Utilities

City of Charlottesville

Utility Rate Report

City of Charlottesville

PROPOSED

FY 2025

Prepared by the Department of Finance
and the Department of Utilities

Table of Contents

1. EXECUTIVE SUMMARY

The mission statement for the City of Charlottesville Department of Utilities (Utilities) is:

To provide the Charlottesville community with safe, reliable, and sustainable utility services by dedicated and knowledgeable staff.

Utilities operates and maintains the water, wastewater, stormwater, and natural gas systems. In addition, Utilities manages the Capital Improvement Program for the various utility systems. Utilities supports the following outcome area of the City's Strategic Plan Framework:

- Organizational Excellence- Charlottesville's well-trained and dedicated staff deliver excellent services for the community.

The goals for Utilities are to:

- Provide reliable and high-quality infrastructure.
- Implement strategic management efforts.
- Recruit and cultivate quality employees.
- Promote community engagement.

The Gas, Water, Wastewater, and Stormwater budgets are funded by utility rates and charges and include funding for administration, operations, and maintenance of the four systems as well as funding for infrastructure improvements, technology advances, and debt service payments.

The billing and collection functions of the City's utilities are completed by the Finance Department's Utility Billing Office, apart from the stormwater utility, which is performed by the Treasurer's Office. The utility budgets are separate from the General Fund and are not supported by taxes. These budgets and the respective rates and charges are considered and adopted by the City Council in June of each year.

A new and improved online bill payment service was launched in October 2021. Responding to feedback from the Customer Satisfaction Survey, Utilities now offers customers paperless billing, pay-by-text, and enhanced automatic payment options. These expanded bill payment services provide features for customers that deliver convenient, secure, and environmentally friendly means to pay utility bills, and remain informed of account activity. Managed by Invoice Cloud, the new portal acts as the customer's account hub, giving them the ability to view and manage their utility account 24/7/365. More than 12,500 customers have already signed up for paperless billing and 4,357 have registered for Autopay, making the move to a simplified, secure, and resource conscious way to pay their utility bills. One account on paperless billing saves almost $7.82 per year, equaling approximately $97,750 yearly.

The link for paying online can be found at:
https://www.invoicecloud.com/portal/(S(zajah33fv34bhayxqqp5jc13))/2/Site.aspx?g=eab95003-e204-40d6-91d4-6b9e2a326f1e

During COVID, the City participated in the Low-Income Household Water Assistance Program (LIHWAP). This program was a one-time allocation of funds from the Federal government, administered by the states, to assist water and wastewater customers experiencing negative economic effects from COVID,

pay their utility bills. 142 City customers received a total of $83,400 during 2023, an average of $587 per customer. Funds for this program were fully utilized by December 2023 and are no longer available.

There has recently been a bi-partisan effort to make LIWHAP permanent. Legislation has been introduced in both the House of Representatives and Senate to permanently authorize the program to "promote public health by easing the burden on families struggling to afford their monthly water bills". The City will be monitoring this legislation as it advances and provide information or advocacy to assist in making this program permanent.

To help achieve Community Climate Goals, Utilities has solicited the expertise of the consulting firm Black & Veatch (B&V) to conduct a Decarbonization Study. B&V will help Utilities responsibly and accurately determine how the gas utility can be a part of the solution in achieving and aligning itself with the community's greenhouse gas reduction goals. The Study evaluates Charlottesville Gas operations and current efforts in reducing emissions and proposed recommendations on expanding the Utility's energy efficiency programs for customers. Additionally, B&V has explored several alternative pathways including renewable natural gas (RNG), hydrogen technology, geothermal, and electrification. These pathways are evaluated by their impact on emissions, reliability, availability in our community, and cost to the customers. In addition, Charlottesville Gas is also working with LAUNCH! Consulting on community outreach for the Decarbonization Study. Listening sessions are planned for Summer 2024 to gather thoughts on the Study from the collective communities of Charlottesville and Albemarle County.

In 2021, the Environmental Protection Agency (EPA) released the much-anticipated revisions to the Lead and Copper Rule. In accordance with this ruling, the EPA is requiring all water providers to identify and create an inventory of all water service lines within their distribution system. The goal of this program is to identify and replace lead service lines that may still be in existence. The EPA has confirmed an October 2024 deadline for this inventory to be completed, and since January 2022, the City's Department of Utilities has been diligently working towards this goal. Unlike other cities, especially in the Northeast, the City of Charlottesville has never had a lead service or material issue. Although lead service lines were banned from use in Virginia by 1987, the Department of Utilities has records going back to 1975 stating that 98% of our water service lines at that time, were made from galvanized steel, with the remaining 2% being copper. Through our research, water quality testing, and interviews with experienced City personnel, we are confident that no lead service lines exist within our community. In the fall of 2023, the Department of Utilities began exploratory excavation at high-risk homes to confirm the absence of lead-based water service lines. Nearly 400 homes throughout the City will eventually be surveyed as part of this project and our findings have been consistent with our research – no lead lines have been found.

In April 2024, the EPA announced the final National Primary Drinking Water Regulation for six per- and polyfluoroalkyl substances (PFAS). According to the EPA, scientific studies have shown that exposure to PFAS in the environment may be linked to harmful effects on humans and animals. The Rivanna Water & Sewer Authority (RWSA) has been monitoring PFAS levels since 2014 and has been a participant in the EPA's Unregulated Contaminant Monitoring Rule water sampling program since 2023. Apart from one instance in May of 2023 at the North Rivanna Water Treatment Plant, all the samples which have been collected have not shown levels of PFAs exceeding the new compliance regulation. Protecting and providing safe and reliable drinking water to the customers of Charlottesville Utilities and the Albemarle County Service Authority is of the utmost importance. As a part of the community's water supply plan, RWSA built and have been using Granular Activated Carbon (GAC) filters as a part of the water treatment

process at the water treatment plants since 2018. GAC filters are recognized as a leading technology to remove PFAS compounds from drinking water. For more information about PFAS: https://www.rivanna.org/wp-content/uploads/2024/04/What-You-Need-To-Know-About-PFAS-04102024.pdf.

The Department of Utilities has implemented an aggressive Capital Improvement Program (CIP) to address aging infrastructure. Prior to 2008, very little replacement or rehabilitation had been completed to address the issues relating to the utility systems, except for the natural gas utility. As the City continued to grow in population and development continued to increase, it was recognized that not only did the utility infrastructure need increased capacity, but the systems also needed to be improved to ensure that public health would not be compromised and to alleviate property damage. Although the four (4) utility systems have vastly different components and functionalities, they are all treated similarly in the respect that the Department of Utilities acts aggressively through the CIP to continue to improve the operability of the utilities. Without this aggressive approach, the systems could easily and quickly fall into disrepair, similar to the situation experienced prior to 2008, which is not in the best interest of the City of Charlottesville and its customers.

In April 2023, Charlottesville Utilities was awarded a $7.1 million grant from the Pipeline and Hazardous Materials Safety Administration's Natural Gas Distribution Infrastructure Safety and Modernization (NGDISM) grant program. The NGDISM program is part of the broader Bipartisan Infrastructure Law, which will provide nearly $1 billion in federal funding over the next five years to support public gas systems' efforts to repair, rehabilitate, and replace aging pipes and reduce methane emissions. This grant facilitates the completion of Utilities' system-wide upgrade project by expediting the replacement of the last remaining section of legacy pipes. The last mile of 10" cast iron main line will be replaced with 4" high-density polyethylene (HDPE) plastic pipe, first generation polyethylene and other legacy pipe will be replaced with 2" HDPE, and 20 gas meters will be removed from the interior of several buildings. The project will help to eliminate all components in Charlottesville's natural gas system that have a higher probability of leaks.

The following section of the FY'25 Utility Rate Report provides a summary of the staff recommendations for each utility. Additional detailed information for each utility is provided in subsequent chapters.

1.1 WATER AND SEWER

1.1.1 FY'25 Water and Sewer Rates

Based on the projected revenue requirements to operate and maintain each utility, the water and sewer rates for FY'25 (beginning July 1, 2024) are as follows:

Exhibit 1: Water and Sewer Rates for FY'25

Rates (per 1,000 cf)	Current	Proposed	$ Change	% Change
WATER				
Summer	$86.86	$88.33	$1.97	2.3%
Winter	$66.82	$68.33	$1.51	2.3%
SEWER	$88.34	$92.55	$4.21	4.8%

1.1.2 Updating Monthly Service Charge

The Monthly Service Charge for water and sewer funds a portion of the fixed and infrastructure costs associated with being a customer of the water utility. The charge is proportionate to the size of a water meter. The size of a water meter regulates the amount of water that can pass through the meter thus provides a proportionate measure of the different impact of customers. For example, one 1-inch meter uses as much water as two and a half 5/8-inch meters.

The revenue requirements for the water utility have increased, including fixed costs and infrastructure. The Monthly Service Charges for FY'25 will increase about 15%. Most customers will see a $1.00 increase in their Monthly Service Charge for water and $1.00 increase for sewer.

Exhibit 2: Monthly Service Charge for FY'25 for Water

Water Meter Size (inches)	Current	Proposed	$ Change	% Change
5/8	$6.50	$7.50	$1.00	15.38%
1	$16.25	$18.75	$2.50	15.38%
1 1/2	$32.50	$37.50	$5.00	15.38%
2	$52.00	$60.00	$8.00	15.38%
3	$104.00	$120.00	$16.00	15.38%
4	$162.50	$187.50	$25.00	15.38%
6	$325.00	$375.00	$50.00	15.38%
14	$2,128.75	$2,456.25	$327.50	15.38%

Exhibit 3: Monthly Service Charge for FY'25 for Sewer

Water Meter Size (inches)	Current	Proposed	$ Change	% Change
5/8	$6.50	$7.50	$1.00	15.38%
1	$16.25	$18.75	$2.50	15.38%
1 1/2	$32.50	$37.50	$5.00	15.38%
2	$52.00	$60.00	$8.00	15.38%
3	$104.00	$120.00	$16.00	15.38%
4	$162.50	$187.50	$25.00	15.38%
6	$325.00	$375.00	$50.00	15.38%
14	$2,128.75	$2,456.25	$327.50	15.38%

1.2 NATURAL GAS

Gas rates are projected to increase for all natural gas customers in FY'25. No change is being proposed for the monthly customer charge. The gas rates for all customer classes for FY'25 are as follows:

Exhibit 4: Gas Rates for FY'25

Customer Class	Current	Proposed	$ Change	% Change
FIRM				
Customer Charge (Minimum)	$10.00	$10.00	$0.00	0%
First 3,000 Cu Ft, Per MCF	$9.2491	$9.7813	$0.53	5.75%
Next 3,000 Cu Ft, Per MCF	$8.7216	$9.1798	$0.46	5.25%
Next 144,000 Cu Ft, Per MCF	$8.1941	$8.5784	$0.38	4.69%
Over 150,000 Cu Ft, Per MCF	$7.6666	$7.9769	$0.31	4.05%
INTERRUPTIBLE				
Customer Charge (Minimum)	$60.00	$60.00	$0.00	0%
First 600 MCF, Per MCF	$7.2264	$7.3466	$0.12	1.66%
Over 600 MCF, Per MCF	$6.6275	$6.6850	$0.06	0.87%
Annual Minimum Usage (MCF)	1,200	1,200	0	0%
AIR CONDITIONING				
All Gas Used, Per DTH	$7.3471	$7.3471	$0.00	0%
GAS LIGHT				
Charge, Per Month	$17.51	$17.51	$0.00	0%
TRANSPORTATION				
Small Volume Customer				
Monthly Service Charge	$150.00	$150.00	$0.00	0%
Rate, Per DTH	$3.0147	$3.2827	$0.27	8.89%

1.3 STORMWATER

The Stormwater Utility fee was adopted in March 2013 at a rate of $1.20/500 square feet of impervious surface per month. The fee has remained flat for the period FY'14-FY'24. No increase is proposed in FY'25. The Stormwater Utility fee is re-evaluated annually in conjunction with the budget development process.

Exhibit 5: Stormwater Utility Fee Rate FY'25

Rate (per 500 ft² of impervious area)	Current	Proposed	$ Change	% Change
STORMWATER	$1.20	$1.20	$0.00	0.00%

1.4 IMPACT ON CUSTOMER

The table below illustrates the impact on a City residential customer using 400 cubic feet (cf) of water and wastewater, owning a property with approximately 2,440 square feet of impervious surface, and using 4,600 cf of gas per month. This information is based on utility rates and charges for July 1, 2025.

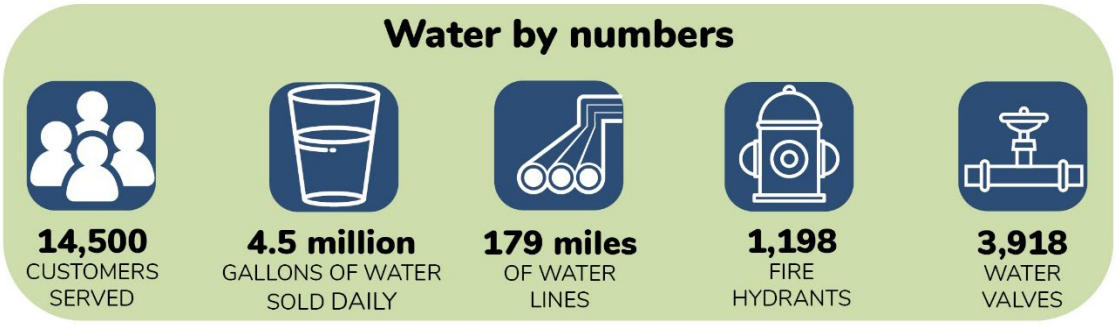
Exhibit 6: Impact of FY'25 Rates and Charges on an Average Customer

Utility	Current Monthly Bill	Proposed Monthly Bill	$ Change	% Change
Water	$36.57	$38.25	$1.68	4.59%
Wastewater	$41.84	$44.52	$2.68	6.41%
Gas	$50.45	$54.03	$3.58	7.10%
Stormwater	$5.86	$5.86	$0.00	0.0%
TOTAL	**$134.72**	**$142.66**	**$7.94**	**5.89%**

2. WATER

2.1 OVERVIEW

The City distributes potable water within its municipal boundaries and to the University of Virginia. The City has approximately 14,500 water customers using 1.66 billion gallons of water annually or 4.5 million gallons daily. The City's water distribution system has 179 miles of pipes (enough to stretch from Charlottesville to Virginia Beach) ranging in size from 2" to 18" in diameter. The system also includes 1,198 fire hydrants and 3,918 water valves.



The City's water distribution system operates off three (3) different pressure zones- the South Rivanna Pressure Zone, also known as the Urban Zone, the Lambeth Pressure Zone, and the Alderman Pressure Zone. These three zones have varying pressures based upon topography, incoming pressure available, and volume of flow needed in the areas. The hydraulic grade lines (HGL) of the three (3) zones vary- South Rivanna operates at 652', Lambeth operates at 750.5', and Alderman operates at 751'.

2.1.1 Customer Satisfaction Survey

In February 2024, the Department of Utilities conducted an online customer satisfaction survey to gain feedback about our services. Over 220 responses reflect high levels of satisfaction with the reliability, value, and safety of the services we provide. Among respondents, 100% are satisfied and neutral about the reliability of water service, with 99% of respondents rating the value of their water service as fair and above (good and excellent). Additionally, 97% of respondents are satisfied and neutral regarding the safety of their drinking water.

2.2 WATER QUALITY AND SAFETY

Protecting public health is a core function for the Department of Utilities. Since the early 1900's the City has diligently planned, developed, and operated a complex system that provides affordable, clean, safe, and great-tasting water. The City works closely with the Albemarle County Service Authority (ACSA), the Rivanna Water and Sewer Authority (RWSA), the Virginia Department of Health (VDH), and the Virginia Department of Environmental Quality (DEQ) to ensure superior water quality.

2.2.1 Water Treatment

RWSA collects, stores, and treats the water. The City then buys the treated water and distributes the water through the distribution system. Although drinking water supplies in the United States are among the safest in the world, RWSA employs various technologies and methods of water treatment to prevent contamination and to remove disease- causing agents. Common steps used in water treatment that can be found within the RWSA's process include:

Coagulation and Flocculation

Coagulation and flocculation are often the first steps in water treatment. Chemicals with a positive charge are added to the water. The positive charge of these chemicals neutralizes the negative charge of dirt and other dissolved particles in the water. When this occurs, the particles bind with the chemicals and form larger particles, called floc.

Sedimentation

During the sedimentation process, floc settles to the bottom of the water supply, due to its weight. This settling process is called sedimentation.

Filtration

Once the floc has settled to the bottom of the water supply, the clear water on top will pass through filters of varying compositions (sand, gravel, and charcoal) and pore sizes, to remove dissolved particles, such as dust, parasites, bacteria, viruses, and chemicals. As smaller, suspended particles are removed, cloudiness diminishes, and clear water emerges.

Granular Activated Carbon (GAC)

Treatment that removes man-made and naturally occurring contaminants that can impact taste and odor in the finished water. This treatment also removes organic chemicals or disinfection byproducts that are regulated by the Environmental Protection Agency.

Disinfection

As protection against any bacteria, viruses, and other microbes that might remain, disinfectant is added before the water is released into the distribution system and into your home or business.

RWSA carefully monitors the amount of disinfectant added to maintain quality water at the farthest reaches of the system.

2.3 WATER QUALITY TESTING

The City takes water quality testing very seriously. Much has been discussed about lead in the United States, and since the 1970's, Charlottesville has taken a proactive stance by testing at risk homes, using corrosion inhibitors added to the water to coat the pipes, and having only lead-free pipes installed to carry drinking water. In 2023, the RWSA collected and tested hundreds of hourly, daily, weekly, monthly, quarterly, and annual samples to ensure the quality of our water. Sample sources included the rivers and reservoir from which the water treatment plants draw water, the water treatment plants themselves, and numerous locations in the City's distribution system. Contaminants that the City routinely tests for include:

- Turbidity
- Total Coliform and E. Coli Bacteria
- Combined Radium and Alpha and Beta Particles
- Barium
- Fluoride
- Lead
- Copper
- Nitrate
- Trihalomethanes and Haloacetic Acids
- Perfluoroalkoxy alkane
- Chlorine

For more information about the City's water quality, please visit www.charlottesville.gov/waterquality.

