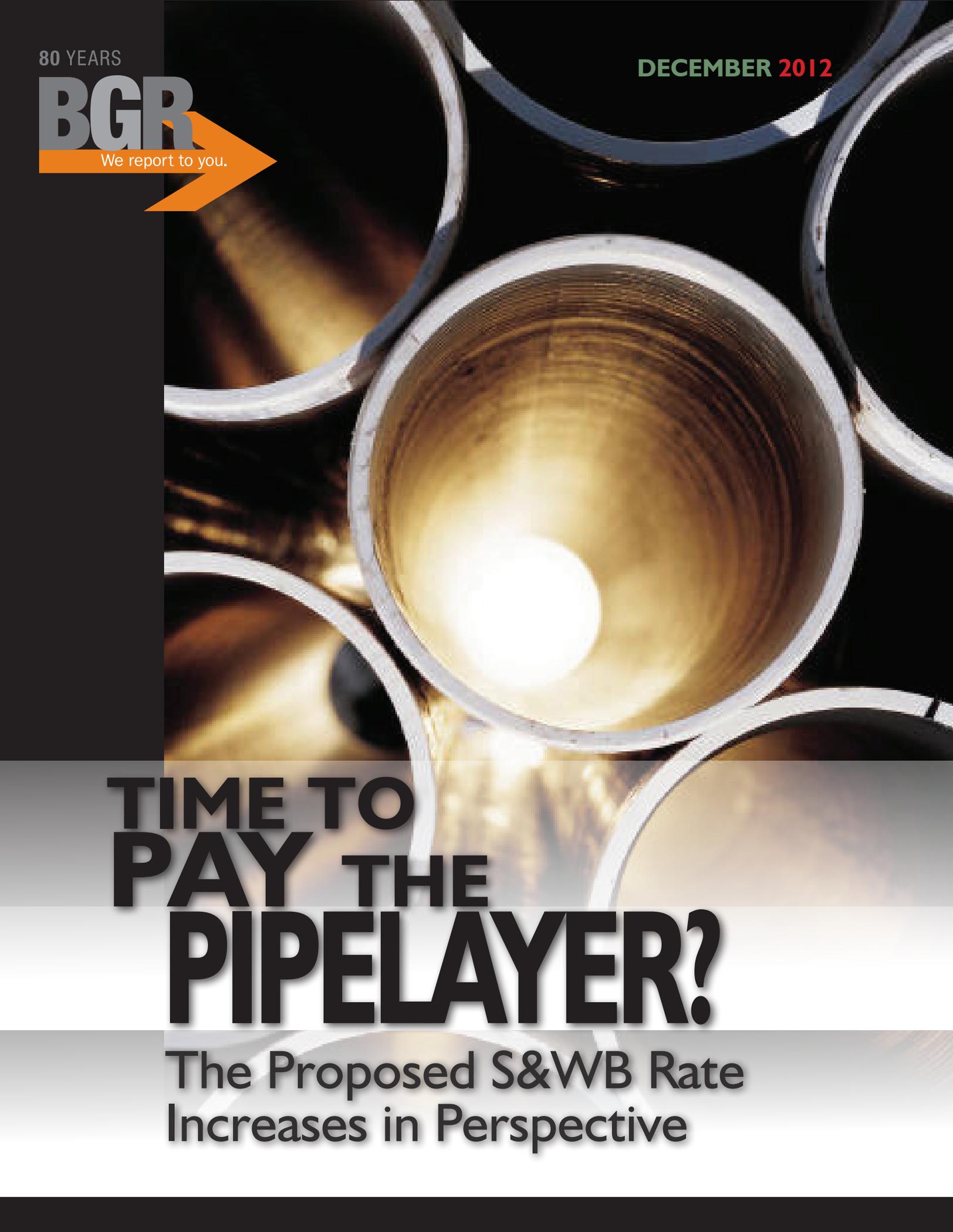


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DECEMBER 2012



TIME TO PAY THE PIPELAYER?

The Proposed S&WB Rate
Increases in Perspective

TIME TO PAY THE PIPELAYER?

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INTRODUCTION

On December 6, the New Orleans City Council may consider requests by the Sewerage & Water Board of New Orleans (S&WB) to raise water and sewer rates 10% a year for the next eight years.¹ The increases would commence on January 1, 2013, and continue through 2020. The S&WB would apply the rate increases to both fixed charges and usage charges. The increases would apply across the board to all customer classes.

