

MEMORANDUM

**TO: RIVANNA WATER & SEWER AUTHORITY
BOARD OF DIRECTORS**

FROM: THOMAS L. FREDERICK, EXECUTIVE DIRECTOR

SUBJECT: 2010-15 CAPITAL IMPROVEMENT PROGRAM

DATE: JULY 27, 2010

I am pleased to present to you a submitted copy of the proposed 2010-15 Capital Improvement Plan for the Rivanna Water & Sewer Authority. This update to our five-year plan provides information to the public regarding the upcoming capital priorities of the Authority and allows for multi-year financial planning to support these priorities.

For the Community Water Supply Plan, the listed projects reflect the direction staff received from the Board in May 2010 to remain within the adopted 2006 Plan. The plan has been updated according to recent recommendations for an earthfill dam at the Ragged Mountain site using the conservative high end of the estimated range provided by Schnabel Engineering. This plan calls for the completion of this project within the five-year plan together with the I-64 embankment and mitigation plan implementation. The five-year plan also provides for right-of-way acquisition for a future pipeline between South Fork and Ragged Mountain, but as stated in the narrative as has been explained publicly, we do not recommend right-of-way acquisition along the northern half of this route before VDOT decides its disposition of its "By-Pass" right-of-way, a decision we understand may not occur before 2012. It's important to note that Schnabel has advised that current construction market conditions are very favorable for a dam to be built well below the conservative high end estimates in this budget, but we could lose that opportunity by delaying the project.

Other significant features of the budget within the Urban Water fund include the replacement of the Stillhouse Pump Station, a project to address EPA's "Stage 2 Disinfection By-Product" mandate, and the beginning of engineering work toward improvements to the Observatory WTP. The EPA regulations address trace by-products in drinking water resulting from mandated disinfection practices, and staff will be providing reports to the Board with options for addressing this issue in the coming months. The Observatory Plant continues to operate today using a significant amount of 1940s technology and was addressed as a part of the long-term needs in the 2006 Water Supply Plan.

The most significant part of the proposed CIP will be within Urban Wastewater, reflecting a very strong commitment by the partnership of ACSA, City, and RWSA to rehabilitate the wastewater system. Projects include rehabilitation and renewal of the Interceptor system,

Pumping Stations, WWTP, and inflow and infiltration removal. Much of this proposed work is reflected in the final report on the Comprehensive Sanitary Sewer Study. Among these projects include the WWTP Enhanced Nutrient Removal and Meadow Creek Interceptor currently under construction, replacement of the Schenks Branch Interceptor of which critical portions depend on coordination with the City of Charlottesville's plans in the McIntire Road/250 By-Pass area, improvements to pumping capacity between the Moores Creek and Rivanna Interceptors to the WWTP, WWTP Wet Weather Capacity Improvements, Odor Control, and rehabilitation of existing piping as appropriate within the Lower Rivanna Interceptor, Crozet Interceptor, and other miscellaneous locations. The budget includes the permanent installation of twelve flow meters and two rain gauges for the Interceptor system, a project that is not significant in cost by comparison but is important to the ability to monitor and collect data to confirm the results of I/I reduction.

A five-year financial analysis has also been included to show the impact of the proposed CIP on the future requirements for debt and capital financing. For Urban Water, the analysis shows that our current level of charges for debt and capital needs is sufficient to finance all improvements proposed in the next five years, including the entire construction of the proposed earthen Ragged Mountain Dam. There are a couple of reasons for this. First, RWSA has been slowly building reserves over several years in anticipation of the expenses for the dam, while the schedule for the dam has been delayed. Second, some older debt will be retired in FY 2014. If it is still the intent of the Board to build the approved Community Water Supply Plan, this favorable financial position provides us an opportunity to extend our plan beyond five years and begin preparing for future projects down the road, such as upgrading the Observatory WTP and building the South Fork pipeline. It can also be an opportunity to provide for Part I dredging as recommended by HDR.

For Urban Wastewater, the analysis shows the need to raise additional capital in coming years to finance an aggressive program to rehabilitate and renew the wastewater system, to include the Interceptor system and the WWTP. Annual increases in capital in a range of between 3% and 7% are shown.

Board Action Requested:

The Capital Improvement Program is being introduced in July for the Board of Directors to begin their review. Questions and discussion are encouraged. A future date will need to be established for adoption of the CIP at the Board's discretion.

CAPITAL IMPROVEMENT PLAN

FISCAL YEARS
2010 – 2015

DRAFT

JULY 2010



RIVANNA WATER & SEWER AUTHORITY

695 MOORES CREEK LANE, CHARLOTTESVILLE, VIRGINIA 22902

TABLE OF CONTENTS

	<u>Page #</u>
I. INTRODUCTION	1
II. FINANCIAL SUMMARY BY CATEGORY	3
III. PROJECT DETAILS	6
Urban Water	7
Community Water Supply Plan	
Observatory WTP and Ragged Mountain/Sugar Hollow Reservoir System	9
Finished Water Storage/Transmission	10
South Fork Rivanna Water System	12
North Fork Rivanna Water System	13
Miscellaneous	14
Rural Water	
Crozet Water System	15
Scottsville Water System	16
Urban Wastewater	
Wastewater Interceptors/Pumping Stations	17
Moores Creek WWTP	20
Camelot Wastewater Treatment Plant System	22
Rural Wastewater	
Scottsville Wastewater System	23
Glenmore Wastewater System	24
IV. APPENDIXES	
Financial Summary - Project Descriptions	25
Water System Summary	28
Wastewater System Summary	29

Introduction

This Capital Improvement Plan Fiscal Years 2010 – 2015 (CIP) is intended to be an informational and planning tool for decision makers, Rivanna Water and Sewer Authority (RWSA) Board of Directors members, RWSA staff, and the public. It provides estimates of project costs and timing of necessary expenditures which will allow RWSA to continue to provide high quality, reliable service, meet regulatory requirements, and meet water supply and wastewater treatment requirements for the City of Charlottesville and the Albemarle County Service Authority. Several changes from the previous CIP are described below.

- Costs for all projects have been adjusted to reflect expected construction costs in current dollars. Where projects are under design, the consultant has provided budget figures for each project. Projects which have not yet moved into design were evaluated by staff to generate budget estimates. While recently the general economy has been first down, then back up dramatically, recent bid figures for RWSA work, as well as in other nearby jurisdictions, have been lower than expected. These recent bid figures were considered in all cost estimates included in this revision. It is important that budget estimates be reviewed regularly, as construction market conditions will fluctuate as do economic conditions.
- This document includes the current Capital Budget (Fiscal Year 2010 and 2011) and four additional years, so the final year considered is 2015.
- Several projects have been completed and removed from the CIP since the last revision, including:

- Water Supply Engineering Study & Evaluation
- Observatory WTP PAC Storage Facility
- South Rivanna Tank Rehabilitation
- Dell 16" Water Line Replacement
- Radio Upgrade
- Security Improvements (water and wastewater)
- Onsite Generation of Disinfectant (Crozet and Scottsville water systems)
- Bucks Elbow Water Storage Tank Mixing System
- Lagoon Rehabilitation (Crozet and Scottsville water systems)
- Red Hill Land Purchase
- Meadow Creek Interceptor Routing Study
- Moores Creek WWTP Front End Improvements (Pretreatment)
- Moores Creek Administration Building Repairs/Improvements
- Lime Tower Rehabilitation
- Camelot Interim Plant Maintenance

The following projects have been removed from the CIP due to re-evaluation of priorities, modifications in approach to address regulatory requirements, or operational changes which have made them unnecessary:

- SFR WTP Clearwell Expansion
- Scottsville Wastewater Pump Station Upgrades
- Office Expansion – Administration Bldg at Moores Creek

Several project descriptions have been revised to reflect additional information or changes in priorities and are listed below.

- *New Ragged Mountain Dam Engineering and Construction Services* have been revised to reflect the May 2010 Preliminary Design Report and the proposed alternative earth dam construction.
- The *Raw Water Replacement Pump Station and Pipeline* project has been revised to reflect a preliminary design study to optimize the configuration and implementation of these improvements.

