

CITY OF CHARLOTTESVILLE

"A World Class City"



ADOPTED UTILITY RATE REPORT FY2017



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Prepared by:

Department of Finance



Department of Public Works

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SECTION I: EXECUTIVE SUMMARY

Introduction

Recent news stories from across the country have highlighted the value of providing reliable, safe, environmentally responsible utility services. Protecting public health and safety is a core part of the City's utility service. The City (in conjunction with our partners at the Rivanna Water and Sewer Authority and Albemarle County Service Authority) has an exceptional track record of providing reliable, top-quality water that meets or exceeds all federal and state standards for public health. The City's Gas Division provides safe, efficient, reliable and economical service whose supply has never been interrupted. The Gas Division has a robust safety program for our customers and the public to be cautious working around natural gas pipelines and how to detect gas leaks.

These valuable services require investments of resources, time, and expertise. The quality and accessibility of utility services is the result of thoughtful, deliberate planning to ensure efficient and orderly maintenance and operation of these systems. This need for investment in our utility systems is not without cost but must be balanced with affordability.

The budgets for each of the utilities have been thoroughly examined for opportunities to reduce costs without sacrificing service. Reductions are based on either historic spending patterns or sufficient monies already on hand as a result from carrying funds forward from previous fiscal years. As a result of cost reductions and water conservation, the increases for water and wastewater rates for the average residential customer are the lowest they have been in several years. Rates for natural gas are lower as a result of the low cost of natural gas and energy conservation. For City residential customers who receive water, wastewater, and natural gas (approximately 87% of City residents), their total utility bill is projected to be lower in FY2017.

Each of the City's utilities is accounted for separately as enterprise funds. Enterprise funds are operated on a self-supporting basis, meaning that they are required to cover the full costs of providing its services. The City's utilities are funded solely through their rates and related fees and charges and are not subsidized with general tax revenues. The utilities do not operate on a for-profit basis. Utility rates are calculated annually to bring each fund to a break-even point. However, given variable factors, such as weather, usage, and number of customers, the utilities

can generate either an operating surplus or deficit during any given year. Any annual surpluses or deficits are accounted for and remain within their respective fund.

This report presents the adopted utility rates for water, wastewater, and gas service for the fiscal year 2017. The rates are based on the operating budget for the utilities, debt service costs, and the wholesale rates from Rivanna Water and Sewer Authority (RWSA), and British Petroleum (BP), our gas supplier.

A. Water

For fiscal year 2017, the composite rate for 1,000 cubic feet of water is \$54.51 per thousand cubic feet (mcf), a 4.09% increase.

While the composite water rate is increasing by 4.09%, the actual increase each customer will see on their monthly utility bill is dependent on monthly water usage. For example:

- The average monthly water bill for the single family household, who uses 427 cubic feet (cf) (a drop from 437 cf calculated for last year's rate report) of water, will rise from \$26.36 to \$27.28, an increase of \$0.92 or 3.49%.
- The monthly bill for the retail customer who uses 1,000 cf per month will rise from \$56.37 to \$58.51, an increase of \$2.14 or 3.80%.

The City adopted a seasonal rate structure in 2004 to encourage conservation by charging higher prices in summer months, when water supply is likely to be lower. The average amount of water used by a single family customer has been declining by an average of 3% annually for the past several years. Water conservation is both good for the environment and customer's cost, thus lower usage can partially offset increases in rates.

- The monthly bill for the average single-family residential customer, who uses 427 cf per month, will increase from \$23.81 to \$24.62; rising \$0.81 or 3.40% in winter months. The same average household will pay \$30.81 in summer months, up from \$29.75 last year, an increase of \$1.06 or 3.56% in summer months.

The specific rate and fee proposal for next year includes:

1. Increase in the consumption rate per mcf of all water used from \$52.37 to \$54.51.
2. Continue seasonal rates as outlined on page 18.

3. Maintain the City's connection (facility) fees for new customers adopted in FY2013 to more accurately reflect actual costs of providing additional water capacity.
4. Maintain the increase in facility fees adopted in FY2016 for low-income housing for meters greater than 5/8" to 25% of the facility fee charge for a new water service.

The current monthly customer charge of \$4.00 will remain unchanged.

The increase in the water rate is due to the following:

- The wholesale charges by RWSA accounts for 49% of the operating cost of the water utility. RWSA operating rate charged to the City increased from \$12.813/mcf in FY2016 to \$13.711/mcf in FY2017. This is a 7.01% increase and nearly half of the increase is due costs associated with RWSA's Granular Activated Carbon (GAC) water treatment improvements that City Council adopted in 2012. The operating charge is the portion needed to cover the City's share of RWSA's operating costs for supplying wholesale water to the region. (For a description please see RWSA Fiscal Year 2016-2017 Budget Proposal March 22, 2016 <http://www.rivanna.org/wp-content/uploads/2016/03/7a-1st-Attachment-RWSA-FY-2017-PROPOSED-BUDGET-draft-3-BOD.pdf>)
- Beginning in November of 2015 (during FY2016) RWSA began to charge the City a fixed amount for debt service every month, rather than having debt service based on the amount of water treated or a "per thousand gallon rate". This is beneficial to all jurisdictions since the cost for RWSA's debt service is established with greater certainty. The debt payment to RWSA rose by 3.08%, to 162,968 per month. (For a detailed description of RWSA's Capital Improvement Plan, Fiscal Years 2016-2020, adopted February, 2016 please see <http://www.rivanna.org/wp-content/uploads/2016/02/8a-1st-Attachment-2016-2020-CIP-Draft-Ver-6-with-Attachments.pdf>.)
- The portion of RWSA's operating costs that the City pays is based on its relative share of RWSA's total flow. It should be noted that the City's share of water usage has fallen from 72% in 1983 to its current level of 52% compared to Albemarle County Service Authority's share of 48%. This is one percentage point lower than the level of usage attributed to City for the previous fiscal year.
- Rate stabilization is comprised of a revenue stream that has been accumulated for the purpose of leveling rates. This is intended to mitigate any dramatic fluctuations that might occur in a given year, for example, by large increases in debt service expenses for

capital projects, either by RWSA or by the City. Facility fee revenues are used for rate stabilization. This revenue stream is explained in detail in Section III-E. \$300,000 is to be used in FY2017 to lower water rates to customers. Rate stabilization will reduce the rate to customers by \$2.13, or 3.91%, per 1,000 cubic feet.

- Excluding the cost of water purchased from RWSA and the City's debt service costs, expenditures are projected to decrease \$132,126.
- Debt service funding, used to pay for capital projects that have been financed with long-term bonds, is expected to increase \$50,000 to \$1,775,000.
- Several assumptions about water usage are made to complete the rate calculation. Water volume purchased from RWSA is expected to decrease from 245,559 mcf to 236,279 mcf. This projection is slightly lower than RWSA's volume assumption for Charlottesville (238,589 mcf) and is based on current year projections factoring in the water loss factor that the City has been experiencing recently (projected to be 14% in FY2017). The water loss factor is the difference between the amount we purchase from RWSA and the amount we sell to our customers. It can be associated with meter errors, unmetered/unbilled water use, fire hydrant flushing, and water leaks that occur.
- The University of Virginia (UVA) is our single largest water customer, comprising approximately 30% of total water use. It is projected that their water use in FY2017 will be 62,500 mcf; an increase from budgeted FY2016 usage (60,250 mcf) and actual usage in FY2015 (61,732 mcf). The minimal increase in water usage is due to new buildings being completed on campus in combination with UVA's conservation measures.

The water conservation program, which has had dedicated staff and operating budget since it was established in 2002, continues to assist City customers by reducing their water consumption through both permanent and behavioral strategies. The toilet rebate program remains at \$40,000. Also, the City of Charlottesville continues to provide a \$30 rebate for up to two rain barrels to qualifying City water customers.

Estimated Future Water and Wastewater Rates are shown in Section IX. This section presents the projected rates for future fiscal years 2018 through 2021 and presents the impact on the future rates of the additional revenue generated by the facility fees, projected economic

conditions, and the City's and RWSA's capital improvement plans. (For a complete list of capital projects for the Water Utility, please see Section IV-I.)

B. Wastewater

For fiscal year 2017, the rate for 1,000 cf of wastewater is \$74.61, an increase of 5.93%. While the wastewater rate is increasing by 5.93%, the actual percent increase for each customer is dependent on monthly usage. For example:

- The average monthly wastewater bill for the single family household, who uses 427 cf of water, will rise from \$34.08 to \$35.86, an increase of \$1.78 or 5.22%.
- The monthly bill for the retail customer who uses 1,000 cf per month will rise from \$74.44 to \$78.61, an increase of \$4.17 or 5.60%.

Specific rate and fee proposals for next year are:

1. Increase the consumption rate per mcf from \$70.44 to \$74.61.
2. Maintain the City's wastewater facility fees for new customers adopted in FY2013 to accurately reflect the actual cost of providing wastewater capacity.
3. Maintain the facility fees adopted in FY2016 for low-income housing for meters greater than 5/8" to 25% of the cost of new wastewater fee.

The current monthly customer charge of \$4.00 will remain unchanged.

This increase in the wastewater rate is due to the following:

- The wholesale charges from RWSA accounts for 55.6% of the City's operating cost for the wastewater utility.
- The operating portion of the rate is increasing by 2.57%, from \$13.382/mcf to \$13.726/mcf. (For a description please see RWSA Fiscal Year 2016-2017 Budget Proposed March 22, 2016 <http://www.rivanna.org/wp-content/uploads/2016/03/7a-1st-Attachment-RWSA-FY-2017-PROPOSED-BUDGET-draft-3-BOD.pdf>.)
- Like the RWSA water debt component, RWSA changed the basis for the wastewater debt service from the amount of wastewater treated or a "per thousand gallon rate" to a fixed monthly amount. It is increasing from \$333,645 to \$369,037 per month, or 10.61%.
- RWSA forecasts that the total amount of treated wastewater will remain unchanged from FY2016 to FY2017; however the City's share of the total has fallen by one percent. The City will pay 52% of the total urban wastewater treatment costs borne by RWSA, while

Albemarle County Service Authority's share is 48%. The City's relative share is based on historical flow figures.

- Currently there is \$400,000 of facility fee revenues available for rate stabilization of the wastewater utility. Rate stabilization revenue will be utilized in rate calculations to minimize rate increases in a given year.
- The Wastewater Utility budget, net of treatment costs and debt service, is declining \$34,658 from the FY2016 budget.
 - The largest decrease comes from the Wastewater Operations and Maintenance costs. They are decreasing by \$167,202, primarily the result of a reduction in salaries and benefits and Other Contractual Services.
 - The PILOT payment to the General Fund is increasing by \$87,848 and is based on 6% of budgeted sales from the prior year.
 - Indirect Costs paid to the General Fund are rising by \$16,686. This is based on a study that is performed annually to determine which costs of general government are used to support of enterprise funds.
 - Vehicle Replacement is declining to \$36,423 for FY2017. This is a line item in which unspent funds are carried forward from year to year.
- Debt service is remaining unchanged compared to FY2016 at \$2,985,000. Debt service is based on capital projects that are bond funded for the wastewater utility.

See Section IX for projected Water and Wastewater rates for future fiscal years 2018 through 2021. This section presents the impact of the additional revenue generated by the facility fees, projected economic conditions, and the City's and RWSA's capital improvement plans on future rates. (For a complete list of capital projects for the Wastewater Utility, please see Section V-H.)

C. Gas

The rate for FY2017 will decrease by an average of 11.99% to the firm customers and 19.82% to the interruptible customers based on March 1, 2016 wholesale rates for the purchase of gas. Firm customers include all types of customers (residential, commercial and industrial) for whom gas supplies are guaranteed to be available all year without interruption. The actual percent decrease is dependent upon usage.

1. For a representative residential monthly consumption of 4,878 cf, the monthly bill will decrease from \$54.79 to \$48.22, a decrease of 11.99%.
2. For a representative industrial interruptible monthly consumption of 1,000,000 cf, the monthly bill will decline from \$6,496.72 to \$5,209.12, a decrease of 19.82%.
3. The current monthly charge of \$10.00 for firm customers and \$60.00 for interruptible customers will remain unchanged.

Wholesale prices for natural gas have been volatile during the past twelve months, reaching a high of \$2.886/decatherm (dth) in August, 2015 before falling to a low of \$1.711/dth in March, 2016. These wholesale cost fluctuations were passed on to the City's customers through the PGA rate adjustment. Natural gas continues to be popular and competitive with other heating sources. The City gas system continues to add new customers, both in the City and the County, at a steady rate.

The FY2017 budget includes continued funding for the Gas Assistance Program and for the customer heating conservation incentive program for the purchase of programmable thermostats. In addition, there is continued funding for technology, environmental administration and normal operating cost increases.

The rates are based on current March 2016 wholesale rates. Gas prices have been higher but fell this year with the March 2016 commodity prices of \$1.711, which is \$1.183 dth lower than the March 2015 prices of \$2.894 on which the base rates for the year are established. The rate changes reflect the increases in contract prices, the increased sales volume, and changes in the operating budget as well as contracting to purchase our gas through one pipeline.

D. Stormwater

Rates for Stormwater are unchanged for FY2017.

E. Impact on Average Residential Customer Monthly Utility Bill

The average single family customer using 427 cf of water and wastewater and 4,878 of gas per month is projected to spend the following per month:

Figure 1: Comparison of Monthly Utility Bill

	<u>Current</u>	<u>Adopted</u>	<u>Increase</u>	<u>Percent</u>
Water	\$ 26.36	\$ 27.28	\$ 0.92	3.49 %
Wastewater	34.08	35.86	1.87	5.22
Gas	<u>54.79</u>	<u>48.22</u>	<u>(6.57)</u>	<u>(11.99)</u>
Total	\$ 115.23	\$ 111.36	\$ (3.87)	(3.36) %

SECTION II: IMPROVING INFRASTRUCTURE

All of the City's utilities are making significant infrastructure investments to provide better customer service, improve reliability and greater environmental stewardship. Many of these projects are ongoing and funded with revenues from prior, current, and future fiscal years.

A. Wastewater System Improvements

Charlottesville's sanitary sewer system extends to most areas of the City and consists of about 166 miles of pipe and 5,570 manholes. Because the system was constructed over a period of many decades, the main lines consist of several different types of materials - terracotta (clay), PVC, ductile iron, and concrete.

The pipes vary in age from about 15 to 100 years old. The sizes of the pipes range from six inches to thirty inches. Manholes are either brick or pre-cast concrete. The City operates and maintains the sanitary system within its boundaries. 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 treatment plant at Moore's Creek Wastewater treatment plant.

The City has a number of challenges within the sewer 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 is the original pipe 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 for health and environmental reasons. The excess water also taxes the capacity of the treatment plant, which could lead to major investments to expand the treatment facilities. There is also an indication that there are broken pipes and open joints where wastewater can leave the system. The I&I rehabilitation program identifies needed repairs to restore the integrity of the system which are necessary in order to reduce the amount of inflow and infiltration to 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 has centered on the Schenk's Branch area, which was identified as a high priority in previous studies, but has since continued into other areas in the City. To date, 34.5 miles or 182,000 linear feet of sewer lines have been replaced or rehabilitated.

For FY2015, \$2,333,980 was spent on City wastewater projects.



B. Water Distribution System Improvements

The City's water distribution system contains over 1,047 fire hydrants, 3,366 water valves and 180 miles of water main line ranging in size from 2" to 24" in diameter. About 20 miles of that pipe is three inches or less in diameter. Most of these mains are galvanized steel, several decades old, and serving multiple customers. Not only are they severely corroded, but the pressure is very low. These undersized lines are being replaced with adequately sized water lines.

A Water Prioritization Study was completed in 2009, which identified 48 projects totaling \$7 million to be completed. Since 2009, additional projects were identified and added to the list and work has been completed on 58 water projects. These projects aim to improve fire protection, reduce main breaks, improve overall water quality and address the undersized lines. Total length of pipe replaced so far for the water projects is almost 10 miles (50,000 linear feet) averaging about 2 miles (10,000 linear feet) per year. This work is continuing in FY2017.

Additionally, Public Utilities plans to replace an existing 18" water main that is a main 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 and turn south on Roosevelt Brown Blvd and connecting to the existing line at Grove Street. This project is currently under design and is scheduled for construction in 2017.



Most of the City's service lines (the lines from the mains to the water meters) are galvanized steel and were installed when the residences were constructed. 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. Over 6 miles (32,000 linear feet) of water service lines have been replaced.

Lastly, the City has implemented a meter testing, recalibration, and replacement project that addresses all size meters at assessment frequencies determined by the meter size. Further descriptions of these two projects are discussed in the Water Conservation Program section (Section IV-F).

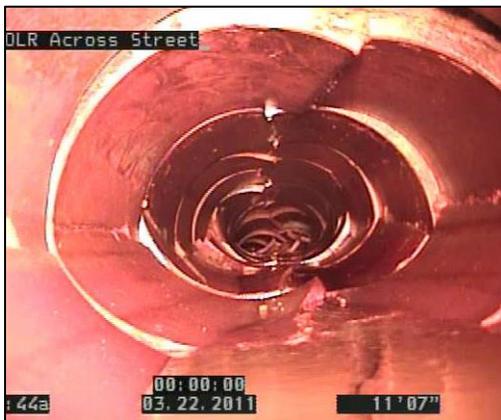
For FY2015, \$2,209,908 was spent on City water projects.

C. Stormwater Conveyance System Improvements

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 City has had an active Stormwater Conveyance System Rehabilitation Program since 2010.

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. In addition, emergency repairs are completed in a timely manner as they arise, often in response to sinkholes and subsidence in City streets and sidewalks.

For FY2015, \$891,748 was spent on City stormwater conveyance system projects.

