



695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

MEMORANDUM

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

FROM: JENNIFER WHITAKER, CHIEF ENGINEER

**REVIEWED BY: LONZY E. WOOD, INTERIM EXECUTIVE DIRECTOR
RICHARD W. GULLICK, DIRECTOR OF OPERATIONS**

SUBJECT: STATUS REPORT: ONGOING PROJECTS

DATE: JULY 26, 2016

The following projects are underway; current project status is in **bold** type. This report includes the following sections on Capital Projects and large maintenance projects.

1. Schenks Branch Interceptor
2. Rivanna Pump Station Improvements
3. Drinking Water Activated Carbon
4. Sanitary Sewer Interceptor Rehabilitation
5. Wholesale Water Metering
6. Reservoir Management Plan
7. Moores Creek AWRRF Odor Control Phase 2
8. Comprehensive Sanitary Sewer Model Update
9. Crozet Ground Storage, Crozet Waterball, and Stillhouse Tank Improvements
10. South Rivanna Hydropower Plant Rehabilitation
11. Route 29 Water Main Betterment
12. Board of Directors' Strategic Plan
13. Crozet Finished Water Pump Station
14. Urgent and Emergency Repairs

1. Schenks Branch Interceptor

The Schenks Branch Sanitary Sewer interceptor is a pipeline operated by RWSA that serves the City of Charlottesville from the intersection of McIntire Road/Preston Avenue along McIntire Road, across Rt. 250, through McIntire Park, and across Melbourne Road with a connection and discharge to the Meadow Creek Interceptor near the radio tower site along Rio Road. The 21-inch sewer line was originally constructed by the City in the 1950s. Evaluations from the flow metering

and modeling from the Comprehensive Sanitary Sewer Interceptor Study, and negotiations with the ACSA and City, resulted in an inflow and infiltration reduction plan from which it was concluded that increased capacity of the Schenks Branch Interceptor was needed for wet weather peak flow. Due to several road construction projects and the construction of the Meadow Creek Interceptor project along the sewer alignment, Schenks Branch was to be constructed in multiple phases. The completed sections, collectively known as the Lower Schenks Branch Interceptor, include the *Tie-in to Meadow Creek*, the section along *McIntire Road Ext*, and the section through the Route 250 Interchange.

Upper Schenks Branch: This section will be constructed by a contractor to RWSA. A project design kick-off meeting was held in early June 2012. Preliminary design was completed, and the preferred route selected was along property immediately adjacent to the west shoulder of McIntire Road, part of which is owned by the City (Schenks Greenway) and the remainder of which is owned by the County (baseball field and County Office Building). Frazier Engineering completed the design of the new interceptor along the preferred route and an application for a Certificate to Construct (CTC) was filed with DEQ on March 28, 2014, in advance of the Consent Order deadline. The Consent Order required RWSA to provide a milestone schedule for remaining tasks through completion of construction by June 30, 2014 if the County and City had granted easements on their respective properties by June 17, 2014. The Consent Order also indicated that if easements were not granted by June 17, 2014, the milestone schedule submittal deadline would be moved to September 30, 2014. In September both the City Council and Board of Supervisors authorized the execution of easements on their property, subject to approval as to form by the respective attorneys. RWSA submitted the DEQ-required Milestone Schedule by the September 30, 2014 deadline and stated that the schedule was based on an understanding that final easement documents would be executed and recorded by October 31, 2014. However, no draft of the final easement terms was acceptable to all attorneys by October 31, and negotiations are continuing without agreement between the County and City. As a result of discussions between RWSA and DEQ, DEQ approved a milestone schedule for completing the section of this pipeline on the City's Schenks Greenway property (Phase 1), and set in "abeyance" a schedule for completing work on or adjacent to County property (Phase 2).