- *Route 29 Pumping Station and Route 29 Pipeline* have been revised to reflect delaying construction of the pipeline and pump station until the preferred route along the future proposed Berkmar Drive becomes available. As a temporary measure, temporary pump connections will be constructed to allow for emergency pumping of water from the main Urban System pipeline into the North Rivanna system. Funding listed for the Route 29 Pumping Station is to purchase real estate for the future pump station and water storage tank.
- *Disinfection Byproduct Optimization* for the urban water system has been revised to reflect the current evaluation and study efforts.
- Almost all of the Interceptor and Wastewater Pump Station projects have been revised to reflect the findings of the Comprehensive Sewer Interceptor Study.
- The *Meadow Creek Interceptor Improvements* project scope has been refined and modified based on the completion of the Preliminary Engineering Report, final design, bid pricing, and actual project costs.
- The *Moore's Creek WWTP Conversion to ENR* cost estimate and timing of expenditures have been revised to reflect actual bid pricing and state funding commitments, as well as disaggregating odor control and septage receiving into separate capital projects.

In addition to these modifications, New Projects within this CIP revision include the following:

- *Pantops Tank Mixing System* – Finished Water Storage/Distribution – Urban Water System
- *Beaver Creek Dam Alterations* – Crozet Water System
- *Crozet Interceptor* – Wastewater Interceptor/Pumping Stations
- *Flow Meters for Sanitary Sewer Flow Monitoring* – Wastewater Interceptor/Pumping Stations
- *Moore's Creek WWTP Wet Weather Interim Capacity* - Wastewater Interceptor/Pumping Stations
- *Scottsville WWTP Conversion to Ultraviolet Disinfection* – Scottsville Wastewater

Detailed descriptions of each project are included in the body of the text that follows.

FINANCIAL SUMMARY
MAJOR SYSTEM CATEGORIES

FINANCIAL SUMMARY
Major System Categories

<u>System Description</u>	<u>Projected Five Year Capital Cost</u>	<u>Previous Expenditures (Pre June 2010)</u>	<u>Total Current Capital Budget FY2010 and 2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>
<u>URBAN WATER (UW)</u>							
Community Water Supply Plan	\$43,066,000	\$3,503,654	\$24,776,000	\$8,935,000	\$8,565,000	\$770,000	\$20,000
Observatory WTP & Ragged Mountain/Sugar Hollow Reservoir System	\$1,090,000	\$0	\$0	\$75,000	\$75,000	\$54,000	\$886,000
Finished Water Storage/Distribution	\$4,221,000	\$488,328	\$3,811,000	\$110,000	\$100,000	\$100,000	\$100,000
South Fork Rivanna Water System	\$360,000	\$0	\$360,000	\$0	\$0	\$0	\$0
North Fork Rivanna Water System	No projects anticipated in current 5 year plan						
Miscellaneous	\$240,000	\$61,750	\$240,000	\$0	\$0	\$0	\$0
Subtotal (UW)	\$48,977,000	\$4,053,732	\$29,187,000	\$9,120,000	\$8,740,000	\$924,000	\$1,006,000
<u>RURAL WATER (RW)</u>							
Crozet Water System	\$583,000	\$0	\$100,000	\$100,000	\$125,000	\$0	\$258,000
Scottsville Water System	\$309,000	\$0	\$309,000	\$0	\$0	\$0	\$0
Subtotal (RW)	\$892,000	\$0	\$409,000	\$100,000	\$125,000	\$0	\$258,000
WATER TOTAL	\$49,869,000	\$4,053,732	\$29,596,000	\$9,220,000	\$8,865,000	\$924,000	\$1,264,000

<u>Svstem Description</u>	<u>Projected Five Year Capital Cost</u>	<u>Previous Expenditures (Pre June 2010)</u>	<u>Total Current Capital Budget FY2010 and 2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>
URBAN WASTEWATER (UWW)							
Wastewater Interceptors/ Pumping Stations	\$63,128,000	\$3,961,417	\$32,199,700	\$7,992,200	\$14,100,000	\$8,736,100	\$100,000
Moores Creek WWTP	\$58,468,300	\$23,761,339	\$47,289,300	\$8,270,000	\$2,909,000	\$0	\$0
Camelot WWTP	No projects anticipated in current 5 year plan						
Subtotal (UWW)	\$121,596,300	\$27,722,756	\$79,489,000	\$16,262,200	\$17,009,000	\$8,736,100	\$100,000
<u>RURAL WASTEWATER (RWW)</u>							
Scottsville WWTP	\$125,000	\$0	\$125,000	\$0	\$0	\$0	\$0
Glenmore WWTP	No projects anticipated in current 5 year plan						
Subtotal (RWW)	\$125,000	\$0	\$125,000	\$0	\$0	\$0	\$0
WASTEWATER TOTAL	\$121,721,300	\$27,722,756	\$79,614,000	\$16,262,200	\$17,009,000	\$8,736,100	\$100,000
TOTAL	\$170,590,300	\$31,776,488	\$109,210,000	\$25,482,200	\$25,874,000	\$9,660,100	\$1,364,000

PROJECT DETAILS

Urban Water	(Page 7)
Rural Water	(Page 15)
Urban Wastewater	(Page 17)
Rural Wastewater	(Page 23)

Major System: Community Water Supply Plan

In October of 2002, the RWSA Board, with the support of the City of Charlottesville, Albemarle County Service Authority (ACSA), and Albemarle County, adopted the Community Water Supply Plan. The plan outlined a two-step strategy, which included four key elements: capital improvements, water conservation, watershed protection, and environmental protection. In September 2003, RWSA hired a project team to perform the engineering work needed to implement the Community Water Supply Plan.

A new Safe Yield Study (January 2004) incorporated the 2002 drought data and multiple downstream release regimens and detailed the water available for each condition. When compared to the projected 2030 and 2050 demands, the study indicated a raw water supply deficit that could no longer be met by the capital improvement projects proposed in the 2002 plan.

From May 2004 until June 2006 the Authority worked extensively with the community and the regulatory agencies to identify and select a preferred alternative that can meet the anticipated 2055 Urban Water Supply of 18.7 million gallons per day (mgd). In June 2006 the Joint Permit Application for a proposed Ragged Mountain Dam Expansion was submitted, followed by an environmental mitigation plan in December. The Authority received the Virginia Department of Environmental Quality (DEQ) Final VWP Individual Permit in February 2008 and the U.S. Army Corps of Engineers Permit in June 2008.

No.	Project Name	Project Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY 2010 and FY 2011	FY2012	FY2013	FY2014	FY2015
1	New Ragged Mtn Dam Engineering Services	\$4,941,000	\$2,920,045	\$4,941,000				
2	New Ragged Mtn Dam Construction	\$32,430,000		\$16,515,000	\$8,915,000	\$7,000,000		
3	Mitigation Plan Implementation	\$3,400,000	\$558,750	\$3,320,000	\$20,000	\$20,000	\$20,000	\$20,000
4	South Fork Reservoir to Ragged Mtn Pipeline Right-of- Way	\$2,295,000	\$24,859			\$1,545,000	\$750,000	
	TOTAL	\$43,066,000	\$3,503,654	\$24,776,000	\$8,935,000	\$8,565,000	\$770,000	\$20,000

Project Descriptions:

1. New Ragged Mountain Dam Engineering Services: The two dam facilities known as Upper and Lower Ragged Mountain were built for the Charlottesville community in 1885 and 1908, respectively. Evaluations of these facilities indicate that there is a need to upgrade or replace the dams to meet modern dam and spillway design standards. Initial work was completed to identify viable alternatives to perform the needed upgrade. Concurrent with this process, the Authority was undertaking the evaluation of sites for a new community water supply. After substantial community and regulatory input, the Ragged Mountain site was selected as the preferred water supply alternative. As such, the project scope now includes the design of a new Ragged Mountain Dam just downstream of the existing Lower Dam. The funding indicated is for a new earthen dam which will increase the usable pool of the reservoir from the present 464 million gallons (MG) to a new total of approximately 2,190 MG. The budget includes \$2,920,045 already expended through preliminary design. The total 5 year budget includes: \$2,404,549 for Ragged Mountain Dam Preliminary and Final Designs; \$613,336 for Preliminary and Final Design of improvements to I-64; \$175,055 for the ITRT; and \$1,748,102 previously spent with the initial dam design consultant. Design of this project is underway.