SECTION III: RIVANNA WATER AND SEWER AUTHORITY

A. *Rivanna Water and Sewer Authority (RWSA) Capital Budget*

The City's water and wastewater service supplier, RWSA, has developed a five-year Capital Improvement Plan (CIP) to ensure that they can provide quality service, satisfy regulatory requirements and meet the water supply and wastewater treatment requirements for their customers, the City of Charlottesville (City) and Albemarle County Service Authority (ACSA). (For a detailed description of RWSA's Capital Improvement Plan, Fiscal Years 2016-2020, and Adopted February, 2016 please see <http://www.rivanna.org/wp-content/uploads/2016/02/8a-1st-Attachment-2016-2020-CIP-Draft-Ver-6-with-Attachments.pdf>.)

The total 5-year 2016-2020 CIP is approximately \$133.3 million, with the previous expenditures on active projects totaling approximately \$23.2 million, leaving a net 5-year projected expenditure of \$110.1 million.

There are several new projects added to the CIP this year, including:

- Ragged Mountain Reservoir to Observatory WTP Pipeline Condition Assessment (\$285,000)
- Piney Mountain Tank Rehabilitation (\$500,000)
- Rt. 29 Pipeline Betterment (\$3,075,000)
- Avon to Pantops Water Main (\$250,000)
- South Fork Water Treatment Plant Leaf Screen (\$471,000)
- South Fork Water Treatment Plant Filter Press Rehabilitation (\$150,000)
- Buck's Elbow Tank – Interior Coating and Mixing System & Crozet Waterball Painting (\$1,055,000)
- Crozet Water Treatment Plant – Miscellaneous Repairs (\$105,890)
- Crozet Water Treatment Plant – New Finished Water Pump Station (\$2,600,000)
- Crozet Interceptor Pump Station Isolation Valves (\$220,000)
- Moores Creek AWRRF Roof Replacements (\$903,000)
- Moores Creek AWRRF Second Centrifuge (\$1,025,000)
- Radio Upgrades (\$500,000)

There are a few projects where the budgets have been modified based on the anticipated project requirements and necessitate funding adjustments. There is one project where the anticipated funding need has been reduced, Water Wholesale Master Metering. Additionally, the

Beaver Creek Dam Alteration project, has been moved out on the schedule, and as such the latter funding has dropped off of the 5-year CIP. The projects with changes include:

- Observatory Water Treatment Plant Improvements (\$9.25 million existing / \$9.50 million proposed)
- Urban Water GAC and Water Treatment Plant Improvements (\$24 million existing / \$24.925 million proposed)
- Water Wholesale Master Metering (\$6.4 million existing / \$2.8 million proposed)
- Beaver Creek Dam Alteration (\$8.40 million existing / \$6.07 million proposed)
- Crozet Ground Storage Tank Repairs and Upgrades (\$0.45 million existing / \$0.52 million proposed)
- Crozet Flow Equalization Basin (\$0.33 million existing / \$2.33 million proposed)

During the past year several capital projects were completed or are very near completion, and as such are being removed from the 2016-2020 CIP. These projects account for approximately \$13.4 million or 9.9% of FY 15-19 CIP and resulted in a savings of \$1.06 million. These projects include:

- New Ragged Mountain Dam Construction
- Mitigation Plan Implementation
- Alderman Road Pump Station Improvements
- Pantops Tank Repairs
- South Fork Rivanna Dam – Dam Safety Improvements
- Crozet Partial Transite Pipe Replacement
- Albemarle-Berkley Interceptor
- Crozet Interceptor Pump Station Automatic Bar Screens
- Digester Heating and Mixing Upgrade
- Scottsville WRRF Solids Processing Improvements

SECTION IV: WATER UTILITY

A. *Water Rate Structure*

The water rates recommended in this report include seasonal water rates as approved by City Council in February, 2004. The rates incorporate a 30% spread between the lower winter rates (October through April) and the higher summer rates (May through September), when water is more likely to be in scarce supply. The rates recommended in this report for FY2017 have been prepared on this basis.

B. *Fiscal Year 2017 Budget and Rate Impact*

As shown in Exhibit IV-A, the total water expenditures of approximately \$10.580 million has increased by 0.5% or \$50,906 over last year. Significant portions of the budget are described below:

- Water purchase costs rose by \$133,032. The increase is due to a rise in the wholesale costs of water provided by RWSA. The operations rate from RWSA rose 7.01%. The debt portion, which no longer depends on the amount of water consumed, only rose \$58,429 (3.08%) from last year's RWSA budget. This is lessened by a reduction in the amount of water estimated to be purchased by the City of Charlottesville.
- A decrease in the cost of operations and maintenance by \$22,243 or (0.9%). The decrease comes from a reduction in Salaries and Benefits to reflect vacancies and turnover the water division regularly experiences, lower fuel costs, and the availability of funds already on hand from previous fiscal years.
- Water Conservation budget has been reduced to reflect the availability of sufficient carry-over funds to cover anticipated program costs. Set as a priority by City Council, the budget carries over any unspent funds each year. While these funds are unrestricted, they can only be spent on the operations of the water conservation program. Based on the anticipated carry-over funds available, the FY2017 budget submits a one-time reduction of two line items totaling \$110,000, Other Contractual Service and Advertising. All other line items

remained unchanged. For a list of the programs supported by Water Conservation please see pages 28 through 30 of this report.

- Payment in lieu of taxes (PILOT) is increasing by \$17,130 or 3%. The City's PILOT is based on 6% of budgeted water sales from the prior year.
- The Water Utility's contribution to support services and administrative costs provided by City government, indirect costs, is decreasing \$11,377 or -8.6%.
- The Utility Billing Office (UBO) budget is decreasing by \$7,318 or -0.4%. One-sixth of the budget is assigned to the Water Utility. The remainder is assigned to Wastewater and Gas Utility budgets. This represents a \$1,220 decrease to be funded by the water rate. The decrease stems from reducing the professional services budget based on actual expenditures in previous fiscal years.
- Meter Reading budget is increasing \$9,876, a 2.7% increase stemming primarily from salaries and benefits. As with the UBO budget, one-sixth of the budget is assigned to the Water Utility, which represents a \$1,646 increase. The remainder is assigned to Wastewater and Gas Utility budgets.
- There has been a reduction in the Water Assistance Program. It is recommended that the current year budget be reduced by \$10,000 to \$15,000 as there are sufficient funds available from previous fiscal years. This line item carries forward to the next budget year. Any unspent money can be spent in subsequent future years, but only on Water Assistance.
- An increase of \$50,000 for debt service funding to support capital projects associated with the Water Utility.

Based on the approved budget, the City's water rate per thousand cubic feet (mcf) will increase from \$52.37 to \$54.51, an increase of 4.09% on a composite basis. Seasonal rates will be as follows:

- Months of May – September - \$62.78/mcf
- Months of October – April - \$48.29/mcf

This represents a 30% spread in summer vs. winter rates. These rates are designed to be “revenue neutral” over the course of a year. A seasonal rate structure is used by many localities as a way to promote water conservation during the peak usage months.

The rate for the UVa's central system, under a separate contract with the City, will increase from \$25.12/mcf to \$26.40/mcf, 5.1%. UVa's rate is determined by a 1981 contract.

C. *Rate Stabilization Funds*

The purpose of rate stabilization revenue is to mitigate year-to-year fluctuations in utility rates to customers. In general, the rate stabilization revenues should not be used to artificially suppress rates (i.e., to sustain rates at levels below the costs of service), but to enable smooth or level annual increases to rates despite fluctuating changes in expenses (i.e. primarily caused by increases in debt service) or variations in annual revenue received. The fund is comprised of facility fee revenues from new customers connecting to the City's water system.

The amount to be used will be \$300,000 in FY2017. Since the use of funds are \$200,000 less than that used in FY2016 the result will be an increase in rate of \$1.37/mcf higher than in FY2016. However, using the \$300,000 produces a rate \$2.13/mcf lower than if the stabilization funds were not utilized. The remaining balance of the rate stabilization fund plus the additional revenue to be collected in future years will be used to offset a portion of increases to our customers' future water utility rates. In future years it is projected that debt service, both for the City and RWSA, will increase. When combined with declining water usage and water revenues, these trends will put upward pressure on rates. (For a projection of future rates, see Section IX-A.)

D. *Factors Influencing Water Rates*

There are several factors that influence the change in rate needed for the Water Utility to operate on a self-supporting basis, including:

- Changes in wholesale water rates from RWSA.
- Availability of rate stabilization funds.
- Debt service changes.
- City water operating expenses.
- Revenue received from fees and other charges.
- Wholesale volumes purchased or retail volumes sold and water lost.

Increasing wholesale rates from our supplier, RWSA, increase the City's rate by \$6.02. A decrease in the use of rate stabilization funds increases the rate by \$1.37. An increase of \$50,000 for debt service expense increases the rate by \$0.34. The decline in operating expenses primarily from changes in the Water Conservation Budget reduces the rate by \$1.08.

Finally, the volume sold to customers and purchased from RWSA is declining, as is the loss factor resulting in a reduction of \$4.17. All changes increase the rate from \$52.37/mcf in FY2016 to \$54.51/mcf in FY2017. The following chart illustrates the effects each component has on the rate.

Figure 2: Components of Water Rate

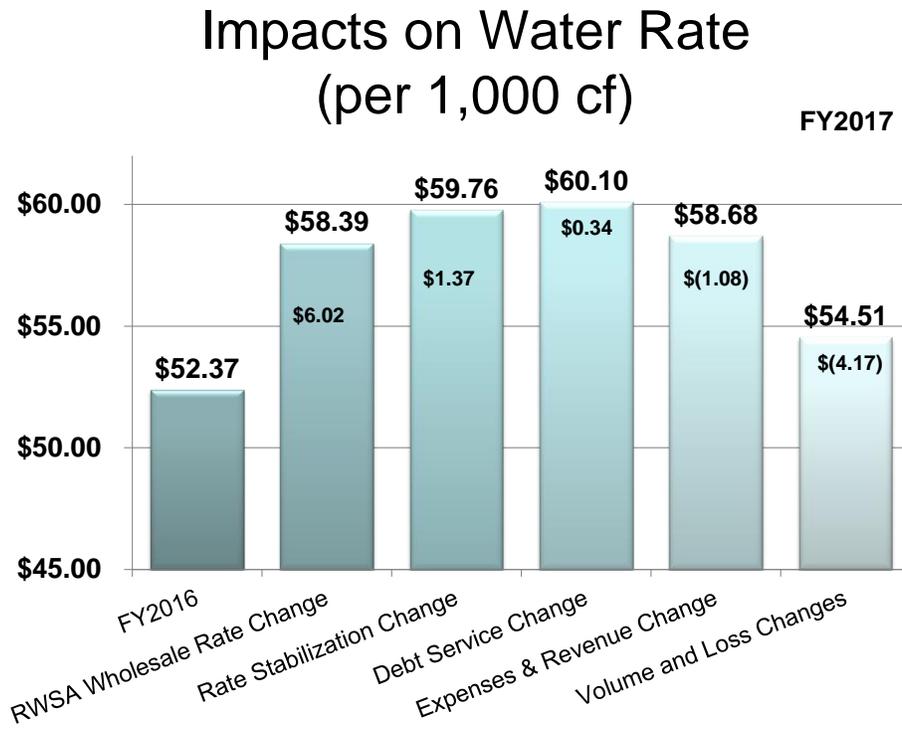
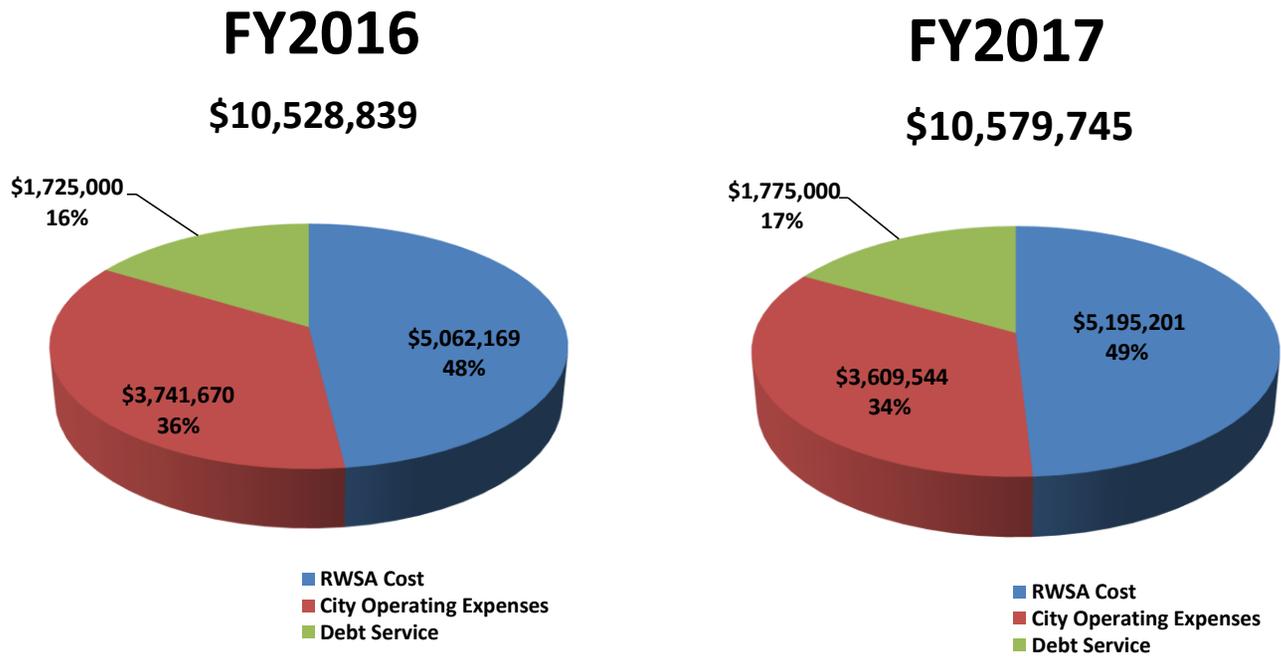


Figure 3: Changes in Water Rate Expenses – Biennial Comparison

Water Expense Comparison



Water Expense Comparison:

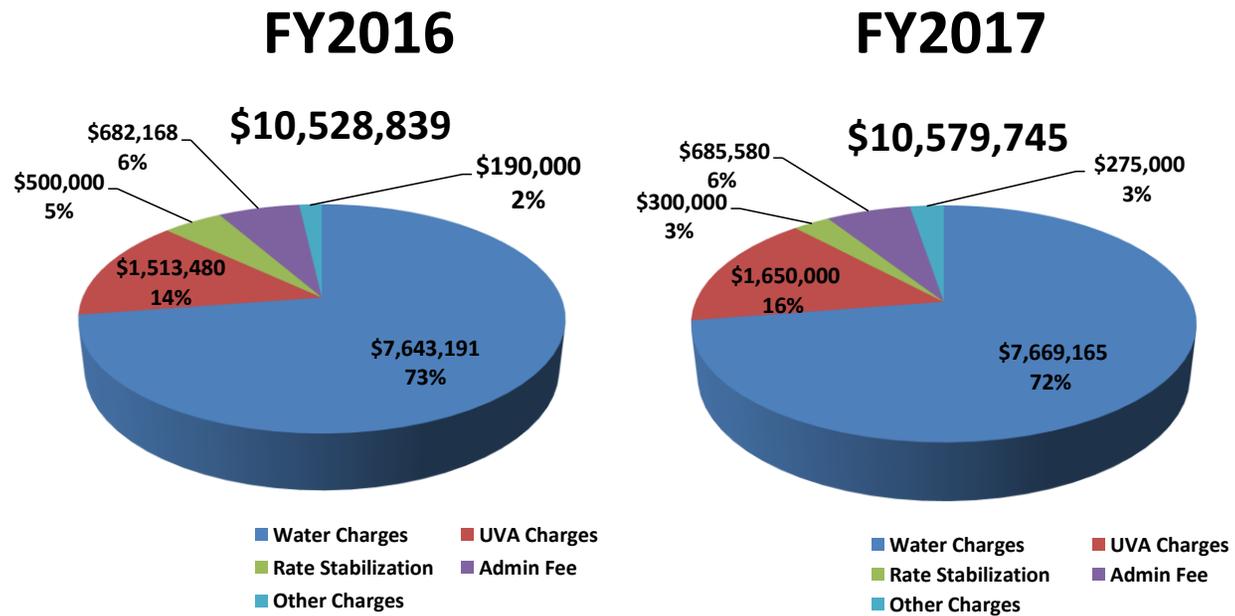
The City's water wholesale cost from RWSA has increased from FY2016 to the FY2017, coupled with a slight decrease in volume purchased, results in an increase in wholesale water purchase cost of \$133,032. Operating expenses for the Utility are forecast to decline \$132,126 due primarily to the reduction in the Water Conservation Budget. The City's debt service is forecast to increase \$50,000 in FY2017 to \$1,775,000. Debt service is used to support capital projects associated with improvement to the City's water distribution system.

Water Revenue Comparison:

An increase of \$50,906 or (0.5%) in water revenue is projected from FY2016 to FY2017. The factors affecting this change include water charges collected from all City customers, UVa payments, rate stabilization funding, administrative fees, and other charges. Water charges, revenue that is received directly from purchases of water by City customers, are projected to increase \$25,974 (0.3%). There is a projected increase in revenue from UVa attributed primarily to an increase in the rate to UVa and a minimal increase in projected water usage. The rate stabilization revenue is projected to decrease by \$200,000. While it is declining, rate stabilization decreases the rate charged to customers by \$2.13. Last, administrative fees, the \$4 per account monthly charge, have increased slightly due an increase in the number of customers served.