Phase 1

In accordance with the approved Consent Order schedule, a revised CTC was submitted to DEQ for the Phase 1 work on Schenks Greenway on January 28, 2015 and the CTC was granted by DEQ on February 3, 2015. Bids for Phase 1 of the project were opened on April 14, 2015 and three bids were received. At the April 2015 meeting, the Board of Directors authorized the award of the construction contract for Phase 1 to Digs, Inc. The Notice of Award was issued to Digs, Inc. on May 7, 2015, with a Notice to Proceed date of July 6, 2015. **Three manholes and 723 linear feet of sewer pipe have been installed as of July 13, 2016. The presence of unsuitable material at the Rt. 250 Interchange connection point, rock within the excavation, adverse weather conditions over the winter months, and general difficulties with deep sewer installation has slowed progress. In order to optimize production within the narrow construction corridor and wet conditions, the Contractor has modified their pipe installation methods. They have also drilled into the rock ahead of their trench and begun use of a large rock saw and rock hammer to expedite the removal of rock. As part of an effort to further expedite their progress, the Contractor anticipates modifying the current construction limits to allow them to open up a second construction entrance, open up a portion of the Greenway to public use, and begin the use of concurrent crews within the next month. Based on these measures and the use of this revised equipment to date, the Contractor has provided a revised schedule identifying completion of the project in December 2016. This would place them 7 months behind schedule based on current contractual completion dates. 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. Change Orders 1-4 have been issued adding 88 days to the contract schedule and \$67,909.10 to the contract schedule and value.

Phase 2

No new agreements concerning right-of-way have been reported to RWSA regarding Phase

2. No bidding or construction can take place until one of the following two options occur: (1) County grants RWSA a suitable easement on County property; or (2) City grants RWSA permission and a street cut permit to install the sewer directly under McIntire Road.

2. Rivanna Pump Station Improvements

In 2006 and 2007 a system-wide flow monitoring program was completed for RWSA as part of the on-going Comprehensive Sanitary Sewer Study. The future firm wet weather pumping capacity of the influent pump station from the Rivanna Interceptor to the Moores Creek AWWRF was established in consultation with the City and ACSA with a peak wet weather flow rate equivalent to 53 million gallons per day (mgd). Hazen and Sawyer performed an evaluation of conceptual alternatives for the needed expansion of pumping capacity. At the December 2011 meeting, the Board selected Concept E (pump station at Moores Creek AWWRF and tunnel) and authorized the start of design. RWSA submitted the project schedule for the design and construction of Concept E to DEQ prior to the December 31, 2011 deadline.

The project was advertised for bids on September 12, 2013 and the bid opening was held on November 6, 2013. Six bids were received ranging from \$18,869,000 to \$28,838,202. The lowest bid was deemed non-responsive due to failure to submit a bid security with the sealed bid by the time bids were due. A recommendation for bid award to Adams Robinson Enterprises, Inc. (ARCO) for \$23,327,000 and construction administration/construction inspection engineering support from Hazen and Sawyer for \$2,615,840 was approved by the Board at the December 2013 Meeting. Adams Robinson mobilized on their Notice to Proceed date of March 3, 2014.

Work to date at the Moores Creek site has included utilities relocation and demolition of structures; rock blasting for the tunnel entrance shaft and future pump station, and the installation of the excavation support system and rock anchors. Installation and backfill grouting of the new 60-inch interceptor pipe inside the tunnel is complete. **Reinforcing steel, conduit installation, and concrete pours for the walls of the new pump station are ongoing. The building roof beams over the west pump room have been poured and the concrete floor pour over the east pump room is anticipated mid-month. The contractor has assembled most of the large diameter piping inside and outside the pump station. Multiple claims with the Contractor remain unresolved and a dispute resolution meeting is anticipated in the upcoming months.**

There have been a total of eight (8) change orders executed which increase the total amount of the contract by \$188,761.63 and are within the Board-authorized contingency of 10%.

3. Drinking Water Activated Carbon and WTP Improvements

In 2006, the US EPA promulgated a new rule called the Stage 2 Disinfectant and Disinfection Byproducts (D/DBP) Rule, which limits the maximum levels of certain disinfection byproducts in

water distribution systems. RWSA hired Hazen and Sawyer to evaluate alternatives to reduce disinfection byproducts and ensure compliance with the Stage 2 D/DPR Rule. After extensive investigation, it was determined that RWSA could not assure continuous compliance with the Stage 2 D/DBP Rule by optimizing current water treatment operations and that capital improvements were needed. The initial compliance deadline for the Stage 2 D/DBP Rule was October 2012 for the Urban Water System (South Rivanna, North Rivanna and Observatory WTPs) and October 2014 for the Scottsville and Crozet WTPs.