2. New Ragged Mountain Dam Construction: Once the new Ragged Mountain Dam design has been completed and accepted by Virginia Department of Conservation and Recreation (DCR) Dam Safety officials, construction will begin. The funding included in this line item is based on raising the pool elevation by 45 feet, and is predicated on an earth embankment dam. The funding level also will provide for engineering services and materials testing during construction. The budget includes Schnabel Engineering's 2010 preliminary design construction cost estimate of \$27,050,000; an allowance for the I-64 embankment construction of \$2,300,000; and \$3,080,000 for construction management, inspection, and testing services during construction. A 20% contingency is included in the cost of the dam, while a 10% contingency is included in the remaining work. The contingency may be conservative for the very favorable bidding climate experienced in the spring of 2010 to provide some allowance for shifts in market conditions by the time the bid opening is scheduled.
3. Mitigation Plan Implementation: As a condition of the anticipated Joint Permit to construct the new Ragged Mountain Dam community water supply facility, RWSA will mitigate the environmental impacts to streams and wetlands. The proposed work includes the development and protection of approximately four acres of wetlands at a site bounded by Moores Creek and Franklin Street (near the Charlottesville Stockyard). Additionally, the plan calls for the preservation and/or restoration of 75,500 linear feet of stream within the area of Buck Mountain Creek. This project includes design, bidding, construction, easements, construction management, and on-going monitoring.
4. South Fork Reservoir to Ragged Mtn. Pipeline Right-of-Way: The future construction of a new pipeline from the South Fork Rivanna River to the Ragged Mountain Dam is a part of the 50-year approved Community Water Supply Plan to increase future transfer capacity through replacement of the Sugar Hollow Pipeline. This project provides for right-of-way acquisition to reserve for that new pipeline. Project expenditures cover a review of the 2006 conceptual design by Wiley/Wilson consulting engineers within the past year. The RWSA has been advised by VDOT that a decision by VDOT is expected by 2012 on the retention or abandonment of right-of-way VDOT had obtained for a proposed roadway corridor, and RWSA has determined it in the best public interest to defer decisions on finalizing an alignment for the pipeline in that vicinity until VDOT's decision is completed.

Major System: Observatory WTP and Ragged Mountain/Sugar Hollow Reservoir System

The Observatory WTP and Ragged Mountain/Sugar Hollow Reservoir System is comprised of the Observatory Water Treatment Plant and the associated raw water infrastructure that stores and conveys source water to the plant. The raw water storage system includes the Upper and Lower Ragged Mountain Dam (built about 1885 and 1908 with a current combined useable raw water storage capacity of 462 million gallons) and the Sugar Hollow Dam (originally constructed in 1947 and upgraded in 1999 with a useable raw water storage capacity of 324 million gallons). The system also includes 18.6 miles of 18-inch raw water cast-iron mains, originally installed in 1908, 1922, and 1946. The Sugar Hollow Raw Water Main conveys water from the Sugar Hollow Dam to the Observatory Water Treatment Plant. The line crosses the Mechums River (where an abandoned pumping station is sited), has an interconnection to the Ragged Mountain Dam, passes through the Stadium Road Pumping Station and terminates at the Observatory WTP. The Ragged Mountain Raw Water Main conveys water from the Ragged Mountain Dams through the Royal Pumping Station and terminates at the Observatory Water Treatment Plant. Lastly, this system includes the treatment infrastructure of the Observatory WTP.

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
5	Observatory WTP Improvements	\$940,000					\$54,000	\$886,000
6	Raw Water Pump Station Replacement & Pipeline Design	\$150,000			\$75,000	\$75,000		
	TOTAL	\$1,090,000	\$0	\$0	\$75,000	\$75,000	\$54,000	\$886,000

Project Descriptions:

- Observatory WTP Improvements: The Observatory Water Treatment Plant is one of the two primary plants serving the Urban Service Area. Most of the facilities in operation today were constructed in the early 1950s. Originally the plant was permitted by the Virginia Department of Health at a rated capacity of 7.7 mgd, but due to the age and reliability of the facilities, staff limits production to no more than 5.5 mgd. The facility requires a significant upgrade to reliably operate at current and future flow rates. With the expansion of the Ragged Mountain Reservoir, the plant will need to reliably operate at 8 mgd. This project will serve to evaluate, design, and construct the necessary improvements and upgrades. This project is anticipated to be in construction through FY 2019, with an approximate cost of \$22M.
- Raw Water Pump Station Replacement and Pipeline Design: Currently two raw water pump stations, Royal and Stadium Road, serve to convey raw water between the Ragged Mountain Dam area and the Observatory water treatment plant through two 18-inch lines. With the construction of the new Ragged Mountain Dam facility, and given the reduced reliability of the aging existing systems, there is a need to evaluate the current condition of these systems to determine a scope and schedule for rehabilitation or replacement of some or all portions of these systems between the Ragged Mountain Dam and the Observatory Water Treatment Plant. This project will perform the needed evaluation and define the improvement needs, both short-term and long-term.

Major System: Finished Water Storage/Transmission – Urban System

The urban finished water storage and transmission system serves to provide transmission of treated water from the three RWSA water plants (Observatory, South Fork, and North Fork) to the distribution networks of the Albemarle County Service Authority, the City of Charlottesville, and the University of Virginia. The system includes approximately 40 miles of pipeline, six water storage tanks: Avon Street (2 MG), Pantops (5 MG), Piney Mtn. (0.7 MG), Stillhouse (0.7 MG), Observatory (3 MG), and Lewis Mountain (0.5 MG), and one booster pumping station at Alderman Road.

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
7	Route 29 Pump Station Site Acquisition	\$250,000	\$81,516	\$250,000				
8	Route 29 Pipeline Removal/Temporary Pump Connection	\$550,000	\$349,234	\$550,000				
9	Stillhouse System Pump Station/Replace Canterbury Pump Station	\$2,060,000	\$49,751	\$2,060,000				
10	Alderman Road Pump Station Improvements	\$161,000	\$3,780	\$161,000				
11	Valve Repair – Replacement	\$800,000	\$4,047	\$400,000	\$100,000	\$100,000	\$100,000	\$100,000
12	Pantops Tank Mixing System	\$400,000		\$390,000	\$10,000			
TOTAL		\$4,221,000	\$488,328	\$3,811,000	\$110,000	\$100,000	\$100,000	\$100,000

Project Descriptions:

7. Route 29 Pump Station Site Acquisition: This project provides site acquisition for a new Route 29 Pump Station and Storage Tank to be built in the general area east of the Charlottesville-Albemarle Airport at a later time. The future pump station and tank, along with a new transmission pipeline between the Hollymead Town Center and the Doubletree Inn/Sam’s Club area, will provide a new interconnection between the areas presently served by the South Fork Water Treatment Plant and the North Fork Water Treatment Plant. The interconnection is needed for redundancy of service in the event of an emergency, during drought conditions, and to adequately serve the growing needs of the Places 29 area generally north of the Forest Lakes subdivision. Current funding for this project provides for the acquisition of real estate for the future pump station and tank site.
8. Route 29 Pipeline Removal/Temporary Pump Connection: This project provides for the removal (required by VDOT) of approximately 3,000 feet of existing water line constructed in the 1970s within the right-of-way of US Highway 29 in the Hollymead Town Center area, together with the installation of emergency hydrant connections to allow for the emergency transfer of water between an ACSA water main in the Town Center and RWSA’s existing water main in US 29 south of the Town Center. The project also includes the purchase of a portable pump and hoses necessary to connect the emergency hydrants when needed to convey water between the North Fork and South Fork water pressure zones. This capability will provide interim reliability while providing RWSA the time to continue to coordinate with Albemarle County on a right-of-way for a future new transmission main linking the Hollymead Town Center and Doubletree Inn/Sam’s Club areas. As growth occurs in the portions of the Places 29 area north

of the South Fork Rivanna River, the new transmission line will need to be constructed. This project also includes previous expenditures for engineering and survey services performed to identify hydraulic operating conditions and preliminary pipeline routing. Albemarle County has considered the extension of Berkmar Drive to the Hollymead Town Center, which if developed, would be a favorable corridor for the new transmission main.

