



New York City Department of Environmental Protection
**BEPA-SRSA Comparative Rate Structure
Analysis**

Final Report

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1. EXECUTIVE SUMMARY

This report documents the methodology and results of the comparative analysis conducted by Stantec Consulting Services and Corona Environmental Consulting as a task under the Sustainable Rate Structure Analysis (SRSA) for the New York City Department of Environmental Protection (DEP) Bureau of Environmental Planning and Analysis (BEPA). The report outlines the selection criteria for the surveyed utilities, the rate structures of each utility, lessons learned, and the highlights of each utility’s rate structure with respect to the goals and objectives of SRSA and provides details and features of each utility’s customer assistance program (CAP).

This Executive Summary focuses on key takeaways of the comparative analysis as it relates to SRSA and the rate structure options DEP is considering. In general, the findings of the comparative analysis support SRSA objectives and many of the cities maintain rate structure options that are consistent with those identified by DEP for evaluation. The five rate structure options for consideration in the SRSA include fixed charges, stormwater / resiliency charges and credits, development investment charges, rate options for low-income customers, and any combination of these rates and charges. During the comparative analysis, special attention was given to these rate structure elements to understand best practices, and to help inform and provide guidance for the evaluation of each option.

1.1 OVERVIEW OF RATE STRUCTURES

To complete the comparative analysis, data was collected from publicly available sources and interviews were conducted with eight of the ten surveyed cities. Table E-1 provides a high-level perspective of how each of the cities included in the survey analysis compares with the rate structure options for consideration within the SRSA study.

Table E-1: Comparative Survey Summary

Utility	Fixed Charge	Stormwater Charge	Development Investment Charge	Affordability Rate Design ⁽¹⁾
New York				
Atlanta	✓			
Baltimore	✓	✓		
DC Water	✓	✓	✓	✓
Ft. Lauderdale	✓	✓	✓	✓
Houston	✓	✓	✓	✓
Ithaca	✓	✓		
Philadelphia	✓	✓		
San Francisco	✓	✓ ⁽²⁾	✓	✓
Seattle	✓	✓	✓	
Tampa	✓	✓	✓	

Notes:

(1) Cities that specifically have designed rates to provide affordability (e.g., “lifeline” rates), outside of CAP program.

(2) San Francisco plans to implement a stormwater charge in FY 2022.

The table demonstrates that fixed charges are maintained by all the surveyed cities, and all but one has implemented a stormwater charge. Development investment charges are collected by six of the ten cities and only three cities have designed water and sewer rate structures that incorporate affordability. The majority of surveyed cities maintain a customer assistance program (CAP).

A summary overview of the key issues and rate structure solutions cited by the cities included in the comparative analysis is provided below. The selection criteria for the surveyed utilities and the full details of how they came to their rate structures are described in the report. Appendix A includes FY 2021 rates for each utility.

- **Ft. Lauderdale, Florida:** Ft. Lauderdale is facing significant capital funding needs due to aging infrastructure, growth in system demands, and environmental factors. The City has experienced large sewer spills and line breaks in recent years, along with flooding due to sea level rise. To address its infrastructure needs, the City has used its annual financial planning process to identify the needs of the system and increase water, sewer, and stormwater rates to provide the necessary additional funding. The City emphasized that long-term financial planning is critical to proactive system management. While the City has and will continue to increase rates and charges, the transparency and understanding within the community has helped to provide support for the adjustments. In addition to rate increases, the City implemented a new stormwater charge in fiscal year 2021. The stormwater charge structure assesses property owners for stormwater service based on the gross area of their parcels, and the number of vehicle trips associated with property classification.
- **Tampa, Florida:** Tampa's water and sewer infrastructure is reaching the end of its useful life. Tampa's water and sewer lines are roughly 100 years old and the water treatment plant is 95 years old. Given the infrastructure's age, Tampa has experienced a tremendous number of water main breaks, many of which have caused major disruptions within the City and therefore, the aging infrastructure issue has been highly visible. To address the issues, the City recently adopted a 20-year rate plan based on the system's need as identified by engineering studies and an understanding of the true capital requirements to fix the City's aging infrastructure. As part of the plan, the City adopted a fixed charge for water and sewer service. The charge will increase annually to transition into an increasing portion of the customer utility bill.
- **DC Water:** DC Water has and will need to continue investing billions of dollars to maintain and improve its water, sewer, and stormwater system. The primary needs of the system include addressing aging infrastructure and complying with a Combined Sewer Overflow (CSO) consent decree. To address these challenges, DC Water has continued to evolve its water, sewer, and stormwater rate structures. This includes the adoption of a water and sewer fixed charge with a customer service component, as well as an infrastructure charge designed to fund 1% of annual system repairs and replacement. It also includes a "lifeline" rate for single-family customers that provides a reduced water rate for the first 400 cubic feet (4 CCF) of water. Based on pushback from larger landowners, DC Water recently reduced the amount of CSO related costs within the stormwater charge (reducing the stormwater charge) and transitioned to recovering these costs in the sewer rate.
- **Baltimore, Maryland:** Baltimore maintains water, sewer, and stormwater systems that are well beyond 100 years old. Over the past several decades and for the foreseeable future, the City will be working to repair, replace, and improve the utility systems. These improvements will require the City to continue to raise rates, which will present affordability

challenges within the service area. The City has taken a stepwise approach to modifying its water, sewer, and stormwater rate structure over time. Following adoption of the stormwater charge in 2015 (which currently generates approximately \$34 million per year for stormwater management), the City adopted fixed charges that include a customer service charge and a dedicated infrastructure charge. These fixed charges replaced a relatively high minimum charge that was causing affordability concerns (low using customers would end up paying more per unit of water compared to larger using customers). The new fixed charge structure was designed to be revenue neutral.

- **San Francisco, California:** San Francisco is the only coastal city in California with a combined sewer system. While the City is currently not under a consent decree, the City expressed concerns that increased flooding events and resulting overflows may force the City to address the combined system's issues more aggressively. These capital investments, plus the fact that the sewer system is 100 years old, will require significant additional funding. The City gradually increased revenues from water and sewer fixed charges to increase revenue stability. In addition, the City has been increasing water and sewer usage rates about 8% annually for the past several years. The City has been working on rolling out a stormwater charge for several years. The charge initially was set to start in 2020, but the City determined it was not ready, as sufficient planning and public outreach had not taken place. Currently, the City plans to implement the charge beginning in FY 2022, which will be around \$5.00 per month for single-family customers, with full phase-in over eight years.
- **Seattle, Washington:** Seattle obtains water from two watersheds that are primarily supplied from snow melt. Climate change and drought conditions will continue to threaten the reliability and viability of the City's primary water supply. The City has addressed its water conservation concerns by implementing an aggressive water conservation inclining block rate structure during summer months. To assist with revenue stability, the City has continued to increase revenue generated within the water fixed charge. The City's sewer system is combined and is funded from a stormwater charge and sewer rates. The City implemented a stormwater charge based on a 2007 stormwater rate study. The City phased in the costs to the stormwater charge over five years.
- **Houston, Texas:** Houston's infrastructure, like many utilities across the US, is reaching the end of its useful life. The City is concerned with the limited availability of funding to address required investments. Given the need for increased funding, the City expressed concerns with its customers' ability to pay for utility service and the overall affordability of the combined utility bill. To address affordability, the City has adopted a unique water and sewer rate structure. The structure targets single-family customers, using a unique pricing structure for the first 4,000 gallons of metered water. For example, if a customer uses a minimum quantity of water (e.g., 1,000 gallons per month), they only pay a fraction more than the fixed monthly charge. The next 1,000 gallons is priced much higher and the subsequent 1,000 gallons much lower.
- **Ithaca, New York:** Ithaca has historically attempted to maintain a utility replacement program that provides a life cycle for infrastructure of 100 years or less. The City maintains 100 miles of water lines and 83 miles of sewer lines, and has not been able to generate adequate funding to maintain these assets. The City believes it is currently operating under a 250-year plus replacement program and does not believe this is sustainable. The City adopted the first stormwater charge in New York State in 2015, with the purpose of providing funding for infrastructure. The charge currently generates around \$1.4 million

annually. Prior to the adoption of the stormwater charge, the City funded stormwater maintenance from the City's General Fund. As a result, properties that were exempt from property taxes did not contribute to the maintenance of the stormwater system. The adoption of the stormwater charge was a means to ensure all properties contribute (including tax-exempt), thereby expanding the pool of payers. The City used this information to help sell the establishment of a stormwater charge (e.g., a more equitable approach to funding the stormwater system). Although it is the first stormwater utility in New York State, the City adopted the stormwater utility and ordinance with no legal challenges.

- **Atlanta, Georgia:** Atlanta historically has faced water supply challenges and has leveraged its rate structure to send a conservation message and generate additional revenues from customers using more water. Unlike many utilities, the inclining block rate structure (and the usage in the tiers) is the same for all customers regardless of customer class. As a result, large water users will pay a much higher effective unit rate for water as compared to a low water user. Additionally, unlike most communities, the City applies an inclining block rate for sewer as well as water. The City has not increased water and sewer rates since 2012. Additionally, the City has proposed to maintain its current rates through FY 2025. The City has been able to hold rates steady due to offsetting revenues generated from the Municipal Sales Tax (MOST), effective fiscal planning, and conservation efforts. The City is currently focused on funding projects that will continue to increase water supply capacity, which are designed to increase the City's water reserve supply to more than 30 days.
- **Philadelphia, Pennsylvania:** Philadelphia's water and sewer fixed charges are scaled based on the size of the meter serving the customer. The City's water rates are structured as a declining block rate. Under this structure, the water rates are progressively reduced within four usage blocks. The declining block rate structure is applied to all customer classes. Sewer rates are charged on a uniform basis with all customers paying the same rates regardless of customer class. The City imposes high strength sewer surcharges for customers discharging wastewater that exceeds typical residential discharges. The City has maintained its current stormwater charge structure since 2010. The stormwater structure includes fixed customer service charges, a charge per gross area, and a charge per impervious area. Single-family residential customers are all charged a flat charge regardless of impervious area, with the flat charge based on the single-family residential property's characteristics. Non-residential properties are charged based on actual gross and impervious area measurements. Prior to 2010, the City charged non-residential properties for stormwater based on the size of their water meter. Stormwater charges are applied to all properties in the City, excluding public roads and rights-of-way.

1.2 COMPARATIVE ANALYSIS OF RATE STRUCTURES KEY FINDINGS

An analysis of the rate structures utilized by the comparison cities, along with an understanding of how each utility arrived at its particular structure, provides valuable information for consideration within the evaluation of the rate structure options for the SRSA study. A summary of the key findings for the rate structure component of the comparative analysis are summarized below.

- **Fixed charges are a very common industry practice.** Most utilities around the US implement some form of a fixed charge for water and sewer service, and all 10 of the surveyed utilities have adopted fixed charges. One of the primary benefits of a fixed charge is that it provides revenue stability. Utilities across the US, including DEP, have experienced continual reductions in metered water use on a per account basis. The erosion of billed volumes results in reduced water and sewer usage rate revenues. At the same time, the

cost of providing water and sewer service has continued to increase, despite reduced customer volumes. A stable revenue stream allows for a utility's revenues to be less susceptible to variations in customer demands. Furthermore, most surveyed utilities have been increasing their fixed charges to grow the portion of fixed revenues within the utility. This finding is consistent with overall trends within the utility industry in the US. Another benefit of a fixed charge is that it can be based on specific fixed costs of the system, providing a link to cost of service. Several of the utilities specifically identify the purpose of the fixed charge, whether it be for customer service or infrastructure replacement. This approach can help to provide transparency within the rate structure.

- **Long-term financial planning is a critical element of many of the utilities' rate-setting processes.** Establishing a long-term plan and, in some cases, multi-year plans of rate increases, allows a utility to communicate its needs to stakeholders and provides transparency. Seven of the surveyed utilities specifically mentioned long-range planning as an important element of their rate-setting process. The ability to establish a common understanding of the long-term needs of the utility can help to eliminate surprises and focus the utility on long-term sustainability. DEP stands to benefit by emulating this approach to help focus messaging on the “why” and major benefits.
- **There are many benefits to implementing a stormwater charge.** Nine of the surveyed cities maintain a stormwater charge. All surveyed cities that have adopted a stormwater charge voiced the benefits of having a dedicated funding source that is correlated to the use of the stormwater system. Six cities surveyed use impervious area as the basis for the stormwater charge and the remaining three use gross area, vehicle trip generation, or a combination of the above. Several cities mentioned that the stormwater charge provided additional incremental revenues, which have been used to address significant stormwater operational and capital needs. Stormwater charges also provide the ability to recognize onsite stormwater management, and provide corresponding credits to encourage green infrastructure investments and practices. However, most of the cities surveyed mentioned that their credit programs have low participation. Another key benefit of having stormwater charges, based on the surveyed cities, is that customers who would otherwise be exempt from these charges due to tax classification pay their fair share. For all the utilities surveyed, public roadways are not assessed a stormwater charge. Ultimately, establishing stormwater charges has been shown to increase both focus and funding for long-term system infrastructure, plus operational and maintenance needs.
- **Several cities have adopted “lifeline” rate structures that have been effective tools for providing affordability.** These structures were cited by several surveyed utilities (DC Water, Houston, San Francisco, and Ft. Lauderdale) as helping to “sell” the rate structure and necessary rate increases to the community and key stakeholders. A lifeline rate structure provides reduced usage rates for a minimum quantity of water for residential customers.
- **One of the primary lessons learned by many of the utilities is that rate structure changes take significant planning.** Several utilities mentioned that their structure was put in place over several years, and that based on customer feedback, their rate structures have needed to evolve over time. Caution was suggested for the adoption of a stormwater charge. Phasing in rate changes / new charges slowly, with focused messaging of the direct benefits of the reforms, including development of green infrastructure and resiliency initiatives, has helped other cities overcome resistance.

1.4 ADDITIONAL CONSIDERATIONS

It is important to note that New York State currently does not have enabling legislation for the adoption of a stormwater charge or development investment charges. The City of Ithaca, NY implemented a stormwater charge in 2015 and has not faced legal challenges since adoption. Seven out of the nine cities with stormwater charge s mentioned that extensive public outreach and stakeholder involvement was key in the adoption of a stormwater charge. Additionally, six of the surveyed utilities have a development investment charge, or similar charge. In many states, specific legislation defines how the charges must be calculated and how the charge proceeds can be used. Careful consideration and research will be necessary should DEP choose to implement a stormwater charge or a development investment charge.

1.5 OVERVIEW OF CUSTOMER ASSISTANCE PROGRAMS

Table E-2 provides a summary of the different types of residential CAPs offered by the utilities included in the comparative analysis. As shown, all surveyed utilities offer a bill discount program, providing an ongoing reduction in monthly bills for qualifying customers. Most utilities also offer some form of temporary assistance for customers experiencing financial hardships and / or flexible payment options for qualifying customers with past due balances. Some utilities provide water conservation programs for low-income customers or incorporate water conservation requirements into existing CAPs.

In addition to traditional residential programs, several utilities offer other innovative forms of assistance and / or discounts or programs for multi-family or other non-residential customers. For example, the City of Baltimore provides budgeting education and resources to low-income CAP participants, with the objective of assisting customers to reach a sustainable financial posture. Two utilities, DC Water and Seattle Public Utilities, offer direct discounts to households in multi-family buildings that are not individually metered. San Francisco Public Utilities Commission (SFPUC) offers discounts to owners of affordable housing developments.

Table E-2: CAP Types by Utility

	Bill Discount	Temporary Assistance	Flexible Terms	Water Efficiency	Other
DEP	✓		✓	✓	Multi-Family Water Assistance Program (MFWAP)
Atlanta	✓	✓	✓	✓	Financial education/resources
Baltimore	✓	✓	✓		
DC Water	✓	✓	✓		Multi-family (MF) emergency assistance
Houston	✓				
Philadelphia	✓	✓	✓	✓	Non-residential bill discounts
San Francisco	✓	✓	✓	✓	Discount for affordable housing providers; non-residential emergency assistance
Seattle	✓	✓	✓		Discount to MF tenants who pay an electric bill
Tampa	✓			✓	

A key finding of the comparative analysis is that CAP structures vary widely across surveyed utilities depending on program objectives, target populations, service area socioeconomic characteristics, and available funding. For bill discount programs, the percent reduction in typical bills also ranges significantly - from 8% in Tampa to 63% in Baltimore.

For most programs, income eligibility thresholds are tied to common metrics or incomes used by other assistance programs (e.g., Low-Income Home Energy Assistance Program, LIHEAP, or affordable housing programs). As such, incomes are typically tied to the Federal Poverty Level (FPL), or area / family median income and vary by household size. Across all surveyed utilities, bill discount programs are available to renters who have a water or sewer account in their name.

While most utilities rely on rate revenues to fund CAPs, some are limited due to state or local legislation. Utilities that rely solely on donations, grants, or other (non-rate) revenues are limited in the level of assistance they can provide.

Table E-3 provides a summary of the various bill discount programs offered by surveyed utilities.

1.6 CUSTOMER ASSISTANCE PROGRAM CONCLUSIONS AND LESSONS LEARNED

Several common themes and lessons learned emerged from the comparative analysis of CAPs.

- **Relatively low enrollment rates are common; utilities must understand the barriers facing low-income customers to increase participation.** Enrollment barriers were most often cited as the primary challenge associated with CAPs by surveyed utilities. Extra requirements, such as in-home water audits or conservation requirements, in-person application processes, and extensive documentation requirements, can discourage participation. Language barriers and lack of internet access (for online enrollment) also present barriers in many communities. To counter this, many utilities provide multiple ways and places to sign up. Some utilities have moved to self-verification processes.
- **Financial assistance must be significant enough for customers to take time to apply.** While many utilities have implemented successful strategies to reduce barriers to participation and / or partner with other assistance programs, customers must take some action to enroll. As such, the benefits of enrollment must outweigh the costs (and perceived costs) of signing up.
- **Identify vulnerable populations and develop programs accordingly.** It is important to understand the characteristics of households within a utility's service area and the affordability challenges they face. For example, in cities with a high cost of living, income eligibility thresholds should account for the higher costs of non-discretionary items. In cities where renters and multi-family households make up a large percentage of low-income customers, some utilities have established or are exploring programs to better target these customers. In San Francisco, where affordable housing is an issue, SFPUC (like DEP) offers discounts to affordable housing agencies. The City of Baltimore conducted an extensive demographic analysis to better understand the characteristics of low-income customers. This resulted in significant changes to its CAPs to better target these customers.
- **Multiple programs can address different needs.** Successful utilities offer multiple programs to meet the needs of different customers. Some programs provide larger discounts for the lowest-income customers through tiered levels of assistance. Others may

have limited funding, so they focus their programs on customers with the highest need, such as elderly and disabled people in poverty. Most utilities interviewed offer flexible payment plans and emergency assistance programs, in addition to bill discount programs and other forms of assistance (in some cases).

- **Engaging in partnerships and best practices for outreach make a meaningful difference.** Utilities with higher enrollment rates often partner with other agencies that administer other assistance programs (e.g., it is common to partner with agencies that administer community LIHEAP programs). These agencies help ease the administrative burden on utilities and are often well established in local communities as places where people can go to get help. They often also have established effective outreach strategies for targeting households in need of assistance.
- **Successful customer assistance programs build and evolve over time.** Longer standing programs tend to have higher enrollment rates because they are more well known in the community. More successful assistance programs have redesigned their structures to better respond to the changing needs of the customers they serve. Tracking enrollment and socioeconomic demographics over time can help guide adaptations. Very few utilities have defined the metrics for tracking program success, although this could go a long way in helping understand whether CAPs are meeting their intended objectives.

