessary subsidies, leaving other citizens to make up the difference. Furthermore, there could be significant administrative costs to the stormwater utility to handle matters such as application processes and property inspections. And, because each credit results in a fee reduction, credits could make revenues harder to predict.

“**There is no clear legal pathway to a local stormwater fee without a public vote. State law currently provides the City and the S&WB with the legal authority to impose a stormwater fee. Under state law, the City Council, Board of Liquidation, City Debt, and voters would need to approve a stormwater fee.**”

## Fee Approval: A Legal Muddle

There is no clear legal pathway to a local stormwater fee without a public vote. State law currently provides the City and the S&WB with the legal authority to impose a stormwater fee. Under state law, the City Council, Board of Liquidation, City Debt, and voters would need to approve a stormwater fee.

The City’s home rule charter separately provides the City Council with the legal authority to impose a fee. But the charter’s language is unclear as to whether voter approval would be needed to impose a stormwater fee. A court has not interpreted the charter’s muddled language.

It is also unclear whether the state law requiring a vote on stormwater fees would apply; the voter approval requirement in state law is not set forth in the constitution. Because the City Council appears to have authority to impose a stormwater fee under its home rule charter, possibly without voter approval, the charter provision could take precedence over the general statutory requirement. However, this issue may also need a court ruling to be resolved.

## Billing

A basic consideration in implementing a stormwater fee is determining whom to bill. According to a 2014 study of stormwater utilities, 71% of stormwater fees were charged to utility customers and appeared on monthly utility bills, while 29% were charged to property owners and appeared on property tax bills or separate bills.

Including stormwater fees on annual bills to property owners appears to be the superior approach. It imposes the cost on the primary beneficiaries of flood protection: property owners. It also maximizes the impact of any incentives to reduce runoff by placing the burden on the party best positioned to take mitigation measures on the property.

## Recommendations

This report does not attempt to verify the estimates of new stormwater management funding needs from the S&WB and City, and at this point those estimates remain fluid. However, it is clear that some level of new funding will be necessary.

Given the advantages of a stormwater fee over a new property tax, BGR recommends that the S&WB and City consider a stormwater fee as a potential source for drainage system funding.

To craft a stormwater fee that is fair to residents and benefits the entire drainage system, the S&WB and City officials should:

- Ensure the accuracy of the system's financial requirements and clearly justify all proposed expenditures.
- Pursue a fee structure that accurately measures the demands properties place on the drainage system. Rule out crude approaches such as Flat Per-Parcel Fees and the Gross Area method. Avoid the highly complex Runoff Factor approach.

- Tightly limit the number and types of properties that are exempt from stormwater fees. To maintain a broad base of ratepayers, there should be a clear justification for exemptions to any properties.
- Narrow any incentive-based credit programs to those that encourage stormwater management practices that are applicable to New Orleans and that create significant, quantifiable runoff reductions.
- Place the stormwater fee on annual property tax bills, with billing expanded to include properties exempt from ad valorem taxation. This imposes the cost of the fee on property owners, the primary beneficiaries of flood protection, and allows for the maximum impact of incentives to reduce runoff.

Finally, the City Council should pursue a charter change clarifying the authority of, and process for, the City and S&WB to impose fees and service charges.



Construction underway at the London Avenue outfall canal pump complex.

## INTRODUCTION

Water is both the reason New Orleans was founded and the biggest threat to its future. The city is streaked with waterways, including the chokepoint of the vast, 31-state Mississippi River watershed. One of the nation's largest estuaries, Lake Pontchartrain, forms the city's northern boundary. Its eastern boundary at Lake Borgne practically sits on the Gulf of Mexico. This location is both strategic and challenging.

Several factors add to the challenge. New Orleans is the third rainiest major U.S. city.<sup>1</sup> Parts of the city sit below sea level, and ongoing subsidence is making that problem worse. On the east bank, the highest ground rests along the river and the Lakefront. Combined with the city's natural ridges (such as the Esplanade, Gentilly and Metairie ridges), these higher areas form the edges of "bowls" of lower ground that must be pumped out during heavy rains, requiring costly infrastructure and energy usage. It goes without saying how vulnerable New Orleans is to storm surge, and the vulnerability is increasing with the rapid deterioration of the wetlands buffer. The various predictions of sea level rise do not make the picture any brighter.

With all of this in mind, there is an easy consensus that flood protection is a priority. Since Hurricane Katrina, improving the city's flood protection and drainage capacity has been a major focal point for federal investments.

Along the Lakefront, the U.S. Army Corps of Engineers (the Corps) so far has awarded contracts for \$1.05 billion to improve the 17<sup>th</sup> Street, Orleans Avenue and London Avenue outfall canals and build new pumping complexes.<sup>2</sup> Under the aegis of the Southeast Louisiana Urban Flood Control Project (SELA), the Corps and the Sewerage & Water Board of New Orleans (S&WB) will spend \$760 million in federal and local funds on projects to reduce the risk of flooding from rainfall events.<sup>3</sup> While the federal government has provided most of the funding for these improvements, payment of the local share falls on the S&WB. And ultimately, it is up to the people of New Orleans to provide local funding for these extraordinary federal investments.

The S&WB's current revenues, which come primarily from three dedicated property taxes, are insufficient to cover these looming costs.<sup>4</sup> Moreover, because this

funding has been insufficient for years, the S&WB has deferred maintenance on existing infrastructure. It has also postponed necessary capital improvements. While sewerage and water fees have been increasing, the revenues from those fees cannot be shared with the drainage department.<sup>5</sup>

The funding needs for local stormwater management go beyond the major systems under the S&WB's control. The City's Department of Public Works is responsible for the minor drainage system, the smaller, subsurface drain lines that account for most of the drain pipe mileage in New Orleans. The Department of Public Works similarly requires funding for its portion of the drainage system. To meet the various stormwater management costs, the S&WB has been exploring a stormwater fee as an alternative to increasing property taxes. The S&WB proposed such fees in the 1980s and 1990s, to no avail. Since then, stormwater fees have significantly increased in usage across the country. Today, stormwater fees are found in 39 states and the District of Columbia.<sup>6</sup>

It makes sense that in one of the most challenging stormwater management environments among major U.S. cities, decision-makers would give the mechanism consideration once again. Indeed, the S&WB is currently looking at new funding options, including revenue generated by fees, to meet the stormwater management system's existing and emerging needs.<sup>7</sup>

### MAJOR VERSUS MINOR DRAINAGE

#### S&WB's Major Drainage System

- 100 miles of open canals
- 100 miles of closed canals and drain lines 36 inches and larger in diameter
- 24 major drainage pumping stations with 120 pumps with a combined capacity of more than 50,000 cubic feet per second or 375,000 gallons per second
- 11 underpass pumping stations

#### Department of Public Works Minor Drainage System

- 1,287 miles of drain lines less than 36 inches in diameter
- 46,350 drainage manholes
- 65,000 catch basins

Source: Information provided by S&WB, January 2017.

In this report, BGR delves into stormwater fees. The report compares stormwater fees to property taxes, analyzes various types of fee structures, describes potential exemptions and credits against the fees, explores the legal parameters for imposing stormwater fees, and investigates the issues surrounding their implementation in New Orleans. The purpose is to provide a clear understanding of how stormwater fees work and to begin the discussion of their potential to bridge the funding gap.

## BACKGROUND

The S&WB and the City of New Orleans share responsibilities and funding for the local drainage system. The S&WB is responsible for drainage pipes 36 inches or larger in diameter, as well as the city's drainage canals and pumping stations.<sup>8</sup> The remainder of the drainage system – consisting of approximately 65,000 catch basins, 46,000 manholes and 1,300 miles of smaller drainage pipes beneath City streets and rights of way – falls to the City's Department of Public Works.<sup>9</sup>

Property owners in New Orleans pay 16.23 mills from three taxes dedicated to the S&WB's drainage systems.<sup>10</sup> This constitutes about 11% of the total mills imposed on taxpayers.<sup>11</sup> In 2017, the S&WB projects drainage revenues of \$55.3 million, with \$54 million generated by taxes.<sup>12</sup> As previously mentioned, this level of funding is insufficient to meet the needs of the system.

The S&WB has insufficient funding for capital improvements.<sup>13</sup> The S&WB currently projects \$502.6

million in unfunded capital improvements in its 10-year capital improvement plan for the stormwater management system (2017-2026).<sup>14</sup> Based on the most recent available information, the S&WB projects that \$365 million in revenue bonds, supported by the new funding source, could be issued to fund a portion of unfunded capital improvements.<sup>15</sup> The balance, totaling \$137.6 million, would need to come from cash generated by the new funding source. The balance of debt-funded versus cash-funded capital could change based on different funding strategies.

Additionally, the S&WB is preparing to take on major new financial obligations. The most significant costs relate to the S&WB's share for SELA projects, with repayment beginning in 2019. Most of the projects focus on improvements to the city's canals and pump stations, with projects currently underway Uptown and around the Florida Avenue Canal. See Table 1 for a list of SELA projects under construction and their anticipated completion dates.

The Corps will pay 65% of the SELA project costs.<sup>16</sup> The S&WB has 30 years to pay its 35% share, including interest. Over the next few years, the S&WB will begin paying a portion of the SELA repayment costs, with annual payments ramping up to \$8.8 million in 2022 and thereafter.<sup>17</sup> It expects its operation and maintenance costs for the new SELA infrastructure to total \$1.2 million a year by 2026.<sup>18</sup>

The S&WB also anticipates paying \$4.1 million annually by 2026 to operate and maintain the three lakefront outfall canals and pumping complexes.<sup>19</sup> The Corps expects to complete construction of the permanent canal closures and pumps by the end of 2017. At that point, the Corps will issue a Notice of Construction Completion, and the S&WB will become responsible for operation, maintenance and repairs.<sup>20</sup>

In addition, the S&WB says it needs \$4 million annually to improve maintenance of existing infrastructure and replace aging equipment. The S&WB postponed these tasks because of insufficient funding.

The S&WB plans to spend an additional \$2 million annually on groundwater management and green infrastructure. In recent years, local officials and urban planners have placed increasing attention on alternative stormwater management practices.<sup>21</sup>

**TABLE 1: SELA PROJECTS THAT REQUIRE S&WB MATCH**

Project	Completion Date	S&WB Match
Napoleon Ave. Phase 2	Completed May 2016	\$24.1 million
S. Claiborne Ave. Phase 2	Completed Sept. 2016	\$12.7 million
Jefferson Ave. Phase 2	Completed Oct. 2016	\$20.4 million
S. Claiborne Ave. Phase 1	Completed Feb. 2017	\$12.4 million
Napoleon Ave. Phase 3	July 2017	\$16.8 million
Jefferson Ave. Phase 1	May 2018	\$24.6 million
Florida Ave. Phases 2-3	Oct. 2018	\$51.6 million
Louisiana Ave.	Nov. 2018	\$35.8 million
Florida Ave. Phase 4	Oct. 2020	\$67.5 million

Source: Information provided by the U.S. Army Corps of Engineers, January 2017.



In total, the S&WB estimates that it needs an additional \$40 million annually, beginning in 2019, to fully fund the major drainage system. BGR notes that the S&WB's estimates have fluctuated significantly during the course of our research for this report. Given the magnitude of the potential costs, it will be critical for the board to reach firm estimates, ensure their accuracy and clearly justify all new expenses.