9. Stillhouse System Pump Station/Replace Canterbury Pump Station: The Canterbury Hills Pump Station (owned by ACSA) conveys water from the main urban pressure zone into the Stillhouse Mountain Tank pressure zone. The pumps and controls are aging, and pumping capacity is barely adequate to keep up with demand. Since there is insufficient redundancy to allow part of the station to go off-line, it is impossible to perform the necessary maintenance. It also is on a very small parcel of land that precludes expansion in the current location. This project will replace the existing pump station with a new station to be built on land owned by RWSA. A site owned by RWSA on Woodburn Road has been selected for the new pump station and the station is currently under design.
10. Alderman Road Pumping Station Improvements Evaluation: This project includes the evaluation of the capabilities and necessary firm pumping capacity of the Alderman Road pumps and header system. The age of the existing pumps, and observed performance, that do not appear to be consistent with nominal pump capabilities, have led to questions about actual operation of the existing system. The current level of funding is adequate to carry out necessary analyses of the existing pumps and a detailed system evaluation. The evaluation phase will consider the optimum pumping capacity to meet future demand, serviceability and reliability of the existing pump, electrical, and control systems, and hydraulic capabilities of existing valves and piping system. If substantial improvements are necessary for any of these additional systems, then the funding level for this project will need to increase.
11. Valve Repair – Replacement: Many of the water transmission main valves within the high traffic urban areas do not operate correctly. These valves (particularly in Rio Road and along Route 29) are critical for normal operation and timely emergency response to water main breaks. This project provides for the replacement of valves throughout the system.
12. Pantops Tank Mixing System: An internal tank mixing system is needed to improve the water quality coming from our largest tank (5 million gallons) on the urban service area by increasing circulation and minimizing water stratification. The budget includes initial inspection, consultant services for design and bidding, construction and contract inspection. Construction is anticipated in 2011.

Major System: South Fork Rivanna Water System

The South Fork Rivanna Water System is comprised of the source water, storage, conveyance and treatment infrastructure currently serving the urban area from the South Fork Rivanna River. The system includes the South Fork Rivanna Reservoir and Dam (built in 1966). The Dam is co-located with the raw water intake and pump station, as well as a small hydroelectric generation facility. The source water from the South Fork Rivanna Reservoir is treated at the South Fork treatment plant (rated at 12 mgd).

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
13	Lickinghole Creek Basin Dredge Access Road	\$360,000		\$360,000				
	TOTAL	\$360,000	\$0	\$360,000	\$0	\$0	\$0	\$0

Project Descriptions:

- Lickinghole Creek Basin Dredge Access Road: The Lickinghole Creek Stormwater Detention Basin was constructed under a U.S. Corps of Engineers Permit, which requires that RWSA maintain this facility in good condition. This project is to provide access to the Lickinghole Creek Sediment Control Basin so accumulated dredge spoils can be hauled away when dredging becomes necessary to ensure efficient operation of this facility.

Major System: North Fork Rivanna Water System

The North Fork Rivanna Water System is comprised of a river intake and raw water pumping station on the North Fork of the Rivanna River, as well as the North Fork Water Treatment Plant (rated at 2 mgd). The North Fork system provides water to the ACSA service area located along Route 29, between Forest Lakes and Piney Mountain Road.

<u>No.</u>	<u>Project Name</u>	<u>Projected Five Year Capital Cost</u>	<u>Previous Expenditures (Pre July 09)</u>	<u>Total current Capital Budget FY2010</u>	<u>FY2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>
	No projects anticipated in current 5 year plan								
	TOTAL								

Project Descriptions:

No projects are envisioned in this system during the next 5 years.

Major System: Miscellaneous

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
14	Disinfection By-product Optimization	\$240,000	\$61,750	\$240,000				
	TOTAL	\$240,000	\$61,750	\$240,000	\$0	\$0	\$0	\$0

Project Descriptions:

14. Disinfection By-product Optimization: In 2006 the United States Environmental Protection Agency (EPA) developed what is called the Stage 2 Disinfection By-products Rule to improve drinking water quality and provide additional protection from disinfection by-products (DBPs). The project includes the analysis, evaluation, and monitoring of the disinfection by-products in water distribution system, which is operated by RWSA, the City and ACSA. The work includes study and review of the WTP processes; WTP based DBP reduction methodologies and costs, and an alternatives analysis to address any required improvements, their costs and the potential impacts. This project will also develop conceptual designs for any possible future capital improvements. The regional water system must be in compliance with the Stage 2 - DDBP rule by October 2012 for the Urban Area; October 2013 in Crozet, and October 2014 in Scottsville. If capital improvements are required, VDH has the discretion to grant up to a two-year time extension for each of these dates. Once the study work is complete, and if capital improvements are required, additional projects may be added to the CIP program.

Major System: Crozet Water System

The Crozet Water System includes the source water, raw water conveyance, finished water treatment, transmission and storage for the Crozet community in Western Albemarle County. The source water for this system is the Beaver Creek Reservoir and Garnett Dam which was built in 1964 with a current useable capacity of 521 million gallons. Raw water is treated at the Crozet Water Treatment Plant (rated at 1.0 mgd) and provides finished water to the Albemarle County Service Authority. The system includes the Crozet Elevated Tank, the Crozet Ground Tank (0.5 MG), and pump station and the Bucks Elbow Tank (2.0 MG).

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
15	Water Plant Expansion Study/Design	\$258,000						\$258,000
16	Beaver Creek Dam Alterations	\$325,000		\$100,000	\$100,000	\$125,000		
	TOTAL	\$583,000		\$100,000	\$100,000	\$125,000		\$258,000

Project Descriptions:

15. Water Plant Expansion Study/Design: This project will address future treated water needs in the Crozet system. As the Crozet community grows, there will be a need for additional treatment capacity. The existing plant is rated at one million gallons per day (mgd). The study and design will include defining the appropriate size for the expansion. Should a significant increase in capacity become necessary, then a new finished water pipeline from the plant to the Bucks Elbow Water Storage Tank may also be required.

16. Beaver Creek Dam Alterations: - In 2008 the Virginia Department of Conservation and Recreation (DCR) adopted a revised *Impounding Structures Regulation* which imposed new, more rigorous, evaluations of dams within the Commonwealth. Preliminary findings indicate that the Beaver Creek Dam may be reclassified to a high hazard dam, thereby requiring a higher spillway design storm. The higher design storm can not be accommodated with the existing structure. Based on the final outcome of future negotiations with Virginia Dam Safety, the Beaver Creek Dam may require modifications. This project includes investigation and preliminary design.

Major System: Scottsville Water System

The Scottsville Water System is comprised of the raw water conveyance, finished water treatment, transmission and storage for the Scottsville community in southern Albemarle County. The source water for this system is the Totier Creek Reservoir, which was built in 1971 with a current useable capacity of 182 million gallons and the Totier Creek Intake. Raw water is treated at the Scottsville Water Treatment Plant (rated at 0.25 mgd) and provides finished water to the Albemarle County Service Authority. The system includes the Scottsville Tank (0.25 MG).