Table E-3: Overview of CAPs by Utility

	Bill Discount	Temporary Assistance	Income eligibility	Funding source (Annual funding amount)	Participants (% of eligible)
DEP	Home Water Assistance	\$115 annual discount ⁽¹⁾	<ul style="list-style-type: none"> • ~60% AMI (HEAP eligible) • < \$50,000 (seniors/disabled) 	Rate revenues (\$6 M)	53,077
Atlanta	Care and Conserve	<ul style="list-style-type: none"> • One-time reduction on past due balance, up to \$1,000 • 30% bill reduction (seniors) 	<ul style="list-style-type: none"> • <200% FPL and > \$300 past due • < \$25,000 (seniors) 	Rate revenues, donations, grants (\$500,000)	~450
Baltimore	BH20 Assists BH20 +	<ul style="list-style-type: none"> • 43% reduction on water/sewer • Charge waivers • \$21 monthly credit for BH20 + 	<ul style="list-style-type: none"> • BH20: < 175% FPL • BH20+: < 50% Flu 	Rate Revenues	>9,000 (~33%)
DC Water	CAP 1 & 2	<ul style="list-style-type: none"> • 50 – 75% reduction (first tier of usage) • Charge waivers (CAP 1) 	<ul style="list-style-type: none"> • CAP 1: 60% AMI • CAP 2: 80% MFI 	Rate revenues, donations (\$1.75 M)	4,442 (CAP 1 & 2)
Houston	W.A.T.E.R. Fund	Up to \$200/year (\$100 discount every six months)	<ul style="list-style-type: none"> • 100% FPL 	Donations	N/A
Philadelphia	Tiered Assistance Program	Total bill capped at 2 – 3% of total bill depending on income	<ul style="list-style-type: none"> • Income-based rates, tiered discounts up to 150% FPL • \$32,300 (seniors) 	Rate surcharge revenues (\$9.4 M bill revenue loss)	16,433
San Francisco	Community Assistance Program	<ul style="list-style-type: none"> • 15% reduction water • 35% reduction sewer 	<ul style="list-style-type: none"> • 200% FPL 	City General Funds (program funding extremely limited)	1,500 (6%)
Seattle	Utility Discount Program	<ul style="list-style-type: none"> • 50% reduction • \$460 (MF) - \$954 (SF) flat discount (annual, non-metered households who pay City Light bill) 	<ul style="list-style-type: none"> • 70% State MHI by household size 	Rate revenues (\$1.5 M)	42,968 (~50%)
Tampa		Charge Waiver (\$72/yr)	<ul style="list-style-type: none"> • 30% AMI for stormwater • 50% AMI for water/sewer 	\$15,000	~222

⁽¹⁾Reflects current discount.

2. INTRODUCTION

This report documents the methodology and results of the comparative analysis conducted by Stantec Consulting Services and Corona Environmental Consulting as a task under the Sustainable Rate Structure Analysis (SRSA) for the New York City Department of Environmental Protection (DEP) Bureau of Environmental Planning and Analysis (BEPA). The report outlines the selection criteria for the surveyed utilities, the rate structures of each utility, lessons learned, and the highlights of each utility's rate structure with respect to the goals and objectives of SRSA, and also provides details and features of each utility's customer assistance program (CAP).

2.1 OBJECTIVES AND RATE OPTIONS

The primary objective of SRSA is to conduct a holistic rate structure study that incorporates previous efforts, industry best practices, and lessons learned from other utilities around the US, to provide recommendations and implementation options for DEP to achieve a more predictable, equitable, and sustainable revenue stream. Additional guiding principles include:

- Balance competing needs including State of Good Repair, level of service, climate resiliency, conservation, and green infrastructure,
- Promote equity and customer affordability among customer classes based on the characteristics of service and demographic indices,
- Promote rate and revenue stability within DEP,
- Achieve a reasonable correlation between cost of service and usage, and
- Achieve comparability with DEP's billing system (ease of implementation from a billing and customer service perspective, plus flexible ongoing maintenance).

These objectives were used as the foundation for evaluating the rate structures of the surveyed utilities included in the comparative analysis.

Additionally, DEP has identified five rate structure options that will be evaluated under SRSA. These rate structure options help to provide context for the comparative analysis, as many of the comparison utilities have already implemented, or have taken steps to implement, components of these options. Furthermore, understanding why utilities have implemented these rate structures, plus challenges faced and lessons learned, help to inform SRSA. These rate structure options are:

- **Fixed Charge Option** - Establish a fixed charge that will incorporate two cost components including administrative costs and a readiness-to-service charge.
- **Stormwater / Resiliency Charge and Credit Option** - Implement an impervious-based stormwater / resiliency charge with an accompanying credit program.
- **Development Investment Charge Option** - Implement a charge that can be charged to new developments and would support the cost of sewer upgrades in rezoning areas.
- **Rate Option for Low-Income Customers** - Potential adoption of a "lifeline" rate or "capped" rate for low-income customers.
- **Hybrid Option** - Incorporate elements from some or all the other rate options considered.

2.2 UTILITY SELECTION CRITERIA

Ten utilities were selected to be interviewed and evaluated for the comparative analysis. Utilities were selected from an initial pool of approximately 20 utilities and narrowed down based on discussions with DEP and on meeting specific criteria listed below.

- Large, urban population; high population of low-income customers
- High cost of living
- Coastal with resiliency challenges
- Provides water, sewer, and stormwater service
- Implemented a separate stormwater charge
- Implemented customer assistance affordability programming
- Facing regulatory challenges

Notably, not all cities satisfy all criteria and, in some instances, utilities were selected for specific purposes. For example, the City of Ithaca is the only city in New York state that has adopted a stormwater utility, and thus was selected for study. The selected utilities are shown in Figure 1.

Figure 1: Comparative Analysis Selected Utilities



2.3 DATA COLLECTION

After the utilities were selected, data was collected from available online sources to determine the features of each rate structure, including the rates and charges currently imposed by each utility. The detailed rates are outlined for each utility in Appendix A. In addition, DEP and Stantec conducted interviews with most of the selected utilities to better understand the key challenges facing each utility, how they arrived at their current rate structure, and lessons learned related to rate structure modifications and implementation.

Table 1 provides a high-level comparative summary of DEP and the selected utilities, including whether they have implemented a fixed charge and / or a stormwater charge, and if they have a CAP. The table also indicates city population and median household income (MHI) for each utility.

Table 1: Comparative Survey Summary

Utility	Fixed Charge	Stormwater Charge	CAP Program	City Population (million) ⁽¹⁾	MHI (thousands) ⁽²⁾
New York			✓	8.80	\$69
Atlanta	✓		✓	0.50	\$67
Baltimore	✓	✓	✓	0.61	\$50
DC Water	✓	✓	✓	0.69	\$92
Ft. Lauderdale	✓	✓		0.18	\$68
Houston	✓	✓	✓	2.31	\$52
Ithaca	✓	✓		0.03	\$34
Philadelphia	✓	✓	✓	1.58	\$47
San Francisco	✓	✓ ⁽³⁾	✓	0.87	\$124
Seattle	✓	✓	✓	0.72	\$102
Tampa	✓	✓	✓	0.39	\$58

Notes:

⁽¹⁾Utility service population may vary from city population.

⁽²⁾ACS U.S. Census data, 2019 1-year estimates

⁽³⁾San Francisco plans to implement a stormwater charge in FY 2022.

Table 1 demonstrates that all surveyed utilities have implemented fixed charges, and the majority have adopted a separate stormwater charge. This result is not surprising, as fixed charges are common within the utility industry and stormwater charges are becoming far more common, particularly for large urban communities. These results align with the rate options being considered by DEP.

3. OVERVIEW OF RATE STRUCTURES

A summary of the rate structures implemented by each surveyed utility is provided in the following section to provide a general understanding of methods used by each utility.

3.1 WATER AND SEWER FIXED CHARGES

Water and sewer fixed charges represent the portion of a utility bill that is collected regardless of the amount of metered water used by the customer account. Table 2 provides a summary of the fixed charges for the utilities, including the monthly fixed charge for a typical single-family customer with a 5/8" water meter, the method used to assess the charge for each type of customer, and the proportion of the total bill represented by the fixed charge.

Table 2: Water and Sewer Fixed Charge Comparison for Typical Single-Family Customer

Utility	Water			Sewer		
	Monthly Charge ⁽¹⁾	Method of Assessment	Percentage of Typical Bill	Monthly Charge ⁽¹⁾	Method of Assessment	Percentage of Typical Bill
New York	N/A	N/A	N/A	N/A	N/A	N/A
Atlanta	\$6.56	Flat Charge	16%	\$6.56	Flat Charge	6%
Baltimore	\$13.87 ⁽²⁾	Meter Size	35%	\$11.96 ⁽²⁾	Meter Size	15%
DC Water	\$8.78 ⁽³⁾	Meter Size	21%	\$2.48	Meter Size	3%
Ft. Lauderdale	\$7.01	Meter Size	23%	\$12.12	Meter Size	17%
Houston	\$5.74	Meter Size	16%	\$12.19	Meter Size	28%
Ithaca	\$37.44 ⁽⁴⁾	Meter Size	51%	\$23.20 ⁽⁴⁾	Meter Size	51%
Philadelphia	\$5.21	Meter Size	13%	\$7.01	Meter Size	22%
San Francisco	\$14.19	Meter Size	16%	\$3.60	Flat Charge	3%
Seattle	\$18.45	Meter Size	28%	N/A	N/A	N/A
Tampa	\$3.00	Meter Size	14%	\$3.00	Meter Size	7%

Notes:

- (1) Monthly fixed charge for 5/8" customer
- (2) Includes an account management charge (not scaled by meter size) and a water / sewer infrastructure charge that is scaled.
- (3) Includes customer metering charge and water system replacement charge (designed to recover 1% of R&R program)
- (4) Includes 4 CCF of usage (serves as a minimum bill)

Table 2 demonstrates the magnitude of the range of fixed charges imposed by the surveyed utilities. Most utilities assess and scale the fixed charges by meter size (e.g., the larger the meter, the higher the charge). This approach is consistent with a readiness-to-serve methodology, as it recognizes the potential demand that can be placed on the water and sewer system as a result of a customer having a larger water meter. As noted in the table, the City of Baltimore and DC Water identify separate components of their fixed charges, including administrative charges and infrastructure charges. This approach is becoming more common as utilities transition to collecting a greater portion of their system revenue requirements from fixed charges, and thus want to provide

their customers transparent justification for the fixed charge. This approach is consistent with the fixed charge rate structure option being evaluated as part of SRSA. The full listing of fixed charges by meter size are presented in Appendix A.

3.2 WATER AND SEWER USAGE RATES

Water and sewer usage rates include the charges for utility service based on the amount of metered water used by a utility customer. Usage charges typically represent most of a customer’s utility bill, as they are designed to reflect and recover the cost of providing water and sewer service. Usage rates are often designed to send a pricing signal to customers based on the goals and objectives of the utility. The various pricing signals and objectives are discussed below. A summary of the rate structures used by each utility for each customer class are presented in Tables 3 and 4.

Table 3: Water Usage Rate Structure Comparison

Utility	Single-Family (SF)	Multi-Family (MF)	Non-Residential (NR)	Pricing Signal / Objective
New York	Uniform			N/A
Atlanta	3 Inclining Tiers			Conservation
Baltimore	Uniform			N/A
DC Water	2 Inclining Tiers	Uniform	Uniform	Lifeline tier for SF
Ft. Lauderdale	5 Inclining Tiers	5 Inclining Tiers (scaled based on DUs ⁽¹⁾)	Uniform	Conservation
Houston	7 Inclining Tiers	Uniform	Uniform	Lifeline tier for SF / Conservation
Ithaca	Uniform (above minimum) ⁽²⁾			N/A
Philadelphia	4 Declining Tiers			Reduced costs for NR
San Francisco	2 Inclining Tiers	2 Inclining Tiers (scaled based on DUs)	Uniform	Lifeline tier for SF and MF
Seattle	Uniform (off-peak ⁽³⁾) / 3 inclining tiers (peak)		Uniform (off-peak) / Uniform (peak)	Conservation
Tampa	5 Inclining Tiers	5 Inclining Tiers (scaled based on DUs)	4 Inclining Tiers (based on customer type)	Conservation

Notes:

- ⁽¹⁾ DU – Dwelling Units
- ⁽²⁾ Ithaca includes 2 CCF of water in the fixed charge and charges a unit rate for quantities above the minimum
- ⁽³⁾ Off-Peak and Peak – rates put in place based on time of year (e.g., seasonal rates)

Table 3 demonstrates the wide range of structures used by the surveyed utilities to charge for metered water use. The comparison demonstrates that there are three primary water usage rate structures – uniform rates, inclining tiers, and declining tiers – that are applied differently for each customer class or across the board for all customers. A uniform rate structure simply charges the same water rate per quantity of metered water (e.g., there is no difference in the cost per quantity of water, regardless of how much water is consumed). An inclining rate structure prices water at an increasing rate per quantity with the pricing set in usage tiers (e.g., 0 to 7,000 gallons costs \$3 per

1,000 gallons and more than 7,000 gallons costs \$4 per 1,000 gallons). Finally, a declining rate structure prices water at a lower rate as the quantity of metered water increases.

These structures are typically adopted to send a pricing signal or reflect the cost of service. Specifically, an inclining block rate structure is often imposed to encourage water conservation, as is the case for Atlanta, Ft. Lauderdale, Seattle, and Tampa. For communities that impose conservation rate structures for multi-family customers, it is common to scale the tiers based on the number of dwelling units served by the master-meter. This approach attempts to provide a quantity of water for each dwelling unit so that the tiers are appropriately scaled. Seattle does not scale its tiers based on dwelling units and, therefore, more usage is in higher tiers for multi-family customers.

Some communities such as DC Water, Houston, and San Francisco have adopted inclining block rate structures that are intended to provide a “lifeline” quantity of water that is priced at a lower level to assist with utility bill affordability. Declining block rate structures, as imposed by Philadelphia, are rarer among utilities today. These structures were more common several decades ago within cities with large manufacturing centers, and were designed to provide economic incentives or reduced utility bills for industrial customers using extensive amounts of water. The City of Seattle has adopted a rate structure that is seasonal in nature. This structure imposes a different rate during portions of the year to encourage water conservation. As discussed later in this report, water supply is one of the key challenges facing Seattle, and therefore the City has adopted a strong conservation rate structure. The actual water rates currently in place for each utility are presented in Appendix A.

Table 4: Sewer Usage Rate Structure Comparison

Utility	Single-Family (SF)	Multi-Family (MF)	Non-Residential (NR)	Pricing Signal / Objective
New York	Uniform			N/A
Atlanta	3 Inclining Tiers			Conservation
Baltimore	Uniform			N/A
DC Water	Uniform			N/A
Ft. Lauderdale	2 Inclining Tiers	2 Inclining Tiers (scaled based on DUs ⁽¹⁾)	Uniform	Lifeline tier for SF and MF
Houston	6 Inclining Tiers	Uniform		Lifeline tier for SF / Conservation
Ithaca	Uniform (above minimum)			N/A
Philadelphia	Uniform			N/A
San Francisco	Uniform			N/A
Seattle	Uniform			N/A
Tampa	Uniform			N/A

Notes:

⁽¹⁾ DU – Dwelling Units

Table 4 demonstrates that most comparison utilities impose a uniform rate structure for sewer service. The City of Atlanta and Houston are the only utilities in the survey that describe their sewer rates as being at least partially based on conservation. Ft. Lauderdale has a sewer rate structure

that serves as a “lifeline” tier for single-family and multi-family customers. The actual sewer rates currently in place for each utility are presented in Appendix A.

3.3 STORMWATER CHARGES

Stormwater charges are charges applied to properties to recover the cost of maintaining and managing a utilities’ stormwater system. The charges are often used by communities that have separate and combined sewer / stormwater systems. Unlike water and sewer rates, stormwater charges are typically imposed based on the physical attributes of the property using the stormwater system. These charges can be assessed based on the actual impervious cover on a property, the assumed impervious area, gross area, a flat charge (regardless of impervious cover), or a combination of these components. The method of assessment often varies depending on the type of property. Table 5 presents a summary of the structure of stormwater charges imposed by the surveyed utilities.

Table 5: Stormwater Charge Structure Comparison

Utility	Single-Family (SF)	Multi-Family (MF)	Non-Residential (NR)
New York	NA	NA	Parking lots w/o water service
Atlanta	NA	NA	NA
Baltimore	3 Tiers (based on impervious area)	Per ERU (based on impervious area)	
DC Water	6 Tiers (based on impervious area)	Per ERU (based on impervious area)	
Ft. Lauderdale	Flat Charge	Charge per sq. ft of gross area + Charge based on property class (trip generation factor)	
Houston	Charge per measured by sq. ft. of impervious area		
Ithaca	Flat Charge	Per ERU (based on impervious area)	
Philadelphia	Flat Charge ⁽¹⁾	Impervious Area & Gross Area	
San Francisco ⁽²⁾	N/A	N/A	Parking Lots
Seattle	5 Tiers (based on impervious area)	Tiers based on % impervious and total impervious area	
Tampa	4 Tiers (based on impervious area)	5 Tiers (based on impervious area)	

Notes:

- (1) Flat charge is made up of gross area charge and impervious area charge for a typical single-family home.
- (2) San Francisco plans to roll out stormwater charge for FY22

In general, there are three primary approaches the surveyed cities use to structure their stormwater charges. First, stormwater charges for many customer classes are based on the measure of impervious area (or gross area), multiplied by the charge per square foot or per defined equivalent residential unit (ERU), where an ERU represents the median impervious area on a typical single-family property. Second, some cities assess a flat charge for single-family properties. Finally, some cities use a tiered structure that assesses a stormwater charge based on tiered ranges of impervious area. For example, 1,000 to 2,000 square-foot properties pay a certain monthly stormwater charge, while 2,000 to 3,000 square-foot properties would pay a higher stormwater charge, since they have a larger area.

Based on the comparison of stormwater charge structures shown in Table 5, several consistent trends can be observed. First, most comparison utilities use some form of impervious area as the basis for assessing the stormwater charge. This approach is common among other communities with stormwater utilities throughout the US. Charging stormwater charges based on impervious surface area is considered fair and equitable because it typically best reflects the relationship between the potential use of the system (e.g., impervious area generates stormwater runoff) and the associated charges for service. A second observation is that most of the surveyed utilities use one method for structuring single-family stormwater charges and a separate structure for multi-family and non-residential. There are several reasons why utilities use this bifurcated method. The primary reason is to provide administrative simplicity within the single-family structure. The use of a flat charge or defined tiers simplifies the determination and explanation of the charges to single-family customers, who often represent the largest percentage of customers. This strategy is also used because of the homogenous nature of single-family residential properties. Conversely, non-single-family parcels often are much less homogenous and therefore most communities use the measured full impervious area to determine stormwater charges for these properties. The use of tiers of impervious area for single-family properties helps to provide administrative simplicity, while at the same time charges single-family parcels with greater impervious area a proportionally higher stormwater charge, therefore recognizing the differences in property sizes. Cities such as Ft. Lauderdale, Ithaca, and Philadelphia do not recognize these differences and all single-family properties are assessed the same stormwater charge.

Further details regarding some of the more unique rate structures are discussed later in this report and the full listing of current stormwater charges is presented in Appendix A.

3.4 DEVELOPMENT INVESTMENT CHARGES

Development investment charges are charges assessed to customers establishing a new connection with a water and / or sewer system, or for redevelopment, which requires additional system capacity. The charges are often referred to as system development charges, capacity fees, or impact fees. The charges are intended to recover a portion of the capital cost of providing backbone water and sewer infrastructure and should not be confused with connection fees, which are typically imposed to recover costs of the actual physical connections to the water and / or sewer system. Given the nature of the charges, development investment charges are often collected by utilities that are experiencing or anticipate growth in new connections to the utility system. Additionally, in many states, specific legislation defines how the charges must be calculated and how the charge proceeds can be used. The development investment charges for the surveyed cities are outlined in Table 6.

