City of Charlottesville

# Utility Rate Report

## ADOPTED - FY2019

Prepared by

the Department of Finance & Department of Utilities


CITY OF CHARLOTTESVILLE
VIRGINIA

*To Be One Community*
*Filled With Opportunity*

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# 1. EXECUTIVE SUMMARY

The purpose statement for Charlottesville Utilities is:

> *To provide the Charlottesville community with safe and reliable natural gas, drinking water, wastewater and stormwater service at a reasonable cost in an environmentally responsible manner.*

Utilities operate and maintain the water, wastewater, stormwater, and natural gas systems. The goal of Utilities is to provide authorized service in a safe, reliable, responsive, and cost effective manner. Utilities support the following goals of the City's Strategic Plan:

- 3.2 Provide reliable and high quality infrastructure.
- 3.4 Be responsible stewards of natural resources.

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, environmental and debt service payments. The billing/collection functions of the City's utilities are performed by the Finance Department's Utility Billing Office with the exception of stormwater utility billing which is performed by the Treasurer's Office. The utility budgets are separate from the General Fund and not supported by taxes. These budgets and the respective rates and charges are considered and adopted by the City Council in May and June of each year. The stormwater utility rate is evaluated every five years.

This section of the FY'19 Adopted Utility Rates 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

Staff is making three recommendations for water and sewer rates for FY'19:

1. A three year transition plan for UVA from the 1981 Water Agreement to City rates for water and wastewater .
2. Changes to the Monthly Service Charge.
3. Increases to water and sewer rates.

Each of these recommendations is discussed below:

### 1.1.1 Three year transition from the UVA-City 1981 Water Agreement

The 1981 Water Agreement between the City and the University includes the following:

- Rivanna Water and Sewer Authority (RWSA) lease for Observatory Water Treatment Plant.
- Water rates: For water delivered to the University's distribution system, the University pays a rate equal to the RWSA wholesale rate plus 25% of the City's maintenance and operations retail rate. For water supplied directly to University-owned facilities from the City's water distribution system, payment will be at the City's rate.

- Sewer rates: For wastewater service, the Water Service Agreement provides that the University will pay the RWSA rate plus 50% of the City's operations and capital cost components of the rate for wastewater that enters the City's system from a University-owned collector system. For wastewater service the City provides directly to UVA facilities, UVA pays the City's retail rate.

The 1981 Agreement is currently in the process of being replaced. RWSA is coordinating a new lease with the University for the Observatory Water Treatment Plant. RWSA has spent approximately $5 million on recent improvements and plans for an upcoming upgrade that will cost approximately $20 million to the Observatory Hill Water Treatment plant.

The University has recently begun undertaking new development in the City's utility service area. The February 2018 agreement signed as part of Brandon Avenue discussions stated that all UVA facilities brought online or modified after 1/1/18 will pay full City rates. The February 2018 agreement also states UVA and the City will establish a plan for transitioning the water and wastewater rates charged to UVA, for University's buildings/ facilities constructed and occupied prior to 1/1/2018, to an updated rate structure supported by a professional water rate study. The City had already commenced a professional water and sewer rate study in June 2017. Best practice is that such studies are done every 5 years. The City has not had such a study for a number of years (10+).

The City has had multiple meetings with representatives from the University to discuss a plan for utilities services for the new UVA developments and a new water and wastewater rate. The transition plan includes:

- Over the next three years, the University would:
    - July 1, 2018 – pay 25% of the difference between 1981 Agreement rates and City rates.
    - July 1, 2019 – pay 50% of the difference between 1981 Agreement rates and City rates (in addition to 25% from previous year)
    - July 1, 2020 - pay 25% of the difference between 1981 Agreement rates and City rates (in addition to 75% from previous year and rate will be equal to the City rate)
    - July 1, 2021 – pay City rates
- Beginning July 1, 2018, the University would pay full monthly service charge for its 14 inch water meter.
- By 2021 the University would pay the City rate set as part of the annual rate setting process.

### 1.1.2 Changes to the Monthly Service Charge

The Monthly Service Charge for water is currently $4.00 per month per account. For several decades, the City has assessed a monthly service charge for water, sewer, and natural gas to recoup the fixed costs of providing utility services such as customer service, billing, and meter services. The monthly service charge for water last changed from $1.25 to $4.00 in 2004.

The monthly service charge for water is changing in two ways:

- The dollar amount is increasing; and
- The charge will vary by the size of a customer's water meter.

For residential water and sewer customers (94% of all City water customers) the change is $2.00 per month (increasing from $4.00 for water and $4.00 for wastewater to $5.00 for water and $5.00 for wastewater). The monthly service charges for water and wastewater are as follows:

***Exhibit 1.1.1 Recommended Changes to Monthly Service Charge for Water and Sewer***

| Water Meter Size (in inches) | Current | Proposed | $ Change | % Change |
|---|---|---|---|---|
| 5/8 and 3/4 [1] | $4.00 | $5.00 | $1.00 | 25% |
| 1 | $4.00 | $12.50 | $8.50 | 213% |
| 1 1/2 | $4.00 | $25.00 | $21.00 | 525% |
| 2 | $4.00 | $40.00 | $36.00 | 900% |
| 3 | $4.00 | $80.00 | $76.00 | 1900% |
| 4 | $4.00 | $125.00 | $121.00 | 3025% |
| 6 | $4.00 | $250.00 | $246.00 | 6150% |
| 14 | $4.00 | $1,637.40 | $1,633.40 | 40835% |

(1) Approximately 94% of City water customer have a 5/8 or 3/4 inch water meter.

The Monthly Service Charge reflects a change in how the water and sewer utilities fund their operation and infrastructure. The changes will not result in net, new revenue to the utilities. The revenues collected from customers will shift from the usage rate portion of their bill to the monthly service charge portion.

The reasons for the change include the following:

*Improve revenue stability to ensure reliability of service*. Like many utilities across the country, the City is using less water due to conservation efforts. While this is beneficial to the environment, the City is highly dependent on revenues generated by water consumption. The City's fixed costs for providing safe, reliable, and convenient water and sewer service (including infrastructure) continue to increase. Coupled together, these trends create financial challenges for utilities.

*Improve equity and distribution of costs*. Before a customer uses the first drop of water or flushes a toilet, the City has several fixed costs to provide water and sewer service (customer service, billing, meter services, infrastructure). Some of these fixed costs are the same per customer (customer service, billing) while others vary by the amount of water used which is proportionate to the size of their water meter (meter services, infrastructure).

*Modernize and follow industry best practices*. As noted above, utilities across the country are working to reconcile the contradictory trends of declining revenues from lower water usage and increasing fixed costs. Nationally, utilities are shifting their revenue structures to a higher proportion of fixed fees (some as high as 30%). With the change, the City would be collecting about 11% from fixed fees.

*Customers will still be able to control the vast majority of their water bill through their usage*. Customers currently have control of 84% of their bill based on their water usage. Under the change, customers will have control over 81% of their bill based on the average customer's monthly water usage.

### 1.1.3 Adopted FY'19 Water and Sewer Rates

Based on the above recommendations and the projected revenue requirements to operate and maintain each utility, the water and sewer rates for FY'19 (beginning July 1, 2018) are as follows:

***Exhibit 1.1.2 Adopted Water and Sewer Rates FY'19***

| | Current | Adopted FY'19 | $ Change | % Change |
|---|---|---|---|---|
| **WATER (per 1,000 CF)** | | | | |
| Summer | $62.78 | $64.66 | $1.88 | 3.0% |
| Winter | $48.29 | $49.74 | $1.45 | 3.0% |
| | | | | |
| **SEWER (per 1,000 CF** | | | | |
| | $74.83 | $78.57 | $3.74 | 5.0% |

## 1.2 NATURAL GAS

The revenue requirements to operate and maintain the natural gas system are projected to increase by 8.5% for FY'19. The single largest expenditure for Charlottesville Gas is the purchase of natural gas from BP, the City's wholesale supplier. The amount of gas to be purchased and the price of gas are projected to increase in FY'19. The gas rates for FY'19 are as follows:

***Exhibit 1.2.1 Adopted Gas Rates for FY'19***

| | FY'18 (Adopted 7/1/17) | FY'19 | $ Change | % Change |
|---|---|---|---|---|
| **FIRM** | | | | |
| Customer Charge (Minimum) | $10.00 | $10.00 | $0.00 | 0.0% |
| First 3,000 Cu Ft, Per MCF | $8.2781 | $8.3944 | $0.116 | 1.4% |
| Next 3,000 Cu Ft, Per MCF | $7.7814 | $7.8907 | $0.109 | 1.4% |
| Next 144,000 Cu Ft, Per MCF | $6.9536 | $7.0513 | $0.098 | 1.4% |
| Over 150,000 Cu Ft, Per MCF | $6.7880 | $6.8834 | $0.10 | 1.4% |
| **INTERRUPTIBLE** | | | | |
| Customer Charge (Minimum) | $60.00 | $60.00 | $0.00 | 0.0% |
| First 600 MCF, Per MCF | $5.8319 | $6.1065 | $0.27 | 4.7% |
| Over 600 MCF, Per MCF | $4.5763 | $5.1210 | $0.54 | 11.9% |
| Annual Minimum (MCF) | 1,200 | 1,200 | | |
| **AIR CONDITIONING** | | | | |
| All Gas Used, Per dth | $7.3171 | $7.3471 | $0.030 | 0.4% |
| **GAS LIGHT** | | | | |
| Charge per Month | $17.51 | $17.51 | | |
| **TRANSPORTATION** | | | | |
| Small Volume Customer | | | | |
| Monthly Service Charge | $150.00 | $150.00 | $0.00 | 0.0% |
| Rate per dth | $3.2827 | $3.4853 | $0.203 | 6.2% |
| Large Volume customer - 35,000 mcf/per month | | | | |
| Monthly Service Charge | $600.00 | $600.00 | $0.00 | 0.0% |
| Rate per dth | $1.9569 | $2.0379 | $0.081 | 4.1% |

## 1.3 STORMWATER

The Stormwater Utility fee rate was adopted in March, 2013. The rate remained flat for the period FY2014-FY2018 per the multi-year operations budget and five-year capital plan approved by City Council during the Stormwater Utility Ordinance adoption. The rate will remain flat through FY2019 while being evaluated in preparation for the development of the FY2020-FY2024 multi-year operations budget and five (5) year capital plan.

## 1.4 IMPACT ON CUSTOMER

The table below illustrates the impact on a City residential customer's monthly bill useing an average amount of water and sewer service (400 cubic feet) and gas (4,600 cubic feet). The amounts include both usage rates and Monthly Service Charge.

***Exhibit 1.4.1 Impact of Adopted FY'19 Rates and Charges on an Average Customer***

| | Current (based on rates adopted 7/1/17) | Adopted (Effective 7/1/18) | $ Change | % Change |
|---|---|---|---|---|
| Water | $25.73 | $27.38 | $1.65 | 6.42% |
| Sewer | $33.93 | $36.43 | $2.50 | 7.36% |
| Natural Gas | $47.28 | $47.81 | $0.52 | 1.11% |
| TOTAL | $106.95 | $111.62 | $4.67 | 4.37% |

# 2. WATER

## 2.1 OVERVIEW

The City distributes potable water within its municipal boundaries and the University of Virginia. The City has approximately 14,300 water customers using 1.6 billion gallons of water annually or 4.3 million gallons daily. The City's water distribution system has 183 miles of pipes (enough to stretch from Charlottesville to Virginia Beach) ranging in size from 2" to 18" in diameter. The system also includes 1,100 fire hydrants and 3,400 water valves.

## 2.2 RIVANNA WATER AND SEWER AUTHORITY

The Rivanna Water and Sewer Authority (RWSA) provides wholesale water supply, as well as drinking water for the City of Charlottesville and the Albemarle County Service Authority (ACSA). The City's share of RWSA's budget for water totals $6,037,499 for FY'19 including operations costs and debt service for infrastructure. 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.

### 2.2.1 RWSA FY'19 Water Budget Objectives

The budget increases will support existing and planned water programs to effectively address the service expectations of our growing community:

*Strategic Plan Implementation*

The Strategic Plan has been approved by both Authorities. Staff Goal Teams are developing specific strategies and tactics to achieve prioritized goals for the next year. Support will be required to complete many of the strategies.

*Reservoir Management*

Volume surveys (bathymetric surveys) of the Ragged Mountain and South Fork Rivanna Reservoirs will be completed to evaluate the Safe Yield of the urban water supply system. Reservoir water quality is monitored continuously and treatments are completed to reduce algae growth, if needed.

*Urban Drinking Water Management*

Water supply, redundancy and reliability will be improved by:

- Increasing drinking water treatment capacity at the Observatory plant.
- Renewal of the largest water treatment plant at South Rivanna.
- Replacing piping and pumping stations which convey raw water from the Ragged Mountain Reservoir to the Observatory Treatment Plant.
- Acquiring the right-of-way for a pipeline to connect the South Rivanna and Ragged Mountain Reservoirs.
- Installing a major water line from Avon Street to the Pantops area.