Figure 4: Changes in Water Rate Revenue – Biennial Comparison

Water Revenue Comparison



E. Facility Fee Recommendations

Facility Fees are intended to provide funding to finance all or part of capital improvements required to meet system demands necessary to serve new customers. Existing users, through service charges and other charges, have developed a valuable public capital facility, and the facility charge to new users is designed to recognize the “current cost” or “anticipated future cost” of providing the capacity necessary to serve additional users. Existing customers benefit greatly from these “system development” charges because much of the cost of system expansion is shifted to the new development. Therefore, system expansion is supported through the service charge rather than being built into the rate structure, which would impact existing customers as well.

The fee setting methodology typically involves new users paying a proportionate share of the total “system value” or a share of the total available capacity in the system. The charge is computed by establishing a fixed asset value under a historical or replacement cost basis, and allocating this cost over the total number of units of service. An equivalent residential connection (ERC) is a means of relating large-use customers to a base customer, typically a single-family unit served by a 5/8" water meter. An ERC is expressed as a ratio of the base customer unit. It should be recognized that large consumption customers use a higher share of system capacity and should equitably pay a higher proportionate share of facility fees.

The facility fees allow for new customers to “buy in” to the current system and contribute toward the City’s adopted capital improvements plan for needed rehabilitation. The facility fee also provides support for the City’s share of RWSA’s facilities.

In FY2009, the City Council adopted an increase in the connection fee for new water and sewer connections for all water meter sizes. City staff recommended replacing the \$800 connection fee established in FY2008 with the new Water Facility Fees and Sewer Facility Fees. A facility fee or “system development charge” is levied to support existing or planned future capital costs necessary to meet the service needs of new water customers. City Council approved that the fee be increased in FY2013 to more accurately reflect the cost of adding additional water and wastewater lines. The increase in the charge now more closely represents the actual cost to provide new service as well as the cost of the impact of new connections on the City’s and RWSA’s water and sewer facilities and their ability to supply the increased demand. It is also designed to recover the capital costs that the City and RWSA will bear in the near future to

maintain, rehabilitate, and expand their facilities in order to continue to meet future supply demands for existing and new customers.

There are no fee increases for the standard fee for FY2017.

Figure 5: Water Facility Fees

Meter Size	ERC	Water Facility Fee	Low-Income Housing Fee	Change in Fees from FY2016
5/8"	1	\$3,100	\$800	\$0
1"	2.5	\$7,750	\$1,938	\$0
1.5"	5	\$15,500	\$3,875	\$0
2"	8	\$24,800	\$6,200	\$0
3"	15	\$46,500	\$11,625	\$0
4"	25	\$77,500	\$19,375	\$0
6"	50	\$155,000	\$38,750	\$0

Currently the City offers a reduced water facility fee for affordable housing for developers. For a description of the program please see City Code Sec. 31-102.1 https://www.municode.com/library/va/charlottesville/codes/code_of_ordinances?nodeId=CO_C_H31UT_ARTIIIWASEGE. Based on feedback from City Council, staff proposed that the fee for a meter larger than 5/8", whether for water or wastewater, be 25% of the standard facility fee charged by the City. The charge was \$800 regardless of meter size. City Council chose to adopt the recommendation.

F. Water Conservation Program

The City of Charlottesville continues to work with City customers to partner to find ways to conserve water. In FY2010 the average single-family home used 689 cf of water per month. This has declined each year to the current level of 427 cf/month in FY2015, the most current full year for which we have consumption. The City's water conservation program has multiple initiatives in place. Some highlights of our program include the distribution of over 10,000 free indoor water conservation kits, the development and dissemination of Water-Wise landscaping and indoor water conservation information, and a low-flow toilet rebate program, which has replaced 5,910 high consumption toilets from 2003 through FY2015.

Not only does the City provide resources and rebates to save water, but we also maintain an extensive public outreach campaign. This includes educational activities at summer camps,

educating the public at the Fix-A-Leak Family 5K Fun Run, 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 and social media), print, radio, and television. The water conservation program partners with community partners including the Local Energy Alliance Program, UVA Sustainability, Albemarle County Service Authority, and Rivanna Water & Sewer Authority. 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 2015, the City of Charlottesville was recognized for their water conservation efforts supporting the WaterSense program and received the 2015 Partner of the Year Award for the excellent water conservation efforts performed in 2014.

Replacing water distribution mains and service lines is an important component in water conservation. Aging pipes are a primary cause of lost water in a system. Since FY2007, the City has been replacing aged water lines and service lines, which reduces leaks and supports the infrastructure improvements outlined in Section II-A. The City has also performed annual system wide leak detection surveys. With 180 miles of water lines, 113 leaks were found during the FY2015 through various methods, 19 of those water leaks were found and fixed during the annual leak audit in FY2015. The City aims to respond and repair leaks expeditiously to minimize water loss and service impacts. Leak audit surveys were completed in eleven of the past thirteen years and will continue annually. The next survey is scheduled for summer 2016 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 FY2010 through FY2012 resulted in improved recordkeeping of water use by City contractors and more detailed procedures for annual fire hydrant testing. Water audits completed for FY2013 – FY2015 have used the same process and resulted in improved data collection procedures specifically quantifying unbilled and unmetered water usage. In FY2014 and FY2015, 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 FY2014. In FY2014, 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 our 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 2016, the meter replacement program continues and has expanded to include all meters 1.5-inch and above. The meter replacement project has replaced 20 large water meters in FY2015 and continues to increase in momentum into FY2016. Also as part of the meter replacement program, the City is evaluating customer consumption to verify that the meters are appropriately sized. Since regular water meters less accurately measure low flow rates, extra-sensitive “low-flow” meters will be installed in some applications. This program cost will be covered through available carry-over funds in FY2017.

The table below outlines current water conservation efforts implemented by the City.

Figure 6: Water Conservation Activities

Program Initiatives	Description
Rebates: Low Flow Toilets & Rain Barrels	Low flow toilet rebates issued in FY2015 totaled 460; a revised program to rebate only WaterSense labeled toilets began in July 2012. Rain barrel rebates issued in FY2015 totaled 47, and rebates issued 2009 (start of program) – end of FY2015 totaled 684. 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 FY2015 and additional events are planned for the 2016 - 2017 calendar. The City partnered with the Local Energy Alliance Program (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 and schools during the year to teach students the importance of conserving water and ways they can do so. 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.
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.

Program Initiatives	Description
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. 10 high and middle school students participated and passed out conservation kits to approximately 75 houses over the summer in 2014 and almost 300 houses over the summer in 2015
Carwash Certification	Maintained 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 WaterSense sponsored water conservation campaign: "Check, Twist, Replace".
Multi-Family Homes' Toilet Retrofits	This program has been in existence since June 2011; since then, 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.
System Leak Detection Audit	Annual Water System Wide Survey found and fixed 19 leaks in Fall 2014 (FY2015). The leak detection audit for FY2017 will occur in summer 2016, with all discovered leaks on the public side of the system are then designated as high priority work orders.
Water Line Replacement	Continued Water Department program to replace aging distribution lines and public side of service laterals, preventing wasteful water loss.
System Water Audit	Continue to perform AWWA audit each fiscal year and assess areas of improvement in water utility infrastructure, water accountability, and water conservation.
Water Meter Recalibration & Testing	Starting in 2013, approximately 10% of all water meters were tested and calibrated. Since the initial set of meters were tested, it was determined a Water Meter Replacement Project would be implemented. Meter recalibration and testing continues with testing on the larger sized meters that are removed from the field as part of the large meter replacement project.
Water Meter Replacement Project	Based on meter testing and the AWWA water audit recommendations, all water meters at or above 1.5-inch will be replaced. In addition all meters set to be replaced will be assessed based on water consumption, to select the appropriate meter for application. So far only a portion of 1.5-inch and larger meters have been replaced (20 in FY2015), but the remaining large meters are set for replacement in FY2016 and FY2017.
Fix a Leak Family 5k	The third annual race to highlight EPA WaterSense's nationwide Fix a Leak Week was conducted on March 22, 2015 at Pen Park with 81 runners participating. This race is nationally recognized by the EPA. The fourth annual race is scheduled for March 2016.
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, toilet rebate, and rain barrel rebates are always available. For FY2015, water conservation outreach occurred during Kids Book Festival, City Service Fair, Kid*vention, UVA, Earth Day, EcoFair, and City Hall. 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's outreach.

Program Initiatives	Description
<p style="text-align: center;">“I’m For Water” Campaign & The Mayor’s Challenge</p>	<p>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 10th in their population size in April 2015. The City plans on participating again in April 2016.</p>

G. *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. The toilet replacement rebate program has been modified over the years to better address current conservation concerns. 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. These 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. In addition, a new program, which allows owners of multi-unit apartment complexes to replace two (2) toilets per unit, was expanded in FY2011. Commercial property owners may replace up to two (2) toilets and receive up to \$80 per replacement. The following chart shows the program participation since adoption of the program. The program will be funded at \$40,000 in FY2017.

Figure 7: Historic Participation in Toilet Rebate Program

Toilet Rebate				
Granted in Fiscal Year ¹	Total # of Customers	Total # of Toilets rebated	Total \$ rebate	Average Rebate / customer (calculated)
2015	189	460	\$ 40,554.93	\$ 215
2014	219	305	\$ 29,544.10	\$ 135
2013	358	573	\$ 54,112.67	\$ 151
2012	258	544	\$ 54,185.67	\$ 210
2011	363	599	\$ 61,864.86	\$ 170
2010	286	367	\$ 36,401.41	\$ 127
2009	219	310	\$ 31,085.77	\$ 142
2008	180	302	\$ 30,372.22	\$ 169
2007	194	232	\$ 23,844.95	\$ 123
2006	224	256	\$ 25,513.55	\$ 114
2005	240	285	\$ 28,328.74	\$ 118
2004	361	403	\$ 39,939.33	\$ 111
2003	1,195	1,274	\$ 125,316.54	\$ 105
Total	4,286	5,910	\$ 581,064.74	

The Rain Barrel Rebate Program was started in 2009 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 and was started in 4/20/2009. Through FY2015, the City has provided 684 rebates since the project started in 2009 including 47 rebates in FY2015. In addition, the City provides rain barrel workshops periodically each year, which helps City residents construct rain barrels for their use and educates them of the importance of rain water harvesting and water conservation.

H. *Water Assistance Program*

A Water Assistance Program (WAP) was adopted in FY2012 by City Council to assist City water customers experiencing hardship in making timely or full payments of their water utility bill. UBO has experienced numerous occasions when customers, unable to pay their bills due to financial hardship, had their services discontinued. The WAP program 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 Gas Assistance Program (GAP). 147 customers benefited from the WAP in FY2015, receiving a total of \$12,800. The maximum allotment per household per year is \$150 or three times the customer's average monthly bill, whichever is less. \$15,000 has been included in the water budget in FY2017. Comparable assistance has been adopted in the wastewater fund through the Wastewater Assistance Program (WWAP).

I. *Water Utility Capital Projects*

The current capital projects in each entity's five-year capital plan are listed below. The City updates its capital plan annually with the 5 year capital plan being FY2017 – FY2021. RWSA adopted its Capital Improvement Plan February 23, 2016 (FY2016 - FY2020).

Figure 8: City/RWSA 5 Year Capital Improvement Plan for Water

<u>City Capital Projects – Water System</u>	<u>Projected Five Year Capital Cost</u>
Water Line replacement (Annual Service Contract)	\$ 2,500,000
Water Meter Replacement	\$ 1,000,000
Replacements of Valves & Hydrants	<u>\$ 500,000</u>
Total City Capital Water	\$ 4,000,000

<u>RWSA Urban Water Projects</u>	<u>Projected</u>
<u>Five Year Capital Cost</u>	
South Fork Reservoir to Ragged Mtn. Pipeline	\$ 2,270,141
South Fork Reservoir Dredging	\$ 3,372,442
Observatory WTP Improvements	\$ 9,466,275
Ragged Mountain Reservoir to Observatory Pipe Assessment	\$ 285,000
Route 29 Pump Station	\$ 1,449,253
Valve Repair – Replacement Phase 2.....	\$ 500,000
Urban Water Granular Activated Carbon Improvements	\$ 22,219,697
South Fork Rivanna Water System	\$ 2,619,402

Stillhouse Tank Modification Study.....	\$ 591,906
Avon to Pantops Water Main	\$ 250,000
Water Meter Wholesale Master Metering.....	\$ 3,117,563
Route 29 Pipeline	\$ 3,075,000
Piney Mountain Tank	\$ 500,000
Total RWSA Urban Water	\$ 49,716,679

J. Exhibits

EXHIBIT IV-A WATER UTILITY TWO YEAR BUDGET COMPARISON

<u>Revenue Required</u>	<u>FY2016 BUDGET *</u>	<u>FY2017 BUDGET</u>	<u>PERCENT CHANGE</u>
Water purchases	\$ 5,062,169	\$ 5,195,201	2.6 %
Operations & maintenance	2,413,743	2,391,500	(0.9)
Water conservation budget	193,809	88,287	(54.5)
Toilet Rebate Program	40,000	40,000	-
Payment in lieu of taxes	573,200	590,330	3.0
Indirect costs	131,723	120,346	(8.6)
Utility billing office budget	276,650	275,430	(0.4)
Meter reading budget	60,645	62,291	2.7
Water assistance program	25,000	15,000	
Vehicle replacement budget	-	-	-
Computer system support	21,900	21,360	(2.5)
Interest on deposits	5,000	5,000	-
Debt service funding	<u>\$ 1,725,000</u>	<u>\$ 1,775,000</u>	2.9 %
Total revenue required	\$ 10,528,839	\$ 10,579,745	0.5 %
Less revenues not related to water use:			
Connection service charges	\$ 125,000	\$ 125,000	-
Rate stabilization	500,000	300,000	(40.0)
Other fees and charges	<u>65,000</u>	<u>150,000</u>	130.8 %
Total	\$ 690,000	\$ 575,000	(16.7) %
Revenue required from water charges	\$ 9,838,839	\$ 10,004,745	1.7 %
LESS UVa central charges	1,513,480	1,650,000	9.0
Balance to be recovered by City Water Sales	\$ 8,325,359	\$ 8,354,745	0.4 %
Required Percent Increase in Overall Charges	3.79%	0.35%	
Minimum Monthly Charge	4.00	4.00	
Minimum charges	<u>\$ 682,168</u>	<u>\$ 685,580</u>	0.5
Balance to be recovered through rate above minimum	\$ 7,643,191	\$ 7,669,165	0.3 %
Volume (MCF) above minimum	145,943	140,700	(3.6)
Rate per MCF	<u>\$ 52.37</u>	<u>\$ 54.51</u>	4.09 %

* The City's budget was amended but the bottom line stayed the same.

**EXHIBIT IV-B
WATER RATE CALCULATION
FY2017**

	MCF	Amount
Revenue Required:		
Water purchases	236,279	\$ 5,195,201
Operations & maintenance		2,391,500
Water conservation budget		88,287
Toilet Rebate Program		40,000
Payment in lieu of taxes		590,330
Indirect costs		120,346
Utility billing office budget		275,430
Meter reading budget		62,291
Water assistance program		15,000
Vehicle replacement budget		0
Computer system support		21,360
Interest on deposits		5,000
Debt service funding		\$ 1,775,000
Total revenue required		\$ 10,579,745
Less revenues not related to water use:		
Connection service charges		\$ 125,000
Rate stabilization		300,000
Other fees and charges		\$ 150,000
Total other revenues		\$ 575,000
Revenue required from water charges		\$ 10,004,745
Less fixed water charges and uses:		
Anticipated water loss	14.0 %	33,079
UVa central charges @ ¹	\$ 26.40	62,500
Monthly customer charges @	\$ 4.00	685,580
Total fixed water charges		95,579
Balance to recover through rate above minimum	140,700	\$ 7,669,165
Rate required per MCF above minimum		\$ 54.51
ALTERNATE RATE WITH NEUTRAL WINTER / SUMMER DIFFERENTIAL (30%)		
Rate required per MCF above minimum - Winter		\$ 48.29
Rate required per MCF above minimum - Summer		\$ 62.78

1 According to the 1981 agreement, UVa is charged 100% of the wholesale rate the City pays to RWSA plus 25% of the general operation, administrative overhead, and assessment and collection cost of the City's retail rate.

**EXHIBIT IV-C
WATER UTILITY
PROJECTED REVENUE REQUIREMENTS**

<u>Funds Required</u>	<u>FY2016</u>	<u>FY2017</u>
Water purchases	\$ 5,062,169	\$ 5,195,201
Operations & maintenance	2,413,743	2,391,500
Water conservation budget	193,809	88,287
Toilet Rebate Program	40,000	40,000
Payment in lieu of taxes	573,200	590,330
Indirect costs	131,723	120,346
Utility billing office budget	276,650	275,430
Meter reading budget	60,645	62,291
Water assistance program	25,000	15,000
Vehicle replacement budget	0	0
Computer system support	21,900	21,360
Interest on deposits	5,000	5,000
Debt service funding	<u>\$ 1,725,000</u>	<u>\$ 1,775,000</u>
 Total Funds Required	 \$ 10,528,839	 \$ 10,579,745
 <u>Funds Provided</u>		
Water Charges	\$ 9,838,839	\$ 10,004,745
Other Revenue	<u>690,000</u>	<u>575,000</u>
 Total Funds Provided	 \$ 10,528,839	 \$ 10,579,745
 Gain (Loss)	 <u>\$ -</u>	 <u>\$ -</u>

**EXHIBIT IV-D
WATER RATE COMPARISON**

MONTHLY USAGE (CUBIC FEET)	\$ 4.00 /	\$ 4.00 /	DOLLAR CHANGE	PERCENT CHANGE
	\$ 52.37	\$ 54.51		
	FY2016	FY2017		
0	\$ 4.00	\$ 4.00	\$ -	0.00 %
200	14.47	14.90	0.43	2.97
300	19.71	20.35	0.64	3.25
427	26.36	27.28	0.92	3.49
750	43.28	44.88	1.60	3.70
1,000	56.37	58.51	2.14	3.80
2,000	108.74	113.02	4.28	3.94
3,000	161.11	167.53	6.42	3.98
5,000	265.85	276.55	10.70	4.02
10,000	527.70	549.10	21.40	4.06
100,000	\$ 5,241.00	\$ 5,455.00	\$ 214.00	4.08 %

Note: Average single-family customer uses 427 CF per month.