Table 6: Development Investment Charges

Utility	Water Charge ⁽¹⁾	Sewer Charge ⁽¹⁾	State Enabling Legislation
New York	-	-	
Atlanta	-	-	✓
Baltimore	-	-	✓
DC Water	\$1,135	\$2,809	✓
Ft. Lauderdale	\$1,977	\$1,888	✓
Houston	\$791	\$1,199	✓
Ithaca	-	-	
Philadelphia	-	-	✓
San Francisco	\$1,906	\$5,003	✓
Seattle	\$1,700	-	✓
Tampa	\$1,028	\$1,796	✓

Notes:

⁽¹⁾ Charges are shown for base connection / defined as an equivalent residential unit or 5/8" metered connection

Table 6 demonstrates that just over half of the surveyed cities collect development investment charges. It is also important to note that New York state currently does not have enabling legislation for the adoption of development investment charges. As a result, careful consideration and research will be necessary should DEP determine this type of charge is appropriate for implementation.

4. UTILITY BILL COMPARISONS

This section provides a comparison of the typical utility bills for single-family, multi-family and non-residential customers located within each of the comparison cities. The bills are calculated based on water, sewer, and stormwater rates that are currently in place for FY 2021 for each of the utilities and shown in Appendix A.

Figure 2 demonstrates the total monthly bill for a typical single-family customer with the following characteristics: 7.8 CCF of water and sewer use and 5/8" meter size. The current utility bill for the example single-family customer in New York City is \$80.61, which is below the average of \$125.52 for the surveyed cities. Appendix B contains the detailed bill comparison for single-family.

Figure 2: Single-Family Combined Monthly Bill Comparison

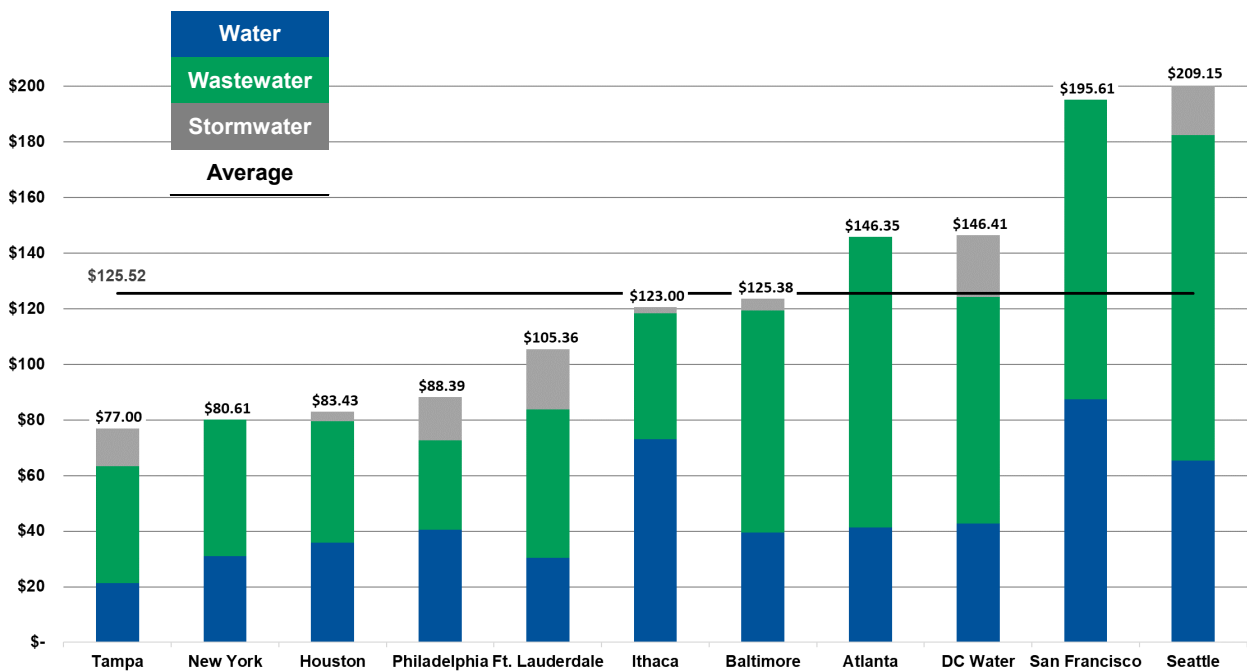


Figure 3 demonstrates the total monthly bill for an example multi-family building with the following characteristics: 20 dwelling units, 5.79 CCF per dwelling unit, 2” meter size, with 4,400 square feet of gross and impervious area. The current monthly utility bill for the example multi-family customer under the standard meter-billed rate structure and for Multi-Family Conservation Program (MCP) customers in New York City are \$1,196 (\$59.80 per dwelling unit) and \$1,754 (\$87.70 per dwelling unit), respectively, and are below the average of \$1,995 (\$99.75 per dwelling unit) for the surveyed cities. Appendix B contains the detailed bill comparison for multi-family.

Figure 3: Multi-Family Combined Monthly Bill Comparison

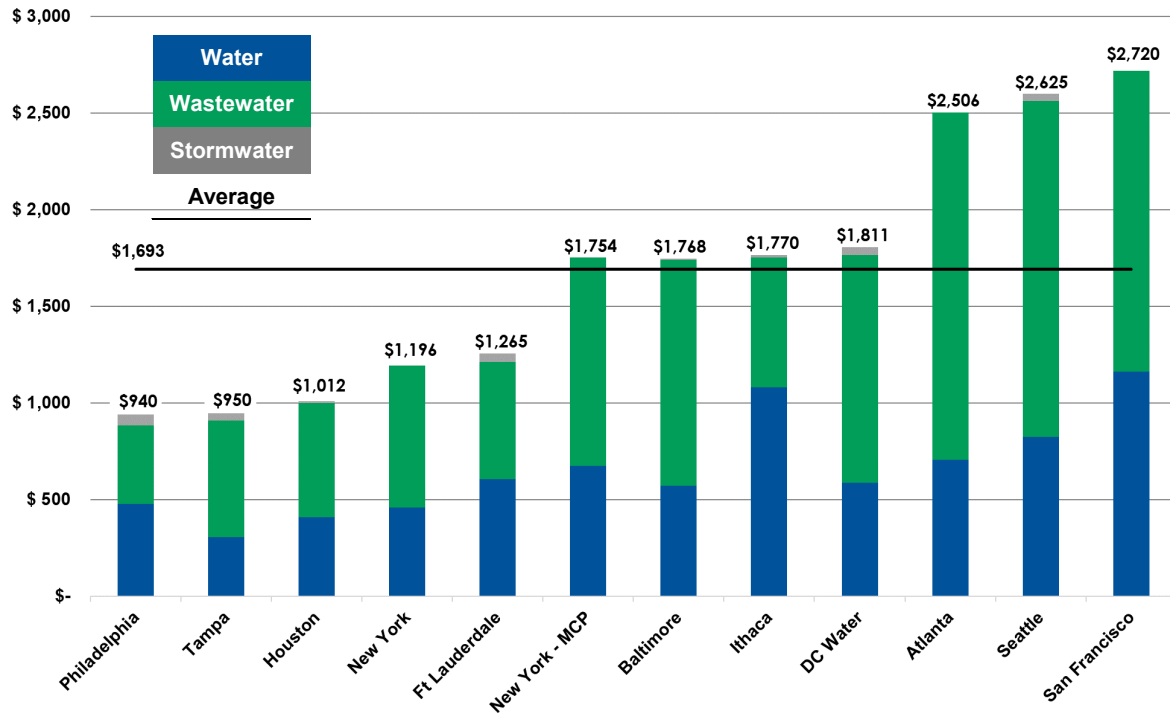
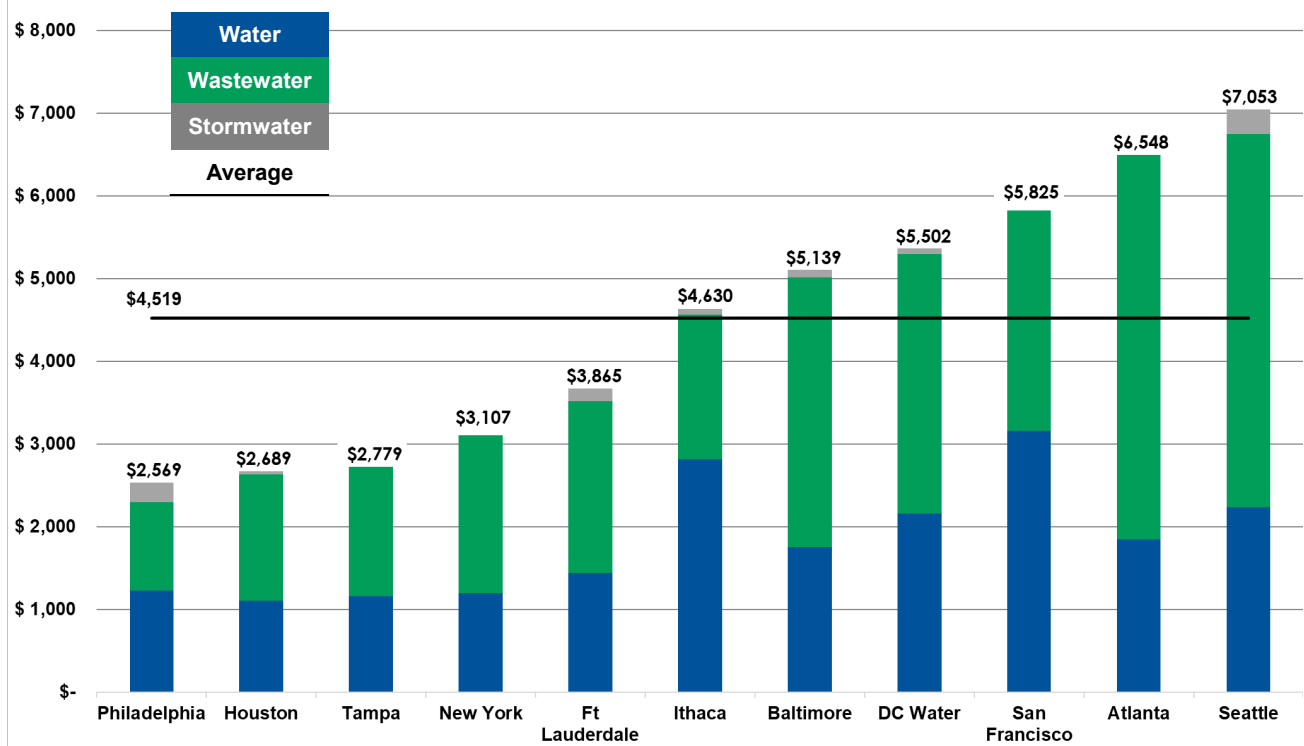


Figure 4 demonstrates the total monthly bill for an example commercial customer with the following characteristics: 300 CCF, 4" meter size, with 22,000 square feet of gross and impervious area. The current utility bill for the example commercial customer in New York City is \$3,107, which is below the average of \$4,523 for the surveyed cities. Appendix B contains the detailed bill comparison for non-residential.

Figure 4: Non-Residential Combined Monthly Bill Comparison



5. COMPARATIVE ANALYSIS INTERVIEWS AND LESSONS LEARNED

One of the key aspects of the comparative analysis was to gain an understanding of how each of the surveyed cities implemented their water, sewer, and stormwater structures. This understanding of the “why” of the rate structure plays a valuable role in providing insight into key considerations for the project team and DEP as the various rate options contemplated for SRSA are evaluated. To facilitate the interviews, Stantec and DEP developed a list of questions designed to gain an understanding of each utility’s rate structure. The questions were provided to each of the cities included in the survey prior to the interview. Video conferences were conducted with six of the utilities to discuss the specific questions. In two instances, rather than conducting an interview, the utility provided written responses to the provided questions. The specific questions posed during the interviews are included in Appendix C. The following section of the report provides an overview of the findings and discussion for each interview, including key issues facing each utility, their rate-setting process, solutions to issues, and lessons learned.

Each section also provides a summary of the bill calculations for a sample single-family residential customer using 780 cubic feet (7.8 CCF) per month, a 5/8” meter and the impervious area associated with one equivalent residential unit (ERU). The calculations use currently published rates as of FY 2021.

CITY OF FORT LAUDERDALE, FLORIDA

The City of Ft. Lauderdale provides water, sewer, and stormwater service to a customer base of approximately 65,000 customers. The City’s utilities are funded from water and sewer fixed charges, usage charges, and stormwater charges. The City does not currently offer a customer assistance program and does not currently plan to develop a program. Utility customers that face affordability challenges are referred to assistance programming outside the utility.

Key Issues Facing Utility:

Based on discussions with the City, the key issues facing the utility include the following:

- Capital funding needs – The City has identified significant capital investment needs in the water, sewer, and stormwater systems. The water system needs a new water treatment plant. Given the age of the sewer system, the City has experienced large sewage spills and line breaks. These challenges are primarily due to aging infrastructure and the increasing demands placed on the systems from environmental factors. The capital needs are well documented within the community and communicated to utility customers.
- Resiliency – Ft. Lauderdale, like many coastal communities, has increasingly seen the impacts of sea level rise within the city. It is not uncommon for the city to experience dry weather flooding on city streets, particularly during King Tides. As a result, the City is undertaking significant capital investments to address flooding issues. These projects primarily include pump stations, force mains, and seawall construction. Closely related, there are sections of the city that currently do not have stormwater infrastructure and therefore the City is investing in these areas to install infrastructure and increase the overall level of service within the city. This approach will help to increase the level of service across the entire service area and provide underserved areas of the city with effective stormwater management.

Process:

The City conducts a formal rate study of the Water and Sewer System every five years and recently conducted its first Stormwater Rate study. The rate studies result in recommended rate structures that include automatic inflationary adjustments. Most recently, Stantec conducted a comprehensive stormwater financial planning and rate structure study to evaluate the needs of the system and to evaluate alternative rate structures. The City's rate planning process involves internal stakeholder groups and has extensive public engagement. This includes outreach and meetings with the public, HOAs and the City's wholesale customers. Additionally, the City maintains a 10-member Budget Advisory Board which makes recommendations on items that impact the city's budget and an Infrastructure Task Force (10-member board that evaluates decisions that will impact the city's infrastructure). These boards are typically involved in updates to rate studies.

As part of the annual rate study process, the City examines the needs of the water, sewer, and stormwater system over a long-term period (10-plus years) and demonstrates the funding requirements to meet these needs. While the City adopts water, sewer, and stormwater increases on a year-by-year basis, the anticipated future increases are widely communicated (internally and externally) and used to provide clarity within the community for likely future increases.

Solutions:

To address its infrastructure needs, the City has used its annual financial planning process to identify the needs of the system and increase water, sewer, and stormwater rates to provide the additional funding. The City has implemented automatic water and sewer rate increases in its rate ordinance of at least 5% overall per year for the past several years. Stormwater charges were increased by 20% over the past five years and most recently increased approximately 53% for fiscal year 2021. The City has spent a significant amount of time communicating the needs of the utility systems (particularly the stormwater system). The City mentioned these communication efforts have been ongoing for more than four years.

The City anticipates the need to continue to increase water, sewer, and stormwater rates over the coming years to continue to generate additional revenues to meet the infrastructure funding requirements. The City's stormwater charge will be used to address many of the challenges facing the system, including maintenance, aging infrastructure, enhancements to underserved areas of the City, and to provide enhanced resiliency.

In addition to rate increases, the City implemented a new stormwater charge for fiscal year 2021. The charge structure was designed to align the benefits received by property owners within the City from stormwater management and the cost of providing these services. The stormwater charge structure assesses property owners for stormwater service based on the gross area of their parcel and the number of trips associated with property classification. This approach recognizes that passable streets benefit property owners and those that generate more trips (e.g., vertical development should be charged according to this benefit). This approach does not account for the actual impervious area on public streets and rights-of-way, but does recognize the cost associated with keeping roadways passable and attributes more of the cost of managing stormwater to properties that will generate more trips and therefore use the roads more frequently. This approach has been used by at least one other city in the US (Redmond, Oregon).

Finally, in fiscal year 2021, the City transitioned the collection of the stormwater charge from the utility bill to the property tax bill and therefore the property appraiser now completes the required first class notice as a part of the TRIM notice and the Revenue Collector completes billing and revenue collections for the City as a part of the property tax bill.

Lessons Learned:

The City emphasized that long-term financial planning is critical to allow for proactive system management. While the City has and will continue to increase rates and charges, the transparency and understanding within the community has helped to provide support for the adjustments. The City has demonstrated that it takes time to generate support within the community for significant changes in utility rates and charges. The City cited its long-term strategy of communicating the needs of the utility systems as keys to the City's success in getting the necessary adjustments and charges in place. The City has spent years communicating the ongoing and looming needs of the system. As a result, as failures within the utilities (pipe breaks, flooding, sewer overflows) have occurred, the City has been able to directly link the communicated needs with what the public is seeing take place within the community.

Additionally, the City's willingness to examine alternative and innovative stormwater rate structures was mentioned as a reason for its success. Since one of the primary reasons for stormwater management is to keep roadways passable, a stormwater rate structure that directly addresses this dynamic was a key selling point with stakeholders and the public.

Given the increase in the stormwater charge, the City has experienced some pushback within the community, specifically from private schools (public schools are exempt) and from affordable housing developments. Currently, the City does not have plans to adjust the charges for these properties but cautioned that the adoption of stormwater charges or increases in these charges will often generate pushback within the community.

Table 7: Sample Combined Utility Bill Calculation

Components	Water	Sewer	Stormwater
Monthly Fixed Charge (5/8" meter)	\$7.01	\$12.12	N/A
Water/Sewer Tier 1 (0-3,000 gal)	$\$2.54 \times 3.0 \text{ kgal} = \7.62	$\$4.45 \times 3.0 \text{ kgal} = \13.35	N/A
Water/Sewer Tier 2 (3,000-5,834 gal ⁽¹⁾)	$\$5.60 \times 2.834 \text{ kgal} = \15.87	$\$9.83 \times 2.834 \text{ kgal} = \27.86	N/A
Total Usage Charge (7.8 CCF)	\$23.49	\$41.20	N/A
Total Single-Family Monthly Charge	\$30.50	\$53.33	\$21.52

⁽¹⁾7.8 CCF converted to gallons

CITY OF TAMPA, FLORIDA

The City of Tampa provides water, sewer, and stormwater service to a customer base of 717,000 residents. The City's utilities are funded from water and sewer fixed charges, usage charges, and stormwater service and improvement assessments.

Key Issues Facing Utility:

Based on discussions with the City, the key issues facing the utility include the following:

- **Aging Infrastructure** – Much of Tampa’s water and sewer infrastructure systems is reaching the end of their useful life. Tampa’s water and sewer lines are in the range of 100 years old and the water treatment plant is 95 years old. Given the age of infrastructure, Tampa has experienced a tremendous number of water main breaks, many of which have caused major disruptions within the city, and therefore the aging infrastructure issue has been highly visible.
- **Proposed Legislation** – The State of Florida is currently evaluating legislation that would eliminate surface water discharges from wastewater treatment plants. Should this legislation be enacted, the City would need to determine a means of beneficially reusing 50 million gallons per day (MGD) of treated wastewater, instead of discharging the effluent into Hillsborough Bay.
- **Succession Planning and Meter Reading** – Significant portions of the City’s utility workforce is nearing retirement age and the City expressed concerns with being able to hire new staff and maintain knowledge transfer. The City currently reads water meters manually and is in the process of implementing advanced metering infrastructure to improve efficiency and customer service.