2.4 WATER SERVICE LINE INVENTORY

In 2021, the EPA released the much-anticipated revisions to the Lead and Copper Rule. In accordance with this ruling, the EPA is requiring all water providers to identify and create an inventory of all water service lines within their distribution system. The goal of this program is to identify and replace lead service lines that may still be in existence. The EPA has confirmed an October 2024 deadline for this inventory to be completed, and since January 2022, the City's Department of Utilities has been diligently working towards this goal.

Unlike other cities, especially in the Northeast, the City of Charlottesville has never had a lead service or material issue. Although lead service lines were banned from use in Virginia by 1987, the Department of Utilities has records going back to 1975 stating that 98% of our water service lines at that time, were made from galvanized steel, with the remaining 2% being copper. **Through our research, water quality testing, and interviews with experienced City personnel, we are confident that no lead service lines exist within our community.**

In the fall of 2023, the Department of Utilities began exploratory excavation at high-risk homes to confirm the absence of lead-based water service lines. Nearly 400 homes throughout the City will eventually be surveyed as part of this project and our findings have been consistent with our research – no lead lines have been found.

2.5 BACKFLOW/CROSS CONTAMINATION PROTECTION

Cross-contamination presents a serious hazard to our water supply. The situation in which water flows in a direction that is opposite from the intended flow is called backflow. This can potentially put the drinking water supply in danger by allowing the undesirable reversal of flow, such that non-potable water moves into the potable water system. The location at which this backflow occurs, where a customer's water line and the main supply line are joined, is called a point of cross-connection.

As part of the City's strategy, certain businesses, such as medical facilities, laboratories, food processing plants, chemical plants, high-rise buildings, or other facilities where a potential for backflow or cross-connection hazard may exist, are required to install, and maintain cross-connection or backflow prevention devices. All new buildings are scrutinized during the design and permitting process to ensure the proper installation of backflow devices. Additionally, the Department of Utilities currently maintains inspection records for 935 backflow devices to provide the highest quality water to City residents. The Cross-Connection Plan is reviewed annually and updated if necessary to reflect changes to the Virginia Waterworks Regulations.

2.6 WATER CONSERVATION

The City of Charlottesville is focused on the management of the water distribution systems to reduce water loss, and partners with City customers to conserve water. Highlights of the Water Conservation Program (WCP) include the distribution of over 12,030 free indoor water conservation kits since 2008 (60 kits were distributed in 2023), the development and dissemination of guidance on how to find and fix leaks, EPA WaterSense program educational materials, and other indoor and outdoor water conservation information. Additionally, a low-flow toilet rebate program has supported the replacement of over 7,363 high consumption toilets since 2003, and a rain barrel rebate program that has issued 887 rebates since 2009 (and held a rain barrel workshop in 2023).

The WCP continues to conduct extensive public outreach. Typically, this includes educational activities at schools, educating the community during annual campaigns, and distributing water-saving information and promotional items at community events. Program information is supported on the WCP website where water conservation related information, resources, news, and events can be found; in 2023 over 3,275 page views were received across all WCP related pages.

The WCP participated in several in-person events including Kid*Vention, Earth Day events, and Rivanna RiverFest (over 1,000 attended), and held several virtual outreach opportunities for the Fix a Leak and Imagine a Day without Water (IADWW) Campaigns. The Fix a Leak campaign, held in the Spring, had the community complete a home scavenger hunt and a virtual 5K encouraging people to find and fix water leaks. The IADWW art contest, held in the Fall, asked students K – 12th grade to illustrate an action to save water in an artistic format. The City's water conservation message was also communicated via the internet through online ads, mobile apps, and social media (over 370 social media posts attracting over 44,900 impressions in 2023), newsletters, print, radio, streaming, and television. Through all the WCP outreach in 2023, the program generated over 994,048 online impressions, over 2,030 engagements, and over 2,000 cable TV ads.

The WCP partners with community organizations including UVA Sustainability, Rivanna Conservation Alliance, the Local Energy Alliance Program (LEAP), Charlottesville City Schools (CCS), Community Climate Collaborative, ACSA, and RWSA. In addition, the program has continued to be an active

participant in the American Water Works Association (AWWA), the Alliance for Water Efficiency (AWE), and the EPA's WaterSense program. In 2023, the City of Charlottesville was recognized for water conservation efforts supporting the WaterSense program, receiving the 2023 Sustained Excellence Award; this is the highest honor given out by the WaterSense program and makes the ninth year in a row the program has received the WaterSense award.

In FY'23, the City continued its focus on internal performance and efficiency through the City's Energy and Water Management Program (EWMP). The WCP supports the water side of these efforts by managing the water usage of facilities managed by the City, educating staff and users of the facilities on how to be more efficient and reduce water usage, and supporting water efficient improvements. Learn more about the City's energy and water performance, water use targets, and program initiatives in the FY'23 Energy and Water Performance Report (LINK).

In FY'23, some unique educational opportunities included putting water saving reminders on all school bathroom mirrors, working with the 4th graders at Greenbrier Elementary School to develop energy and water saving messages, distributing 330 Climate Action Kits to the CCS 5th grade class with directions on how to check a toilet for water leaks, and the development of educational activities for grades 4-6 that are incorporated into CCS's science curriculum pacing guide. Lastly, in FY'23, the EWMP participated with the University of Virginia Internship Placement Program with an intern dedicated to supporting the EWMP and WCP initiatives.

2.7 TOILET AND RAIN BARREL REBATE PROGRAMS

In support of water conservation efforts, the City established a Toilet Replacement Rebate Program in 2003 and a Rain Barrel Rebate Program in 2009. Currently the Toilet Rebate Program provides a rebate of up to $100 to any City water customer who purchases and installs an EPA WaterSense toilet to replace older high flow models. WaterSense labeled toilets use significantly less water and function as well as standard toilets, resulting in water (and dollar) savings every year. Residential customers may replace up to three (3) toilets at a given residence built before 1994. Commercial property owners may replace up to two (2) toilets and receive up to $80 per replacement. Owners of multi-unit apartment complexes can replace two (2) toilets per unit. A special program targeted at toilet retrofits for large multifamily properties was started in 2011. Since then, over 17 apartment buildings have received rebates to replace their high consumption toilets. 97 Low Flow WaterSense labeled toilet rebates were issued in FY'22 and 68 in FY2023. The total number of toilet rebates issued to date is 7,399, saving the City a cumulative 68.7 million gallons of water. Rebates were marketed using social media, e-newsletter, and paid advertising. The following chart shows the participation in the toilet rebate program for the past 17 years.

Exhibit 7: Participation in Toilet Rebate Program since 2007

Fiscal Year	# of Customers	# of Rebates	$ Rebated	Average Rebate/Customer
2023	51	68	$6,790	$133
2022	73	97	$9,525	$130
2021	116	156	$15,428	$133
2020	136	177	$17,696	$130
2019	178	247	$24,092	$135
2018	165	263	$25,023	$152
2017	185	246	$24,153	$131
2016	186	223	$22,218	$119
2015	189	460	$40,555	$215
2014	219	305	$29,544	$135
2013	358	573	$54,113	$151
2012	258	544	$54,186	$210
2011	363	599	$61,865	$170
2010	386	367	$36,401	$94
2009	219	310	$31,086	$142
2008	180	302	$30,372	$169
2007	194	232	$23,845	$123

The Rain Barrel Rebate Program is aimed at encouraging City homeowners to use harvested rainwater for outside uses like washing cars, watering plants, and irrigating landscapes. The program provides up to two (2) $30 rebates for rain barrels purchased per service address. The City has provided 887 rebates since the program started in FY'09 including 20 rebates in FY'22 and 14 rebates in FY2023. The City, along with community partners, held a rain barrel workshop in the spring of 2023 which was fully subscribed with 25 participants. Rebates were marketed using social media and paid advertising.

2.8 WATER ASSISTANCE PROGRAM

The Water Assistance Program (WAP) was started in FY'12 by City Council to assist City water customers experiencing hardship in making timely or full payments of their water utility bill. The WAP is intended only for residential customers, whether owners or renters of property. It is not intended for landlords or commercial property accounts and is administered in a fashion similar to the established Gas Assistance Program. The maximum allotment per household per year is $150.

In FY'23, 28 customers benefited from the WAP receiving a total of $3,548.86. The FY'25 water budget does not include any money for WAP since there are funds ($22,568) available from previous fiscal years. In recent years, there has been additional state and federal money available which has limited the need for participation in the WAP. Comparable assistance is available through the Wastewater Assistance Program (WWAP).

2.9 WATER INFRASTRUCTURE ASSET MANAGEMENT

The City's water distribution system contains 179 miles of water main ranging in size from 2-inch to 18-inch in diameter. About 11.4 miles of that pipe is three (3) inches or less in diameter. The majority of the 11.4 miles of water main are galvanized steel, several decades old, and serve multiple customers. Not only can the water mains be severely corroded, but they can often result in low pressure and significantly reduce the quality of service to customers. The system also includes 1,198 fire hydrants and 3,918 water valves.

2.9.1 Water Distribution System

In 2010, the Department of Utilities determined that the water distribution system needed major attention and remediation for deficiencies. These deficiencies included: water main breaks, low water pressure, poor water quality, insufficient fire flow, and fire hydrant placement not within standards.

After a comprehensive analysis of the system was completed, the development of the priority list was created (which contained 45 projects in 2010). These projects would replace or rehabilitate existing water mains and install new water mains to create loops within the system to eliminate the deficiencies.

To determine project prioritization, criteria were used, and a ranking number system developed and applied to all projects. The criteria were categorized into the following groups:

1. Physical Consideration criteria assesses the integrity of the pipes which comprise the water system.
2. System Consideration criteria addresses water quality, pressure, and fire limitations within the water system.
3. Environmental/Historic Consideration criteria addresses natural conditions which may be impacted by a construction project.
4. Public Impact criteria assesses the potential disruption to City residents.
5. Planning criteria assesses the potential to incorporate construction projects into areas to be developed within the City.
6. Area Construction criteria evaluates the potential to incorporate proposed construction projects into areas to be developed within the City.
7. Cost/Benefit Ratio assesses the cost required to achieve the overall benefit for the improvement.

Each of the criteria was evaluated as to its importance versus the other criteria. A weighting value was given to each criterion. The weighting values ranged from 10 being the most important to 1 which was least important. The following is a summary of the weighting values and associated criteria:

Weighted Value	Criteria
10	Water Quality Issues, Low Fire Flow
8	Water Main Breaks
7	Water Age
6	Paving, Sewer Main Replacement, Cost/Benefit Ratio
5	Low Pressure
4	Traffic, Location
2	Wetlands, Natural Landmarks, Development Area
1	Service Line Repairs

To achieve success, the Department created a contract with over 200 individual bid items representing water system components to address the initial list of projects. Examples of these bid items include various sizes of pipe, fittings, valves, meters, services, fire hydrants, and site restoration.

In 2011, the Annual Water System Contract was awarded, and construction began. Contractors were required to provide two (2) crews which would work simultaneously on the projects. Contractors were provided the list of projects, but no specific designs as to the extent of the projects. The annual contract was awarded with the potential for two (2) single-year renewals. Since this initial contract, there have been four (4) contracts awarded over 10 years with achievements and lessons learned every year and from every project.

This Priority List is updated every other year and over the past 14 years the Department has seen 122 completed projects totaling over 115,202 linear feet (LF) (21.8 miles) of water mains replaced. This equates to 11.9% of the entire water system being replaced under this contract. To complete these projects, the Department has spent $29,799,481 to date with an average of $2,292,267 being spent in a contract year. It is the intent of the Department to average approximately two (2) miles of main replacement per year which equates to an average of approximately $259 per linear foot of pipe installed.

In the current contract year, at $259/LF, at the expected footage of pipe installed, which is two (2) miles, the construction budget for this project would be $2,735,040. However, past contracts have varied between $1,542,768 and $2,817,456 per contract year. This value can change depending on the size and location of projects, weather, and unknowns that are encountered during construction.

There are some projects that need to be bid separately from the Annual Water System Contract. The earliest project that was bid separately was a 12" water main extension in Jefferson Park Avenue. The area from Maywood Lane to Monroe Lane was served by a single 6-inch main and was severely under capacity for the area it served. The contract included 1,500 feet of 12, 8, and 6-inch ductile iron water main installation. The project was completed at a contract price of $369,673.

The second standalone project that has been completed was the Emmet Street/Ivy Road Water Main Replacement. Two (2) 6-inch lines ran in parallel in Emmet Street and Ivy Rd from the intersection of McCormick Road to the City/ County line on Ivy Rd. A contractor procured by Utilities used a combination of two (2) methods to replace the two (2) existing lines – pipe bursting and open trenching.

Where feasible, one (1) of the existing 6-inch lines was burst in place and upsized to an 8-inch ductile iron pipe. The pipe bursting technology reduced the impact on traffic around the area during construction.

The contractor was also able to take advantage of the UVA winter break and closed a portion of Emmet Street while classes were not in session. This allowed the contractor to leave the work area staged with equipment and material to take full advantage of working hours. Where pipe bursting was not an option, a new 8-inch ductile iron pipe was installed by the open trenching method. Upon completion of the project, one (1) 8-inch line replaced the parallel 6-inch lines from McCormick Rd to St. Anne's Belfield. The final project construction cost was $2,329,943.

Another completed standalone project was the 18" West Main Street Water Main Replacement. The project began construction in October 2019 and was completed in April 2021. The project description

was to replace an existing 18-inch water main that is a major feed to the City. The new line was installed in West Main Street from 9th Street SW, turned south on Roosevelt Brown Blvd, and connected to the existing line at Grove Street. The final project construction cost was $1,149,797.

An additional completed standalone project was the Rugby Road Water Meter Replacement/Gentry Lane Water Main Installation, Phases 1 and 2. The first phase of the project consisted of installing 1,300-feet of 8-inch water main in Gentry Lane from the intersection of Dairy Road and Gentry Lane to the intersection of Greenleaf Drive and Gentry Lane. Before the replacement project, 19 water services along Gentry Lane were served by a dead-end 6-inch line in the road, while 11 water services were served by a dead-end 2- inch line in the backyards of the properties on the north side of Gentry Lane.

The new 8-inch line now serves all the properties allowing the existing 6-inch and 2-inch lines to be abandoned, reducing maintenance, and removing City infrastructure from private properties. The new water line increased capacity while improving fire flow for the area, including the Walker Upper Elementary School/Charlottesville City Schools Administration Office complex. The total construction costs for Phase 1 were $533,174. The second phase, which consisted of 1,300-feet of 8-inch water main from Greenleaf Lane to the northeast intersection of Dairy Road and Gentry Lane, was completed in the summer of 2018. The total construction costs for Phase 2 were $226,188.

Currently there are three (3) other projects that will be completed by the Department in upcoming fiscal years. They are as follows:

Rugby Road Water Meter Replacement/ Gentry Lane Water Main Phase 3 Installation

Currently there are two (2) water mains (one (1) 12-inch and one (1) 6-inch that reduces to a 4-inch) in Rugby Road from University Avenue to Route 250. The third phase of the project will move all existing water services from the smaller water main to the larger water main. This will allow for the smaller water main to be abandoned reducing the maintenance needed in Rugby Road. This phase of the project is intended to be constructed in the fall of 2025. This final phase of the three (3) phase project has an estimated construction cost of $600,000.

High Street Water Main Replacement

To improve utilities ahead of a large paving and streetscape project, Utilities will implement a project to replace approximately 5,400-feet of 6-inch diameter water main with 12-inch diameter piping. This will greatly reduce maintenance while providing capacity for future development along the High Street corridor. The Department of Utilities is currently coordinating with the Department of Public Works and the Rivanna Water and Sewer Authority on the design. This project is being designed with a construction date of FY'25 and has an estimated cost of $3,000,000 for construction.

Locust Avenue Water Main Replacement

Locust Avenue from East High Street to Locust Lane is served by an approximately 1.2 mile of 6-inch water main installed in 1924. The water main has experienced many breaks over the years. In addition, suspended from the bridge which spans Route 250 are two 6-inch water mains. One of the water mains has been abandoned since its support has failed. The project has been divided into two phases. The first phase consists of installing an 8-inch water main from East High Street to the Route 250 Bridge. The estimated construction cost of Phase 1 is $2,500,000 with an anticipated start in the fall of 2024.

Phase 2 consists of installing an 8-inch water main from the Route 250 Bridge to Locust Lane and replacing the two 6-inch water mains under the bridge with new supports. The estimated construction cost of Phase 2 is $3,000,000 with an anticipated start of the summer of 2025.

While the Department has several large projects and programs underway that address water mains, the water services are still a focus for replacement. Most of the City's water services (the pipes from the mains to the water meters) are galvanized steel and were installed during residential construction. Many are now severely corroded with a tendency to fail at the worst times – nights, weekends, and inclement weather events. The City is continuing its water service replacement program as part of the upgrading and replacement of water mains. To date, approximately 10.6 miles (55,719 linear feet) of water service lines have been replaced.

2.9.2 Lambeth Field Pump Station

The Department owns and operates one (1) pump station- the Lambeth Field Pump Station (LFPS). The LFPS is located adjacent to Rugby Road and provides water to a closed-loop high pressure zone. The pump station is designed to provide a firm capacity of 3.38 million gallons per day (MGD) and is currently outfitted with two (2) 0.65 MGD low-capacity pumps and one (1) 2.2 MGD high-capacity pump. The pump station also has a natural gas back-up high-capacity pump that can handle the 3.38 MGD firm capacity. The natural gas pump was installed since the City operates the natural gas utility and natural gas was readily available to the pump station. The zone that the LFPS services is known as the Lambeth Pressure Zone and consists of the northern halves of the Venable and Barracks/ Rugby Neighborhoods.