**EXHIBIT IV-E
WATER RATE COMPARISON
SEASONAL RATES**

SUMMER RATES

MONTHLY USAGE (CUBIC FEET)	\$ 4.00 / \$ 4.00 /			
	\$ 60.31 / \$ 62.78	FY2016	FY2017	DOLLAR CHANGE
				PERCENT CHANGE
0	\$ 4.00	\$ 4.00	\$ -	0.00 %
200	16.06	16.56	0.50	3.11
300	22.09	22.83	0.74	3.35
427	29.75	30.81	1.06	3.56
750	49.23	51.09	1.86	3.78
1,000	64.31	66.78	2.47	3.84
2,000	124.62	129.56	4.94	3.96
3,000	184.93	192.34	7.41	4.01
5,000	305.55	317.90	12.35	4.04
10,000	607.10	631.80	24.70	4.07
100,000	\$ 6,035.00	\$ 6,282.00	\$ 247.00	4.09 %

Note: Average single-family customer uses 427 CF per month.

WINTER RATES

MONTHLY USAGE (CUBIC FEET)	\$ 4.00 / \$ 4.00 /			
	\$ 46.39 / \$ 48.29	FY2016	FY2017	DOLLAR CHANGE
				PERCENT CHANGE
0	\$ 4.00	\$ 4.00	\$ -	0.00 %
200	13.28	13.66	0.38	2.86
300	17.92	18.49	0.57	3.18
427	23.81	24.62	0.81	3.40
750	38.79	40.22	1.43	3.69
1,000	50.39	52.29	1.90	3.77
2,000	96.78	100.59	3.81	3.94
3,000	143.17	148.88	5.71	3.99
5,000	235.95	245.47	9.52	4.03
10,000	467.90	486.94	19.04	4.07
100,000	\$ 4,643.00	\$ 4,833.43	\$ 190.43	4.10 %

Note: Average single-family customer uses 427 CF per month.

SECTION V: WASTEWATER UTILITY

A. Fiscal Year 2017 Budget and Rate Impact

The wastewater rate is projected to increase from \$70.44/mcf to \$74.61/mcf in FY2017. As shown on Exhibit V-A, the wastewater operating budget of approximately \$13.922 million has increased by 3.71%, or \$498,464. This net increase is primarily due to factors described below:

- The cost of treatment from RWSA is increasing by \$533,122, 7.40%. The wastewater treatment cost charged by RWSA accounts for 55.6% of the City's operating cost of the wastewater utility. RWSA has increased its operations rate charged to the City by 2.57%, from \$13.382/mcf to \$13.726/mcf. The City will pay 52% of the total urban operating wastewater treatment costs borne by RWSA, compared to Albemarle County Service Authority's share of 48%. The City's relative share is based on historical flow figures. The amount of wastewater that RWSA forecasts will be treated is projected to be the same as last year. The debt component charged by RWSA is a monthly fixed charge. The monthly charge is going up from \$333,645 to \$369,037 per month. This is a 10.61% increase.
- The cost of operations and maintenance is decreasing by \$167,202 (-8.32%) and is due to the City accounting for average vacancy rates, reduced fuel costs, and reductions in other contractual services due to availability of funds on hand.
- An increase in the PILOT of \$87,848, 12.58%. This is due to an increase in the budgeted wastewater sales revenue from the prior year.
- Indirect costs are those costs associated with services provided by other City departments that support the wastewater utility. The City's indirect costs are increasing by \$16,686, 14.95%.
- The Utility Billing Office (UBO) budget is decreasing by \$7,318 or (-0.44%). One-sixth of the budget is assigned to the Wastewater Utility. The remainder is assigned to Water and Gas Utility budgets. This represents a \$1,220 decrease to be funded by the Wastewater rate. The decrease stems from a decline in the professional services budget based on past expenditure patterns.

- Meter Reading budget is increasing \$9,876, a 2.7% increase stemming primarily from salaries and benefits. As with the UBO budget, one-sixth of the budget is assigned to the Wastewater Utility, which represents a \$1,646 increase. The remainder, one-sixth and two-thirds, is assigned to Water and Gas Utility budgets, respectively.
- As with the Water Assistance Program there has been a reduction in the Wastewater Assistance Program. This is done because carry-over funds may be used along with current year money to fund the program. It is recommended that the current year budget be reduced by \$10,000 to \$15,000.

B. RWSA's Fiscal Year 2017 Wholesale Cost

Several major projects factor into the wholesale treatment cost from RWSA. Among them are the Rivanna Pump Station and Tunnel, Schenks Branch Interceptor Replacement, Moores Creek Wastewater Facility Odor Control, and the Interceptor Sewer and Manhole Repair. The Schenks Branch Interceptor lies completely within the City of Charlottesville's boundaries and is solely dedicated to the conveyance and treatment of the City's wastewater, whereas the other projects are shared by the City and County. It should be noted that the localities continue to pay debt service, often, long after the project is completed. One of the major components impacting the City's debt service rate from RWSA is the Meadowcreek Interceptor project. The Meadowcreek Interceptor project included the replacement of approximately 4.2 miles (22,000 linear feet) of interceptor with larger diameter pipe to provide capacity for wet weather flow. Although the project has essentially been completed its debt service will continue to impact the City's debt service rate from RWSA. An update of RWSA's capital projects contained within their Adopted Capital Improvement Plan follows:

- Rivanna Pump Station and Tunnel: Pumping capacity between the Rivanna Interceptor in Riverview Park and the Moores Creek Advanced Water Resource Recovery Facility requires expansion for wet weather peak flow, from a current capacity of 24.5 million gallons per day (mgd) to a firm capacity of 53 mgd in accordance with RWSA's DEQ Consent Order. Following a lengthy public process and a study of alternatives, the RWSA Board selected to move forward with a final design at the December 2011 Board of Directors meeting which included construction of approximately 1,620 linear feet of a tunnel with a tunnel-boring machine which would connect the existing Rivanna Interceptor in Riverview Park to a new pump station located on the RWSA MCAWRRF

property. The final design included pumps capable of delivering a peak pumping rate equivalent to 53 mgd, electrical gear, influent grinders, self-cleaning wet well, air collection for odor control, back-up power generation, SCADA control and integration, tie-ins to the existing systems, site and permitting work, storage building demolition and electrical relocation work, as well as architectural, structural and mechanical systems. The existing pump station at the entrance to Riverview Park will be demolished once the new pump station and tunnel are complete and in service. Bidding was held in November 2013 and the project was awarded by the Board of Directors in December 2013 to Adams Robinson Enterprises. Construction began in March 2014 and construction of the new pump station and tunnel is ongoing.

- Schenks Branch Interceptor: The Schenks Branch Interceptor is located in the eastern part of the City of Charlottesville and ties into the Meadowcreek Interceptor. The interceptor was constructed in the mid-1950s of 21-inch clay and concrete pipe. The existing interceptor is undersized to serve present and future wet weather flows as determined by the City, and is to be upgraded to 30-inch pipe. The first portion of this sewer was constructed as part of the Meadowcreek Interceptor project. The second portion was constructed as part of the VDOT McIntire Road Extended project in 2012. The third portion was constructed as part of the McIntire/250 Interchange project and the Certificate to Operate was issued by DEQ in 2014. The rest of the upstream Interceptor in McIntire Road (Upper Schenks Branch Interceptor) has been designed and construction has begun on the first phase of this project which is located in the City's Schenks Branch Greenway. The contractor was issued a Notice to Proceed in July 2015. Sewer pipe and manhole installation work will continue over the next few months to be followed by reconstruction of the Greenway, including a new walking path and landscaped areas. The second phase of the Upper Schenks Branch Interceptor will be upgraded by RWSA in coordination with the City of Charlottesville's sewer upgrades once easement negotiations with Albemarle County are complete (or the City authorizes the second phase project be constructed under McIntire Road). Project costs include betterment cost for the portions that are being replaced by VDOT; design, permitting, easement acquisition, construction, construction observation/administration by the engineering consultant; and project contingencies for the rest of the interceptor.
- Moore's Creek Wastewater Treatment Plant Odor Control – The Moores Creek Advanced Water Resource Recovery Facility (MCAWRRF) is the largest wastewater

treatment facility within the RWSA system. The plant was originally constructed in 1958 and upgraded and expanded in 1981 and 1982, and currently has a rated capacity of 15 mgd. From 2009 thru 2012 the facility was upgraded to provide enhanced nutrient removal, and increased wet weather pumping and treatment capacity. This site includes the infrastructure for the wastewater treatment process as well as the RWSA administration facilities.

- Odor Control - Phase 2: As part of the implementation of the next phase of the 2007 Odor Control Master Plan at the MCAWRRF, operations audits were performed, liquid and vapor phase sampling was conducted, and a computerized dispersion model was developed from 2013 to 2014. Recommendations for odor control improvements that would significantly control odors from traveling beyond the MCAWRRF fence line were presented to the RWSA Board of Directors in December 2014 and the CIP project for \$9.33M was approved at the January 2015 Meeting. The final design for odor control improvements includes covering the head works and screening channels, installing grit facilities, constructing a bypass line through one equalization basin, covering the primary clarifiers, building additional odor scrubbing facilities to treat the foul air from the covered sources and the New Rivanna Pump Station, removing the post-digestion clarifiers from service, modifying the handling, hauling and storage of biosolids on-site, cleaning the equalization basins and holding ponds, and coating the interior of the digesters. A Value Engineering Study was conducted in June 2015 to evaluate odor control design alternatives based on the preliminary design. The design for the Odor Control Improvements Project was completed in November 2015. An award of construction contract and associated engineering construction administration and inspection is anticipated early in 2016. An 18 month construction period is anticipated to begin in spring 2016 with final project completion in fall 2017. The digester coating and basin cleaning projects will be managed by RWSA staff through separate contracts.
- Interceptor Sewer and Manhole Repair: This project is used to conduct assessment of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Planned projects include condition assessments and assumed rehabilitation of the Moores Creek Interceptor, Moores Creek Relief Interceptor, Maury Hill Branch Sewer, Morey Creek Interceptor, and Powell Creek Interceptor. This project will also provide an allowance in budgeted funds to carry out future repairs. The intent of this project is to complete a condition assessment of all RWSA interceptors (except those

replaced during the period with new pipe) and perform as- needed rehabilitation work by 2020. Such period assessments of all sewer pipe reflects industry best practices and the maintenance expectations of federal and state regulators as a part of avoiding sanitary sewer overflows.

C. *Rate Stabilization Funds*

\$400,000 of rate stabilization funds will be used in FY2017 to reduce wastewater rates by \$2.92. Expected use in FY2017 is \$100,000 more than that those used in FY2016.

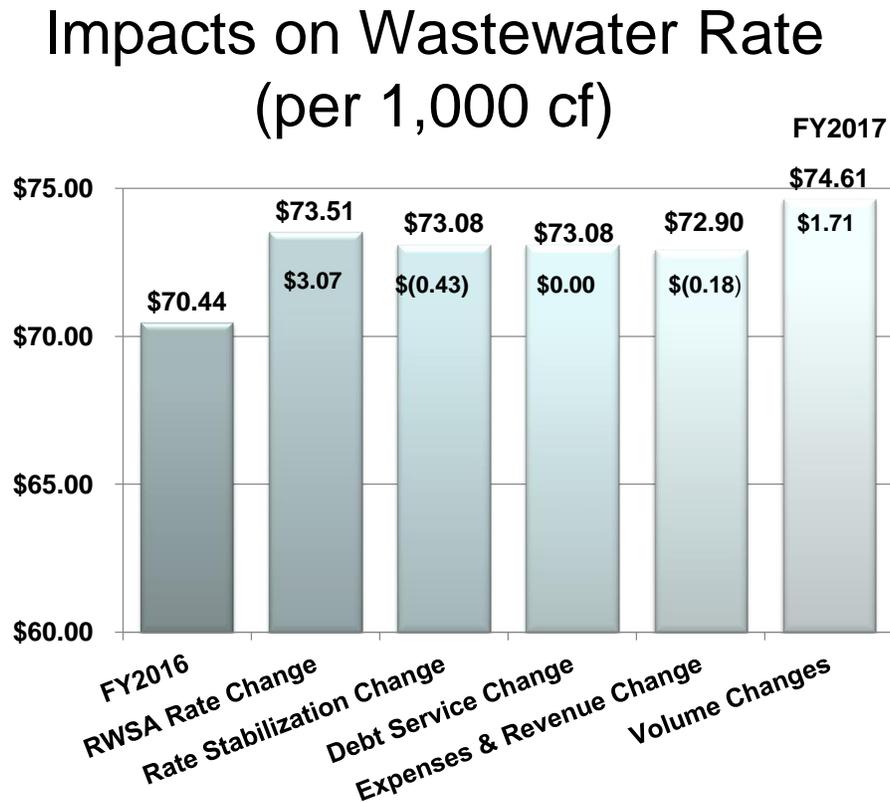
D. *Factors Influencing Wastewater Rates*

As with the Water Utility, there are several factors that influence the change in rates needed for the Wastewater Utility to operate on a self-supporting basis, including:

- Changes in wastewater treatment rates from RWSA.
- Availability of rate stabilization funds used to mitigate increases in rate increases.
- Debt service payments by the City.
- City wastewater operating expenses and revenue from other sources.
- Changes in volumes treated by RWSA or expected to be billed to our City customers and the number of customers billed,

The following chart illustrates the impact of each component the rate for FY2017.

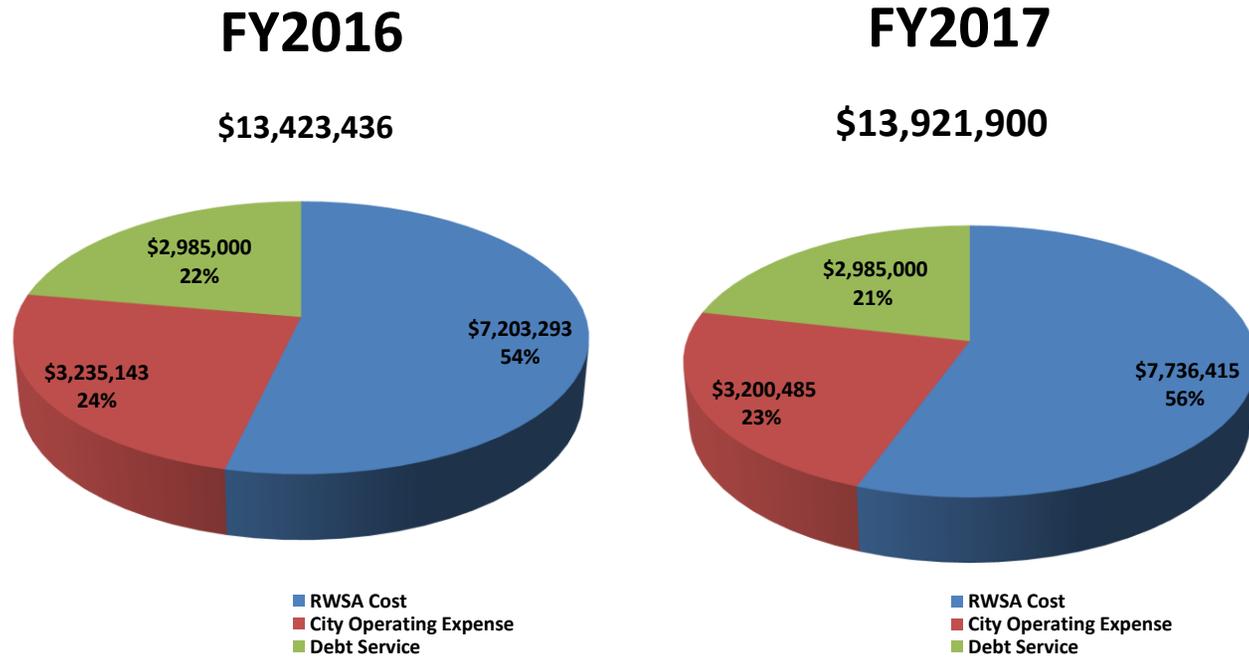
Figure 9: Components of Wastewater Rate



The increase in the treatment cost from RWSA increases the rate an additional \$3.07/mcf to \$73.51/mcf. Rate stabilization has been increased to \$400,000 causing a decrease to the rate to \$73.08, or \$0.43/mcf. Debt service remained unchanged from the FY2016 amount, \$2,985,000, thereby causing no change in the rate to customers. Changes in expenses result in a decrease in the rate of \$0.18/mcf to \$72.90/mcf. The reduction in treatment volume increase the per-unit cost necessary for the utility to break even and increases the rate \$1.71 for a final rate per mcf of \$74.61.