Process:

The City recently conducted a formal rate study. The study did not involve stakeholders throughout but included extensive post-adoption outreach and demonstrated to the public the need to invest in infrastructure (failing pipes). The timing of the adoption of the City’s long-term financial plan for the water and sewer system was timely, as, at the time of approval, Tampa experienced several significant line breaks that clearly demonstrated the needs.

Solution:

The City has used a phased approach to address its utility infrastructure. Over the past decade, the City has taken significant steps to make capital investments in the stormwater system, including adoption of new stormwater charges. In 2016, the City adopted a \$251 million stormwater improvement plan aimed at addressing street flooding. It is worth noting that the City Council approved the plan when a hurricane (Hermine) was impacting the city. The City maintains two stormwater charges (technically assessments, as they are included on the property tax bill). One of the charges is applied to all properties within the city and used to fund the ongoing operations and maintenance of the stormwater system. The second charge is assessed within specific improvement areas of the City to fund local capital projects that benefit those areas.

To address the needs of the water and sewer system, the City has recently taken a long-term approach to providing system funding. City staff mentioned that historically the City had adjusted rates based on the short-term needs of the utilities. Given the challenges experienced with the City’s aging infrastructure, the City staff decided to present the City Council two options. The first option was simply a status quo 3% across the board increase. The second option was to provide a long-term rate plan based on the needs of the system as identified by engineering studies and an understanding of the true capital requirements to address the City’s aging infrastructure. This second option provided a financial plan of rate adjustments that would be phased in over a 20-year

period. Given the challenges facing the City and the demonstrated needs, the City Council did adopt the 20-year plan.

As part of the plan, the City adopted a fixed charge for water and sewer service. City officials said they believe theirs was the last utility in Florida to not have a fixed charge and that the fixed charge was important to provide revenue stability. The charge will increase annually to transition into an increasing portion of the customer utility bill. The City has effectively marketed the long-term plan by the acronym PIPES (Progressive Infrastructure Planning to Ensure Sustainability) Program.

Finally, the City recently adopted a water capacity fee program. The water capacity fee is intended to recover the cost of providing system capacity to new system connections or properties requiring additional capacity. The City mentioned the water capacity charge is equal to \$0 for affordable housing developments.

Lessons Learned:

The City has done an effective job of phasing in the way it addresses its infrastructure needs. Addressing the stormwater infrastructure and then moving on to water and sewer has proven to be effective. The adoption of a 20-year financial plan is rather rare within the utility industry. The City mentioned that demonstrating the long-term needs, being able to show consequences of failing infrastructure (e.g., massive pipe breaks), and offering a reasonable solution allowed the City to adopt such a long-term plan. Additionally, the City has effectively communicated the plan in a simple and straight-forward manner.

Table 8: Sample Combined Utility Bill Calculation

Components	Water	Sewer	Stormwater
Monthly Fixed Charge (5/8" meter)	\$3.00	\$3.00	N/A
Water Tier 1 (0-5 CCF)	$\$2.21 \times 5 \text{ CCF} = \11.05	-	N/A
Water Tier 2 (5-7.8 CCF)	$\$2.58 \times 2.8 \text{ CCF} = \7.22	-	N/A
Total Usage Charge (7.8 CCF)	\$18.27	$\$5.00 \times 7.8 \text{ CCF} = \39.00	N/A
Total Single-Family Monthly Charge	\$21.27	\$42.00	\$13.73

DC WATER, WASHINGTON DC

DC Water provides water and sewer service (including combined sewer system management and separation) to a customer base of approximately 700,000 residents. DC Water’s utility systems are funded from water and sewer volumetric charges, fixed charges, and a Clean Rivers Impervious Area Charge (CRIAC). It should be noted that the District residents and businesses are also charged a separate stormwater charge (in addition to the CRIAC) that is a pass-through to the District Government for stormwater management.

Key Issues Facing Utility:

Based on discussions with DC Water, the key issues facing the utility include the following:

- Capital investment needs – DC Water has and will need to continue to invest billions of dollars to maintain and improve its water, sewer, and Clean Rivers Impervious Area Charge (CRIAC) system. The primary needs of the system include addressing aging infrastructure and complying with a CSO consent decree.
- Affordability – DC Water services has a relatively small customer base in comparison to the capital investments required to maintain and improve the water, sewer, and Clean Rivers Impervious Area Charge (CRIAC) systems. Given the needs of the system, DC Water anticipates annual increases in rates and charges will be required for the foreseeable future, and there is concern about the impacts to customer affordability.

Process:

DC Water conducts formal Cost of Service studies on rates on a regular basis. The cost-of-service studies had been historically completed every three years. In FY 2020, DC Water conducted a Cost of Service Study (COS) to align the COS with the multi-year rate proposals, therefore, both will be done every two years going forward. The results of the COS support the multi-year rate proposals. Since 2018, DC Water has maintained a DC Water Stakeholder Alliance (DCWSA), comprised of individual residents, representatives of trade and business associations, and community organizations. DCWSA serves as a policy-level working group that provides input from the community. Representatives are selected by DC Water and the City Council, and membership is capped at 21 representatives.

Solutions:

DC Water's current rates and charges have evolved over time based on needs of the system, affordability concerns, feedback from customers, and industry best practices. The process of continual evolution has allowed DC Water to arrive at a logical and cost of service-based set of rates and charges. This stepwise approach has included the adoption of a Clean Rivers Impervious Area Charge, implementation of customer class-based water rates (residential, multi-family, and non-residential), adoption of a lifeline rate for residential customers, and implementation of fixed charges consisting of a customer meter charge and a water system replacement charge. The water system replacement fee (WSRF) is designed to recover 1% of the renewal and replacement program for water service lines and is anticipated to generate approximately \$40M per year in revenue.

DC Water mentioned that the lifeline rate has been effective to assist with affordability issues. The lifeline rate provides up to the first 4 CCF of water for single-family residential customers at a discounted rate. The 4 CCF quantity of water included in the lifeline rate was selected because DC Water believed it provided a level of consumption that meets essential or core needs. It was estimated that approximately 54% of households use 4 CCF or less per month.

Finally, DC Water does impose a water and sewer system availability fee (SAF) for new customers joining the water and / or sewer system, or for redevelopment with increased system demands. The fee is anticipated to generate approximately \$7.7M per year and is used to fund capital projects.

Lessons Learned:

The ability to modify and allow for evolution of a set of rates and charges has proven effective for DC Water. A recent example includes some modifications DC Water made to its Clean Rivers Impervious Area Charge (CRIAC) and sewer rates. The adoption of a Clean Rivers Impervious Area Charge has had a sizeable impact on certain properties within the District, particularly cemeteries and other non-profits. Given these impacts, DC Water has reduced the amount of Combined Sewer Overflow (CSO) related costs within the Clean Rivers Impervious Area Charge (reducing the Clean Rivers Impervious Area Charge) and transitioned to recovering these costs in the sewer rate. This shift is based on an assessment that, on average, 37% of the volume in the new tunnels is from wastewater. Additionally, DC Water continues to expand its Clean Rivers Incentive Discount program, including recently adopted increases from 4 to 20% to the amount of credits available for properties implementing green infrastructure. For water rates, having a lifeline rate has been effective to reduce the burden on single-family residential customers. DC Water also emphasized the importance of having a basis for its fixed charges.

Table 9: Sample Combined Utility Bill Calculation

Components	Water	Sewer	CRIAC + Stormwater
Monthly Fixed Charge (5/8" meter)	\$2.48 customer meter charge ⁽¹⁾ + \$6.30 water system replacement charge = \$8.78	\$2.48 customer meter charge ⁽¹⁾	N/A
Water Tier 1 (0-4 CCF) ⁽³⁾	\$3.855 × 4 CCF = \$15.42	-	N/A
Water Tier 2 (4-7.8 CCF) ⁽³⁾	\$4.865 × 3.8 CCF = \$18.49	-	N/A
Total Usage Charge (7.8 CCF) ⁽³⁾	\$33.91	\$10.135 × 7.8 CCF = \$79.05	N/A
Total Single-Family Monthly Charge	\$42.69	\$81.53	\$22.19⁽²⁾

⁽¹⁾Customer metering charge split between water and sewer

⁽²⁾Includes Clean Rivers Impervious Area Charge (\$19.52) and DC stormwater charge (\$2.67)

⁽³⁾Water or Sewer charges include 50% of PILOT and ROW charge

CITY OF BALTIMORE, MARYLAND

The City of Baltimore provides water, sewer, and stormwater service to a customer base of 1.8 million residents and business customers. The City's utilities are funded from water and sewer fixed charges, usage charges, and stormwater charges.

Key Issues Facing Utility:

Based on discussions with the City, the key issues facing the utility include the following:

- Aging infrastructure – The City of Baltimore maintains water, sewer, and stormwater systems that are well beyond 100 years old. Over the past several decades and for the foreseeable future, the City will be working to repair, replace, and improve the utility systems. The capital requirements to meet the investment needs of the system have required, and will continue to require, ongoing water, sewer, and stormwater rate increases.

- Extreme weather events – The City mentioned the increased frequency of intense weather events will continue to burden the utility systems. The resiliency of the utility systems in the face of these events will be a key focus for the City over the coming decades.
- Affordability – The City is concerned with the affordability of utility service for many of its customers. The current utility bills and the need for additional annual increases present affordability challenges for large portions of the city.

Process:

The City conducts formal rate studies periodically to evaluate the needs of the system and to examine the utility rate structures. In 2008-2009, the City examined establishing a stand-alone stormwater enterprise fund. Based on the study, it was determined the City needed to make changes to its City Charter and the City Council was required to adopt an ordinance to establish the fund). In 2012, the State of Maryland enacted legislation that required the nine largest counties and Baltimore City to adopt a dedicated funding source for stormwater management. The City used this requirement as an opportunity to create a stormwater utility in 2012 (by referendum) and implement a stormwater charge in 2013 (by city code ordinance). As part of the development of the stormwater charge, the City developed a stormwater credit program. The program was informed by a task force that included business developers, industrial customers, environmental organizations, and representatives from residential communities. Following the development of the credit program, the City created a Stormwater Advisory Committee (SWAC) in 2014, who advised the Department of Public Works on stormwater projects, programs and issues, and helped educate stakeholder groups on related matters. SWAC was critical to the City updating the stormwater charge regulations to meet state legislation related to hardship exemptions for properties owned by non-profit organizations. In 2017, SWAC was replaced by a City Council-led Stormwater Oversight Committee. The Stormwater Oversight Committee presented their findings during a City Council hearing in October 2019 and was then dissolved. Under City Code, the stormwater charge regulations must be reviewed annually; any modifications are subject to a 30-day public comment period.

Solutions:

Like DC Water, the City of Baltimore has taken a stepwise approach to modifying its water, sewer, and stormwater rate structure over time. Following the adoption of the stormwater charge (which currently generates approximately \$34 million per year for stormwater management), the City adopted fixed charges that include a consumption charge and a dedicated infrastructure charge as part of its water and wastewater charge structure. These fixed charges replaced a relatively high minimum charge that was causing affordability concerns (low using customer would end up paying more per unit of water compared to larger using customers). The new fixed charge structure was designed to be revenue neutral. The goal was to develop a charge structure with three components (meter charge, infrastructure charge, and a uniform usage rate) that would be beneficial to all customer types (residential, commercial, and industrial).

The rate structure changes included extensive planning. The City mentioned this included wide public outreach consisting of five to six months of City Council hearings and multiple individual councilmember briefings.

Lessons Learned:

The City cautioned that transitions in rate structures require patience (10+ years in this case). Additionally, it is important to include sufficient planning and consider the proper sequencing of

events when making rate structure changes. Baltimore officials mentioned their approach included implementing a new billing system first, then new meters (AMR), then adoption of a new rate structure. The capabilities of the new metering system allowed the City to provide customers with a customer portal that enables examination of very detailed data pertaining to individual customer accounts.

Another lesson learned resulted from the City facing pushback from HOAs on the fixed charges for larger meter sizes, due to huge increases of those charges. Finally, the City also mentioned that during their initial outreach efforts for the stormwater charge and credit task force, religious organizations were not specifically included. As a result, when the stormwater charge was implemented, the City received a significant amount of feedback from religious organizations. To accommodate the concerns, the City subsequently adopted a reduced stormwater charge for properties designated as not-for-profits.

Table 10: Sample Combined Utility Bill Calculation

Components	Water	Sewer	Stormwater
Monthly Fixed Charge (5/8" meter)	\$1.97 account charge ⁽¹⁾ + \$11.90 infrastructure = \$13.87	\$1.97 account charge ⁽¹⁾ + \$9.99 infrastructure = \$11.96	N/A
Total Usage Charge (7.8 CCF per month)	\$3.30 × 7.8 CCF = \$25.74	\$8.70 × 7.8 CCF = \$67.86	N/A
Total Single-Family Monthly Charge	\$39.61	\$79.82	\$5.95

⁽¹⁾ Account management charge split between water and sewer for calculation purposes

CITY OF SAN FRANCISCO, CALIFORNIA

The City of San Francisco provides retail water, sewer, and stormwater service to a customer base of 890,000 million residents and wholesale service to 1.9 million residents. The City’s utilities are currently funded from water and sewer fixed charges and water and sewer usage rates.

Key Issues Facing Utility:

Based on discussions with the City, the key issues facing the utility include the following:

- **Flooding and Combined Sewer Discharges (CSDs)** – The City of San Francisco is the only coastal city in California with a combined sewer system. While the City is currently not under a consent decree, the City expressed concerns that increased flooding events and resulting overflows may put the City in a position where it is required to address the combined system’s needs more aggressively. These capital investments, plus the fact that the sewer system is 100 years old, will require significant additional funding.
- **Water supply and resiliency** – The City’s primary source of water comes from the Hetch Hetchy watershed, which is ultimately supplied primarily from snow melt. Climate change and drought, alongside increased regulatory pressure to reduce water diversions, will continue to threaten the reliability and viability of the City’s primary water supply.
- **Affordability** – The City expressed concerns with the affordability of utility service as the City addresses the significant capital needs of the system. While the City serves a population

with relatively high household incomes, the City anticipates that the utility bill will rise to approximately \$300 per month for a typical customer in the next 15 years.

Process:

The City is required to hire an outside rate consultant to conduct periodic rate studies. The City's last rate study was completed in 2018. The rate study provided a specific rate plan for a four-year period (2019 – 2022). The City maintains a rate fairness board and typically engages in extensive public engagement efforts for all rate adjustments. The City mentioned there generally is limited public interest.

Solutions:

The City is currently at the very early stages of its next water/sewer rates study. Some of the plans regarding rates described below may change based on public input, advice from its rates consultant, or changing circumstances. The City has gradually increased revenues from water and sewer fixed charges to increase revenue stability. For at least the past eight years, fixed charges for water have been set to generate 15% of water revenue. The City arrived at the 15% based on a cost of service analysis which allocated customer service, meters, meter reading, meter repair and public fire protection to the water fixed charge. The sewer fixed charge was implemented in 2018 and has been gradually increased to generate 5% of sewer revenues. Over time, the City anticipates targeting a higher-level of revenue generated from the sewer fixed charge, but it is limited to 5% now to minimize customer impacts. In addition, the City has been increasing water and sewer usage rates at a level of around 8% per year for the past several years. This has allowed the City to fund an additional \$4.8B of water infrastructure and over \$3B in sewer infrastructure. To support the rate increases, the City has completed many focus groups and provided widespread outreach to explain why significant investments are required within the utilities. The messaging has focused on the long-term environmental impacts if the projects are not completed, the idea of investing now to prevent more expensive emergency repairs later.

The City currently applies a stormwater charge for parking lots without water utility service, modeled after DEP's similar program. The City has been working on rolling out a stormwater charge for several years. The charge was initially to be rolled out in 2020, but the City determined it was not ready to do so, as sufficient planning and public outreach had not taken place. Currently, the City plans to implement the charge beginning in FY 2022, which will be phased in over an eight-year period. As the City generates revenues from the stormwater charge, it anticipates gradually reducing the amount of revenue generated from sewer rates. The goal after an eight-year phase-in will be to generate from the stormwater charge approximately 18% of the revenue currently generated by sewer rates. At the current target for cost recovery, the charge would be \$20 per month for single-family customers but the charge will be phased in and adjusted upward due to rate increases in the intervening years.

The State of California currently does not have enabling legislation for the adoption of a stormwater charge. In California, separate stormwater charges have traditionally been considered taxes, and therefore require a two-thirds majority vote from all property owners for approval. Because the City has a combined system, current sewer rates cover the cost of the entire combined sewer system, and are considered wastewater charges. This means the proposed stormwater charge is subject to approval under the procedures of Proposition 218, which makes for much easier adoption. Under Proposition 218, the charge can be passed unless more than 50% of property owners protest the charge.

Lessons Learned:

The City maintains that significant and proper planning is required for stormwater charge implementation. The City mentioned it is spending approximately \$3 million to complete an overhaul of their billing system and to create the stormwater billing database. Additionally, the City believes that phasing of stormwater charges can be a tool used to limit pushback within the community.

The City mentioned that one of the common complaints it receives is in relation to its sewer rate structure for non-residential customers. Currently, non-residential sewer bills are based on the type of business and assumed loadings. Non-residential customers often complain that this approach is not very transparent and does not necessarily correlate with the loadings and demands placed on the City's sewer system.

Table 11: Sample Combined Utility Bill Calculation

Component	Water	Sewer	Stormwater
Monthly Fixed Charge (5/8" meter)	\$14.19	\$3.60	N/A
Water Tier 1 (0-4 CCF)	$\$8.68 \times 4.0 \text{ CCF} = \34.72	-	N/A
Water Tier 2 (4+ CCF)	$\$10.15 \times 3.8 \text{ CCF} = \38.57	-	N/A
Total Usage Charge (7.8 CCF per month)	\$73.29	$\$14.89 \times 7.8 \text{ CCF} \times 0.9^{(1)} = \104.53	N/A
Total Single-Family Monthly Charge	\$87.48	\$108.13	N/A

⁽¹⁾ Estimated Single-Family return flow factor.

CITY OF SEATTLE, WASHINGTON

The City of Seattle provides water, sewer, and stormwater services to a customer base of 760,000 residents inside the city and water wholesale services to an additional 800,000 residents outside the city. The City funds its utility from water fixed charges, water and sewer usage charges, and stormwater charges.

Key Issues Facing Utility:

Based on discussions with the City, the key issues facing the utility include the following:

- Water supply – Water is primarily supplied from two watersheds that are primarily supplied from snow melt. Climate change and drought conditions will continue to threaten the reliability and viability of the City's primary water supply.
- Revenue stability – The City maintains a water conservation rate structure to encourage the wise use of water resources given the City's limited water supply. While effective for encouraging water conservation, the structure results in revenue volatility (e.g., an unusually wet summer can lead to significant reductions in revenues). The Water Fund also has a Revenue Stabilization Fund to help offset this volatility.

- CSO-related expenses – Continued investment in the City’s CSO program is necessary to comply with Federal clean water regulations and the City’s consent decree agreement with the EPA. This investment is a primary driver behind sewer and stormwater rate increases.
- Treatment Costs – King County is the sewer treatment provider for the City and is facing major rate increases over the coming decades as a result of infrastructure and regulatory requirements. Treatment accounts for 40% of the Drainage and Wastewater Fund expenses, so increases will be a major driver in coming years.

Process:

The City conducts periodic rate studies built on the Strategic Business Plan as a framework. Two rate studies have been submitted to Council in 2021, updating water rates through 2023 and sewer and stormwater rates through 2024.

Solutions:

The City has addressed its water conservation concerns by implementing an inclining block rate structure during summer months. To assist with revenue stability, the City has continued to increase the portion of revenue generated from the water fixed charge. While the City does not specifically include a surcharge or charge for climate resiliency, the existing rates and charges provide funding for resiliency projects included in the City’s capital improvement plan.