This pressure zone serves approximately 800 connections and provides fire protection to the area. In 2009, the City recognized that this pressure zone was inadequate and unreliable, especially when a power outage occurred at the LFPS. When electrical power was lost, City crews would operate isolation valves between the Lambeth Pressure Zone and the South Rivanna Pressure Zone to allow water to bleed into the Lambeth Zone. This not only caused discolored water issues, but it also put the zone at high-risk due to low pressures and low fire flows.

The Department made the decision to evaluate the Lambeth Pump Station to address the known deficiencies. Upon review, there were several upgrades that needed to occur to provide safe drinking water and fire flows to the pressure zone. In addition to the mechanics of the pump station, the building also needed upgrades to provide structural integrity and longevity.

In 2011, after approval from the Virginia Department of Health (VDH), the Department issued an IFB for construction services. The contract was awarded, and the following improvements were made:

- Supervisory Control and Data Acquisition (SCADA) and pressure transducers installed allowing the Department to track trends, water flows, and pressure drops.
- An Autodialer was installed to alert the Department of any issues, including pressure drops or power failures.
- Building improvements including installing security fencing and lighting, installing interior lighting and repainting, and door, window, and roof replacement; and
- Installation of Variable Frequency Drive (VFD) motor-driven centrifugal pumps to control flows for energy and cost savings at times of decreased demand.

The upgrade was completed in 2012 and the total construction cost was $442,000.

In 2021 the Department evaluated the SCADA System and decided, along with needed exterior improvements, replacement of the programmable logic controller (PLC) was required. A project was designed that included the following:

- Replacement of the PLC and rewiring to control the natural-gas powered pump.
- A concrete pad in front of the exterior electrical panels.
- An aluminum canopy over the electrical panels and concrete pad.
- Drainage structures and piping.

The project was advertised, and construction has been completed for a contract price of $305,000.

2.9.3 Water Loss Management

Replacing water distribution mains and service lines is an important component in water loss prevention and conservation. Aging pipes are a primary cause of lost water in a system. Since FY'09, the City has been replacing aged water lines and service lines, which reduces leaks and supports improving infrastructure.

The City has also performed system-wide leak detection surveys. With over 238 miles of water lines (mains and services), 14 leaks were detected and repaired during the 2021 testing, resulting in an estimated loss of 502,560 gallons per day through various methods. The yearly leak detection survey was performed again in 2023 with five (5) leaks being found with an estimated total loss of 184,320 gallons per day. The City aims to respond and repair leaks expeditiously to minimize water loss and service impacts. The next survey is scheduled for fall 2024 and will be consistent with past years covering 100% of the distribution system.

AWWA recommends that all utilities perform a water audit every year. This audit is intended to identify sources of non-revenue water and to focus efforts in reducing those water losses. Initial audits from FY'10 – FY'12 resulted in improved recordkeeping of water use by City contractors and more detailed procedures for annual fire hydrant testing. Water audits completed for FY'13 – FY'17 have used the same process and resulted in improved data collection procedures specifically quantifying unbilled and unmetered water usage. In addition, in FY'14 – FY'17, water loss was quantified by more accurate calculations of loss from water leaks, and water meter error. The City will continue to minimize water loss by outreach, system repair and replacement, and improved leak detection technologies.

Based on the water audit recommendations, water meter calibration and replacement programs were implemented starting in FY'14. In FY'14, the City tested 5% of 5/8-inch meters, 15% of 1-inch meters, 17% of 1.5-inch meters, 17% of 2-inch meters, 60% of 3-inch meters, 44% of 4-inch meters, and 100% of 6-inch meters. Results from this meter testing and calibration effort indicated that all meters need to be regularly tested with intervals determined by the meter size. Using this data, the Department tests 10% of all large meters (1.5-inch and larger) currently in circulation on an annual basis. Using spatial analysis tools, annual testing will allow the City to coordinate maintenance efforts to ensure the highest possible service while minimizing water loss due to mechanical failures.

Furthermore, the Department is addressing the need to replace large meters (1.5-inch and larger) through a Large Meter Replacement Program. Through this program, the Department has issued three (3) term contracts since 2014 in an effort to install all of the large meters through the City in meter setters and vaults that are easily accessible for maintenance and testing purposes. Similar to the Annual Water System Contract, the contract has over 200 individual bid items representing water system components and has an annual budget of $750,000 per year.

To date, the program has replaced 329 water meters since its inception in 2014. The success of the program has led to increased momentum with the focus now shifting from 1.5" and 2" meters to the larger, more complicated 3" and 4" meters. The latest replacement contract was awarded in 2021 and a total of $3,226,872 has been spent on upgrading the infrastructure.

As part of the meter replacement program, the City is evaluating customer consumption to verify that the meters are appropriately sized. Because conventional water meters less accurately measure low flow rates, starting in 2017, highly sensitive "low-flow" ultrasonic meters are being installed in all applications.

The current capital projects in the City's five-year capital plan are listed below. The costs include construction and professional services. The City updates its capital plan annually.

Exhibit 8: City Five-Year Capital Improvement Plan for Water

Project	Five-Year Total
Water Line Replacement (Annual Service Contract)	$9,000,000
Water Meter Replacement	$1,000,000
Large Waterline Replacements Projects	$7,000,000
TOTAL	**$17,000,000**

2.10 RIVANNA WATER AND SEWER AUTHORITY

The RWSA provides wholesale water supply, as well as drinking water for Charlottesville Utilities and the Albemarle County Service Authority (ACSA). The City's share of RWSA's budget for water totals $10,113,100 for FY'25 including operations costs and debt service for infrastructure. This is a proposed increase to the City of 19% ($1,616,400) over the approved FY'24 budget. Operating expenses include personnel costs (staff salaries and benefits), general services costs (professional fees, utilities, insurance, permits, and data and voice communications), and operation and maintenance costs (chemicals, building repairs, equipment maintenance, technology, and communications). Debt service provides funding to construct and renew major infrastructure including water treatment plants, pumping stations, piping systems and reservoir dams.

2.10.1 Infrastructure

RWSA's Capital Improvement Plan (CIP) for water for Fiscal Years 2025-2029 has been prepared as a strategic and financially responsible plan to complete major infrastructure construction projects. The projects included in the CIP are necessary to achieve the RWSA's core mission of providing safe, high-quality drinking water for Charlottesville Utilities and ACSA. The CIP is a five-year planning document

which provides an estimated budget and schedule for projects as they advance through the design and construction process.

The infrastructure requirements of the CIP are developed through RWSA's Asset Management and Master Planning programs to address capacity demands, regulatory mandates and rehabilitation needs. Each year, these projects are reviewed and prioritized by the RWSA management team and brought forth for review by the Board of Directors.

During the past year, capital projects were completed and as such are being removed from the FY'25-FY'29 CIP. These projects are:

- South Rivanna Reservoir to Ragged Mountain Reservoir Right-of-Way
- Observatory Water Treatment Plant Improvements
- South Rivanna Hydro Decommissioning
- South Rivanna Water Treatment Plant Improvements

The total five-year CIP for water is approximately $132.97 million. This includes projects already in previous CIPs which have been modified, as well as new projects.

Exhibit 9: RWSA Water Infrastructure Projects to Serve City

Project	FY'25-FY'29 Total (millions)
Ragged Mountain Reservoir to Observatory WTP Raw Waterline	$29.6 M
Ragged Mountain Reservoir to Observatory WTP Pump Station	$10.18 M
South Reservoir to Ragged Mountain Intake Facilities	$38.59 M
South Rivanna Reservoir Aeration & Ragged Mountain Reservoir HLOS System	$6.6 M
Central Waterline	$37.7 M
Emmet Street Betterment	$6.74 M
South Rivanna Water Treatment Plant Improvements	$1.1 M
North Rivanna Water Treatment Plant Decommissioning	$2.46 M
TOTAL	**$132.97 M**

2.10.2 Actual Water Flows

The City portion of Urban Area operation rates and charges are based on water usage or flows. The estimated flows for the City will increase by 1% for the FY'25 budget.

Exhibit 10: RWSA Water Usage Allocation

	Current	Projected	% Change
City	48%	49%	1%
ACSA	52%	51%	-1%

2.10.3 City Share of RWSA Water Costs

The FY'25 budget increases the budget by $788,100 in operating expenses and an increase of $828,300 in debt service charges for a total budget increase of approximately $1,616,400, or 19% above the FY'24 budget. RWSA's costs to the City for water are:

- $3.363 per 1,000 gallons for operating expenses.
- $376,226 per month for debt service charges.

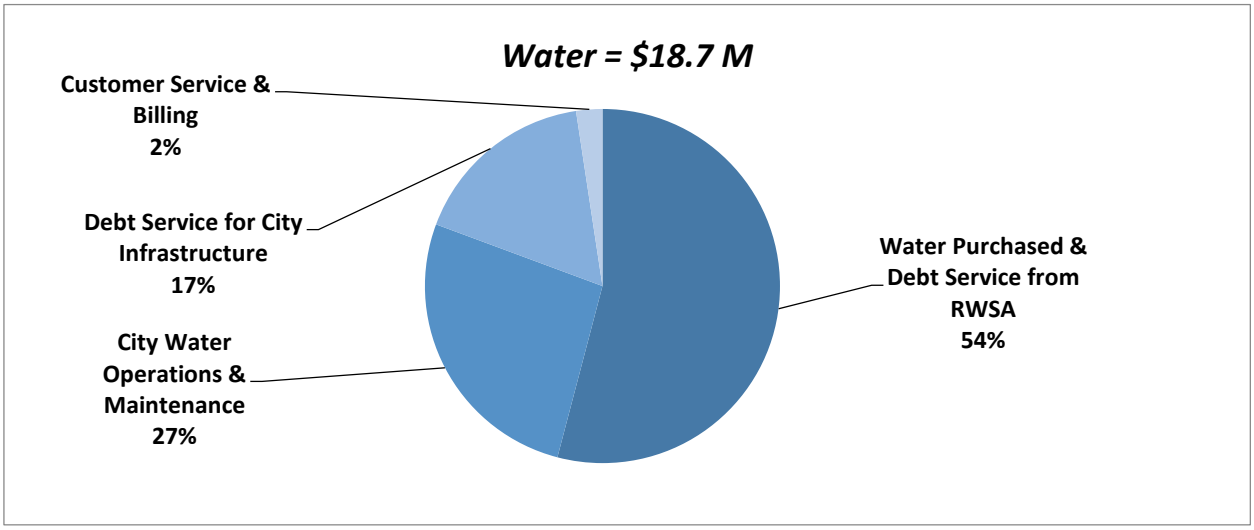
2.11 REVENUE REQUIREMENTS

This section of the report outlines the current and projected costs of operating and maintaining the City's water system which constitute the revenue requirements (i.e., the amount of revenue required to be collected from customers).

2.11.1 FY'25 Revenue Requirements

The FY'25 revenue requirements for the water utility totals $18,697,932. The following graphic shows the major categories of expenses, the largest being the purchase of water and debt service from RWSA (54% of the FY'25 budget).

Exhibit 11: Water Utility FY'25 Revenue Requirements



The revenue requirements for the water utility are approximately 10% higher than the current year. Debt service includes payments on existing bonds and new bonds to be issued by the City to finance the utility's capital improvement plan.

Exhibit 12: Comparison of Water Revenue Requirements FY'24 to FY'25

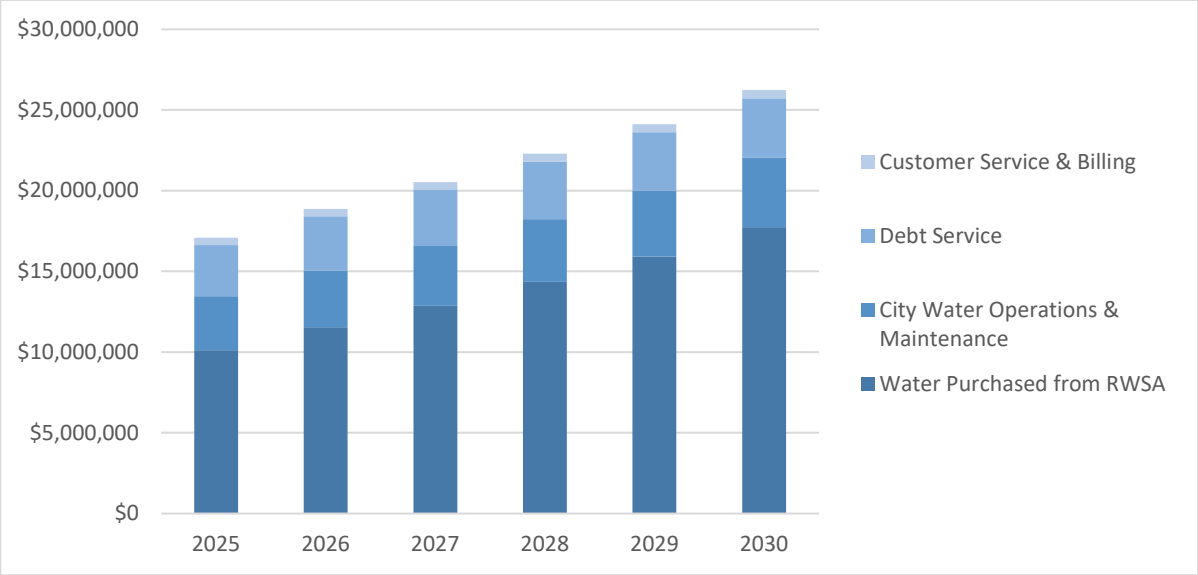
Revenue Requirements	Current	Proposed	$ Change	% Change
Water Purchased & Debt Service from RWSA	$8,496,700	$10,113,100	$1,616,400	19.0%
City Water Operations & Maintenance	$4,799,064	$4,968,865	$169,801	3.5%
Debt Service for City Infrastructure	$3,315,507	$3,169,627	($145,880)	-4.4%
Customer Service & Billing	$375,946	$446,340	$70,394	18.7%
TOTAL	**$16,987,217**	**$18,697,932**	**$1,710,715**	**10.1%**

2.11.2 Projected Water Revenue Requirements

To project operating expenses for FY'26-FY'30, the FY'25 water revenue requirements are escalated using historic averages except for the cost to purchase water from RWSA which is based on projected rate increases. In addition to operating expenses, annualized capital costs are included. The City issues bonds to fund water capital projects to mitigate the financial burden on existing customers and improve equity by spreading the costs of long-term assets over all customers who will use and benefit from the assets. The City is currently paying debt service for bonds previously issued and plans to issue bonds to fund its water CIP.

The revenue requirements for FY'26 through FY'30 are shown in the following exhibit. The average annual increase is 9.0%.

Exhibit 13: Projected Water Revenue Requirements FY'26-FY'30



2.12 CUSTOMERS AND USAGE

The City currently provides water service to just over 14,500 customers. The exhibit below provides a breakdown of current water customers by water meter size. Residential customers (5/8" water meters) comprise most the City's water customers (94.4%).

Exhibit 14: Current Water Customers by Meter Size

Water Meter Size (inches)	# of Customers	% of Customers
5/8	13,729	94.4%
1	275	1.9%
1.5	256	1.8%
2	220	1.5%
3	41	0.3%
4	14	0.1%
6	1	0.01%
14	1	0.01%
TOTAL	**14,537**	

The exhibit below provides a projection of water usage for the upcoming fiscal year in cubic feet.

Exhibit 15: Projected FY'25 Water Usage

Usage	Cubic Feet
Projected Total	192,924,080

The City's water service area corresponds with the municipal boundary and thus is fixed. The City has been adding water customers the last several years as a result of redevelopment and infill development. It is difficult to project the number of future water customers and water usage; thus, no growth is factored into the planning period.

2.13 MONTHLY SERVICE CHARGE

The Monthly Service Charge for water funds a portion of the fixed and infrastructure costs associated with being a customer of the water utility. The charge is proportionate to the size of a water meter. The size of a water meter regulates the amount of water that can pass through the meter thus provides a proportionate measure of the different impact of customers. For example, one 1-inch meter uses as much water as two and a half 5/8-inch meters.

The revenue requirements for the water utility have increased, including fixed costs and infrastructure. The Monthly Service Charges for FY'25 will increase about 15%. Most customers will see a $1.00 increase in their Monthly Service Charge for water.

Exhibit 16: Monthly Service Charge for FY'25 for Water

Water Meter Size (inches)	Current Monthly Service Charge	Proposed Monthly Service Charge	$ Change	% Change
5/8	$6.50	$7.50	$1.00	15.38%
1	$16.25	$18.75	$2.50	15.38%
1.5	$32.50	$37.50	$5.00	15.38%
2	$52.00	$60.00	$8.00	15.38%
3	$104.00	$120.00	$16.00	15.38%
4	$162.50	$187.50	$25.00	15.38%
6	$325.00	$375.00	$50.00	15.38%
14	$2,128.75	$2,456.25	$327.50	15.38%

2.14 WATER FACILITY FEES

Water Facility Fees were developed and established for the City in 2008. Facility fees are one-time charges levied to offset existing or planned future capital costs necessary to meet the service needs of City water customers. These fees are assessed when new water service is requested where none has previously been provided, or an increase in capacity where service already exists, water facility fees are charged for this new increased demand for system capacity.

There are no changes being proposed to the Water Facility Fee for FY'25.