Figure 10: Changes in Wastewater Rate Expenses – Biennial Comparison

Wastewater Expense Comparison



Wastewater Expense Comparison:

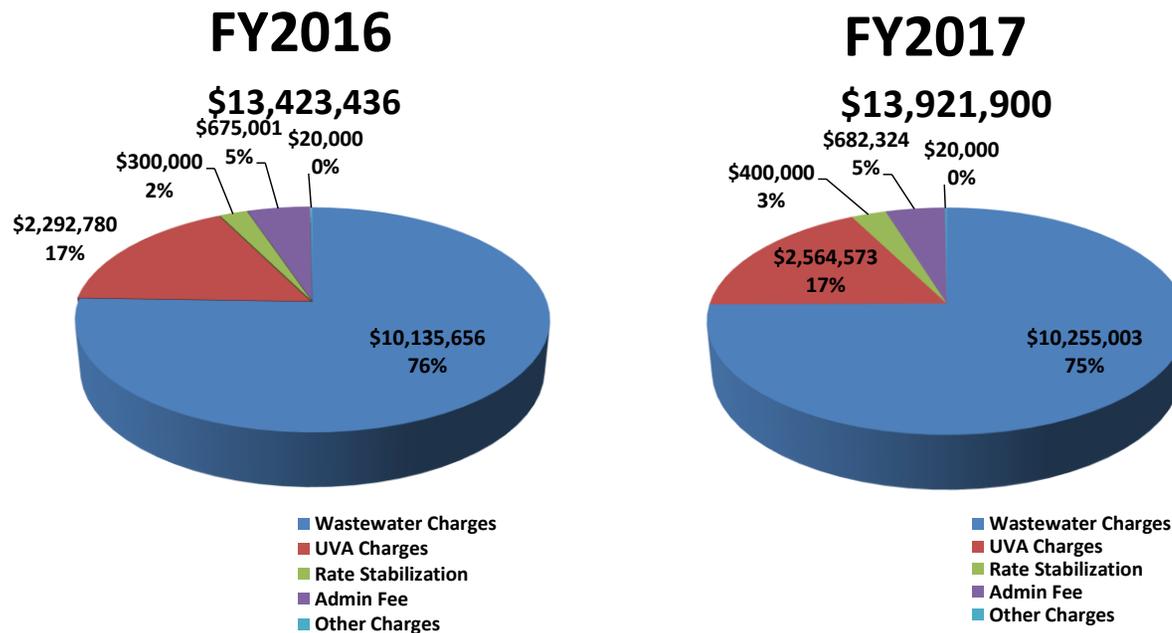
Changes in wastewater expenses occur for several reasons. The volume of wastewater generated by the City and treated by RWSA is expected to decline; however there is an increase in the RWSA costs associated with wastewater treatment, combining these two factors results in an increase of \$533,122 or 7.40% in the cost attributable to RWSA. The decline in the City's operating expense (\$34,658) is primarily due to reductions in the City's operations and maintenance budget, which are partially offset by increased costs associated with the PILOT payment and indirect costs. The PILOT payment is based on budgeted sales revenue in the prior year. The City's debt service is remaining constant at \$2,985,000 and is used to support capital projects associated with improvement projects to rehabilitate aging sewer infrastructure.

Wastewater Revenue Comparison:

Wastewater revenue is projected to increase by \$498,464 (3.71%) between FY2016 and FY2017. There are five key factors affecting this increase. These include revenue collected from City customers through wastewater charges, collections from UVa, rate stabilization, administrative fees, and other service charges. UVa's projected volume is increasing slightly to match its current usage. This will cause the expenses to UVa to increase by \$271,793 or 11.85%. Rate stabilization is increasing from \$300,000 to \$400,000. It should be noted that with rate stabilization the rate to retail customers is \$2.92 lower than it would be without using these funds. Revenue from administrative fees, the \$4 per month per account charge, are expected to increase slightly due to an increase in the customer base. Other charges (primarily finance charges associated with late payments) are projected to remain the same as last year. The remaining balance, wastewater charges collected from City customers, is expected to increase \$119,347 (1.18%).

Figure 11: Changes in Wastewater Rate Revenue – Biennial Comparison

Wastewater Revenue Comparison



E. *Rate Comparisons*

Exhibits V-A and V-B provide a comparison of customer bills at various levels under the current and adopted rates. The City has experienced significant rate increases over the past several years, particularly for wastewater.

As a point of reference, even with the rate increase the cost of water per gallon under the adopted rate is a little less than three quarters of a penny (0.73 cents). The cost of treatment of a gallon of wastewater is a penny (1 cent). It should be noted that it was fiscal year 2012 when the cost of wastewater treatment actually exceeded the cost of water for City customers. The primary reason is the increase in debt service, both from RWSA and City operations. For the single-family household using approximately 427 cf of water per month, the combined water and wastewater bill will be \$63.14. This is an increase of \$2.70 or 4.47% based on the composite rate structure. A retail customer using 1,000 cf will have a combined water and wastewater bill that will be \$137.12, an increase of \$6.31 or 4.82%.

F. *Wastewater Assistance Program*

A Wastewater Assistance Program (WWAP) was created by City Council in FY2012 to assist customers who had difficulty paying their bills due to extreme circumstances. It is recommended that \$15,000 be budgeted in FY2017 to further fund the WWAP. 145 customers received assistance in FY2015, totaling \$12,780. 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 Gas Assistance Program.

G. *Facility Fees*

City Council adopted a fee increase in FY2013 to new customers, the first since FY2009, to more accurately reflect the actual costs of providing additional capacity on wastewater treatment and interceptor lines. Based on feedback from City Council during the rate-setting process last year, staff proposed and City Council adopted that the low-income housing fee for a meter larger than 5/8", whether for water or wastewater, be 25% of the standard facility fee charged by the City. The charge was \$800 regardless of meter size. City Council adopted staff's recommendation.

No increase has been adopted for the City in FY2017.

Figure 12: Wastewater Facility Fee

Meter Size	ERC	City Wastewater Facility Fee	Adopted Low-Income Housing Fee	Change in Facility Fees
5/8"	1	\$5,350	\$800	\$0
1"	2.5	\$13,375	\$3,344	\$0
1.5"	5	\$26,750	\$6,688	\$0
2"	8	\$42,800	\$10,700	\$0
3"	15	\$80,250	\$20,063	\$0
4"	25	\$133,750	\$33,438	\$0
6"	50	\$267,500	\$66,875	\$0

H. Wastewater Utility Capital Projects

The current capital projects in each entity’s five-year capital plan are listed below. The City updates its capital plan annually with the 5 year capital plan being FY2017–FY2021. RWSA adopted its Capital Improvement Plan February 23, 2016 (fiscal years 2016-2020).

Figure 13: City/RWSA 5 Year Capital Improvement Plan for Wastewater

<u>City Capital Projects – Wastewater System</u>	<u>Projected Five Year Capital Cost</u>
Rehabilitation/Replacement Program	\$ 8,250,000
Total City Capital Wastewater	\$ 8,250,000

<u>RWSA Urban Wastewater Projects</u>	<u>Projected Five Year Capital Cost</u>
Meadowcreek Interceptor Closeout.....	\$ 409,822
Schenks’ Branch Interceptor.....	\$ 5,540,379
Rivanna Pump Station and Tunnel.....	\$ 22,615,999
Interceptor Sewer and Manhole Repair.....	\$ 1,337,389
Sanitary Sewer Model Update	\$ 209,360
Administration Building Repairs.....	\$ 266,002
Bridge Repairs.....	\$ 264,510
Moore’s Creek WWTP Odor Control – Phase 2.....	\$ 8,977,524
Moore’s Creek WWTP Second Centrifuge.....	\$ 1,025,000
Moore’s Creek WWTP Roof Replacements.....	\$ 903,000

Total RWSA Urban Wastewater (omits Crozet Projects) \$ 41,548,985

I. Exhibits

**EXHIBIT V-A
WASTEWATER UTILITY
TWO YEAR BUDGET COMPARISON**

<u>Revenue Required</u>	<u>FY2016 BUDGET</u>	<u>FY2017 BUDGET</u>	<u>PERCENT CHANGE</u>
Cost of treatment	\$ 7,203,293	\$ 7,736,415	7.40 %
Operations & maintenance	2,010,816	1,843,614	(8.32)
Payment in lieu of taxes	698,358	786,206	12.58
Indirect costs	111,595	128,281	14.95
Utility billing office budget	276,650	275,430	(0.44)
Meter reading budget	60,645	62,291	2.72
Sewer Surcharge	25,000	25,000	0.00
Wastewater assistance program	25,000	15,000	(40.00)
Vehicle replacement	-	36,423	
Computer system support	27,080	28,240	4.28
Debt service funding	<u>\$ 2,985,000</u>	<u>\$ 2,985,000</u>	0.00
Total operations	\$ 13,423,436	\$ 13,921,900	3.71 %
Less revenues not related to sewer rates:			
Finance charges for late payments	\$ 20,000	\$ 20,000	0.00
Rate stabilization	<u>\$ 300,000</u>	<u>\$ 400,000</u>	33.33
Total	\$ 320,000	\$ 420,000	31.25 %
Revenue required from sewer charges	\$ 13,103,436	\$ 13,501,900	3.04 %
LESS UVa central charges	2,292,780	2,564,573	11.85 %
Balance to be recovered by City Water Sales	\$ 10,810,656	\$ 10,937,327	1.17 %
Required Percent Increase in Overall Rates	13.91%	5.54%	
Minimum Monthly Charge	4.00	4.00	0.00 %
Minimum charges	<u>\$ 675,001</u>	<u>\$ 682,324</u>	1.08 %
Balance to be recovered through rate above minimum	\$ 10,135,656	\$ 10,255,003	1.18 %
Volume (MCF) above minimum	143,900	137,439	(4.49) %
Rate per MCF	<u>\$ 70.44</u>	<u>\$ 74.61</u>	5.93 %

**EXHIBIT V-B
WASTEWATER RATE CALCULATION
FY2017**

	MCF	AMOUNT
Revenue required:		
Cost of treatment	180,189	\$ 7,736,415
Operations & maintenance		1,843,614
Payment in lieu of taxes		786,206
Indirect costs		128,281
Utility billing office budget		275,430
Meter reading budget		62,291
Sewer Surcharge		25,000
Wastewater assistance program		15,000
Vehicle replacement		36,423
Computer system support		28,240
Debt service funding		\$ 2,985,000
 Total revenue required		 \$ 13,921,900
 Less revenues not related to usage:		
Finance charges for late payments		\$ 20,000
Rate Stabilization		\$ 400,000
 Total other revenues		 \$ 420,000
 Revenue required from sewer charges		 \$ 13,501,900
 Less fixed sewer charges :		
U Va central charges ¹	\$ 59.99	42,750
Minimum charges @	\$ 4.00	0
		682,324
 Total fixed sewer charges	 42,750	 \$ 3,246,897
 Balance to recover through rate above minimum	 137,439	 \$ 10,255,003
 Rate required per MCF above minimum		 \$ 74.61

Note: 1 According to the 1981 agreement, UVA is charged 100% of the wholesale rate the City pays to RWSA plus 50% of the general operation, administrative overhead, assessment and collection and capital outlay cost components of the City's retail rate.

**EXHIBIT V-C
WASTEWATER UTILITY
PROJECTED REVENUE REQUIREMENTS**

<u>Funds Required</u>	<u>FY2016</u>	<u>FY2017</u>
Cost of treatment	\$ 7,203,293	\$ 7,736,415
Operations & maintenance	1,937,210	1,843,614
Payment in lieu of taxes	698,358	786,206
Indirect costs	111,595	128,281
Utility billing office budget	276,650	275,430
Meter reading budget	60,645	62,291
Sewer Surcharge	25,000	25,000
Wastewater assistance program	25,000	15,000
Vehicle replacement	73,606	36,423
Computer system support	27,080	28,240
Debt service funding	<u>\$ 2,985,000</u>	<u>\$ 2,985,000</u>
 Total Funds Required	 \$ 13,423,436	 \$ 13,921,900
 <u>Funds Provided</u>		
Sewer charges	\$ 13,103,436	\$ 13,501,900
Finance charges for late payments	20,000	20,000
Rate stabilization	<u>\$ 300,000</u>	<u>\$ 400,000</u>
 Total Funds Provided	 <u>\$ 13,423,436</u>	 <u>\$ 13,921,900</u>
 Gain (Loss)	 <u>\$ -</u>	 <u>\$ -</u>

**EXHIBIT V-D
WASTEWATER RATE COMPARISON**

MONTHLY USAGE (CUBIC FEET)	\$ 4.00 / \$ 70.44 FY2016	\$ 4.00 / \$ 74.61 FY2017	DOLLAR CHANGE	PERCENT CHANGE
0	\$ 4.00	\$ 4.00	\$ -	0.00 %
200	18.09	18.92	0.83	4.59
267	22.81	23.92	1.11	4.87
300	25.13	26.38	1.25	4.97
427	34.08	35.86	1.78	5.22
750	56.83	59.96	3.13	5.51
1,000	74.44	78.61	4.17	5.60
2,000	144.88	153.22	8.34	5.76
3,000	215.32	227.83	12.51	5.81
5,000	356.20	377.05	20.85	5.85
10,000	708.40	750.10	41.70	5.89
100,000	\$ 7,048.00	\$ 7,465.00	\$ 417.00	5.92 %

Note: Average single-family customer uses 427 CF per month.

SECTION VI: COMBINED WATER AND WASTEWATER CHARGES

The following charts show the impact on customers given the newly adopted water and wastewater rates for the upcoming fiscal year. Exhibit VI-A shows the impact of water usage on the combined bill using the composite water rate. Exhibit VI-B shows the seasonal impact of water usage on the customer bill given the combined rates. The final exhibit, Exhibit VI-C, shows the combined facility fees.

EXHIBIT VI-A

COMBINED WATER AND SEWER BILL COMPARISON
CURRENT FY2016 AND FY2017 RATES
USING COMPOSITE WATER RATES

Composite Water Rates

	FY2016 Rates			FY2017 Rates			Dollar Increase (Decrease)	Percent Increase (Decrease)
	Water	Sewer	Total	Water	Sewer	Total		
Rate Schedule								
Customer Charge	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00		
Charge per mcf	\$ 52.37	\$ 70.44	\$ 122.81	\$ 54.51	\$ 74.61	\$ 129.12		
Bill Amounts								
<u>Cu Ft</u>								
0	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00	\$ -	0.00 %
200	14.47	18.09	32.56	14.90	18.92	33.82	1.26	3.87
267	17.98	22.81	40.79	18.55	23.92	42.47	1.68	4.12
300	19.71	25.13	44.84	20.35	26.38	46.73	1.89	4.21
427	26.36	34.08	60.44	27.28	35.86	63.14	2.70	4.47
750	43.28	56.83	100.11	44.88	59.96	104.84	4.73	4.72
1,000	56.37	74.44	130.81	58.51	78.61	137.12	6.31	4.82
1,500	82.56	109.66	192.22	85.77	115.92	201.69	9.47	4.93
2,000	108.74	144.88	253.62	113.02	153.22	266.24	12.62	4.98
3,000	161.11	215.32	376.43	167.53	227.83	395.36	18.93	5.03
5,000	265.85	356.20	622.05	276.55	377.05	653.60	31.55	5.07
10,000	527.70	708.40	1,236.10	549.10	750.10	1,299.20	63.10	5.10
100,000	\$ 5,241.00	\$ 7,048.00	\$ 12,289.00	\$ 5,455.00	\$ 7,465.00	\$ 12,920.00	\$ 631.00	5.13

Note: Average single-family customer uses 427 CF per month.

**EXHIBIT VI-B
COMBINED WATER AND SEWER BILL COMPARISON
CURRENT FY2016 AND FY2017 RATES**

Using Winter Rates

	FY2016 Rates			FY2017 Rates			Increase (Decrease)	Increase (Decrease)
	Water	Sewer	Total	Water	Sewer	Total		
Rate Schedule								
Customer Charge	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00		
Charge per mcf	\$ 46.39	\$ 70.44	\$ 116.83	\$ 48.29	\$ 74.61	\$ 122.90		
Bill Amounts								
Cu Ft								
0	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00	\$ -	0.00 %
200	13.28	18.09	31.37	13.66	18.92	32.58	1.21	3.86
267	16.39	22.81	39.20	16.89	23.92	40.81	1.61	4.11
300	17.92	25.13	43.05	18.49	26.38	44.87	1.82	4.23
427	23.81	34.08	57.89	24.62	35.86	60.48	2.59	4.47
750	38.79	56.83	95.62	40.22	59.96	100.18	4.56	4.77
1,000	50.39	74.44	124.83	52.29	78.61	130.90	6.07	4.86
1,500	73.59	109.66	183.25	76.44	115.92	192.36	9.11	4.97
2,000	96.78	144.88	241.66	100.59	153.22	253.81	12.15	5.03
3,000	143.17	215.32	358.49	148.88	227.83	376.71	18.22	5.08
5,000	235.95	356.20	592.15	245.47	377.05	622.52	30.37	5.13
10,000	467.90	708.40	1,176.30	486.94	750.10	1,237.04	60.74	5.16
100,000	\$ 4,643.00	\$ 7,048.00	\$ 11,691.00	\$ 4,833.43	\$ 7,465.00	\$ 12,298.43	\$ 607.43	5.20

Using Summer Rates

	FY2016 Rates			FY2017 Rates			Increase (Decrease)	Increase (Decrease)
	Water	Sewer	Total	Water	Sewer	Total		
Rate Schedule								
Customer Charge	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00		
Charge per mcf	\$ 60.31	\$ 70.44	\$ 130.75	\$ 62.78	\$ 74.61	\$ 137.39		
Bill Amounts								
Cu Ft								
0	\$ 4.00	\$ 4.00	\$ 8.00	\$ 4.00	\$ 4.00	\$ 8.00	\$ -	0.00 %
200	16.06	18.09	34.15	16.56	18.92	35.48	1.33	3.89
267	20.10	22.81	42.91	20.76	23.92	44.68	1.77	4.12
300	22.09	25.13	47.22	22.83	26.38	49.21	1.99	4.21
427	29.75	34.08	63.83	30.81	35.86	66.67	2.84	4.45
750	49.23	56.83	106.06	51.09	59.96	111.05	4.99	4.70
1,000	64.31	74.44	138.75	66.78	78.61	145.39	6.64	4.79
1,500	94.47	109.66	204.13	98.17	115.92	214.09	9.96	4.88
2,000	124.62	144.88	269.50	129.56	153.22	282.78	13.28	4.93
3,000	184.93	215.32	400.25	192.34	227.83	420.17	19.92	4.98
5,000	305.55	356.20	661.75	317.90	377.05	694.95	33.20	5.02
10,000	607.10	708.40	1,315.50	631.80	750.10	1,381.90	66.40	5.05
100,000	\$ 6,035.00	\$ 7,048.00	\$ 13,083.00	\$ 6,282.00	\$ 7,465.00	\$ 13,747.00	\$ 664.00	5.08

Note: Average single-family customer uses 427 CF per month.