If adopted, the increases would more than double customers' bills by 2020. Assuming his usage remained the same, the average residential customer would see his monthly bill rise steadily from \$52.50 to \$112.67.² The rate increases would generate nearly \$600 million of additional revenue for the water and sewerage systems through 2020. The S&WB is still studying options for raising additional revenue for its drainage system.

While some customers are likely to experience sticker shock, the proposed escalation should come as no surprise to those familiar with the S&WB. Both the water and sewerage systems need major investment. The water system suffers from widespread leaks, deteriorating treatment plants and recurring breakdowns at the S&WB's power plant. The latest outage in October dropped water pressure low enough to trigger a boil-water order. The S&WB and city will face steep penalties unless the sewerage system is rehabilitated to comply with a federal consent decree. The S&WB also needs to invest in the systems' operations and maintenance and to bolster their thin cash reserves.

This report reviews the proposed water and sewer rate increases and their impacts on customers. It also examines the proposed uses of the additional funding and how far it will go in fixing the systems' problems.

BACKGROUND

The systems' problems and the current rate requests are rooted in a history of chronic underfunding. The city and the S&WB have taken an erratic approach to setting rates during the past half century. Lengthy periods with little or no rate adjustment have been followed by double-digit increases.³ Recurring political opposition to rate

increases, both by elected officials on the S&WB and by the City Council, has fueled this historical trend. It has resulted in a vicious cycle of underfunding, deferred maintenance, mounting costs and dramatic rate hikes.

To make matters worse, the Hurricane Katrina disaster ravaged the systems structurally and financially. The floodwaters damaged pipes, plants and other infrastructure already weakened by age and deferred maintenance. Simultaneously, the city's population loss dealt a blow to the S&WB's customer base and revenues.⁴ The S&WB burned through much of its cash reserves to pay expenses post-Katrina and took on new debt just to cover debt service on its existing bonds through 2008.⁵

The post-Katrina financial problems came to a head in 2009, when the S&WB notified bondholders that it had failed to meet the required debt service coverage on its water bonds.⁶ The S&WB quickly initiated a financial analysis and rate study to address the revenue needs of its three systems, sewerage, water and drainage.

The initial version of the rate study, completed in September 2011, called for a front-loaded set of increases for sewerage and water from 2012 through 2020. It recommended annual increases during the first five years of 15% for the water system and 14% for the sewerage system, followed by smaller annual increases in the later years. The recommended increases would have raised rates by 145% through 2020 and generated an additional \$821 million.

The consultants adjusted their recommendation several times during 2012 to reflect new developments, such as the receipt of additional federal funding and better-than-expected financial results.⁷ By April, they had lowered the proposed annual increases to 12% for water and 13% for sewer during the first five years, with smaller rate increases thereafter. If those proposed increases had been implemented, they would have raised rates by 110% and generated an additional \$674 million of revenue from 2013 through 2020.⁸

But in July, at the request of the mayor, the S&WB asked the consultants to devise alternatives to front-loading the rate increases. This led to the current proposal to raise rates by 10% a year over eight years. The consultants indicated that this is the lowest-cost sce-

THE CURRENT RATE STRUCTURE

Water and sewer rates have two components: a fixed charge based on meter size and a variable charge based on usage.

The current water rates include fixed charges ranging from \$4.05 a month for a 5/8-inch meter, the most common type for a residence, to \$333 a month for a 16-inch meter. The usage charge consists of four “blocks”: \$2.69 per thousand gallons for the first 3,000 gallons of water used per month, \$4.60 per thousand for the next 17,000 gallons, \$3.62 per thousand for additional usage up to 1 million gallons, and \$3.04 per thousand for usage in excess of 1 million gallons.

The S&WB implemented the lower rate on the first 3,000 gallons in 2007. It is intended to make rates more affordable for and promote conservation by residential customers.¹ Such discounts are an accepted tool in rate-making, but they shift costs to other customers.²

At the other end of the usage scale, large users enjoy reduced rates as well. This owes to economies of scale. Generally speaking, the higher a customer’s consumption, the lower the cost per gallon to deliver water services.

The current sewer rates include fixed charges ranging from \$11.60 a month for a 5/8-inch meter to \$1,550 a month for a 16-inch meter. The usage charge per thousand gallons for all customers is \$4.04. Residential customers’ sewer usage is calculated at 85% of their monthly water consumption. The calculation for commercial and industrial customers is based on 100% of their water usage. Industrial customers pay additional charges based on the content of their discharge into the sewer system.