2.15 WATER RATES

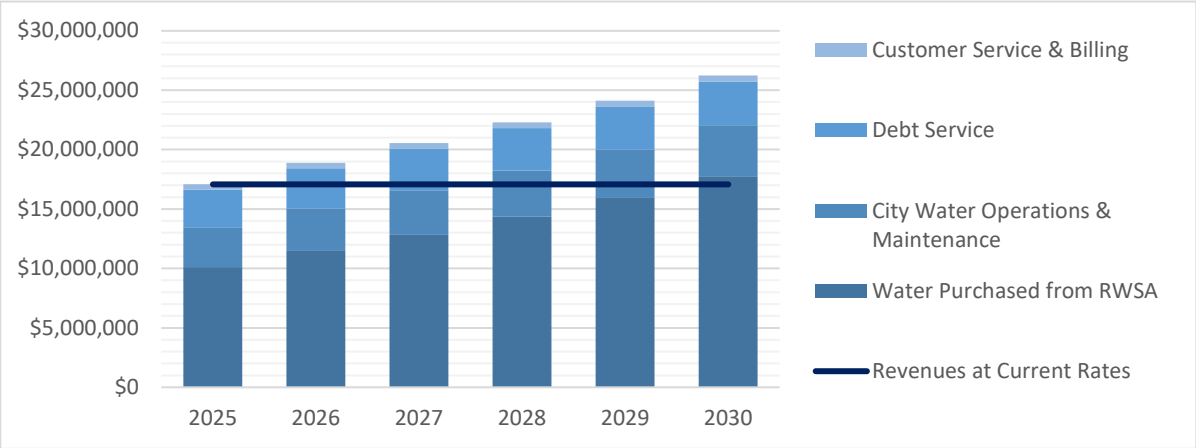
2.15.1 Total Revenue Projections at Current Rates

The projected cost (revenue requirements) of the system is combined with the projected water customers and usage to determine an appropriate financial plan and set water rates for the planning period.

The adequacy of revenues from current rates is evaluated to determine if existing rates are enough to recover the revenue requirements. As shown in the following exhibit, current water rates are not enough

to meet the projected revenue requirements.

Exhibit 17: Water Revenue Requirements and Revenue at Current Rates



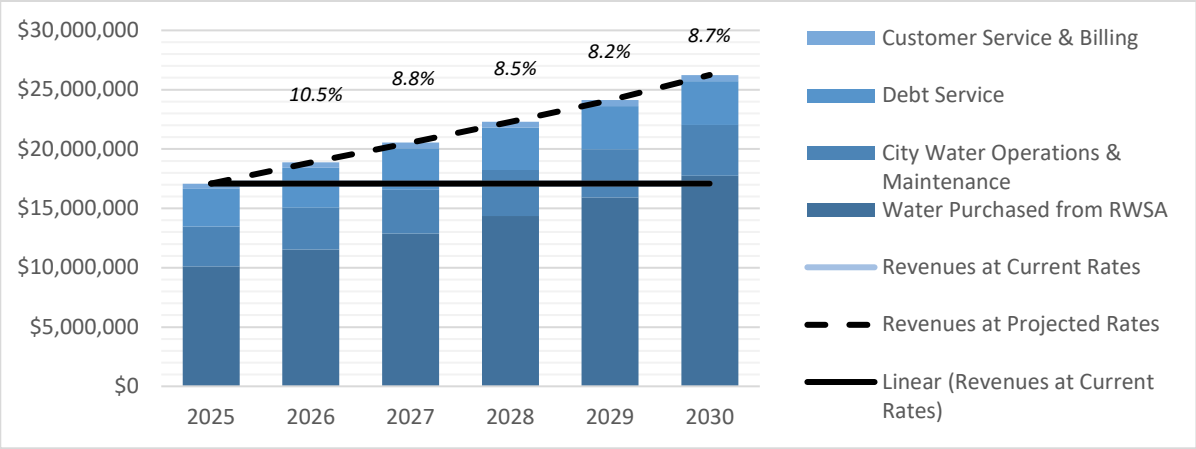
2.15.2 Revenue Projections at Current and Projected Rates

To maintain the financial health of the City's Water Fund over the planning period, revenue needs to be increased. In addition to covering the revenue requirements, revenue must also be enough to satisfy the City's long-term financial policies.

To address these shortfalls, rates will need to be adjusted on a multi-year basis. Note: water rates are evaluated and adopted on an annual basis. A multi-year approach helps manage rate increases over the planning period and allows for proper planning and adjustment by customers and the City.

The exhibit below compares the revenue requirements (with percent change from the previous year) with total revenue projections at current rates as well as total revenue projected at new rates for FY'25 and the years of the planning period for water.

Exhibit 18: Water Revenue Requirements, Revenue at Current Rates and Revenue at Projected Rates



2.15.3 Water Rate Design

There are no recommendations to change the City's current seasonal water rate design.

2.15.4 Water Rates FY'25

Water rates are recommended to increase by 2.3% for FY'25.

Exhibit 19: Water Rates FY'25

Rates (per 1,000 cf)	Current	New	$ Change	% Change
Water – Summer	$86.86	$88.83	$1.97	2.3%
Water – Winter	$66.82	$68.33	$1.51	2.3%

2.15.5 Projected Water Rates FY'26-FY'30

Based on the projected revenue requirements for FY'26-FY'30 and customer usage, the projected water rates for this planning period are shown below.

Exhibit 20: Projected Water Rates FY'26-FY'30

		PROJECTED					
	Current	2025	2026	2027	2028	2029	2030
Summer	$86.86	$88.83	$98.15	$106.82	$115.91	$125.46	$136.41
Winter	$66.82	$68.33	$75.50	$82.18	$89.17	$96.51	$104.94
Summer $ Change		$1.97	$9.32	$8.68	$9.09	$9.55	$10.95
Summer % Change		2.3%	10.5%	8.8%	8.5%	8.2%	8.7%
Winter $ Change		$1.51	$7.17	$6.67	$6.99	$7.34	$8.43
Winter % Change		2.3%	10.5%	8.8%	8.5%	8.2%	8.7%

2.16 CUSTOMER IMPACTS

The table below illustrates the average monthly water bill for customers based on water meter size with the recommended water rate increases and Monthly Service Charge.

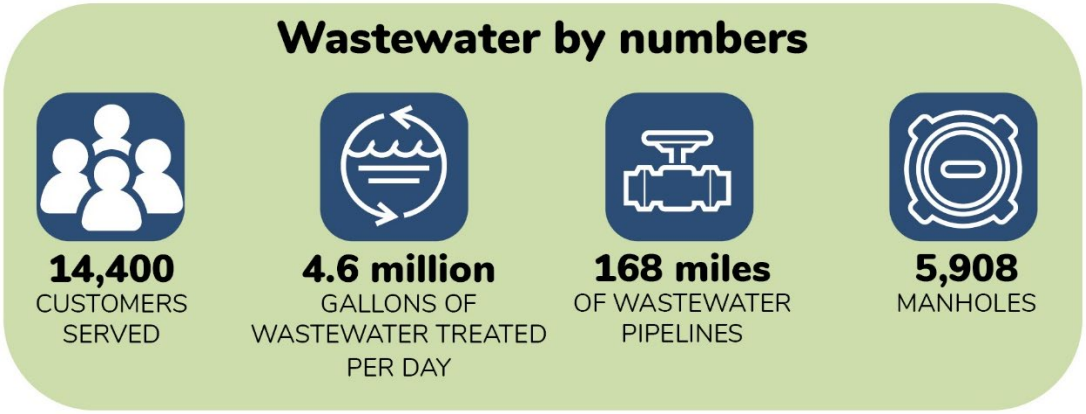
Exhibit 21: Customer Impacts at FY'25 Water Rates and Charges

Water Meter Size	Median Water Usage/Month (cf)	Current Ave. Monthly Bill	Proposed Ave. Monthly Bill	$ Increase	% Increase
5/8	400	$36.57	$38.25	$1.68	4.60%
1	1,760	$148.55	$154.04	$5.50	3.70%
1.5	3,410	$288.83	$299.63	$10.80	3.74%
2	5,680	$478.97	$496.63	$17.67	3.69%
3	11,750	$987.25	$1,023.24	$36.00	3.65%
4	43,720	$3,448.93	$3,548.33	$99.40	2.88%

3. SEWER

3.1 OVERVIEW

The City operates and maintains the sanitary sewer collection system within its boundaries which consists of about 168 miles of pipe and 5,908 manholes. The collection system was constructed over a period of many decades using several different types of materials – terra cotta (clay), PVC, ductile iron, and concrete. The pipes vary in age from about 15 to 100 years old and range in size from 6-inch to 30-inch in diameter. Manholes are either brick or pre-cast concrete. The flows from the City's system (1.69 billion gallons per year or 4.6. million gallons per day) combine flows from Albemarle County Service Authority and empty into RWSA interceptors. These combined flows are carried to RWSA's Moores Creek Advanced Water Resource Recovery Facility.



3.1.1 2024 Customer Satisfaction Survey

Results of the 2024 Utilities Customer Satisfaction Survey show high levels of satisfaction with the reliability and value of our wastewater services. Of those surveyed, 98% are satisfied and neutral about the reliability of wastewater service, and 95% of respondents rate the value of their wastewater service as fair and above (good and excellent).

3.2 FATS, OILS, AND GREASE (FOG)

The City of Charlottesville prohibits the discharge of fats, oils, and grease (FOG) down the drain. In excessive amounts, these contaminants will cause or contribute to a blockage in the sanitary sewer collection system. FOG accumulates in sewer pipes, and over time, can build up and restrict the flow in the pipe, causing untreated wastewater to back up into businesses or homes, or cause manholes to overflow in the street (commonly referred to as sanitary sewer overflow or SSO). This SSO can potentially enter a storm drain and contaminate local waters. In an effort to prevent these events, the City of Charlottesville maintains an active FOG program that routinely inspects and advises best management practices to over 300 city restaurants on an annual basis on how to properly dispose of FOG.

3.3 WASTEWATER ASSISTANCE PROGRAM

The Wastewater Assistance Program (WWAP) was created by City Council in FY’12 to assist customers who had difficulty paying their bills due to extreme circumstances. This program is administered by the Utility Billing Office in a similar fashion as the established Gas Assistance Program. Twenty-eight customers received assistance in FY’23, totaling $3,548.50. The FY’25 wastewater budget does not include any money for WWAP, since there are adequate funds ($29,815) from prior fiscal years. In recent years, there have been additional state and federal money available which has limited the need for participation in the WWAP. Comparable assistance is available through the Water Assistance Program (WWAP).

3.4 WASTEWATER INFRASTRUCTURE ASSET MANAGEMENT

The City has several challenges within the sewer collection system, such as sewer lines that are undersized, points in the system that restrict flow, and sewer lines that run near and under structures. Also, most of the existing system was installed prior to 1970. In 2008, the Department of Utilities began planning and budgeting for a substantial long-term sewer system evaluation and rehabilitation program. The need for such a program arose to address the system as it continued to age and deteriorate. This deterioration allows for infiltration and inflow (I/I) to enter the sewer system. The terms "inflow" and "infiltration" apply to excess water that enters the sanitary sewer system. Inflow is surface water that flows into the system from various sources, such as defects in manhole covers and improperly connected roof drains. Infiltration is groundwater that seeps into the system through pipe cracks, broken joints, and deteriorated manholes. I/I can cause sanitary sewer overflows (SSOs) and increased costs resulting from unnecessary wastewater treatment, in addition, root intrusion can cause blockages, partial to full collapses of pipe, and increased emergency repair situations. Before 2008, there was only operational maintenance performed to keep the system “working” and very little work completed towards system-wide improvement.

3.4.1 Sanitary Sewer Rehabilitation

In 2009, the City awarded a multi-year, multi-million-dollar contract utilizing a “find-and-fix” approach for sewer repair and rehabilitation. The rehabilitation program identifies needed repairs to restore the integrity of the sewer system which are necessary to reduce the amount of inflow and infiltration into the sewer system. The work encompasses the rehabilitation of sewer manholes and sewer lines, as well as completion of particularly difficult or time-consuming sewer replacement projects. In addition, crews have been performing CCTV (closed-circuit televising) and smoke testing throughout the City system. Any deficient pipes or structures are immediately added to the list for rehabilitation/replacement under the same contract.

"Find-and-fix" rehabilitation projects are unique projects. The exact work is not known at the time of bidding, so all potential work items must be included in the bid form (bid form includes over 200 bid items). The contractor performs the evaluation work prior to construction, primarily TV inspections, submits the evaluation to the Engineer for review, and the Engineer then decides on the final rehabilitation work needed within seven (7) days. The work is fast-paced and allows for emergency situations to be addressed within 48 hours. The City estimates savings exceeding $5 million following this find-and-fix approach as well as taking half the time to complete a project compared to the traditional design-bid-build process.

To date, under this contract, the Department has completed:

- 606,268 linear feet (LF) (114.8 miles) of CCTV
- 292,120 LF (55.3 miles) of CIPP, 6" to 21" in diameter
- 23,396 LF (4.4 miles) of pipe replacement, 6" to 18" in diameter
- 267 point repairs
- 6,360 vertical feet (VF) (1.2 miles) of manhole rehabilitation
- 208 manhole replacements
- 701 frame and covers replaced

In order to complete this amount of work, the Department has issued five (5) term contracts over 14 years and spent a total of $24,857,298 on construction. The footage of pipe rehabilitation or replacements completed to date under this program totals 278,991 LF, or 52.84 miles, which equates to 31.3% of the City's total system.

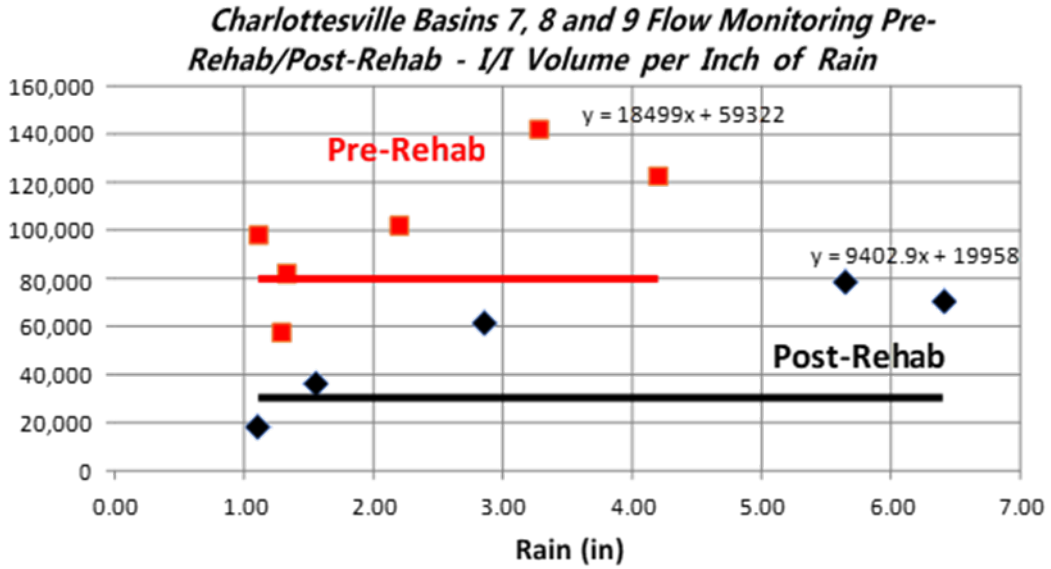
As stated above, approximately 31.3% of the sanitary sewer system has been rehabilitated or replaced, under the contract, and two (2) basins have had comprehensive rehabilitation. The remaining 22 sewer basins have all had rehabilitation performed which has addressed major defects. As the program continues, we will work through the City for comprehensive rehabilitation through all 24 basins.

The rehabilitation program will continue into FY'25 utilizing available proceeds from the previous bond issues to fund the needs in the upcoming fiscal year. Historically, on a yearly contract timeline, this budget has allowed an average of:

- 50,000 LF of CCTV
- 21,000 LF of CIPP
- 1,900 LF of pipe replacement
- 22 point repairs
- 19 manhole replacements
- 500 VF of manhole rehabilitation
- 63 frame and cover replacements

The Initial work was centered on the Schenks Branch area (City Basins 7, 8, and 9), which was identified as a high priority in previous studies. Exhibit 22 is a table that demonstrates the success that the program has had with removing infiltration and inflow around the Schenks Branch area. The associated graph in the Exhibit shows the reduction in post-rehab flow levels of I&I per inch of rain as being close to half of the pre-rehab flows. Due to this success, work has since continued into other areas of the City where similar results have been observed. Over the last several years, the rehabilitation work has been focused on the southern part of the City in the Fifeville, Ridge Street, and Belmont neighborhoods.

Exhibit 22: Basins 7, 8, and 9 Flow Monitoring Results



The current capital projects in the City's five-year capital plan are listed below.

Exhibit 23: City Five-Year Capital Improvement Plan for Wastewater

Project	Five-Year Total
Rehabilitation/Replacement Program	$10,000,000
TOTAL	**$10,000,000**

3.5 RIVANNA WATER AND SEWER AUTHORITY

RWSA provides wastewater treatment services for Charlottesville Utilities and ACSA. The City's total RWSA costs include, operating expenses and debt service costs, are $10,264,300 an increase of 10.4% over the current year's budget. Operating expenses include personnel costs (staff salaries and benefits), general services costs (professional fees, utilities, insurance, permits, and data and voice communications), and operation and maintenance costs (chemicals, building repairs, equipment maintenance, technology, and communications). Debt service charges provide funding to construct and

renew major infrastructure including wastewater treatment plants, pumping stations, and piping systems.

3.5.1 Infrastructure

RWSA's Capital Improvement Plan (CIP) for wastewater for Fiscal Years 2025-2029 has been prepared as a strategic and financially responsible plan to complete major infrastructure construction projects. The projects included in the CIP are necessary to achieve the RWSA's core mission of providing wastewater treatment services for Charlottesville Utilities and ACSA. The CIP is a five–year planning document which provides an estimated budget and schedule for projects as they advance through the design and construction process.

The infrastructure requirements of the CIP are developed through RWSA's Asset Management and Master Planning programs to address capacity demands, regulatory mandates and rehabilitation needs. Each year, these projects are reviewed and prioritized by the RWSA management team and brought forth for review by the Board of Directors.

The total FY'25-FY'29 CIP for sewer is approximately $37.26 million. This includes projects already in previous CIPs which have been modified.