*Technology Systems Planning and Management*

Use of complex technology systems continues to expand and evolve in order to leverage operational efficiencies. Additional support is programmed to complete a Technology Master Plan, which will provide strategic direction to acquire and implement an Asset Management System and enhance the functionality of other technology systems including Supervisory Control and Data Acquisition, as well as Geographic Information Systems.

### 2.2.2 Infrastructure

RWSA's Capital Improvement Plan (CIP) for water for Fiscal Years 2019-2023 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 the City of Charlottesville and ACSA. The CIP is a 5-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, several capital projects were very near completion or are no longer needed, and as such are being removed from the 2019-2023 CIP. Water projects include:

- Ragged Mountain Reservoir to Observatory WTP Pipeline Condition Assessment
- Rt. 29 Pump Station Site Acquisition
- Stillhouse Tank Repairs and System Improvements
- Rt. 29 Pipeline – VDOT Betterment (Rt. 29 & Berkmar)
- South Rivanna WTP Leaf Screen
- South Rivanna WTP Filter Press Rehabilitation

The total 5-year 2019-2023 CIP for water is approximately $83.8 million. This includes projects already in previous CIPs which have been modified as well as new projects.

***Exhibit 2.2.1 RWSA Water Infrastructure Projects to Serve City***

| Project | FY'19-FY'23 Total (millions) |
|---|---|
| *New Projects* | |
| Ragged Mountain Reservoir to Observatory WTP Raw Water Line | $4.1 |
| Ragged Mountain Reservoir to Observatory WTP Pump Station | $2.4 |
| Water Demand Projection and Safe Yield Study | $0.1 |
| South Fork Rivanna River Crossing and North Rivanna Transmission Main | $5.3 |
| Rt. 29 Pump Station | $2.3 |
| Urban Finished Water System Master Plan | $0.2 |
| **NEW PROJECTS SUBTOTAL** | **$14.4** |
| *Existing Projects, Modified* | |
| Observatory WTP Improvements | $28.6 |
| Interconnect Lower Sugar Hollow and Ragged Mtn Raw Water Mains | $0.6 |
| Sugar Hollow to Ragged Mtn Reservoir Transfer Flow Meter | $0.5 |
| Wholesale Water Master Metering | $6.8 |
| Avon to Pantops Water Main | $18.7 |
| South Rivanna Hydropower Plant Decommissioning | $1.4 |
| South Rivanna WTP Improvements | $12.9 |
| **EXISTING PROJECT, MODIFIED SUBTOTAL** | **$69.5** |
| **TOTAL** | **$83.8** |

### 2.2.3 Actual Water Flows

The City portion of Urban Area operation rates and charges are based on water usage (flows). The estimated flows for the City will decrease for FY 2019 budget levels by 1%.

***Exhibit 2.2.2 RWSA Water Usage Allocation***

| | FY'18 | FY'19 | % Change |
|---|---|---|---|
| City | 52% | 51% | -1% |
| Albemarle County Service Authority | 48% | 49% | 1% |

**2.2.4 City Share of RWSA Water Costs**

The FY'19 budget increases the budget by $73,500 in Operating expenses and an increase of $251,600 in Debt Service charges for a total budget increase of approximately $325,100, or 6.0% above the FY'18 budget. RWSA's costs to the City for water are planned to increase:

- Operating expenses are to increase $0.101 per 1000 gallons (5.13%) for water
- Debt Service charges for the City are to increase 13.1 % for water

## 2.3 WATER QUALITY AND SAFETY

Protecting public health is a core function. Since the early 1900's the City has diligently planned, developed, and operated a complex system that provides affordable, clean, safe, great-tasting water. The City works closely with the ACSA, the RWSA, the Virginia Department of Health, and the Virginia Department of Environmental Quality.

RWSA collects, stores, and treats the water, then the City buys the treated water and distributes the water through their 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, in order to remove dissolved particles, such as dust, parasites, bacteria, viruses, and chemicals. As smaller, suspended particles are removed, cloudiness diminishes and clear water emerges.

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

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

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 2017, 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 Beta Particles
- Barium
- Fluoride
- Lead
- Copper
- Nitrate
- Trihalomethanes and Haloacetic Acids
- Chlorin

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

## 2.4 WATER CONSERVATION AND WATER LOSS PROGRAMS

The City of Charlottesville partners with City customers to find ways to conserve water. Highlights of the program include the distribution of over 11,000 free indoor water conservation kits since 2008, the development and dissemination of Water-Wise landscaping and indoor water conservation information, and a low-flow toilet rebate program, which has replaced over 6,000 high consumption toilets since 2003.

The water conservation program also maintains an extensive public outreach campaign. This includes educational activities at summer camps, educating the public during Fix a Leak Week, distributing water-saving information and promotional items at dozens of community events every year such as Kid*Vention and the Earth Day EcoFair. The City's water conservation message has also been conveyed via the internet (online ads, mobile aps, and social media), print, radio, and television. The water conservation program partners with community partners including the Local Energy Alliance Program (LEAP), UVA Sustainability, ACSA, and RWSA. In addition, we have continued to be an active participant in the American Water Works Association (AWWA), the Alliance for Water Efficiency (AWE) and the Environmental Protection Agency's (EPA) WaterSense program. In 2017, the City of Charlottesville was recognized for their water conservation efforts supporting the WaterSense program and for the third year in a row, received the 2017 Partner of the Year Award for the excellent water conservation efforts performed in 2016.

The exhibit below outlines the City's current water conservation efforts.

### *Exhibit 2.4.1 Water Conservation Activities*

| Program Initiatives | Description |
|---|---|
| Rebates: Low Low Toilets and Rain Barrels | Low flow toilet rebates issued in FY2017 totaled 258; a revised program to rebate only EPA WaterSense labeled toilets began in July 2012. Rain barrel rebates issued in FY2017 totaled 18, and rebates issued 2009 (start of program) – end of FY2017 totaled 740. The City promotes the rain barrel workshops and opportunities offered by community partners, such as the TJSWCD. |
| Public Awareness Campaign for Free Indoor Water Conservation Kits | Multiple giveaway events were held during FY2017 and additional events are planned for the 2018 - 2020 calendar. The City partnered with LEAP to distribute water conservation kits as part of their home energy check-ups; approximately 500 kits are distributed per year at various water conservation events and from the Office of Utility Billing. |
| Water Conservation Education | The water conservation program goes to summer camps, schools, and small groups to teach the importance of conserving water and ways they can accomplish this effort. Information pamphlets are provided at all events with tips on how to save water both inside and outside their home. Educational information is also provided on the Water Conservation website explaining ways to save water and money for all types of water needs and usage. |
| Water-Wise Landscaping | Education and outreach in forms of print ads, radio ads, and social media to inform the community on appropriate lawn watering and water conscious (drought tolerant) landscapes. In the summers of 2016 and 2017, the water conservation program used weather specific target ads in weather.com mobile and tablet apps to ensure educational information was appropriately conveyed and targeted. This campaign was a huge success and will continue during the summer of 2018. |
| Online Residential Water Use Calculator | This online tool, available on the city website, is designed specifically for Charlottesville residents to better understand their water usage. |
| Community Attention Student Volunteer (Blue Team) | Worked with Community Attention to give youth a volunteer opportunity to go door to door and distribute indoor conservation kits and rebate information. |
| Carwash Certification | Continued the joint efforts of the City and Albemarle County Service Authority so more businesses will sign up for water conservation carwash certification. |
| Regular Ad Campaign, Year Round- "Check, Twist, Replace" | The water conservation program runs yearly ad campaigns using social media, print, television, radio, and online ads to promote the current EPA WaterSense sponsored water conservation campaign: "Check, Twist, Replace". |
| Multi-Family Homes' Toilet Retrofits | This program has been in existence since June 2011; since then, over fifteen apartment buildings have received rebates to replace their high consumption toilets. In FY2015, 212 low flow toilets were replaced in a large multi-family complex. In FY2017, several smaller multi-family complexes utilized this program. |
| Fix a Leak Family 5k | The annual race to highlight EPA WaterSense's nationwide Fix a Leak Week was scheduled for March 2017 at Pen Park. This race is nationally recognized by the EPA. The race was a huge success attracting our largest attendance to date. The next Fix a Leak Family 5K is schedule for March 17, 2018. |
| Water Conservation Community Outreach | The water conservation program participated in numerous community events. At each event, materials are tailored to the audience and information on how to save water, and toilet rebates and rain barrel rebates are always available. For FY2017, water conservation outreach occurred during Kid*Vention, UVA events, Tom Tom Festival, Earth Day EcoFair, neighborhood community events, and at City Hall tabling. In addition, the water conservation program mentored a high school intern during the summer as part of the Community Attention Youth Internship Program, where the intern provided essential support with water conservation outreach. |
| Imagine a Day without Water | The water conservation program held the 3rd Imagine a Day without Water campaign in 2017 that involved a student art contest showing the importance of water in our everyday lives. The campaign and contest, co-sponsored with ACSA and RWSA, was a huge success with 638 poster entries with representation from City Public Schools. Artwork was displayed around Charlottesville including City Hall. |
| Meet Your Reservoir | RWSA, ACSA, and the City celebrated the Charlottesville water system as part of Drinking Water Week in 2017. There was a community engagement event at the Ivy Creek Natural Area. Educational tables were present to discuss the process that occurs to get clean drinking water to your tap. |
| "I'm For Water" Campaign & The Mayor's Challenge | Participated in the national Mayor's Challenge. Cities compete to get the most residents to take the EPA WaterSense pledge "I'm For Water" and support water conservation practices in their area. Charlottesville came in 6th in their population size in April 2017. |

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 FY2009, the City has been replacing aged water lines and service lines, which reduces leaks and supports improving infrastructure. The City has also performed annual system wide leak detection surveys. With over 180 miles of water lines, 124 leaks were found during the FY'17 through various methods, and 17 of those

water leaks were found and fixed during the annual leak audit in FY'17 (Fall 2016). The City aims to respond and repair leaks expeditiously to minimize water loss and service impacts. Leak audit surveys were completed in thirteen of the past fifteen years and will continue annually. The next survey is scheduled for summer 2018 and will be consistent with past years covering 100% of the distribution system.

The American Water Works Association (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 through 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 FY'14 – FY'17, water loss was quantified by more accurate calculations of loss from water leaks, unmetered unbilled water usage, and water meter error.

Based on the water audit recommendations, a water meter calibration and replacement project was 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. The meter replacement project also revealed a need to upgrade meter vaults on many of the large meters to improve access and meet current standards. In 2014, the City began a program to upgrade infrastructure associated with 2-inch water meters. In 2018, the meter replacement program expanded to include all meters 1.5-inch and above. The meter replacement project replaced 59 large water meters in 2017 and over 150 since the project's inception. The success of the program has led to increased momentum into FY'19 with approximately 80 meters projected to be replaced in FY'19. 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. In addition, starting in the summer of 2018, 5/8-inch and 1-inch meters have been included in the assessment and replacement program.

## 2.5 TOILET AND RAIN BARREL REBATE PROGRAMS

In support of water conservation efforts, the City adopted a Toilet Replacement Rebate Program in 2003 and a Rain Barrel Rebate Program in 2009. Currently the 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 models use significantly less water, resulting in water savings thus dollar savings every year. Residential customers may replace up to three (3) toilets at a given residence built before 1994. Owners of multi-unit apartment complexes are allowed to replace two (2) toilets per unit. Commercial property owners may replace up to two (2) toilets and receive up to $80 per replacement. The following chart shows the participation since adoption of the program.

***Exhibit 2.5.1 Participation in Toilet Rebate Program Last 10 Years***

| Fiscal Year | # of Customers | # of Rebates | $ Rebated | Average Rebate/Customer |
|---|---|---|---|---|
| 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 [1] | 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 was started to encourage City homeowners to use harvested rainwater for numerous outside uses like washing a car, 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 740 rebates since the program started in FY'09 including 18 rebates in FY'17. The City also provides rain barrel workshops periodically to help City residents construct rain barrels for their use and educates them about the importance of rain water harvesting and water conservation.

## 2.6 DROUGHT AND WATER RESTICTIONS IN 2017

Drought is a common natural phenomenon in the State of Virginia that can significantly affect available municipal water supplies. In order to appropriately address and reduce drought-related impacts, the City of Charlottesville and its partners have developed a comprehensive Drought Management Response Plan. Droughts typically do not have a clearly defined beginning or end, thus making it difficult to predict. By implementing and maintaining a thoughtful drought response plan, the City is prepared to effectively address and mitigate drought impacts.

In the fall of 2017, the City of Charlottesville experienced drought conditions that reduced the water storage availability at the South Fork Rivanna Reservoir to 42% of its original capacity. As the reservoir is one of the primary sources of drinking water, the City of Charlottesville took action to preserve the community's water supply. On October 11, Charlottesville's City Council approved drought warning stage restrictions for all City residents and business, as part of the Drought Management Response Plan. The mandatory water use restriction followed the RWSA declaration of a drought warning earlier that month.