¹ See Black & Veatch, *Report on Revenue Requirements, Cost of Service and Rates for Water Service*, prepared for the Sewerage & Water Board of New Orleans, Louisiana, April 26, 2005, p. 31; Raftelis Financial Consultants, p. 28.

² See American Water Works Association, *Principles of Water Rates, Fees, and Charges*, AWWA Manual M1, 6th Ed. (Denver: American Water Works Association, 2012), pp. 4, 194 and 197.

nario that would raise enough revenue to achieve the S&WB’s objectives: fully funding through 2020 the capital improvement program in effect when the consultants conducted their study; maintaining the targeted debt service coverage; increasing operations and maintenance (O&M) expenditures; and building reserves.⁹

If implemented, the proposed increases would raise rates by 114% and generate an additional \$583 million through 2020. This is \$91 million less than the preceding front-loaded option would have generated and \$238 million less than the original proposal.

The new approach would cost customers less during the next eight years than the front-loaded proposal it replaced. The total difference for the average customer over those eight years would be \$459. However, beginning in 2020, customer bills would be slightly higher under the current proposal. The average residential customer would pay \$112.67 per month, instead of \$110.46 under the front-loaded plan.

THE IMPACT ON CUSTOMERS

BGR analyzed the relative impacts of the proposed rate increases on three types of residential customers and three types of business customers. The residential types include: the low-volume user, who consumes 3,000 gallons per month; the average residential customer, who consumes approximately 5,300 gallons per month; and the average small multifamily customer, who uses 7,900 gallons per month.¹⁰ The business types are based on the sample customers in the consultant’s April 2012 rate study. A summary of the current rate structure is provided in the sidebar.

To put the S&WB’s proposed charges in perspective, BGR compared them to water and sewer rates in three peer cities: Cincinnati, Louisville and Charleston. The cities were chosen because their water and sewer infrastructure is similar in age to New Orleans’ and their utilities have similar revenue sources. As is the case in New Orleans, the water and sewer systems are not supported by taxes, but instead rely on user charges.

All three peer utilities have done a better job of imposing gradual rate increases than the S&WB. Best practices call

TABLE 1: BGR ESTIMATES OF RESIDENTIAL CUSTOMERS' BILLS, 2012 AND 2020

City	“S&WB Low-Volume” Residential (3,000 gallons/month)		“S&WB Average” Residential (5,300 gallons/month)		“S&WB Average” Small Multifamily (7,900 gallons/month)	
	2012	2020	2012	2020	2012	2020
Charleston	\$49.18	\$77.85	\$73.58	\$116.48	\$108.88	\$172.36
Cincinnati	61.26	96.98	76.12	120.50	106.07	167.91
Louisville	48.37	76.57	60.74	96.16	74.73	118.30
New Orleans	34.02	73.04	52.50	112.67	76.80	164.78

Note: The projected rates for the other systems include assumed annual increases of 5.91% a year, the average change in Water/Sewer CPI during the past 10 years. The S&WB rates incorporate the S&WB’s proposed rate increases. All sewerage rates reflect any discounts for water consumption not affecting sewer flow. The calculations are for water and sewer charges only and do not include other fees, such as garbage collection, that may be included in the customer’s bill. Each customer uses a 5/8” meter (3/4” meter in Charleston).

for gradual increases at levels sufficient to keep up with operating costs and fund the regular investment needed to sustain the systems over time. During the past decade, all three peer utilities have raised rates in most years. During that period, the increases averaged 5% a year for water and 7.5% a year for sewer.¹¹ For the purposes of comparison, BGR assumed each city would increase its rates each year through 2020 by 5.91%, the average increase during the past 10 years in the national Consumer Price Index for water and sewer utility costs (Water/Sewer CPI).¹²

Table 1 shows the impact of the S&WB’s proposed increases on the three types of residential customers. Currently, the bill for the S&WB’s low-volume user is 30% to 44% lower than it would be in the peer cities. In 2020,

the bill would still be lower but by a far smaller margin. The bill for the S&WB’s average residential user is now 14% to 31% lower than it would be in the peer cities. By 2020, the bill would exceed that of a comparable customer in Louisville, but remain below those in the other two peer cities.