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
17	Totier Waterline Relocation & Reservoir Flow Improvements	\$309,000		\$309,000				
	TOTAL	\$309,000		\$309,000				

Project Descriptions:

17. Totier Waterline Relocation and Reservoir Flow Improvements: These projects will eliminate a 200 foot section of raw waterline which lies beneath the bed of the Totier Creek reservoir, and will provide improved water quality at the reservoir intake. There have been multiple waterline breaks along the submerged section of pipeline, which have necessitated dewatering the reservoir for repairs. The waterline relocation will require approximately 650-feet of new 10-inch diameter waterline to go around the edge of the reservoir. Additionally, the existing pump station is in an area of the reservoir away from the main flow channel, resulting in relatively poor raw water quality during certain times of the year. The proposed flow improvements will create hydraulic conditions to improve the quality of water to the raw water intake.

Major System: Wastewater Interceptors/Pumping Stations

The wastewater interceptors and pumping stations serve to convey wastewater from the collection systems of the City of Charlottesville and Albemarle County Service Authority to the Moores Creek Wastewater Treatment Plant. This grouping includes: the Crozet Interceptor and four associated pumping stations; the Moores Creek Interceptor and Relief Sewers, the Morey Creek, Maury Hills, Powell Creek, Meadow Creek, Schenks Branch, Woodbrook and Rivanna Interceptors, as well as the Albemarle-Berkley Interceptor and associated Albemarle Pumping Station. Also included in this system are the two primary pump stations into the MCWWTP, the Rivanna (21.6 mgd) and the Moores Creek (15 mgd).

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY 2011	FY2012	FY2013	FY2014	FY2015
18	Meadow Creek Interceptor Improvements	\$20,000,000	\$2,877,825	\$19,800,000	\$200,000			
19	Schenks Branch Interceptor	\$8,389,100	\$70,115	\$3,385,000			\$5,004,100	
20	Albemarle-Berkeley Interceptor	\$544,400	\$11,304	\$435,000	\$109,400			
21	Rivanna Interceptor Pumping Capacity Improvements	\$25,000,000	\$8,685	\$3,368,000	\$4,000,000	\$14,000,000	\$3,632,000	
22	Moores Creek Pump Station & Force Main Upgrade	\$5,000,000	\$26,965	\$2,700,000	\$2,300,000			
23	Comprehensive Sewer Interceptor Study	\$990,000	\$818,210	\$990,000				
24	Miscellaneous Repairs to Pipeline adjacent to Streams	\$200,000	\$66,438	\$200,000				
25	Interceptor Sewer & Manhole Repair	\$1,450,000	\$81,875	\$1,050,000	\$100,000	\$100,000	\$100,000	\$100,000
26	Crozet Interceptor	\$1,474,300		\$191,500	\$1,282,800			
27	Flow Meters for Sanitary Sewer Flow Monitoring	\$80,200		\$80,200				
	TOTAL	\$63,128,000	\$3,961,417	\$32,199,700	\$7,992,200	\$14,100,000	\$8,736,100	\$100,000

Project Descriptions:

18. Meadow Creek Interceptor Improvements: This project includes the design and construction of approximately 24,000 linear feet of new sewer to replace the existing interceptor sewer. Engineering design, easement acquisition, permitting and bidding is complete and the project is in the early phases of construction via four separate contracts. The bidding environment was very favorable and bids came in lower than estimated which is reflected by an overall reduction in the CIP budget. Several design challenges and implementation of a landscaping plan have resulted in a shift of project schedule and the completion of the project is anticipated in the Fall of 2011 and is reflected in the adjustment of fiscal year budgets. Project costs include design, permitting, easement acquisition, construction, construction

observation/administration, a landscaping plan, and project contingencies and much of the project is funded by State Revolving Loan.

19. Schenks Branch Interceptor: The Schenks Branch Interceptor is located in eastern part of the City of Charlottesville and ties into the Meadow Creek Interceptor. The interceptor was constructed in the mid 1950s of 21-inch clay and concrete pipe. The existing interceptor is undersized to serve the City's wet weather sewer flows. The entire interceptor is to be upgraded to 30 inch pipe in order to accommodate the increased flows from the City of Charlottesville. Portions of this interceptor will be upgraded as part of the RWSA Meadow Creek Interceptor Project and the VDOT McIntire Road Extended Project. The rest of the Interceptor will be upgraded by RWSA in coordination with the City of Charlottesville's sewer upgrades upstream of the interceptor. Portions of the interceptor may be upgraded as part of the McIntire/250 Interchange project depending on the schedule of that project and the schedule of the City of Charlottesville's sewer upgrades. Project costs include betterment cost for the portions that are being replaced by VDOT and the design, permitting, easement acquisition, construction, construction observation/administration by the engineering consultant, and project contingencies for the rest of the interceptor.
20. Albemarle-Berkeley Interceptor: The Albemarle-Berkley Interceptor is located in Albemarle County and ties into the Meadow Creek Interceptor. The existing interceptor was built in the mid 1970s mostly of clay pipe and has capacity to handle the existing and future dry weather flows through build-out. However, based on recent flow metering, the interceptor appears to experience inflow and infiltration and the interceptor requires rehabilitation. The current budget accounts for the rehabilitation of all manholes and rehabilitation of 50% of the pipeline, but actual quantities will be refined based on the condition assessment.
21. Rivanna Interceptor Pumping Capacity Improvements: Pumping capacity between the Rivanna Interceptor in Riverview Park and the Moores Creek Wastewater Treatment Plant will be expanded for wet weather peak flow from a current capacity of 24.5mgd to a firm capacity of 53mgd. Alternatives for design of the increased pumping capacity are currently being evaluated. A second force main from the pump station to the Moores Creek WWTP may be needed, and the improvements will address odor control, electrical upgrades including emergency generating capacity, and building and landscape architectural features. Due to the early stage in planning for this project, many uncertainties remain and, consequently, a large contingency is included in the estimate of project costs. The estimated planning level cost for the pumping capacity improvements is \$25M, including engineering, easement acquisition, permitting, construction, inspection and contingencies, based on construction of an entirely new pump station. As the scope of construction is refined, the cost projection will be altered accordingly.
22. Moores Creek Pump Station & Force Main Upgrade: The Moores Creek Pump Station will be upgraded from its current firm capacity of 14.9 mgd to a firm capacity of 30 to 32 mgd, where 28 to 30 mgd is capacity for handling wet weather flows from the collection system and up to 2 mgd to continue to handle existing plant recycle flows from the biosolids digestion area. The expansion will largely be accomplished within the existing structure, and will include new pumps, piping, valves, VFDs, electrical gear, protection for the pumps via grinders or screens, and modification of the wetwell to improve hydraulics and limit solids deposition. A second force main to the headworks will be constructed and will include a tie-in to the force main to the WWTP Holding Ponds that will be constructed under a separate project. Additional generator capacity may or may not be required. The odor control covers placed under the ongoing ENR upgrade will be altered to accommodate modifications to the wet well approach channels, including installation of grinders or screens. The estimated planning level cost for this project is \$5M, including engineering, permitting, construction, inspection and contingencies.
23. Comprehensive Sewer Interceptor Study: Due to wet weather inflow and infiltration, projected growth and infill, the RWSA interceptor system required evaluation of current and future flows. Additionally, the age and condition of these facilities may limit future capacity. The consultant conducted system wide flow metering and developed a system-wide computer modeling evaluation which has allowed RWSA, the City and ACSA to collectively identify system deficiencies, develop inflow and infiltration (I&I) reduction goals, and project and prioritize future capital needs. Results of this study have enabled RWSA,

the City and ACSA to establish the firm pumping capacities needed for the design upgrades for the Moores Creek and Rivanna Pump Station projects. The final study is anticipated in summer 2010.

