Board of Directors Meeting

February 23, 2021

2:15pm

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

BOARD OF DIRECTORS

Regular Meeting of the Board of Directors of the Rivanna Water & Sewer Authority

DATE: **February 23, 2021**

LOCATION: **Virtually via ZOOM**

TIME: **2:15 p.m.**

AGENDA

1. ***CALL TO ORDER***

2. ***STATEMENT FROM THE CHAIR***

3. ***MINUTES OF PREVIOUS BOARD MEETINGS***
   a. *Minutes of Regular Board Meeting on January 26, 2021*

4. ***RECOGNITION***

5. ***EXECUTIVE DIRECTOR'S REPORT***

6. ***ITEMS FROM THE PUBLIC***

7. ***RESPONSES TO PUBLIC COMMENTS***

8. ***CONSENT AGENDA***
   a. *Staff Report on Finance*
   b. *Staff Report on Operations*
   c. *Staff Report on Ongoing Projects*
   d. *Staff Report on Wholesale Metering*
   e. *Award of Engineering Services Term Contracts for Water and Sewer Consulting Services: Kimley Horn; Wiley/Wilson; Whitman Requardt & Associates*

9. ***OTHER BUSINESS***
   a. *Presentation: Introduction of the FY 2022-2026 Capital Improvement Plan*
   Executive Director, Bill Mawyer

10. ***OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA***

11. CLOSED MEETING

12. ADJOURNMENT

GUIDELINES FOR PUBLIC COMMENT AT VIRTUAL RIVANNA BOARD OF DIRECTORS MEETINGS

If you wish to address the Rivanna Board of Directors during the time allocated for public comment, please use the "chat" feature in the Zoom Meeting interface.

Members of the public who submit comments will be recognized during the specific time designated on the meeting agenda for "Items From The Public." The comment(s) will be read aloud to the Board of Directors only during this agenda item, so comments must be received prior to the end of this agenda item. The comments will be read by the Rivanna Authority's Executive Coordinator/Clerk of the Board.

Members of the public requesting to speak will be recognized during the specific time designated on the meeting agenda for "Items From The Public." Each person will be allowed to speak for up to three minutes. When two or more individuals are present from the same group, it is recommended that the group designate a spokesperson to present its comments to the Board and the designated speaker can ask other members of the group to be recognized by raising their hand or standing. Each spokesperson for a group will be allowed to speak for up to five minutes.

If you would like to submit a comment, please keep in mind that Board of Directors meetings are formal proceedings and all comments are recorded on tape. In order to give all who wish to submit a comment proper respect and courtesy, the Board requests that commenter follow the following guidelines:

- Submit your comment prior to the start of or during the "Items from the Public" section of the Agenda.
- In your comment, state your full name and address and your organizational affiliation if commenting for a group;
- Address your comments to the Board as a whole;
- State your position clearly and succinctly and give facts and data to support your position;
- Be respectful and civil in all interactions at Board meetings;
- The Board will have the opportunity to address public comments after the public comment session has been closed;
- At the request of the Chairman, the Executive Director may address public comments after the session has been closed as well; and
- As appropriate, staff will research questions by the public and respond through a report back to the Board at the next regular meeting of the full Board. It is suggested that commenters who have questions for the Board or staff submit those questions in advance of the meeting to permit the opportunity for some research before the meeting.

The agendas of Board meetings, and supporting materials, are available from the RWSA Administration office upon request or can be viewed on the Rivanna website.

Rev. May 20, 2020

CALL TO ORDER

STATEMENT OF CHAIR TO OPEN MEETING

This is Mike Gaffney, Chair of the Rivanna Water and Sewer Authority.

I would like to call the February 23, 2021 meeting of the Board of Directors to order.

Notwithstanding any provision in our Bylaws to the contrary, as permitted under the City of Charlottesville's Continuity of Government Ordinance adopted on March 25, 2020, Albemarle County's Continuity of Government Ordinance adopted on April 15th, 2020, and revised effective October 1, 2020 and Chapter 1283 of the 2020 Acts of the Virginia Assembly effective April 24, 2020, we are holding this meeting by real time electronic means with no board member physically present at a single, central location.

All board members are participating electronically. This meeting is being held pursuant to the second resolution of the City's Continuity of Government Ordinance and Section 6 of the County's revised Continuity of Government Ordinance. All board members will identify themselves and state their physical location by electronic means during the roll call which we will hold next. I note for the record that the public has real time audio-visual access to this meeting over Zoom as provided in the lawfully posted meeting notice and real time audio access over telephone, which is also contained in the notice. The public is always invited to send questions, comments, and suggestions to the Board through Bill Mawyer, the Authority's Executive Director, at any time.