Currently, the bill for the average small multifamily customer is slightly higher than in Louisville, but roughly 30% less than in Charleston or Cincinnati. By 2020, the multifamily customer’s bill would be well above the bill in Louisville and close to those in Charleston and Cincinnati.

Table 2 shows the impact of the proposed increases on

TABLE 2: BGR ESTIMATES OF BUSINESS CUSTOMERS' BILLS, 2012 AND 2020

City	“S&WB Small Commercial” (22,440 gallons/month)		“S&WB Commercial / Light Industrial” (374,000 gallons/month)		“S&WB Industrial” (7,480,000 gallons/month)	
	2012	2020	2012	2020	2012	2020
Charleston	\$267.00	\$422.68	\$4,021.35	\$6,366.01	\$79,812.25	\$126,347.11
Cincinnati	268.86	425.61	3,055.76	4,837.43	57,186.79	90,529.77
Louisville	204.09	323.09	2,709.08	4,288.62	53,567.06	84,799.55
New Orleans	215.56	462.33	2,955.66	6,336.05	54,459.27	116,631.07

Note: The projected rates for the other systems include assumed annual increases of 5.91% a year, the average change in Water/Sewer CPI during the past 10 years. The S&WB rates incorporate the S&WB’s proposed rate increases. All sewerage rates reflect any discounts for water consumption not affecting sewer flow. The customer types use 1”, 2” and 8” meters, respectively.

various types of business users. Business customers in New Orleans now pay more than similar users in Louisville but less than those in Cincinnati and Charleston. By 2020, the S&WB's small commercial customers would pay more than similar users in all three cities. Large commercial users would pay significantly more than similar customers in Cincinnati and Louisville, and about as much as those in Charleston. Large industrial users would pay significantly more than similar customers in Cincinnati and Louisville, but less than those in Charleston.

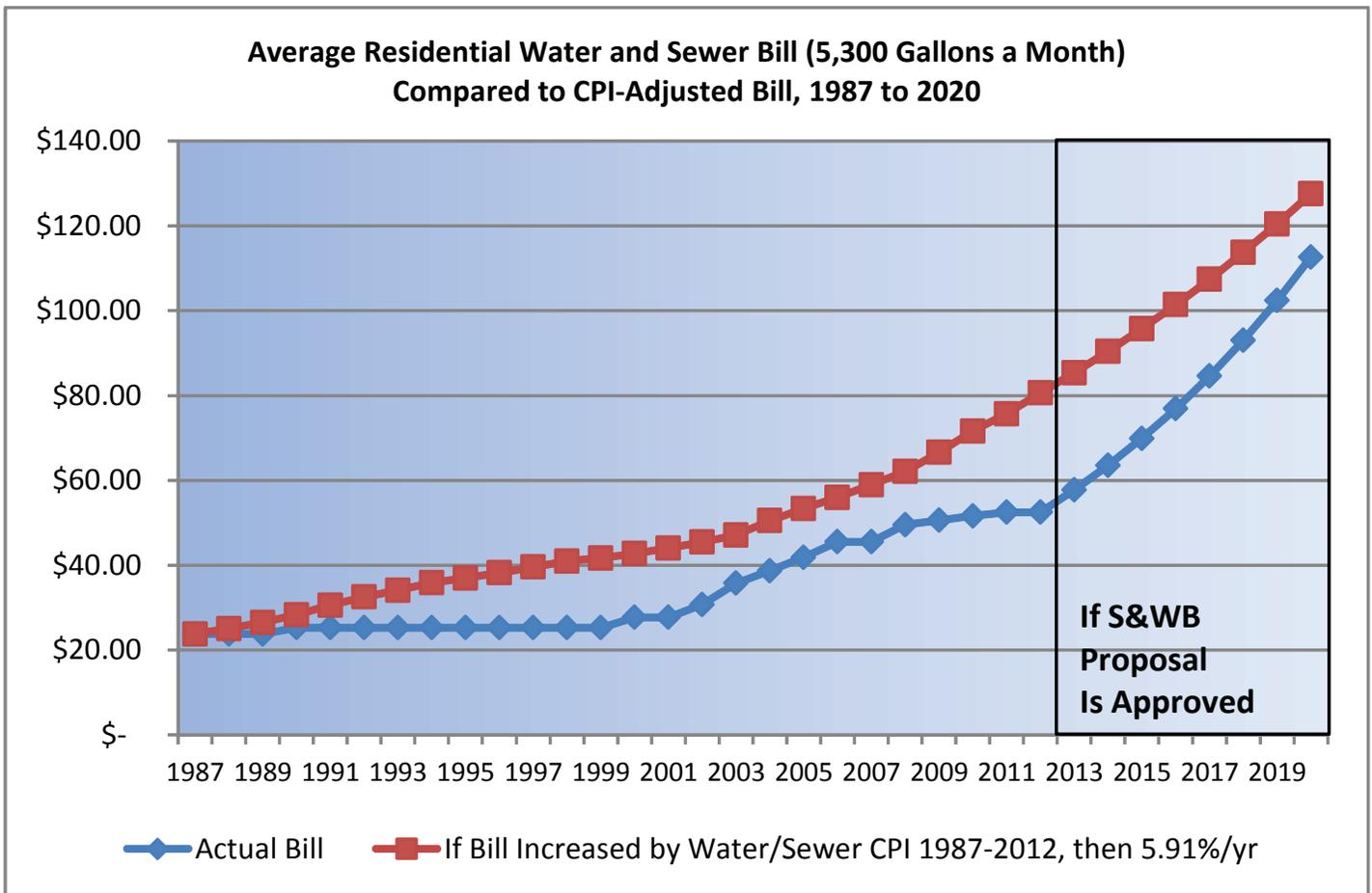
What would the average residential customer's bill look like if the S&WB had made regular, gradual increases in rates? If the increases had tracked changes in Water/Sewer CPI since 1987, the current bill would be approximately \$80 a month. While that is significantly higher than the actual bill of \$52.50, the sys-