As previously mentioned, the City-controlled minor drainage system has significant unmet needs as well. The S&WB anticipates that the Department of Public Works will need \$19.7 million annually to inspect, clean

and maintain its system.<sup>22</sup> Currently, the City receives revenue from a 1.9-mill property tax for streets and traffic lights, which it expects will generate \$6.2 million in 2017,<sup>23</sup> with \$200,000 of that amount budgeted for drains and catch basins. The City plans to spend \$50 million in FEMA settlement funds – \$5 million annually for the next 10 years – on subsurface drainage under its control. But even with FEMA settlement funds, the department would still need an additional \$14.5 million annually to cover its \$19.7 million annual need. And, after 10 years, the City will have exhausted the FEMA funds.<sup>24</sup>

Historically, separate funding for the drainage system has resulted in uncoordinated work by the S&WB and Public Works.<sup>25</sup> In 2015, the City and the S&WB entered into an agreement to ensure proper coordination between the agencies.<sup>26</sup> S&WB officials hope to take a similarly integrated approach to funding the entire stormwater management system.<sup>27</sup>

In total, the S&WB estimates that it will need \$128.3 million annually by 2026 to properly fund the entire stormwater management system, including: \$73.8 million from existing S&WB revenues and available cash<sup>28</sup> and \$54.5 million in new revenue to cover \$40 million for new S&WB expenses and \$14.5 million for new City drainage expenses.

Table 2 provides a breakdown of new and existing expenses beginning in 2026, the last year of the current 10-year financing plan. While expenses will vary somewhat from year to year, the table captures the annual revenue needs to fully fund the major and minor drainage systems. The appendix provides a full breakdown of new and existing expenses from 2017 to 2026.

To help meet recurring stormwater management needs, the S&WB is considering the imposition of a stormwater fee.

Twice during the last 30 years – in 1985 and 1998 – the S&WB proposed citywide fees to increase funding for the drainage system. Both proposals would have used a property's size, land use and varying assigned rates to calculate the fee. The land use categories were meant to broadly reflect the different amounts of stormwater runoff created by different property types.<sup>29</sup>

**TABLE 2: S&WB AND CITY PROJECTED REVENUE NEEDS FOR STORMWATER MANAGEMENT, 2026 (IN MILLIONS)**

<b>S&amp;WB Existing Expenses</b>	
Operation & Maintenance*	\$47.8
Provision for Legal Claims	1.3
Debt Service	0.2
Adjustment for Net Non-Operating Revenue	(0.8)
<b>S&amp;WB New Operating Expenses</b>	
Operation & Maintenance, Permanent Pump Stations*	4.1
Improved Maintenance of Existing Infrastructure	4.0
Operation & Maintenance, SELA Infrastructure*	1.2
<b>S&amp;WB New Capital Expenses</b>	
Debt Service	25.2
Cash-Funded Capital Improvements	20.0
SELA Projects Repayment	8.8
Green Infrastructure**	2.0
<b>Department of Public Works</b>	
Increased Expenses for Minor Drainage***	14.5
<b>Total System Projected Costs</b>	<b>128.3</b>
Existing S&WB Drainage Revenue (For S&WB Costs)	65.7
Use of Cash Reserve (For S&WB Costs)****	8.1
<b>Additional Revenue Needed (For S&amp;WB)</b>	<b>40.0</b>
<b>Additional Revenue Needed (For City)</b>	<b>14.5</b>
<b>Total Additional Revenue Needed</b>	<b>54.5</b>

\* Projected operation and maintenance expenses assume 3% annual inflation.

\*\* The S&WB considers green infrastructure cost to be a capital investment, but plans to expense it annually for accounting purposes because the useful life of those projects is unknown at this time.

\*\*\* The S&WB projects the expense increase to begin at \$4 million in 2019 and gradually increase to \$19.7 million by 2023. The increased expenses are shown net of existing property tax revenue (\$200,000) and FEMA settlement funds (\$5 million per year). The City will have exhausted the settlement funds in 10 years.

\*\*\*\* The S&WB's financial policy requires it to maintain a cash reserve of at least 180 days of operations and maintenance expense.

Source: BGR analysis of 2017-2026 financial projections for the major drainage system prepared by Black & Veatch for the S&WB as of January 17, 2017, and the S&WB's estimate of annual revenue need for the minor drainage system's operation, maintenance, repair and capital investment.

The Corps expects to complete the Louisiana Avenue SELA project in November 2018.



The 1985 proposal would have generated \$20 million per year for drainage.<sup>30</sup> Voters rejected the stormwater fee proposition.

In 1998, the S&WB made a second attempt to impose a stormwater fee. The 1998 proposal would have generated \$25.6 million per year. This time, the S&WB claimed that the City Council, pursuant to its regulatory authority under the home rule charter, had the authority to impose the fee without a public vote. If the council had imposed the stormwater fee, the S&WB would have filed a friendly lawsuit to test the legality of the fee and the council's ability to impose the fee without voter approval.<sup>31</sup> However, the council took no action on the proposal.

Citizens should be aware that the Office of Inspector General has raised concerns about management and internal controls at the S&WB. While none of these concerns pertained specifically to the drainage department, they indicate a need for heightened vigilance among management, the board and the public.<sup>32</sup>

### WHY CONSIDER A STORMWATER FEE?

From a national perspective, stormwater fees are increasingly common. Although there are no stormwater fees in Louisiana, there are almost 1,600 in place in jurisdictions across the country.<sup>33</sup> The fees are administered by a stand-alone public stormwater utility, which operates like an electric company or water authority, or by a city department or utility.<sup>34</sup> The utility segregates

the fee revenue in a dedicated fund for stormwater purposes. Appropriate uses of fee revenue range from capital investments to regulatory compliance costs.

Stormwater utilities usually base fees on some measure of a property's runoff and the burden it places on the drainage system. Generally speaking, stormwater fees have a broader reach than ad valorem property taxes because they include properties that are often tax exempt, such as those owned by nonprofits and government entities.<sup>35</sup>

What is the appeal of stormwater fees? Why not simply seek to increase the existing tax dedications for stormwater management? After all, the property tax process is already well-established and understood by voters. The information needed to calculate a new property tax is readily available. A collection method is already in place. Some also argue that, because property value is an index to part of the owner's wealth, an owner's ability to pay property taxes is roughly keyed to the burden of the taxes.<sup>36</sup>

However, stormwater fees have several advantages over a new property tax.

*A Strong Nexus.* The value of a property is not an indicator of the burden it imposes on the drainage system. A properly structured stormwater fee, by contrast, will establish a strong nexus between the amount of the fee and the amount of runoff a property generates – more fairly distributing the cost of managing stormwater.

*Built-in Incentives.* Unlike a property tax, a stormwater fee can be structured to encourage property owners to build in a manner that decreases runoff. Minimizing runoff can reduce the overall flood risk.

*Distribution of Cost Burden.* In a 2011 report on property tax exemptions, BGR estimated that roughly 60% of the city's assessed real property value was off the tax roll due to exemptions. To better distribute cost burdens, the report recommended that local government impose carefully crafted service charges or fees to fund services, such as drainage and street maintenance, on all property owners in the city, including nonprofit and government-owned property.<sup>37</sup>

Due to homestead, nonprofit and government exemptions, a large number of property owners pay little or nothing in taxes. There are 165,570 total parcels in

the city, of which 13,416, or 8.1%, are completely tax-exempt<sup>38</sup> and 8,567 parcels pay very little because of the homestead exemption.<sup>39</sup> A stormwater fee can be imposed on a property regardless of whether that property benefits from property tax exemptions. As a result, the fee would spread the burden across a broader payer base.

*Broader Mix of Revenue Sources.* There are a variety of ways to generate revenue for public purposes, with advantages and disadvantages to each approach. Some sources may not produce revenue at consistent levels, while others may have disproportionate impacts on particular groups of taxpayers. A basic tenet of good revenue policy is to draw from a variety of sources to mitigate the negative impacts on both government revenues and the public.<sup>40</sup> The S&WB already relies heavily on taxes with its three property taxes making up 98% of all drainage system revenue. Adding a stormwater fee, as opposed to imposing another property tax, would broaden the mix of local revenue sources.

*Accuracy.* Assessing the value of property for the purpose of taxation is not an exact science. And if an assessor engages in sales-chasing – the reassessment of properties primarily upon sale – recent buyers tend to be penalized, while long-tenured property owners tend to benefit from outdated, low valuations. But even if an assessor were to rigorously follow best practices and keep assessments current, the results would be imperfect. In New Orleans, the variety of neighborhoods and dwellings brings added difficulty.

A well-structured stormwater fee, by contrast, can provide for a fair calculation of fees by relying on objective sets of data – typically, measurements of surface area. While fairness depends on the collection of accurate measurements, obtaining this information is becoming less problematic in the age of satellite imagery and geographic information system (GIS) technology. The Orleans Parish Assessor’s Office, for example, already has aerial imagery of all parcels located in the city.

*Consistency.* Property tax revenue can move up and down depending on assessments and the real estate market. Stormwater fee revenue tends to be more consistent. Some measure of a property’s runoff generally determines fee calculations, and that measure remains relatively constant.

*A Comprehensive Approach.* An issue specific to New Orleans is the S&WB’s inability to apply its property tax revenue across the entire drainage system. As discussed above, there is currently separate funding for the S&WB’s major drainage system and the City’s minor system. State law prohibits the S&WB from using its tax revenue on the City’s subsurface drainage.<sup>41</sup> This limitation would not apply to a stormwater fee. The City and S&WB could collaborate on a shared fee that provides a comprehensive funding approach to both systems.

## MAXIMIZING THE REACH OF STORMWATER FEES

As previously discussed, one of the advantages that stormwater fees have over property taxes is the broader distribution of the cost burden. A stormwater fee can apply to more properties than an ad valorem tax because it typically applies to properties that are exempt from ad valorem property taxes, such as nonprofit- and government-owned properties.

The City of New Orleans is home to a variety of federally owned properties, including military facilities, post offices, court buildings, medical facilities and the FBI’s offices. Under the federal Clean Water Act, these facilities would pay stormwater fees, but with two conditions. First, the amount of the fee must be proportionate to a property’s contribution to stormwater runoff. Second, the revenue from the fee must pay costs associated with stormwater management.<sup>42</sup>

Furthermore, New Orleans is home to numerous state-owned properties, such as university campuses, medical facilities and government offices. There are various properties owned by local government entities, such as the Orleans Parish School Board, the Orleans Parish Law Enforcement District and the Ernest N. Morial Convention Center. Finally, New Orleans is home to numerous nonprofits, with considerable property hold-

### TAX-EXEMPT PROPERTIES

Like fees for water and sewer service, a properly structured stormwater fee could be applied to federal, state and local governments, as well as nonprofits. While these properties are exempt from paying ad valorem property taxes, they would not necessarily be exempt from paying a stormwater fee. For instance, state and nonprofit entities in New Orleans already pay fees for water and sewer services.\*

\* La. R.S. Secs. 33:4096 and 33:4121.

ings collectively, including educational institutions, churches and cultural facilities.

Efforts to impose stormwater fees may inspire legal challenges by entities not subject to property taxes. Typically, the challenges assert that the fee is in fact an ad valorem property tax, from which the property owners are exempt. BGR examined 19 legal challenges in 15 states to discover what characteristics reduce the vulnerability of stormwater fees to lawsuits. The following emerged as tests used by multiple courts in determining whether a stormwater charge was a fee rather than a tax.<sup>43</sup>

- The revenue from the fee must go solely to defraying the cost of providing the drainage or stormwater service in question.<sup>44</sup>
- The amount of the fee must approximate the amount necessary to provide service to ratepayers.<sup>45</sup>
- All ratepayers must receive a benefit from the service.<sup>46</sup>
- The amount of the fee must relate to each property's contribution to the stormwater system through some measure of runoff.<sup>47</sup>
- Payment of the fee can be considered "voluntary" to the extent that the ratepayer has some degree of control over the amount of the fee through runoff mitigation or other means.<sup>48</sup>

Construction underway at the Orleans Avenue outfall canal pump complex.



In summary, to maximize the reach of a stormwater fee to properties beyond traditional ad valorem taxation there must exist a strong nexus between the property's runoff and the amount of the charge. Also, fee revenue must go solely to stormwater management that benefits ratepayers.