24. Miscellaneous Repairs to Pipelines Adjacent to Streams: Two sites have been identified where stream erosion is jeopardizing the integrity of pipelines. These sites are: Moores Creek Interceptor adjacent to Willoughby subdivision, and the Powell Creek Interceptor near the connection to Rivanna Interceptor. Repairs need to be made in order to preclude structural failure of these lines. The design will incorporate stream bank and channel improvements to improve flow characteristics and put an end to on-going damaging erosion in the vicinity of these lines.
25. Interceptor Sewer and Manhole Repair: Many RWSA sewer interceptors have reached their design life and have deteriorated to the point that we have recently experienced several pipeline failures requiring emergency repairs. This project will be used to conduct condition assessment of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Planned projects include condition assessment of the Powell Creek Interceptor, the Moores Creek Interceptor and the Rivanna Interceptor and rehabilitation of manholes along the Rivanna Interceptor. This project will also provide an allowance in budgeted funds to carry out future repairs.
26. Crozet Interceptor: The Crozet Interceptor is located in western Albemarle County and serves Crozet and the surrounding area. Based on recent flow metering, the interceptor appears to experience inflow and infiltration and the interceptor requires rehabilitation. In order to minimize future infrastructure improvements ACSA and RWSA have agreed to aggressively rehabilitate this interceptor and the sewers that flow to the interceptor. The current budget accounts for the rehabilitation of all manholes and rehabilitation of 75% of the pipeline, but actual quantities will be refined based on the condition assessment.
27. Meters for Sanitary Sewer Flow Monitoring: This project is for the purchase of twelve flow meters and two rain gauges. The flow meters will be installed throughout the RWSA sewer collection system. They will be used to gauge the success of recent and future sewer rehabilitation efforts, to identify areas of the collection system that experience high rates of inflow and infiltration, to ensure the computer model of the collection system is correctly accounting for growth within the community and to show long term sewage flow trends in the collection system.

Major System: Moores Creek WWTP

The Moores Creek Wastewater Treatment Plant is the largest wastewater facility within the RWSA system. The plant was built in 1982 and is currently rated at 15 mgd. This system includes the infrastructure for the wastewater treatment process as well as the RWSA administration facilities.

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
28	Moores Creek WWTP Upgrade to ENR Design	\$3,440,000	\$2,805,864	\$3,440,000				
29	Moores Creek WWTP Upgrade to ENR Construction	\$45,783,000	\$19,383,012	\$39,586,000	\$5,048,000	\$1,149,000		
30	Bridge Repairs	\$100,000		100,000				
31	Odor Control	\$355,300	\$263,690	\$355,300				
32	Septage Receiving	\$1,900,000	\$1,297,748	\$1,900,000				
33	Moores Creek WWTP Wet Weather Capacity	\$6,890,000	\$11,025	\$1,908,000	\$3,222,000	\$1,760,000		
	TOTAL	\$58,468,300	\$23,761,339	\$47,289,300	\$8,270,000	\$2,909,000	\$0	\$0

Project Descriptions:

28. Moores Creek WWTP Upgrade to ENR – Design: This project consists of evaluation, preliminary and final engineering design associated with major improvements to upgrade the wastewater treatment process of the Moores Creek WWTP. In 2005, the Virginia State Water Control Board (SWCB) adopted new regulations allocating nitrogen and phosphorus wasteloads to wastewater facilities across the Chesapeake Bay watershed in Virginia, and RWSA will meet the allocation by incorporating more advanced processes to significantly reduce the amount of nitrogen and phosphorus nutrients in wastewater effluent by December 31, 2012. Design efforts focus on four key areas: (1) nutrient reduction in plant effluent; (2) rehabilitation of old infrastructure; (3) renewable energy using gas from anaerobic digestion of biosolids; and (4) improved wet weather capacity. Work began on this project in May of 2007 and continues into construction as described in the project below.
29. Moores Creek WWTP Upgrade to ENR – Construction: The Moores Creek WWTP is currently under construction, in response to the 2005 Virginia nutrient reduction allocation. Moores Creek WWTP was originally constructed in 1958, and upgraded and expanded in 1981 and 1983. Much of the equipment in operation today is original to the plant and in need of rehabilitation. The upgrade efforts include work that will ensure reliable operation of the existing equipment into the future. Due to several significant changes in air handling and blower technology, the project also includes a unique ability to turn excess biogas (a natural by-product of treatment) into electricity to help power the facility. The construction bids were opened in March 31, 2009 with construction and engineering management beginning June 2009. The Authority has received a Water Quality Improvement Grant (WQIF) valued at \$21.6 million subject to revision either based on actual project costs or on available funding from the Virginia legislature. As of the time of publication, WQIF has notified RWSA that limits in state funding will reduce the future reimbursement rates. Staff estimates that this may result in a reduction in WQIF funding by as much as \$5.2 million, which would need to be offset by local funding. Substantial completion of this project is anticipated by November 11, 2012 with final completion by January 11, 2013.

30. Bridge Repairs: The bridge crossing Moores Creek located at the Wastewater Treatment Plant has been inspected. The inspection results indicated that bridge was in good condition, but required maintenance repairs to assure continued safe operation. This work includes structural design, construction and inspection services.
31. Odor Control: In January 2008, the Board received the "Moores Creek WWTP Odor Evaluation Report," outlining options to address off-site odor control at the wastewater facility and in the adjacent community. The report outlined a multi-phase approach, the odor removal rates, and the anticipated costs. In March 2008, capital funding was approved to address the Phase I improvements: design of a new, enclosed septage receiving station; the enclosure of the open structures at the Moores Creek Pump Station (MCPS); odor capture and scrubbing facilities for septage receiving and the MCPS; upgrades to the effluent water system to allow for water cannon placement (to enhance the ability to clean tanks) at the equalization basins and the holding ponds. Design was completed for these projects as part of the MCWWTP ENR Upgrade and incorporated into the construction contract. Additionally, due to several advantageous site specific conditions, the odor control activities were expanded to include covering and odor scrubbing the gravity thickeners. Due to better than anticipated bidding, the budget for these projects has been reduced.
32. Septage Receiving: This project includes the design and construction of a new automated and enclosed septage receiving station. The funding for this project was originally approved as part of the MCWWTP Odor control project in March of 2008. The project was separated from the Odor Control projects once design commenced. Revenues for the cost of the septage receiving station are anticipated to come from Albemarle County.
33. Moores Creek WWTP Wet Weather Capacity: From 2006 through 2010, RWSA has been conducting the Comprehensive Sanitary Sewer Study to determine the near and long range needs of the sanitary sewer interceptor and treatment system. As part of this work, the City and ACSA recommended a goal to reduce an average 25% of wet weather inflow and infiltration (I/I) by 2020 with RWSA designing its transmission and treatment system to carry the remainder of the I/I to avoid sanitary sewer overflows. This facilitated RWSA's review of influent pump station capacities and future peak flows into the Moores Creek WWTP. The Moores Creek WWTP is currently designed to treat average daily flows of 15mgd and peak wet weather flows of 18mgd. As part of the ENR project (described above) the wet weather treatment capacity will be increased to 37.5mgd, while average daily flow capacity remains unchanged. Based on the proposed expansion of the Moores Creek Pump Station and the pumping capacity from the Rivanna Interceptor, the need to treat additional wet weather flow has increased. This work includes Phase I - increasing the holding pond capacity; increasing pipe capacity to the holding ponds and pumping return capacity from the holding ponds, and altering maximum pumping capacity at Moores Creek pump station, and Phase II - adding a fourth secondary clarifier unit, expanding the UV disinfection facilities, and minor headworks modifications. Phase I projects have an August 2011 completion date and Phase II improvements have a December 2012 completion estimate.

Major System: Camelot Wastewater Treatment Plant System

The Camelot Wastewater System encompasses the small wastewater treatment package plant and the supporting on-site facilities. The plant is rated at 0.2 mgd. This facility provides wastewater treatment to the community along Rt. 29 in the northern end of the ACSA service area. The completion of ACSA's project will allow the Camelot Wastewater Treatment Plant to be decommissioned in 2012, and will allow RWSA to avoid an expensive treatment plant upgrade that would otherwise be needed to meet more stringent effluent requirements to the North Fork Rivanna River beginning April 2013.

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
	No projects anticipated in current 5 year plan							
	TOTAL							

Project Descriptions:

No projects are envisioned in this system during the next 5 years.

Major System: Scottsville Wastewater System

The Scottsville Wastewater System includes the influent pumping station, the wastewater treatment plant constructed in 1995, and the historical treatment lagoon (now incorporated into the plant operation). The treatment plant facility is rated at 0.2 mgd.