The following restrictions were put into effect from October 11, 2017 thru November 14, 2017:

- No washing any car, truck, trailer or any other type of mobile equipment at a commercial vehicle wash facility;
- No cleaning of any sidewalks, streets, driveways, parking lots, service station aprons, exterior of buildings;

- Only water established plantings with a non-leaking hose with an automatic (hand-held) shut-off nozzle to preserve plant life;
- Newly seeded lawns are required to be installed by a licensed contractor with certain restrictions and need approval from the City to be installed;
- Swimming and wading pools requiring more than five gallons of water may not be replenished or refilled;
- Water will not be served in restaurants, except upon request;
- Fire hydrants will not be used for any other purpose than fire suppression, unless for authorized exceptions;
- No operation of any water-cooled air conditioning that does not have water conserving equipment; and
- Commercial lodging establishments shall adopt a policy which limits the daily changing of washable linens and towels.

On November 20, 2017 with the South Fork Reservoir at full capacity, the City Council ceased the mandatory water restrictions and declared that a water supply emergency was no longer present. The water restrictions, significant rainfall events, and modifications to operational procedures, allowed the City to maintain acceptable water supplies without affecting quality or reliability of water service. As part of the City's ongoing commitment to water supply resiliency planning, the Department of Utilities and the RWSA are planning to update the Drought Management Response Plan in the coming Fiscal Year.

## 2.7 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 (GAP). The maximum allotment per household per year is $150 or three times the customer's average monthly bill, whichever is less.

In FY'17, 171 customers benefited from the WAP in receiving a total of $14,513. The water budget for the next fiscal year includes $7,500 for WAP. The WAP also has carry-over funds available from previous fiscal years. Comparable assistance has begun in the wastewater fund through the Wastewater Assistance Program (WWAP).

## 2.8 INFRASTRUCTURE

The City's water distribution system contains over 1,100 fire hydrants, 3,400 water valves and 183 miles of water main line ranging in size from 2" to 18" in diameter. About 16.5 miles of that pipe is three inches or less in diameter. These undersized mains are evaluated for capacity, location, and frequency of breaks, and will be added to the replacement schedule as necessary. The majority of the mains are galvanized steel, several decades old, and serving multiple customers. Not only are they severely corroded, but can often result in low pressure and significantly reduce the quality of service to customers.

A Water Prioritization Study was completed in 2009, which identified 48 projects totaling $7 million of replacement projects to be completed. Since 2009, additional projects were identified and added to the

list and work has been completed on 65 water projects. These projects aim to improve fire protection, reduce main breaks, improve overall water quality and address undersized lines. Total length of pipe replaced to date for water projects is approximately 12.6 miles (66,632 linear feet) averaging about 2 miles (10,000 linear feet) per year. This work is continuing in FY2019.

Additionally, the Department of Utilities began an aggressive, supplemental water main replacement schedule in the summer of 2017 that included five large projects. The remaining projects to be completed include the following:

*Rugby Road Water Meter Replacements/ Gentry Lane Water Main Installation*

The first phase of the project consisted of installing 1,300' of 8" water main in Gentry Lane from the intersection of Diary 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" line in the road, while 11 water services were served by a dead-end 2" line in the backyards of the properties on the north side of Gentry Lane. The new 8" line now serves all the properties allowing the existing 6" and 2" lines to be abandoned, reducing maintenance and removing City infrastructure from private properties. The new line increased capacity, while improving fire flow for the area, as well as the Walker Upper Elementary School/ Charlottesville City Schools Administration Office complex. The second phase, which consists of 1,300' of 8" water main from Greenleaf Lane to the northeast intersection of Diary Road and Gentry Lane, will be completed in the summer of 2018.

There are currently two water mains (one 12" and one 6" that reduces to a 4") in Rugby Road from University Avenue to Route 250. The second phase of the project will move all existing water services from the smaller diameter line to the larger diameter line. This will allow for the smaller diameter line to be abandoned reducing the maintenance needed in Rugby Road. This phase of the project will be constructed in the summer of 2019.

*Emmet Street/ Ivy Road Water Main Replacement*

Two 6" lines currently run in parallel in Emmet Street and Ivy Rd from the intersection of McCormick Road to the City/ County line on Ivy Rd. Utilities will use a combination of two methods to replace the two existing lines – pipe bursting and open trenching. Where feasible, one of the existing 6" lines will be burst in place and upsized to an 8" HDPE DR11 pipe. This will greatly reduce the impact on traffic around the area during construction. Where pipe bursting is not an option, a new 8" ductile iron pipe will be installed. Upon completion of the project, one 8" line will replace the parallel 6" lines from McCormick Rd to St. Anne's Belfield. The design is complete and is scheduled to begin construction in the summer of 2018.

*High Street Water Main Replacement*

In an effort to improve utilities ahead of a large paving and streetscape project, Utilities will implement a project to replace approximately 5,400 feet of 6" diameter water main with 12" 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 Neighborhood Development Services and the Rivanna Water and Sewer Authority on the design. This project is currently under design with a construction date to be determined.

*West Main Street Water Main Replacement (summer of 2019)*

The purpose of the project is to replace an existing 18" water main that is a major feed to the City. This project will be completed in phases; the first phase includes relocation of the line that currently goes under the railroad tracks just south of 9th Street SW. The new line will be installed in W. Main Street from 9th Street SW, turn south on Roosevelt Brown Blvd, and connect to the existing line at Grove Street. This project is currently under design and implementation is planned for the summer of 2019.

Most of the City's service lines (the lines 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 service line replacement program as part of the upgrading and replacement of water mains. To date, over 6 miles (32,000 linear feet) of water service lines have been replaced.

The current capital projects in the City's five-year capital plan are listed below. The City updates its capital plan annually with the 5 year capital plan being FY'19 – FY'23.

***Exhibit 2.8.1 City 5 Year Capital Improvement Plan for Water***

| Project | 5 Year Total |
|---|---|
| Water Line replacement (Annual Service Contract) | $11,250,000 |
| Water Meter Replacement | $750,000 |
| Large Waterline Replacements Projects | $2,800,000 |
| **TOTAL** | **$14,800,000** |

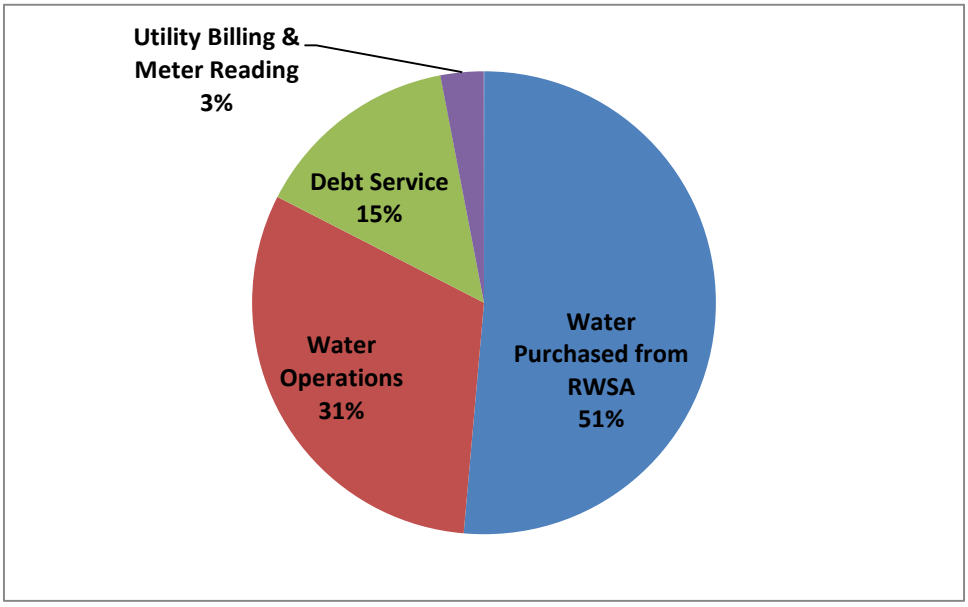
## 2.9 REVENUE REQUIREMENTS

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). The approach includes a detailed review of each of the costs incurred by the City.

### 2.9.1 Current Revenue Requirements (FY'19)

The FY'19 budget for the water utility totals $11,749,327. The graphic below shows the major categories of expenses, the largest being the purchase of water from RWSA (51% of the FY'19 water budget).

***Exhibit 2.9.1 Water Utility FY'19 Revenue Requirements***




The projected FY'19 budget for the water utility is $873,493 (8.0%) higher than the FY'18 budget. The City's cost to purchase water from RWSA is both the single largest expenditure in the water budget and is projected to be the largest increase ($842,298) in the FY'19 water budget. The remainder of the water utility budget is projected to increase by $31,395.

***Exhibit 2.9.2 Comparison of Water Budgets FY'18 to FY'19***

| Revenue Requirements | FY'18 Budget | FY'19 Budget | $ Change | % Change |
|---|---|---|---|---|
| Water Purchased from RWSA | $5,195,201 | $6,037,499 | $842,298 | 16.2% |
| Water Operations | $3,285,779 | $3,403,518 | $117,739 | 3.6% |
| Debt Service | $1,723,194 | $1,696,107 | ($27,087) | -1.6% |
| Utility Billing Office | $279,019 | $305,810 | $26,791 | 9.6% |
| Water Conservation[1] | $201,333 | $175,917 | ($25,416) | -12.6% |
| Vehicle Replacement - Water | $73,029 | $73,029 | $0 | 0.0% |
| Meter Reading | $63,278 | $47,446 | ($15,832) | -25.0% |
| Water Assistance Program[1] | $15,000 | $10,000 | ($5,000) | -33.3% |
| Toilet Rebate Program[1] | $40,000 | $0 | ($40,000) | -100.0% |
| **TOTAL** | **$10,875,833** | **$11,749,326** | **$873,493** | **8.0%** |

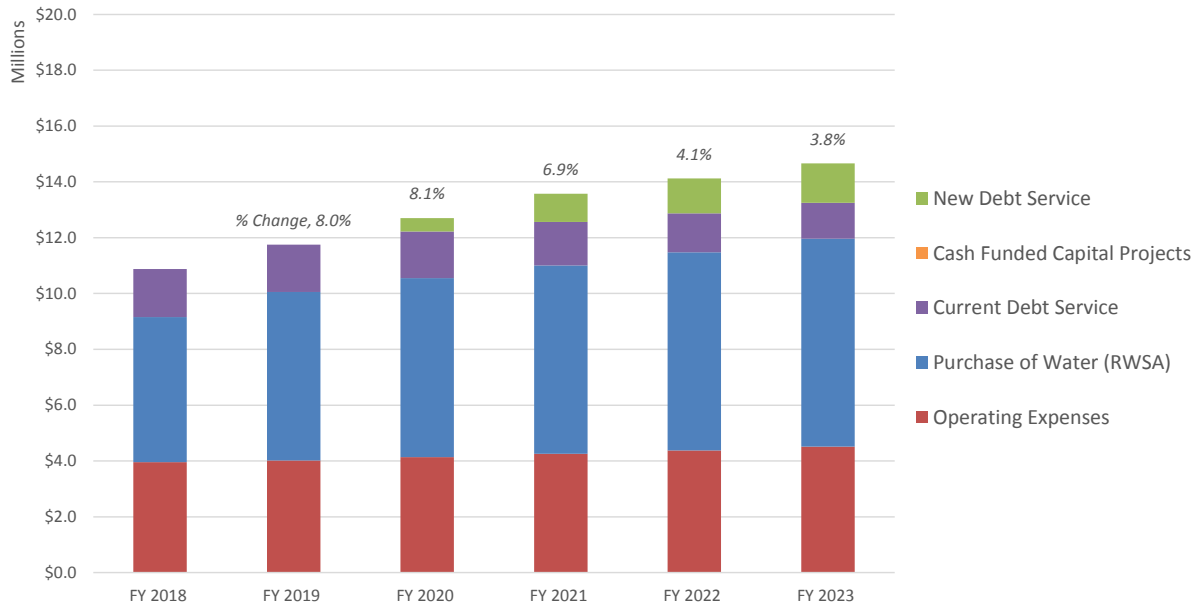
(1) At the end of a fiscal year, any leftover funds in these categories are automatically carried over to the next fiscal year. The decreases shown above are offset by sufficient amounts of carryover funds from previous years to allow for these programs to continue in FY'19 at the current levels of service.

### 2.9.2 Projected Revenue Requirements (FY'20 – FY'23)

To project operating expenses for FY'20-FY'23, the FY'19 water budget line items are escalated using a 3.0% escalation rate with the exception of 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 (with percentage change from the previous year) for FY'19 through FY'23 are shown below.

***Exhibit 2.9.3 Water Revenue Requirements FY'19-FY'23***




## 2.10 CUSTOMERS AND USAGE

The City currently provides water service to just over 14,300 customers. The exhibit below provides a breakdown of current water customers by water meter size. Residential customers (5/8 and 3/4 inch water meters) comprise the majority of the City's water customers (94%).

***Exhibit 2.10.1 Current Water Customers by Meter Size***

| Water Meter Size (in inches) | # of Customers | % of Customers |
|---|---|---|
| 5/8 and 3/4 | 13,514 | 94.4% |
| 1 | 273 | 1.9% |
| 1 1/2 | 232 | 1.6% |
| 2 | 235 | 1.6% |
| 3 | 39 | 0.3% |
| 4 | 15 | 0.1% |
| 6 | 1 | 0.01% |
| 14 | 1 | 0.01% |
| **TOTAL** | **14,310** | |

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, thus no growth is factored into the planning period.