EXHIBIT VI-C

FY2017 FACILITY FEES

Meter Size	ERC	Water Facility Fee	Low-Income Water Facility Fee	Chage in Water Facility Fees	Wastewater Facility Fee	Low-Income Water Facility Fee	Chage in Wastewater Facility Fees	Combined City Facility Fees	Combined Low-Income Facility Fees	Change in Facility Fees
5/8"	1	\$3,100	\$800	\$0	\$5,350	\$800	\$0	\$8,450	\$1,600	\$0
1"	2.5	\$7,750	\$1,938	\$0	\$13,375	\$3,344	\$0	\$21,125	\$5,281	\$0
1.5"	5	\$15,500	\$3,875	\$0	\$26,750	\$6,688	\$0	\$42,250	\$10,563	\$0
2"	8	\$24,800	\$6,200	\$0	\$42,800	\$10,700	\$0	\$67,600	\$16,900	\$0
3"	15	\$46,500	\$11,625	\$0	\$80,250	\$20,063	\$0	\$126,750	\$31,688	\$0
4"	25	\$77,500	\$19,375	\$0	\$133,750	\$33,438	\$0	\$211,250	\$52,813	\$0
6"	50	\$155,000	\$38,750	\$0	\$267,500	\$66,875	\$0	\$422,500	\$105,625	\$0

SECTION VII: STORMWATER UTILITY

A. Stormwater Utility Fee Rate Structure

The Stormwater Utility fee rate was adopted in March, 2013 when City Council approved the Stormwater Utility Ordinance. The rate is projected to stay flat for the period FY2014-FY2018 per the multi-year operations budget and five-year capital plan approved by City Council during Stormwater Utility Ordinance adoption. The rate will be evaluated during the planning and development of the FY2019-FY2023 multi-year operations budget and 5 year capital plan. Infrastructure costs are paid for with a combination of fee revenues and bond sales over the five year period.

B. Fiscal Year 2017 Budget

The total Stormwater Utility expenditures of approximately \$2.777 million have increased by approximately 31% in the amount of \$869,000. This is the result of planned bond issue for FY2017 to fund the design and permitting of drainage and stormwater quality projects.

C. Credit Program and Charlottesville Conservation Assistance Program

The Credit Program and Charlottesville Conservation Assistance Program (CCAP) were adopted by City Council in FY2014. 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 can apply for and receive a credit towards their stormwater utility fee ranging from 20% to 100% minus one billing unit for the impervious area treated by the facility. The Credit Program is budgeted at \$50,000 a year.

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 an eligible water resources stewardship project. For a description of the program and a list of potential projects please go to <http://tjswcd.org/vcap.php>. CCAP is budgeted at \$32,000 a year.

D. 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 paid from the General Fund, not

Stormwater Utility funds. The program provides a 60% to 100% reduction in the Stormwater Utility Fee for residents 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 Tax Grant Program (CHAP).

E. Stormwater Utility Capital Projects

The current capital projects in each entity’s five-year capital plan are listed below. The Stormwater Utility capital plan was adopted by Council when the Stormwater Utility Ordinance was approved in March of 2013. The five-year capital plan for the Stormwater Utility is for the period FY2014–FY2018.

Figure 14: Five-Year Capital Improvement Plan for Stormwater

<u>City Capital Projects – Wastewater System</u>	<u>Projected Five-Year Capital Cost</u>
Design/Permitting for Drainage/ Stormwater Improvement Projects	\$ 700,000
Water Resources Master Plan	\$ 450,000
Major Capital Drainage Improvement Project Construction	\$ 1,200,000
Stormwater Quality Retrofit Project Construction	\$ 800,000
Neighborhood Drainage Improvements	\$ 250,000
Rehabilitation Program	<u>\$ 4,500,000</u>
Total City Capital Stormwater	\$ 7,900,000

SECTION VIII: GAS UTILITY

A. *Background*

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



Natural gas is domestically abundant with 93% of the natural gas we use in the United States comes from North America as well as being a clean and green source. It has fewer impurities, is less chemically complex and its combustion results in fewer greenhouse gases than coal or oil since when it is burned completely the principal products of combustion are carbon dioxide and water vapor, thus reducing our carbon footprint. Due to this higher efficiency, natural gas is used not only directly for

heating and cooking but also for generating electricity, as natural gas emits 52 to 56 percent less greenhouse gas than coal for the same amount of electricity. The direct use of natural gas in homes and businesses achieves 92% energy efficiency. Thus, natural gas is preferred by many people, but the market area is restricted to those geographic areas that are served by distribution lines. To get 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.

The Charlottesville gas system currently provides service to an area that includes all of Charlottesville and parts of Albemarle County consisting of 329 miles of main. As of March, 2016, there are approximately 19,846 customers (12,175 in the City and 7,653 in the County).

This includes 315 new customers over last year, as well as another 77 finished service connections that will become customers once the home or business is occupied. This is an increase of 392 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.

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 large-volume 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 and, therefore, 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. For fiscal year 2015 the City's gas consumption (by volume) was approximately:

72%	firm customers
28%	interruptible
<u><1%</u>	air conditioning
100%	

B. Marketing Efforts and New Business

Yearly home sales for 2015 in Greater Charlottesville were up 10.6% compared to 2014 sales. This marked the third consecutive year with gains in sales as the 3,282 homes sold in 2015 achieved the highest level since 2006. Also, the median sales price for 2015 remained steady with the median price of \$270,000, according to a year-end real estate report from the Charlottesville Area Association of Realtors (CAAR).

The recent financial turmoil changed the new construction market in Charlottesville. Before the recession there were dozens of local homebuilders; now there are a handful of select builders. Fortunately, the remaining premium builders are building in large quantities and using natural gas as a standard in the majority of their units. In 2015, four builders accounted for over 74% of residential gas applications: Ryan Homes, Southern Development, Craig Builders, and Stanley Martin.

The home improvement market is another niche where we have been concentrating our sales efforts. The large difference of energy cost between natural gas and oil/propane helps homeowners to offset the initial cost of conversion. This market accounted for more than 13% of applications for residential gas service in 2015.

Figure 15: New Services Completed and Planned

Projects: 1=County; 2=City

Residential

- Avemore Phase IV – 46 townhomes (1)
- Briarwood – 665 residences (1)
- Burnett Commons Phase II – 45 lots (2)
- Burnett Commons Phase I – 50 lots (2)
- Estes Park - 68-unit (1)
- Hyland Ridge – 84 luxury single homes (1)
- Lochlyn Hill – 1st phase (2)
- Riverside Village -69 residential units (1)
- Out of Bounds – 56 Single family homes and Townhomes (1)
- West Monacan Dr. – Main Extension (1)

Commercial

- Albemarle Rehabilitation Center – senior care (1)
- Chick-fil-A Pantops – restaurant (1)
- Church of Savior (1)
- Costco at Stonefield (1)
- Fifth Street Station - retail (1)
- Jim Price Chevrolet – retail (1)
- King Lumber Redevelopment – brewery and retail (2)

- Marriot Residence Inn at West Main (2)
- Qdoba at Stonefield – restaurant (1)
- Sultan Kebobs – restaurant (1)
- UVa Recycling Center (1)
- Virginia Asphalt Services (1)
- Wegmans – grocery store (1)

Potential new projects include:

Residential

- Belvedere 2nd phase – 120 lots (1)
- Berkeley Main Extension – main extension for existing homes (1)
- Branchlands Village – retirement home (1)
- Cascadia - 50 units (1)
- Dunlora - 5th phase – 20 lots (2)
- Free State Run – 27 lots (1)
- Lochlyn Hill – 2nd phase (2)
- Naylor Street PUD – 7 lots (2)
- The Uncommon – mixed-use residential (2)
- Water Street Promenade – Old Coal Tower Apartments (2)

Commercial

- 29th Place – retail (1)
- BJ's at Stonefield – restaurant (1)
- Belvedere Station – retail and restaurant (1)
- Fulton Bank (2)
- Kroger Marketplace at Seminole Square (2)
- Market Plaza – 69 unit mixed used (2)
- McIntire Square (2)
- Northtown – retail and offices (1)
- Sycamore House – hotel (2)
- The Standard - mixed used (2)
- YMCA McIntire Park (2)

Communication Efforts

Gas Safety Public Awareness Program

In 2007, in order to comply with the RP 1162 regulation, we launched a comprehensive gas safety program featuring our mascot, Flicker the Flame. After the San Bruno, CA natural gas tragedy in 2010, we decided to intensify our preventive gas safety communication efforts. In June 2014, we received the results of a follow-up survey, and the outcome was very positive. The gas safety survey showed that 80% of residents within the service area would recognize the smell of rotten eggs as natural gas, versus 39% as reported in 2007. Our actions in 2015 included:

- **“Dig with Care” Program** – Although, most commercial excavators are aware of “call VA811 before digging” law, the number of third party excavation damage to our gas line are on the rise. Part of the problem, lies in 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 radios 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 Celebration** – On August 11th, Charlottesville Gas hosted its first annual VA811 Day event, celebrating safe excavation practices. We featured a live radio DJ broadcast, distributed giveaways, food, educational materials, and received local media press coverage. Within three hours, we interacted with over 50 individuals to discuss the importance of the 811 service and to personally thank each attendee for his or her willingness to learn more about safety.
 - **Distribution of VA 811 Kits** - We started a new outreach program to local excavators and construction workers. Staff visited construction sites and handed out VA 811 Kits that are comprised of a VA 811 T-Shirt, a VA 811 bumper sticker, and a safe excavation guide
 - **Excavation Safety Training** – We hosted a special training for local excavators, plumbers and building inspectors. The 1-hour presentation was led by Frank Hudik of the State Corporation Commission (SCC).

“Dig with Care” results:

- Since the “Dig with Care” program was launched, we experienced a 65% reduction in gas line damage caused by third party excavators (from 2.83/1000 Miss Utility tickets in 2013 to 1.82/1000 Miss Utility tickets in 2015). In 2015, The American Public Gas Association

selected our “Dig with Care” program as the winner of the **2015 APGA Marketing & Sales Awards – category “Consumer Education”**.

- 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 and, 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.
- Improved gas safety flyer - This bilingual bill stuffer featured a more user friendly lay-out and a natural gas scent scratch-n-sniff square. To measure the effectiveness of this action, we launched a contest. Our customers could test their gas safety knowledge by participating in a short quiz on our webpage for a chance to win a prize. In 2015, we had 310 participants that voluntarily replied to the survey.
- Intensified outreach programs - We targeted events with high attendance such as UVa baseball games, KidVention, Holiday Heritage Parade and the WVPT Kids Book Festival. 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 2015 school year, the Flicker @ your Classroom and Summer Camp programs reached over 350 children. We received worksheets, letters and thank you notes from the program participants that document the children are learning the key points of gas safety.

Gas Safety Public Awareness Program

Multimedia Materials



TV Spot



Jingle



Flyer with natural gas scent

All promotional material created in-house (no production cost)

Outreach Programs



UVA Athletic Events



Holiday Parade



VA 811 Kit Distribution



Flicker @ your classroom



Gas Marketing Program

Based on a recent customer survey, we found out 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 new TV spot began, we experienced a 45% increase in website visitors. We also noticed that several inquiries are referring to the new TV ad, and asking for more information about the free installation offer.

In November 2010, we launched the Flicker the Flame Facebook page. By March 2016, the page had 785 friends. With this initiative, we hope to create an open dialogue with our customers as well as with our Flicker fans.

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.

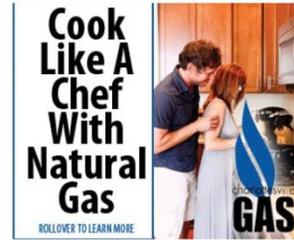
Gas Marketing Program

Multimedia Materials

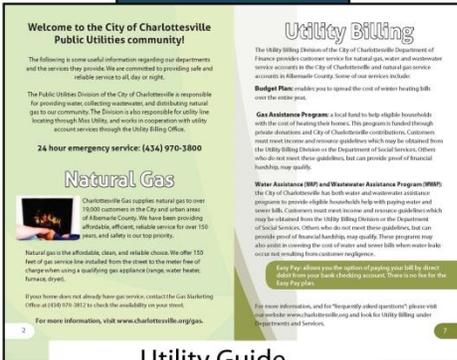
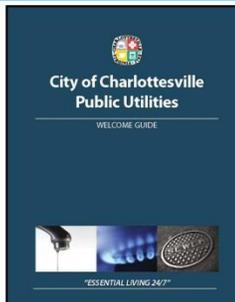
Online Campaign



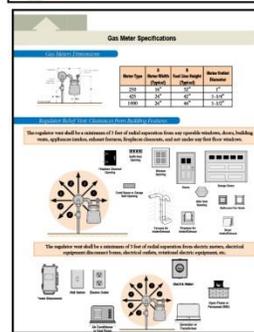
TV Spot



Print Material



Utility Guide



Postcards

Facebook



C. Review of Fiscal Year 2016 Performance

When base rates are determined each year, there are always two variables that cannot be predicted. The first is the severity of the winter weather and the resulting heating demand, and the second is the wholesale cost of gas. This winter was warmer than last year resulting in a lower gas usage.

Base rates for the year include both a gas cost component based on actual wholesale prices in effect as of March, 2016 and budgeted operating costs for the year. The operating cost component remains fixed for the year, but the gas cost component is adjusted monthly through the Purchased Gas Adjustment (PGA) to reflect the actual cost of gas for the month. Rates for the current year were designed to recover the FY2017 budget on a break-even basis.

Natural gas commodity prices continue to be extremely volatile. Prices on the New York Mercantile Exchange (NYMEX) have ranged from \$2.886/dth to \$1.711/dth in the last twelve months. Over the past months, the NYMEX monthly gas commodity prices have averaged \$1.484/dth less than the prior twelve months. However, current prices for March 2016 are lower (\$1.711/dth) than they were in March 2015 (\$2.894/dth).

Other energy related fuels such as oil, gasoline, propane, coal and electricity have varied widely in price as well. Crude Oil prices have ranged from \$31.62 - \$60.24 per oil barrel (BBL) in the past twelve months and are currently at \$32.62/BBL. Coal prices have increased this year ranging from \$42.05/ton – 60.70/ton. Electricity prices have been somewhat less volatile. Electricity for home heating, although typically more expensive than natural gas, is becoming less competitive due to lower gas prices.

Sales to the firm customers are projected to be lower than the FY2016 forecast. The firm customers continued to use less per customer on a weather-adjusted annual basis. This is part of a nationwide trend being driven by improved appliance efficiency, home energy efficiency improvements and conscious conservation efforts as a reaction to high gas commodity prices. Sales to the Interruptible customers have remained steady, if the University of Virginia's Power Plant is removed from the equation. This is usually linked to the market demand for their products, conservation and efficiency efforts and/or alternate fuel competition.

Sales to the UVa Power Plant were greater than forecasted. The University of Virginia increased their gas consumption over the winter months due to using more gas than coal.

D. Fiscal Year 2017 Budget, Estimated Gas Sales and Rates

Budget

The operating budget for fiscal year 2017 was used in these rate calculations.

Estimated Gas Sales

For fiscal year 2017, we are projecting total gas flows to the City of 2,813,552 dth. This lower gas purchase volume and anticipated sales was offset by a slight decrease in the operating budget and a decrease in contract costs, resulting in decreasing rates.

Gas flows this year were forecast using gas consumption factors that have been correlated to the local climatological data. This is an inexact process, and forecast flows will continue to vary for similar weather conditions.

Interruptible rates are forecast to remain fairly flat based on historical consumption and input from the large customers, while our small volume transportation customer is forecasted to be the same as last year. The University of Virginia estimated usage in FY2017 of 977,000 dth (526,000 as a large volume transport customer and 451,000 as an interruptible customer) is higher than last year.

Total flow estimates include an allowance of 2% for unaccounted for gas. Actual gas system losses for the past year were less than 2%. It is common, however, to design rates assuming a 1-2% loss. In FY2017 as in previous years, the conservative assumption of 2% loss has been used.

Adopted Rates

Rates for fiscal year 2017 are based on wholesale gas rates as of March 1, 2016, the City's operating budget and projected sales volume for the year. The PGA in effect for March 2016 is included in the rates, and is reduced to zero as a starting point for next year. These rates will become base rates for next year, and will be adjusted up or down as needed to reflect monthly changes in actual gas cost.

Firm rates for July 1, 2016 are 12.83% lower for the typical firm customer, who uses 8,000 cf, than actual rates for March, 2016. The base rate increase includes a non-gas operating cost decrease of about 1.71% in budgeted expenses as well as a sales volume decrease resulting in a 1.15% increase in the base rate. Finally the contract price changed resulting in a decrease of

12.27%. The major changes in budgeted combined non-gas operating costs components include the following:

- The total non-gas operating budget decreased by \$239,903 from FY2016 to FY2017, reflecting an decrease of 1.71%,
- Sales volume for firm customers decreased in FY2017 by 85,694 from FY2016 causing a 1.15% increase,
- Decrease in the contract price of 12.27%.

Interruptible rates are about 19.82% lower than current actual rates for the typical interruptible customer.

E. Gas Rate Comparison

Exhibit VIII-E provides a comparison of the City's current firm gas rates with other Virginia gas companies. It is difficult to compare rates in the environment of rapidly changing wholesale gas costs. The exhibits reflect a snapshot of rates for March 2016. No information is available for potential changes to other gas system rates. Because the gas utilities have different ways of passing through increases in wholesale gas cost, the relative competitiveness of these systems is constantly changing. Firm industrial rates are more difficult to compare since many systems incorporate a monthly demand charge into the rate. Interruptible rates are also very difficult to compare from system to system. Many surrounding systems do not have a published interruptible rate and others routinely discount from a published rate on a monthly basis. Rate comparisons are provided only for general information and trend determination.