## STRUCTURING STORMWATER FEES

Stormwater fees can take a variety of forms. At one end of the spectrum are simplistic approaches, such as a Flat Per Parcel Fee or a rate based on a parcel's total area. While fees under these approaches are easy to calculate, they do a poor job of linking a property's runoff and burden on the drainage system to the amount of the fee. At the other end of the spectrum are complex approaches based on a property's runoff. Fees under these approaches provide a more precise nexus between a property's runoff and the amount of the fee; however, they require more intense data collection and complex calculations. They may be difficult to administer and hard for the public to understand.

To better understand the various fee structures, BGR surveyed more than a dozen jurisdictions that impose stormwater fees.<sup>49</sup> In selecting them, BGR took recommendations from experts in the stormwater field and drew from industry literature. It also examined the S&WB's past stormwater fee proposals.

In addition, BGR examined administrative mechanisms, exemptions and credits, which can play a significant role in structuring stormwater fees.

It is important to note that in different jurisdictions, stormwater fees serve different purposes. In some places, pollution from runoff is the primary concern, and the stormwater utility imposes a fee to pay for compliance with environmental standards. In other places, stormwater is precious, and the fees may fund efforts to collect and conserve as much water as possible. In places with a combined sewer and drainage system, a stormwater fee may pay for infrastructure that prevents sewer backups and overflow after heavy rains.

New Orleans has its own unique set of stormwater challenges. The city depends on a costly system of drainage pipes, canals and pumps to extract stormwater and protect the city from regular flooding. However, the city is also looking for a way to reduce runoff as a possible

means of reducing pumping costs and addressing subsidence. (See sidebar.)

### Methods of Structuring Stormwater Fees

The following discussion provides a representative variety of fee structures. It explains how each works and its pros and cons. In examining the various fee structures, BGR asked three questions:

- Does the fee structure establish a fair nexus between the amount of the fee and the demands the property places on the drainage system?
- How difficult is it to obtain the necessary data and administer the fee?
- Is the fee structure easy for the public to understand?

For administrative simplicity or to address differences among properties that would otherwise fall into the same category, many stormwater utilities have structured fees to group properties together by tiers, land use type or other administrative categories, such as service level.

Providing a calculated fee for each individual property can be difficult or expensive. This challenge was particularly acute in the years before GIS technology. Stormwater utilities simplified this burden by grouping properties into different “tiers” based on size.<sup>50</sup> Most commonly, utilities apply tiers to residential properties since they make up the largest property group. Each tier represents a range of square footage, with each property within the tier paying the same fee.

For instance, in Raleigh, N.C., different rates apply to four residential tiers: for 400 to 1,000 square feet of impervious area, \$2 per month; 1,001 to 3,870 square feet, \$5 per month; 3,871 to 6,620 square feet, \$8.50 per month; and 6,621 to 9,500 square feet, \$14.50 per month. Rates for residential properties over 9,500 square feet are based on measurements of impervious area, and the utility charges these properties the same rate per square foot as nonresidential properties.<sup>51</sup>

Tiering offers obvious advantages. Measurements need not be perfect; close enough is good enough for most properties. Tiering also decreases the need for jurisdictions to keep up with minor improvements. For in-

stance, a house that adds a 500-square-foot patio may not need to be re-measured if the overall impervious area remains within the same range. In some cases, tiering can make a fee structure easier for the public to understand. It may also provide a stormwater utility with a tool to refine an otherwise simplistic fee structure.

However, tiering poses fairness issues insofar as the properties within a tier vary significantly in size, but pay the same amount. The broader the range, the greater the potential disparity. There is a vast difference between properties with 1,500 square feet of impervious area and 3,500 square feet, yet in Raleigh, they may pay the same rate, effectively shifting a greater cost burden from those with larger impervious area to those with smaller impervious areas. Furthermore, the lack of precision can neutralize the incentive to reduce impervious area. A homeowner would have no incentive to eliminate a 500-square-foot driveway if the property remains within the same tier without it.

Many jurisdictions categorize fees by land use. In newer communities where zoning has produced uniform development patterns, it is a common practice to group single-family homes together and charge a single fee to the entire class. Also, jurisdictions that base their fees

#### PUMPING AND SUBSIDENCE

Streets, parking lots, sidewalks, driveways and roof tops are examples of impervious surfaces that prevent stormwater absorption into the ground. Stormwater may run directly from these surfaces into the drainage system. The city’s canals and underground pipes generally transport stormwater to various pump stations that pump water into areas such as Lake Pontchartrain, the Inner Harbor Navigation Canal or the Central Wetlands.

While pumping water out of the city helps to prevent flooding, according to the Greater New Orleans Urban Water Plan, the continual removal of water destabilizes soils, causing them to sink. Soil conditions exacerbate this problem; some neighborhoods were developed on top of drained swamplands. The plan states that these soils must stay saturated, otherwise they can decompose and collapse.\*

It should be noted that rapid subsidence compounds problems associated with rising sea levels, making the relative sea level rise greater. Furthermore, subsidence can damage infrastructure by undermining the land that supports streets and subsurface pipes.

\* Waggoner & Ball Architects, Greater New Orleans Urban Water Plan, Vision, October 2013, pp. 49-64.

on runoff calculations typically set different rates according to property type. For instance, in the 1980s and 1990s, the S&WB’s proposed fee structures classified properties by land use.<sup>52</sup>

This approach creates no incentive to minimize impervious areas, and it might not work well in a city like New Orleans. Here, single-family homes in the same neighborhood can run the gamut from shotgun houses cramped together on zero-setback sites to sprawling mansions on 20,000 square foot sites. Grouping such

properties together and charging them the same rate poses fairness issues.

Table 3 provides a snapshot of the range of stormwater fee structures addressed in this section.

*Flat Per-Parcel Fees.* A uniform flat fee imposed on all properties is the simplest method for structuring stormwater fees. Generally, jurisdictions using this approach divide the total revenue needed by the number of parcels subject to the fee. While this approach simplifies the calculation of stormwater fees, it raises serious fairness

**TABLE 3: OVERVIEW OF STORMWATER FEE STRUCTURES**

STRUCTURE	OVERVIEW	FORMULA
Flat Per-Parcel Fee	A fee imposed uniformly so that every parcel pays the same amount.	Fee = Fixed Rate Per Parcel
Gross Area	A fee imposed based on a property’s gross area.	Fee = Property’s Gross Area x Rate Per Square Foot
Total Impervious Area	A fee imposed based on a property’s total impervious area. The total revenue needed is divided by the total impervious area within the service area to determine an impervious area rate. The fee is calculated by multiplying a property’s total impervious area by the impervious area rate.	Fee = Property’s Total Impervious Area x Rate Per Square Foot
Equivalent Residential Unit (ERU)	A fee imposed based on the average impervious area of a single-family residence within the service area. The fee imposed on residential properties is equal to one ERU. For other property types, the fee is calculated by dividing the property’s actual impervious area by the ERU’s average impervious area, then multiplying the actual ERUs by the assigned rate.	$1 \text{ ERU} = \text{Average Impervious Area for Single Family Residences}$  Residential Fee = 1 ERU (Base Rate)  Nonresidential Fee = Property’s Total Impervious Area / 1 ERU x ERU Base Rate
Intensity of Development	A fee imposed based on a property’s impervious area as a percentage of its gross area. The fee is calculated by multiplying the gross area by a rate applicable to its percentage of impervious area. Rates are lower for vacant or undeveloped properties, but increase as properties become more developed.	Fee = Gross Area x Rate Applicable to Percentage Of Impervious Area
Equivalent Hydraulic Area (EHA)	A fee imposed based on the combined effect of a property’s pervious and impervious area. The fee is calculated by multiplying an assigned impervious rate by the property’s impervious area and an assigned pervious rate by the property’s pervious area. The fee is calculated by adding the impervious rate and pervious rate totals. Typically, higher rates are charged for impervious areas while lower rates are charged for pervious areas.	Fee = (Impervious Area Rate x Impervious Area) + (Pervious Area Rate x Pervious Area)
Runoff Factor	A fee imposed based on a property’s runoff. The fee is calculated by using formulas to calculate runoff volume and rate based on data such as impervious area, pervious area, slope, soil type, and storm models.	Various complex formulas can be used.

concerns. All parcels pay the same fee, regardless of the burden each property places on the drainage system.

Jurisdictions that impose flat fees typically impose different rates for residential and non-residential properties in an effort to make the fee more fair.<sup>53</sup> For instance, Bay County, Fla., charges \$40 annually to residential properties, including condominium units. It charges non-residential properties \$200 annually.<sup>54</sup> Despite this distinction, the flat fee structure creates inequity within the parcel groups. For example, a residential property with 4,000 square feet of impervious area would pay the same annual fee as a residential property with only 1,000 square feet of impervious area.

In New Orleans, the S&WB could calculate a flat per-parcel stormwater fee using immediately available data. According to the S&WB's most recent projections, the stormwater management system needs an additional \$54.5 million in annual revenue. With approximately 166,000 parcels in the city,<sup>55</sup> stormwater fees would generate \$54.5 million if each parcel paid \$328 a year, approximately \$27 a month. In reality, the amount of the fee would be higher, depending on the number of properties granted a stormwater fee exemption, discussed below.

Given the variety of parcel sizes in the city, a Flat Per-Parcel Fee would be fundamentally unfair. For instance, large sections of Tulane's and Loyola's campuses are located on a single parcel. One Shell Square and Touro Infirmary's main building, each of which takes up an entire city block, are also considered a single parcel. Under a Flat Per-Parcel Fee structure, these large parcels would pay the same amount as the owner of a residence on a 30-by-90-foot lot.

As a means of dealing with this problem, some jurisdictions use a variation on Flat Per-Parcel Fees, basing the fee on the size of the ratepayer's water meter. The water meter size serves as a crude shorthand for the size of the improvements on a property. Oklahoma City, for example, imposes a stormwater fee with rates based on 11 different meter sizes ranging from \$5 to more than \$650 a month.<sup>56</sup> This approach is fairer than an across-the-board flat fee, but still leaves much room for unfairness. For instance, two similarly sized industrial properties could have the same size water meter, but widely disparate square footage.

Another approach would be to separate parcels into tiers based on size ranges. However, the more refined those tiers, the more the parcel fee approach begins to resemble the gross area approach, addressed in the following discussion.

*Gross Area.* This approach imposes a fee based on the total area of a property. Larger parcels with more square footage pay higher fees.

The calculation of the fee is easy for the public to understand. To determine the charge, the S&WB could take the total area of all eligible parcels and divide it by the total revenue it needs. The assessor has measurements of almost all parcels in the city, so the necessary data is already available.<sup>57</sup>

For instance, if there were 100 square miles of eligible parcels (roughly 2.8 billion square feet) in a city, a stormwater utility would need to charge \$1.79 per 100 square feet in order to collect \$50 million per year. This would amount to a total of \$89.29 for a 5,000-square-foot lot.

While this method may be more fair than a Flat Per-Parcel Fee, it leaves much to be desired because it does not take a property's impervious area into account. For example, the charge for a 5,000-square-foot parcel containing 2,000 square feet of impervious area would be the same as a 5,000-square-foot parcel containing 4,000 square feet of impervious area. The property with the higher impervious area would create more runoff, but pay the same fee as the property with the lower impervious area.<sup>58</sup> Thus, a parcel of vacant land will be charged the same fee as an equally-sized parcel with a paved parking lot, even though the parking lot will generate more stormwater runoff and place a larger burden on the drainage system.

*Total Impervious Area.* Under this method, a stormwater fee is calculated based on a property's impervious area alone.<sup>59</sup>

Basing stormwater fees on a property's impervious area does a fair job of estimating runoff and establishing a nexus between the burden placed on the drainage system and the amount of the fee.<sup>60</sup>

Using impervious area to calculate a stormwater fee also creates an inherent incentive to minimize runoff.