Customers are currently charged water rates based on their metered water usage (billed monthly in 1,000 cubic feet). The City adopted summer and winter water rates in 2004 to promote conservation. The exhibit below provides a breakdown of current annual billed water usage in cubic feet by time of year.

***Exhibit 2.10.2 Current Water Usage***

| Usage | Usage (cubic feet) | Total |
|---|---|---|
| Summer | all usage (May 6 to Oct 5) | **95,073,511** |
| Winter | all usage (Oct 6 to May 5) | **116,338,167** |
| **Total** | | **211,411,678** |

Like the number of customers, current water usage has been held constant over the planning period.

## 2.11 1981 UVA-CITY WATER AGREEMENT

The 1981 Water Agreement between the City and the University includes the following:

- Rivanna Water and Sewer Authority (RWSA) lease for Observatory Water Treatment Plant.
- Water rates: For water delivered to the University's distribution system, the University pays a rate equal to the RWSA wholesale rate plus 25% of the City's maintenance and operations retail rate. For water supplied directly to University-owned facilities from the City's water distribution system, payment will be at the City's rate.

The 1981 Agreement is currently in the process of being replaced. RWSA is coordinating a new lease with the University for the Observatory Water Treatment Plant. RWSA has spent approximately $5 million on recent improvements and plans for an upcoming upgrade that will cost approximately $20 million to the Observatory Hill Water Treatment plant.

The University has recently begun undertaking new development in the City's utility service area. The February 2018 agreement signed as part of Brandon Avenue discussions stated that all UVA facilities brought online or modified after 1/1/18 will pay full City rates. The February 2018 agreement also states UVA and the City will establish a plan for transitioning the water and wastewater rates charged to UVA, for University's buildings/ facilities constructed and occupied prior to 1/1/2018, to an updated rate structure supported by a professional water rate study. The City had already commenced a professional water and sewer rate study in June 2017. Best practice is that such studies are done every 5 years. The City has not completed a study for a number of years (10+).

The City has had multiple meetings with representatives from the University to discuss a plan for utilities services for the new UVA developments and a new water and wastewater rate. The transition plan includes:

- Over the next three years, the University would:
    - July 1, 2018 – pay 25% of the difference between 1981 Agreement rates and City rates.
    - July 1, 2019 – pay 50% of the difference between 1981 Agreement rates and City rates (in addition to 25% from previous year)
    - July 1, 2020 - pay 25% of the difference between 1981 Agreement rates and City rates (in addition to 75% from previous year and rate will be equal to the City rate)
    - July 1, 2021 – pay City rates
- Beginning July 1, 2018, the University would pay full monthly service charge for its 14 inch water meter.
- By 2021 the University would pay the City rate set as part of the annual rate setting process.

## 2.12 MONTHLY SERVICE CHARGE

The Monthly Service Charge for water is currently $4.00 per month per account. For several decades, the City has assessed a monthly service charge for water, sewer, and natural gas to recoup the fixed cost of providing utility services such as customer service, billing, and meter services. The monthly service charge for water last changed from $1.25 to $4.00 in 2004.

The monthly service charge for water is changing in two ways:

- The dollar amount is increasing; and
- The charge will vary by the size of a customer's water meter.

The Monthly Service Charge reflects a change in how the water and sewer utilities fund their operation and infrastructure. The changes will not result in new net revenue to the utilities. The revenues collected from customers will shift from the usage rate portion of their bill to the monthly service charge portion.

The other recommended change to the Monthly Service Charge for water and sewer is to index a portion of the City's infrastructure costs to the size of the water meter. The size of a water meter regulates the amount of water that can pass through the meter. The required size of a water meter is determined by counting the number and type of plumbing fixtures a customer has. In other words, the meter size indicates the demand for water usage.

The American Water Works Association (AWWA) publishes the following table which compares the proportionate amount of water that can pass through different size water meters:

***Exhibit 2.12.1 AWWA Max Flow Capacity by Water Meter Size***

| Water Meter (inches) | Max Flow Capacity (gallons per minute)* |
|---|---|
| 5/8 | 20 |
| 3/4 | 30 |
| 1 | 50 |
| 1 1/2 | 100 |
| 2 | 160 |
| 3 | 320 |
| 4 | 500 |
| 6 | 1,000 |
| 14 | 6,550 |

Source: American Water Works Association, M1 Manual, 7th Edition.

The City has to plan, size, and finance its infrastructure to accommodate the amount of water passing through its network of water meters. Thus, the size of a water meter is a proportionate measure of the demand from each customer for water and sewer infrastructure.

It also provides a proportionate measure between different customers. For example, a 1 inch meter uses as much water as two and a half 5/8 inch meters; 50 gpm/20 gpm = 2.5. A 14 inch water meter uses as much water as 327.5 5/8 inch water meters; 6,550 gpm/20 gpm = 327.5.

For residential water customers (94% of all City water customers) the change is $1.00 per month (increasing from $4.00 to $5.00). The monthly service charges for water are as follows:

***Exhibit 2.12.2 Changes to Monthly Service Charge for Water***

| Water Meter Size (in inches) | # of Customers | Current | Adopted | $ Change | % Change |
|---|---|---|---|---|---|
| 5/8 and 3/4 | 13,514 | $4.00 | $5.00 | $1.00 | 25% |
| 1 | 273 | $4.00 | $12.50 | $8.50 | 213% |
| 1 1/2 | 232 | $4.00 | $25.00 | $21.00 | 525% |
| 2 | 235 | $4.00 | $40.00 | $36.00 | 900% |
| 3 | 39 | $4.00 | $80.00 | $76.00 | 1900% |
| 4 | 15 | $4.00 | $125.00 | $121.00 | 3025% |
| 6 | 1 | $4.00 | $250.00 | $246.00 | 6150% |
| 14 | 1 | $4.00 | $1,637.40 | $1,633.40 | 40835% |
| **TOTAL** | **14,310** | | | | |

The reasons for the change to the Monthly Service Charge include:

*Improve revenue stability to ensure reliability of service*. Like many utilities across the country, the City is using less water due to conservation efforts. While this is beneficial to the environment, the City is highly dependent on revenues generated by water consumption. The City's fixed costs for providing safe, reliable, and convenient water and sewer service (including infrastructure) continue to increase. Coupled together, these trends create financial challenges for utilities.

*Improve equity and distribution of costs*. Before a customer uses the first drop of water or flushes a toilet, the City has several fixed costs to provide water and sewer service (customer service, billing, meter services, infrastructure). Some of these fixed costs are the same per customer (customer service, billing) while others vary by the amount of water used which is proportionate to the size of their water meter (meter services, infrastructure).

*Modernize and follow industry best practices*. As noted above, utilities across the country are working to reconcile the contradictory trends of declining revenues from lower water usage and increasing fixed costs. Nationally, utilities are shifting their revenue structures to a higher proportion of fixed fees (some as high as 30%). With the adopted change, the City would be collecting about 11% from fixed fees.

*Customers will still be able to control the vast majority of their water bill through their usage*. Customers currently have control of 84% of their bill based on their water usage. Under the adopted change, customers will have control over 81% of their bill based on the average customer's monthly water usage.

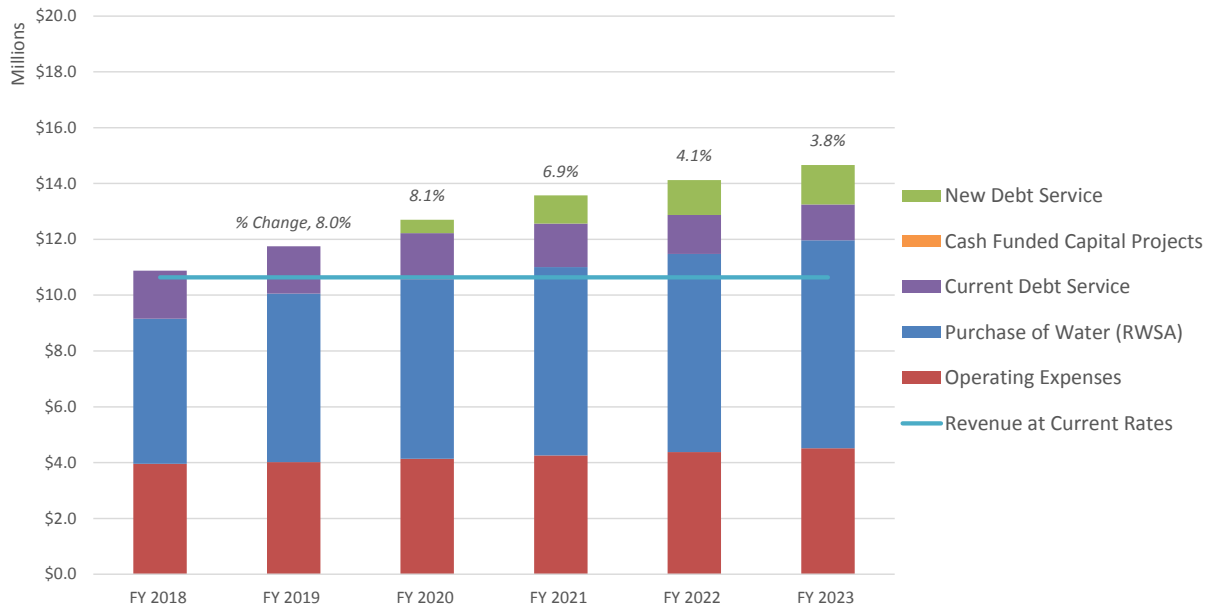
## 2.13 ADOPTED WATER RATES

### 2.13.1 Total Revenue Projections at Current Rates

The projected cost (revenue requirements) of the system are 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 in order to determine if existing rates are sufficient to recover the revenue requirements. As shown in the exhibit below, current water rates are not sufficient to meet the projected revenue requirements.

***Exhibit 2.13.1 Water Revenue Requirements and Revenue at Current Rates***



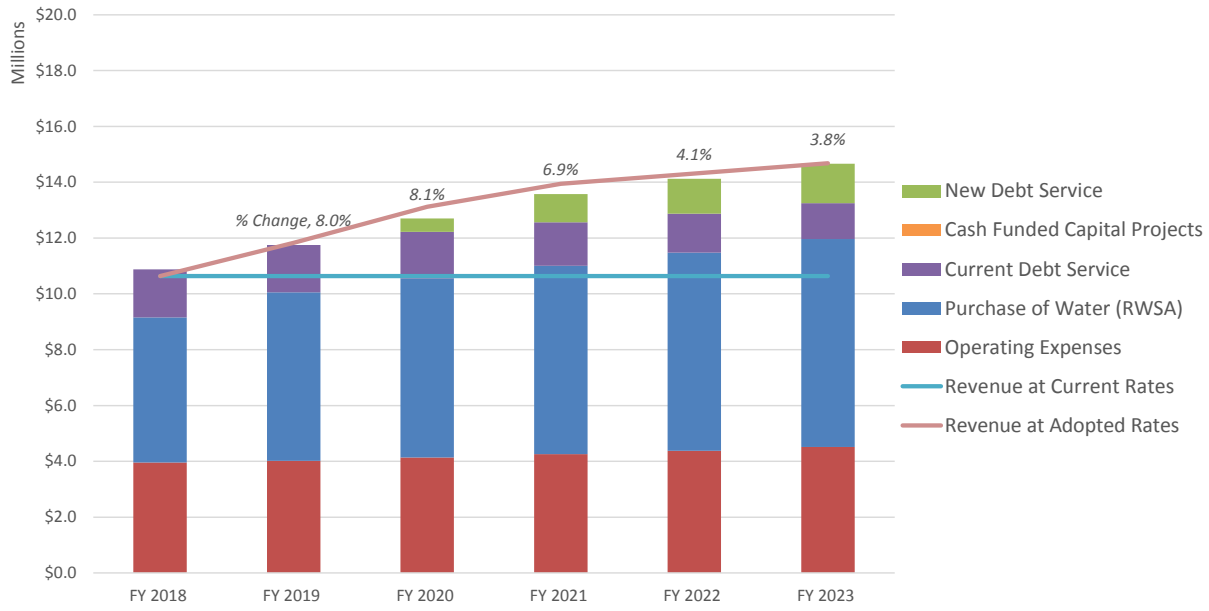

### 2.13.2 Total Revenue Projections at Current and Adopted Rates

In order 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 sufficient 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 projections at adopted rates for FY'19 and the years of the planning period for water.

***Exhibit 2.13.2 Water Revenue Requirements, Revenue at Current Rates and Revenue at Adopted Rates***




### 2.13.3 Water Rate Design

There are no recommendations to change the City's current seasonal water rate design. The City is recommending transitioning the University of Virginia's water rate from the 1981 Water Agreement to the City's retail water rate over the next three years.

### 2.13.4 Recommended Water Rates FY'19

Water rates are recommended to increase by 3.0% for FY'19.