Exhibit 24: RWSA Sewer Projects for the City

Project	FY'25 – FY'29 Total (millions)
Upper Schenks Branch Interceptor	$1.18 M
Interceptor Sewer and Manhole Improvements	$2.16 M
Moores Creek AWRRF Engineering and Administration Building	$18.8 M
Moores Creek AWRRF Improvements	$15.12 M
TOTAL	**$37.26 M**

3.5.2 Actual Wastewater Flows

The City portion of Urban Area operation rates and charges are based on wastewater treatment (flows). The estimated flows for the City will increase for FY'25.

Exhibit 25: RWSA Sewer Production Allocation

	Current	Projected	% Change
City	46%	47%	1%
ACSA	54%	53%	-1%

3.5.3 City Share of RWSA Wastewater Costs

The FY'25 budget increases the budget by $615,700 in operating expenses and an increase of $352,000 in debt service charges for a total budget increase of approximately $967,700, or 10.4% above the FY'24 budget. RWSA's costs to the City for wastewater are:

- $3.247 per 1,000 gallons for operating expenses.
- $424,222 per month for debt service charges.

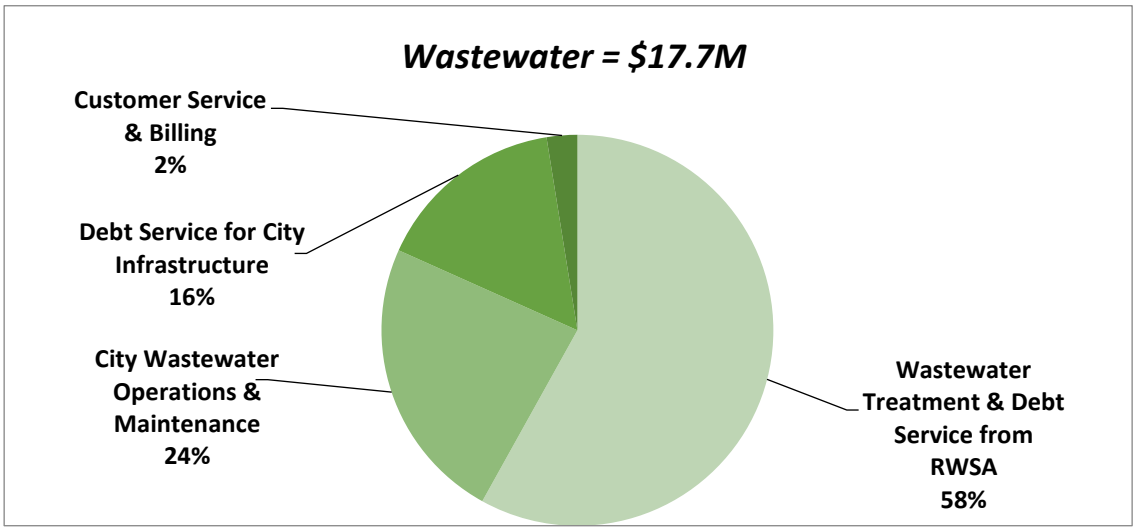
3.6 REVENUE REQUIREMENTS

This section of the report outlines the current and projected costs of operating and maintaining the City's sewer system which constitute the revenue requirements (i.e., the amount of revenue required to be collected from customers).

3.6.1 FY'25 Revenue Requirements

The FY'25 revenue requirements for the sewer utility totals $17,675,799, the largest component being the purchase of wastewater treatment from RWSA (58% of the budget).

Exhibit 26: Sewer Utility FY'25 Revenue Requirements



The revenue requirements for wastewater are 5.7% higher than the current year.

Exhibit 27: Comparison of Sewer Revenue Requirements FY'24 to FY'25

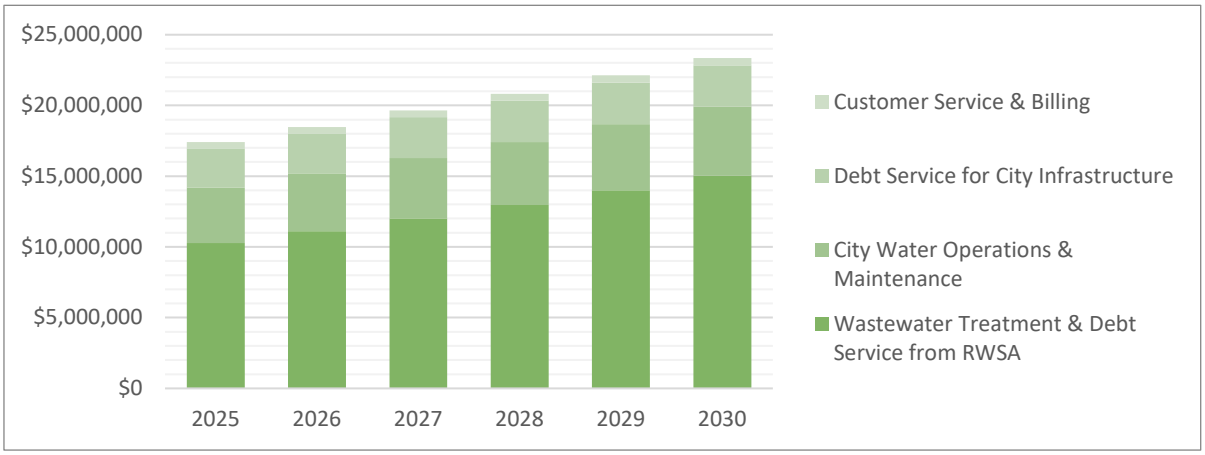
Revenue Requirements	Current	Proposed	$ Change	% Change
Wastewater Treatment & Debt Service from RWSA	$9,296,600	$10,264,300	$967,700	10.4%
City Wastewater Operations & Maintenance	$4,165,163	$4,178,394	$13,231	0.3%
Debt Service for City Infrastructure	$2,891,188	$2,786,765	($104,423)	-3.6%
Customer Service & Billing	$365,946	$446,340	$80,394	22.0%
TOTAL	**$16,718,897**	**$17,675,799**	**$956,902**	**5.7%**

3.6.2 Projected Revenue Requirements

To project operating expenses for FY'26-FY'30, the FY'25 wastewater revenue requirements are escalated using historic averages except for the cost to purchase wastewater treatment from RWSA which is based on projected rate increases. In addition to operating expenses, annualized capital costs are included. The City issues bonds to fund wastewater capital projects to mitigate the financial burden on existing customers and improve equity by spreading the costs of long-term assets over all customers who will use and benefit from the assets. The City is currently paying debt service for bonds previously issued and plans to issue bonds to fund its wastewater CIP.

The revenue requirements for FY'25 through FY'30 are shown below. The average annual increase is 6.0%.

Exhibit 28: Projected Sewer Revenue Requirements FY'25-FY'30



3.7 CUSTOMERS AND USAGE

The City currently provides sewer service to 14,405 customers. The exhibit below provides a breakdown of current sewer customers by water meter size. Residential customers (5/8 water meters) comprise most of the City's sewer customers (94.5%).

Exhibit 29: Current Sewer Customers by Meter Size

Water Meter Size (inches)	# of Customers	% of Customers
5/8	13,614	94.5%
1	269	1.9%
1.5	250	1.7%
2	215	1.5%
3	41	0.3%
4	14	0.1%
6	1	0.01%
14	1	0.01%
TOTAL	**14,405**	

The exhibit below provides a projection of sewage treatment for the upcoming fiscal year in cubic feet.

Exhibit 30: Projected FY'25 Sewage Production

Usage	Cubic Feet
Projected Total	169,742,326

The City's sewer service area corresponds with the municipal boundary and thus is fixed. The City has been adding sewer customers the last several years as a result of redevelopment and infill development. It is difficult to project the number of future sewer customers and sewage production; thus, no growth is factored into the planning period.

3.8 MONTHLY SERVICE CHARGE

Like water, the City assesses a Monthly Service Charge for sewer to recoup the fixed costs of providing utility services such as customer service, billing, meter services, and infrastructure. Also, as with the water monthly service charge, the sewer monthly service charge is proportionate to water meter size.

The revenue requirements for the water utility have increased, including fixed costs and infrastructure. The Monthly Service Charges for FY'25 will increase about 15%. Most customers will see a $1.00 increase in their Monthly Service Charge for sewer.

Exhibit 31: Monthly Service Charge for FY'25 for Sewer

Water Meter Size (inches)	Current Monthly Service Charge	Proposed Monthly Service Charge	$ Change	% Change
5/8	$6.50	$7.50	$1.00	15.38%
1	$16.25	$18.75	$2.50	15.38%
1.5	$32.50	$37.50	$5.00	15.38%
2	$52.00	$60.00	$8.00	15.38%
3	$104.00	$120.00	$16.00	15.38%
4	$162.50	$187.50	$25.00	15.38%
6	$325.00	$375.00	$50.00	15.38%
14	$2,128.75	$2,456.25	$327.50	15.38%

3.9 SEWER FACILITY FEES

Sewer Facility Fees were developed and established for the City in 2008. Facility fees are one-time charges levied to offset existing or planned future capital costs necessary to meet the service needs of City sewer customers. These fees are assessed when new sewer service is requested where none has previously been provided, or an increase in capacity where service already exists, sewer facility fees are charged for this new increased demand for system capacity.

There are no changes to the Sewer Facility Fee for FY'25.

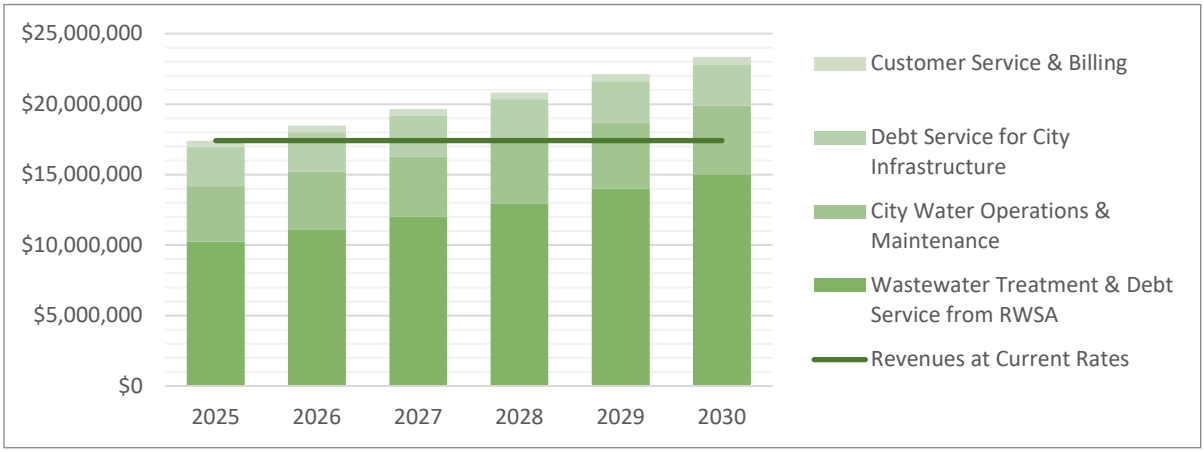
3.10 SEWER RATES

3.10.1 Revenue Projections at Current Rates

The projected costs (revenue requirements) of the system are combined with the projected sewer customers and usage to determine an appropriate financial plan and set sewer rates for the planning period.

The adequacy of revenues from current rates is evaluated to determine if existing rates are enough to recover the revenue requirements. As shown in the following exhibit, current sewer rates are not enough to meet the projected revenue requirements.

Exhibit 32: Sewer Revenue Requirements and Revenue at Current Rates



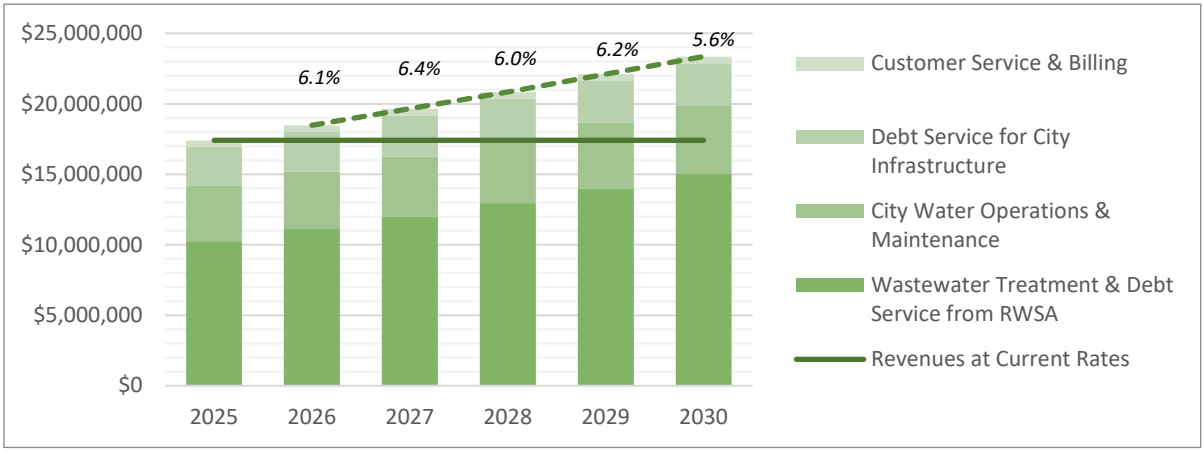
3.10.2 Revenue Projections at Current and Projected Rates

In order to maintain the financial health of the City's Sewer Fund over the planning period, revenue needs to be increased. In addition to covering the revenue requirements, revenue must also be enough to satisfy the City's long-term financial policies.

To address these shortfalls, rates will need to be adjusted on a multi-year basis. Note: sewer rates are evaluated and adopted on an annual basis. A multi-year approach helps manage rate increases over the planning period and allows for proper planning and adjustment by customers and the City.

The exhibit below compares the revenue requirements (with percent change from the previous year) with total revenue projections at current rates as well as total revenue projections at new rates for FY'25 and the years of the planning period for sewer.

Exhibit 33: Sewer Revenue Requirements, Revenue at Current Rates and at Projected Rates



SEWER RATE DESIGN

3.10.3 Sewer Rate Design

There are no recommendations to change the City's current sewer rate design.

3.10.4 Sewer Rates FY'25

Sewer rates for FY'25 will increase by 4.8%

Exhibit 34: Sewer Rates FY'25

Current	Proposed	$ Change	% Change
$88.34	$92.55	$4.21	4.8%

3.10.5 Projected Sewer Rates FY'26-FY'30

Based on the projected revenue requirements for FY'26-FY'30 and customer usage, the projected sewer rates for this planning period are shown below.

Exhibit 35: Projected Sewer Rates FY'26 – FY'30

		PROJECTED					
	Current	2025	2026	2027	2028	2029	2030
	$88.34	$92.55	$98.22	$104.46	$110.72	$117.57	$124.10
$ Change		$4.21	$5.68	$6.24	$6.25	$6.85	$6.53
% Change		4.8%	6.1%	6.4%	6.0%	6.2%	5.6%

3.11 CUSTOMER IMPACTS

The table below illustrates the average monthly sewer bill for customers based on water meter size with the FY'25 sewer rate increases and monthly service charge.

Exhibit 36: Customer Impacts at FY'25 Sewer Rates and Charges

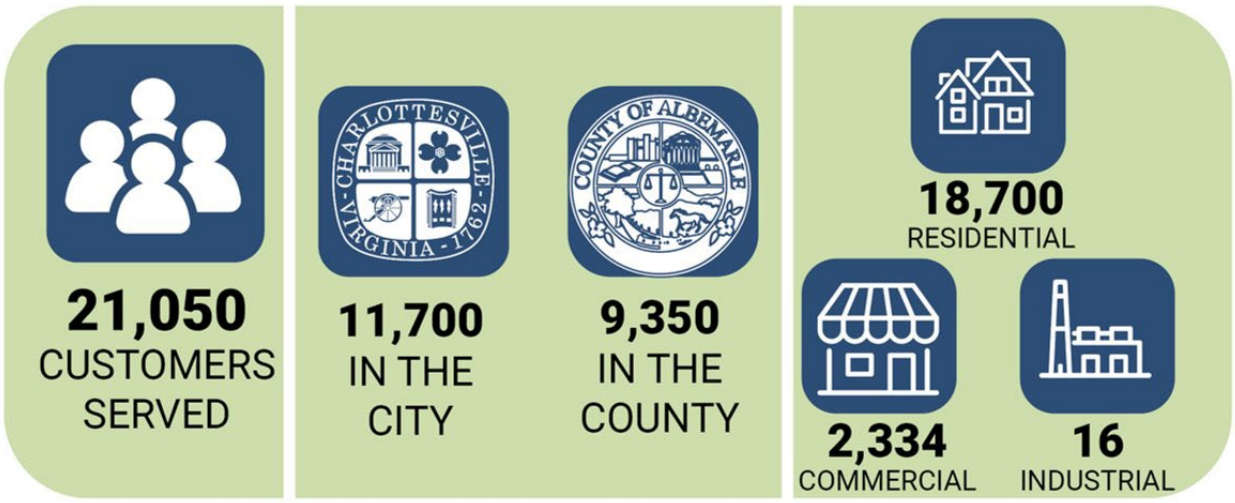
Water Meter Size	Median Sewer/Month (cf)	Current Ave. Monthly Bill	Proposed Ave. Monthly Bill	$ Increase	% Increase
5/8	400	$41.84	$44.52	$2.68	6.41%
1	1,760	$171.73	$181.63	$9.90	5.77%
1 1/2	3,410	$333.74	$353.08	$19.34	5.80%
2	5,680	$553.77	$585.66	$31.89	5.76%
3	11,750	$1,142.00	$1,207.41	$65.42	5.73%
4	43,720	$4,024.72	$4,233.60	$208.88	5.19%

4. NATURAL GAS

4.1 OVERVIEW

The City of Charlottesville's natural gas utility is one of three (3) municipally owned gas utilities in the Commonwealth of Virginia and has been providing service to the residents of Charlottesville and Albemarle County for about 150 years. The gas utility operates on a self-supporting basis and is not designed to generate a profit. However, due to various factors, such as winter weather and an increase in the number of customers, the utility can generate a profit or loss in any given year. Rates are set annually at a breakeven point and only cover the utility's operating budget and the costs associated with the purchase of natural gas from the City's provider. The Charlottesville gas utility currently provides service to Charlottesville, and to various portions of Albemarle County. Within the City of Charlottesville, 82.5% of the utility customers are provided natural gas service. The system consists of approximately 340 miles of main and over 304 miles of service lines. The system currently serves 21,050 customers (11,700 of which are in the City and 9,350 in Albemarle County).