ROLL CALL:

Mr. Boyles: Please state your full name and location.
Ms. Hildebrand: Please state your full name and location.
Mr. O'Connell: Please state your full name and location.
Dr. Palmer: Please state your full name and location.
Mr. Richardson: Please state your full name and location.
Mr. Snook: Please state your full name and location.

And I am Mike Gaffney and I am located at _____.

Joining us today electronically are the follow Authority staff members:

Bill Mawyer, Lonnie Wood, Jennifer Whitaker, David Tungate, John Hull, and Katie McIlwee

We are also joined electronically by Carrie Stanton, counsel to the Authority.

695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
January 26, 2021

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, January 26, 2021 at 2:27 p.m. via Zoom.

Board Members Present: Mike Gaffney, John Blair, Lloyd Snook, Dr. Liz Palmer, Jeff Richardson, Lauren Hildebrand, Gary O'Connell.

Board Members Absent: none.

Rivanna Staff Present: Bill Mawyer, Katie McIlwee, Lonnie Wood, Jennifer Whitaker, Phil McKalips, David Tungate, John Hull.

Attorney(s) Present: Kurt Krueger.

1. CALL TO ORDER
Mr. Gaffney called the January 26, 2021 regular meeting of the Rivanna Water and Sewer Authority to order at 2:27 p.m.

2. STATEMENT FROM THE CHAIR
Mr. Gaffney read the following statement aloud:

"Notwithstanding any provision in our Bylaws to the contrary, as permitted under the City of Charlottesville's Continuity of Government Ordinance adopted on March 25, 2020, Albemarle County's Continuity of Government Ordinance adopted on April 15th, 2020, and revised effective October 1, 2020 and Chapter 1283 of the 2020 Acts of the Virginia Assembly effective April 24, 2020, we are holding this meeting by real time electronic means with no board member physically present at a single, central location.

"All board members are participating electronically. This meeting is being held pursuant to the second resolution of the City's Continuity of Government Ordinance and Section 6 of the County's revised Continuity of Government Ordinance. All board members will identify themselves and state their physical location by electronic means during the roll call which we will hold next.

"I note for the record that the public has real time audio-visual access to this meeting over Zoom as provided in the lawfully posted meeting notice and real time audio access over telephone, which is also contained in the notice. The public is always invited to send questions, comments, and suggestions to the Board through Bill Mawyer, the Authority's Executive Director, at any time."

Mr. Gaffney called the roll.

Mr. John Blair stated he was located at Charlottesville City Hall, at 605 East Main Street (City Hall) in Charlottesville, VA.

Ms. Lauren Hildebrand stated she was located at 305 4th Street Northwest in the Utilities Public Works Building in Charlottesville.

[Mr. O'Connell was experiencing technical difficulties during the roll call.]

Dr. Elizabeth Palmer stated she was located at 2958 Mechum Banks Drive in Charlottesville, VA.

Mr. Jeff Richardson stated he was located at the County Administration Building, 401 McIntire Road, in Charlottesville, VA.

Mr. Lloyd Snook stated he was located at 408 East Market Street in Charlottesville, VA.

Mr. Mike Gaffney stated he was located at 3180 Dundee Road in Earlysville, VA.

Mr. Gaffney stated the following Authority staff members were joining the meeting electronically: Bill Mawyer, Lonnie Wood, Jennifer Whitaker, David Tungate, John Hull, and Katie McIlwee.

Mr. Gaffney stated they were also joined electronically by Mr. Kurt Krueger, Counsel to the Authority.

3. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on December 15, 2020

Dr. Palmer moved that the board approve the minutes of the previous board meeting. The motion was seconded by Mr. Blair and passed unanimously (7-0).

4. RECOGNITIONS

a. Resolution of Appreciation for Karl Renter

Mr. Gaffney read the resolution aloud:

"**WHEREAS**, Mr. Renter has served in water treatment positions since May of 1988, most recently as a Water Operator Class 1; and

"**WHEREAS**, over the same period in excess of 32 years, Mr. Renter has demonstrated leadership in his field and has been a valuable resource to the Authority; and

"**WHEREAS**, Mr. Renter's understanding of the Authority's water treatment operations, as well as his dedication and loyalty have positively impacted our water treatment programs to the benefit of the Authority and its customers; and

"**WHEREAS**, the Rivanna Water and Sewer Authority Board of Directors is most grateful for the professional and personal contributions Mr. Renter has provided to the Authority; and

"**NOW, THEREFORE, BE IT RESOLVED** that the Rivanna Water and Sewer Authority

Board of Directors recognizes, thanks and commends Mr. Renter for his distinguished service, efforts and achievements as a member of the Rivanna Water and Sewer Authority, and presents this Resolution as a token of esteem, with its best wishes in his retirement.