A two-year extension for compliance with the locational running annual average requirement of the EPA Stage 2 rules was approved for the Crozet Water Treatment Plant by the Virginia Department of Health in October 2014. Similar extensions were previously approved for the three plants in the Urban Water system. Due to the size of the Scottsville water distribution system, there is only one Stage 2 sampling site, accordingly the Scottsville system is not eligible for a time extension.

Bids were opened for the Granular Activated Carbon (GAC) project (all five water treatment plants) on February 10, 2015. Four bids packages were received with base bid prices ranging from \$21,962,775 to \$26,415,000. The apparent lower bidder was English Construction. Subsequent to bid opening, English Construction requested and the Authority granted a bid withdrawal. The next lowest bidder, Ulliman Schutte, had a base bid of \$22,763,000. Because the remaining bids exceed the project budget, the Virginia Public Procurement Act allows for direct negotiations with the lowest bidder. Throughout February and March, RWSA staff negotiated cost savings with Ulliman Schutte (USC), in an effort to bring the construction costs to within the project budget. The ACSA Board of Directors also met during this time period and approved the additional funding required to construct GAC facilities at both the Crozet and Scottsville WTPs.

At the March RWSA meeting, the Board approved a construction award to USC in the amount of \$22,014,250 and a Construction Management work authorization in the amount of \$1,686,700 to Hazen and Sawyer. In addition, the Board approved changes to the 2015-2019 Capital Improvement Plan as follows: (1) Combined the Crozet GAC and Crozet Water Treatment Plant Improvements projects and increased the budget by \$550,800 for a total new total project budget of \$3,190,000; (2) Increased the budget for Scottsville GAC by \$382,100 for a new total project budget of \$1,600,000, and (3) Combined the Urban Water GAC, South Fork Rivanna Water Treatment Plant Improvements, and the North Fork Water Treatment Plant Improvements projects into a single account with a combined total project budget of \$24,000,494.

A Notice of Award was sent to USC on March 26th; final construction contracts were signed on April 28th, and a Notice to Proceed was also issued on April 28th. The pre-construction meeting was held on May 18th. The anticipated construction completion date is within 30 months of Notice to Proceed, near the end of 2017.

The goal of the project is to implement GAC treatment facilities at all five RWSA water treatment plants, but a number of additional plant upgrades have also been included to improve efficiency of plant operations. The plant improvements include:

- South Rivanna WTP : Construction of additional clearwell storage; installation of a chlorine contact tank; replacement of the lime feed system; upgrades to the filter underdrains and backwash system; replacement of the filter media; sound attenuation and ventilation improvements for the high service pump station; installation of a variable frequency drive and

soft start motor for pumps at the raw water pump station; installation of new raw water and finished water flow meters, and several improvements to the residuals management facilities.

- Observatory WTP Construction of a new chlorine contact tank; upgrades to chemical feed systems, and installation of a finished water flow meter.
- North Rivanna WTP: Installation of new filter control valves; new pump control valves; new filter sludge removal equipment; new electrical system upgrades throughout the plant; new finished water flow meter, and the installation of a surge relief mechanism.
- Crozet WTP: Upgrade of the chlorine feed system to a modern hypochlorite feed system; install a finished water meter with appurtenances, and replacement of the existing fluoride and corrosion inhibitor chemical feed systems. The new chemical feed systems will be housed in additional rooms in the future GAC contactor building. This new location will allow for shorter chemical feed lines.

South Rivanna WTP - Work has continued on the reinforced concrete placement for structure foundations and tanks. The GAC building foundation has been started, and work is continuing on the proposed Chlorine Contact Tank and Equalization Basin. The concrete foundation for the permanent Liquid Lime Feed tanks has also started. Large diameter ductile iron pipe installation between the existing filter building and the new chlorine contact tank and GAC facility is approximately 95% complete, including the connection to the filtered water pipe gallery. Leak testing of the new concrete water structures is ongoing, as well as water-proofing treatments on concrete tank exteriors.

Observatory WTP - The foundation excavation for the intermediate pump station, new GAC building, and chlorine contact tank is complete. The extra costs for rubble removal within the old filter building footprint will be included in an upcoming change order. The reinforced concrete foundations for the GAC building, chlorine contact tank and intermediate pump station are almost complete and will begin leak testing soon. Various large diameter ductile iron pipes have been installed, as well as the vertical turbine pump chambers for the intermediate pump station. Various electrical conduit and wiring have been installed at the site. Some demolition work has begun in the existing flocculator basin, and in the existing chemical feed room. The equipment for the flocculator rehabilitation work will be delivered to the site in the coming weeks.