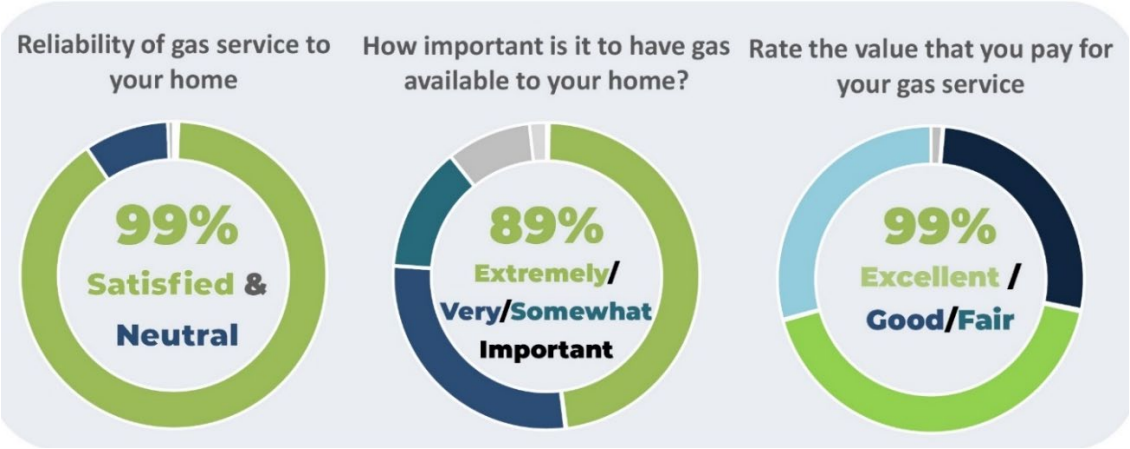
4.1.1 Our Customers



Three (3) levels of service are provided to meet the needs of various customers: Firm, Interruptible, and Small Volume Transportation. Most consumers are firm customers, with a priority for gas use at all times. Currently, there are nine (9) customers who are provided interruptible service. These customers are not assured of continuous service. They must also maintain an alternate fuel system and be prepared to switch to that alternate fuel within one hour of notification. This customer class is vital to the system because it allows the City to stay within the volume requirements set by the City's provider, and still meet the gas needs of firm customers in peak demand periods. Interruptible customers pay a lower rate than firm customers because they have no service assurance in peak demand periods. Therefore, they do not share in the cost of providing peak period supply. Transportation customers are customers who purchase their own gas from independent suppliers and transport it through the City's distribution system to their location. All transportation services are on an interruptible basis. The City currently has only one Small Volume Transportation customer.

4.1.2 2024 Customer Satisfaction Survey

Our most recent Utilities Customer Satisfaction Survey revealed high levels of satisfaction with the reliability and value of our gas service, as well as a strong desire to maintain access to gas service. Ninety nine percent of respondents are satisfied or neutral with the reliability of gas service, and 99% of respondents rated the value of their gas service as fair, good, or excellent. Additionally, 89% of respondents stated that the availability of natural gas to their home or business is important, with a majority stating its availability is extremely important.



4.2 SAFETY

Natural gas is a common energy source in our community, and we prioritize gas safety awareness among the public. Our Public Gas Safety Awareness Plan complies with, and exceeds, federally mandated regulations that follow the guidance of the American Petroleum Institute (API) Recommended Practice (RP) 1162. Since 2006, there has been a 142% increase in our customers' ability to recognize the smell of natural gas and a 77% reduction in gas line damage caused by third-party excavation. These significant gains in gas safety awareness are directly attributed to our robust safety program, which includes the following:

"Dig with Care" Program – Although most commercial excavators are aware of the "call VA811 before digging" law, the number of third-party excavation damage to our gas lines is on the rise. Part of the problem lies with excavators not following the dig with care guidelines. "No Reasonable Care" gas line damage jumped from 28% in 2012 to 50% in 2013. To address the situation, we launched the Education Program "Dig with Care" featuring the following elements:

- **Marty's Minute** – A series of radio spots with the contractor Marty. Our well-intended fictitious character shares his wisdom from years of experience in construction and the importance of digging with care. These spots have been aired during the early morning drive hours on a local Country Radio station.
- **Outreach and Training of Professional Excavators** – These events include VA811 Day with visits to new construction sites, and excavation safety training with the State Corporation Commission (SCC). These outreach events promote and reinforce safe digging practices and are an excellent opportunity to interact directly with local excavators, contractors, plumbers, and building inspectors.
- **Outreach through Nuevas Raices** – Nuevas Raices is a Spanish language newspaper that serves

Spanish speakers in Central Virginia. To help ensure our outreach efforts are as inclusive as possible, we run a monthly print advertisement in this newspaper that features the VA811 safety message in Spanish. A high percentage of construction workers in our area are Spanish speakers and communicating to them in the language they are most comfortable ensures we are effectively reaching an important target audience.

Since the "Dig with Care" program was launched, we have experienced a 56% reduction in gas line damage caused by third-party excavators (from 2.83/1000 Miss Utility tickets in 2013 to 1.23/1000 Miss Utility tickets in 2023).

Additional efforts to increase gas safety awareness include a strong presence on various media platforms, consistent participation in community events, outreach at local schools and camps, promotion of national safety campaigns, targeted mailings to professional excavators and plumbers, and enhanced training with emergency officials.

TV Spot – Two sing-along safety commercials, featuring Flicker the Flame, began airing in 2012. The first spot focuses on the smell of gas and what to do if a leak is suspected, and the second spot highlights the importance of contacting 811 before digging. These spots air on local network channels (NBC, CBS, CW, FOX, MeTV and ABC), on the Weather and DIY channels on cable TV, and before film screenings at Stonefield Regal Movie Theater. The latest Public Awareness survey results show that respondents aged 26 or younger have a lower recall of our safety campaigns and were less likely to agree that Charlottesville Gas is adequately educating residents. In response to this result, we refreshed both the gas safety awareness and VA811 TV spots in the fall of 2021 with updated and more engaging animation.

Commercials on Streaming Services – Subscription-based streaming providers have recently seen tremendous growth. Results of the TransUnion survey reveal the average consumer spends three (3) to four (4) hours a day on streaming services, with a total of 55% of all consumers choosing streaming services over cable TV. To maximize our media investment, we have redirected some of our advertisement funds from live TV to streaming ads on Comcast digital platforms.

Community Outreach Programs – We participate in a variety of high attendance community events throughout the year. These events include a safety awareness presence at Blue Ridge Homebuilders Association functions, sponsorship of the UVA Soccer season, Charlottesville's Grand Illumination, UVA Baseball season sponsorship, Kid*Vention, the Energy-Saving Trees Program, and Flicker @ Your Classroom and Camp programs.

Utilities Electronic Newsletter – In December of 2021, we began sending a monthly electronic newsletter using Constant Contact to Utilities customers who receive paperless billing. This newsletter provides customer-focused messages that highlight Utilities services, initiatives, updates, and program opportunities – including our annual gas safety awareness quiz, and information on safe digging practices and VA811 National Safe Digging Month.

National Safe Digging Month – This national safety campaign occurs every April, coinciding with the beginning of the outdoor project season, and serves as a great reminder of the requirement to contact 811 before digging. We send information tailored to residential customers explaining the steps of contacting 811 and the importance of safe digging practices at home, not just commercial worksites. This information is sent to customers who receive paperless billing via the monthly Utilities E-Newsletter, and we also promote a month-long social media campaign highlighting safe digging and the 811 process.

Community Conversations on NBC29 – Utilities consistently appears on a live, in-studio, community news segment on NBC29. These segments provide an excellent opportunity to discuss details of important topics, including VA811 National Safe Digging Month, 8/11 National Safe Digging Day, and other Utilities' programs that intersect with safe digging awareness, such as the Energy-Saving Trees Program.

Cross-bore Mailing – An informational postcard on cross-bores is periodically mailed to local plumbers to increase awareness of the proper procedure for clearing sewer blockages caused by a utility line that has accidently bored through a sewer line. The postcard includes an infographic of a cross-bore and provides instructions on how to handle a cross-bore situation properly.

Enhanced Training of Emergency Officials – In recent years we have expanded outreach with increased training of all local emergency officials. We provide a combination of presentations and hands-on experiences with the Charlottesville Police Department, Charlottesville Fire Department, Albemarle County Fire and Rescue, Albemarle County Police, UVA Police, and troopers from the Charlottesville office of the Virginia State Police. Recorded trainings are also available to those unable to attend in-person presentations.

Outsource Utility Location – In 2014, the City outsourced the utility locating process, resulting in increased utility marking accuracy and reduced damages.

Targeting Commercial Customers – To ensure commercial information is seen by a more significant number of people, we created a postcard so businesses can display the information in a visible area for more staff to read.

Local Builders Association Outreach – We continue to maintain a safety awareness presence with the Blue Ridge Home Builders Association (BRHBA). Members of this association include local and national builders and contractors and serves as an excellent opportunity to reinforce VA811 safe digging practices.

4.3 REGULATORY COMPLIANCE

Operator Qualification Program - Charlottesville Gas is required by the Pipeline & Hazardous Materials Safety Administration (PHMSA) to maintain an Operator Qualification Plan that adheres to federal regulations. These regulations require Charlottesville Gas employees to demonstrate their competence regarding a variety of covered tasks performed within the Charlottesville Gas distribution system. The typical Charlottesville Gas employee must satisfactorily pass over 40 Operator Qualification (OQ) tests. Charlottesville Gas is required, by code, to retain these training and test records for a minimum of five (5) years. In July 2023, the State Corporation Commission (SCC), on behalf of PHMSA, audited the Charlottesville Gas Operator Qualification Plan and testing records. The Commission found no probable violations or recommendations regarding the Plan or the associated OQ records. The Charlottesville gas utility takes pride in staffing a trained and informed workforce, and the State Corporation Commission's inspection validates the City's efforts.

Distribution Integrity Management Program (DIMP) - PHMSA requires Charlottesville Gas to monitor and mitigate potential leak threats to the natural gas system through a Distribution Integrity Management Program (DIMP). Examples of possible threats include excavator damages, corrosion, and material defects. Included in the City's DIMP Plan are procedures that have been put in place to reduce the potential for leaks in the gas system. Not only must this plan be in place, but operators must also

demonstrate that the procedures are being implemented and that the risks to the gas system are being reduced.

As part of the Program, Utilities has worked with the City's IT Department to develop an application to track and survey risks and threats to the natural gas system. Using tablets and the Utility GIS Viewer, Gas employees can track and document the location, cause, severity, and response time associated with each leak. In March of 2022, the State Corporation Commission, on behalf of PHMSA, performed a thorough audit of the City's Distribution Integrity Management Program. The Commission found no pipeline safety violations regarding the documentation or implementation of the City's Distribution Integrity Management Program.

4.4 GREENHOUSE GAS REDUCTION STRATEGY

According to the 2019 City of Charlottesville Greenhouse Gas (GHG) Inventory by Sector and Fuel Type Report (Released 2022), there has been a reduction of natural gas emissions in our community of 30% compared to the baseline emissions reported in 2011. This reduction is consistent with the City-wide GHG reduction. Most of this reduction is due to home energy efficiency improvements as well as an increase in efficiency of natural gas appliances. Charlottesville Gas’ carbon footprint continues to decrease due to the 25% offset of its GHG emissions through our Carbon Offset Program which further aligns Charlottesville Gas with the citywide climate action goals of a 45% reduction by 2030 and carbon neutrality by 2050. Below is more information regarding the programs Charlottesville Gas has implemented as a part of our GHG Reduction Strategy.

4.4.1 What are Carbon Offsets?

Whether it is the heating system in your home, the transportation you use, or even the food you eat, almost everything in your daily life contributes to the release of GHG emissions and impacts your carbon footprint. Carbon offsets help manage these emissions by funding projects that counterbalance their release with an equivalent amount of GHG reduction elsewhere. Offset projects must provide measurable reductions in greenhouse gases or absorbed CO2, including planting forests, implementing agricultural methane capture projects, and building sources of renewable energy like wind and solar.

4.4.2 Carbon Offset Program

The Department of Utilities has been proactive in finding new ways to better align departmental goals with the City of Charlottesville’s Climate Action Plan. Using data captured through the Utilities Customer Satisfaction Survey, Utilities staff was able to recognize and respond to the interest customers had in Carbon Offsets. In doing so, Utilities has voluntarily taken part in a Carbon Offset program that is managed by British Petroleum (BP). In July of 2021, as a part of the City Council approved Utility Rate Report, a Carbon Offset Program was added to the GHG Reduction Program. This program allows Utilities to invest in various carbon sequestration projects all around the world. From the creation of new solar power generation projects in India, to sustainable forest management projects in Tennessee, this program allows Utilities to move toward carbon neutrality by 2050. Utilities will initially offset 25% of its greenhouse gas emissions through these various projects. Utilities can reduce its carbon footprint with having little to no impact on the natural gas rates.

I believe the carbon offset program should be...

C3	N	Percent
Greatly expanded	**119**	**43%**
Slightly expanded	**77**	**28%**
Should continue as is	**34**	**12%**
Slightly reduced	6	2%
Greatly reduced	9	3%
Completely eliminated	32	12%

83%

Gas Mitigation Survey 2022

In 2022, UVA's Center for Survey Research conducted a survey sponsored by Charlottesville Gas to understand attitudes towards natural gas and sustainability among residents of the City of Charlottesville and Albemarle County. Below is a sample of the results from that survey showing strong support for our Carbon Offset Program, with 83% of respondents replying in its favor. Most respondents believe the carbon offset program should be expanded or continue with its current scope. The selection of future carbon offset projects will be conducted in partnership with the City of Charlottesville's Office of Sustainability.

4.4.3 Energy-Efficiency Programs

In recent years, Charlottesville Gas has invested in, and expanded its energy efficiency programs. We highlight to residents the benefits these programs provide, actively promote their availability, and constantly work to ensure they aid our efforts to reduce energy consumption. Currently, rebates for a programmable thermostat, a tankless water heater, and attic insulation are available, as well as free home weatherization to income-qualified households.

4.4.4 Rebates

Programmable Thermostat

Since 2005, Charlottesville Gas has offered gas customers a rebate towards purchasing and installing a programmable thermostat (up to $100). By setting a thermostat back 10° to 15° at night for 8 hours, it is estimated that a customer can reduce heating bills by 5% to 15%.

Natural Gas Tankless Water Heater

Since 2015, the City has offered a $200 rebate to gas customers who switch from a traditional tank water heater to an energy-saving tankless natural gas water heater. According to the U.S. Department of Energy, water heating is the third-largest energy use in homes. By heating water only when needed, natural gas tankless water heaters reduce water heating expenses by 30% and provide continuous hot

water delivery. This technology also produces less CO2 and NOx than conventional gas or electric tank water heaters. Beginning July 1, 2024, this rebate will be paused as Charlottesville Gas evaluates its existing rebate offerings.

Attic Insulation

In 2020, Charlottesville Gas began offering customers a rebate of up to $300 towards the addition of attic insulation in their home when installed by a licensed contractor. Upgrading attic insulation is one of the most cost-effective ways to increase a home's comfort, lower heating and cooling bills, and improve a home's energy efficiency.

4.4.5 No-Cost Home Weatherization for Income-Qualified Households

In July of 2019, Charlottesville Gas started a partnership with Local Energy Alliance Program (LEAP) to offer income-qualified gas customers a program designed to help increase the overall energy efficiency of their homes. The Charlottesville Gas Energy Efficiency Program (CGEEP) provides qualified households with free home weatherization improvements and funds the replacement of inefficient natural gas appliances.

Since its launch, 179 gas customers have benefited from the program. Of the total CGEEP recipients, 82% were Charlottesville homeowners, and 54% had at least one family member aged 60 years or older living in the same household. In addition to single-family home customers, we extended our weatherization program to the energy efficiency improvement project performed at Westhaven Apartments.

The energy-savings in these homes can vary significantly depending on the original condition of the dwelling (from 3% to 51% reduction in gas consumption). On average, we noticed a 20% reduction in gas consumption during the winter months.

In 2021, we expanded the income qualification criteria so more customers could take advantage of the program. We now accept applicants with household earnings of 80% or below Area Median Income (AMI) and if the account holder is 60 or older earnings of 120% or below State Median Income (SMI) are accepted.

To date, the Charlottesville Department of Utilities has invested $221,000 in the CGEEP program.

Charlottesville Gas is in the process of developing a reduced-cost home weatherization program to complement our no-cost program. This reduced-cost program will help customers who do not meet the income qualifications to participate in CGEEP, but whose home is still a good candidate for home weatherization improvements.

4.4.6 Energy Efficiency Outreach Actions

- We mailed postcards promoting CGEEP and the Attic Insulation rebate, targeting residents of gas heated homes built before 1970, which is the first year Virginia enacted code requirements for home insulation. By concentrating efforts on older homes, we hope to maximize the benefits these programs provide.
- Utilities has partnered with the Arbor Day Foundation and their Energy-Saving Trees Program. This program gives away free trees to Charlottesville Utilities customers to strategically plant on their property, providing energy and cost-saving benefits to their household and the broader community. Strategically planted trees provide cooling shade from the sun in warm months, and act as a barrier to cold winds during the winter months. As of March 2024, 700 trees have been given away for

planting. Beginning in the fall of 2024, Utilities will increase the frequency of the Energy-Saving Trees Program to occur twice a year, once in the spring and once in the fall.