No.	Project Name	Projected Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
34	Conversion to Ultraviolet Disinfection	\$125,000		\$125,000				
	TOTAL	\$125,000	\$0	\$125,000	\$0	\$0	\$0	\$0

Project Descriptions:

34. Conversion to Ultraviolet Disinfection: With the success of ultraviolet (UV) disinfection for over ten years at our Glenmore WWTP, RWSA is planning on conversion of the gaseous chlorine disinfection process at the Scottsville WWTP to ultraviolet disinfection. The Town of Scottsville has recently expanded the area around the WWTP to include a new farmers market, veteran’s memorial, a playground, along with the existing town ball field and senior apartments located in a converted school. These active public neighborhood areas in immediate proximity to the WWTP facility leads to concerns related to a potential release and exposure to gaseous chlorine from the existing WWTP gaseous chlorine feed system. Ultraviolet disinfection, because it uses no chemicals is safer for our operators and the nearby public. Conversion to UV eliminates any issues related to transportation and storage of a hazardous chemical. This capital project is directly related to continuing to provide a reliable disinfection method as required by the WWTP facility discharge permit, yet focuses on protection of public health by the prevention of release to the environment and potential exposure of the public and our employees from the release of gaseous chlorine.

Major System: Glenmore Wastewater System

The 0.381 mgd wastewater plant, located within the Glenmore subdivision, is owned by ACSA and operated by RWSA. The plant includes an influent pumping station located immediately adjacent to the treatment facility.

<u>No.</u>	<u>Project Name</u>	<u>Projected Five Year Capital Cost</u>	<u>Previous Expenditures (Pre June 2010)</u>	<u>Total Current Capital Budget FY2010 and FY2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>
	No projects anticipated in current 5 year plan							
	TOTAL							

Project Descriptions:

No projects are envisioned in this system during the next 5 years.

APPENDIXES

Financial Summary - Projects

Water System Summary

Wastewater System Summary

FINANCIAL SUMMARY

Projects

<u>No.</u>	<u>Project Name</u>	<u>Project Five Year Capital Cost</u>	<u>Previous Expenditures (Pre June 2010)</u>	<u>Total Current Capital Budget FY2010 and FY2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>
1	Ragged Mountain Dam Engineering Services	\$4,941,000	\$2,920,045	\$4,941,000				
2	Ragged Mountain Dam Construction	\$32,430,000		\$16,515,000	\$8,915,000	\$7,000,000		
3	Mitigation Plan Implementation	\$3,400,000	\$558,750	\$3,320,000	\$20,000	\$20,000	\$20,000	\$20,000
4	South Fork Reservoir to Ragged Mtn Pipeline R/W	\$2,295,000	\$24,859			\$1,545,000	\$750,000	
5	Observatory WTP Improvements	\$940,000					\$54,000	\$886,000
6	Raw Water Pump Station Replacement & Pipeline Design	\$150,000			\$75,000	\$75,000		
7	Route 29 Pumping Station Site Acquisition	\$250,000	\$81,516	\$250,000				
8	29 North Pipeline Removal/Temporary Pump Connection	\$550,000	\$349,234	\$550,000				
9	Stillhouse System Pump Station/Replace Canterbury PS	\$2,060,000	\$49,751	\$2,060,000				
10	Alderman Road Pump Station Improvements Evaluation	\$161,000	\$3,780	\$161,000				
11	Valve Repair-Replacement	\$800,000	\$4,047	\$400,000	\$100,000	\$100,000	\$100,000	\$100,000
12	Pantops Tank Mixing System	\$400,000		\$390,000	\$10,000			
13	Lickinghole Creek Basin Dredge Access Road	\$360,000		\$360,000				
14	Disinfection By-product Optimization	\$240,000	\$61,750	\$240,000				
15	Water Plant Expansion Study/Design	\$258,000						\$258,000
16	Beaver Creek Dam Alterations	\$325,000		\$100,000	\$100,000	\$125,000		
17	Totier Waterline Relocation & Reservoir Flow Improvements	\$309,000		\$309,000				
18	Meadow Creek Interceptor Improvements	\$20,000,000	\$2,877,825	\$19,800,000	\$200,000			
19	Schenks Branch Interceptor	\$8,389,100	\$70,115	\$3,385,000			\$5,004,100	
20	Albemarle-Berkeley Interceptor	\$544,400	\$11,304	\$435,000	\$109,400			

No.	Project Name	Project Five Year Capital Cost	Previous Expenditures (Pre June 2010)	Total Current Capital Budget FY2010 and FY2011	FY2012	FY2013	FY2014	FY2015
21	Rivanna Interceptor Pumping Capacity Improvements	\$25,000,000	\$8,685	\$3,368,000	\$4,000,000	\$14,000,000	\$3,632,000	
22	Moores Creek Pump Station & Force Main Upgrade	\$5,000,000	\$26,965	\$2,700,000	\$2,300,000			
23	Comprehensive Sewer Interceptor Study	\$990,000	\$818,210	\$990,000				
24	Miscellaneous Repairs to Pipelines adjacent to Streams	\$200,000	\$66,438	\$200,000				
25	Interceptor Sewer & Manhole Repair	\$1,450,000	\$81,875	\$1,050,000	\$100,000	\$100,000	\$100,000	\$100,000
26	Crozet Interceptor	\$1,474,300		\$191,500	\$1,282,800			
27	Meters for Sanitary Sewer Flow Monitoring	\$80,200		\$80,200				
28	Moores Creek WWTP Conversion to ENR Design	\$3,440,000	\$2,805,864	\$3,440,000				
29	Moores Creek WWTP Conversion to ENR Construction	\$45,783,000	\$19,383,012	\$39,586,000	\$5,048,000	\$1,149,000		
30	Bridge Repairs	\$100,000		\$100,000				
31	Odor Control	\$355,300	\$263,690	\$355,300				
32	Septage Receiving	\$1,900,000	\$1,297,748	\$1,900,000				
33	Moores Creek WWTP Wet Weather Capacity	\$6,890,000	\$11,025	\$1,908,000	\$3,222,000	\$1,760,000		
	Camelot WWTP – No projects anticipated in current 5 year plan							
34	Scottsville WWTP – Conversion to Ultraviolet Disinfection	\$125,000		\$125,000				
	Glenmore WWTP – No projects anticipated in current 5 year plan							
	Total	\$170,590,300	\$31,776,488	\$109,210,000	\$25,482,200	\$25,874,000	\$9,660,100	\$1,364,000

WATER SYSTEM SUMMARY

<u>System Description</u>	<u>Capital Cost</u>	<u>In-Progress June 1, 2010</u>	<u>FY2011</u>	<u>FY2012</u>	<u>FY2013</u>	<u>FY2014</u>	<u>FY2015</u>
<u>URBAN WATER</u>							
Urban Water System Project Cost	\$48,977,000	\$4,054,000	\$29,187,000	\$9,120,000	\$8,740,000	\$924,000	\$1,006,000
Previously Funded and Expensed	\$7,054,000	\$4,054,000	\$7,054,000	\$0	\$0	\$0	\$0
Future Reserves to Capital Fund	\$7,930,000	\$0	\$2,000,000	\$2,000,000	\$2,000,000	\$924,000	\$1,006,000
New Debt Financing	\$33,993,000	\$0	\$20,133,000	\$7,120,000	\$6,740,000	\$0	\$0
Total Funding	\$48,977,000	\$4,054,000	\$29,187,000	\$9,120,000	\$8,740,000	\$924,000	\$1,006,000
<u>RURAL WATER</u>							
Crozet Water System Project Cost	\$583,000	\$0	\$100,000	\$100,000	\$125,000	\$0	\$258,000
New Debt Financing	\$583,000	\$0	\$100,000	\$100,000	\$125,000	\$0	\$258,000
Total Funding	\$583,000	\$0	\$100,000	\$100,000	\$125,000	\$0	\$258,000
Scottsville Water System Project Cost	\$309,000	\$0	\$0	\$309,000	\$0	\$0	\$0
Future Reserves to Capital Fund	\$200,000	\$0	\$0	\$200,000	\$0	\$0	\$0
New Debt Financing	\$109,000	\$0	\$0	\$109,000	\$0	\$0	\$0
Total Funding	\$309,000	\$0	\$0	\$309,000	\$0	\$0	\$0
Water System Total Project	\$49,869,000	\$4,054,000	\$29,287,000	\$9,529,000	\$8,865,000	\$924,000	\$1,264,000