The City maintains a stormwater charge structure that links the amount of revenue collected from customers to the costs incurred to mitigate that customers’ contribution to stormwater runoffs. The stormwater charge structure assigns parcels into thirteen tiers, with higher charges assigned to parcels with greater amounts of impervious area. Surface area permeability is the proxy through which runoff contributions are estimated. The City’s stormwater charge does not apply to parcels containing public roadways, wetlands, and small undeveloped islands. All other parcels including all local, State, and Federal properties are assessed a charge.

Lessons Learned:

A water conservation structure has been an effective tool for reducing peak demands within the City, but needs to be balanced with fixed charges to provide revenue stability.

Table 12: Sample Combined Utility Bill Calculation

Component	Water (Summer)	Sewer	Stormwater
Monthly Fixed Charge (5/8" meter)	\$18.45	N/A	N/A
Water Tier 1 (0-5 CCF)	$\$5.55 \times 5 \text{ CCF} = \27.75	-	N/A
Water Tier 2 (5-7.8 CCF)	$\$6.86 \times 2.8 \text{ CCF} = \19.21	-	N/A
Total Usage Charge (7.8 CCF per month)	\$46.96	$\$16.67 \times 7.8 \text{ CCF} \times 0.9^{(1)} = \117.02	N/A
Total Single-Family Monthly Charge	\$65.41	\$117.02	\$26.72

⁽¹⁾ Estimated Single-Family return flow factor.

CITY OF HOUSTON, TEXAS

The City of Houston provides water, wastewater, and stormwater service to a customer base of 2.3 million residents. The City funds its water and wastewater utilities with revenues from water and wastewater fixed charges and water and wastewater user charges. The City funds its stormwater system from drainage charges.

Key Issues Facing the Water and Wastewater Utility:

Based on discussions with the City, the key issues facing the utility include the following:

- Aging infrastructure – The City of Houston mentioned that, like many utilities across the US, the City’s infrastructure is reaching the end of its useful life. The City is concerned with the limited availability of funding to address the investments that will be required.
- Funding for system maintenance – The City also is concerned with the ability to generate sufficient funds to meet the rising costs of maintaining the utility systems.
- Affordability – Given the need for increased funding, the City expressed concerns with its customers’ ability to pay for utility service and the overall affordability of the combined utility bill.

Process:

The City conducts a formal rate study periodically (every five to ten years) for the water and wastewater utilities. The most recent rate study was conducted in 2020. The City outlined that they strive to design rates that recover the costs of service, follow applicable laws, provide the necessary debt service coverage based on the City’s bond covenants, maintain adequate cash reserves, and equitably allocate costs among customers classes.

Solutions:

The City has a unique water and wastewater rate structure that was designed to enhance affordability. The structure is designed to target single-family customers using a unique pricing structure for the first 3,000 gallons of metered water. Under the structure, if a customer uses a

minimum quantity of water (e.g., 1,000 gallons per month), they only pay a fraction more than the fixed monthly charge. The next 1,000 gallons is priced much higher and the subsequent 1,000 gallons much lower.

To address its drainage needs, the City also adopted a drainage charge and created a drainage utility in 2011 by ordinance. In November of the previous year, voters had approved a charter amendment that shifted its financing for drainage and street infrastructure projects from debt financing to pay-as-you-go financing. One of the four identified sources of such financing in the charter amendment was to be a drainage charge. (The charter amendment was reapproved by voters in 2018 after the Texas Supreme Court held, in 2015, that the ballot language initially approving it was inadequate. The drainage charge, however, was unaffected by that ruling). The ordinance was also challenged on other grounds in a separate lawsuit, has been upheld by Texas' intermediate appellate courts, but the decision to review it further is still pending in the Texas Supreme Court. It is important to note that the State of Texas provides a statutory process that home-rule cities may use to establish a drainage utility and charge a drainage charge; however, Houston, like other home-rule cities, has tailored its requirements slightly to meet local needs under statutory provisions specifically recognizing its ability to do so. This statute also provides specific exemptions from the charge for properties including agricultural, independent school districts, county-owned properties, and churches that had been constructed at the time of adoption of the charge. New construction is not exempt from the drainage charge.

Lessons Learned:

As it relates to the water and wastewater rates, the City credits the adoption of a “lifeline” tier as an effective way to address affordability for single-family customers.

Table 13: Sample Combined Utility Bill Calculation

Component	Water	Sewer	Stormwater
Monthly Fixed Charge (5/8" meter)	\$5.74	\$12.19	N/A
Water/Sewer Tier 1 (0-1,000 gal)	\$0.15	\$0.20	N/A
Water/Sewer Tier 2 (1,000-2,000 gal)	\$7.54	\$0.40	N/A
Water/Sewer Tier 3 (2,000-3,000 gal)	\$0.45	\$0.33	N/A
Water/Sewer Tier 4 (3,000-4,000 gal)	\$12.37	\$16.95	N/A
Water Tier 5 (4,000-5,834 gal ⁽¹⁾) / Sewer Tier 5 (4,000-5,000 gal ⁽¹⁾)	\$5.21 × 1.834 kgal = \$9.56	\$6.12	N/A
Sewer Tier 6 (5,000-5,834 gal ⁽¹⁾)	-	\$8.91 × 0.834 kgal = \$7.43	N/A
Total Usage Charge (7.8 CCF per month)	\$30.07	\$31.43	N/A
Total Single-Family Monthly Charge	\$35.81	\$43.62	\$4.00

(1) 7.8 CCF converted to gallons

CITY OF ITHACA, NEW YORK

The City of Ithaca provides water, sewer, and stormwater service to a customer base of 30,000 residents. The City funds its utilities with revenues from water and sewer fixed charges, water and sewer usage charges, and stormwater charges.

Key Issues Facing Utility:

Based on discussions with the City, the key issues facing the utility include the following:

- Lack of funds for aging infrastructure – The City of Ithaca has historically attempted to maintain a utility replacement program that provides a life cycle for infrastructure of 100 years or less. The City maintains 100 miles of water lines and 83 miles of sewer lines, and has not been able to generate adequate funding to maintain these assets. The City believes they are currently operating under a 250-year plus replacement program and does not believe this is sustainable.
- Operational cost increases and limited revenues – The City also mentioned the increasing costs of operating and maintaining the utilities is placing pressure on the City's ability to provide adequate funding for capital investments.

Process:

The City conducts a formal rate study periodically.

Solution:

The City adopted the first stormwater charge in New York state in 2015 with the purpose of providing funding for infrastructure. The charge was initially set at \$48 per ERU per year and has been increased to \$57 per ERU in the past year. The stormwater charge is a flat charge for single-family properties. Non-residential properties are charged based on the measure of impervious surface as a multiple of ERUs, with each ERU being 2,300 square feet rounded to the nearest quarter of an ERU. The charge currently generates around \$1.4 million annually. Prior to the adoption of the stormwater charge, the City funded stormwater maintenance from the City's General Fund. As a result, properties that were exempt from property taxes did not contribute to the maintenance of the stormwater system. The adoption of the stormwater charge was a means to ensure all properties contribute (including tax-exempt), thereby expanding the pool of payers. The City used this information to help sell the establishment of a stormwater charge (e.g., a more equitable approach to funding the stormwater system).

Although it is the first stormwater utility in New York state, the City adopted the stormwater utility and ordinance with no legal challenges. The City mentioned that there was no stakeholder group for the development of the stormwater charge. The City used an internal working group and then the stormwater charge went through the typical public hearing approvals process. The stormwater charge is applied to all properties in the City with no exemptions. The City offers a credit program but the discounts are generally too low to encourage property owners to take action to install green infrastructure.

Lessons Learned:

Shifting from relying on property taxes to a stormwater charge vastly improves the ability to fund capital infrastructure and having dedicated funding leads to more effective planning. A primary

selling point of the stormwater charge was that having a stormwater charge expands the pool of those that contribute. The City cautioned that to be effective, a credit program must offer meaningful credits and that regardless of the communication efforts, a new charge will generate significant feedback from rate payers.

Table 14: Sample Combined Utility Bill Calculation

Component	Water	Sewer	Stormwater
Monthly Fixed Charge (5/8" meter)	\$37.44	\$23.20	N/A
Total Water & Sewer Usage Charge (3.80 CCF per month above 4 CCF minimum)	$\$9.36 \times 3.8 \text{ CCF} =$ \$35.57	$\$5.8 \times 3.8 \text{ CCF} =$ \$22.04	N/A
Total Single-Family Monthly Charge	\$73.01	\$45.24	\$4.75

CITY OF ATLANTA, GEORGIA

The City of Atlanta was not available to respond to the SRSA interview questions. The following section provides a summary of the City’s rate structure based on publicly available information.

The City of Atlanta is the only utility included in the comparative analysis that does not currently maintain a stormwater charge. The City’s stormwater management program is funded from taxes (property and sales).

The City’s water and sewer rate structure consists of a fixed base charge that is the same for all customers (e.g., it does not scale by meter size) and an inclining block structure for both water and sewer. The City’s usage rates are focused on encouraging water conservation. The City has historically faced water supply issues and has leveraged a rate structure to send a conservation message and to generate additional revenues from customers using more water. Unlike many utilities, the including block rate structure (and the usage in the tiers) is the same for all customers regardless of customer class. As a result, large water users will pay a much higher effective unit rate for water as compared to a low water user. Additionally, unlike most communities, the City applies an inclining block rate for sewer as well as water.

The City has not increased water and sewer rates since 2012. Additionally, the City has proposed to maintain the level of its current rates through FY 2025. The City has been able to hold rates steady due to offsetting revenues generated from the Municipal Sales Tax (MOST), effective fiscal planning, and conservation efforts. The City is currently focused on funding projects that will continue to increase water supply capacity and increase the City’s water reserve supply to more than 30 days.

Table 15: Sample Combined Utility Bill Calculation

Component	Water	Sewer	Stormwater
Monthly Fixed Charge (5/8" meter)	\$6.56	\$6.56	N/A
Water/Sewer Tier 1 (0-3 CCF)	$\$2.58 \times 3 \text{ CCF} =$ \$7.74	$\$9.74 \times 3 \text{ CCF} =$ \$29.22	N/A
Water/Sewer Tier 2 (3-6 CCF)	$\$5.34 \times 3 \text{ CCF} =$ \$16.02	$\$13.64 \times 3 \text{ CCF} =$ \$40.92	N/A
Water/Sewer Tier 3 (6-7.8 CCF)	$\$6.16 \times 1.8 \text{ CCF} =$ \$11.09	$\$15.69 \times 1.8 \text{ CCF} =$ \$28.24	N/A
Total Usage Charge (7.8 CCF per month)	\$34.85	\$98.38	N/A
Total Single-Family Monthly Charge	\$41.41	\$104.94	N/A

CITY OF PHILADELPHIA, PENNSYLVANIA

The City of Philadelphia was not available to respond to the SRSA interview questions. The following section provides a summary of the City’s rate structure based on publicly available information.

The City of Philadelphia funds its water, sewer, and stormwater utilities with revenues from water and sewer charges, usage rates, and a stormwater charge. The City’s water, sewer and stormwater rates are set by the Philadelphia Water, Sewer and Storm Water Rate Board. Adoption of new rates takes place when the City’s Water Department files a rate case with the Rate Board. The rate case typically includes proposed rates for a two-year period. In February 2021, the Water Department filed its rate case for rate adjustments effective September 1, 2021 and September 1, 2022. Currently, the proposed rates are still pending approval as the Rate Board evaluates the rate case.

The City’s water and sewer fixed charges are scaled based on the size of the meter serving the customer. The fixed charges do not include any water usage and are assessed monthly. The City does not provide a breakout of what the fixed charges fund within the utility system. The City’s water rates are structured as a declining block rate. Under this structure the water rates are progressively reduced within four usage blocks. As discussed in the Executive Summary, this type of structure was more common in the past but is rarer today. The declining block rate structures are applied to all customer classes. Sewer rates are charged on a uniform basis with all customers paying the same rates regardless of customer class. The City imposes high strength sewer surcharges for customer discharging wastewater that exceeds typical residential discharges.

The City has maintained its current stormwater charge structure since 2010. The stormwater structure includes fixed customer service charges, a charge per gross area, and a charge per impervious area. Single-family residential customers are all charged a flat charge regardless of impervious area, with the flat charge based on the single-family residential property characteristics. Non-residential properties are charged based on actual gross and impervious area measurements. Prior to 2010, the City charged non-residential properties for stormwater based on the size of their

water meter. Stormwater charges are applied to all properties in the City, excluding public roads and rights-of-way.

The City maintains a robust incentive and credit program. For residential properties, the City offers a “Rain Check” program which provides rebates to homeowners that purchase rain barrels and subsidized pricing on residential landscape improvements that manage stormwater. Non-residential properties are eligible to receive stormwater charge credits (ongoing reductions) for qualifying stormwater improvements. The City maintains a credits portal that allows a property owner to estimate the potential credits they would receive based on various types of impervious area management.

Table 16: Sample Combined Utility Bill Calculation

Component	Water	Sewer	Stormwater
Monthly Fixed Charge (5/8” meter)	\$5.21	\$7.01	N/A
Total Usage Charge (0.78 MCF per month)	$\$45.37 \times 0.78 \text{ MCF}$ = \$35.39	$\$32.03 \times 0.78 \text{ MCF}$ = \$24.98	N/A
Total Single-Family Monthly Charge	\$40.60	\$31.99	\$15.80

6. COMPARATIVE ANALYSIS RATE STRUCTURE LESSONS LEARNED AND CONCLUSIONS

The data collected from online sources and the interviews provided insights into how many of the surveyed cities have addressed the specific goals and objectives that DEP has identified for SRSA. Table 15 presents the methods by which the surveyed cities have addressed many of DEP’s rate structure objectives (shaded in green) and lessons learned (shaded in red) that will help to inform SRSA moving forward. It is important to note that each of these elements are highlighted in the prior section, within the description for each utility and can be referenced for more detail.

Table 17 – Comparative Analysis Lessons Learned

KEY
Good Example
Lessons Learned

Utility	Balance Competing Needs	Equity & Affordability	Rate & Revenue Stability	Cost of Service & Usage	Implementation & Understanding
Atlanta				Conservation	
Baltimore			Fixed charges with cost-of-service basis		Effective stepwise planning
DC Water	Continual evolution of structure	Adoption of lifeline rate			Initial stormwater charge high non-residential impact
Ft. Lauderdale	Long-term financial planning			Innovative stormwater charge design	
Houston		Lifeline rate			Stormwater charge communication challenges
Ithaca		Minimum usage in fixed charge		Adoption of stormwater charge	
Philadelphia				Robust stormwater charge program / credits	
San Francisco	Rate increases based on system needs				Initial stormwater charge was not ready
Seattle				Allocation between sewer and stormwater	
Tampa	Phased utility planning		20-year adoption of fixed charge plan		Simple messaging

In general, the findings of the comparative analysis support SRSA objectives and many of the cities maintain rate structure options (e.g., fixed charges, stormwater charges, “lifeline” rates) that are

consistent with those identified by DEP for evaluation. The following findings and conclusions from the comparative analysis will be used to inform the evaluation of the rate structure options.

- **Fixed charges are a very common industry practice.** Most utilities around the US implement some form of a fixed charge for water and sewer service, and all the surveyed utilities have adopted fixed charges. One of the primary benefits of a fixed charge is that it provides revenue stability. Utilities across the US, including DEP, have experienced continual reductions in metered water use on a per account basis. The erosion of billed volumes results in reduced water and sewer usage rate revenues. At the same time, the cost of providing water and sewer service has continued to increase, despite the reduced customer volumes. A stable revenue stream allows for a utility's revenues to be less susceptible to variations in customer demands. Furthermore, most surveyed utilities and other utilities throughout the US have been increasing their fixed charges to transition to having fixed charge revenues constitute a larger portion of overall revenue. Another benefit of a fixed charge is that it can be based on specific fixed costs of the system, providing a link to cost of service (e.g., customer service, infrastructure costs).
- **Long-term financial planning is a critical element of many of the utilities' rate-setting processes.** Establishing a long-term plan and, in some cases, multi-year plans of rate increases, allows a utility to communicate its needs to stakeholders and provides transparency. Most surveyed utilities have focused on long-range planning and some have established key objectives / pricing signals. DEP stands to benefit by emulating this approach to help focus messaging on the "why" and major benefits.
- **There are many benefits to implementing a stormwater charge.** All surveyed cities that have adopted a stormwater charge voiced the benefits of having a dedicated funding source that is correlated to the use of the stormwater system. Several cities mentioned that the stormwater charge provided additional incremental revenues that have been used to address significant stormwater operational and capital needs. Stormwater charges also provide the ability to recognize onsite stormwater management and provide corresponding credits to encourage green infrastructure investments and practices, although most of the cities surveyed mentioned their credit programs have low participation. Ultimately, establishing stormwater charges has been shown to increase both focus and funding for long-term system infrastructure, plus operational and maintenance needs.
- **Several cities have adopted "lifeline" rate structures that have been effective tools for providing affordability.** These structures were cited by several surveyed utilities as helping to "sell" the rate structure and necessary rate increases to the community and key stakeholders.
- **One of the primary lessons learned by many of the utilities is that rate structure changes take significant planning.** Several utilities mentioned that their structure was put in place over several years, and that based on customer feedback, their rate structures have needed to evolve over time. Caution was suggested for the adoption of a stormwater charge. Phasing in rate changes / new charges slowly, with focused messaging of the direct benefits of the reforms, including development of green infrastructure and resiliency initiatives, has helped other cities overcome resistance.

7. COMPARATIVE ANALYSIS OF CUSTOMER ASSISTANCE PROGRAMS (CAPS)

As part of the comparative analysis, the project team also reviewed available information on each utility's CAPs and interviewed utility representatives. Interviews focused on the following topics:

- Basic program structure
- Criteria for customer eligibility
- Enrollment strategies, administrative partnerships, and programmatic outreach
- Program participation
- Funding sources (available vs. spent) and program costs
- Challenges, successes, and lessons learned

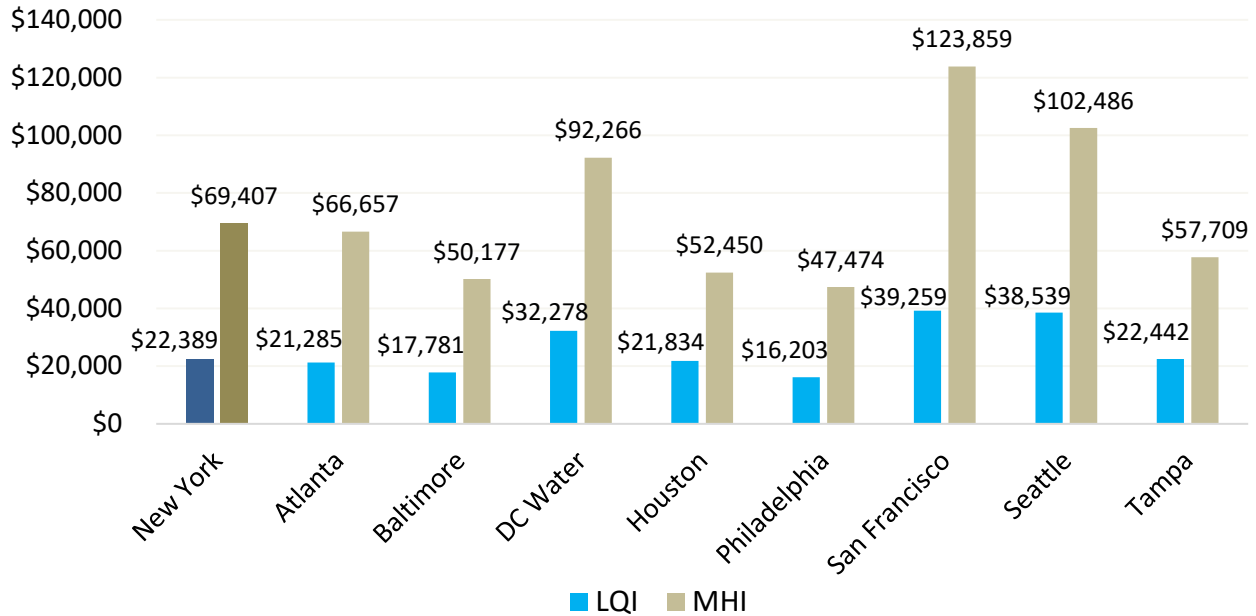
The following sections present the results of the comparative analysis, including a brief overview of relevant socioeconomic characteristics and CAPs, a description of each utility's programs, and a summary of key findings across utilities. Ithaca and Ft. Lauderdale are not included in the analysis because these utilities do not currently offer CAPs. The project team was not able to interview Philadelphia for the comparative analysis; we have included relevant information on the utility's programs from online sources.