tems would have been better funded and maintained and the cost would have been spread more fairly over the generations of customers.

If the proposed increases were implemented, the monthly 2020 bill would still be \$15 lower than what it would have been under the CPI scenario. (See chart below.)

Affordability for Residential Customers

While it is important to look at changes in the bills over time, it is also important to view the impact of the rate increases on household finances. Household affordability is measured by calculating the average residential water and sewer bill as a percentage of median household income. The percentages are then compared to maximum levels for affordability. To assess affordability, the S&WB's consultants have used maximums of 1.5% for



Note: BGR calculated the actual monthly bill for the average residential customer from 1987 through 2012, and it projected the bill for 2013 to 2020 using the proposed rate increases. For the CPI scenario, BGR increased the bill for each year from 1987 through 2012 by the annual change in Water/Sewer CPI. For the period from 2013 to 2020, BGR assumed an annual increase of 5.91%, which is the average change in that index during the past 10 years. BGR used the same assumption to estimate the future bills in the three peer cities.

water charges and 2.5% for sewerage charges – a combined 4% of median household income.¹³

The proposed rate increases would push the average residential bill from 1.6% of median household income to 2.7% by 2020. The bills would still meet the consultants’ affordability test. (See Table 3.)

PROPOSED USES OF ADDITIONAL REVENUE

The consultants estimate that the proposed increases would enable the S&WB to generate \$263 million of additional revenue for the water system and \$320 million for the sewer system through 2020. The new revenue would be applied to four general uses: infrastructure and other capital projects, O&M, debt repayment and the replenishment of the S&WB’s cash reserves.

As shown in Table 4, 47% of the combined additional revenue would fund infrastructure and other capital projects. Another 31% would pay for O&M expenses. The balance would repay debt and bolster cash reserves.

There are significant differences in how the individual systems would use the revenue. Nearly two-thirds of the sewer system’s revenue would fund infrastructure and other capital projects, with another 24% spent on O&M costs.

The water system is in worse financial shape, and this significantly affects the uses of its revenue. Less than 30% of the additional revenue would be available for

TABLE 3: BGR ESTIMATES OF THE “S&WB AVERAGE” RESIDENTIAL BILL AS % OF MEDIAN HOUSEHOLD INCOME

City	Combined Bill	
	2012	2020
Louisville	1.69%	2.15%
Charleston	1.78%	2.26%
New Orleans	1.58%	2.72%
Cincinnati	2.53%	3.22%
Affordability Maximum	4.00%	4.00%

Note: The charges are based on the “S&WB Average” residential customer, who consumes 5,300 gallons of water per month. Charges are annualized then divided by median household income. To calculate the median, BGR used the median for the primary city served, as determined in the U.S. Census Bureau’s 2010 American Community Survey, and adjusted it by an annual growth rate of 2.8%. That is the rate used by the S&WB’s rate consultants.

infrastructure and other capital projects. Approximately 40% would be used for O&M expenses. The balance would be used to pay existing debt and rebuild cash reserves.