F. 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 the last twelve months, the City has provided 344 households with over \$79,651 in assistance. Contributions from area businesses and residents help to supplement the amount of money that is available for assistance. The FY2017 budget includes \$60,000 in new funding plus carryovers from prior years and should be sufficient to fund the program in FY2017.

G. Programmable Thermostat Rebate Program

The thermostat rebate program provides a rebate of up to \$100 per account to any customer who purchases and installs a programmable thermostat. 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, 83 customers have received rebates totaling \$7,443.80. Next year's budget includes \$10,000 to continue funding this program.

H. Summary of Recommendations

Exhibit VIII-C reflects the FY2016 Base Rate, the March 2016 rate (with the PGA applied), and the FY2017 Base Rates. The rates for the Firm, Interruptible, Transportation, Air Conditioning, and Gas Lighting classifications are illustrated on the exhibit.

The gas rates in this report are summarized as follows:

1. Rate schedules presented in Exhibit VIII-C; and
2. A base unit cost for firm gas of \$3.2613 per dth and a base unit cost for interruptible gas of \$1.9814 per dth.

Impact on Average Customer

Rates for July 1, 2016 are 12.83% lower for the average typical firm customer, who uses 8,000 cf, than the rates for March, 2016. Firm customers include various customers (residential, commercial and industrial) for whom gas supplies are guaranteed to be available all year long without interruption. The actual percent decrease is dependent upon usage.

- For a representative residential monthly consumption of 8,000 cf, the monthly bill will decrease from \$80.47 to \$70.15, a decrease of 12.83%.
- The average single-family household, who consumes 4,878 cf of gas, will see the monthly bill decrease from \$54.79 to \$48.22, a reduction of 11.99%.

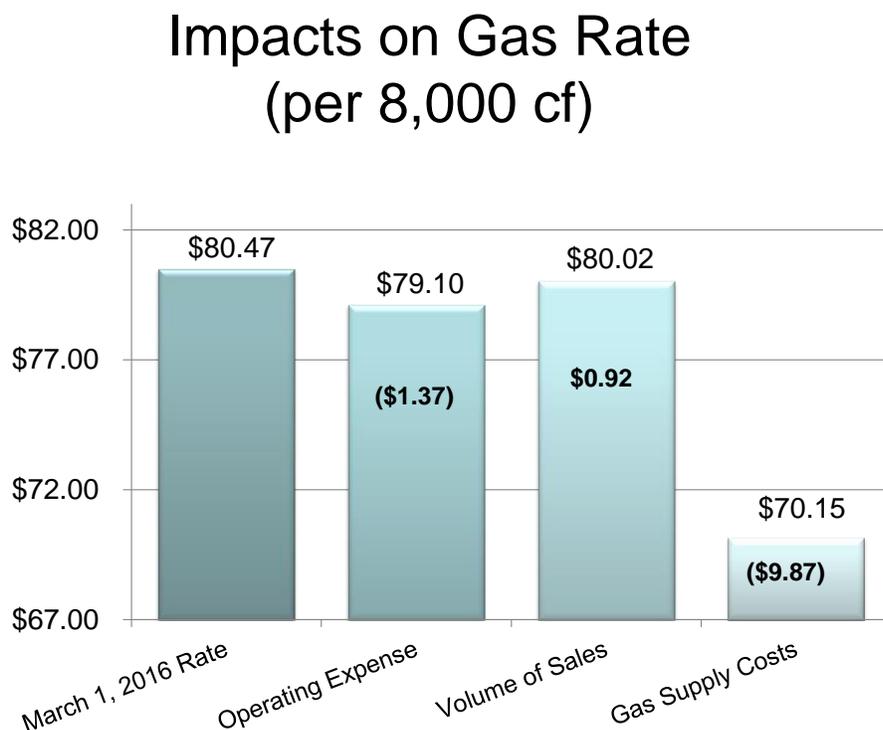
I. Factors Influencing the Gas Rate

The City of Charlottesville's gas rate is influenced by the operating budget, sales volume, contract price, and any additional revenue received by the gas utility.

Continued growth in our customer base and a volatile gas wholesale market contribute to the 12.82% decrease to firm customers. The incremental impacts are shown below:

- The total non-gas operating budget decreased by \$239,903 from FY2016 to FY2017, or 1.70%, resulting in a \$1.37 decrease due to decreased operating expenses.
- The sales volume for firm customers decreased in FY2017 by 85,694 dth causing a 1.16% increase in the gas rate producing a \$0.92 increase.
- The total gas supply costs decreased by 12.33% resulting in a \$9.87 decrease and a new rate of \$70.15.

Figure 16: Components of Gas Rate



J. Exhibits

**EXHIBIT VIII-A
GAS UTILITY
TWO YEAR BUDGET COMPARISON**

<u>Revenue Requirements:</u>	FY2016 BUDGET	FY2017 BUDGET
Gas Purchased	\$ 11,673,035	\$ 8,220,636
Operations & Maintenance	7,880,090	8,055,489
Payment in Lieu of Taxes	3,240,139	3,276,503
Indirect Costs	438,134	468,384
Utility billing office budget	1,106,599	1,101,720
Meter Reading	242,578	249,416
Bad Debt	35,000	35,000
New Construction Projects	403,124	419,249
Debt Service Funding	900,000	400,000
Total Revenue Required for operations	\$ 25,918,699	\$ 22,226,397
<u>Revenue Provided by Operations:</u>		
Gas Sales	\$ 25,593,699	\$ 21,901,397
Other Operating Revenue	325,000	325,000
<u>Total Revenue Provided by Operations</u>	\$ 25,918,699	\$ 22,226,397
Gain (Loss) From Operations	\$ -	\$ -

**EXHIBIT VIII-B
GAS RATE CALCULATION
FY2017**

Revenue Required:	<u>dth</u>	<u>Amount</u>
Gas Purchased	2,813,552	\$ 8,220,636
General Operations		2,580,782
Distribution Lines		2,309,304
Gas Supply - Other		497,722
Gas Service		879,774
Payment in Lieu of Taxes		3,276,503
Indirect Costs		468,384
Utility billing office budget		1,101,720
Meter Reading		249,416
Bad Debt		35,000
Marketing		50,000
City Yard Evaluation		100,000
Integrated Information System		1,000,000
Capital Projects - New Business		419,249
Gas Assistance Program Contribution		60,000
Thermostat Replacement Program		10,000
Debt Service Funding - Combined		400,000
Environmental Administration		353,007
Vehicle Replacement		214,900
 Total Revenue Required		 <u>\$ 22,226,397</u>
 Less Other Funding Sources:		
Air Conditioning Sales	10,000	\$ 71,571
Transportation Fees	559,107	1,567,648
Other Revenue		<u>325,000</u>
 Total	 569,107	 \$ 1,964,219
 Revenue Required from Firm and Interruptible Customers	 2,244,445	 \$ 20,262,178
 Estimated Sales:		
Air Conditioning	10,000	
Gas loss	55,168	
Firm Sales	2,168,101	\$ 17,715,975
Interruptible Sales	<u>580,283</u>	<u>2,546,203</u>
 Total Estimated Sales	 2,813,552	 \$ 20,262,178

**Exhibit VIII-C
GAS UTILITY
FY2016**

	<u>7/1/2015 Base Rate</u>	<u>3/1/2016 PGA</u>	<u>*Actual 3/1/2016 Rates</u>	<u>Adopted Rates FY17</u>
<u>FIRM</u>				
Customer Charge (Minimum)	\$ 10.00		\$ 10.00	\$ 10.00
First 3,000 Cu Ft, Per MCF	9.4665	\$ (0.0657)	9.4008	8.0201
Next 3,000 Cu Ft, Per MCF	8.8985	(0.0657)	8.8328	7.5389
Next 144,000 Cu Ft, Per MCF	7.9518	(0.0657)	7.8861	6.7369
Over 150,000 Cu Ft, Per MCF	7.7625	(0.0657)	7.6968	6.5765
<u>INTERRUPTIBLE</u>				
Customer Charge (Minimum)	\$ 60.00		\$ 60.00	\$ 60.00
First 600 MCF, Per MCF	6.9358	(0.0050)	6.9308	5.6652
Over 600 MCF, Per MCF	5.7006	(0.0050)	5.6956	4.3750
Annual Minimum (MCF)	1,200		1,200	1,200
<u>AIR CONDITIONING</u>				
All Gas Used, Per dth	\$ 8.0591	\$ (0.0657)	\$ 7.9934	\$ 7.1571
<u>GAS LIGHT</u>				
Charge per Month	\$ 17.00		\$ 17.00	\$ 17.00
<u>TRANSPORTATION</u>				
Small Volume Customer				
Monthly Service Charge	\$ 150.00		\$ 150.00	\$ 150.00
Rate per dth	\$ 3.3278		\$ 3.3278	\$ 3.1808
Large Volume customer - 35,000 mcf/per month				
Monthly Service Charge	\$ 600.00			\$ 600.00
Rate per dth	\$ 1.9588			\$ 1.8869

*Rate schedules are based on wholesale rates for March, 2016

Note: MCF is volume adjusted by thermal factor and is equivalent to dth

**EXHIBIT VIII-D
GAS UTILITY
COMPARISON OF CHARGES WITH FY2016 and FY2017 RATES**

FIRM CUSTOMERS	BASE RATES FY2016	ACTUAL RATES 03-01-16	Adopted with 03-01-16 GAS COST	PERCENT INCREASE (DECREASE)
4,000 CU. FT.	\$ 47.30	\$ 47.04	\$ 41.60	(11.56) %
4,878 CU. FT.*	55.11	54.79	48.22	(11.99)
8,000 CU. FT.	81.00	80.47	70.15	(12.82)
15,000 CU. FT.	136.66	135.68	117.31	(13.54)
20,000 CU. FT.	176.42	175.11	150.99	(13.77)
25,000 CU. FT.	216.18	214.54	184.68	(13.92)
35,000 CU. FT.	295.70	293.40	252.05	(14.09)
60,000 CU. FT.	494.49	490.55	420.47	(14.29)
100,000 CU. FT.	812.56	805.99	689.95	(14.40)
150,000 CU. FT.	1,210.15	1,200.30	1,023.79	(14.71)
200,000 CU. FT.	\$ 1,598.28	\$ 1,585.14	\$ 1,355.62	(14.48) %

INTERRUPTIBLE CUSTOMERS

100,000 CU. FT.	\$ 753.58	\$ 753.08	\$ 626.54	(16.80) %
200,000 CU. FT.	1,447.16	1,446.16	1,193.04	(17.50)
400,000 CU. FT.	2,834.32	2,832.32	2,326.08	(17.87)
600,000 CU. FT.	4,221.48	4,218.48	3,459.12	(18.00)
1,000,000 CU. FT.	6,501.72	6,496.72	5,209.12	(19.82)
2,000,000 CU. FT.	12,202.32	12,192.32	9,584.12	(21.39)
4,000,000 CU. FT.	\$ 23,603.52	\$ 23,583.52	\$ 18,334.12	(22.26) %

* Average Residential customer

**EXHIBIT VIII-E
GAS RATE COMPARISON
SUMMER AND WINTER RESIDENTIAL REQUIREMENTS
AT MARCH 1, 2016**

<u>Distributor</u>	<u>Minimum Charge</u>	<u>4 dth of Usage</u>	<u>8 dth of Usage</u>
Charlottesville - FY2017	\$ 10.00	\$ 41.60	\$ 70.15
Charlottesville - FY2016	\$ 10.00	\$ 47.04	\$ 80.47
Southwestern VA Gas	\$ 9.55	\$ 35.14	\$ 60.73
Virginia Natural Gas	\$ 11.00	\$ 55.79	\$ 100.58
Danville	\$ 11.15	\$ 46.55	\$ 81.95
Richmond	\$ 12.17	\$ 45.85	\$ 79.53
Columbia Gas of Virginia	\$ 15.00	\$ 50.28	\$ 84.65

All rates shown from other gas systems represent existing rates for March, 2016

EXHIBIT VIII-F
Actual Rates for the Average 8 dth Customer

	<u>FY2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>	<u>FY2016</u>
July	\$ 120.10	\$ 97.83	\$ 88.50	\$ 96.37	\$ 110.02	\$ 65.77
August	112.51	105.41	89.82	94.90	100.58	81.16
September	104.89	104.72	89.31	95.61	89.69	80.99
October	106.26	104.61	89.67	91.52	89.69	80.98
November	102.47	104.29	93.59	91.47	89.05	80.51
December	109.14	104.08	95.11	93.40	90.67	80.48
January	108.69	103.70	92.80	97.71	78.43	81.12
February	109.38	102.37	91.94	106.32	76.43	81.11
March	105.85	102.84	93.32	101.02	76.58	\$80.47
April	108.90	102.55	97.04	99.24	74.99	
May	109.83	102.34	98.79	101.50	71.00	
June	\$ 109.55	\$ 102.86	\$ 96.37	\$ 100.27	\$ 68.21	
Lowest rate	\$ 65.77	July, FY2016				
Highest Rate	\$ 120.10	July, FY2011				

SECTION IX: ESTIMATED FUTURE WATER AND WASTEWATER RATES

A. General

The following analysis shows the impact of assumptions regarding operating costs and capital improvement expenditures, both those of the City and of RWSA, on future water and wastewater rates. In addition, a sensitivity analysis is performed to gauge the impact of the use of rate stabilization revenue to mitigate rate increases in any given year. Revenue has been projected to offset future rate increases and minimize the fluctuation in rate changes over the period examined. These fluctuations are caused primarily by rising future capital costs. Exhibits IX-A and IX-D present estimates of the future wholesale rates from RWSA and the future City water and wastewater rates for fiscal years 2017 through 2021. Both rates will be impacted by significant increases in capital improvement costs and the effects of the capital expenditures on future rates are presented. The following assumptions were used to develop these estimates:

1. RWSA Wholesale Rates and the purchase of water and wastewater:
 - Estimates, provided by RWSA, of the projected wholesale rates are presented at the top of each exhibit.
 - RWSA's rates are split into an Operational Rate and a Debt Cost.
 - The Debt Cost is converted to a rate for the purposes of this study.
 - Analysis includes RWSA's Adopted Capital Improvement Plan for Fiscal Years 2016-2020, adopted February, 2016.
 - The purchased volume of water and wastewater from RWSA is assumed to remain constant. The total treatment cost is calculated for each year and is included in the City's wastewater utility budget.
2. The City's water and wastewater budgets:
 - Debt service is based on funding the City's adopted water and wastewater CIP's for fiscal years 2017 through 2021.
 - Operations and maintenance, payment in lieu of taxes, indirect costs, utility billing, meter reading, and water conservation line items in the City's budget are inflated at an annual rate of 2.0% for 2018 through 2021.
 - It is assumed that the Vehicle Replacement is returned to its normal budgeted amount of \$73,029 in FY2018 and remains at that level.
 - It is assumed that the Water Conservation Budget is returned to its normal level in FY2018 and escalates by 2% each year thereafter.

3. Other Revenue (service charges, etc.) – Assumed to remain constant for each year. However, the facility fee rate structure that was implemented in FY2009 and increased in FY2013 will have an impact on the amount of rate stabilization that will be used to mitigate future rate increases. Revenue received from these fees, along with additional revenue from the respective fund has been reserved to offset future rate increases, if approved. The impacts are presented at the bottom of Exhibits IX-A and IX-D and are discussed in more detail in Item 7.
4. Flows – The future flow volumes and proportions that the City sells to UVa and to the City customers are assumed to remain constant.
5. Revenue from UVa – Revenue from the sale of water and wastewater service to UVa is calculated using the contract procedure and are included.
6. Results – The resulting rates per mcf for each year are shown at the bottom of each exhibit with the percent increase from the year before. Below that is the monthly bill for the average single-family residential customer (427 cf per month) and the percent increase for each year.
7. Impact of the Rate Stabilization on the Future Rates – At the bottom of each exhibit, the effect of the facility fees on the rates are calculated using the following assumptions:

- City Staff estimates that the following revenue will be generated each year for each (water and wastewater) fund.

Year	Water Revenue	Wastewater Revenue
FY2017	\$300,000	\$400,000
FY2018	\$150,000	\$300,000
FY2019	\$150,000	\$300,000
FY2020	\$150,000	\$300,000
FY2021	\$150,000	\$300,000

- This additional revenue is shown for each year. It is assumed that \$900,000 of additional revenue will be generated for the water funds and \$1,600,000 for the wastewater fund from FY2017 through FY2021.
- The amount of each year’s revenue that will be applied to reducing that year’s rates is presented.

- If available, the amount of carryover from prior years to achieve relatively stable annual rate increases is presented.
- The total rate stabilization revenue to be applied to the rate calculation in each year and the new balance to be recovered is then calculated.
- Results – The resultant rates per mcf are shown at the bottom with the new rates for the average single-family residential customer.

B. *Future Water Rates*

Exhibit IX-A presents the estimated future water rates for fiscal years 2018 through 2021. Also shown are the FY2017 rates recommended in this report and the current FY2016 rates. Without the use of rate stabilization, the rate per mcf increases from \$59.81 in 2018 to \$64.38 projected in 2021. The monthly bill of the average single-family residential customer (427 cf per month) rises from \$29.54 in 2018 to \$31.49 anticipated in 2021.

Using the revenue generated from the rate stabilization fund to reduce and stabilize the rates over the years' results in anticipated future annual rate increases per mcf at a high of 5.80% in 2018 to a low of 2.79% in FY2021. The average single-family water bill will increase between approximately 4.95% and 2.41%.