In 2023, Charlottesville Utilities' efforts with the Energy-Saving Trees Program won the City-County Communications & Marketing Association's (3CMA) Award of Excellence for Special Events/Recurring Event. 3CMA is a national organization with members from across the country, whose mission is to support innovation in communication and outreach efforts of local governments.

- We periodically promote the rebate programs and free home weatherization with CGEEP on our monthly Utilities Electronic Newsletter.
- Paid web banners and pre-roll spots were aired on NBC29 and CBS19.
- In 2021, we launched a series of TV spots that feature our energy efficiency programs. These spots can be seen on Comcast's on-demand streaming.

4.5 DECARBONIZATION STUDY

To help achieve Community Climate Goals, Utilities has solicited the expertise of the consulting firm Black & Veatch (B&V) to conduct a Decarbonization Study. B&V will help Utilities responsibly and accurately determine how the gas utility can be a part of the solution in achieving and aligning itself with the community's greenhouse gas reduction goals. The Study evaluates Charlottesville Gas operations and current efforts in reducing emissions and proposed recommendations on expanding the Utility's energy efficiency programs for customers. Additionally, B&V has explored several alternative pathways including renewable natural gas (RNG), hydrogen technology, geothermal, and electrification. These pathways are evaluated by their impact on emissions, reliability, availability in our community, and cost to the customers.

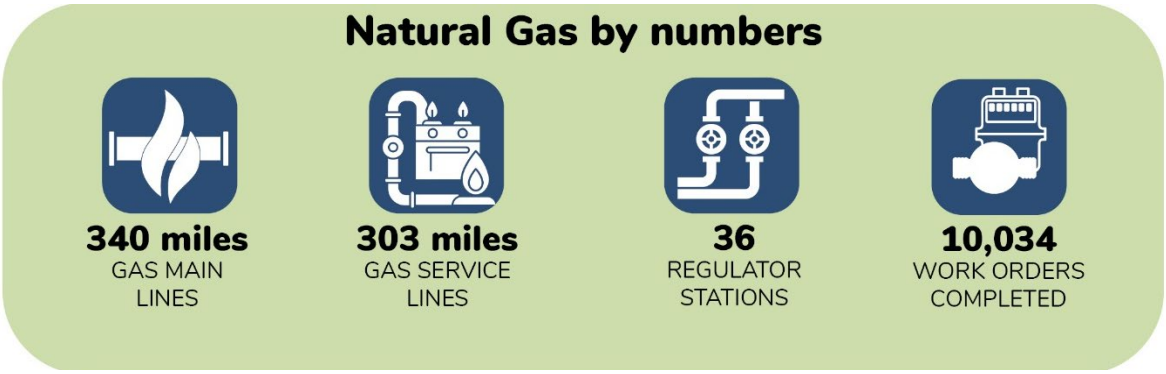
Charlottesville Gas is also working with LAUNCH! Consulting on community outreach for the Decarbonization Study. In March of 2024, a virtual focus group was conducted with local businesses to gather their thoughts on decarbonization and natural gas. More listening sessions are planned for Summer 2024 to gather thoughts on the Study from the collective communities of Charlottesville and Albemarle County.

4.6 GAS ASSISTANCE PROGRAM

The City's Gas Assistance Program (GAP) provides financial assistance to residents who need help to pay heating bills. This fund supplements assistance that is available to many people under other programs and may be the assistance available for some residents who need help but do not qualify under the guidelines of other programs. In FY'23, the City provided 65 households with $17,819.04 in assistance. Contributions from area businesses and residents help to supplement the amount of money that is available for assistance. The FY'25 budget includes no new funding since there is sufficient funding ($142,607) from prior years to fund the program in FY'25.

4.7 GAS INFRASTRUCTURE ASSET MANAGEMENT

4.7.1 Gas System Overview



Due to a comprehensive replacement of the natural gas system in prior decades, and the primary material being high-density polyethylene (HDPE) pipe, there are very few replacement projects needed due to aging infrastructure. Currently, the natural gas system consists of 340 miles of gas mains and 304 miles of gas service lines.

Two hundred seventy (270) miles of the gas main system are constructed of high-density polyethylene (HDPE) pipe, equating to approximately 79.4% of the entire system. Additionally, 99% of the natural gas services lines within the system are HDPE. HDPE is an extruded plastic pipe which possesses satisfactory material strength qualities and is resistant to corrosion. HDPE has become the industry standard for intermediate to low pressure natural gas distribution systems throughout the country.

Sixty-nine (69) miles of the natural gas system consist of cathodically protected coated steel pipelines, equating to approximately 20.2% of the entire system. Due to the maximum allowable operating pressure of HDPE, operators are required to utilize coated steel for their high-pressure distribution pipelines. These pipelines are induced with cathodic protection either by galvanic anode or impressed current systems. The functionality of the cathodic protection system is continuously monitored by Charlottesville Gas employees to verify that all facilities are appropriately meeting federal regulations and properly combatting below ground corrosion.

Charlottesville Gas currently operates approximately 1 mile of cast iron pipe within the entire system. Compared to other operators like the City of Danville and the City of Richmond, one (1) mile of cast or ductile iron is a small amount to maintain. For example, the City of Richmond operates approximately 192 miles of cast or ductile iron main and the City of Danville operates approximately five (5) miles of cast or ductile iron main. Charlottesville Gas is decades ahead of other gas distribution operators in terms of system enhancement and leak mitigation due to the tremendous effort of the utility to modernize the system with dependable and gas tight materials.

Exhibit 37: Comparison of Miles of Pipe by Type among Public Gas Systems in Virginia

Company	Miles of Cast Iron	Miles of Ductile Iron	Total Miles
City of Richmond	129.6	62.7	192.3
City of Danville	0.03	5.32	5.35
City of Charlottesville	1	0	1

Table 1 - Cast & Ductile Iron Gas Mains by Company

4.7.2 Enhanced Leak Detection and Repair Program

The City of Charlottesville utilizes state-of-the-art leak detection equipment to pinpoint hazardous and non-hazardous natural gas leaks throughout the system and has invested over $500,000 dollars to provide every natural gas field crew, gas service technician, leak survey technician, and first responder with Heath Consultants Detecto-Pak Infrared (DP-IR) leak detectors. The Heath Consultants DP-IR is recognized across the industry as an extremely sensitive piece of equipment capable of detecting leaks as small as one (1) part per million. Another advantage of this equipment is it is only capable of detecting methane, eliminating the possibility of false alarms. For mobile leak surveying, leak survey technicians utilize a truck mounted Heath Consultants Optical Methane Detector. The Optical Methane Detector uses advanced infrared technology to pinpoint leaks in environments and terrain that are not accessible by foot.

In addition to utilizing advanced technology for leak detection, the City of Charlottesville conducts leak survey inspections more frequently than required. By the Department of Transportation (DOT) Pipeline Safety Standards, the City of Charlottesville is required to conduct a complete leak survey of the entire distribution system once every five (5) years. However, to prevent hazardous leaks and to minimize fugitive emissions into the atmosphere, the City of Charlottesville completes a system-wide leak survey once every three (3) years.

The Department of Transportation also requires the City of Charlottesville to conduct leak surveys in business districts on a yearly basis. However, the City of Charlottesville has expanded its leak mitigation efforts by conducting bi-annual surveys on our remaining one (1) mile of cast iron pipe and annual surveys on our high-pressure mains (>400psi).

The City of Charlottesville takes voluntary and involuntary releases of natural gas into the atmosphere very seriously and has put policies and procedures in place to mitigate the release of methane to the atmosphere. The table below illustrates the result of the City of Charlottesville's leak mitigation program and the impact the program has had on annual leak trends. As the table shows, the City of Charlottesville has experienced a significant reduction in leaks per mile. The City of Charlottesville is well below the national average and attributes this success to more stringent internal policies and the excellent work of the men and women who implement these procedures daily.

Exhibit 38: Comparison of Number of Leaks Per Mile in Charlottesville vs. National Average

Leaks Per Mile					
Year	**2019**	**2020**	**2021**	**2022**	**2023**
City of Charlottesville (w/Excavation Damages)	0.218	0.207	0.156	0.213	0.163
City of Charlottesville (w/o Excavation Damages)	0.174	0.173	0.100	0.167	0.133
National Average	0.299	0.281	0.279	0.271	0.263

Table 2 - Annual Leak Data by Year

4.7.3 Natural Gas Capital Improvement Projects

Due to a system wide replacement of the natural gas system, there is not a need for an ongoing replacement program. However, the Department is preparing for two (2) large projects with the current capital budget. The first is a gas meter and regulator abnormal operating conditions (AOC) contract.

Abnormal operating conditions (AOC) are conditions identified by Charlottesville Gas that may indicate a malfunction of a component or deviation from normal operations. The conditions primarily consist of corroded above ground gas meter piping or gas meters and meter sets not having protection from vehicle traffic. Currently, the Department has a large backlog of AOCs and are working toward issuing a construction contract for remediation of the issues.

In recent years, Utilities has requested annual contracts with construction firms to assist in setting protective concrete bollards around meters sets in need of protection from vehicular traffic. Many AOCs are being corrected by in-house personnel, but to eliminate the back log, an outside contractor must assist, and the bollard project will continue with a solicitation for new contracts in FY'25.

In April 2023, Charlottesville Utilities was awarded a $7.1 million grant from the Pipeline and Hazardous Materials Safety Administration's Natural Gas Distribution Infrastructure Safety and Modernization (NGDISM) grant program. The NGDISM program is part of the broader Bipartisan Infrastructure Law, which will provide nearly $1 billion in federal funding over the next five years to support public gas systems' efforts to repair, rehabilitate, and replace aging pipes and reduce methane emissions. This grant facilitates the completion of Utilities' system-wide upgrade project by expediting the replacement of the last remaining section of legacy pipes. The last mile of 10" cast iron main line will be replaced with 4" high-density polyethylene (HDPE) plastic pipe, first generation polyethylene and other legacy pipe will be replaced with 2" HDPE, and 20 gas meters will be removed from the interior of several buildings. The project will help to eliminate all components in Charlottesville's natural gas system that have a higher probability of leaks.

Surveying for the project began in December 2023, with the engineering design of the pipe replacement to occur throughout 2024. PHMSA issued a Finding of No Significant Impact (FONSI) regarding the environmental impact of the replacement project. Project bidding and construction kickoff are scheduled for the latter half of FY'25.

4.8 FY'25 REVENUE REQUIREMENTS

This section of the report outlines the current and projected costs of operating and maintaining the City's natural gas system which constitute the revenue requirements (i.e., the amount of revenue required to be collected from customers).

4.8.1 Current Revenue Requirements (FY'25)

The FY'25 revenue requirements for the gas utility totals $28,295,576 the largest components being the operations and maintenance cost (40% of the total) and the purchase of gas from BP (32% of the total).

Exhibit 39: Gas Utility FY'25 Revenue Requirements

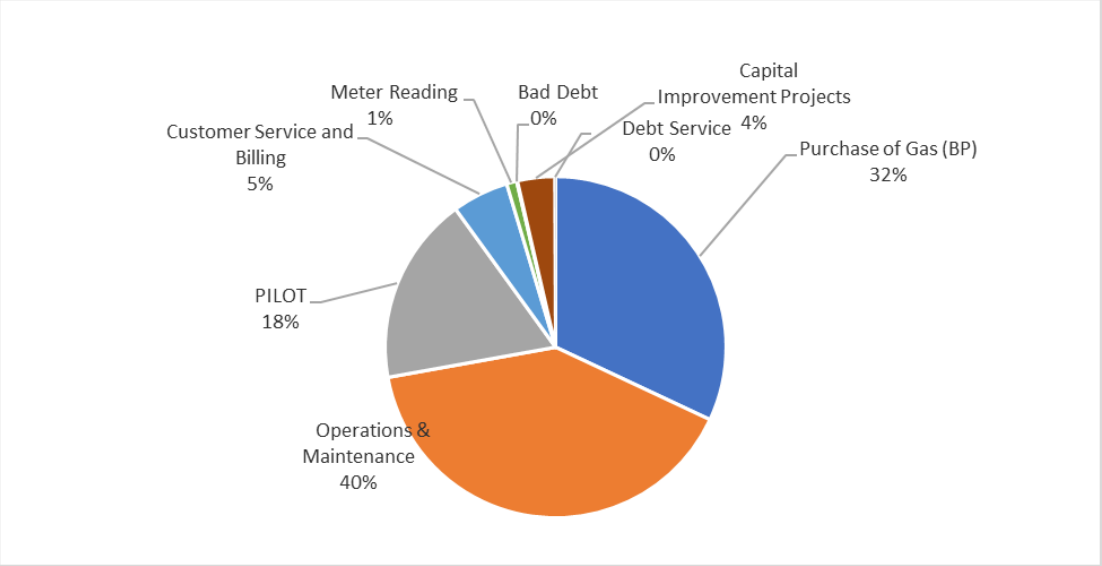


Exhibit 40: Comparison of Gas Revenue Requirements FY'24 to FY'25

Revenue Requirements	FY'24	FY'25	$ Change	% Change
Purchase of Gas (BP)	$10,306,728	$9,048,147	($1,258,581)	-12.21%
City Operations and Maintenance	$10,977,741	$11,372,712	$394,971	3.60%
Payment in Lieu of Taxes	$4,673,902	$5,048,027	$374,125	8%
Capital Improvement Projects	$1,000,000	$1,000,000	$0	-
Customer Service & Billing	$1,461,316	$1,826,690	$365,374	25%
TOTAL	**$28,419,687**	**$28,295,576**	**($124,111)**	**-0.44%**

The cost of gas has decreased over the last year. A large part of the decrease in the total revenue requirement is the Purchase of Gas from BP.

When setting the base rate each July 1st, the City uses data from the most recent month to project the cost. However, natural gas is a commodity that is traded daily and whose value fluctuates based on factors beyond the City's control (weather, politics, conflict, etc.). As noted above, the gas utility operates on a breakeven basis. To account for the fluctuation in gas prices, the City calculates a monthly Purchase Gas Adjustment (PGA) to adjust the base rate up or down. This ensures that the utility is generating sufficient revenues to cover its costs and that customers are not being over or undercharged.

City Operations and Maintenance costs are projected to increase by $394,971 due primarily to an adjustment in salaries and benefits costs. Contractual services are also increasing.

The Payment in Lieu of Taxes (PILOT) is based on a formula of 23% of prior year budgeted expenses less cost of purchasing gas. It is a payment from the utilities to the City's General Fund and represents the taxes the utilities would pay the City if they were a private company providing utility services.

4.9 MONTHLY SERVICE CHARGE

Like water and sewer, the City assesses a Monthly Service Charge for gas to recoup the fixed costs of providing utility services such as customer service, billing, meter services, and infrastructure. There are no changes to the $10.00 Monthly Service Charge.

4.10 NEW GAS SERVICE CONNECTION FEE

Currently, the City offers natural gas service to residential and commercial customers based on the proposed connected loads for their gas appliances. City staff make a financial evaluation of gas service requests to ensure installation, operation, and ongoing maintenance of the service are economically feasible for the Utility. The City currently offers gas service installation up to 150 feet at no cost to residential customers if the City's investments in installation costs are offset by the revenue generated within a payback period of approximately 4 ½ years.

Beginning January 1, 2025, Charlottesville Gas will no longer offer service line installations for qualifying appliances at no cost to the customer. Under this new ordinance, gas services with qualifying appliances, such as gas heat or gas water heating, will pay a $340.00 connection fee for the new service, up to 150 feet of service line. New services for nonqualifying appliances such as generators and gas fireplaces, will continue to pay the cost for a new service line. Services that exceed 150 feet will be required to pay the cost for the excess footage. Charlottesville Gas will use the funds from this connection fee to finance our expanded energy efficiency program to promote energy savings and reduce greenhouse gas emissions.

4.11 GAS RATES

The City is projecting to collect a total of $28,295,576 to operate the gas utility in FY'25. $26,936,576 is projected to be collected from gas rates. Miscellaneous revenues total approximately $359,000.

$1,000,000 of fund balance will be used to cash fund capital improvement projects and other utility billing expenses.

Exhibit 41: Gas Rate Calculation FY'25

Revenue Requirements	FY'25
Purchase of Gas (BP)	$9,048,147
City Operations and Maintenance	$11,372,712
Payment in Lieu of Taxes	5,048,027
Capital Improvement Projects	$1,000,000
Customer Service & Billing	$1,514,193
Debt/Debt Service Funding	$40,000
Meter Reading	$272,497
TOTAL	**$28,295,576**
Revenue to be Collected	**FY'25**
Other Funding Sources	
Fund Balance	$1,000,000
Miscellaneous Revenues	$359,000
Subtotal	*$1,359,000*
Revenue to Be Collected Through Rates	
Transportation Fees	$52,530
Firm Sales	$19,952,944
Interruptible Sales	$6,931,102
Subtotal	*$26,936,576*
TOTAL REVENUE TO BE COLLECTED	**$28,295,576**

The next table compares the gas rates for FY '25 to the current gas rates.

Exhibit 42: Current Gas Rates Compared to FY'25 Gas Rates

Rate (per 1,000 cf)	Current Rates FY24' Rates	Proposed FY25' Rates	$ Change	% Change
Firm Service (1st to 3,000 cf)	$9.2491	$9.7813	$0.53	5.75%
Firm Service (next 3,000 cf)	$8.7216	$9.1798	$0.46	5.25%
Firm Service (next 144,000 cf)	$8.1941	$8.5784	$0.38	4.69%
Firm Service (over 150,000 cf)	$7.6666	$7.9769	$0.31	4.05%
Air Conditioning	$7.3471	$7.3471	-	0.00%
Interruptible Service (up to 600,000 cf)	$7.2264	$7.3466	$0.12	1.66%
Interruptible Service (over 600,000 cf)	$6.6275	$6.6850	$0.06	0.87%
Gas Light (charge per month)	$17.5100	$17.5100	-	0.00%
Small Volume Transportation Customer	$3.0147	$3.2827	$0.27	8.89%
Large Volume Transportation Customer	$1.8088	$1.9696	$0.16	8.89%
Base Unit Cost (Firm Service)	$3.9740	$3.7668	($0.21)	-5.21%
Base Unit Cost (Interruptible Service)	$2.2350	$1.8332	($0.40)	-17.98%

4.12 IMPACTS ON CUSTOMERS

The tables below illustrate the impacts of the FY'25 rates on customer's bills at various usage rates. Note: the applicable Monthly Service Charges are included in the calculations.