Infrastructure and Other Capital Projects

The S&WB has developed a 10-year capital program for sewer and water that runs from 2013 to 2022. The program, which totals \$1.42 billion, includes approxi-

TABLE 4: BGR CALCULATIONS OF USES OF ADDITIONAL REVENUE THROUGH 2020, BY SYSTEM

General Use (Revenue Figures in \$ Millions)	Water System		Sewerage System		Combined	
Infrastructure and Other Capital Projects	\$74.1	28%	\$202.5	63%	\$276.6	47%
Operations & Maintenance	\$104.2	40%	\$76.9	24%	\$181.2	31%
Debt Repayment	\$58.5	22%	\$25.1	8%	\$83.7	14%
Cash Reserves	\$26.0	10%	\$15.2	5%	\$41.2	7%
Total Uses	\$262.9	100%	\$319.8	100%	\$582.7	100%

Note: The rate study did not provide a breakdown of expenditures of additional rate revenue by category. BGR made the allocations based on data in the financing plan models developed by the rate consultants. Totals may not add due to rounding.

mately 400 projects. \$814 million of the total cost relates to the water system and \$609 million to the sewer system.

Projects totaling approximately \$1.1 billion are scheduled to commence by 2020.¹⁴ The federal government will contribute \$439 million to fund them: \$328 million for the water system and \$111 million for the sewerage system. Other entities will contribute \$21 million.¹⁵ Ratepayers will pay for the balance of the improvements, which total \$645 million.

The federal funding will pay for enhanced security at the two water treatment plants, the installation of better water distribution pumps, and a portion of improvements to the four water intake stations. It will also pay for some repairs to the water distribution network. The federal government has committed to paying for the repairs needed to return that network's leakage to its pre-Katrina level. The S&WB estimates that this will cost more than \$230 million. The federal government will also fund enhancements to the two sewage treatment plants and repairs to sewer mains and pumping stations.

Ratepayers would cover \$146 million of capital improvements to the waterworks. These include the rehabilitation of the water treatment plants and filters, and repairs to the water intake stations. The locally funded capital improvements include only \$54 million of pipe repairs. On the sewerage side, ratepayers must bear the entire cost of sewer collection system repairs mandated by the federal consent decree.¹⁶ The S&WB is seeking an extension of the deadlines for completing the work. In addition to paying for the consent decree projects, ratepayers would fund other pipe work and upgrades at the pumping stations and sewage treatment plants.

Ratepayers would also support \$54 million of capital projects to improve the S&WB's customer service. The projects include automatic meter reading technology and a new customer billing system.

Finally, the capital program includes \$80 million for a variety of general agency projects. These include improvements to common facilities and yards; new information technology systems for managing the S&WB's finances, work orders and human resources; and a "re-engineering" study of the S&WB's operations. The

program also includes a charge for the annual overhead costs relating to capital projects.

The proposed rate increases, together with the federal funds, would cover all but approximately \$35 million of projects currently scheduled for 2013 to 2020. They would enable the S&WB to revamp the sewer and water plants and facilities and the sewer pipe network. However, the increases would only make a dent in its costliest problem: the leaky water distribution pipe network.

Last year, 60% of the total water pumped escaped through leaks in the distribution system.¹⁷ While FEMA has committed to funding repairs to reduce leakage to its pre-Katrina level, 50% of the water would still escape. The norm for water leakage is approximately 15%.

The proposed investment in water pipe replacement and repair is a fraction of the estimated cost of addressing this problem.¹⁸ A 2006 study prepared for the S&WB placed the cost of overhauling the water distribution network at \$3.2 billion.

O&M Costs

Approximately 31% of the rate increase (\$181 million) would be used for operations and maintenance. Of that amount, \$104 million would go to the water system and \$77 million to the sewer system.

One-third of the revenue for O&M would merely offset the expected erosion or loss of existing revenue sources. The S&WB anticipates that rate increases will lead to a reduction in demand as consumers conserve more. The effect will be felt most strongly in the water system, which relies more heavily than the sewer system on usage-based charges.¹⁹ In addition, FEMA reimbursements for maintenance and repairs are expected to end in 2015, leaving a funding gap in those areas.