North Rivanna WTP – A new finished water flow meter and filter backwash water piping connection are complete. Erosion and sediment control features have been installed, and the GAC building foundation excavation is underway. The intermediate pump station concrete is under construction. The new finished water pipe connection to the existing clearwell is complete. It is anticipated that a new electrical service line will be installed this summer by Rappahannock Electrical Cooperative (REC).

Crozet WTP – New clearwell expansion tanks have been installed on the discharge side of the WTP effluent pipe, and were placed into service in the last week of May. These tanks will provide expanded clearwell capacity which will provide beneficial operation upgrades for both the temporary and permanent scenarios. The GAC building foundation has been excavated, and the reinforced concrete foundation is under construction. Work is continuing on the intermediate pump station portion of the foundation.

Scottsville WTP – The relocation of the existing raw water pipe line was completed in May. This relocation will provide room for the new GAC building foundation excavation. The GAC building and intermediate pump station foundation excavation is ongoing, and the reinforced concrete foundation work has been started. The storm water sand filter installation is complete.

4. Sanitary Sewer Interceptor Rehabilitation

Results from the sewer flow monitoring and modeling under the Comprehensive Sanitary Sewer Study provided awareness to specific inflow and infiltration (I&I) concerns in the collection system and resulted in strengthened commitments from the City, ACSA and RWSA to continue I&I abatement programs collaboratively. RWSA hired Frazier Engineering to provide professional engineering services to aid in the rehabilitation and repair of the sewer collection system. Rehabilitation work was completed on the lower Rivanna Interceptor, the Crozet Interceptor upstream of Pump Station No. 4, and all pipelines within the Albemarle-Berkley Interceptor.

Current work authorizations related to the Sanitary Sewer Rehabilitation Contract will be performed by Commonwealth Excavating (Commonwealth), who was awarded the contract through cooperative procurement with the City of Charlottesville's term contract for sewer rehabilitation. Commonwealth has completed investigative activities (pipe videos) on the Maury Hills Branch sewer, the lower Crozet Interceptor, the Moores Creek Interceptor, and the Moores Creek Relief Interceptor. The videos were sent to Frazier Engineering for a detailed review and development of recommendations for any necessary rehabilitation work. **Commonwealth has reviewed a work authorization to perform investigative activities on the Morey Creek Interceptor with an anticipated start of work this summer.**

Commonwealth has completed the first two phases of repairs to the Meadow Creek Interceptor. This work included repairs at connection points between the City of Charlottesville sewers and manholes located on the interceptor as well as improvements to outside drop connections. Commonwealth has substantially completed the utility work included with the Phase 3 repairs and is currently completing restoration activities. These repairs include modifications to manhole 100 and the incoming City of Charlottesville sewer line near Route 29 and Morton Drive.

5. Wholesale Water Metering

In January 2012, a Water Cost Allocation Agreement was signed by the City of Charlottesville (City) and ACSA designating how the two agencies would share in the financing of the New Ragged Mountain Dam project. Within the agreement is a general provision developed by the ACSA and City to enhance measurement of the water usage by each of the distribution agencies.

The Board authorized staff in August of 2012 to enter into an agreement with Michael Baker Jr., Inc. (Baker) to complete an engineering study on metering plan alternatives. Baker's study identified several alternatives for a metering plan based on combinations of metering and estimating methodologies. Based on feedback from ACSA, the City, and RWSA, Baker recommended a Jurisdictional Approach which included installation of water meters at 37

locations at the City/County corporate boundary at an estimated cost of \$6.4 million. At its September 2013 meeting, the RWSA Board of Directors requested staff to proceed with the Jurisdictional Coverage Approach. In February 2014 the Board of Directors authorized Baker to complete preliminary and final design for the project and to provide bid-phase services. The final design includes construction of 27 metering systems in underground vaults and required acquisition of twenty (20) permanent water line easements and one (1) permanent access easement.