***Exhibit 2.13.3 Recommended Water Rates FY'19 (per 1,000 CF)***

| | Current | Recommended FY'19 | $ Change | % Change |
|---|---|---|---|---|
| Summer | $62.78 | $64.66 | $1.88 | 3.0% |
| Winter | $48.29 | $49.74 | $1.45 | 3.0% |

### 2.13.5 Projected Water Rates FY'19-FY'23

Based on the projected revenue requirements for FY'19-FY'23 and customer usage, the projected water rates for this planning period are shown below.

***Exhibit 2.13.4 Projected Water Rates FY'19-FY'23 (per 1,000 CF)***

| | Current | Recommended FY'19 | Projected FY'20 | Projected FY'21 | Projected FY'22 | Projected FY'23 |
|---|---|---|---|---|---|---|
| Summer | $62.78 | $64.66 | $66.60 | $68.33 | $70.11 | $71.93 |
| Winter | $48.29 | $49.74 | $51.23 | $52.56 | $53.93 | $55.33 |
| Summer $ Change | | $1.88 | $1.94 | $1.73 | $1.78 | $1.82 |
| Summer % Change | | 3.0% | 3.0% | 2.6% | 2.6% | 2.6% |
| Winter $ Change | | $1.45 | $1.49 | $1.33 | $1.37 | $1.40 |
| Winter % Change | | 3.0% | 3.0% | 2.6% | 2.6% | 2.6% |

## 2.14 FY'19 Rates and Monthly Service Charge 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 changes to the Monthly Service Charge.

***Exhibit 2.14.1 FY'19 Customer Impacts***

| Water Meter Size | Number of Customers | Median Water Usage/Month (cf) | FY'18 Ave. Monthly Bill | FY'19 Ave. Monthly Bill | $ Increase | % Increase |
|---|---|---|---|---|---|---|
| 5/8 and 3/4 | 13,514 | 400 | $25.73 | $27.38 | $1.65 | 6.42% |
| 1 | 273 | 1,760 | $99.62 | $110.98 | $11.37 | 11.41% |
| 1 1/2 | 232 | 3,410 | $189.26 | $215.81 | $26.56 | 14.03% |
| 2 | 235 | 5,680 | $312.58 | $357.83 | $45.25 | 14.48% |
| 3 | 39 | 11,750 | $642.35 | $737.49 | $95.14 | 14.81% |
| 4 | 15 | 43,720 | $2,379.20 | $2,571.43 | $192.23 | 8.08% |

# 3. SEWER

## 3.1 OVERVIEW

The City operates and maintains the sanitary sewer collection system within its boundaries which consists of about 171 miles of pipe and 5,700 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 six inches to thirty inches. Manholes are either brick or pre-cast concrete. The flows from the City's system join flows from Albemarle County and empty into RWSA interceptors. These combined flows are carried to RWSA's Moores Creek Advanced Wastewater Treatment Plant.

## 3.2 RIVANNA WATER AND SEWER AUTHORITY

The Rivanna Water and Sewer Authority (RWSA) provides wastewater treatment services for the City of Charlottesville and the Albemarle County Service Authority (ACSA). The City's share of the FY'19 wastewater budget totals $8,888,735 including operating expenses and debt service costs. 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.

### 3.2.1 RWSA FY'19 Wastewater Budget Objectives

The adopted budget increases will support existing and planned wastewater programs to effectively address the service expectations of our growing community. A brief description of those programs follows:

*Strategic Plan Implementation*

The Strategic Plan has been approved by both Authorities. Staff Goal Teams are developing specific strategies and tactics to achieve prioritized goals for the next year. Support will be required to complete many of the strategies.

*Urban Wastewater Management*

Additional electric power and maintenance costs will be required to operate the new Rivanna Sewer Pump Station, which has the capacity to pump 53 million gallons of wastewater per day. Support is also included to minimize odors in the piping system which conveys wastewater from Crozet to the Moores Creek Treatment Plant.

*Technology Systems Planning and Management*

Use of complex technology systems continues to expand and evolve in order to leverage operational efficiencies. Additional support is programmed to complete a Technology Master Plan, which will provide strategic direction to acquire and implement an Asset Management System and enhance the functionality of other technology systems including Supervisory Control and Data Acquisition, as well as Geographic Information Systems.

### 3.2.2 Infrastructure

RWSA's Capital Improvement Plan (CIP) for wastewater for Fiscal Years 2019-2023 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 the City of Charlottesville and ACSA. The CIP is a 5-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, several capital projects were very near completion or are no longer needed, and as such are being removed from the 2019-2023 CIP. Wastewater projects include:

- Rivanna Pump Station and Tunnel
- Moores Creek AWRRF Administration Building Repairs

The total 5-year 2019-2023 CIP for sewer is approximately $32.6 million. This includes projects already in previous CIPs which have been modified as well as new projects.

***Exhibit 3.2.1 RWSA Sewer Projects for City***

| Project | FY'19-FY'23 Total (millions) |
|---|---|
| *New Projects* | |
| Maury Hill Branch Sewer Upgrade | $0.3 |
| Engineering and Administration Building | $3.0 |
| Moores Creek AWRRF Digester Sludge Storage Improvements | $0.3 |
| MCAWRRF Aluminum Slide Gate Replacement | $0.5 |
| MCAWRRF Mechanical Thickeners | $1.2 |
| Information Technology Enhancement for Asset Management | $0.5 |
| Security Enhancements | $2.4 |
| **NEW PROJECTS SUBTOTAL** | **$8.1** |
| *Existing Projects, Modified* | |
| Interceptor and Manhole Repairs | $3.3 |
| MCAWRRF Odor Control Phase 2 | $21.2 |
| **EXISTING PROJECT, MODIFIED SUBTOTAL** | **$24.5** |
| **TOTAL** | **$32.6** |

### 3.2.3 Actual Wastewater Flows

The City portion of Urban Area operation rates and charges are based on wastewater production (flows). The estimated flows for the City will decrease for FY 2019 budget levels by 2%.

***Exhibit 3.2.2 RWSA Sewer Production Allocation***

| | | | |
|---|---|---|---|
| City | 53% | 51% | -2% |
| Albemarle County Service Authority | 47% | 49% | 2% |

**3.2.4 City Share of RWSA Wastewater Costs**

The FY'19 budget increases by the amount of $170,700 in operating expenses and an increase of $185,000 million in debt service charges for a total budget increase of $355,700, or 4.3% above the FY'18 budget. RWSA's costs to the City for wastewater are planned to increase:

- Operating expenses will increase $0.195 per 1000 gallons (9.99%) for wastewater
- Debt Service charges for the City will increase 3.92 % for wastewater

## 3.3 INFRASTRUCTURE

The City has a number of challenges within the sewer collection system; 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. The goal of reducing inflow and infiltration ("I&I") to the sewer system continues. 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 ground water that seeps into the system through pipe cracks, broken joints and deteriorated manholes. Rainfall events often cause excess water to enter the system. These rain events can result in overflows from manholes, which must be corrected to protect public health and the local environment. The excess water into the sewer network also taxes the capacity of the wastewater treatment plant, which can lead to major investments to expand the treatment facilities. There is also an indication of broken pipes and open joints in the network where wastewater can potentially leave the system. The I&I rehabilitation program identifies needed repairs to restore the integrity of the system which are necessary to reduce the amount of inflow and infiltration into the sewer system.

In 2009, the City awarded a multi-year, multi-million dollar contract for sewer repair and rehabilitation. 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. Initial work was centered on the Schenk's Branch area, which was identified as a high priority in previous studies, but work has since continued into other areas in the City. Over the last several years, the rehabilitation work has been focused in the southern part of the City in the Fifeville, Ridge Street, and Belmont neighborhoods. To date, 41.2 miles or 217,302 linear feet of sewer lines have been replaced or rehabilitated.

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

***Exhibit 3.3.1 City 5 Year Capital Improvement Plan for Wastewater***

| Project | 5 Year Total |
|---|---|
| Rehabilitation/Replacement Program | $10,000,000 |
| **TOTAL** | **$10,000,000** |

## 3.4 WASTEWATER ASSISTANCE PROGRAM

A 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. It is recommended that $7,500 be budgeted in FY'19 in combination with existing funds to fund the WWAP. 171 customers received assistance in FY'17, totaling $14,513. This program will continue to operate in conjunction with the WAP. The program will be administered by the Utility Billing Office in a similar fashion as the established Gas Assistance Program.

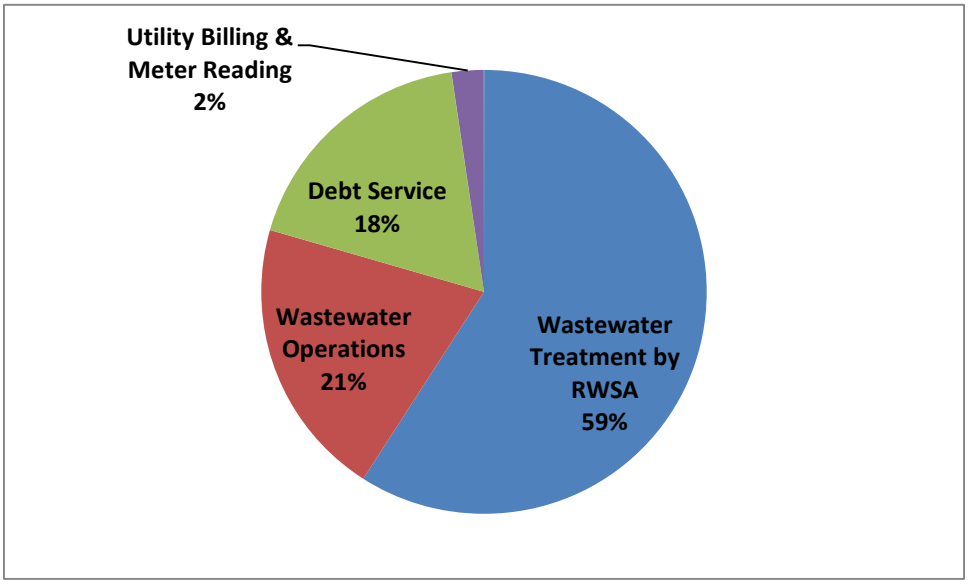
## 3.5 REVENUE REQUIREMENTS

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). The approach includes a detailed review of each of the costs incurred by the City.

### 3.5.1 Current Revenue Requirements (FY'19)

The FY'19 budget for the sewer utility totals $15,040,187, the largest component being the purchase of wastewater treatment from RWSA (59% of the budget).

***Exhibit 3.5.1 Sewer Utility FY'19 Revenue Requirements***



The projected FY'19 budget for the sewer utility is $15,040,187 (8.0%) higher than the FY'18 budget. The City's cost to purchase wastewater treatment from RWSA is both the single largest expenditure in the water budget and is projected to be the largest increase ($1,152,320) in the FY'19 sewer budget. The remainder of the sewer utility budget is projected to decrease by $41,109.

***Exhibit 3.5.2 Comparison of Sewer Budgets FY'18 to FY'19***

| Revenue Requirements | FY'18 Budget | FY'19 Budget | $ Change | % Change |
|---|---|---|---|---|
| Wastewater Treatment by RWSA | $7,736,415 | $8,888,735 | $1,152,320 | 14.9% |
| Wastewater Operations | $2,935,856 | $2,983,427 | $47,571 | 1.6% |
| Debt Service | $2,825,802 | $2,731,163 | ($94,639) | -3.3% |
| Utility Billing Office | $279,019 | $305,810 | $26,791 | 9.6% |
| Vehicle Replacement - Wastewater | $73,606 | $73,606 | $0 | 0.0% |
| Meter Reading | $63,278 | $47,446 | ($15,832) | -25.0% |
| Wastewater Assistance Program[1] | $15,000 | $10,000 | ($5,000) | -33.3% |
| **TOTAL** | **$13,928,976** | **$15,040,187** | **$1,111,211** | **8.0%** |

(1) At the end of a fiscal year, any leftover funds in these categories are automatically carried over to the next fiscal year. The decreases shown above are offset by sufficient amounts of carryover funds from previous years to allow for these programs to continue in FY'19 at the current levels of service.

**3.5.2 Projected Revenue Requirements (FY'20-FY'23)**

To project operating expenses for FY'20-FY'23, the FY'19 sewer budget line items are escalated using a 3.0% escalation rate with the exception of 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 sewer 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 sewer CIP.

The revenue requirements (with percentage change from the previous year) for FY'19 through FY'23 are shown below.

***Exhibit 3.5.3 Sewer Revenue Requirements FY'19-FY'23***

## 3.6 CUSTOMERS AND USAGE

The City currently provides sewer service to just over 14,100 customers. The exhibit below provides a breakdown of current sewer customers by water meter size. Residential customers (5/8 and 3/4 inch water meters) comprise the majority of the City's sewer customers (94%).

***Exhibit 3.6.1 Current Sewer Customers by Meter Size***

| Water Meter Size (in inches) | # of Customers | % of Customers |
|---|---|---|
| 5/8 and 3/4 | 13,392 | 94.6% |
| 1 | 264 | 1.9% |
| 1 1/2 | 224 | 1.6% |
| 2 | 231 | 1.6% |
| 3 | 36 | 0.3% |
| 4 | 12 | 0.1% |
| 6 | 1 | 0.01% |
| 14 | 1 | 0.01% |
| **TOTAL** | **14,161** | |

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, thus no growth is factored into the planning period.