Parcels with parking lots, patio areas and driveways can reduce the amount of the fee by replacing them with pervious materials or eliminating such features altogether in favor of green space.

Calculating the rate under this method is also relatively straightforward. Basically, the utility determines the total impervious area within its service area and divides it by the revenue that it needs. If there were 50 square miles of eligible impervious area (32,000 acres) in a city, the stormwater utility would need to charge \$1,562.50 per impervious acre in order to collect \$50 million.<sup>61</sup> A property with 5,000 square feet of impervious area (0.11 acres) would pay a total yearly fee of \$171.88. That assumes a uniform rate; the City of Houston uses a property's total impervious area to calculate its stormwater fee, but applies different rates to residential and non-residential properties. The rates vary further based on the type of drainage system serving the property (open ditch versus curb-and-gutter).<sup>62</sup>

One serious drawback to this method is that it doesn't account for a property's pervious area. This limits the method's effectiveness in gauging the actual runoff a property generates. For instance, a 3,000-square-foot house on a parcel with 2,000 square feet of pervious area will generate less runoff than the same house on a lot with only 500 square feet of pervious area, because the pervious area captures runoff. But under the Total Impervious Area method, both properties would pay the same fee.



A well-structured stormwater fee will encourage ratepayers to minimize impervious areas.

Additionally, using impervious area as a basis for fees would require significant new data collection. While the assessor's office collects the measurements of parcels and many structures, it does not have measurements of all impervious surfaces, such as driveways and patios.<sup>63</sup> However, breaking up properties into tiers based on ranges of impervious area would ease the data burden to some extent.

Calculating stormwater fees based only on the impervious area of individual parcels is not a common approach. A far more common method is to calculate stormwater fees based on the average of impervious area for residential properties, addressed in the following discussion.

*Equivalent Residential Unit.* The Equivalent Residential Unit (ERU) method is a hybrid of the Flat Per-Parcel Fee and the Total Impervious Area methods.<sup>64</sup> Under this method, stormwater utilities determine the average impervious area for a single-family residence in the service area. The average impervious area is designated as one "ERU" and assigned a rate.<sup>65</sup> All residential properties are generally charged the rate of one ERU, with each paying the same rate regardless of size.

Other property types, such as commercial, industrial and institutional, are charged based on actual measurements of impervious area, using ERUs as the unit of measurement. For instance, if one ERU equals 3,000 square feet, then a 30,000-square-foot warehouse would pay 10 ERUs, or 10 times the rate of a single-family residence.

The ERU method combines the simplicity of a Flat Per-Parcel Fee with the greater precision of the Total Impervious Area method. It creates a nexus between the amount of the fee and the burden a property places on the drainage system in some – but not all – cases.

Unfortunately, because it does not measure residential properties with precision, it fails to create incentives for residential property owners to minimize impervious area. It also fails to account for the vast variation in single-family home types in New Orleans, such as the difference between the single shotguns in a cramped urban neighborhood and the sprawling homes in some suburban areas (or even the significant differences that can occur within historic neighborhoods). And because the approach is based on impervious area alone, it also fails to account for the runoff absorbed by a property's pervious areas.



To address variations among single-family homes, some jurisdictions employ tiers. For instance, instead of applying the rate applicable to one ERU across all single-family homes and townhouses, Montgomery County, Md., has seven single-family tiers, with rates escalating according to the range of impervious area. This makes an ERU essentially equivalent to a tiered impervious area approach. Though this approach increases the administrative burden, it significantly increases fairness and accuracy in the rate structure.<sup>66</sup>

To ensure that the ERU is set at a square footage that is fair for both residential and nonresidential properties, the stormwater utility must conduct a sampling that accurately represents single-family properties in the service area. An ERU representing a larger square footage tends to benefit non-residential properties, while a smaller ERU tends to benefit residential properties. For example, if an ERU of 3,000 square feet increases to 6,000 square feet, the amount paid by non-residential properties would be cut in half, shifting more of the burden to residential properties. On the other hand, if an ERU of 3,000 square feet decreases to 1,500 square feet, the amount paid by non-residential properties would double and the burden on residential properties would decrease.

The ERU approach is the most widely used method of calculating stormwater fees.<sup>67</sup> Many jurisdictions implemented this approach because collecting data for each property within the service is viewed as too costly or complex. However, recent advancements in technology have made data collection for individual properties easier.

In considering the ERU approach, it is important to note that New Orleans' housing stock is unusually diverse. Even in more homogenous jurisdictions, care must be taken to structure the fees fairly. In Austin, Texas, apartment and condominium residents claimed the city's stormwater fee was unfair because they were paying the same fee as residents living in single-family homes, and under Texas state law, stormwater fees must be "equitable."<sup>68</sup> In 2014, a state district judge declared the city's drainage ordinance invalid. The city has since revised its fee structure to better reflect the impact a property has on the drainage system. The new fee structure uses a combination of the Total Impervious Area method and a variation of the Intensity of Development Factor method.<sup>69</sup>

**TABLE 4: SAMPLE INTENSITY OF DEVELOPMENT RATE SCALE**

Intensity of Development (% impervious)	Annual Rate per 1,000 Square Feet
Vacant/Undeveloped (0%)	\$10
Very Light (1%-10%)	\$12
Light (11% - 20%)	\$14
Light/Medium (21%-30%)	\$16
Low Medium (31%-40%)	\$18
Medium (41%-50%)	\$20
High Medium (51%-60%)	\$22
Medium/Heavy (61%-70%)	\$24
Heavy (71%-80%)	\$26
Very Heavy (81%-90%)	\$28
Fully Developed (91%-100%)	\$30

Note: The rates shown above are for illustrative purposes and are not calibrated to the burden different degrees of intensity place on drainage.

Louisiana law does not explicitly require a stormwater fee to be "equitable." Nonetheless, as discussed above, jurisprudence in various states consistently indicates that a strong nexus between the amount of the fee and a property's impact on the drainage system is critical.

*Intensity of Development.* The Intensity of Development<sup>70</sup> method is based on a property's impervious area as a percentage of its total area. This takes into account a property's pervious area.

As Table 4 illustrates, the stormwater utility calculates the fee by multiplying the gross square footage of a parcel by a rate applicable to its percentage of impervious area. The utility typically establishes tiers based on the degree of development. It then sets rates for each tier based on the number of eligible properties and the total required revenue. The greater the number of tiers, the more sensitive the scale will be to variations in the percentage of impervious area. Under the sample scale in Table 4, a 10,000-square-foot parcel with a "Medium" percentage of impervious area would pay an annual fee of \$200.

This method creates a strong nexus between the fee and the runoff a property generates. It addresses the impre-

cision in the previously discussed methods by factoring in both the impervious area and the pervious area of each property. Depending on how sensitive the scale is, the Intensity of Development method can also create an incentive to minimize impervious area. For example, in Bellevue, Wash., the scale ranges from undeveloped properties (0% impervious) charged \$0.89 per 2,000 square feet to highly developed properties (70% or more impervious) charged over \$16 per 2,000 square feet. Properties that are classified as wetlands do not pay a stormwater fee.<sup>71</sup>

However, the calculation is more complex and the data collection more intensive than the previously discussed methods, and the public may find it more difficult to understand. It may also create a perception of unfairness. For instance, a single shotgun on a small parcel in a tightly packed historic neighborhood may end up being charged an amount close to a much larger house on a sprawling lot in a suburban area.

Philadelphia uses a simplified form of the Intensity of Development approach. It imposes a uniform monthly charge on all residential properties based on the average square footage of the gross and impervious areas.<sup>72</sup> For non-residential properties, the fee is based on the actual square footage of the gross and impervious areas.<sup>73</sup> Unfortunately, the uniform residential charge approach weakens the drainage nexus that is a key benefit of the Intensity of Development method. It also eliminates the incentive for residential properties to minimize impervious area.

*Equivalent Hydraulic Area.* A method similar to the Intensity of Development approach is the Equivalent Hydraulic Area (EHA) method. Under this approach, the combined effect of a property's impervious and pervious areas are used to determine its impact on the drainage system, but with a lower rate charged to the pervious areas.

To calculate the fee for a property, a stormwater utility determines the total number of units of impervious and pervious "hydraulic" areas (e.g., a unit could be set at 1,000 square feet).<sup>74</sup> The utility typically charges a significantly higher rate for impervious areas than for pervious areas. The utility determines rates by dividing the system's revenue requirements by the total number of eligible EHA units.<sup>75</sup>

Take, for instance, an annual fee imposed at \$10 per 1,000 square feet of pervious area and \$20 per 1,000 square feet of impervious area. Under that scenario, a 10,000-square-foot parcel with 5,000 square feet of impervious area would pay \$150 per year – \$50 for the pervious area and \$100 for the impervious area.

The Equivalent Hydraulic Area approach creates a strong nexus between the fee and the runoff a property generates. It also creates an incentive to minimize impervious areas. On the other hand, the data collection requires greater precision and the calculations are not particularly easy for the public to understand.

*Runoff Factor.* With the proper data, engineers can take into account impervious area, pervious area, slope, soil type, storm models and other factors to reach the most accurate possible calculations of runoff from a property.

Unfortunately, if conducted on a property-by-property basis, this approach requires the heaviest lift when it comes to data collection. It also involves complex formulas that are difficult for citizens to understand and may therefore lead to perceptions of unfairness. Also, because it is so technical, it lends itself to transparency problems and potential manipulation of data. This method is not widely used. Most of the utilities that use the Runoff Factor method are located in Minnesota.<sup>76</sup>

Jurisdictions using this method have tried to simplify it by grouping similar properties together in various fee categories. West St. Paul, Minn., for example, uses runoff factor data as part of its "Residential Equivalent Factor" (REF) approach.<sup>77</sup> One REF unit represents the runoff generated by a typical residential property. Single family residences are assigned a value of one REF, while all other properties are assigned an REF value based on the amount of runoff generated by the property. This approach is similar to the ERU approach, but uses a property's runoff data instead of impervious area to calculate the fee. However, the greatest advantage of the Runoff Factor approach – accuracy – is sacrificed by grouping properties together in this manner.

*Which are the Superior Approaches?* As noted earlier, the various methods of calculating stormwater fees range from the simple but inaccurate to the highly accurate but complex. While a strong nexus between the fee

amount and runoff is essential to achieving both fairness and a broad payer base, a stormwater utility should also try to employ a method that is relatively easy for the public to understand. In New Orleans, where stormwater retention and detention is a high priority, it is also critical to pursue a structure with built-in incentives for individual ratepayers to reduce runoff.

With these concerns in mind, the S&WB should explore approaches that take into account both pervious and impervious area data. It should also consider approaches that use impervious area data in a manner that is tightly calibrated to encourage runoff reduction. The S&WB should rule out crude approaches such as Flat Per-Parcel Fees and the Gross Area method. It should also set aside the murky Runoff Factor approach.

## Exemptions

Exemptions are an important consideration in crafting stormwater fees. Examples of common exemptions include public streets and rights of way, properties owned by the stormwater utility, properties outside the perimeter of the public drainage system and properties that manage their own stormwater.<sup>78</sup>

In some cases, pre-existing laws exempt certain types of properties from newly imposed stormwater fees. For instance, state legislation that allows the imposition of stormwater fees may contain provisions that exempt state or local government properties.

Louisiana law does not contain such exemptions. State law exempts the City and its non-revenue generating public institutions from paying water and sewer fees,<sup>79</sup> but it is silent as to stormwater fee exemptions.