It is relevant to note that most surveyed utilities have not established an official definition of affordability. However, there are national metrics that can serve as a guidepost to assessing whether a customer assistance program makes water bills affordable for low-income households. Additionally, most surveyed utilities have not established performance metrics by which they might measure the success of their assistance programs.

7.1 UTILITY SUMMARY

Figure 5 compares the 20th percentile income and the median household income for all cities included in the comparative analysis. As shown, New York City's MHI is higher than most of the other cities, with the exceptions of DC, San Francisco, and Seattle, while the lowest quintile income is closer to average. Relative to most cities (except San Francisco), the cost of living in New York City is extremely high, exacerbating challenges for lower-income households. New York City's high percentage of renters (68% compared to 51% average for the other cities) and multi-family households (84% compared to 49% average for the other cities) will continue to be key considerations in the evaluation and design of its CAPs.

Figure 5: Lowest Quintile Income (LQI) and Median Household Income (MHI)



Source: ACS U.S. Census data, 2019 1-year estimates

7.2 CUSTOMER ASSISTANCE PROGRAMS

Most utilities interviewed offer a suite of CAPs to address the needs of different customers. CAPs may be generally classified as follows:

- **Bill Discount** programs provide an ongoing reduction on a customer’s bill. They can include fixed discounts, charge waivers, and / or percentage reductions on fixed and / or volumetric charges. Income-based rates, such as those implemented by Philadelphia, fall within this category. Customers must typically reapply for these programs at set intervals (e.g., every year or two years).
- **Flexible Terms** help customers afford services and pay bills through arrearage forgiveness, bill timing adjustment, payment plans, or levelized billing.
- **Temporary Assistance** programs provide short-term or one-time-basis assistance to prevent disconnection of service or to restore service after disconnection for households facing an unexpected hardship (e.g., death, job loss, divorce, domestic violence). This assistance is also known as emergency assistance, crisis assistance, grant, or one-time reduction.
- **Water Efficiency** programs also offer a way for households to reduce their bills. Utilities subsidize water efficiency measures by providing financial assistance for leak repairs and / or offering rebates for water-conserving fixtures, toilets, and / or appliances. These programs are often targeted or only available to low-income households as part of a utility’s overall CAPs

Table 18 provides a summary of the different types of CAPs offered by the utilities included in the comparative analysis. Subsequent sections summarize each utility’s CAPs, describing the program structure, eligibility and participation, program funding, lessons learned, and other details. Also presented is the “typical” bill and percent reduction provided by the utility’s bill discount program. based on an average monthly use of 7.8 CCF (approximately 5,835 gallons).

Table 18: Overview of CAPs by Utility

	Bill Discount	Temporary Assistance	Flexible Terms	Water Efficiency	Other
New York	✓		✓	✓	Multi-Family Water Assistance Program (MFWAP)
Atlanta	✓	✓	✓	✓	Financial education/resources
Baltimore	✓	✓	✓		
DC Water	✓	✓	✓		Multi-family (MF) emergency assistance
Houston	✓				
Philadelphia	✓	✓	✓	✓	Non-residential bill discounts
San Francisco	✓	✓	✓	✓	Discount for affordable housing providers; non-residential emergency assistance
Seattle	✓	✓	✓		Discount to MF tenants who pay an electric bill
Tampa	✓			✓	

A key finding of the comparative analysis is that CAP structures vary widely across surveyed utilities depending on program objectives, target populations, city demographics, and available funding. The level of discounts provided also ranges significantly. Figure 6 shows the average bill for single-family customers in each surveyed utility based on current rates and an average monthly use of 7.8 CCF (approximately 5,835 gallons), as well as the average bill for single-family customers enrolled in the utility’s bill discount program (assuming the same level of usage). The percent reduction in typical bills ranges from 8% in Tampa to 63% in Baltimore. While this comparison is informative, the impact of a bill discount program depends on several factors, including the utility’s rate structure, typical usage for low-income customers, and socioeconomic characteristics of the service (including the cost of other non-water related essential services, among others). Table X shows the average bill with and without CAP discounts as a percentage of the 20th percentile income in each city included in the comparative analysis.

The following sections summarize each utility’s CAPs, providing additional detail on program structure, eligibility, participation, funding, key challenges, and lessons learned.

Figure 6: Average Annual Single-Family Household Water, Sewer, and Stormwater Bill with and without Bill Discount Program

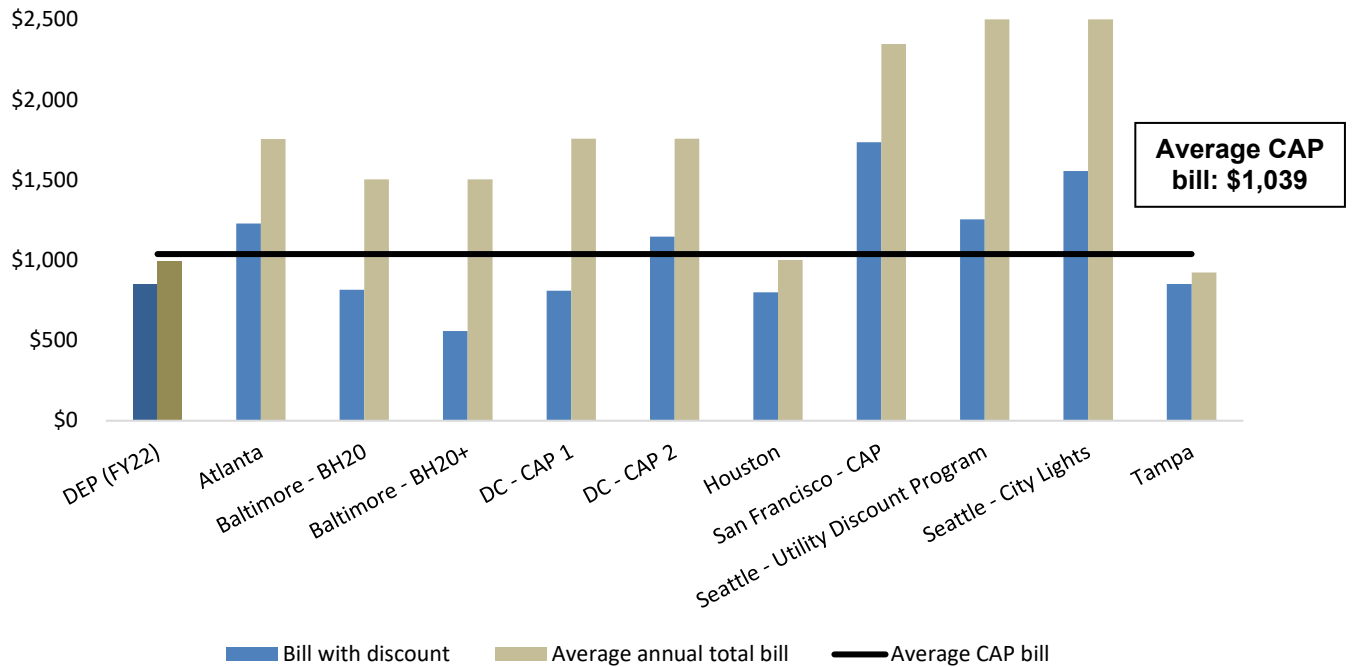


Table 19: Single-family bills as a percentage of 20th percentile income, with and without CAP discount

	Typical bill ⁽¹⁾	“Typical” CAP bill	Typical bill as % of 20 th percentile income	Typical CAP bill as % of 20 th percentile income
DEP	\$967	\$852	4.3%	3.8%
Atlanta (senior discount)	\$1,756	\$1,229	8.3%	5.8%
Baltimore (BH20/BH20+)	\$1,505	\$817/ \$560	8.5%	4.6% 3.1%
DC Water (CAP 1)	\$1,757	\$810	5.4%	2.5%
Houston	\$1,001	\$801	4.6%	3.7%
Philadelphia	\$1,061	Varies based on income	6.6%	2 to 3% ⁽²⁾
San Francisco	\$2,347	\$1,736	6.0%	4.4%
Seattle (UDP)	\$2,510	\$1,255	6.5%	3.3%
Tampa	\$924	\$852	4.2%	3.8%

Notes:

⁽¹⁾ Usage of 7.8 CCF/month; actual usage for low-income households vary by city.

⁽²⁾ Philadelphia offers income-based rates, where customer bills are capped at between 2 to 3% of an individual customer’s income

Table 20: Funding Sources and Participation

	Program funding	Total annual assistance provided	Participation (% eligible)
NYCDEP HWAP	Rate revenues	\$6 million	53,077
NYCDEP MWAP	Rate revenues	\$10 million	40,000
NYCDEP Leak Forgiveness	Rate revenues	\$4 million	
Atlanta	Donations, grants & city general funds	\$500,000	
Baltimore	Rate revenues		>9,000 (combined, ~33%)
DC Water (CAP 1)	Rate revenues	\$1.58 million	3,818
DC Water (CAP 2)	Rate revenues	\$173,800	624
DC Water (CAP 3)	District contributions	\$25,800	
DC Water MF	Rate revenues	\$7 million available	
DC Water SPLASH	Donations	\$80,000	~300 customers
Houston	Donations		
Philadelphia	Surcharge rates	\$9.4 million	15,403
San Francisco	City general funds	Extremely limited	1,500 (~6%)
Seattle	Rate revenues	\$1.5 million	42,968 (~50%)
Tampa	Rate revenues (fixed charge waivers only)	\$15,000	~222

CITY OF ATLANTA, GEORGIA

Program Description and Eligibility:

They City of Atlanta Department of Watershed Management (DWM) currently offers two programs to assist low-income customers:

- The *Care and Conserve Program* (CCP) offers one-time payments on outstanding bill balances (up to \$1,000) and assistance with plumbing repairs, home water audits, and installation of water efficiency devices for low- to moderate-income households (up to \$3,000). Through CCP, DWM staff work with customers to develop customized payment plans (this can be a requirement for participation, although it is determined on a case-by-case basis). The program also offers financial education and budgeting resources to participants, with the objective of assisting customers in reaching a sustainable financial posture.

Program enrollment: ~ 450 customers annually in CCP (as of 2018)
Typical monthly bill discount: Varies; \$527 (30%) for seniors

CCP is available to single-family residential customers earning less than 200% of the federal poverty level (FPL) plus \$500. To qualify for the program, customers must also have an account in their name, live at the address, and be greater than \$300 in arrears. Renters with accounts in their name are eligible to receive assistance directly but must provide the contact information for their landlord.

- The *Senior Discount* Program offers a 30% bill discount for senior households (aged 65 and older), with an account in their name and with an annual income of less than \$25,000.

Program Funding:

On average, DWM provides \$500,000 in annual assistance to program participants. While program expenditures vary from year to year, approximately 40% is allocated to bill payment assistance and 60% to plumbing repairs and water conservation.

DWM did not initially use rate revenues to fund its CAPs due to concerns that this would violate the Gratuities Clause of the Georgia Constitution. As reported by Isaac-Berhazer et al. (2018), from 1995 until about 2010, the City's CAPs were funded by private donations, foundation grants, Community Development Block Grants, and eventually revenues from cellular tower leasing. In 2011, royalties from the service line warranty program and customer donations through the bill payment process, were added as funding sources. However, starting in about 2011, strong business arguments were incorporated into city codes for why financing CCP from rate revenues does not violate the Gratuities Clause. In 2013, the city code was amended to allow "water and sewer revenues of the City's drinking water and wastewater system" to fund the CCP and the City began funding the program with rate revenues.¹ Additional funding sources include voluntary customer contributions, corporate donations, and grants from the City of Atlanta (per City's website).

Administration and Partnerships:

The programs are administered in-house, and customers enroll directly through DWM. DWM issues grants to a non-profit organization partner to provide conservation appliance installation and plumbing repairs through CCP.

Lessons Learned and Other Key Findings:

The program requires customers to provide detailed financial information that many low-income families do not have readily available. DWM staff are available to assist with the application process. DWM reports that the most powerful aspect of the CCP is that it allows program staff to provide personal attention to customers facing financial hardships. Because the program is focused and personalized, staff can make informed judgements about each customer's situation. This has enabled the program to have meaningful impact on the lives and economic well-being of program participants.

¹ Isaac-Berhazer et al 2018

Program Description and Eligibility:

The Baltimore Department of Public Works (DPW) offers the following assistance programs:

Program enrollment: ~ 9,000 in *BH2O* programs (~30% of eligible)
Typical monthly bill discount: \$40
- \$62 for *BH2O Assist* and *BH2O Plus* (46% - 63% reduction).

- *BH2O Assist* and *BH2O Plus* provide a 43% discount on water and sewer usage charges and waive several fixed charge portions of a customer’s bill. The *BH2O Plus* Program includes an additional flat reduction of \$21 per month for very low-income customers.

Customers who qualify for *BH2O Assist* earn less than 175% of the Federal Poverty Level (FPL), with the minimum income starting at 175% of FPL for a 3-person household. The *BH2O Plus* program is available to households at less than 50% of the FPL. Participants must be the resident owner of the property or a tenant in an individually metered unit with their name on the water / sewer bill. In 2020, the *BH2O* program was extended to those who became unemployed due to the economic shut down caused by the COVID-19 pandemic.

- The *Emergency Crisis Assistance* program is aimed at preventing shut-offs due to unexpected medical needs.
- Customers can also set up a *Flexible Payment Plan* ranging from 6 to 12 months with up to 50% down, or work with the City to create a unique plan for their own financial situation.

Program Funding:

Baltimore funds their programs entirely through rate revenues.

Administration and Partnerships:

The Baltimore City Community Action Partnership (under the Mayor’s Office of Children and Family Success) serves as a one-stop shop for low-income assistance programs. Community Action Partnership has several locations throughout the City where customers can enroll, providing greater access / opportunities to enroll.

Community Action Partnership administers and enrolls customers in the *BH2O* Programs. Eligibility requirements for *BH2O* are tied to the Low-Income Home Energy Assistance (LIHEAP) eligibility requirements (also administered by Community Action Partnership), facilitating greater enrollment rates. CAP sends a flat file of eligible households to DPW so that DPW does not have to track or store income data.

Lessons Learned and Other Key Findings:

Baltimore specifically tailored their program to match the demographics of the City. Initially, they adopted the same model as Atlanta, but realized it did not meet the needs of their customers or match the socioeconomic characteristics of the service area. The City has done significant outreach at community meetings and other venues; they have engaged with advocacy groups and tax lawyers that assist low-income households to conduct outreach. Language and citizenship barriers remain a challenge for customer engagement, although the City communicates that citizenship is not a requirement for eligibility.

Program Description and Eligibility:

DC Water offers a variety of Customer Assistance Programs to target the needs of different customers. Table 20 provides an overview of the various programs, including its primary Customer Assistance Programs, *CAP 1* and *CAP 2*. In FY 2020, DC Water established DC Water Cares, Residential Assistance Program (RAP) a \$3.0 million program to continue the Emergency Residential Relief Program (ERRP) in FY 2021 to provide onetime assistance of up to \$2,000 to residential customers to alleviate the impact of COVID-19. A unique program recently established by the utility is the DC Water Cares *Multi-Family Assistance Program (MAP)*. This is a \$7.0 million program to provide one-time assistance to multi-family buildings where occupants have been negatively impacted by COVID-19. Payment plans are established and adhered to; assistance amounts are determined and provided per affordable unit. This program offers emergency assistance to non-bill paying customers in multi-family units. Landlords must be involved, and the assistance will be provided as a credit on the tenant’s monthly rent. As envisioned, building owners / landlords must sign up for the program and pass 90% of the discount to tenants. The program is being piloted this year and was established to offset economic impacts of the COVID-19 pandemic.

Program enrollment (CAP 1 & 2):
4,442 in FY 2020
Typical monthly bill discount (FY 2021):
\$51 - \$79 for CAP 1 & 2;
(46% - 65% reduction).

Program Funding:

Most of DC Water’s Customer Assistance Programs are funded through rate revenues, except the *SPLASH* program, which is funded through customers and employee donations, and *CAP 3*, which is funded with contributions from the DC Department of Energy and Environment (DOEE), the agency responsible for stormwater management within DC.

In FY 2020, *CAP 1* provided \$1.6 million in assistance, while *CAP 2* and *CAP 3* provided \$174,000 and \$26,000, respectively. As of June 30, 2021, CAP1, CAP2, and CAP3 provided customer assistance of \$1.6 million, \$171,000 and \$25,000 respectively. It is projected that for FY 2021 the total assistance for CAP1, CAP2, and CAP3 will be approximately \$2.2 million, \$240,000, and \$29,000 respectively. Funding for DC Water’s emergency relief programs – including the residential and multifamily programs – amount to \$3 million and \$7 million, respectively. As of June 30, 2021, the credits provided to the customers for the DC Cares Residential Assistance Program (RAP) and DC Cares Multi-family Assistance Program (MAP) amount to \$1.1 million and \$2.3 million respectively. It is projected that for FY 2021 the total assistance for DC Cares Residential Assistance Program (RAP) and DC Cares Multi-family Assistance Program (MAP) will be approximately \$1.6 million and \$2.8 million respectively.

Table 20: DC Water Customer Assistance Programs

Program	Description	Eligibility
CAP 1	Discount on first 3,000 gallons of usage 75% off CRIAC Fixed charge waivers	<60% area median income
CAP 2	Discount first 2,250 gallons of usage 50% off CRIAC	<80% median family income
CAP 3	75% off CRIAC	<100% median family income
Emergency Residential Relief Program (ERRP) – District Funded	Up to \$2,000 on past due balance. Established during COVID-19 pandemic.	One-time emergency benefit
SPLASH	Emergency shutoff prevention	One-time emergency benefit
DC Water Cares Residential Assistance Program (RAP)	Up to \$2,000 on past due balance. Established to continue ERRP in FY 2021 for customers impacted by COVID-19 pandemic.	One-time emergency benefit
DC Water Cares Multi-Family Assistance Program (MAP)	Up to \$2,000 in bill assistance per unit 90% must be passed on to tenants. Established during COVID-19 pandemic	Tenants in MF buildings Must be eligible for other assistance programs and/or approved based on income
Extended Payment Plan	Flexible payment options	N/A
Relief for Non-profit Organizations	Up to 90% CRIAC bill discount if green stormwater infrastructure project is constructed on property	Must demonstrate that CRIAC is 1% or more of annual net revenue

*For CAP programs, participant must have an account in their name or provide a lease agreement indicating proof of responsibility for water charges.

Administration and Partnerships:

DOEE, which administers LIHEAP in the District, verifies, and enrolls participants. DOEE provides DC Water with accounts enrolled in the program since DC Water does not receive information on income or housing composition. DC Water has conducted extensive outreach through bill inserts, customer call and letter campaign, paid advertising, media, community outreach and partnerships, and grass roots communications among other methods.