Customers are currently charged sewer rates based on their metered water usage (billed monthly in 1,000 cubic feet). Unlike the seasonal water rates, the City's sewer rate is the same year round. The exhibit below provides a breakdown of current annual sewage production in cubic feet based on billed water usage.

***Exhibit 3.6.2 Current Sewage Production***

| Usage | Usage (cubic feet) | Total |
|---|---|---|
| All Usage | all usage | 182,408,231 |
| **Total** | | 182,408,231 |

Like the number of customers, current sewage production has been held constant over the planning period.

## 3.7 1981 UVA-CITY WATER AGREEMENT

The 1981 Water Agreement between the City and the University includes the following:

- Sewer rates: For wastewater service, the Water Service Agreement provides that the University will pay the RWSA rate plus 50% of the City's operations and capital cost components of the rate for wastewater that enters the City's system from a University-owned collector system. For wastewater service the City provides directly to UVA facilities, UVA pays the City's retail rate.

As noted earlier in the Water chapter, the 1981 Agreement is currently in the process of being replaced. The City has recommended a three year transition plan away from the 1981 Agreement to the University paying City sewer rates.

## 3.8 MONTHLY SERVICE CHARGE

The Monthly Service Charge for sewer is currently $4.00 per month per account. For several decades, the City has assessed a monthly service charge for water, sewer, and natural gas to recoup the fixed costs of providing utility services such as customer service, billing, and meter services. Like the monthly service charge for water, the monthly service charge for sewer last changed from $1.25 to $4.00 in 2004.

Like the monthly service charge for water, the adopted monthly service charge for sewer is changing in two ways:

- The dollar amount is increasing; and
- The charge will vary by the size of a customer's water meter.

For residential sewer customers (94% of all City sewer customers) the adopted change is $1.00 per month (increasing from $4.00 to $5.00). The adopted monthly service charges for sewer are as follows:

***Exhibit 3.8.1 Recommended Changes to Monthly Service Charge for Sewer***

| Water Meter Size (in inches) | # of Customers | Current | Adopted | $ Change | % Change |
|---|---|---|---|---|---|
| 5/8 and 3/4 | 13,392 | $4.00 | $5.00 | $1.00 | 25% |
| 1 | 264 | $4.00 | $12.50 | $8.50 | 213% |
| 1 1/2 | 224 | $4.00 | $25.00 | $21.00 | 525% |
| 2 | 231 | $4.00 | $40.00 | $36.00 | 900% |
| 3 | 36 | $4.00 | $80.00 | $76.00 | 1900% |
| 4 | 12 | $4.00 | $125.00 | $121.00 | 3025% |
| 6 | 1 | $4.00 | $250.00 | $246.00 | 6150% |
| 14 | 1 | $4.00 | $1,637.40 | $1,633.40 | 40835% |
| **TOTAL** | **14,161** | | | | |

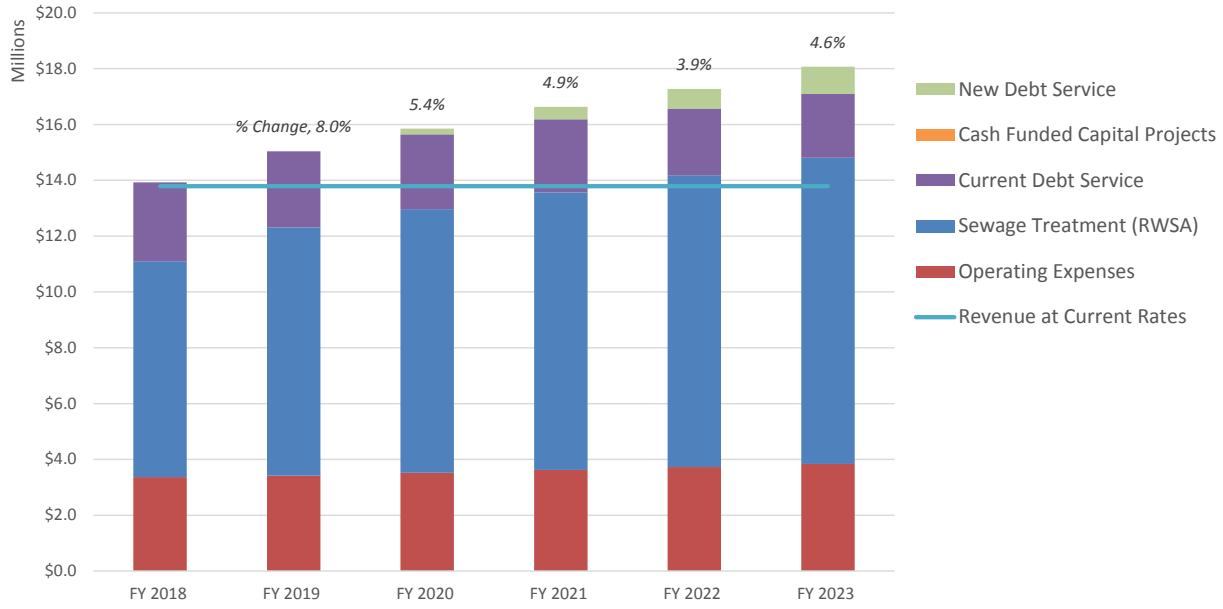
## 3.9 ADOPTED SEWER RATES

### 3.9.1 Total 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 in order to determine if existing rates are sufficient to recover the revenue requirements. As shown in the exhibit below, current sewer rates are not sufficient to meet the projected revenue requirements.

***Exhibit 3.9.1 Sewer Revenue Requirements and Revenue at Current Rates***



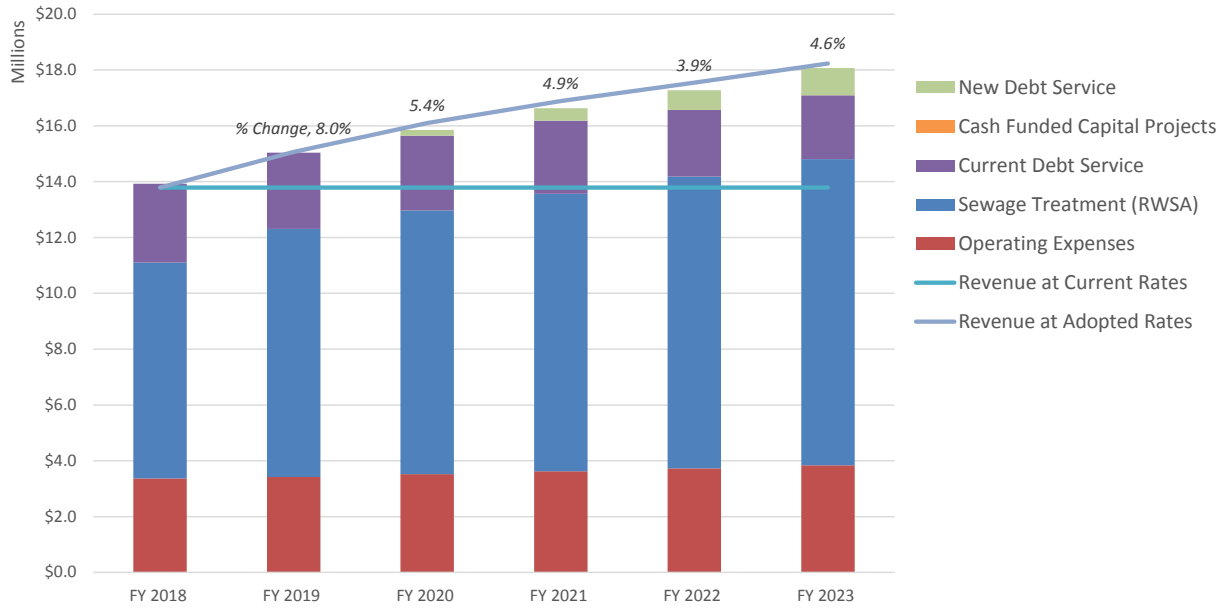
### 3.9.2 Total Revenue Projections at Current and Adopted Rates

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 sufficient 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 adopted rates for FY'19 and the years of the planning period for sewer.

***Exhibit 3.9.2 Sewer Revenue Requirements, Revenue at Current Rates and Revenue at Adopted Rates***




### 3.9.3 Sewer Rate Design

There are no recommendations to change the City's current sewer rate design. The City is recommending transitioning the University of Virginia's sewer rate from the 1981 Water Agreement to the City's retail sewer rate over the next three years.

### 3.9.4 Adopted Sewer Rates FY'19

The adopted sewer rates for FY'19 are shown below. Adopted sewer rates are to increase by 5.0%

***Exhibit 3.9.3 Adopted Sewer Rates FY'19 (per 1,000 CF)***

| Current | Adopted FY'19 | $ Change | % Change |
|---|---|---|---|
| $74.83 | $78.57 | $3.74 | 5.0% |

### 3.9.5 Projected Sewer Rates FY'19-FY'23

Based on the projected revenue requirements for FY'19-FY'23 and customer usage, the projected sewer rates for this planning period are shown below.

***Exhibit 3.9.4 Projected Sewer Rates FY'19 – FY'23 (per 1,000 CF)***

| | Current | Adopted FY'19 | Projected FY'20 | Projected FY'21 | Projected FY'22 | Projected FY'23 |
|---|---|---|---|---|---|---|
| | $74.83 | $78.57 | $82.50 | $85.80 | $89.23 | $92.80 |
| $ Change | | $3.74 | $3.93 | $3.30 | $3.43 | $3.57 |
| % Change | | 5.0% | 5.0% | 4.0% | 4.0% | 4.0% |

## 3.10 FY'19 RATES AND MONTHLY SERVICE CHARGE CUSTOMER IMPACTS

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

***Exhibit 3.10.1 FY'19 Customer Impacts***

| Water Meter Size | Number of Customers | Median Sewer/Month (cf) | FY'18 Ave. Monthly Bill | FY'19 Ave. Monthly Bill | $ Increase | % Increase |
|---|---|---|---|---|---|---|
| 5/8 and 3/4 | 13,392 | 400 | $33.93 | $36.43 | $2.50 | 7.36% |
| 1 | 264 | 1,760 | $135.70 | $150.78 | $15.08 | 11.11% |
| 1 1/2 | 224 | 3,410 | $259.17 | $292.92 | $33.75 | 13.02% |
| 2 | 231 | 5,680 | $429.03 | $486.28 | $57.24 | 13.34% |
| 3 | 36 | 11,750 | $883.25 | $1,003.20 | $119.95 | 13.58% |
| 4 | 12 | 43,720 | $3,275.57 | $3,560.08 | $284.51 | 8.69% |

# 4. NATURAL GAS

## 4.1 OVERVIEW

Charlottesville's natural gas utility is one of three municipally owned gas utilities in the Commonwealth of Virginia and has provided service for over 150 years. It operates on a self-supporting basis and is not designed to operate at a profit. Rates are set annually at a break-even point. However, due to various factors (winter weather and the number of gas customers); the utility can generate a profit or loss in any given year.

The Charlottesville gas system currently provides service to an area that includes all of Charlottesville and parts of Albemarle County and consists of 331 miles of main. The system currently serves approximately 20,668 customers (12,214 in the City and 8,454 in the County). This includes 502 new customers over last year which is an increase of 295 connections over last year, and an example of the expansion programs which have provided a substantial capacity for growth, allowing the gas system to compete for business in a growing service area.

Natural gas is domestically abundant with 95% of the natural gas used in the United States coming from North America. There are more than 100 years of availability of natural gas in the U.S. alone, plus gas reserves that have not been touched assuring availability for many years to come. Natural gas is also the cleanest burning fossil fuel. Because the combustion process for natural gas is almost perfect, very few impurities are emitted into the atmosphere as pollutants. Also, with the introduction of new technologies, nitrogen oxide, a pollutant targeted by the Clean Air Act, can be significantly reduced. The combustion of natural gas results in fewer greenhouse gases than coal or oil because when it is burned completely, the principal products of combustion are carbon dioxide and water vapor, thus reducing our carbon footprint. Unlike other energy sources, natural gas provides instant heat as soon as it is turned on, so natural gas can keep an entire residence comfortable by providing instant heat from your furnace, fireplace, stove and water heater.

It is also one of the lowest cost and most efficient energy sources available. Households that use natural gas appliances for heating, water heating, cooking and clothes drying spend an average of $500 less per year than homes using electrical appliances. Thus, natural gas is preferred by many people, but the market area is restricted to those geographic areas that are served by distribution lines, as natural gas is piped directly into your residence. To obtain maximum sales from new developments, it is important to have mains in place before construction begins. If a customer has installed equipment that uses another fuel, conversion to natural gas takes place over an extended time period and diminishes the economic feasibility of line extensions. Therefore, it is essential to work with potential gas customers as they are making their initial decisions, via an active marketing effort, if the City wishes to continue to add new customers.