In some cases, the entity imposing the fee may itself create exemptions. When the S&WB first attempted to impose a stormwater fee, it decided that properties owned by the City, the S&WB and certain properties owned by the Orleans Parish School Board would be exempt, as would certain properties subject to a drainage servitude.<sup>80</sup> In the S&WB's second stormwater fee attempt, only properties owned by the City and the S&WB would have been exempt.<sup>81</sup>

In some cases, paying a stormwater fee might require a reallocation of local funds already dedicated to oth-

er public needs. As a result, the public pays for the fee indirectly through the revenues of local government entities. In these cases, exempting certain local government-owned properties from stormwater fees might make sense. On the other hand, forcing all public entities to pay the fee would encourage them to focus more on opportunities to reduce impervious areas.

But the greater the number of properties that are exempt from a stormwater fee, the greater the amount of the fee paid by nonexempt properties – diminishing the broad base of ratepayers that is a key benefit of stormwater fees. Further, exempt property owners have no financial incentive to reduce impervious areas.<sup>82</sup>

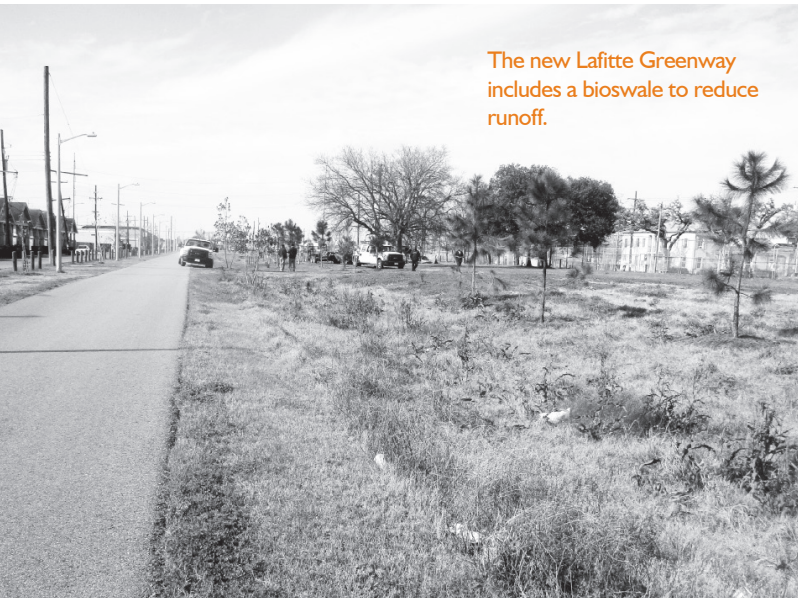
### FEES PREVIOUSLY PROPOSED BY THE S&WB

The S&WB made two prior attempts to implement a stormwater fee. In its 1985 proposal, the S&WB categorized properties by type and assigned a rate to each type. The rate structure was developed from a sample of approximately 9,000 properties and based on a property's size, land use, development density, amount of stormwater runoff, and level of service provided by the drainage system. The assigned rate for each property type was applied to every 1,000 square feet of land to calculate a property's total monthly fee. For instance, a church would have paid \$1.10 per 1,000 square feet, while a single family residence would have paid 90 cents. The S&WB assigned lower rates to properties that were only "partially drained"\* and allowed a dual classification for large properties with multiple uses. While the fee structure used some of the same data that is used by stormwater utilities today to calculate stormwater fees, it does not fall squarely into any of the general types outlined above.

Under the 1998 proposal, the S&WB again categorized properties by type and assigned a rate to each type. The S&WB re-used the sample of properties from the 1985 proposal to develop the rate structure. The assigned rate for a property type was multiplied by the gross square footage of that property type, resulting in the total fees generated by that property type. The total fees were then divided by the number of property owners for each type to determine a monthly rate. For example, every church would have paid 93 cents per month, or \$10.71 annually, while every single family residence would have paid 76 cents, or \$9.12 a year.\*\* Like the 1985 proposal, this fee structure does not fall squarely into any of the general types outlined above.

\* Properties that were considered "partially drained" included land having 100 acres or more, land that had been contributed to drainage canals or pump stations under the S&WB's Developers Contribution Program, and land that allowed for ponding so that runoff did not rapidly enter the drainage system.

\*\* Bureau of Governmental Research, The Sewerage and Water Board's Fee Proposal, February 1999, p. 4. The monthly rates for the proposed drainage fee were expected to increase over the next two years. In 2001, a church would have paid \$1.51 per month, while a single-family residence would have paid \$1.24 per month.



The new Lafitte Greenway includes a bioswale to reduce runoff.

## Credits

Like exemptions, credits against stormwater charges are a key consideration when it comes to imposing fees. Credits give ratepayers the opportunity to reduce or perhaps even eliminate a stormwater fee.

Some credits are incentive-based. A ratepayer can reduce the amount of a stormwater fee by taking specific measures recognized as best practices for stormwater management to decrease the burden his property places on the drainage system. An incentive-based credit program might promote fairness by rewarding the reduced impacts to the drainage system.

Credits are commonly given for:

- On-site stormwater storage, such as rain barrels or cisterns.
- Using pervious pavement.
- Building and maintaining a detention pond or a rain garden to capture runoff.
- Reducing or removing pollutants from stormwater runoff by incorporating landscape elements, such as bioswales (a ditch or trench generally filled with vegetation and other organic matter) or vegetative buffers.<sup>83</sup>

Nonresidential and commercial properties generally have more space to construct sophisticated stormwa-

ter systems, such as retention ponds, to decrease the volume of stormwater runoff.<sup>84</sup>

The activities government wishes to encourage depend on its goals. For instance, while a rain barrel is unlikely to capture large amounts of runoff, the water collected in a barrel can be used to water lawns in place of utility-provided water, a key concern in dry climates. In areas where the pollutants contained in runoff are of paramount concern, the government may choose to emphasize bio-filters designed to capture those pollutants. Governments concerned primarily about flooding might place special emphasis on pervious pavements that increase absorption and reduce the amount of runoff.<sup>85</sup>

New Orleans' main concern is to reduce flood risk by easing the burden on the drainage system. As a result, any credit program the S&WB employs should focus on stormwater retention or detention.

A stormwater utility can apply incentive-based credits in a number of ways. Some utilities allow credits up to 100%, eliminating the property's stormwater fee. Others set a credit cap, with some allowing a higher cap for nonresidential properties over residential properties.<sup>86</sup>

Stormwater utilities typically require an inspection of a property's stormwater improvements to verify that they qualify for credits.<sup>87</sup> Some stormwater utilities also conduct periodic re-inspections to determine whether the improvements continue to meet credit requirements.<sup>88</sup>

However, if not administered stringently, such credits may lead to unnecessary subsidies, leaving other citizens to make up the difference. Furthermore, there could be significant administrative costs to the stormwater utility to handle matters such as application processes and property inspections. And, because each credit results in a fee reduction, credits could make revenues harder to predict.

## FEE APPROVAL: A LEGAL MUDDLE

There is no clear legal pathway to a local stormwater fee without a public vote. State law currently provides the City and the S&WB with the legal authority to impose a stormwater fee. Under state law, the S&WB may fix and collect service charges from users of a drainage system.<sup>89</sup> State law requires that both the City Council and the Board of Liquidation, City Debt, approve any stormwater fee.<sup>90</sup> A fee would also require voter approval.<sup>91</sup>

The City's home rule charter separately provides the City Council with the legal authority to impose a fee. Under the charter, the City Council:

“shall have the right to levy any and all classes of taxes, excises, licenses, liens and fees necessary for the proper operation and maintenance of the municipality for the payment of debt, and for capital improvements that are not expressly prohibited by the Constitution provided that no specific tax or service charge affecting real property or motor vehicles shall be levied unless approved by a majority of the qualified voters thereon in an election held for that purpose. A specific tax or service charge affecting real property or motor vehicles is one which is imposed as a fixed sum on each article of a class without regard to its value, however, that the term ‘service charge affecting real property or motor vehicles’ shall not be construed or interpreted to include or mean any charge, (including but not limited to a sanitation charge), fee, license, permit or rate imposed or levied pursuant to the regulatory authority of the City of New Orleans in the operation of the City, its departments, boards, agencies and commissions (whether attached or unattached) including, but not limited to, the Sewerage and Water Board.<sup>92</sup>

Parsing this language is a challenge. First, it grants the City the power to impose “fees.” Then, it goes on to specify that any “service charge” be subject to a vote. Finally, it specifies that the term “service charge” not be construed to include any “fee” imposed by the City or the S&WB “pursuant to” the “regulatory authority of the City . . . in the operation of the City, its . . . agencies.” Relative to a stormwater fee, a likely interpretation is that the charter would exempt such fees from a public vote. However, this is merely an interpretation, and one not tested in court.

The charter's confusing language was added in response to two City Council ordinances.<sup>93</sup> In 1978, the City Council approved ordinances for the implementation of a “real property service charge”<sup>94</sup> and a “road use charge.”<sup>95</sup> The real property service charge imposed a \$100 charge on each parcel of real property separately assessed on the tax rolls in the city. The road use charge imposed a charge on all motor vehicles registered in

New Orleans or owned by residents of Orleans Parish, with separate rate tiers for passenger cars versus trucks and vans. Both ordinances were enacted by the council without voter approval. Lawsuits were filed challenging the ordinances, but the Louisiana Supreme Court ultimately upheld both.<sup>96</sup>

Thereafter, citizens petitioned for a special election to amend the home rule charter. The electorate voted to change the charter language regarding the council's taxing authority to its current, more restrictive form. The intent of the amendment was to limit the council's authority to impose service charges without voter approval. BGR opposed the charter amendment because it placed further restrictions on the City's ability to generate revenue.<sup>97</sup>

The charter's muddled language makes it unclear whether voter approval would be needed for a City-imposed stormwater fee. In 1998, the S&WB claimed that the City Council, pursuant to its regulatory authority, could impose a stormwater fee without voter approval. If the council imposed the fee, the S&WB said it would file a friendly lawsuit to test the council's authority to impose the fee and the legality of the fee. However, the City Council took no action on the proposal. At the time, BGR stated that these issues could not be resolved without a court ruling.<sup>98</sup>

It is also unclear whether the state law requiring a vote on stormwater fees would apply; the voter approval requirement in state law is not set forth in the constitution. Because the City Council appears to have authority to impose a stormwater fee under its home rule charter, possibly without voter approval, the charter provision could take precedence over the general statutory requirement.<sup>99</sup> However, this issue may also need a court ruling to be resolved.<sup>100</sup>

In other states, clear legal authority has allowed the imposition of stormwater fees without voter approval.<sup>101</sup> While doing so may seem undemocratic, it potentially allows a stormwater utility more leeway to craft fees and operate the utility in an objective and businesslike manner. Submitting fees to a public vote, by contrast, may inject political considerations into the fee structure, resulting in a less than fair or optimal approach. Furthermore, citizens already pay a series of fees that did not require a public vote, such as water, sewer and sanitation fees.

The confusing legal circumstances suggest one of two courses of action: pursuing a fee without a public vote, at the risk of lawsuits; or crafting the best possible fee structure and submitting it to voters for approval.

## BILLING

A basic consideration in implementing a stormwater fee is determining whom to bill. According to a 2014 study of stormwater utilities, 71% of stormwater fees were charged to utility customers and appeared on monthly utility bills, while 29% were charged to property owners and appeared on property tax bills or separate bills.<sup>102</sup>

*Stormwater Fees on Utility Bills.* Including a stormwater fee on an existing utility bill may be cost-effective because the stormwater utility can use existing billing data. Some utilities also prefer the steadier cash flow that comes with monthly, as opposed to annual, stormwater fee payments.

In addition, placing the fee on an existing utility bill can give the stormwater utility some leverage for non-payment. For example, in Raleigh, N.C., payment for a utility bill is first applied to the stormwater fee, then solid waste and finally to water and sewer fees. If the payment is insufficient to cover the entire bill, the city may stop water service.<sup>103</sup>

There are significant drawbacks to this approach, however. For instance, while a residential property owner receives the primary benefit of flood protection paid for by stormwater fees, the tenant may have the burden of paying the fee to benefit a location he doesn't own. The tenant's property is limited to what he stores on the premises and perhaps the vehicles parked outside.