"**BE IT FURTHER RESOLVED** that this Resolution be entered upon the permanent Minutes of the Rivanna Water and Sewer Authority."

Dr. Palmer moved that the board approve the resolution. The motion was seconded by Mr. Snook and passed unanimously (7-0).

b. Resolution of Appreciation for Kurt Krueger

The resolution was shown on the screen, as follows:

WHEREAS, Mr. Krueger has served as legal counsel for the Rivanna Water & Sewer Authority and Solid Waste Authority Boards of Directors since 1997; and

WHEREAS, over that twenty-three year period, Mr. Krueger has provided expert legal advice and guidance for the Authorities, including the processes required to conduct "virtual" business during the ongoing COVID pandemic; and

WHEREAS, Mr. Krueger's understanding of the water, sewer, solid waste and recycling enabling legislation as well as the operations of the Authorities has supported a strategic decision-making process that provided benefits to the Authorities, their customers and the Charlottesville /Albemarle community. During Mr. Krueger's tenure and through his efforts, major agreements were completed including:

- a Settlement Agreement and Release for continued operation of the Ivy Landfill
- the Local Government Support Agreement for ongoing solid waste environmental expenses
- a Community Water Supply Plan, to ensure an adequate water supply for 50 years
- the Ragged Mountain Reservoir Dam Project Agreement and Water Cost Allocation Agreement
- the Wastewater Projects Cost Allocation Agreement
- a Subterranean Easement for the Rivanna Interceptor and Sewer Pumping Station
- the Observatory Water Treatment Plant, Raw Water Pumping and Piping Upgrade Cost and Capacity Allocation Agreement
- a Deed of Ground Lease with UVA for the Observatory Water Treatment Plant; and

WHEREAS, the Water & Sewer Authority and Solid Waste Authority Boards of Directors are most grateful for the professional and personal contributions Mr. Krueger has provided to both Authorities and to the community; and

NOW, THEREFORE, BE IT RESOLVED that the Rivanna Water & Sewer Authority and the Rivanna Solid Waste Authority Boards of Directors recognize, thank, and commend Mr. Krueger for his distinguished service, and efforts as legal counsel, and present this Resolution as a token of esteem, with their best wishes in his retirement.

BE IT FURTHER RESOLVED that this Resolution be entered upon both the permanent Minutes of the Rivanna Water & Sewer Authority and the Rivanna Solid Waste Authority.

Mr. Blair moved that the board approve the resolution. The motion was seconded by Dr. Palmer and passed unanimously (7-0).

Mr. Krueger stated he would let the comments he made at the Solid Waste meeting about it being an honor and pleasure to serve the Authority for the last 23 years stand. He stated he appreciated the boards allowing McGuireWoods to be of service for that long.

Mr. Gaffney stated the board appreciated everything Mr. Krueger and his firm have done for Rivanna.

5. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer stated Rivanna is coordinating with the Blue Ridge Health Department to get vaccinations for the employees who wish to receive one.

Mr. Mawyer stated Rivanna is moving forward with the Buck Mountain master planning effort and that hopefully in February, they will be bringing the first phase of that plan to the board for their information. He stated Rivanna is trying to integrate the plan into their budget, and they are now entering budget season.

Mr. Mawyer stated in February, Rivanna will present the proposed five-year CIP to the board. He stated they have already been over it with Mr. O'Connell and Ms. Hildebrand as the Board's subcommittee and integrated their comments into the plan. He stated the board will receive the five-year CIP in its packet next month.

Mr. Mawyer stated progress continues to be made on the Rivanna-to-Ragged Water Line Project. He stated there is an easement poised to be signed in what has been a long and somewhat difficult negotiation with the property owner near Route 250. He stated after literally several years of coordination and working through details, and with staff's effort, they are all ready to sign the easement, which Rivanna is celebrating.

Mr. Mawyer stated they will then be down to three private owners, plus the UVA Foundation and County School Board, to complete acquisition of easements for the entire route, from Ragged Mountain to the Rivanna Reservoir, with the understanding that part of that route is in the VDOT right-of-way. He stated VDOT does not grant Rivanna easements, but Rivanna has a letter informing them that they want to put the pipe in the right-of-way, which would be on Woodburn Road and Rio Road up to Lambs Road. He stated they can see the end in sight and will be heavily focusing on the last few entities they need to deal with going forward.