Possible Bonds URBAN	\$33,993,000	\$0	\$0	\$22,253,000	\$0	\$11,740,000	\$0
Possible Bonds RURAL	<u>\$692,000</u>	<u>\$0</u>	<u>\$0</u>	<u>\$434,000</u>	<u>\$0</u>	<u>\$258,000</u>	<u>\$0</u>
	\$34,685,000	\$0	\$0	\$22,687,000	\$0	\$11,998,000	\$0

WASTEWATER SYSTEM SUMMARY

System Description	Capital Cost	In-Progress June 1, 2010	FY2009	FY2010	FY2011	FY2012	FY2013
URBAN WASTEWATER							
Urban Wastewater Project Cost							
	\$121,596,300	\$27,723,000	\$79,489,000	\$16,262,200	\$17,009,000	\$8,736,100	\$100,000
Debt Funding (committed)	\$39,200,000	\$9,772,871	\$39,200,000	\$0	\$0	\$0	\$0
Previously Funded and Expensed	\$8,873,000	\$8,873,012	\$8,873,000	\$0	\$0	\$0	\$0
Future Reserves to Capital Fund	\$7,350,000	\$0	\$1,500,000	\$1,750,000	\$2,000,000	\$2,000,000	\$100,000
State Grant	\$14,041,000	\$9,076,874	\$14,041,000	\$0	\$0	\$0	\$0
New Debt Financing	\$52,132,300	\$0	\$15,875,000	\$14,512,200	\$15,009,000	\$6,736,100	\$0
Total Funding	\$121,596,300	\$27,723,000	\$79,489,000	\$16,262,200	\$17,009,000	\$8,736,100	\$100,000
Scottsville Wastewater Project Cost	\$125,000	\$0	\$125,000	\$0	\$0	\$0	\$0
Future Reserves to Capital Fund	\$125,000	\$0	\$125,000	\$0	\$0	\$0	\$0
New Debt Financing	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Funding	\$125,000	\$0	\$125,000	\$0	\$0	\$0	\$0
Glenmore Wastewater Project Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Funding	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Wastewater System Projects	\$121,721,300	\$27,723,000	\$79,614,000	\$16,262,200	\$17,009,000	\$8,736,100	\$100,000
Urban Debt	\$52,132,300	\$0	\$0	\$30,387,200	\$0	\$21,745,100	\$0

	2011-2015 DRAFT/PROPOSED CIP	2008-2013 ADOPTED CIP	DRAFT VS CURRENT Change \$	Change %
<u>Project Cost</u>				
Urban Water Projects	\$ 48,977,000	\$ 59,717,426	\$ (10,740,426)	-18%
Urban Wastewater Projects	121,596,300	92,281,900	29,314,400	32%
Rural Projects	1,017,000	1,833,747	(816,747)	-45%
Total Project Cost Estimates	\$ 171,590,300	\$ 153,833,073	\$ 17,757,227	12%
<u>Funding in place (May 2010)</u>				
State Grant Funds	\$ 14,041,000	\$ -	\$ 14,041,000	N/A
Debt Funding available	39,200,000	-	39,200,000	N/A
Funding paid or in-place	12,927,000	6,460,455	6,466,545	100%
Capital fund	3,000,000	10,100,453	(7,100,453)	-70%
	\$ 69,168,000	\$ 16,560,908	\$ 52,607,092	318%
<u>Financing Needs</u>				
Possible Future Reserves	15,405,000	12,250,000	3,155,000	26%
State Grant Funding	-	16,115,000	(16,115,000)	-100%
New Debt	87,017,300	108,907,165	(21,889,865)	-20%
	\$ 102,422,300	\$ 137,272,165	\$ (34,849,865)	-25%
Total Funding	\$ 171,590,300	\$ 153,833,073	\$ 17,757,227	
Percentage of funding in place	40.3%	10.8%		
Ratio of debt to expense	73.6%	70.8%		
Ratio of cash to expense	10.7%	14.5%		
Ratio of grant funds to expense	8.2%	10.5%		

PROPOSED 5 YEAR CIP RATE IMPACT ANALYSIS

TOTAL RATE IMPACT	Current Rates <u>2011</u> in 1000 gal	<u>FY 2012</u> in 1000 gal	<u>FY 2013</u> in 1000 gal	<u>FY 2014</u> in 1000 gal	<u>FY 2015</u> in 1000 gal	<u>FY 2016</u> in 1000 gal	Five-year <u>Average</u> in 1000 gal
URBAN WATER							
CITY							
Urban Water - Current Adopted	\$ 2.438						
CIP - growth rate needed		\$ (0.011)	\$ (0.011)	\$ (0.011)	\$ (0.011)	\$ (0.011)	\$ (0.011)
Debt Relief		\$ (0.001)	\$ 0.001	\$ (0.221)	\$ 0.001	\$ (0.003)	\$ (0.045)
Total Rate change		\$ (0.012)	\$ (0.010)	\$ (0.232)	\$ (0.010)	\$ (0.014)	\$ (0.056)
New Rate estimate		\$ 2.426	\$ 2.416	\$ 2.184	\$ 2.174	\$ 2.160	\$ 2.272
Percentage change		-0.5%	-0.4%	-9.6%	-0.5%	-0.6%	-2.3%
ACSA							
Urban Water - Current Adopted	\$ 3.305						
CIP - growth rate needed		\$ 0.020	\$ 0.020	\$ 0.020	\$ 0.020	\$ 0.020	\$ 0.020
Debt Relief		\$ (0.002)	\$ 0.001	\$ (0.227)	\$ 0.001	\$ (0.003)	\$ (0.046)
Total Rate change		\$ 0.018	\$ 0.021	\$ (0.207)	\$ 0.021	\$ 0.017	\$ (0.026)
New Rate estimate		\$ 3.323	\$ 3.344	\$ 3.137	\$ 3.158	\$ 3.175	\$ 3.227
Percentage change		0.5%	0.6%	-6.2%	0.7%	0.5%	-0.8%
URBAN WASTEWATER							
CITY							
Urban WWater - Current Adopted	\$ 2.878						
CIP - growth rate needed		\$ 0.210	\$ 0.210	\$ 0.210	\$ 0.210	\$ 0.210	\$ 0.210
Debt Relief		\$ (0.001)	\$ (0.006)	\$ (0.047)	\$ (0.006)	\$ (0.006)	\$ (0.013)
Total Rate change		\$ 0.209	\$ 0.204	\$ 0.163	\$ 0.204	\$ 0.204	\$ 0.197
New Rate estimate		\$ 3.087	\$ 3.291	\$ 3.454	\$ 3.658	\$ 3.862	\$ 3.470
Percentage change		7.3%	6.6%	5.0%	5.9%	5.6%	6.1%
ACSA							
Urban WWater - Current Adopted	\$ 3.048						
CIP - growth rate needed		\$ 0.210	\$ 0.210	\$ 0.210	\$ 0.210	\$ 0.210	\$ 0.210
Debt Relief		\$ 0.003	\$ (0.008)	\$ (0.090)	\$ (0.008)	\$ (0.006)	\$ (0.022)
Total Rate change		\$ 0.213	\$ 0.202	\$ 0.120	\$ 0.202	\$ 0.204	\$ 0.188
New Rate estimate		\$ 3.261	\$ 3.463	\$ 3.583	\$ 3.785	\$ 3.989	\$ 3.616
Percentage change		7.0%	6.2%	3.5%	5.6%	5.4%	5.5%