Lessons Learned and Other Key Findings:

DC Water is aiming to reach 10,000 customers through its CAP programming, with the aim of reducing total bills for DC Water customers to below 4% of their income. Enrollment rates are relatively low compared to some utilities; however, DC Water continues to adapt their programs to best meet customer’s needs.

CITY OF HOUSTON, TEXAS

Program Description and Eligibility:

- The City set up a single public trust known as the Houston Foundation. It was founded in 1915 to provide financial assistance to new and existing programs that serve the humanitarian needs of the citizens of Houston. The W.A.T.E.R. fund (water aid to elderly residents) is administered and managed by the City. The fund was established in 1919 and continues to remain current with amendments to the ordinance as needed. Participants can receive up to \$100 credit every six months on their water bills (applicants must reapply every six months). Customers may also apply to receive an exemption from fees for late payments.
- Eligible customers are residents who are older than 60, or persons with a disability and who have a household income below 100% FPL (after subtracting non-reimbursable medical bills). When surplus funds are available, limited assistance may be offered to other low-income households as well.

Program enrollment: Unknown

Typical monthly discount:
\$17/month for eligible period
(10% reduction)

Program Funding:

The fund is supported entirely by donations from customers, charities, and businesses. Although funding allows customers to avoid water shutoffs, the City is challenged to provide sufficient funding to satisfy the demand for the program.

Administration and Partnerships:

The program is administered in-house by the City of Houston. The City partners with public and private agencies, centers, and religious organizations that provide other types of assistance to conduct outreach and raise funding for the program. Customer service representatives educate customers about the program to customers who pay their bills over the phone.

CITY OF PHILADELPHIA, PENNSYLVANIA

Program Description and Eligibility:

Philadelphia Water Department (PWD) offers several CAPs to address different affordability challenges. Based on PWD's website and other online resources, these programs include:

- *Tiered Assistance Program (TAP)* is a unique program for low-income customers where monthly bill payment amounts are determined based on a percentage of an individual customer's monthly income (Table 21). As of 2020, TAP allows participating customers to earn forgiveness of their pre-TAP debt after 24 full TAP payments.

Program enrollment (TAP): 16,433
(as of Dec. 2020)

Typical monthly discount: \$50 for
household at 100% FPL
(50% reduction)

Table 21: TAP Monthly Bill Caps for PWD TAP

Income	Monthly Bills as a Percentage of Income
<50% FPL	2.0%
50% to 100% FPL	2.5%
101% to 150% FPL	3.0%

- *Senior Discount Program* offers a discount of 25% for seniors more than 65 years old with incomes less than \$32,300 per year.
- *Special Hardship Program* allows customers with incomes greater than 150% FPL who have experienced an unexpected challenge or hardship to apply for a temporary discount equal to 4% of household income on their water bill.
- *Extended Payment Plans* are available for customers behind on their bills. The City allows total bills plus arrears payments to be capped at 4% of household income. This program is available to households between 151% to 250% of the FPL (below this, customers are eligible for *TAP*).
- *Conservation Assistance* helps households below 150% FPL install water conservation devices and provides in-home education. The City also provides zero-interest loans to homeowners in danger of shutoff due to leaks.
- In addition to its residential programs, the City also offers several programs to non-residential customers, including payment arrangements and bill discounts.

Program Funding:

The City’s CAPs are funded through a bill surcharge. For 2021, the estimated TAP billing loss will amount to \$9.4 million (B&V 2021). The total arrearages for customers enrolled in TAP in 2020 was more than \$10.6 million.

In addition, the City created 2,955 residential payment agreements in 2020 covering \$4.9 M in principal debt, \$600,000 in penalties, and \$110,000 in other fees.

Anecdotally, the project team has heard that the *TAP* program took significant resources and staff time to set up.

Administration and Partnerships:

The City administers its programs internally (through the Water Revenue Board), but a single application for many of its programs is available online. The City’s water department has trained partner agencies to help customers fill out applications, including Community Legal Services, Energy Coordinating Agency, Utility Emergency Services Fund and Neighborhood Energy Centers.

Over the course of 2020, the City enhanced its recertification process for TAP. Customers can now recertify their eligibility for TAP online (previously a paper application was required). The City added functionality to the online application to allow customers to upload documentation in response to requests for additional information from the City during the application or recertification process.

Lessons Learned and Other Key Findings:

For *TAP*, the most meaningful discounts occur for the lowest income customers. For customers at less than 50% of the FPL, the minimum bill is \$12/month (\$144/year). At the higher end of the income range (i.e., 150% FPL), the discount may be minimal, depending on total water use.

The City continues to track and report on program successes. Annual reporting metrics include:

- Number of applicants enrolled in TAP by income level and gross amount of arrears calculated for these enrollees
- Number of applications that were not enrolled and reasons for TAP ineligibility
- Number of payment agreements and breakdown of agreements by type, term and amount covered
- Number of TAP customers who defaulted during the applicable period

Finally, the City legislation that mandated TAP established a goal to eliminate water debt for participating low-income households. It mandates that “low-income customers...shall be required to make *no additional payment* in respect of” the debt they owed before enrolling in the new program. It further requires that “earned forgiveness of arrearages *shall be available*” to participants in the program (CLS 2019). However, the City only recently introduced the earned debt forgiveness seemingly (at least in part) in response to public pressure.

CITY OF SAN FRANCISCO, CALIFORNIA

Program Description and Eligibility:

- *Community Assistance Program* provides customers earning less than 200% FPL with a 15% discount on their water bill and 35% discount on their sewer bill. To be eligible for the program the customer must be in an individually metered unit and have an account in their name.
- *Temporary Emergency Assistance* - in response to the COVID-19 pandemic, San Francisco extended this CAP discount as a form of temporary emergency assistance to residential customers experiencing hardships. The City also enacted a six-month 20% discount for small business relief.
- *Water-Wise* offers free in-home evaluations of appliances and fixtures.
- San Francisco also has existing contracts with non-profit affordable housing that provides a discount to certain multi-family customers.

Program enrollment:
1,500 (~6% of eligible)
Typical monthly discount: \$51
(26% reduction)

Program Funding:

This program is funded through the City’s general fund due to state restrictions on the use of rate revenues for affordability programs. As such, program funding is severely limited, so much so that the utility does not advertise its current programs widely. The City is considering a ballot vote to establish a permanent revenue stream for the program.

Administration and Partnerships:

San Francisco administers its programs in-house, but in partnership with the local Human Services Agency (HSA). Customers who are enrolled in other City assistance programs may use their income verification provided to other programs as evidence of eligibility for the SFPUC’s discounts

to reduce paperwork required at the time of application. More significant coordination across the City has been limited due to concerns about data sharing / privacy. San Francisco has provided program fact sheets to other agencies / organizations that work with low-income customers in multiple languages, but lacks data as to whether this has been successful.

Lessons Learned and Other Key Findings:

San Francisco has learned they must keep program and eligibility and enrollment simple, and only add rules or restrictions when it is 100% clear the rule is necessary. The utility no longer requires water conservation audits as a condition for discount because they found it discouraged participation. During the COVID-19 pandemic, the City also switched to a self-declared income system to ease both administrative and customer burden.

Along with DC Water, San Francisco is one of the only utilities that has established an official definition for affordability, in which the average combined bill must not exceed 2.5% of MHI. Staff is interested in refining this metric based on use of something other than median (i.e., tying it to lower income levels) because MHI in the City at \$113,000 is relatively high.

CITY OF SEATTLE, WASHINGTON

Program Description and Eligibility:

- The *Utility Discount Program (UDP)* was established in the 1980s and provides a 50% utility bill discount (on water, sewer, and stormwater) for all households earning 70% of the state MHI by household size and who have an account in their name. Participants also receive free transfer station passes for garbage disposal needs.

Program enrollment (UDP): 42,968
(~50% of eligible)
Typical monthly discount: \$80 to \$105 (38% - 50% reduction)

Customers who do not receive a water / sewer bill may be eligible for the *UDP* if they receive a City Lights (electric) bill. This includes customers in single-family, duplex, and multi-family homes, although discounts vary by household type. The maximum credit for water, sewer, and drainage is for single-family homes, amounting to close to \$80 per month across water, sewer, and drainage.

- Emergency assistance is available to single-family households who have an income at or below 80% of Washington state MHI by household size and who have a Seattle Public Utilities or City Lights account in their name. Customers are eligible once per year, or twice if there are children in the household, for up to a \$461 credit towards past due balances.
- Flexible Payments - Seattle offers flexible payment plans, up to 120 days with customized minimum payments.

Program Funding:

Seattle's CAPs are funded through rate revenues. *UDP* provides nearly \$20 million and emergency assistance provides \$1.5 million in assistance annually.

Administration and Partnerships:

The program is administered by Seattle Human Services, and the application for the bill discount is available online. Seattle advertises the *UDP* through partnerships with ethnic and local community

groups, although translation and multi-lingual applications have proven to be difficult. Seattle requires only a forward-looking, self-reported estimate of household income to make it easier for customers to enroll in *UDP*. However, customers must verify income eligibility within six months. If they do not qualify at that time, they can no longer participate.

Lessons Learned and Other Key Findings:

The significant discount, in addition to the longevity of the program, likely contribute to the high enrollment rate. In addition to the water, sewer, and stormwater bill discounts, participants also receive a discount on their trash and electric bills when they sign up.

Seattle has adopted creative strategies for targeting customers in need. They are one of a few utilities who provide direct discounts to multi-family customers who do not receive a water/sewer bill. Utility staff developed a predictive model using Census data to identify and target delinquent accounts that are likely eligible for a bill discount. Seattle is piloting an income self-verification enrollment process that is audited every year, mitigating the risk it poses in providing assistance to some customers who may not need it because it makes access easy.

CITY OF TAMPA, FLORIDA

Program Description and Eligibility:

- *Water / Sewer Base Charge Discount* was introduced last year as part of their new rate structure. For customers with an account in their name earning less than 50% of area median income (AMI), the monthly base charge is waived. Currently the base charge is only \$6 per month, but it is planned to increase significantly as part of its 20-year rate plan. Enrollment requires a conservation activity such as a home water audit or conservation class.
- *Stormwater Hardship Program* - residential single-family homeowners who are seniors earning less than 30% of area MHI and who have a taxable home value of less than \$100,000 are eligible for a stormwater charge discount. Tampa's stormwater charge is a non-ad valorem tax collected through the property tax bill, although it is not based on taxable value. It includes an annual stormwater service assessment (\$82) and a stormwater improvement assessment (\$89.55). The hardship program waives the improvement assessment for stormwater and the improvement assessments for water and sewer are set at \$0 if the customer qualifies.

Program enrollment: ~220 accounts
Typical monthly discount: \$6
(8% reduction)

Program Funding:

Tampa provided approximately \$15,000 in assistance in the first year of the programs through rate revenue funds.

Administration and Partnerships:

The programs are administrated by the City's Department of Housing, and Tampa funded two staff positions for administration of the program. Tampa budgeted \$250,000 for the program, though it was underutilized.

Lessons Learned and Other Key Findings:

Enrollment in this program is very low. Participation barriers include very narrow eligibility criteria, a relatively small discount, and the conservation requirement. The infancy of this program could also impact eligible customers' awareness.

8. CUSTOMER ASSISTANCE PROGRAMS LESSONS LEARNED AND CONCLUSIONS

The populations served by the CAPs of the utilities presented in this memo vary widely. The assistance programs also differ in the type of discounts offered, program structure, customer eligibility and enrollment, and program funding. Despite these differences, some common themes and lessons learned emerged from the comparative analysis.

- **Utilities must understand the barriers facing low-income customers.** Overall, relatively low enrollment rates for CAPs (on the order of 10% to 15% of eligible customers) are not uncommon. Many of the surveyed utilities suspect that their customers find the application process difficult or cumbersome. The easier it is for customers to enroll, the more likely they are to participate. Extra requirements such as in-home water audits, in-person application requirements, and burdensome paperwork create barriers for enrollment. To counter this, some utilities have moved toward a self-verification process; others provide multiple ways / places to sign up. Many utilities also report language barriers to be a suspected impediment. They have attempted to overcome this barrier by providing information and applications in multiple languages, as well as partnering with community groups. Barriers to enrollment become even more pronounced if customers do not find the discount meaningful; the financial assistance must be significant enough for customers to take time to apply.
- **Multiple programs with different eligibility or structures can address different needs of varying populations.** Successful utilities offer multiple programs to meet the different needs of different customers. Some programs provide larger discounts for the lowest-income customers through tiered levels of assistance. Others may have limited funding, so they focus their programs on customers with the highest need, such as the elderly and disabled people in poverty. Most utilities interviewed offer flexible payment plans and emergency assistance programs, in addition to established assistance programs so that customers with unforeseen financial needs can avoid water shutoffs. As noted below, a few utilities have established or are starting to explore programs for multi-family customers.
- **Engaging in partnerships and best practices for outreach make a meaningful difference.** Utilities with higher enrollment rates often partner with other agencies that administer other assistance programs. These agencies help ease the administrative burden on utilities and are often well established in local communities as places where people can go to get help. They often also have established effective outreach strategies for targeting households in need of assistance.
- **Many utilities struggle to understand and / or target “hard-to-reach” customers, but some have developed creative ways to provide assistance.** Hard-to-reach customers often live in multi-family housing units or are renters and pay their water bill through their landlords. These customers are more likely to be lower income but are often difficult to target because they do not have an account with the utility. Because these types of residents are not direct customers, many utilities do not have readily available information about how to best serve these customers. A few utilities offer discounts to multi-family

households, including Seattle and DC Water. Many of the difficulties of providing appropriate assistance are still being navigated.

- **Successful customer assistance programs build and evolve over time.** Longer standing programs tend to have higher enrollment rates because they are more well known in the community. More successful assistance programs have redesigned their structure to better respond to the changing needs of the customers they serve. Tracking enrollment and socioeconomic demographics over time can help guide adaptations. Very few utilities have defined the metrics for tracking program success, although this could go a long way in helping understand whether CAPs are meeting their intended objectives.

In general, the utilities surveyed continue to adapt their programs in response to lessons learned. Table 22 provides a summary of model examples, successful strategies, and lessons learned for the surveyed utilities.

Table 22: Summary of Positive Examples and Lessons Learned Across Utilities

KEY				
	Good Example		Lessons Learned	
	Discount/Program Funding	Enrollment	Program structure	Outreach / Partnerships
Atlanta		Must be in arrears	Largely focused on plumbing/leak repair	Address cause of non-payments through financial education
Baltimore	Significant discount for customers most in need	Relatively high enrollment (~30% of eligible)		Multiple partnerships/tied to LIHEAP
DC Water	Significant discount for customers most in need, includes SW		Multiple programs to meet different needs	Tied to LIHEAP
Houston	Significant discount given limited funding	Mostly available to seniors w/low incomes; must reapply every 6 mos.	Limited offerings (bill discount only)	
San Francisco	Funding restricted by state legislation		Improving targeting/programs to meet different needs	
Seattle	50% discount offsets high bills	~50% of eligible enrolled	Discount for “hard-to-reach” through electric bill	All utility discounts administered together
Tampa	Discount too low to incentivize customers (limited on discount they can provide)	Low-income eligibility threshold; requires conservation audit/activities	Simple (charge waiver), meets funding restrictions	Funded staff at partner agency to administer program

APPENDIX A - SUPPORTING SCHEDULES TO THE COMPARATIVE ANALYSIS OF RATE STRUCTURES

WATER FIXED CHARGE STRUCTURE SUMMARY

These charges represent the water portion of a utility's bill that is collected regardless of the amount of metered water used by the customer account. These charges are applied per month based on meter size.

Meter Size	NYCDEP	Atlanta	Baltimore	DC Water	Ft. Lauderdale	Houston	Ithaca	Philadelphia	San Francisco	Seattle	Tampa
All		\$ 6.56									
5/8"			\$ 13.87	\$ 8.78	\$7.01* / \$40.21	\$5.74* / \$5.96	\$ 37.44	\$ 5.21	\$ 14.19	\$ 18.45	\$ 3.00
3/4"			\$ 23.38	\$ 10.00	\$9.32* / \$59.12	\$5.74* / \$6.14		\$ 5.55	\$ 18.18	\$ 18.45	
1"			\$ 49.54	\$ 12.60	\$13.97* / \$96.96	\$7.10* / \$7.39	\$ 99.84	\$ 6.70	\$ 26.15	\$ 19.00	\$ 7.50
1.5"			\$ 85.20	\$ 45.78	\$25.56* / \$191.55	\$10.76* / \$11.18	\$ 171.60	\$ 8.88	\$ 46.07	\$ 29.35	\$ 15.00
2"			\$ 192.21	\$ 88.60	\$39.46* / \$305.06	\$12.67* / \$13.16	\$ 349.44	\$ 12.32	\$ 69.98	\$ 32.50	\$ 24.00
3"			\$ 334.87	\$ 281.59	\$83.51* / \$664.50	\$12.67* / \$34.83	\$ 499.44	\$ 19.44	\$ 133.74	\$120.30	\$ 45.00
4"			\$ 762.88	\$ 649.28	\$141.48* / \$1,137.45	\$ 47.47	\$ 751.92	\$ 35.39	\$ 205.47	\$172.35	\$ 75.00
6"			\$1,369.23	\$1,464.42	\$315.44* / \$2,556.28	\$ 81.37	\$1,313.52	\$ 66.29	\$ 404.72	\$212.00	\$150.00
8"			\$2,142.01	\$5,993.22	\$373.31* / \$3,029.22	\$ 212.45		\$ 100.66	\$ 643.82	\$250.00	\$240.00
10"			\$3,033.70	\$6,883.91	\$976.09* / \$7,947.85	\$ 212.45		\$ 147.50	\$ 1,002.47	\$305.00	\$345.00
12"			\$5,411.52	\$6,891.46	\$1,231.10* / \$10,028.81			\$ 239.52	\$ 1,719.77	\$412.00	\$645.00
16"				\$6,904.17	\$1,416.57* / \$11,542.24				\$ 2,994.97	\$477.00	
20"										\$614.00	
24"										\$771.00	

*Notes

Ft. Lauderdale - *charges are for all classes except master meter. Other charges are master meter.

Houston - *charges are single family. Other charges are all other classes.

WATER USAGE CHARGE STRUCTURE SUMMARY

These charges represent the water portion of a utility's bill that is collected based on metered water use. Bills are calculated based on an individual customer's monthly water usage in each tier, multiplied by the unit rate for the tier.