Five levels of service are provided to meet the needs of various customer classes: Firm, Interruptible, Air Conditioning, Small Volume Transportation, and Large Volume Transportation. Most consumers are firm customers, with a priority for gas use at all times. Currently, there are 10 customers with interruptible service who are not assured of continuous service; they must maintain an alternate fuel system and be prepared to switch to that alternate fuel within several hours of notification. This customer class is vital to the system because it allows the City to stay within the volume requirements of the firm transportation entitlement and still meet the gas needs of firm customers in peak demand periods. Interruptible customers pay lower rates than firm customers because they have no assurance

of service in peak demand periods. Therefore, they do not share in the cost of providing peak period supply. The air conditioning class includes a few customers who use gas air conditioning systems and pay lower rates because this is an off-peak load. Transportation customers are those who purchase their own gas from independent suppliers and transport it through the City's distribution system to their location. All transportation service is on an interruptible basis. There are currently two transportation customers, one small volume and one large volume.

## 4.2 SAFETY

Natural gas is one of the safest, most reliable and environmentally friendly fuels currently in use, but leaks can occur. Charlottesville Gas has a robust safety awareness program including 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 tackle 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 of 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.

**VA 811 Day Distribution** – On August 11th, Charlottesville Gas partnered with a local ice cream truck company to distribute VA 811 kits to local excavators and construction workers. Staff visited new construction sites and offered free ice cream to workers in addition to the kits which contained a VA 811 t-shirt, bumper sticker and safe excavation guide

**Excavation Safety Training** – We hosted a special training session for local excavators, plumbers and building inspectors. The 1½-hour presentation was led by Frank Hudik of the State Corporation Commission (SCC).

Since the "Dig with Care" program was launched, we experienced a 27% reduction in gas line damage caused by third party excavators (from 2.83/1000 Miss Utility tickets in 2013 to 2.06/1000 Miss Utility tickets in 2017).

*TV Spot* - Two Sing-A-Long safety commercials featuring our Flicker the Flame jingle were produced and began airing in 2012. The first spot focuses on the smell of gas and what to do if you suspect a leak. The second spot highlights calling Miss Utility before digging. Both commercials featured City employees and local children, and were produced by Charlottesville Newsplex. These spots have aired on local network channels (NBC, CBS, CW, FOX, ABC), cable TV channels (BET, Bravo, E!, Food Network, ABC Family, Hallmark Channel, Nickelodeon, Cartoon Network, DIY Channel, ESPN, ESPN2, Golf Channel, HGTV, NBC Sports) and before film screenings at Stonefield Regal Movie Theater.

*Online Campaign for Young Adults* - On the 2014 Public Awareness follow-up survey, we noticed a gap of knowledge regarding gas safety with young adults. Part of the issue is this audience is not easily reached by traditional media (TV and Radio). To address the matter, we partnered

with Comcast's online streaming platform to showcase our ads through their 'On Demand' service.

*Improved Gas Safety Flyer* - This bilingual bill stuffer featured a more user friendly layout and a natural gas scent scratch-n-sniff square. A contest was launched on our webpage to measure effectiveness.

*Intensified Outreach Programs* - We targeted events with high attendance such as UVa baseball and Soccer games, KidVention, Holiday Heritage Parade and the Touch-a-Truck. Flicker even had the honor of throwing out the first pitch at an UVa Baseball ACC series game.

*Expansion of the Flicker @ Your Classroom Program* - During the 2017 school year, the Flicker @ Your Classroom and Summer Camp programs reached over 100 children.

*Outsource Utility Location* - In 2014, we outsourced the utility locating process resulting in an increase in utility marking accuracy and reducing damage.

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

*Flicker's Birthday Celebration* – In 2017, we celebrated 10 years of existence of the gas safety mascot, Flicker the Flame. To celebrate the occasion, we hosted a free birthday party at the Virginia Discovery Museum for kids in our community. We had multiple news stations cover the event and saw an increase in Facebook followers. 3CMA, City-County Communications and Marketing Association selected the Charlottesville Gas Public Awareness program for two 2017 Savvy awards.

In March of 2018, the State Corporation Commission (SCC) performed a meticulous and thorough audit of our Public Awareness Program in accordance with federal regulations. The SCC inspectors did not note any findings which is uncommon in Virginia. The Deputy Director of SCC was so impressed with our program that he invited the City of Charlottesville to headline the presentation "A Path to a Successful Public Awareness Program" at the 2018 SCC Damage Prevention Conference.

## 4.3 MARKETING EFFORTS

Based on a recent customer survey, we found that a significant share of our audience were unaware that natural gas has a competitive edge over other energy fuels. We also noticed a lack of knowledge of our free installation offer (up to 150 feet of gas lines installed with a qualified appliance). In the spring of 2015, we launched a new TV spot "Charlottesville Gas: The Right Choice." The new commercial was created in-house, and its' goal was to promote the unique benefits of natural gas in an effort to acquire new customers requesting to have natural gas lines installed to their homes. We also highlighted the free installation offer. In this particular ad, our mascot Flicker the Flame is the host of a "Jeopardy!" style quiz game show "Know Your Energy." In the commercial, natural gas is always the right answer for all your home's needs. Since the airing of the new commercial has begun, we noticed that several inquiries are referring to the new TV ad, and asking for more information about the free installation offer.

In addition to working closely with developers and builders, some of the City's marketing activities included:

- Conducting gas main extension surveys to existing neighborhoods located nearby our service area;
- Developing and mailing various brochures targeting specific businesses; and
- Developing and mailing postcards for potential customers with gas mains in front of their homes.

In the fall of 2017, we used print and online methods to target non-gas customers located in our service area. GIS was used to create a list of homes with no gas service within 100 feet of our main gas lines. The following traditional and online methods were used:

- Postcards including our free installation offer were mailed to the homes
- An online campaign was created and delivered to computers with the IP addresses in our mailing list

In November 2010, we launched the Flicker the Flame Facebook page. By April 2018, the page had 830 friends. With this initiative, we hope to create an open dialogue with our customers as well as with our Flicker fans

## 4.4 NEW BUSINESS

Yearly home sales for 2017 in Greater Charlottesville were up 4.0% compared to 2016 sales. This marked the fifth consecutive year with gains in sales as the 3,673 homes sold in 2017 achieved the highest level since 2006. The overall medium price for 2017 increased 7.4 percent to an average price of $295,300 compared to last year, according to a year-end real estate report from the Charlottesville Area Association of Realtors (CAAR).

The home improvement market is another niche where Charlottesville Gas has been concentrating sales efforts. The large difference in energy cost between natural gas and oil/propane helps homeowners to offset the initial cost of conversion. This market accounted for more than 18% of applications for residential gas service in 2017.

***Exhibit 4.4.1 New Gas Service Completed***

| Project | City or County |
|---|---|
| ***Residential*** | |
| 5th Street Place – Student Housing | County |
| Belvedere 2nd phase – 120 lots | County |
| Berkeley & Westmoreland neighborhoods – Main extension in coordination with ACSA water replacement project | County |
| Briarwood – 665 residences | County |
| Cascadia - 258 units | County |
| Dunlora Gates – 20 units | County |
| Dunlora Park – 33 lots | County |
| Free State Run – 27 lots | County |
| High Street Development – 10 units | City |
| Hyland Ridge – 84 luxury single homes | County |
| Lochlyn Hill – 56 lots | City |
| Naylor Street Subdivision – 7 lots | City |
| Oaklawn Subdivision – 16 lots | City |
| Outbounds Farm – 20 lots | County |
| Riverwalk Condominiums – 24 units | County |
| Sunset Overlook – 41 lots | County |
| Water Street Promenade – Old Coal Tower Apartments | City |
| ***Commercial*** | |
| Alamo Drafthouse Cinema – movie theatre and restaurant | County |
| Aqua Car Wash | City |
| Autograph – hotel | City |
| Barracks Row – retail spaces and restaurants | City |
| Baywood Hotel | City |
| Better Living | County |
| Branchlands expansion – assisted living | County |
| Fifth Street Station - retail | County |
| Fairfield Inn and Suites by Marriott – hotel | City |
| Lauren Hill Baptist Church | County |
| McIntire Square | City |
| Murphy & Rude Malting Co | City |
| Northtown Center– retail and offices | County |
| Pantops Fire Station | County |
| Pizza Hut at West Main – restaurant | City |
| Rescue 8 | County |
| RFCA – office Space | County |
| Self-Storage at Hydraulic Road | County |
| T&N Printing expansion | City |
| UVA Fontaine Medical Park Addition | County |
| Wild Wings at Northtown – restaurant | County |
| William Taylor Plaza - mixed used | City |
| Zaxby's - restaurant | City |

***Exhibit 4.4.2 New Gas Service Planned***

| Project | City or County |
|---|---|
| *Residential* | |
| Avinity Estates – 102 residential units | County |
| Belmont Station – 39 townhomes | City |
| Brookhill – 800 to 1,550 units | County |
| Harmony Ridge – 4 residential lots | City |
| North Pointe – mixed-use residential | County |
| Oakleigh – Senior Assisted Living | County |
| *Commercial* | |
| 29th Place addition – retail | County |
| 5th Street Commercial Development – retail, restaurant and daycare | County |
| Belvedere Station – retail and restaurant | County |
| Birdwood Mansion – Club house | County |
| Brookhill – 130,000 sq. ft. commercial | County |
| Caliber Collision – Body Shop | County |
| CVS Barracks – retail | City |
| Fulton Bank | City |
| Landmark Hotel | City |
| Longhorn Steakhouse – restaurant | County |
| Springhill / Towne place Hotel | County |
| St. Thomas Aquinas Church | City |
| The Standard - mixed used | City |
| UVA Indoor Golf Practice | County |
| West2nd– mixed used | City |

## 4.5 GAS CONSERVATION PROGRAM AND INCENTIVES

Charlottesville Gas encourages customers to find ways to conserve energy. Conservation tips for savings on gas bills are presented on the Utility Billing webpage and along with a guide that presents Energy Efficiency Tips addressing ways to keep the cold out, strategies to use energy wisely, and suggestions for long-term efficiency improvements.

To support efficiency, the Gas Utility offers two rebates:

*Natural Gas Water Heater*

The City offers a $200 rebate to gas customers who switch from an electric, propane or natural gas tank water heater to an energy saving tankless natural gas water heater. In the case where a customer switches from an electric or propane water heater to a natural gas tank water heater, a $100 rebate is available. According to the U.S. Department of Energy, water heating is the third largest energy use in homes. By heating water only when it's needed, natural gas tankless water heaters cut water heating expenses by 30%, while also providing continuous hot water delivery. This technology also produces less CO2 and NOx than conventional gas or electric tank water heaters.

*Programmable Thermostat*

This rebate (up to $100) can be used to cover the cost of a new programmable thermostat or any expenses incurred installing it. The thermostats can be used to automatically lower the temperature in a building at night or while a resident is away at work, vacation or the like, and to raise the temperature at pre-set times. By setting a thermostat back 10° to 15° at night for 8 hours, it is estimated that a customer can reduce his or her heating bills by 5% to 15%. Over the past year, 79 customers have received rebates totaling $8,800. Next year's budget includes $10,000 to continue funding this program.

Specific requirements associated with these rebates are provided on the City website.

The Gas Utility also encourages customers to contact the Local Energy Alliance Program (LEAP), a local community-based nonprofit that offers a variety of energy efficiency resources, including a Home Energy Check Up (HECU). The Gas Utility provides support for HECUs conducted for Charlottesville Gas residential customers. More information about current programs and resources can be found at www.leap-va.org.

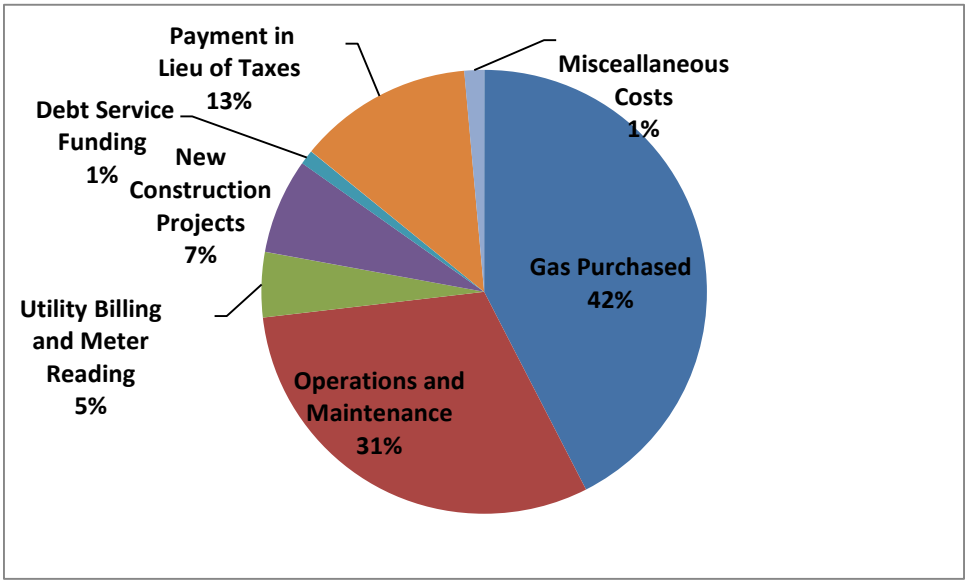
## 4.6 GAS ASSISTANCE PROGRAM

The City's Gas Assistance Program (GAP) provides financial assistance to local 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'17, the City has provided 148 households with over $26,000 in assistance. Contributions from area businesses and residents help to supplement the amount of money that is available for assistance. The FY'19 budget includes $60,000 in new funding plus carryovers from prior years and should be sufficient to fund the program in FY2019.