The three water treatment plant meters were bid in February of 2015 and were constructed in conjunction with the Urban Water GAC upgrades. Bids for the remaining metering sites were opened on October 13, 2015, and the project was awarded to the lowest bidder, Linco, Inc. for \$2,036,281. A Notice to proceed was given in January of 2016. **Construction of the first two meter sites are completed and a third is underway. At VDOT's request, several sites had been moved to the front of the project schedule and were required to be night work in order to minimize traffic disruptions. Work on these sites had been put on hold due to recent changes to the Albemarle County Noise Ordinance, which restricted nighttime construction activities. A solution to this problem has been worked out between VDOT and Albemarle County staff and work on these sites is expected to resume in the next few weeks. In the meantime, Linco has altered their schedule to work on non-VDOT sites in order to move the project forward.**

All but two easements required for the project were acquired prior to award of the project to Linco. Both of the outstanding easements are on property owned by the University of Virginia. Since a resolution on these two easements, acceptable to RWSA, could not be reached with the University, the associated two metering sites were removed from the construction contract, requiring relocation of meter location #25 to beyond University property and the reconfiguration of meter #32, as well as additional survey, subsurface utility investigation, and easement acquisition for site #25. **The additional design work has been completed and a new easement has been granted.**

6. Reservoir Management Plan

In June 2014 staff received proposals for services to develop a Reservoir Management Plan for RWSA, to include all five reservoirs that RWSA manages for water supply (Beaver Creek, Ragged Mountain, South Fork Rivanna, Sugar Hollow, and Totier Creek). A selection committee represented by staff from RWSA, ACSA, and the City reviewed proposals and selected two firms for interviews. DiNatale Water Consultants was awarded this contract in the amount of the \$176,334, and the contract was executed in November 2014. **The interim project report is expected to be finalized in July 2016. A related public information document will be finalized in August 2016. The second year of water quality monitoring for this project is in progress. A Work Authorization is being prepared for the Phase II work to be conducted from August 2016 through 2017. The final report is expected to be presented to the Board in 2017. .**

7. Moore's Creek AWWRF Odor Control Phase 2

At its September 16, 2013 meeting, members of City Council inquired about the possibility to add another phase of odor control to the current Capital Program in response to citizen complaints. Staff asked Hazen at that time to compile conceptual costs to implement the next phases of odor control from the 2007 master plan, which were estimated over \$10 million dollars. In an effort to better define our next steps for odor control while being cost effective, Hazen performed an

operations audit over the winter and two rounds of air and liquid phase sampling at the wastewater treatment facility in summer and fall of 2014. Hazen attended the Board of Directors meeting in December and presented a summary of recommendations and estimated project costs for a project that would significantly control odors from traveling beyond the MCAWRRF fence line.

At the January 27, 2015 Board of Directors Meeting, the Board approved this project with a budget of \$9,330,000 and adopted it with the 2015-2019 CIP. DEQ issued the Certificate to Construct in early November 2015. This project advertised for bid on November 6, 2015 and bids were opened on December 17, 2015. Unfortunately, all of the bids were considerably over the project budget and subsequently were rejected. The design engineers, Hazen and Short Elliot Hendrickson, Inc. evaluated ways to reduce the scope of work without sacrificing the odor control goals. The redesigned project with reduced scope advertised for bid on February 5, 2016 and bids were opened on March 30, 2016. The Board of Directors approved award of the construction contract to MEB General Contractors, Inc. at the April 2016 Board Meeting with an associated Capital budget increase. The contracts have been executed and the pre-construction conference was held on June 8, 2016. The Notice to Proceed date is June 27, 2016. **MEB mobilized their office trailers during the last week of June. They are in the process of laying out the work, submitting shop drawings, and obtaining permits.**

8. Comprehensive Sanitary Sewer Model Update

Due to wet weather inflow and infiltration, projected growth and infill, the RWSA interceptor system required evaluation of current and future flows. The consultant conducted system wide flow metering and developed a system-wide computer modeling evaluation in 2006 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. The study was finalized in 2010. A conclusion of the study was that all RWSA Interceptors as of 2010 had adequate dry weather flow capacity to meet forecasted needs for the Year 2060 (50-year horizon), but several of the Interceptors were not adequately sized for either the current or future wet weather flow based on the statistically recurring 2-Year storm.