Another \$32 million will compensate for inflation. The balance of the new revenue, approximately \$90 million, will fund additional O&M spending. Unfortunately, the S&WB does not have a comprehensive plan for how that money will be spent. It can point only to a wish list of unfunded departmental budget requests and an appendix to the rate study identifying staffing shortages

in key operational areas, such as sewerage pumping, water purification and facility maintenance.²⁰ Ratepayers are entitled to more information.

The increase in O&M spending is predicated on the assumption that the S&WB's expenditures for O&M should be comparable to those of the most efficient water and wastewater utilities serving similar populations. For purposes of comparison, the S&WB's consultants used a metric based on O&M expenditures per million gallons of water treated. Under that measure, the S&WB is currently spending less than the most efficient utilities. In 2011, the S&WB spent \$1,185 per million gallons of water treated, compared to \$1,296 for the most efficient utilities. For sewerage, it spent \$1,245 per million gallons of wastewater treated, compared to the \$1,685 for the most efficient utilities.²¹ The new O&M spending proposed by the S&WB would gradually build expenditures up to these levels.

Asking ratepayers for \$90 million on the basis of a metric without a comprehensive plan to justify and guide the expenditures is problematic in and of itself. Reliance on a metric based on water treated is troubling for another reason: the results are distorted by the extraordinarily high volume of water lost in the S&WB's system. If one looked at O&M costs on the basis of water sold, the result would be quite different. BGR estimates that the O&M cost of water actually sold to customers in 2011 was \$4,584 per million gallons. This is more than twice the cost in the three peer cities, which spent between \$1,700 and \$2,100 per million gallons of water sold.²²

The S&WB maintains the metric will serve as an appropriate long-term target for the agency. As lost water decreases as a result of capital repairs, the spending target will also drop. In the meantime, though, simply relying on the metric without a clear spending plan does not assure ratepayers that the new funds for O&M will be spent efficiently.

Debt Repayment

The S&WB plans to use \$84 million of the revenue from the rate increase to repay existing debt. It would apply \$50 million to the payment of debt service on existing bond issues. It would use another \$20 million

to repay the city for S&WB infrastructure work that the city funded up-front and to satisfy various judgments.

Internally, the water system owes \$13 million to the sewerage and drainage systems for post-Katrina borrowings. The S&WB would repay these intra-company debts with revenue provided by the rate increases.

Replenishing Cash Reserves

Another \$41 million would be used to replenish cash reserves that were depleted after Katrina. The water and sewerage systems ended 2011 with cash on hand equal to 98 days and 59 days of O&M expenses, respectively, well below the recommended level of 180 days.

CONCLUSION

The S&WB's rate proposals come at a critical juncture for the agency. The water and sewer systems have suffered from decades of chronic underfunding and deferred maintenance, damage caused by the Katrina disaster and deteriorating financial conditions. The S&WB must make substantial capital investments in the systems, address rising costs and strengthen their finances.

The rate increases would allow the S&WB to make critical investments in its water and sewage treatment plants and related facilities, and in the sewer network. They would also allow for other capital improvements, including new technology for meter reading and customer service.

Less than half of the revenue from the rate increases would go toward infrastructure and other capital improvements. A significant portion of the additional revenue must be spent to position the S&WB to issue bonds at reasonable rates. Improving the S&WB's debt coverage ratios and building its fund balances are prerequisites to making significant infrastructure investments.

Ratepayers should be aware that the requested rate increases would cover only a portion of the S&WB's capital needs. The new revenue could not be used to address drainage system needs, which the S&WB estimates at \$356 million during the next eight years. And

the revenue would make no more than a dent in the leakage plaguing the water distribution network.

The biggest weakness in the S&WB's requests for rate increases is the lack of a plan for spending the additional O&M revenues. The lack of a well-conceived and articulated plan increases the potential for waste and inefficiency and raises the specter that the agency will merely plod along. Developing a clear spending plan should be a high priority for the S&WB.

Despite this weakness in the plan, BGR supports the proposed rate increases. Coupled with reforms to governance, the increases would lay the necessary foundation for the S&WB to serve the public more effectively.

ENDNOTES

1 The S&WB approved the rate increases on November 14, 2012. Under state law, the City Council and the Board of Liquidation, City Debt, must also approve them.

2 The S&WB's consultants forecast that total usage will decline during the next eight years due to expected conservation by customers in reaction to the higher rates. Raftelis Financial Consultants, Inc., *Financial Plan and Rate Study 2011-2020*, prepared for the Sewerage & Water Board of New Orleans, April 30, 2012, pp. 24-25.