Exhibit 43: Customer Impacts at FY'25 Gas Rates and Charges

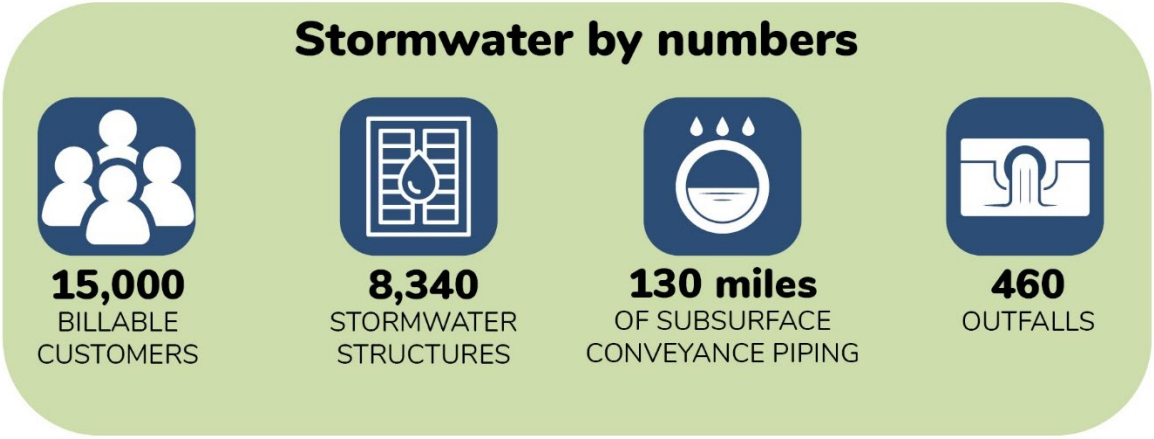
Firm Customers Usage Per CF	FY24' Monthly Gas Bill with most recent PGA	FY25' Monthly Gas Bill with most recent PGA	$ Change	% Change
4,000	$45.38	$48.52	$3.14	6.92%
4,600	$50.45	$54.03	$3.58	7.10%
20,000	$173.19	$186.98	$13.79	7.96%
60,000	$490.09	$530.12	$40.03	8.17%

Interruptible Customers Usage Per CF	FY24' Monthly Gas Bill with most recent PGA	FY25' Monthly Gas Bill with most recent PGA	$ Change	% Change
100,000	$739.39	$791.59	$52.20	7.06%
400,000	$2,777.56	$2,986.36	$208.80	7.52%
1,000,000	$6,614.34	$7,111.27	$496.93	7.51%
2,000,000	$12,809.34	$13,765.56	$956.22	7.47%

5. STORMWATER

5.1 OVERVIEW

The Stormwater Utility, adopted by City Council in 2013, is the dedicated funding source for the City's Water Resources Protection Program (WRPP). The WRPP is designed to rehabilitate the City's aging stormwater conveyance system, comply with federal and state stormwater regulations, address drainage problems, and pursue environmental stewardship.



5.2 REGULATORY COMPLIANCE

As an operator of a Small Municipal Separate Storm Sewer System (MS4), Charlottesville is regulated by the Virginia DEQ-issued General Permit (VAR040051). Through annual reporting, the City summarizes the status of permit compliance and stormwater management program elements pertaining to six required Minimum Control Measures. Activities include public education and outreach (including participatory events), implementation of Stormwater Pollution Prevention Plans, illicit discharge detection and elimination, administration of stormwater management requirements relating to land disturbing activities, inspection and maintenance of stormwater control facilities, and conveyance infrastructure and water resources protection and improvement projects.

5.3 CREDIT PROGRAM AND CHARLOTTESVILLE CONSERVATION ASSISTANCE PROGRAM

The Stormwater Utility Fee Credit Program and Charlottesville Conservation Assistance Program (CCAP) were adopted by City Council in FY'14. The Credit Program is required by state law as a component of a municipal stormwater utility. Under the program, property owners who install and maintain structural stormwater management facilities which permanently reduce stormwater runoff and pollution may apply for and receive credit toward their stormwater utility fee. Credits range from 20%-100% minus one billing unit for the impervious area treated by the facility. The annual budget for the Credit Program is $50,000 per year.

The CCAP is provided in partnership with the Thomas Jefferson Soil and Water Conservation District and provides a one-time cost share for property owners who install eligible water resources stewardship practices on their property (i.e., conservation landscaping, rain gardens, etc.). The cost share can

reimburse homeowners up to 75% of the cost incurred for project implementation. For a description of the program and a full list of eligible practices, please go to: https://www.tjswcd.org/best-management-practices-homeowners/ . The annual budget for the CCAP is $32,000 per year.

5.4 CUSTOMER SATISFACTION SURVEY

The Stormwater Utility recently came back under the umbrella of services provided by the Department of Utilities and was included in the 2024 Customer Satisfaction Survey to help the department better understand the community's knowledge of this division. Results from the survey show that 77% of respondents are aware that the City is responsible for stormwater management within its municipal boundary. However, familiarity with some Stormwater services, such as the Charlottesville Conservation Assistance Program (CCAP) and watershed protection best practices, is lower than the community's awareness of other programs and services provided by Utilities. The department will carry out a variety of engagement actions in FY'25 to address the community's lower familiarity with stormwater services in an effort to increase their awareness of what the division provides.

5.5 FINANCIAL RELIEF PROGRAM

City Council adopted a financial relief program in February 2014 to assist homeowners who experience hardship in paying their stormwater utility fee. The program has an annual budget of $25,000 per year and is paid from the General Fund. The program provides a reduction in the stormwater utility fee for residents who are eligible for at least 60% Real Estate Tax Relief, with the stormwater utility fee reduction matching the percentage received in real estate tax relief. The program also provides a 25% stormwater utility fee reduction for residents who are approved for the Charlottesville Housing Affordability Program (CHAP).

5.6 STORMWATER INFRASTRUCTURE ASSET MANAGEMENT

5.6.1 Stormwater Infrastructure Systems

Charlottesville's stormwater conveyance system is integrated throughout the City's municipal boundary and consists of approximately 130 miles of pipe and 8,340 structures including 460 outfalls. The pipes range in age, size, and material type. Pipe materials include vitrified clay (VC), corrugated metal (CMP), reinforced concrete (RCP), ductile iron (DI), polyvinyl chloride (PVC), and high-density polyethylene (HDPE). The exact age of most pipes is unknown, but most are generally understood to be between 0-80 years old. The size of pipes in the system ranges from 4 to 96-inches in diameter. Structures in the system include junction boxes, drainage inlets, and catch basins. Structures are typically constructed of brick, cinder block, precast concrete, or cast-in-place concrete.

The City owns and maintains the stormwater conveyance system located within the public street right-of-way, on City-owned land, and within City-held easements on private property. The City does not own or maintain the stormwater conveyance system owned by other public entities or that which is located on privately-owned land without an easement. Approximately 54% of the stormwater pipes and 28% of the stormwater structures within the municipal boundary are City-owned. The entire stormwater conveyance network ultimately discharges to local streams, rivers, drainage ways, floodplains, and low-lying areas. Approximately 13 miles of the stormwater infrastructure system conveys streams that have been piped.

The combination of an integrated and co-mingled privately and publicly owned stormwater conveyance system that ranges widely in age, condition, and material type presents many challenges to infrastructure and asset management. The deterioration of both City and privately-owned stormwater infrastructure can cause significant problems, including sinkholes, clogged pipes, and drainage and erosion issues. Pipes constructed of VC and CMP materials are often older and more prone to deterioration due to age and the natural lifecycle of these construction materials.

The rehabilitation, replacement, and repair of VC and CMP pipes and associated structures located in the City right-of-way and on City-owned parcels comprises much of the work of the Stormwater Utility. The City has also utilized Rehabilitation Program contractors to replace and rehabilitate stormwater conveyance infrastructure in the City right-of-way, under easement to the City, and in limited cases, in privately-owned conveyance systems. This work is performed to address deteriorating stormwater infrastructure and drainage issues. In addition, non-routine repairs are completed in a timely manner, as they arise, often in response to subsidence in and around City streets and sidewalks.

The City also completes routine maintenance and repairs to the stormwater conveyance system. Materials are paid for with Stormwater Utility enterprise or capital funds, depending on the size and scope of the project.

To date, approximately 14.7 miles of pipe have been rehabilitated (90% were VC and CMP), and 456 structures have been installed, rehabilitated, or replaced at a cost of $12,181,154.

5.6.2 Water Resources Master Plan

The Charlottesville Water Resources Master Plan was developed in 2016 and published in 2017. The goal of the Master Plan is to apply criteria to select and prioritize capital projects that improve water quality and/or resolve drainage issues. The final Master Plan is comprised of a drainage improvement capital improvement plan (CIP) and a water quality CIP.

Projects included in the drainage improvement CIP address a combination of historic and more recently identified drainage issues, while projects in the water quality CIP focus on the implementation of stormwater best management practices and facility retrofits designed to improve water quality.

Projects were selected for the water quality CIP based on cost effectiveness and eligibility to provide pollutant reductions which the City can use toward meeting its Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan nutrient reduction requirements. Currently, the City is coordinating the Schenks Branch Stream Restoration Project which has received Stormwater Local Assistance Fund (SLAF) grant funds from Virginia Department of Environmental Quality (DEQ). The SLAF was established by the Virginia General Assembly to support local governments in the planning, design, and implementation of cost- effective stormwater best management practices that address commitments related to reducing pollutant loads and improving water quality.

The City's TMDL Action Plan is a requirement of its Municipal Separate Storm Sewer System (MS4) discharge permit issued by the Virginia Department of Environmental Quality (DEQ). The Virginia DEQ has added the Action Plan as a requirement in order to meet statewide Chesapeake Bay regulatory obligations to the United States Environmental Protection Agency (EPA). The TMDL Action Plan is an addition to the minimum control measures the City has been required to implement since first being issued a Phase II MS4 permit in 2003.

5.6.3 Schenks Branch Tributary Restoration Project

The restoration of Schenks Branch Tributary (SBT), a stream in McIntire Park, from the railroad right-of-way to the John Warner Parkway bridge overpass. The 820 linear feet of stream, which runs through the Botanical Garden of the Piedmont (BGP), was experiencing active severe erosion of its banks and bed, sending excessive amounts of sediment and nutrient pollution downstream to waterways listed as impaired by the Virginia Department of Environmental Quality (DEQ). Some of the unstable, eroding stream banks were as high as 12 feet tall and data collected indicate that 436,000 pounds of sediment eroded away from the stream every year. As a result, the stream offered extremely poor habitat for aquatic organisms and was largely inaccessible to the public for recreational or educational purposes. The goals of the restoration project were to reduce pollution, increase ecological function, improve habitat for aquatic and riparian plant and animal species, promote educational opportunities, and provide better public access all while integrating seamlessly into the BGP. The BGP envisions the restored stream as a central, key feature around which other facets of the gardens will be programmed. They plan to use the restored stream as an outdoor classroom, where the community can learn about stream ecology, water quality, and stream restoration.

The City selected Hazen and Sawyer, an environmental engineering firm, to assess the condition of the stream and design a restoration approach that would bring the stream back to a stable and healthy state. The design utilized an approach that aims to emulate natural, stable river systems. The design also utilized a "reference reach", or a healthy local stream that has similar characteristics, to help inform design parameters. The design includes features such as riffles, pools, cross vanes, j-hook vanes, toe

wood, soil lifts, and a rock cascade. These features serve to dissipate stream energy by slowing down and directing stream flow, reducing erosion and sedimentation. They also provide habitat for aquatic organisms like insects and fish.

The City executed a contract with KBS Earthworks to complete the construction of the restoration, which began in September 2023 and was completed in February 2024. Construction involved grading back the steep banks of the stream, raising the stream bed and connecting it to a new floodplain, while realigning the stream into a more stable pattern. The City worked closely with BGP and their team of landscape architects to develop a revegetation plan consisting of native grasses, shrubs, and trees. Over 2,000 trees, shrubs, herbaceous plugs, and live stakes were planted along the stream in March 2024. This environmental restoration project helps the City meet regulatory requirements, improve the health of our local waterways, provide residents better access to green infrastructure, enable educational opportunities, and help the City meet its vision of being a Green City.

5.6.4 The Stormwater Utility Capital Plan

The Stormwater Utility Capital Plan was adopted by Council when the Stormwater Utility Ordinance was approved in March of 2013. The first five-year Capital Plan for the Stormwater Utility covered the period FY'14–FY'18 and continues through FY'25. The Stormwater Utility Capital Plan is evaluated on a yearly basis and occurs in conjunction with the utility rate development process.

Exhibit 44: Five-Year Capital Improvement Plan for Stormwater

Project	5 Year Total
Drainage/ Stormwater Improvement Projects	$2,000,000
Water Resources Master Plan Projects	$500,000
Rehabilitation Replacement Program	$5,000,000
TOTAL	**$7,500,000**

5.7 REVENUE REQUIREMENTS

The total Stormwater Utility expenditures of approximately $3.5 million is projected to remain the same from FY'24 to FY'25.

Exhibit 45: Comparison of Stormwater Revenue Requirements FY'24 to FY'25

Revenue Requirements	FY'24 Budget	FY'25 Budget	$ Change	% Change
Salaries & Benefits	$943,010	$1,036,306	$93,296	9.89%
Operating Expenditures	$871,879	$778,583	-$93,296	-10.70%
Capital Projects	$1,500,000	$1,500,000	$0	0.00%
Debt Service	$129,683	$129,683	$0	0.00%
TOTAL	**$3,444,572**	**$3,444,572**	**$0**	**0.00%**

5.8 STORMWATER UTILITY FEE FOR FY'25

The Stormwater Utility fee rate was adopted in March 2013 at $1.20/500 sq. ft. of impervious surface on a property per month. Infrastructure costs for the Stormwater Utility are paid through a combination of fee revenues and bond sales. No stormwater utility fee increase is forecast in the coming fiscal year.

Exhibit 46: Stormwater Utility Fee Rate FY'25

Current	Proposed	$ Change	% Change
STORMWATER (per 500 sq. ft. impervious area)			
$1.20	$1.20	$0.00	0.00%

6. GLOSSARY

Base Rate – The gas rate as set each year as of July 1, consisting of budgeted operating costs and current wholesale gas prices; it is adjusted each month to reflect changes in the cost of wholesale gas through the PGA.

Basin – A geographical area of the City wastewater collection system.

Carry-over – the City Council directive by which unobligated funds remaining at the end of a budget year may be carried forward to the next budget year to cover costs.

CCTV – Closed circuit televising – Technology in which a camera, driven via remote control through the sanitary sewer, allows the operator to view blockages/breakages, etc., in the line and to schedule necessary maintenance accordingly.

Cubic foot – 7.48 gallons of water – The standard measure of water usage chosen by the City of Charlottesville.

Debt Service – The amount required to pay the annual principal and interest payments on long term debt, such as bonds.

Degree Day – The measure of relative heating requirements determined by subtracting the average temperature for the day from 65 degrees. The higher the number of degree days, the lower the temperature and, therefore, the higher the heating need.

dth – Dekatherm; a measurement of gas that is 1,000,000 BTU (British thermal units) of heat. A metered volume of gas (mcf) is converted by the thermal factor, which varies with the temperature, to a constant heat value (dth) for billing purposes. Both purchases and sales are measured and priced by dth.

Facility Fee – The charge that the City of Charlottesville imposes for a new water or wastewater connection for the proportionate share of use of the water and wastewater infrastructure capacity. The charge is made when there is no service provided to the area prior to the request or if the existing connection is smaller than is required.

Indirect Cost - Local governments have overhead and administrative costs essential to operating the government and providing services to the public. Examples include costs incurred for a city manager, human resources, financial management, and information technology. Although these services typically reside in the General Fund, they also support departments in other funds, such as utilities. The indirect cost associated with these services and then charged to other funds is calculated, typically annually, based on a standard methodology of cost allocation.

mcf – 1,000 cf; a volumetric measurement of water flows. One mcf of water is approximately 7,480 gallons.

NYMEX – New York Mercantile Exchange - The City purchases gas from its supplier based on closing monthly prices from this exchange.

Payment In Lieu Of Taxes (PILOT) – An annual payment to the City's General Fund. The formula for water and wastewater used each year to calculate the amount of transfer is based on the prior year budgeted revenues from sales. The formula for gas is prior year expenses less cost of sales.

PGA – Purchased Gas Adjustment; the change in the annual base rate. It is calculated monthly to reflect the change in wholesale gas costs.

Rate of Return – The discount or interest rate that is used to calculate the maximum investment that the City will make to assess a potential gas line extension project, based on an expected flow of income.

Rate Stabilization – Money that has been set aside in prior years for the specific purpose of offsetting all or a portion of a potential utility rate increase.

Water Loss Factor – The difference between the amount of water purchased by the City from Rivanna Water and Sewer Authority for distribution and the amount that is billed to City customers. The loss may result from leaks, inaccurate meters, firefighting, and other unmetered uses.

Working Capital – Current assets (cash and other liquid assets) less liabilities due within one year or net liquid assets available for use in current operations.

Working Capital Requirement – A formula used to calculate the amount needed to pay operating expenses for 60 days for water, wastewater, and for gas. This formula is used to ensure that there are adequate cash balances maintained to pay all obligations on time, without borrowing from the City's General Fund.