Since completion of the study, the City and ACSA have undertaken numerous steps to reduce I&I, and RWSA has undertaken a number of the study's recommendations. In the absence of a cost allocation agreement between the City and ACSA, costs associated with these improvements and wastewater projects in general had been allocated by RWSA to its wholesale customers based on the Four-Party Agreement which utilized budgeted wastewater flows on a system wide basis (for Urban Wastewater) to determine the allocation percentages. In April 2014 the City, ACSA and RWSA entered into a Wastewater Projects Cost Allocation Agreement with the purpose of allocating costs or debt service charges for capacity-related projects based on the projected future use of that particular asset by each party. The April 2014 Agreement required RWSA to update dry and wet weather flow projections from the 2006 study by 2015 as well as develop flow projection tables for capacity-related projects as required by the Wastewater Projects Cost Allocation Agreement.

Twenty-three (23) temporary flow meters were installed throughout the collection system (in addition to the existing 13 permanent flow meters) to better identify system interconnections. Data were collected from these temporary locations for a period of approximately six (6) months and included sufficient wet weather information for model calibration purposes. Greeley and Hansen updated the layout of the model based on as-built information for recent projects and GIS

information provided by local agencies and determined proposed sewer and sub-sewer delineations based on flow meter locations and jurisdictional boundaries. They completed an analysis comparing the dry weather and wet weather flows from 2006 with the dry weather and wet weather flows from 2015. This analysis required completion and calibration of the updated hydraulic model. They also completed population projections based on information collected from meetings with Albemarle County, Albemarle County Service Authority, UVA, the City of Charlottesville and the UVA Foundation and developed flow projections as necessary to run modeling scenarios.

These modeling scenarios identify anticipated wastewater flows for years 2025, 2050, and 2075 as required for the capacity evaluation and the Wastewater Projects Cost Allocation Agreement. The Wastewater Projects Cost Allocation Agreement indicated that the wastewater flow projection tables were to be completed by the end of 2015, with the exception that the deadline could be extended should abnormally dry weather conditions prevail over an extended period of time making collection of sufficient flow data during significant rainfall events unavailable. As a result, due to the abnormally dry conditions in summer 2015 and the need at the time to extend the flow monitoring period to account for a significant wet weather event the deadline was extended to March 3, 2016. Greeley and Hansen completed the flow projections and provided the tables as necessary for the Wastewater Projects Cost Allocation Agreement by that deadline and have also recently completed a capacity evaluation with Flow Management Plans and recommend capital improvement projects. The final report documenting these efforts was completed in July 2016.

9. Crozet Ground Storage, Crozet Waterball, and Stillhouse Tank Improvements

In April 2012, Tank Industry Consultants, Inc. (TIC) performed inspections of the 500,000-gallon Crozet Ground Storage Tank and the 50,000-gallon Crozet Elevated Water Tank (“Crozet Waterball”). At the Ground Storage Tank, TIC identified bowed and twisted rafters and recommended that structural calculations be performed to determine whether the roof structure was compromised. In addition, TIC recommended repainting the interior of the Ground Storage Tank as well as other minor repairs and improvements at both the Crozet Ground Storage Tank and Crozet Waterball. In April 2013, TIC performed an inspection of the 700,000 gallon Stillhouse Water Storage Tank and provided recommendations, including interior painting of the tank. In 2013, WRA performed structural roof evaluations of the Crozet Ground Storage and Stillhouse Tanks. The evaluations focused on the structural integrity of the rafters. Whitman Requardt & Associates (WRA), RWSA’s engineer for this project, documented the findings and provided recommendations for rafter strengthening and replacement in reports dated May 2013 and April 2014, respectively. In addition to these recommendations, RWSA plans to install an active mixing system in the Crozet Ground Storage Tank.

On February 24, 2015, the Board authorized RWSA to execute a work authorization with WRA for design phase services for improvements to the Crozet Ground Storage, Crozet Waterball, and Stillhouse Tanks. Design was completed and the project was advertised for bid on November 3, 2015. A single bid was received on December 1st, which was over budget. Negotiations with this bidder were unsuccessful in bringing the project within budget, so RWSA advertised the project for a second time on January 4, 2016. Bids for the project were opened on February 4, 2016, and five bids were received. At the February 23, 2016 Meeting, the RWSA Board of Directors approved RWSA’s recommendation to award the construction contract to Town Hall Painting Corporation and to sign a work authorization with WRA for construction management services.