3 For a more detailed history, see BGR, *Making the Waterworks Work: Fixing the Sewerage & Water Board's Governance Problems*, October 2011, pp. 6-8. The report is available on BGR's website, www.bgr.org.

4 The volume of water sold declined by nearly a third, from 20.74 billion gallons in 2004 to 14.08 billion in 2011. S&WB, *Comprehensive Annual Financial Reports* for the years ended December 31, 2004, and 2011.

5 The S&WB borrowed \$77.5 million from the state in the initial years after Hurricane Katrina to make payments on its outstanding debt. The state denied the S&WB's request for a five-year extension, triggering the start of repayments in 2012. S&WB, *Financial Plan Model Update*, January 10, 2012.

6 The water system must generate revenue, net of operating expenses, at least equal to 130% of the system's debt service.

7 See Raftelis Financial Consultants, p. 1.

8 BGR calculations based on information in the alternative scenarios for water and sewer rate increases, presented in S&WB, *Recommended Responses to Mayor's Questions on Water and Sewer Rates*, September 2012.

9 When devising the increases in September, the consultants and the S&WB spread out the known capital projects more evenly over the eight-year period. Since then, the S&WB has revised its capital program for 2013 to 2022, increasing both ratepayer-funded and federally funded projects as described later in this report.

10 BGR used 2011 billing data provided by the S&WB to determine average consumption for residential and small multifamily customers.

11 The sewer rate is higher because Cincinnati has had 10% average annual increases to meet a federal mandate to improve its sewer system.

12 U.S. Bureau of Labor Statistics, Consumer Price Index, All Urban Consumers – U.S. City Average, Water and Sewerage Maintenance.

13 The maximums are set forth in the financial models developed by the S&WB's rate consultants, Raftelis Financial Consultants. There is not a generally accepted definition of affordability. The Safe Drinking Water Act established special assistance in communities where the average residential water bill exceeds 2% of median income. The U.S. Department of Agriculture uses 1.5% in one of its loan programs. On the sewer side, the U.S. Environmental Protection Agency considers sewer charges in excess of 2% to have a high financial impact on residential users. American Water Works Association, p. 195; U.S. Environmental Protection Agency, *Combined Sewer Overflows – Guidance for Financial Capability Assessment and Schedule Development*,

February 1997, p. 19.

14 The current 10-year capital program differs from the version used for the rate study. The current program has an additional \$209 million of federally funded projects, such as the FEMA-funded water line replacement. The current program also includes approximately \$35 million of additional ratepayer-funded projects for both systems.

15 These are payments from developers for infrastructure work.

16 The consent decree, originally signed in 1998, settled a federal lawsuit alleging violations of pollution control regulations in the east bank sewer system. Work to comply with the consent decree was interrupted by Hurricane Katrina. Following the storm, the S&WB's schedule for completing the work was revised.

17 The S&WB pumped 54.46 billion gallons of water in 2011. It sold only 14.08 billion of those gallons. It lost 32.85 billion gallons through leaks, and provided the rest free to city government, public schools and other public purposes. S&WB, FEMA Project Worksheets for various water line replacement projects, and S&WB, *Comprehensive Annual Financial Report for the Year Ended December 31, 2011*, p. IV-7.

18 Black & Veatch, *Report on Current and Future Capital Needs 2006*, prepared for the Sewerage & Water Board of New Orleans, December 2006, p. 34. While the S&WB has not updated this estimate since 2006, it acknowledges that there has not been any significant construction that would alter that number.

19 Raftelis Financial Consultants, p. 24.

20 *Ibid.*, Appendix B.

21 BGR's calculations are based on information in the S&WB's *Comprehensive Annual Financial Report for the Year Ended December 31, 2011*. To calculate the costs for the most efficient utilities, BGR followed the methodology used by the S&WB's rate consultants. It took the 2006 numbers for the 25th percentile of water and wastewater utilities serving populations between 100,000 and 500,000, and increased them by 3% per year. The 2006 numbers appear in American Water Works Association, *Benchmarking Performance Indicators for Water and Wastewater Utilities: 2006 Annual Survey Data and Analysis Report* (Denver: American Water Works Association, 2007).

22 In 2011, the rates of unbilled water were 14% in Charleston and Cincinnati and 19% in Louisville.

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