Exhibit IX-B presents projected future rates per mcf with and without the use of rate stabilization revenue. Without the use of stabilization revenue, rates range from \$59.81 in FY2018 to \$64.38 in FY2021. With the use of rate stabilization revenue, rates vary from \$57.67 in FY2018 to \$63.31 in FY2021. Exhibit IX-C shows the average monthly bill of a typical single-family household in the City. Without the rate stabilization, the monthly bill varies from \$29.54 in FY2018 to \$31.49 in FY2021. Using stabilization funds, the average monthly bill is projected to be \$28.63 in FY2018 and \$31.03 in FY2021.

C. *Future Wastewater Rates*

Exhibit IX-D presents the estimated future wastewater rates for fiscal years 2018 through 2021. Also shown are the FY2017 rates recommended in this report and the rates being charged in FY2016. The rate with stabilization used increases from \$78.03 in FY2018 to \$85.15 per mcf projected in FY2021. The rate per mcf without rate stabilization would be \$80.21 in FY2018 and \$87.33 in FY2021. With stabilization the monthly bill for a single-family will be an average of \$37.32 in FY2018 to \$40.36 in FY2021. Without the use of rate stabilization, the monthly bill of the average single-family customer (427 cf per month) rises from \$38.25 in 2018 to \$41.29 anticipated in 2021.

The usage of rate stabilization in FY2017 is greater than that used in FY2016. The amount of usage in FY2017 is \$400,000. In addition, the fund is forecast to be used for future years as well. The same amount of rate stabilization is used in each year, \$300,000. This will reduce the rate \$2.18 per mcf and about \$0.93 per month for average single-family usage.

Exhibit IX-E and IX-F present wastewater rates per mcf and the average monthly bill of a single-family household in the City.

It should be noted that any future changes in RWSA's or the City's capital expenditure plan, operating expenditures, volume or purchases or sales and/or collection of facility fee revenue will have an impact on future rates.

D. Exhibits

EXHIBIT IX-A WATER FUND FUTURE WATER RATE PROJECTIONS

	Adopted	Adopted	Projections			
	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Estimated Wholesale Cost of Water						
RWSA - Operational Rate (Cost/MCF)	\$12.813	\$13.711	\$14.122	\$14.546	\$14.982	\$15.432
RWSA - Debt Rate (Cost/MCF)	\$7.802	\$8.197	\$8.459	\$8.721	\$8.983	\$9.243
Total RWSA Rate (Cost/MCF)	\$20.615	\$21.908	\$22.581	\$23.267	\$23.965	\$24.675
Percent Change in RWSA Rates	3.49%	6.27%	3.07%	3.04%	3.00%	2.96%
Amount of Water Sold (MCF)	245,559	236,279	236,279	236,279	236,279	236,279
Cost of Water Purchase From RWSA	\$5,062,169	\$5,176,303	\$5,335,466	\$5,497,528	\$5,662,454	\$5,830,205
Percent Change in Water Purchase Cost	2.14%	2.25%	3.07%	3.04%	3.00%	2.96%
Projected City Budgets						
Water purchases	\$5,062,169	\$5,195,201	\$5,335,466	\$5,497,528	\$5,662,454	\$5,830,205
Operations & maintenance (inflate 2%)	2,413,743	2,391,500	2,439,330	2,488,117	2,537,879	2,588,637
Water conservation (inflate 2%)	193,809	88,287	202,263	206,308	210,434	214,643
Toilet rebate program	40,000	40,000	40,000	40,000	40,000	40,000
Payment in lieu of taxes (inflate 2%)	573,200	590,330	602,137	614,179	626,463	638,992
Indirect costs (inflate 2%)	131,723	120,346	122,753	125,208	127,712	130,266
Utility Billing Office budget (inflate 2%)	276,650	275,430	280,939	286,557	292,289	298,134
Meter Reading budget (inflate 2%)	60,645	62,291	63,537	64,808	66,104	67,426
Water assistance program	25,000	15,000	15,000	15,000	15,000	15,000
Vehicle replacement budget	0	0	73,029	73,029	73,029	73,029
Computer System Support	21,900	21,360	21,360	21,360	23,300	23,300
Interest on deposits	5,000	5,000	5,000	5,000	5,000	5,000
Debt service funding	1,725,000	1,775,000	1,800,000	1,825,000	1,850,000	1,875,000
Total operations	\$10,528,839	\$10,579,745	\$11,000,813	\$11,262,095	\$11,529,664	\$11,799,633
Percent Increase	1.35%	0.48%	3.98%	2.38%	2.38%	2.34%
Less revenues not related to water use:						
Connection fees	125,000	125,000	125,000	125,000	125,000	125,000
Other revenue	65,000	150,000	65,000	65,000	65,000	65,000
Rate stabilization	500,000	300,000	0	0	0	0
Total	\$690,000	\$575,000	\$190,000	\$190,000	\$190,000	\$190,000
Revenue required from water charges	\$9,838,839	\$10,004,745	\$10,810,813	\$11,072,095	\$11,339,664	\$11,609,633
LESS UVa central charges	1,513,480	1,650,000	1,708,166	1,756,741	1,806,337	1,856,648
Balance to be recovered by City Water Sales	\$8,325,359	\$8,354,745	\$9,102,647	\$9,315,353	\$9,533,326	\$9,752,984
Minimum Monthly Charge	4.00	4.00	4.00	4.00	4.00	4.00
Minimum charges revenue	\$682,168	\$685,580	\$687,980	\$690,387	\$692,804	\$695,229
Balance to be recovered through rate	\$7,643,191	\$7,669,165	\$8,414,667	\$8,624,966	\$8,840,523	\$9,057,756
Volume (MCF)	145,943	140,700	140,700	140,700	140,700	140,700
Rate per MCF	\$52.37	\$54.51	\$59.81	\$61.30	\$62.83	\$64.38
Percent Change in MCF Rate	4.18%	4.09%	9.72%	2.49%	2.50%	2.47%
Monthly Bill for Single-family Cust. (427 CF/month)	\$26.36	\$27.28	\$29.54	\$30.18	\$30.83	\$31.49
Percent Change in Monthly Bill	3.52%	3.47%	8.30%	2.15%	2.17%	2.15%
Proposed Rates with Additional Stabilization						
Beginning Rate Stabilization Balance	\$625,000	\$275,000	\$425,000	\$275,000	\$175,000	\$150,000
Additional revenue from Stabilization Fund	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
Revenue to be applied to the current year to reduce rates	\$0	\$0	\$300,000	\$250,000	\$175,000	\$150,000
Ending Rate Stabilization Fund Balance	\$275,000	\$425,000	\$275,000	\$175,000	\$150,000	\$150,000
New balance to be recovered through the rate	\$7,643,191	\$7,669,165	\$8,114,667	\$8,374,966	\$8,665,523	\$8,907,756
New Rate per MCF	\$52.37	\$54.51	\$57.67	\$59.52	\$61.59	\$63.31
Percent Change in MCF Rate	4.18%	4.09%	5.80%	3.21%	3.48%	2.79%
New Monthly Bill for Single-family Cust. (427 CF/mo)	\$26.36	\$27.28	\$28.63	\$29.42	\$30.30	\$31.03
Percent Change in Monthly Bill	3.49%	3.49%	4.95%	2.76%	2.99%	2.41%

Exhibit IX-B Future Water Rates (1,000 CF)

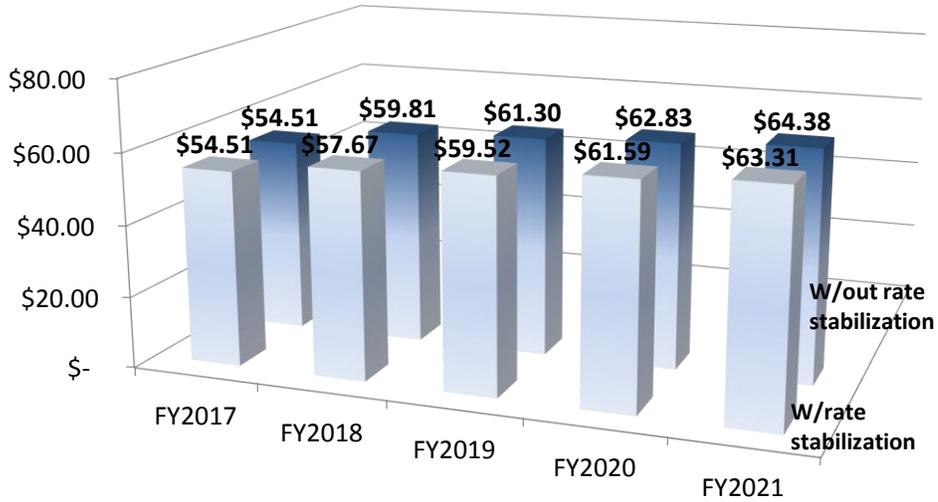
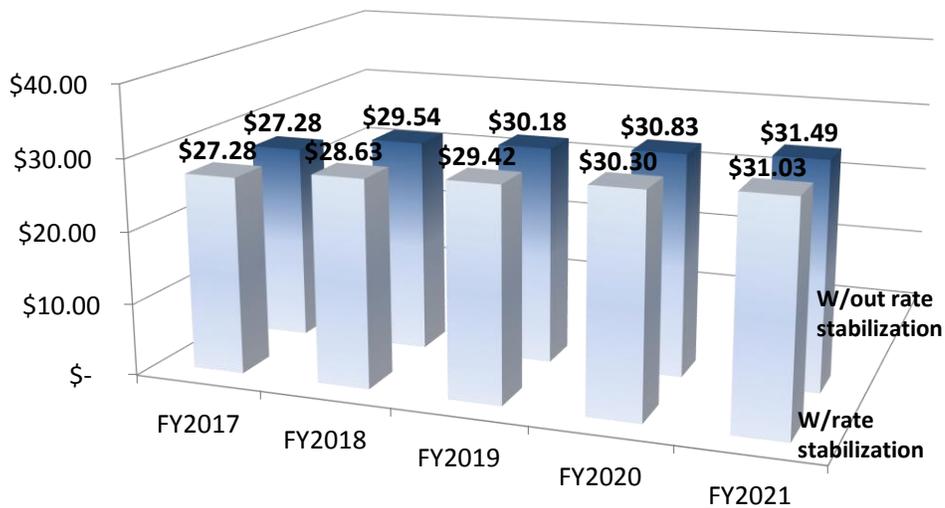


Exhibit IX-C Future Water Rates Single-Family (427 CF)



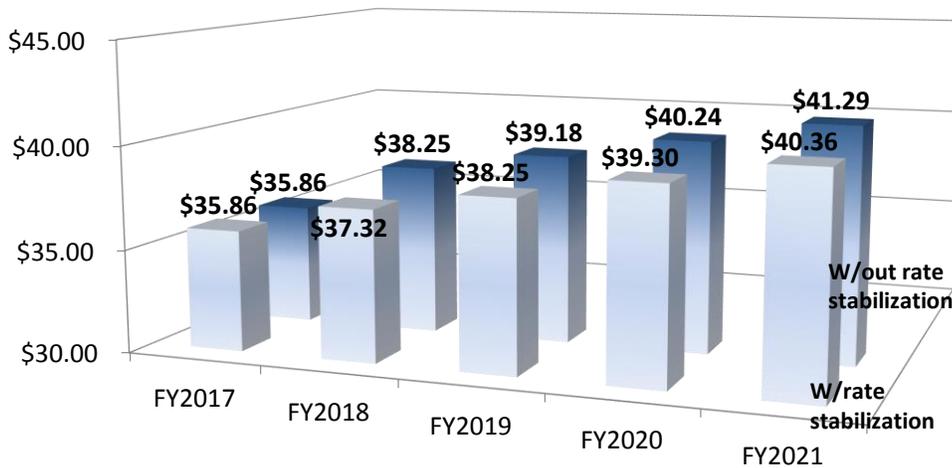
**EXHIBIT IX-D
WASTEWATER UTILITY
FUTURE WASTEWATER RATE PROJECTIONS**

	Adopted FY2016	Adopted FY2017	FY2018	Projected		
				FY2019	FY2020	FY2021
Estimated Wholesale Cost of Sewer						
RWSA - Operational Rate (Cost/MCF)	\$ 13.382	\$ 13.726	\$ 14.138	\$ 14.562	\$ 14.999	\$ 15.449
RWSA - Debt Cost /month	\$ 16.194	\$ 18.601	\$ 19.512	\$ 20.429	\$ 21.328	\$ 22.245
Total RWSA Rate (Cost/MCF)	\$ 29.576	\$ 32.327	\$ 33.650	\$ 34.996	\$36.40	\$37.85
Amount of Treatment Purchased (MCF)	243,553	241,000	241,000	241,000	241,000	241,000
Cost of Sewer Purchase From RWSA	\$ 7,203,293	\$ 7,736,415	\$ 8,109,677	\$ 8,434,064	\$8,771,427	\$9,122,284
Percent Increase	3.84%	7.40%	4.82%	5.02%	5.22%	5.43%
Projected City Budget						
Cost of treatment	\$ 7,203,293	\$ 7,736,415	\$ 8,109,677	\$ 8,434,064	\$8,771,427	\$9,122,284
Operations and maintenance (Inflate by 2.0%)	2,010,816	\$ 1,843,614	1,880,486	1,918,096	1,956,458	1,995,587
Payment in lieu of taxes (Inflate by 2.0%)	698,358	\$ 786,206	801,930	817,969	852,323	888,121
Indirect costs (Inflate by 2.0%)	111,595	\$ 128,281	130,847	133,464	136,133	138,856
Utility billing office budget (Inflate by 2.0%)	276,650	\$ 275,430	280,939	286,557	292,289	298,134
Meter reading budget (Inflate by 2.0%)	60,645	\$ 62,291	63,537	64,808	66,104	67,426
Sewer Surcharge	25,000	\$ 25,000	25,000	25,000	25,000	25,000
Wastewater assistance program	25,000	\$ 15,000	15,000	15,000	25,000	25,000
Vehicle replacement	0	\$ 36,423	73,029	73,029	73,029	73,029
Computer system support	27,080	\$ 28,240	28,240	28,240	28,240	28,240
Debt service funding	\$ 2,985,000	\$ 2,985,000	\$ 2,985,000	\$ 2,985,000	2,985,000	2,985,000
Total operations	\$ 13,423,436	\$ 13,921,900	\$ 14,393,685	\$ 14,781,226	\$15,211,002	\$15,646,677
Percent Increase	7.48%	3.71%	3.39%	2.69%	2.91%	2.86%
Less revenues not related to sewer rates:						
Finance charges for late payments	\$ 20,000	\$ 20,000	\$ 20,000	\$ 20,000	20,000	20,000
Rate stabilization	300,000	400,000	-	-	0	0
Total	\$ 320,000	\$ 420,000	\$ 20,000	\$ 20,000	20,000	20,000
Revenue required from sewer charges	\$ 13,103,436	\$ 13,501,900	\$ 14,373,685	\$ 14,761,226	\$15,191,002	\$15,626,677
LESS UVa central charges	2,292,780	2,564,573	2,664,736	2,749,167	2,838,985	2,932,308
Balance to be recovered by City sewer sales	\$ 10,810,656	\$ 10,937,327	\$ 11,708,949	\$ 12,012,059	\$12,352,017	\$12,694,369
Minimum Monthly Charge						
Minimum charges	\$ 4.00	\$ 4.00	\$ 4.00	\$ 4.00	\$ 4.00	\$ 4.00
Minimum charges	\$ 674,840	\$ 682,324	\$ 684,712	\$ 687,109	689,514	691,927
Balance to be recovered thru rate	\$ 10,135,816	\$ 10,255,003	\$ 11,024,237	\$ 11,324,951	\$11,662,504	\$12,002,442
Volume (MCF) used to calculate rate	143,900	137,439	137,439	137,439	137,439	137,439
Rate per MCF	\$ 70.44	\$ 74.61	\$ 80.21	\$ 82.40	\$84.86	\$87.33
Percent Change in MCF Rate	15.25%	5.92%	7.51%	2.73%	2.99%	2.91%
Monthly Bill for Ave S-f Cust. (427 CF/month)	\$ 34.08	\$ 35.86	\$ 38.25	\$ 39.18	\$ 40.24	\$ 41.29
Percent Change in Monthly Bill	13.22%	5.23%	6.67%	2.44%	2.68%	2.62%
Proposed Rates with Additional Stabilization						
Beginning Rate Stabilization Balance	\$ 102,180	\$ (297,820)	\$ 2,180	\$ 2,180	\$2,180	\$2,180
Additional revenue from Stabilization Fund	300,000	300,000	300,000	300,000	\$300,000	\$300,000
Revenue applied to current year to reduce rates	\$ -	\$ -	\$ 300,000	\$ 300,000	\$ 300,000	\$ 300,000
Ending Rate Stabilization Fund Balance	\$ 102,180	\$ 2,180	\$ 2,180	\$ 2,180	\$2,180	\$2,180
New balance to be recovered through the rate	\$ 10,135,816	\$ 10,255,003	\$ 10,724,237	\$11,024,951	\$11,362,504	\$11,702,442
New Rate per MCF	\$ 70.44	\$ 74.61	\$ 78.03	\$ 80.22	\$82.67	\$85.15
Percent Change in MCF Rate	15.25%	5.92%	4.58%	2.81%	3.05%	3.00%
New Monthly Bill for Ave S-f Cust. (427 CF/month)	\$ 34.08	\$ 35.86	\$ 37.32	\$ 38.25	\$ 39.30	\$ 40.36
Percent Change in Monthly Bill	13.22%	5.23%	4.07%	2.51%	2.73%	2.69%

Exhibit IX-E Future Wastewater Rates (1,000 CF)



Exhibit IX-F Future Wastewater Rates Single-Family (427 CF)



GLOSSARY OF TERMS

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 feet – 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 – Decatherm; 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.