## 4.7 FY'19 REVENUE REQUIREMENTS

The FY'19 budget for the Gas utility totals $28,191,897. The table below shows the major categories of expenses, the largest being the purchase of gas from BP (42% of the FY'19 gas budget).

***Exhibit 4.7.1 Gas Utility FY'19 Revenue Requirements***




The City projects purchasing 3,464,935 dekatherms of gas from BP totaling $11,965,534 in FY'19. This is an increase in both the amount of gas being purchased and the cost. Operations and Maintenance is projected to increase by $453,115 or 5.5% due primarily to increases in salaries and benefits costs. The Payment in Lieu of Taxes 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.

***Exhibit 4.7.2 Comparison of Gas Budgets FY'18 to FY'19***

| Revenue Requirements | FY'18 Budget | FY'19 Budget | $ Change | % Change |
|---|---|---|---|---|
| Gas Purchased | $10,418,834 | $11,965,534 | $1,546,700 | 14.8% |
| Operations and Maintenance | $8,202,783 | $8,655,898 | $453,115 | 5.5% |
| Utility Billing and Meter Reading | $1,369,187 | $1,335,610 | ($33,577) | -2.5% |
| Infrastructure | | | | |
| New Construction Projects | $1,936,019 | $1,953,460 | $17,441 | 0.9% |
| Debt Service Funding | $300,000 | $300,000 | $0 | 0.0% |
| Payment in Lieu of Taxes | $3,221,325 | $3,577,427 | $356,102 | 11.1% |
| Miscellaneous Costs | $524,716 | $403,968 | ($120,748) | -23.0% |
| **TOTAL** | **$25,972,864** | **$28,191,897** | **$2,219,033** | **8.5%** |

## 4.8 GAS RATES FOR FY'19

The City is projecting $27,866,897 to be collected from gas rates through sales in FY'19.

***Exhibit 4.8.1 Gas Rate Calculations***

| Revenue Requirement | FY'19 Budget |
|---|---|
| Gas Purchased | $11,965,534 |
| Operations and Maintenance | $8,655,898 |
| Utility Billing and Meter Reading | $1,335,610 |
| Infrastructure | |
| New Construction Projects | $1,953,460 |
| Debt Service Funding | $300,000 |
| Payment in Lieu of Taxes | $3,577,427 |
| Miscellaneous Costs | $403,968 |
| TOTAL REVENUE REQUIRED | $28,191,897 |
| | |
| Less Other Funding Sources: | |
| Fund Balance | $0 |
| Rate Stabilization | $0 |
| Other Revenue | $325,000 |
| Subtotal | $325,000 |
| | |
| Revenue to be Collected Through Rates | |
| Air Conditioning | $71,571 |
| Transportation fees | $1,386,966 |
| Gas loss | |
| Firm Sales | $23,610,907 |
| Interruptible Sales | $2,797,453 |
| Subtotal | $27,866,897 |
| | |
| TOTAL REVENUE TO BE COLLECTED | $28,191,897 |

The adopted firm rates for FY'19 are 1.4% higher than the rates adopted for FY'18. The adopted gas rates are shown in the table below.

***Exhibit 4.8.2 Adopted FY'19 Gas Rates***

| | FY'18 (Adopted 7/1/17) | FY'19 | $ Change | % Change |
|---|---|---|---|---|
| **FIRM** | | | | |
| Customer Charge (Minimum) | $10.00 | $10.00 | $0.00 | 0.0% |
| First 3,000 Cu Ft, Per MCF | $8.2781 | $8.3944 | $0.116 | 1.4% |
| Next 3,000 Cu Ft, Per MCF | $7.7814 | $7.8907 | $0.109 | 1.4% |
| Next 144,000 Cu Ft, Per MCF | $6.9536 | $7.0513 | $0.098 | 1.4% |
| Over 150,000 Cu Ft, Per MCF | $6.7880 | $6.8834 | $0.10 | 1.4% |
| **INTERRUPTIBLE** | | | | |
| Customer Charge (Minimum) | $60.00 | $60.00 | $0.00 | 0.0% |
| First 600 MCF, Per MCF | $5.8319 | $6.1065 | $0.27 | 4.7% |
| Over 600 MCF, Per MCF | $4.5763 | $5.1210 | $0.54 | 11.9% |
| Annual Minimum (MCF) | 1,200 | 1,200 | | |
| **AIR CONDITIONING** | | | | |
| All Gas Used, Per dth | $7.3171 | $7.3471 | $0.030 | 0.4% |
| **GAS LIGHT** | | | | |
| Charge per Month | $17.51 | $17.51 | | |
| **TRANSPORTATION** | | | | |
| Small Volume Customer | | | | |
| Monthly Service Charge | $150.00 | $150.00 | $0.00 | 0.0% |
| Rate per dth | $3.2827 | $3.4853 | $0.203 | 6.2% |
| Large Volume customer - 35,000 mcf/per month | | | | |
| Monthly Service Charge | $600.00 | $600.00 | $0.00 | 0.0% |
| Rate per dth | $1.9569 | $2.0379 | $0.081 | 4.1% |

## 4.9 IMPACTS ON CUSTOMERS

The table below illustrates the impacts of the adopted FY'19 rates customer's monthly bill at various usage rates. Note: applicable monthly service charges are included in the calculations.

***Exhibit 4.9.1 Customer Impacts at Various Monthly Usage Amounts***

| FIRM CUSTOMERS | FY'18 (Adopted 7/1/17) | FY'19 | $ Change | % Change |
|---|---|---|---|---|
| 4,000 CU. FT. | $42.62 | $43.07 | $0.46 | 1.1% |
| 4,600 CU. FT.[1] | $47.28 | $47.81 | $0.52 | 1.1% |
| 8,000 CU. FT. | $72.09 | $72.96 | $0.87 | 1.2% |
| 15,000 CU. FT. | $120.76 | $122.32 | $1.56 | 1.3% |
| 20,000 CU. FT. | $155.53 | $157.57 | $2.04 | 1.3% |
| 25,000 CU. FT. | $190.30 | $192.83 | $2.53 | 1.3% |
| 35,000 CU. FT. | $259.83 | $263.34 | $3.51 | 1.4% |
| 60,000 CU. FT. | $433.67 | $439.63 | $5.96 | 1.4% |
| 100,000 CU. FT. | $711.82 | $721.68 | $9.86 | 1.4% |
| 150,000 CU. FT. | $1,059.50 | $1,074.24 | $14.74 | 1.4% |
| 200,000 CU. FT. | $1,398.90 | $1,418.41 | $19.51 | 1.4% |

1. Average residential customer.

| INTERRUPTABLE CUSTOMERS | FY'18 (Adopted 7/1/17) | FY'19 | $ Change | % Change |
|---|---|---|---|---|
| 100,000 CU. FT. | $643.19 | $670.65 | $27.46 | 4.3% |
| 200,000 CU. FT. | $1,226.38 | $1,281.30 | $54.92 | 4.5% |
| 400,000 CU. FT. | $2,392.76 | $2,502.60 | $109.84 | 4.6% |
| 600,000 CU. FT. | $3,559.14 | $3,723.90 | $164.76 | 4.6% |
| 1,000,000 CU. FT. | $5,389.66 | $5,772.30 | $382.64 | 7.1% |
| 2,000,000 CU. FT. | $9,965.96 | $10,893.30 | $927.34 | 9.3% |
| 4,000,000 CU. FT. | $19,118.56 | $21,135.30 | $2,016.74 | 10.5% |

# 5. STORMWATER

## 5.1 OVERVIEW

The Stormwater Utility was created by City Council in 2013. The Stormwater Utility 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.

Charlottesville's stormwater conveyance system is integrated throughout the City's municipal boundary and consists of approximately 130 miles of pipe and approximately 8,250 structures. The pipes range in age, size, and material types that 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 the pipes is unknown but could be generally understood to be zero to 80+ years old. The sizes of the pipes range from four inches to ninety six inches in diameter. Structures include junction boxes, drainage inlets, and catch basins and are either 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, City owned land, and City held easements on private land. The City does not own and maintain the stormwater conveyance system owned by other public bodies or located on privately owned land without an easement. Approximately 33% of the stormwater pipes and 28% of the stormwater structures located 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 conveyance system carry streams that have been piped.

The combination of an integrated and co-mingled privately and publically owned stormwater conveyance system that ranges in age, condition, and material type presents many challenges to infrastructure and asset management and maintenance. The deterioration of the City owned stormwater infrastructure can cause clogging, sinkholes, and drainage and erosion issues. Of particular vulnerability are VC and CMP pipes which are prone to deterioration due to the nature of the material and the age of installation.

The work encompasses 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. Recently, on a case-by-case basis, the City has utilized the Rehabilitation Program contractors to rehabilitate storm conveyance infrastructure, both under easement to the City and privately owned, on a limited number of private parcels 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 City streets and sidewalks.

The Department of Utilities completes routine repairs to the stormwater conveyance system. Materials are paid with Stormwater Utility capital funds.

To date, approximately 10 miles of pipe have been rehabilitated. 90% of the pipes rehabilitated were VC and CMP. Approximately 250 structures have been installed, rehabilitated, or replaced.

## 5.2 CREDIT PROGRAM AND CHARLOTTESVILLE CONSERVATION ASSISTANCE PROGRAM

The 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. Property owners who install and maintain structural stormwater management facilities that permanently reduce stormwater runoff and/or pollutants may apply for and receive a credit toward their stormwater utility fee. Credits range from 20% to 100% minus one billing unit for the impervious area treated by the facility. The Credit Program is budgeted at $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 projects on their property. The cost-share can cover up to 75% of the costs incurred by the property owner for project implementation. For a description of the program and a list of potential projects please go to https://www.tjswcd.org/best-management-practices-homeowners/. The CCAP is budgeted at $32,000 a year.

## 5.3 FINANCIAL RELIEF PROGRAM

City Council adopted a financial relief program in February 2014 to assist homeowners who experience hardship in paying the Stormwater Utility Fee applied to their property. The program is budgeted at $25,000 a year and is paid from the General Fund, not Stormwater Utility funds. The program provides an 8% to 100% reduction in the Stormwater Utility Fee for residents who are eligible for the Real Estate Tax Relief program, 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).

## 5.4 INFRASTRUCTURE

The City-wide Water Resources Master Plan was initiated in 2016. The goal of the plan is to apply criteria to select and prioritize capital projects that improve water resources and/or drainage issues. The final product, completed in 2017, is a drainage improvement capital improvement plan (CIP) and a water quality CIP. Projects included in the drainage CIP address a combination of historic and recent drainage issues. The projects in the water quality CIP focus on stormwater management retrofits that are cost effective and represent eligible pollutant reductions that the City can use towards meeting its Chesapeake Bay Total Maximum Daily Load (TMDL) Action Plan requirements.

The TMDL Action Plan is a relatively recent requirement of the City's Municipal Separate Stormwater Sewer System (MS4) permit issued by the Virginia Department of Environmental Quality. DEQ has added the Action Plan requirement to meet its Chesapeake Bay regulatory obligations to the Environmental Protection Agency (EPA). The TMDL Action Plan requirement is in addition to the minimum stormwater control measures that the City has been implementing since first being issued a MS4 permit in 2003. During 2016 the Master Plan was substantially completed and implementation of the CIPs will start in 2017.

In the interim, Stormwater Utility funds were used to implement several small / medium water quality and drainage improvement projects during this calendar year. Maintenance of a select stormwater management facilities included in the Action Plan was also funded.

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 FY2014–FY2018 and continues into FY2019. During FY2019, the Utility will evaluate its execution of the original five-year capital plan and use that experience to inform the drafting of a second plan for the FY2020-2024 business cycle.

***Exhibit 5.4.1 Five-Year Capital Improvement Plan for Stormwater***

| Project | 5 Year Total |
|---|---|
| Design/Permitting for Drainage/ Stormwater Improvement Projects | $1,000,000 |
| Water Resources Master Plan | $250,000 |
| Major Capital Drainage Improvement Project Construction | $7,350,000 |
| Stormwater Quality Retrofit Project Construction | $1,000,000 |
| Neighborhood Drainage Improvements | $250,000 |
| Rehabilitation Program | $5,000,000 |
| **TOTAL** | **$14,850,000** |

## 5.5 ADOPTED STORMWATER UTILITY FEE FOR FY'19

The Stormwater Utility fee rate was adopted in March, 2013. The rate remained flat for the period FY2014-FY2018 per the multi-year operations budget and five-year capital plan approved by City Council during the Stormwater Utility Ordinance adoption. The rate will remain flat through FY2019 while being evaluated in preparation for the development of the FY2020-FY2024 multi-year operations budget and five (5) year capital plan. Infrastructure costs for the Stormwater Utility are paid through a combination of fee revenues and bond sales over the five (5) year period.

The total Stormwater Utility expenditures of approximately $3.289 million are not projected to increase from FY2018 to FY2019.

# 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.