Staff issued a Notice to Proceed on April 1, 2016. **Improvements to the Crozet Waterball are complete. Work on the Crozet Ground Storage Tank is underway and is currently on schedule to be completed by late August. Stillhouse Tank repairs will take place beginning in August 2016, after the Crozet work is complete.**

10. South Rivanna Hydropower Plant Rehabilitation

RWSA constructed a hydropower plant at the South Fork Rivanna Dam in 1987. Power generation at the plant was limited for a number of years due to various mechanical issues and has been completely offline for the past two years. In December 2011, RWSA retained HDR to perform a mechanical and electrical equipment assessment and to provide recommendations for capital expenditures and continued operation. This assessment identified the need to perform a number of mechanical and electrical modifications to improve the operation of the hydropower plant. On June 16, 2013, while the plant was down for testing associated with repairs to the speed reducer and generator, the powerhouse flooded during a heavy rainfall event. A post-flood inspection indicated that the rising water damaged the electrical equipment. In addition to electrical system issues, the turbine blades were “stuck” and inoperable prior to the flood event. Attempts to determine the cause were interrupted by the flood event although a visual inspection of the major mechanical components indicates that they appear to be structurally sound. It was determined that further disassembly and inspection of the turbine shaft and blade linkages would be necessary to identify the exact cause of the binding of the blade operating mechanism.

The first step towards rehabilitation of the hydropower facility is to perform a feasibility study where previous recommendations and interaction with the Federal Energy Regulatory Commission (FERC) are taken into account to determine whether it will be cost effective for RWSA to rehabilitate the facility. If the results indicate that RWSA could expect a positive return on their investment, a thorough inspection of the plant’s mechanical equipment and the eventual design of plant improvements may follow. A Request for Proposals seeking professional services to perform the feasibility study was advertised on April 6, 2015 with proposals due on May 7, 2015. Following the interviews, the selection committee determined that Gomez and Sullivan Engineers P.C. was the most meritorious candidate for this project. **In July 2015, the Board of Directors authorized the Executive Director to execute an Engineering Services Agreement and work authorization with Gomez and Sullivan for this project. A kick-off meeting was held on November 18, 2015 and was followed by a site visit to the hydro plant. Staff received a final report in May 2016 and are reviewing the alternatives and recommendations prior to providing a report to the Board.**

11. Route 29 Water Main Betterment Project

The VDOT Route 29 Solutions package includes multiple roadway projects along Route 29 in Charlottesville and Albemarle County. One of these is the Route 29 Widening project, which will widen Route 29 (Seminole Trail) from a four-lane divided highway to a six-lane divided highway from Polo Grounds Road to Town Center Drive at Hollymead Town Center. Improvement of this 1.8 mile-long section will include significant grade changes in some sections to increase sight-distance and improve overall safety.

Due to these proposed grade changes and full depth pavement replacement, VDOT has determined that RWSA’s existing 12-inch cast iron water line along Route 29 is in conflict and must be

relocated for the entire length of the project. RWSA had previously identified through master planning that a 24-inch water main will be needed from the South Rivanna Water Treatment Plant to Hollymead Town Center in order to meet future water demands. RWSA has requested that VDOT and its Design-Build Contractor relocate the existing 12-inch water main as a 24-inch water main, and according to VDOT policy, VDOT would bear the cost of relocation as a 12-inch line and RWSA would bear the additional cost for the “betterment” from 12-inch to 24-inch.

Another component of the Route 29 Solutions package is the Berkmar Drive Extension Project, which will extend the existing Berkmar Drive across the South Fork of the Rivanna River and up to the traffic circle at Meeting Street and Town Center Lane within Hollymead Town Center. As part of the utility work for this project, RWSA has requested that VDOT’s contractor install approximately 750 LF of additional 24-inch water main along the new road at the north end of the project.

The costs associated with the requested betterment were presented to the Board at its December 15, 2015 meeting. Subsequently, the Board approved the project for inclusion in the 2015-2019 Capital Improvement program at a total capital budget of \$3,075,000 and authorized staff to execute a cost sharing agreement with VDOT’s Design-Build Contractor, Lane-Corman, for the construction of the Route 29 Water Main Betterment Project (Route 29 Widening and Berkmar Extended) for a not to exceed cost of \$2,555,000. **Design has been completed and construction is anticipated to take place from December 2016 to March 2017.**

12. Board of Directors’ Strategic Plan

The Board of Directors has requested that a Strategic Plan be developed by the Board for the Rivanna Water and Sewer Authority. In discussions in August 2015 the Executive Director suggested with the terms of office for elected officials on the Board expiring December 31, 2015, and known that at least one elected official representative would change, it would make sense to initiate the Plan after the January 2016 appointments to the Board are completed. These appointments were completed during the week of January 4, 2016.