In New Orleans, rates for water and sewer services have been increasing incrementally each year since 2013 and will continue to do so until 2020, by which time fees will have more than doubled.<sup>104</sup> Adding a stormwater fee to utility bills would add to what may be a significant burden for lower-income renters.

Moreover, tenants are generally not able to undertake efforts to reduce impervious areas or create runoff mitigation. More importantly, landlords will have no financial incentive to do so if the burden of paying stormwater fees falls to their tenants. As a result, the impact of fee structures designed to discourage impervious

“Including stormwater fees on annual bills to property owners appears to be the superior approach. It imposes the cost on the primary beneficiaries of flood protection: property owners. And it allows for the maximum impact of incentives to reduce runoff, whether those incentives are built into the fee structure or included in credit programs.”

surfaces – and any credits designed to encourage water retention – would be diminished.

While the S&WB's billing system contains all users of the water system, it does not currently include parcels that lack water service; however, the S&WB says it has the capability to identify those parcels that do not currently have water service and can readily add those parcels to its system. The S&WB in October 2016 installed a new billing system that applies payments to all portions of the bill on a pro rata basis. Those who underpay any portion of their bill now face water service shut-offs.

*Stormwater Fees on Property Tax Bills.* A minority of stormwater utilities favor putting stormwater fees on property tax bills. However, including a stormwater fee on the property tax bill has advantages. One advantage is in the collection of payments. In Seattle, for example, drainage charges are put on annual property tax bills.<sup>105</sup> If the tax bill is paid by a mortgage company, the stormwater fee is factored into a property owner's escrow fees. To enforce payment, a lien may be attached to the property.<sup>106</sup>

A downside to this approach is that the City would need to expand its billing to include properties exempt from ad valorem taxation but subject to the stormwater fee.

Nonetheless, including stormwater fees on annual bills to property owners appears to be the superior approach. It imposes the cost on the primary beneficiaries of flood protection: property owners. And it allows for the maximum impact of incentives to reduce runoff, whether those incentives are built into the fee structure or included in credit programs.

## CONCLUSION

The S&WB has insufficient funding to cover major looming financial obligations associated with SELA projects and pump stations, improved maintenance and capital improvements. Drainage is an essential component of local infrastructure; as such, it demands adequate funding. The question is: Where will the money come from? The S&WB has twice proposed using a stormwater fee to supplement drainage system revenue, to no avail. As a result, the S&WB and City have relied almost entirely on property taxes for local drainage funding.

However, a stormwater fee has several advantages over a new property tax. The greatest advantage is the broader payer base. A stormwater fee typically applies to properties that are exempt from ad valorem property taxes, such as nonprofit and government-owned properties. As a result, all of those who benefit from stormwater management pay to help maintain stormwater infrastructure.

Reaching a broader payer base requires that a stormwater fee establish a strong nexus between – and thereby a rational basis for – the amount of the fee and the amount of runoff a property generates. A strong nexus between the amount of the fee and the amount of stormwater runoff also increases the chances that the fee withstand legal scrutiny.

In addition, a stormwater fee can be structured to encourage property owners to build in a manner that minimizes runoff. A stormwater fee would diversify existing revenue sources and offers accuracy and consistency in the fee calculation. It also allows for a comprehensive funding approach across the entire drainage system.

Stormwater fees can take a variety of forms. At one end of the spectrum are simple, straightforward approaches,

such as applying a Flat Per-Parcel Fee or charging a rate based on a parcel's total area. While fees under these approaches are easy to calculate, they do a poor job of linking a property's runoff and burden on the drainage system to the amount of the fee. At the other end of the spectrum are more complicated approaches that attempt to determine a property's runoff. Fees under these approaches provide more accuracy; however, they require more intense data collection and complex calculations. They may be difficult for the public to understand. Fee structures such as the Equivalent Hydraulic Area and the Intensity of Development approaches accurately measure a property's demands on the drainage system by considering both its impervious and pervious areas. They can also create incentives to reduce impervious areas – and thereby reduce the demands on the drainage system.

Credits and exemptions are key considerations in structuring a stormwater fee. Incentive-based credits give ratepayers the opportunity to reduce a stormwater fee through runoff mitigation efforts; exemptions allow for some properties, such as public streets and properties that manage their own stormwater, to avoid paying a stormwater fee altogether.

The S&WB and City may face some legal obstacles to imposing a stormwater fee without voter approval. The applicability of state law and the interpretation of the home rule charter are not clear on the issue.

In addition, policymakers will need to consider how to handle the billing for a stormwater fee. Based on the experience of other jurisdictions, monthly S&WB bills or City property tax bills would provide the simplest means. But of the two, using the property tax bill appears preferable because it targets the primary beneficiary of a stormwater fee and the person who is usually best positioned to mitigate runoff: the property owner.

**“ Reaching a broader payer base requires that a stormwater fee establish a strong nexus between – and thereby a rational basis for – the amount of the fee and the amount of runoff a property generates. ”**

## Recommendations

This report does not attempt to verify the estimates of new stormwater management funding needs from the S&WB and City, and at this point those estimates remain somewhat fluid. However, it is clear that some level of new funding will be necessary.

Given the advantages of a stormwater fee over a new property tax, BGR recommends that the S&WB and City consider a stormwater fee as a potential source for drainage system funding.

To craft a stormwater fee that is fair to residents and benefits the entire drainage system, the S&WB and City officials should:

- Ensure the accuracy of the system's financial requirements and clearly justify all proposed expenditures.
- Pursue a fee structure that accurately measures the demands properties place on the drainage system. Rule out crude approaches such as Flat Per-Parcel Fees and the Gross Area method. Avoid the highly complex Runoff Factor approach.

- Tightly limit the number and types of properties that are exempt from stormwater fees. To maintain a broad base of ratepayers, there should be a clear justification for exemptions to any properties.
- Narrow any incentive-based credit programs to those that encourage stormwater management practices that are applicable to New Orleans and that create significant, quantifiable runoff reductions.
- Place the stormwater fee on annual property tax bills, with billing expanded to include properties exempt from ad valorem taxation. This imposes the cost of the fee on property owners, the primary beneficiaries of flood protection, and allows for the maximum impact of incentives to reduce runoff.

Finally, the City Council should pursue a charter change clarifying the authority of, and process for, the City and S&WB to impose fees and service charges.





## APPENDIX: MAJOR NEW INVESTMENTS IN DRAINAGE

Estimated Drainage System Annual Revenue Need for Sewerage & Water Board and City Drainage through 2026 (In Millions)

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
<b>S&amp;WB Existing Expenses</b>										
Operation & Maintenance*	\$36.6	\$37.7	\$38.9	\$40.0	\$41.2	\$42.5	\$43.7	\$45.0	\$46.4	\$47.8
Provision for Legal Claims	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3	1.3
Debt Service	2.4	2.4	2.4	2.4	2.5	1.3	0.4	0.4	0.4	0.2
Adjustment for Net Non-Operating Expenses (Revenue)	0.3	(1.4)	0.3	(0.7)	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)	(0.8)
<b>S&amp;WB New Operating Expenses</b>										
Operation & Maintenance Permanent Pump Stations*	-	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.1
Improved Maintenance of Existing Infrastructure	-	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Operation & Maintenance SELA Infrastructure*	-	-	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2
<b>S&amp;WB New Capital Expenses</b>										
Debt Service	-	2.0	4.9	7.5	11.1	14.0	18.0	19.9	22.6	25.2
Cash-Funded Capital Improvements	16.0	26.0	25.0	25.0	25.0	25.0	25.0	20.0	20.0	20.0
SELA Projects Repayment	-	-	1.3	3.9	3.9	8.8	8.8	8.8	8.8	8.8
Green Infrastructure**	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
<b>Department of Public Works</b>										
Increased Expenses for Minor Drainage, Net of FEMA Settlement Funds and Existing Revenue***	-	-	-	2.8	6.8	10.8	14.5	14.5	14.5	14.5
<b>Total Drainage System Projected Costs</b>	<b>56.4</b>	<b>77.1</b>	<b>84.1</b>	<b>92.5</b>	<b>101.4</b>	<b>113.4</b>	<b>121.6</b>	<b>120.1</b>	<b>124.3</b>	<b>128.3</b>
Existing S&WB Drainage Revenue (For S&WB Costs)	55.3	56.3	57.4	58.6	59.8	61.0	62.2	63.3	64.6	65.7
Use of (Addition to) Cash Reserve (For S&WB Costs)****	1.1	20.8	(13.2)	(9.0)	(5.3)	1.6	5.0	2.2	5.2	8.0
<b>Additional Revenue Needed (For S&amp;WB)</b>	<b>-</b>	<b>-</b>	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>	<b>40.0</b>
<b>Additional Revenue Needed (For City)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2.8</b>	<b>6.8</b>	<b>10.8</b>	<b>14.5</b>	<b>14.5</b>	<b>14.5</b>	<b>14.5</b>
<b>Total Additional Drainage System Revenue Needed</b>	<b>-</b>	<b>-</b>	<b>40.0</b>	<b>42.8</b>	<b>46.8</b>	<b>50.8</b>	<b>54.5</b>	<b>54.5</b>	<b>54.5</b>	<b>54.5</b>

\* Projected operation and maintenance expenses assume 3% annual inflation.

\*\* The S&WB considers green infrastructure cost to be a capital investment, but plans to expense it annually for accounting purposes because the useful life of those projects is unknown at this time.

\*\*\* The S&WB projects the expense increase to begin at \$4 million in 2019 and gradually increase to \$19.7 million by 2023. The increased expenses are shown net of existing property tax revenue (\$200,000) and FEMA settlement funds (\$5 million per year). The City will have exhausted the settlement funds in 10 years.

\*\*\*\* The S&WB's financial policy requires it to maintain a cash reserve of at least 180 days of operations and maintenance expense.

BGR analysis of 2017-2026 financial projections for the major drainage system prepared by Black & Veatch for the S&WB as of January 17, 2017, and the S&WB's estimate of annual revenue need for the minor drainage system's operation, maintenance, repair and capital investment.

Numbers may not add due to rounding.

## ENDNOTES

1 WeatherBill Inc. ranked New Orleans third out of 200 major U.S. cities over a 30-year period. See [www.climate.com/assets/LandingPageDocs/Top-10-Rainiest-Cities-Summary.pdf](http://www.climate.com/assets/LandingPageDocs/Top-10-Rainiest-Cities-Summary.pdf). See also WeatherBill Inc., *Precipitation Averages, Seasonality, Volatility and Trends in the United States*, May 17, 2007.

2 Immediately following Hurricane Katrina, the Corps constructed interim closure structures at the mouths of the three outfall canals. The interim work was completed in 2006 and cost approximately \$400 million. In 2013, the Corps awarded a contract in the amount of \$615 million to construct permanent canal closures and pumps. Subsequently, the Corps approved change orders for an additional \$15.9 million and \$23.7 million to complete construction on the permanent canal closures and pumps. See U.S. Army Corps of Engineers, *Outfall Canal Closure Structures*, May 2013 and *Permanent Canal Closures & Pumps*, July 2016.

3 S&WB, SELA Projects Estimated 30-Year Payback Schedule, March 31, 2016. As a result of the extensive flooding in May 1995, Congress authorized SELA in 1996 with the enactment of Section 108 of the Energy and Water Development Appropriations Act and Section 533 of the Water Resources Development Act (WRDA), as amended, to provide for flood control and improvements to rainfall drainage systems in Jefferson, Orleans, and St. Tammany parishes.

4 The S&WB previously retained Raftelis Financial Consultants, Inc. to analyze the drainage system's funding shortfall and the various options available to the S&WB to generate the additional revenue needed to meet the system's unfunded needs, including stormwater fees. Raftelis produced a report that remained in draft form, and the S&WB declined to share the draft report with BGR.