	NYCDEP	Atlanta	Baltimore	DC Water	Ft. Lauderdale	Houston	Ithaca	Philadelphia	San Francisco	Seattle	Tampa
Class 1	All Customers	All Customers	All Customers	Single Family	Single Family, Multi-Family (per DU)	Single Family	All (above min.)	All	Single Family	Residential	Single Family
Tier 1 Usage (per month)	All	0-3 CCF	All	0-4 CCF	0-3,000 gal	0-1,000 gal	All (above min.)	0-2 Mcf	0-4 CCF	All (non-peak) 0-5 CCF (peak)	0-5 CCF
Tier 2 Usage (per month)		3-6 CCF		>4 CCF	4,000-8,000 gal	1,000-2,000 gal		2.1-100 Mcf	>4 CCF	5-18 CCF (peak)	6-13 CCF
Tier 3 Usage (per month)		>6 CCF			9,000-12,000 gal	2,000-3,000 gal		100.1-2,000 Mcf		>18 CCF (peak)	14-26 CCF
Tier 4 Usage (per month)					13,000-20,000 gal	3,000-4,000 gal		>2,000 Mcf			27-46 CCF
Tier 5 Usage (per month)					>20,000 gal	4,000-6,000 gal					>46 CCF
Tier 6 Usage (per month)						6,000-12,000 gal					
Tier 7 Usage (per month)						>12,000 gal					
Tier 1 Rate	\$3.99 / CCF	\$2.58 / CCF	\$3.30 / CCF	\$3.855 / CCF	\$2.54 / kgal	\$0.15	\$9.36 / CCF	\$45.37 / Mcf	\$8.68	\$5.40 / CCF (non-peak) \$5.55 / CCF (peak)	\$2.21 / CCF
Tier 2 Rate		\$5.34 / CCF		\$4.865 / CCF	\$5.60 / kgal	\$7.54		\$39.13 / Mcf	\$10.15	\$6.86 / CCF (peak)	\$2.58 / CCF
Tier 3 Rate		\$6.16 / CCF			\$7.01 / kgal	\$0.45		\$30.45 / Mcf		\$11.80 / CCF (peak)	\$4.32 / CCF
Tier 4 Rate					\$9.46 / kgal	\$12.37		\$29.63 / Mcf			\$5.77 / CCF
Tier 5 Rate					\$13.73 / kgal	\$5.21					\$6.66 / CCF
Tier 6 Rate						\$5.66 / 1,000 gal					
Tier 7 Rate						\$9.32 / 1,000 gal					
Additional Class 2				Multi-Family	Commercial	Multi-Family			Multi-Family (per DU)	Commercial	Multi-Family (per DU)
Tier 1 Usage (per month)				All	All	All			0-3 CCF	All	0-2 CCF
Tier 2 Usage (per month)									>3 CCF		3-6 CCF
Tier 3 Usage (per month)											7-12 CCF
Tier 4 Usage (per month)											13-21 CCF
Tier 5 Usage (per month)											>21 CCF
Tier 1 Rate				\$4.325 / CCF	\$5.79 / kgal	\$4.58 / 1,000 gal			\$8.73	\$5.40 / CCF (non-peak) \$6.86 / CCF (peak)	\$2.21 / CCF
Tier 2 Rate									\$10.23		\$2.58 / CCF
Tier 3 Rate											\$4.32 / CCF
Tier 4 Rate											\$5.77 / CCF
Tier 5 Rate											\$6.66 / CCF
Additional Class 3				Non-Residential		Commercial			Non-Residential		Non-Residential
Tier 1 Usage (per month)				All		All			All		<1x allowance
Tier 2 Usage (per month)											1-2x allowance
Tier 3 Usage (per month)											2-3.5x allowance
Tier 4 Usage (per month)											>3.5x allowance
Tier 1 Rate				\$5.015 / CCF		\$4.70 / 1,000 gal			\$9.81 / CCF		\$2.58 / CCF
Tier 2 Rate											\$4.32 / CCF
Tier 3 Rate											\$5.77 / CCF
Tier 4 Rate											\$6.66 / CCF

SEWER FIXED CHARGE STRUCTURE SUMMARY

These charges represent the sewer portion of a utility's bill that is collected regardless of the amount of metered water used by the customer account.

These charges are applied per month based on meter size.

Meter Size	NYCDEP	Atlanta	Baltimore	DC Water	Ft. Lauderdale	Houston	Ithaca	Philadelphia	San Francisco	Seattle	Tampa
All		\$ 6.56							\$ 3.60		
5/8"			\$ 11.96	\$ 2.48	\$ 12.12	\$12.19* / \$10.48	\$ 23.20	\$ 7.01			\$ 3.00
3/4"			\$ 19.94	\$ 2.61	\$ 16.92	\$12.19* / \$10.48		\$ 8.93			
1"			\$ 41.90	\$ 2.93	\$ 26.51	\$12.81* / \$11.01	\$ 61.87	\$ 13.07			\$ 7.50
1.5"			\$ 71.84	\$ 4.43	\$ 50.48	\$14.84* / \$12.76	\$106.33	\$ 22.97			\$ 15.00
2"			\$ 161.66	\$ 4.85	\$ 79.25	\$15.46* / \$13.29	\$216.53	\$ 35.42			\$ 24.00
3"			\$ 281.42	\$ 49.46	\$ 170.37	\$27.69* / \$23.81	\$309.33	\$ 63.82			\$ 45.00
4"			\$ 640.69	\$ 88.26	\$ 290.34	\$ 26.94	\$465.93	\$ 108.49			\$ 75.00
6"			\$1,149.67	\$ 172.28	\$ 649.86	\$ 38.54	\$813.83	\$ 213.81			\$150.00
8"			\$1,798.36	\$ 207.71	\$ 769.74	\$ 93.60		\$ 338.27			\$240.00
10"			\$2,546.85	\$ 204.26	\$ 2,016.44	\$ 113.76		\$ 488.25			\$345.00
12"			\$4,542.83	\$ 211.81	\$ 2,543.89			\$ 887.22			\$645.00
16"				\$ 224.52	\$ 2,930.05						
20"											
24"											

*Notes

Houston - *charges are single family. Other charges are all other classes.

SEWER USAGE CHARGE STRUCTURE SUMMARY

These charges represent the sewer portion of a utility's bill that is collected based on metered water use. Bills are calculated based on an individual customer's monthly water usage in each tier, multiplied by the unit rate for the tier. Some utilities make an assumption for return flow, that is, how much water usage is assumed to return to the sewer system, and sewer usage charges are calculated based on the adjusted water use.

	NYCDEP	Atlanta	Baltimore	DC Water	Ft. Lauderdale	Houston	Ithaca	Philadelphia	San Francisco	Seattle	Tampa
Class 1	All Customers	All Customers	All Customers	All Customers	Single Family, Multi-Family (per DU)	Single Family	All	All	Residential	All Customers	All Customers
Tier 1 Usage (per month)	All	0-3 CCF	All	All	0-3,000 gal	0-1,000 gal	All (above min.)	All	All	All	All
Tier 2 Usage (per month)		3-6 CCF			>3,000 gal	1,000-2,000 gal					
Tier 3 Usage (per month)		>6 CCF				2,000-3,000 gal					
Tier 4 Usage (per month)						3,000-4,000 gal					
Tier 5 Usage (per month)						4,000-5,000 gal					
Tier 6 Usage (per month)						>5,000 gal					
Tier 1 Rate	\$6.34 / CCF	\$9.74 / CCF	\$8.70 / CCF	\$10.135 / CCF	\$4.45 / kgal	\$0.20	\$5.80 / CCF	\$32.03 / Mcf	\$14.89 / CCF*return factor	\$16.67 / CCF*return factor	\$5.00 / CCF
Tier 2 Rate		\$13.64 / CCF			\$9.83 / kgal	\$0.40					
Tier 3 Rate		\$15.69 / CCF				\$0.33					
Tier 4 Rate						\$16.95					
Tier 5 Rate						\$6.12					
Tier 6 Rate						\$8.91 / 1,000 gal					
Additional Class 2					Commercial	Non-Single Family			Non-Residential		
Rate 2					\$7.91 / kgal	\$6.66 / 1,000 gal			\$8.86 / CCF		

STORMWATER CHARGE STRUCTURE SUMMARY

Stormwater Charges

These charges represent the stormwater portion of a utility's bill. These charges are applied per month based on property type and size (depending on the utility, the property type and size for a given customer may be based on gross area, impervious area, trip generation, and/or total square footage.

	NYCDEP	Atlanta	Baltimore	DC Water	Ft. Lauderdale	Houston	Ithaca	Philadelphia	San Francisco	Seattle	Tampa
Class 1			Single Family	Single Family	All	All Customers	Single Family (1-3)	Residential	Property w/o W/S	Single Family	All
Tier 1 Size			<820 imp. sq. ft.	100-699 sq. ft.	All	All	All	All	Low runoff	<2,000 sq. ft.	100-1,300 sq. ft.
Tier 2 Size			820-1,500 imp. sq. ft.	700-2,099 sq. ft.					Standard runoff	2,000-2,999 sq. ft.	1,301-2,200 sq. ft.
Tier 3 Size			>1,500 imp. sq. ft.	2,100-3,099 sq. ft.						3,000-4,999 sq. ft.	2,201-4,000 sq. ft.
Tier 4 Size				3,100-7,099 sq. ft.						5,000-6,999 sq. ft.	>4,000 sq. ft.
Tier 5 Size				7,100-11,099 sq. ft.						7,000-9,999 sq. ft.	
Tier 6 Size				11,100 sq. ft+							
Tier 1 Rate			\$3.97	\$14.38	\$2,273.01 / acre of gross area + \$4.19 / trip	\$0.032 / imp. sq. ft. / year	\$14.25 / quarter	\$15.80 / month	\$ 21.31	\$195.57 / year	\$100.49 / year
Tier 2 Rate			\$5.95	\$22.19		\$0.026 / imp. sq. ft. / year*			\$ 34.93	\$320.58 / year	\$164.74 / year
Tier 3 Rate			\$11.90	\$49.52						\$445.25 / year	\$273.47 / year
Tier 4 Rate				\$76.85						\$599.94 / year	\$464.57 / year
Tier 5 Rate				\$170.54						\$757.69 / year	
Tier 6 Rate				\$266.19							
Class 2			Non-Single Family	Non-Single Family			Non-Single Family	Non-Residential		Non-Single Family	
Tier 1 Size			All	All			All	All		0-15% impervious	
Tier 2 Size										16-35% impervious	
Tier 3 Size										36-65% impervious	
Tier 4 Size										66-85% impervious	
Tier 5 Size										86-100% impervious	
Tier 1 Rate			\$5.95 / 1,050 imp. sq. ft.	\$9.30 / 1,000 sq. ft. + \$2.67			\$21.75 / 2,300 imp. sq. ft. / quarter	\$0.72 / 500 gross sq. ft. + \$5.41 / 500 imp. Sq. ft. + \$2.30 / month		\$49.49 / 1,000 sq. ft. / year (reg.) \$29.45 / 1,000 sq. ft. / year (low)	
Tier 2 Rate										\$73.92 / 1,000 sq. ft. / year (reg.) \$57.87 / 1,000 sq. ft. / year (low)	
Tier 3 Rate										\$105.15 / 1,000 sq. ft. / year (reg.)	
Tier 4 Rate										\$139.17 / 1,000 sq. ft. / year	
Tier 5 Rate										\$165.81 / 1,000 sq. ft. / year	

*Notes

Houston - *charges are for Single Family with open ditch. Other charges are all other classes.

APPENDIX B - SUPPORTING SCHEDULES TO THE UTILITY BILL COMPARISONS

SINGLE-FAMILY UTILITY BILL COMPARISON

Single-Family Combined Monthly Bill Comparison							
Utility	Water Charge	% of Total Bill	Sewer Charge	% of Total Bill	Stormwater Charge	% of Total Bill	Total Monthly Bill
Tampa	\$21.27	28%	\$42.00	54%	\$13.73	18%	\$77.00
DEP	\$31.12	39%	\$49.49	61%	N/A	0%	\$80.61
Houston	\$35.81	43%	\$43.62	52%	\$4.00	5%	\$83.43
Philadelphia	\$40.60	46%	\$31.99	36%	\$15.80	18%	\$88.39
Ft. Lauderdale	\$30.50	29%	\$53.33	51%	\$21.52	20%	\$105.35
Ithaca	\$73.01	59%	\$45.24	37%	\$4.75	4%	\$123.00
Baltimore	\$39.61	31%	\$79.82	64%	\$5.95	5%	\$125.38
Atlanta	\$41.41	28%	\$104.94	72%	N/A	0%	\$146.35
DC Water	\$42.69	29%	\$81.53	56%	\$22.19	15%	\$146.41
San Francisco	\$87.48	45%	\$108.13	55%	N/A	0%	\$195.61
Seattle	\$65.41	31%	\$117.02	56%	\$26.72	13%	\$209.15

This table demonstrates the total monthly bill for an example single family customer with the following characteristics: 7.8 CCF of water and sewer use and 5/8" meter size. The current utility bill for the example single family customer in New York of \$80.61 is below the average of the surveyed cities of \$125.52.

MULTI-FAMILY UTILITY BILL COMPARISON

Multi-Family Combined Monthly Bill Comparison							
Utility	Water Charge	% of Total Bill	Sewer Charge	% of Total Bill	Stormwater Charge	% of Total Bill	Total Monthly Bill
Philadelphia	\$478	51%	\$406	43%	\$56	6%	\$940
Tampa	\$308	32%	\$603	64%	\$39	4%	\$950
Houston	\$410	41%	\$590	58%	\$12	1%	\$1,012
DEP (Meter-Billed)	\$462	39%	\$734	61%	N/A	0%	\$1,196
Ft. Lauderdale	\$607	48%	\$608	48%	\$50	4%	\$1,265
DEP (MCP)	\$677	39%	\$1,077	61%	N/A	0%	\$1,754
Baltimore	\$574	32%	\$1,169	67%	\$25	1%	\$1,768
Ithaca	\$1,084	61%	\$672	38%	\$14	1%	\$1,770
DC Water	\$589	33%	\$1,178	65%	\$44	2%	\$1,811
Atlanta	\$707	28%	\$1,799	72%	N/A	0%	\$2,506
Seattle	\$827	32%	\$1,737	66%	\$61	2%	\$2,625
San Francisco	\$1,165	43%	\$1,555	57%	N/A	0%	\$2,720

This table demonstrates the total monthly bill for an example multi-family building with the following characteristics: 20 dwelling units, 5.79 CCF per dwelling unit, 2" meter size, with 4,400 square feet (sq. ft.) of gross and impervious area. The current utility bill for the example multi-family customer under the standard rate structure and for participants in the Multi-Family Conservation Program (MCP) in New York of \$1,196 (\$59.80 per dwelling unit) and \$1,754 (\$87.70 per dwelling unit), respectively, are below the average of the surveyed cities of \$1,693 (\$84.65 per dwelling unit).

NON-RESIDENTIAL UTILITY BILL COMPARISON

Non-Residential Combined Monthly Bill Comparison							
Utility	Water Charge	% of Total Bill	Sewer Charge	% of Total Bill	Stormwater Charge	% of Total Bill	Total Monthly Bill
Philadelphia	\$1,225	48%	\$1,072	42%	\$272	10%	\$2,569
Houston	\$1,105	41%	\$1,525	57%	\$59	2%	\$2,689
Tampa	\$1,161	42%	\$1,579	57%	\$39	1%	\$2,779
DEP	\$1,200	39%	\$1,907	61%	N/A	0%	\$3,107
Ft. Lauderdale	\$1,444	37%	\$2,070	54%	\$351	9%	\$3,865
Ithaca	\$2,816	61%	\$1,745	38%	\$69	1%	\$4,630
Baltimore	\$1,756	34%	\$3,258	63%	\$125	3%	\$5,139
DC Water	\$2,158	39%	\$3,137	57%	\$207	4%	\$5,502
San Francisco	\$3,156	54%	\$2,669	46%	N/A	0%	\$5,825
Atlanta	\$1,846	28%	\$4,702	72%	N/A	0%	\$6,548
Seattle	\$2,236	32%	\$4,513	64%	\$304	4%	\$7,053

This table demonstrates the total monthly bill for an example commercial customer with the following characteristics: 300 CCF, 4" meter size, with 22,000 sq. ft. of gross and impervious area. The current utility bill for the example commercial customer in New York of \$3,064 is below the average of the surveyed cities of \$4,519.

APPENDIX C - COMPARATIVE ANALYSIS INTERVIEW QUESTIONS

NYC DEP Sustainable Rate Structure Analysis Comparative Analysis Interview Questions

PART I: UTILITY SYSTEM(S) RATE STRUCTURE

1. Can you identify the top three or four challenges (besides COVID-19) facing your utility system(s) today?
2. Can you provide some background on how you arrived at your current water, sewer and stormwater rate structure?
 - a. Was a formal rate study conducted (internally or externally) to arrive at the existing structure?
 - b. Did your utility consider other rate structure options when arriving at current? If so, what were they and why were they not selected? Why did you select the structure that is in place?
 - c. When your utility went to its current rate structure was it phased-in over time? If so, for what period of time?
3. Was there stakeholder group involvement in the design and formulation of the rate structure?
 - a. If so, to what extent did they influence the decision-making process and what did the process look like? Did you host meetings and/or workshops with the stakeholders to solicit feedback? Did the stakeholders form an official advisory committee, or similar?
 - b. Who made up the group of stakeholders? (E.g. Representatives of different customer classes, HOAs, industrial business owners, etc.) Was the public and/or were public groups involved? Can you share any of the materials that were used for stakeholder meetings?
4. Was the rate structure designed to meet a certain set of goals or objectives? If so, what are those?
5. Since its implementation, has the rate structure been evaluated to determine if it is meeting the intended purpose and goals? If so, what are the metrics?
6. Was it difficult to implement the existing rate structure?
 - a. Did it require billing system upgrade/modifications?
 - b. Additional customer service training?
 - c. Approval by a board, governing body, or similar?
 - d. Have you faced any legal challenges / issues with adoption of the structure?
7. Approximately what portion of rate revenue for each utility (stormwater, wastewater, drinking water, as appropriate) comes from fixed fees/charges?

8. Does the rate structure provide a dedicated funding source for specific activities? I.e. for rehabilitation and replacement / state of good repair activities or other items?
9. Does the rate structure specifically address customer affordability? If so, how?
10. Are there any customer classes or property types that are excluded from water, sewer or stormwater charges (E.g. are public roadways excluded from stormwater charges)?
11. What kind of participation does the utility currently have in the stormwater credit program (if applicable)?
 - a. Has participation changed over time?
 - b. Have the credits been modified over time?
12. Has the utility experienced an increase in green infrastructure on private property due to the stormwater fees structure (if applicable)? Does the utility promote green infrastructure using methods other than a stormwater fee (e.g., funding green infrastructure on public and/or private property, mandating green infrastructure via a rule or policy, etc.)?
13. Does the current rate structure address environmental sustainability and/or climate resiliency? If so, how?

Lessons Learned

14. What do you think is the biggest perceived flaw or concern with the current rate structure for each service provided (water, sewer, stormwater)?
15. What is the most common complaint (if any) from your customers related to the rate structure? Any lessons learned on addressing concerns?
16. What do you think the biggest success has been with the current rate structure for each service provided (water, sewer, stormwater)?
17. Are there things you would do differently next time you evaluate your rate structure?
18. Are there questions we should be asking that would better help us evaluate a rate structure for DEP?

PART II: CUSTOMER ASSISTANCE PROGRAMS

Program overview and history

1. Can you provide a brief overview of the customer assistance/affordability programs that your utility offers?

Note: We have reviewed readily available information on each utility's CAP(s) but want to verify that we have captured everything with this question.

2. (If not answered as part of the first question) What is the eligibility criteria for your program(s)? How was this determined and why did you choose to focus on this set of customers/households?
3. (If not answered previously) Can you tell us a little bit about the history of the program and what went into the decision-making process for implementing your CAP? To what extent were stakeholders involved in the process?
4. How does your utility define “affordability?”

Program administration/implementation

5. Can you describe the intake process for participants?
 - a. How is income verified, and who/what agency is responsible for collecting/tracking this data?
 - b. Have you identified any barriers to participation for participants?
6. Do you partner with a third party (e.g., city agency or non-profit organization) to administer or conduct outreach for your program? If yes, please describe that partnership.
7. How do you conduct customer outreach for your program? Have you identified strategies that have been particularly successful, especially for customers with the greatest need?

Program evaluation/data

8. How do you track program participation (e.g., percentage of eligible customers or total households that have signed up)? Can you share your data on program participation/participation rates with us?
9. How do you measure the success of your program? Have you established any program evaluation criteria/metrics? If so, what are they?

Program funding and costs

10. How is your program funded and what is the total funding available? Is funding limited by restrictions related to how your utility can spend rate revenues?
11. Do you track the program costs (both for internal administration and assistance provided)? What is the annual level of assistance provided?

Lessons learned

12. What have been the biggest challenges in administering/implementing the program?
 - a. Have you identified any barriers to participation among your targeted customers?
 - b. What are the most successful aspects of the program and/or key lessons learned?