Staff has reviewed discussion about strategic planning made by the Board of Directors at an October 2013 retreat as well as more recent conversations at the November 2015 meeting and separately with the Executive Director. It is not clear to staff there is a strong consensus on the Board at this time regarding the purpose and extent of this planning effort, but some of the individual comments from Board members include: (1) Board should prepare mission statement and vision and also determine the extent or limitations of staff role (staff suggestions at the October 2013 retreat received a mixed reaction); (2) an expression that having a strategic plan can guide better cooperation between the City and County; (3) a limitation to focus the strategic plan only on RWSA as the mission of RSWA is presently much too uncertain; and (4) include a SWOT analysis.

Staff has completed informal interviews with several facilitators but is waiting for more written information from two strong candidates.

13. Crozet – Finished Water Pump Station

As part of the current FY 2016 CIP, the Crozet Water Treatment Plant is being studied to expand the treatment capacity to secure future demand needs of the Crozet community. Prior to any plant

expansion, it has been determined that the finished water pumping facilities are in dire need of replacement. The Finished Water Pump Station (FWPS) is a new design project to fully replace the antiquated existing pump station, and will be constructed ahead of any plant upgrades. The existing pump station is very small and was constructed as part of the original plant construction in the late 1960s. The pumping equipment and controls are out dated, and operational reliability and efficiency have been drastically impaired. Operational reliability is limited, and the pump house has inadequate heating and cooling. The pump house is located in a low, poorly drained area near the ground storage clearwell, and drainage issues exist.

Due to the age and condition of pumps, electrical systems, building systems and controls, it has been determined that a full station replacement is necessary. An Alternatives Analysis Report was completed in June 2016, and the chosen alternative is to construct a new, larger building up hill from the existing clearwell tank. The new pump station building will be of similar construction as what is being proposed for the GAC facility at Crozet WTP.

Work Authorization No. 19 has been fully executed with Short Elliot Hendrickson, Inc. (SEH), and they have started on the Preliminary Engineering Report and preliminary design. Some geotechnical site testing has also been completed.

14. Urgent and Emergency Repairs

Staff is currently working on several Urgent and Emergency repairs within the water and wastewater systems as listed below.

Current Repairs:

Project No.	Project Description	Approx. Cost
2014-03	North Rivanna Water Line - River Crossing Replacement	\$392,365
2016-02	Moore's Creek AWWRF - Clarifier No. 3 Grout Floor Failure	\$95,000
2016-01	Moore's Creek AWWRF - 54" Secondary Effluent Line Leak	\$300,000
2015-04	Sugar Hollow Water Line - Leak at Buckingham Circle	\$30,000
2015-02	Pantops Water Line - Stream Bank Erosion at Bland Circle (not started yet)	\$50,000-\$100,000
2016-05	Rivanna Interceptor - Pipe Exposure in Creek near Penn Park (not started yet)	\$150,000

- North Rivanna Water Line - River Crossing Replacement
This project is complete. The pipe was tested, connected and placed into service the week of May 9th. The contractor has completed all restoration work and has de-mobilized from the site. **Final billing has been submitted to RWSA and is approved. All closeout documentation has been received.**
- Moore's Creek AWWRF – Clarifier No. 3 Grout Floor Failure
RWSA received quotes for this work on May 5, 2016 and a purchase order was issued. **All grout repairs were completed July 8, 2016. The new floor will be cured and the basin placed back into service mid-July.**

- Moore's Creek AWRRF – 54" Secondary Effluent Line Leak
The 54" pipe joint has been stabilized and the major bypass pumping system has been removed from the MCAWRRF. **Staff is currently addressing a minor seepage issue and then will begin pipe backfill and site restoration.**
- Sugar Hollow Raw Water Line – Leak at Buckingham Circle
The work associated with this repair was completed on June 27, 2016. RWSA is currently reviewing the payment application submitted by the contractor for this work and anticipates closing out this project in July 2016.