5 The S&WB operates its sewerage, water and drainage departments as separate companies. While one company can borrow from another, the fees and taxes for each company are dedicated and cannot simply be diverted.

6 Campbell, C. Warren, *Stormwater Utility Survey*, Western Kentucky University, 2016, p. 1.

7 S&WB, Res. No. R-159-2016, adopted October 19, 2016. See also, S&WB, *Drainage Funding Strategy*, October 2016.

8 Agreement between the City of New Orleans, Department of Streets, and the Sewerage and Water Board of New Orleans, July 1, 1992.

9 Information provided by the S&WB, January 2017.

10 City of New Orleans, 2017 Adopted Operating Budget, p. 59. In December 2016, voters renewed one of the drainage systems property taxes at a rate of 4.46 mills for 30 years.

11 BGR calculation. Currently, taxes levied on the east bank total 151.97 mills. Taxes levied on the west bank total 152.86 mills. These millage rates include a renewed 4.46-mill tax for

the drainage system and a new 2.5-mill tax for fire protection services that were approved by voters in December 2016. The millage rates do not include additional millages levied for special security districts and the Downtown Development District. See City of New Orleans, 2017 Adopted Operating Budget, p. 59.

12 S&WB, Adopted 2017 Operating Budget, p. 1.

13 Black & Veatch, Report on Operations for 2015, p. 85. See also, Black & Veatch, 10-Year Financial Plan for Water, Sewerage and Drainage Systems, November 2016, p. 23, and its 2017-2026 S&WB drainage capital improvement program financing table, dated January 17, 2017, showing the baseline scenario assuming no additional revenue source. In 2016, the S&WB budgeted \$8 million for capital improvements; however, it deferred those projects and added the funds to its operating reserves.

14 The 10-year capital plan for S&WB drainage improvements totals \$908.1 million. Assuming no new revenue source, the S&WB expects to obtain \$358 million in federal and other third-party funding, \$27 million in new drainage bonds, and \$20.5 million through the drainage system's cash flow. The balance of the capital projects, \$502.6 million, would have to be deferred. BGR analysis of Black & Veatch, 2017-2026 S&WB drainage capital improvement program financing table, dated January 17, 2017, showing the baseline scenario assuming no additional revenue source.

15 Assuming \$40 million in new revenue beginning in 2019, the S&WB projects the following sources of capital funding: \$392 million in new drainage bonds, \$358 million in federal and other third-party funding, \$227 million in annual cash flow, \$5 million in existing funds, and \$3.3 million in interest earnings. This would fund the entire \$908.1 million capital improvement plan and \$6.1 million of related costs (primarily bond issuance costs), and it would leave \$71.1 million in funds available for capital spending after 2026. BGR analysis of Black & Veatch, 2017-2026 S&WB drainage capital improvement program financing table, dated January 17, 2017, showing the additional revenue scenario (\$40 million annually, beginning in 2019).

16 Immediately following Hurricane Katrina, some SELA projects were 100% federally funded. The federal government also funds other SELA projects at a 75% cost-share, with the remaining 25% funded by the local government.

17 The S&WB projects that SELA repayments will start in 2019 at \$1.3 million and increase to \$3.9 million in 2020 and 2021. From 2022 to 2048, officials estimate repayments to total \$8.8 million annually. Repayments are then expected to decrease to \$7.6 million in 2049 and \$5 million in 2050. Information provided by S&WB, and BGR analysis of Black & Veatch, 2017-2026 S&WB drainage capital improvement program financing table, dated January 17, 2017, showing the additional revenue scenario (\$40 million annually, beginning in 2019).

18 Ibid. Black & Veatch projects annual operating expense for the SELA infrastructure to begin at \$1.0 million in 2019 and

increase 3% per year due to inflation.

19 Ibid. Black & Veatch projects annual operating expense for the permanent pump stations to begin at \$3.2 million in 2018 and increase 3% per year due to inflation.

20 Information provided by the U.S. Army Corps of Engineers, January 2017.

21 For instance, the privately developed Greater New Orleans Urban Water Plan recommends the creation of stormwater retention areas to increase stormwater management capacity and reduce subsidence. Waggonner & Ball Architects, *Greater New Orleans Water Plan, Implementation*, September 2013.

22 The S&WB estimates this expense to begin at \$4 million in 2019 and gradually increase to \$19.7 million by 2023.

23 City of New Orleans, 2017 Adopted Operating Budget, p. 63.

24 Information on FEMA settlement funds and minor drainage system annual need provided by S&WB, April 2016 and January 2017.

25 In 2011, BGR recommended that the city's Department of Public Works transfer its responsibility for the maintenance and repair of subsurface drainage to the S&WB. See BGR, *Making the Waterworks Work*, p. 21.

26 Cooperative Endeavor Agreement Between the City of New Orleans and Sewerage and Water Board of New Orleans, September 29, 2015.

27 S&WB officials say a likely arrangement will be for the S&WB to serve as a contractor to the Department of Public Works for maintenance of the subsurface drainage system, while the Department would serve as a contractor for the S&WB for the maintenance of pavement repairs.

28 BGR calculation.

29 See Bureau of Governmental Research, *Sewerage and Water Board Drainage Service Charge Proposal*, October 1985, p. 10. Under the 1985 proposal, the land use categories included 1) vacant land, 2) parks (except those owned by the city), 3) single family residences, 4) multi-family residences and 5) all other property. See also, BGR, *The Sewerage and Water Board's Fee Proposal*, February 1999, p. 4. Under the 1998 proposal, the land use categories included 1) unclassified, 2) single/two family residential, 3) multi-family residential, 4) commercial, 5) industrial, 6) institutional, 7) non-revenue public facilities, 8) vacant land partially drained, 9) vacant land, 10) vacant land with parking and 11) public utilities.

30 BGR, *Sewerage and Water Board Drainage Service Charge Proposal*, October 1985, p. 10.

31 BGR, *The Sewerage and Water Board's Fee Proposal*, February 1999, pp. 10-11.

32 In 2015 and 2016, the Office of Inspector General issued a series of reports, letters and statements raising concerns about the S&WB's management, practices and policies. The complete reports are available at [www.nola.ig.gov](http://www.nola.ig.gov).

33 Campbell, *Stormwater Utility Survey*, pp. 1-2 and 17. The 2016 survey contains data on 1,571 stormwater utilities in the U.S. However, the survey's authors acknowledge that new stormwater utilities not detected in the survey continue to form and that the total is probably between 2,000 and 2,500.

34 Black & Veatch, *Stormwater Utility Survey*, 2014, p. 7. Survey responses were received from 78 utilities across 25 states.

35 National Association of Flood and Stormwater Management Agencies, *Guidance for Municipal Stormwater Funding*, January 2006, pp. II-12 and III-1 through III-17.

36 For a broad discussion of the advantages and disadvantages of the property tax, see Moak, Lennox L. and Albert M. Hillhouse, *Concepts and Practices in Local Government Finance*, Chicago: Municipal Finance Officers Association, 1975, pp. 130-31.

37 Bureau of Governmental Research, *The Nonprofit Margin: Addressing the Cost of the Nonprofit Exemption in New Orleans*, March 2011, p. 17.

38 Information provided by Orleans Parish Assessor's Office, January 2017. The numbers exclude public service parcels.

39 Louisiana Tax Commission, Annual Report, 2015, p. 44. According to 2015 data, the City has 8,567 parcels where the homestead exemption is equal to or less than a \$7,500 assessed value. Those parcels are exempt from paying ad valorem property taxes, except those taxes for police and fire that are not subject to the homestead exemption. See La. Const. Art. VI, Sec. 26(E).

40 Bland, Robert L., *A Revenue Guide for Local Government* (International City Management Association, 1989) pp. 15-24.

41 La. R.S. Secs. 33:4124, 33:4137 and 33:4147. State law mandates that drainage tax revenue be used "solely and exclusively for the operation and maintenance of the drainage system of the City of New Orleans; and for the construction and extension of said drainage system, excluding subsurface drainage systems and their appurtenances."

42 33 U.S.C. Sec. 1323(c). Under the Clean Water Act, a "reasonable service charge" includes any reasonable nondiscriminatory fee, charge or assessment. Federal entities are required to pay reasonable service charges that are "(A) based on some fair approximation of the proportionate contribution of the property or facility to stormwater pollution (in terms of quantities of pollutants, or volume or rate of stormwater discharge or runoff from the property or facility); and (B) used to pay or reimburse the costs associated with any stormwater management program (whether associated with a separate storm sewer system or a sewer system that manages a combination of stormwater and sanitary waste), including the full range of programmatic and structural costs attributable to collecting stormwater, reducing

pollutants in stormwater, and reducing the volume and rate of stormwater discharge, regardless of whether that reasonable fee, charge, or assessment is denominated a tax.”

43 BGR reviewed cases in Alabama, California, Colorado, Florida, Georgia, Idaho, Illinois, Kentucky, Maine, Michigan, Missouri, Oregon, Tennessee, Texas and Washington. BGR chose the states and cases for review based on references in industry literature.

44 In *Densmore v. Jefferson County*, 813 So.2d 844 (Ala. 2001), the Alabama Supreme Court upheld a stormwater fee which was used to fund a stormwater program designed to comply with discharge requirements under state and federal law. Also, in *McCleod v. Columbia County*, 599 S.E.2d 152 (Ga. 2004), the Georgia Supreme Court upheld a stormwater fee that was used to manage and treat stormwater runoff contributed by the properties that paid the fee.

45 In *City of Lewiston v. Gladu*, 40 A.3d 964, 971 (Me. 2012), the Supreme Court of Maine looked at, among other things, whether the charge was a “fair approximation” of the cost of the regulatory service and the benefit conferred to the user. See also *Church of Peace v. City of Rock Island*, 828 N.E.2d 1282 (Ill. App. 2005); *Vandergriff v. City of Chattanooga*, 44 F.Supp.2d 927 (E.D. Tenn. 1998).

46 BGR found court decisions that varied as to how direct the benefit must be. Some courts required that a ratepayer receive a direct benefit not shared with the general public; others found that the general public could share in the benefit received. For instance, in *Long Run Baptist Ass’n v. Louisville MSD*, 775 S.W.2d 520 (Ky. App. 1989), a stormwater fee was used to fund improvements for a county’s stormwater drainage facilities. The Kentucky Court of Appeals found that, while improved drainage facilities were a benefit to all property owners, the benefit was sufficient to uphold the charge as a valid fee.

47 See *Gainesville v. State*, 863 So.2d 138 (Fla. 2003); *McCleod v. Columbia County*, 599 S.E.2d 152 (Ga. 2004); *City of Lewiston v. Gladu*, 40 A.3d 964, 971 (Me. 2012); *Vandergriff v. City of Chattanooga*, 44 F.Supp.2d 927 (E.D. Tenn. 1998); *Tukwila Sch. Dist. No. 406 v. City of Tukwila*, 167 P.3d 1167 (Wash. App. 2007); and *Church of Peace v. City of Rock Island*, 828 N.E.2d 1281 (Ill. App. Ct. 2005).

48 See *City of Lewiston v. Gladu*, 40 A.3d 964 (Me. 2012); *Church of Peace v. City of Rock Island*, 828 N.E.2d 1282, 1285 (Ill. App. Ct. 2005).

49 The cities BGR surveyed in depth were Austin, El Paso and Houston, Texas; Charlotte-Mecklenburg County and Raleigh, N.C.; Colorado Springs, Colo.; Gainesville, Fla.; Lancaster, Penn.; Oklahoma City and Tulsa, Okla.; Portland, Ore.; Saint Paul, Minn.; and Washington, D.C. BGR also examined stormwater fee programs in Bay County, Fla., Cedar Rapids, Iowa, Philadelphia, Santa Monica, Calif. and West St. Paul, Minn.

50 Campbell, *Stormwater Utility Survey*, p. 7. The survey

identified 228 tier systems in the U.S.

51 City of Raleigh, “Stormwater Utility Fee Information,” 2016, [www.raleighnc.gov/services/content/PWksStormwater/Articles/UtilityFee.html](http://www.raleighnc.gov/services/content/PWksStormwater/Articles/UtilityFee.html).

52 BGR, *The Sewerage & Water Board’s Drainage Service Charge Proposal*, p. 10, and BGR, *The Sewerage and Water Board’s Fee Proposal*, p. 4.

53 Campbell, *Stormwater Utility Survey*, p. 8. The survey identified 105 communities that use a dual fee system.

54 Board of County Commissioners of Bay County, Ord. No. 05-01, adopted Jan. 18, 2005. There is no charge for undeveloped parcels or government-owned property.

55 Orleans Parish Assessor’s Office, Fact Sheet for Orleans Parish, 2016.

56 The City of Oklahoma City, Municipal Code, Sec. 60-57-20.

57 Staff in the Assessor’s Office estimates that it is missing measurements for approximately 5% of the parcels located in the city.

58 Until July 2016, Cedar Rapids, Iowa, imposed a stormwater fee on its non-residential properties based on the size of the property. It switched to the Equivalent Residential Unit method at that time.

59 In Arvada, Colo., the city determined the amount of impervious area for every parcel and charged a stormwater fee based on the amount of impervious area. City of Arvada, “Stormwater Utility Fee,” [www.arvada.org/residents/services-and-sustainability/calculating-the-stormwater-utility-fee](http://www.arvada.org/residents/services-and-sustainability/calculating-the-stormwater-utility-fee).

60 *McCleod v. Columbia County*, 599 S.E.2d 152 (Ga. 2004); *City of Lewiston v. Gladu*, 40 A.3d 964 (Me. 2012).

61 Water Environment Federation, “User-Fee-Funded Stormwater Programs,” 2013, pp. 46–47.

62 City of Houston, ReBuild Houston, “Drainage Utility Charge FAQs,” [www.rebuildhouston.org/index.php/drainage-utility/drainage-utility-charge/drainage-utility-charge-faqs](http://www.rebuildhouston.org/index.php/drainage-utility/drainage-utility-charge/drainage-utility-charge-faqs).

63 The Assessor only maintains square footage data on structures because that is what is required for the appraisal process.

64 ERUs are sometimes referred to as equivalent service units (ESUs) or single family equivalent units (SFEUs).

65 Campbell, *Stormwater Utility Survey*, p. 2. In 2016, the national median ERU was 2,900 square feet.

66 See Department of Environmental Protection, Montgomery County, Maryland, “WQPC Rates & Calculation,” [www.montgomerycountymd.gov/water/wqpc/rates.html](http://www.montgomerycountymd.gov/water/wqpc/rates.html). Also see the rate structure in Washington, D.C., Department of Energy &

Environment, “Changes to the District’s Stormwater Fee,” [doee.dc.gov/service/changes-districts-stormwater-fee](https://www.doe.dc.gov/service/changes-districts-stormwater-fee).

67 Campbell, *Stormwater Utility Survey*, p. 7. The survey identified 739 ERU systems in the U.S.

68 Texas Local Government Code, Sec. 552.047. It states that municipalities may impose drainage fees, “but the basis must be directly related to drainage and the terms of the levy, and any classification of the benefitted properties in the municipality must be nondiscriminatory, equitable, and reasonable.”

69 City Council of Austin, Ord. No. 20160804-080, adopted August 4, 2016. The drainage fee is calculated by multiplying the monthly base rate by the amount of impervious cover by the adjustment factor. The monthly base rate is a set amount determined each fiscal year. The impervious cover is the total square footage of impervious surface on a property. The adjustment factor, which is unique to each property, is based on a formula that uses the percent of impervious cover.

70 The Intensity of Development method is also known as the Intensity of Development Factor method.

71 City of Bellevue Washington, 2016 Utility Rate Information, [www.ci.bellevue.wa.us/utilities\\_rates.htm](http://www.ci.bellevue.wa.us/utilities_rates.htm).

72 City of Philadelphia, Stormwater, “Residential Stormwater Billing,” [www.phila.gov/water/wu/stormwater/Pages/ResidentialSWBilling.aspx](http://www.phila.gov/water/wu/stormwater/Pages/ResidentialSWBilling.aspx).

73 City of Philadelphia, Stormwater, “Non-Residential Stormwater Billing,” [www.phila.gov/water/wu/stormwater/Pages/NonResidentialStormwaterBilling.aspx](http://www.phila.gov/water/wu/stormwater/Pages/NonResidentialStormwaterBilling.aspx).

74 Hydraulic response factors, which approximate stormwater discharge, are applied to a property’s impervious and pervious areas to calculate an equivalent hydraulic area.

75 Water Environment Federation, “User-Fee-Funded Stormwater Programs,” 2013, p. 50. See also U.S. Environmental Protection Agency Region III, *Funding Stormwater Programs*, January 2008.

76 Campbell, *Stormwater Utility Survey*, p. 7.

77 City of West St. Paul, *Stormwater Utility Report*, December 2005.

78 Black & Veatch, *Stormwater Utility Survey*, 2014, p. 15. According to the survey, utilities most commonly exempt public streets, roads and rights of way from paying stormwater fees (65% of survey responders), followed by undeveloped land that is generally completely pervious (54% of survey responders).

79 La. R.S. Secs. 33:4096 and 33:4121.

80 BGR, *Sewerage and Water Board Drainage Service Charge Proposal*, October 1985, p. 10. Property owned by the School Board would have been exempt from the drainage fee only if it

was used by the city for recreational or other city purposes. A property subject to a drainage servitude was exempt only if the entire parcel was subject to the servitude.

81 BGR, *The Sewerage and Water Board’s Fee Proposal*, February 1999, p. 4.

82 Exempting a class of properties from paying stormwater fees, especially when the exemption is not authorized by state or local laws, may also increase exposure to legal challenges. See Water Environment Federation, “User-Fee-Funded Stormwater Programs,” 2013, p. 56.

83 For more information on biofilters, see Jurries, Dennis, *Biofilters for Storm Water Discharge Pollution Removal*, State of Oregon Department of Environmental Quality, 2003.

84 Off-site stormwater credit trading programs allow property owners to meet their stormwater retention needs by purchasing “credits” from other property owners who have met and exceeded their own stormwater retention requirements. Credit trading programs, however, may be costly for local governments to establish and may diminish the objective of reducing stormwater runoff for each property. For more information on credit trading programs, see the National Resources Defense Council, *How to: Stormwater Credit Trading Programs*, February 2016.

85 Credits might also have a needs-based component. In some jurisdictions, elderly, disabled and low-income residents may qualify for credits. Credit programs based on need generally use a uniform application process and require residents to meet certain threshold requirements, such as age and income, to qualify. However, BGR surveyed credit programs in 13 jurisdictions and found only two that included a needs-based component: Austin and Houston, Texas.

86 In Charlotte-Mecklenburg County, N.C., residential and commercial properties can earn a 100% stormwater fee credit. In Gainesville, Fla., nonresidential properties can earn a 100% stormwater fee credit. The stormwater program in Portland, Ore. allows credits up to 100% for the on-site portion of the stormwater fee, which constitutes 35% of the total fee. In El Paso, Texas, a 100% credit can be received for a system that retains all stormwater and allows no runoff, while a 25% credit cap is applied to nonresidential properties with a properly designed and maintained stormwater pond. The stormwater programs in Lancaster, Pa., and St. Paul, Minn. have credit caps of 50% and 25%, respectively.

87 BGR staff found that stormwater credit inspections are required in El Paso, Texas, Charlotte-Mecklenburg County (for structural facilities only, such as detention basins and ponds) and Raleigh, N.C., Portland, Ore., (for commercial utility accounts upon registration) and St. Paul, Minn.

88 For example, in El Paso, Texas, wholly sufficient stormwater improvements are re-inspected every three years.

89 La. R.S. Sec. 38:90.17(A)(1)(a) and La. R.S. Sec. 38:90.1(7).

- 90 La. R.S. Sec. 38:90.17(A)(1)(a).
- 91 La. R.S. Sec. 38:90.17(A)(3).
- 92 Home Rule Charter of the City of New Orleans, Section 3-101(2).
- 93 Section 3-101(2) of the existing charter formerly provided that “The Council shall have the right to levy any and all classes of taxes, excises, licenses and fees necessary for the proper operation and maintenance of the municipality[,] for the payment of debt, and for capital improvements that are not expressly prohibited by the Constitution.”
- 94 New Orleans City Council, Ord. 7009 M.C.S., adopted December 28, 1978.
- 95 New Orleans City Council, Ord. 7011 M.C.S., adopted December 28, 1978.
- 96 See *ACORN v. City of New Orleans*, 377 So.2d 1206 (La. 1979); See also *ACORN v. City of New Orleans*, 407 So.2d 1225 (La. 1981).
- 97 At the time, BGR noted that the state constitution already limited a local government’s ability to raise needed revenue because of the prohibition of local income tax, establishment of a maximum local sales tax rate, and restriction of the property tax base by the homestead exemption.” See BGR, *BGR Position Paper City of New Orleans Home Rule Charter Amendment*, March 1981.
- 98 BGR, *The Sewerage and Water Board’s Fee Proposal*, February 1999, p. 11.
- 99 La. Const. Art. VI, Sec. 4 provides, in pertinent part, that every “home rule charter or plan of government existing or adopted when this constitution is adopted shall remain in effect and may be amended, modified, or repealed as provided therein. Except as inconsistent with this constitution, each local governmental subdivision which has adopted such a home rule charter or plan of government shall retain the powers, functions, and duties in effect when this constitution is adopted.”
- 100 BGR, *The Nonprofit Margin*, pp. 14-15.
- 101 Campbell, *Stormwater Utility Survey*, p. 14.
- 102 Black & Veatch, *Stormwater Utility Survey*, 2014. Only 5% of stormwater utilities billed property owners separately for stormwater fees. This approach brings higher administrative costs, and the extra bill may create an annoyance. For example, in Colorado Springs, Colo., a stormwater fee was billed separately and on a quarterly basis. Officials noted that this approach was unpopular because, among other things, separate billing drew attention to the fee and quarterly billing made the fee higher than if it would have been billed on a monthly basis. Although the fee has not officially been repealed, its rate has been set at \$0.
- 103 City of Raleigh, Public Works, “Stormwater Utility Fee Information, Common Questions on billing, fees, program, credits and exemptions,” [www.raleighnc.gov/services/content/PWksStormwater/Articles/StormwaterUtilityRates.html](http://www.raleighnc.gov/services/content/PWksStormwater/Articles/StormwaterUtilityRates.html).
- 104 Bureau of Governmental Research, *Time to Pay the Pipelayer? The Proposed S&WB Rate Increases in Perspective*, December 2012.
- 105 Seattle Public Utilities, “Understanding Your Drainage Bill FAQ,” [www.seattle.gov/util/MyServices/Rates/DrainageRates/UnderstandingYourBillFAQ/index.htm](http://www.seattle.gov/util/MyServices/Rates/DrainageRates/UnderstandingYourBillFAQ/index.htm).
- 106 Generally, the authority to impose a lien for nonpayment of a fee is expressly provided by law. For example, state law specifically provides that security district parcel fees, which are included on property tax bills in New Orleans, are collected in the same manner as ad valorem taxes. State law also specifically provides that unpaid security district parcel fees are subject to the same penalties and procedures as unpaid ad valorem taxes. See La. R.S. Secs. 33:9091.1 et seq. While state law currently authorizes the S&WB and the City to impose a stormwater fee, it does not expressly grant authority to either to impose a lien for nonpayment of such a fee. See La. R.S. Sec. 30:90.17.





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