Mr. Mawyer stated lastly, under community outreach, Rivanna told the board in December that they were partnering with the County Service Authority and City on the "Imagine a Day Without Water" art contest they annually participate in. He presented on a slide some of the winning artworks that were received from the schools, from first and second grade, third and fourth, fifth sixth, seventh and eighth, and ninth through 12th. He stated they received some outstanding artwork through the three partners and appreciated the community's participation in this event.

He stated there were gifts and prizes for the winners. He stated it was another good year, despite the virtual nature of the contest, and they received some tremendous artwork.

Mr. Mawyer stated the theme of the contest was, "What Water Means to Me." He stated they appreciate everyone who participated in the contest.

Mr. Krueger noted that Mr. O'Connell had joined the meeting, and so should state his full name and location.

Mr. Gary O'Connell, Executive Director of the Albemarle County Service Authority, stated he was located at 168 Spotnap Road, at the ACSA headquarters. He noted he had had multiple Zoom issues.

6. ITEMS FROM THE PUBLIC

Mr. Gaffney opened the meeting to the public. He asked Ms. McIlwee if there were any members of the public present who wished to speak.

Ms. McIlwee replied that no one had raised their hand.

7. RESPONSES TO PUBLIC COMMENT

As there were no items from the public, there were no responses.

8. CONSENT AGENDA

a. Staff Report on Finance

b. Staff Report on Operations

c. Staff Report on Ongoing Projects

d. Staff Report on Wholesale Metering

e. Award of Construction Contract – Moores Creek Exterior Lighting Improvements; Pyramid Electrical

f. Award of Legal Services Term Contract; Williams Mullen

g. Approval of CIP Budget Amendment - Moores Creek Wastewater Facilities Master Plan

Dr. Palmer moved that the board approve the Consent Agenda. The motion was seconded by Mr. O'Connell and passed unanimously (7-0).

Mr. Gaffney stated the RSWA would need to reconvene for a joint meeting with the RWSA.

Mr. Krueger stated a motion would need to be made by a member of the RSWA Board to do so.

At 2:39 p.m., Dr. Palmer moved that the Board reopen the Solid Waste Authority meeting. Mr. Snook seconded the motion, which carried unanimously (7-0).

9. OTHER BUSINESS

(JOINT SESSION WITH THE RSWA)

a. *Presentation: Strategic Plan Update; Katie McIlwee, Communications Manager/Executive Coordinator*

Ms. McIlwee stated that she would provide an update on the Strategic Plan and that Year 3 implementation has begun. The review begins with an over of Rivann's strategic direction which includes, our values of integrity, teamwork, respect and quality. She stated Rivanna's vision is to serve the community and be a recognized leader in environmental stewardship by providing exceptional water and solid waste services. She stated the mission has not changed since the beginning of the Strategic Plan.

Ms. McIlwee stated in Year 3, Rivanna has the same six goals and goal teams. She stated they are currently working on 14 strategies and have developed 26 tactics to achieve those strategies.

Ms. McIlwee stated the Workforce Development Team's strategy is to conduct training needs assessment and enhancements of the training program. She stated so far, they have completed virtual PVCC leadership training for Class 1 and 2 Operators. She stated the leadership coaching program at PVCC was expanded to include all new leaders throughout the organization, and the DPOR Apprenticeship Program has also been expanded to include more maintenance mechanics.

Ms. McIlwee stated the next steps for the Workforce Development Team are to complete individual development plans for all employees and to work with PVCC on developing position-specific training for employees throughout the Authorities.

Ms. McIlwee stated Operational Optimization is working on two strategies. She stated the first is to continually evaluate, prioritize, and improve key business and operational processes. She stated some of the ways they have achieved this are through implementing a quarterly GAC vessel backwashing schedule, and by decreasing polymer chemicals by 34% at Moores Creek centrifuges. She stated the new piece of lab equipment has now been certified. She also stated the dissolved oxygen control for Scottsville Wastewater Treatment Plant has been designed and is currently out for bid. She stated as of today, the contract for legal services that was out for bid, has been awarded.

Ms. McIlwee stated the next steps for the team are to test the new South Rivanna fiber communications cable, and to use new sensors in the aeration process and investigate the use of additional sensors in the final effluent flume at Moores Creek.

Ms. McIlwee stated the Operational Optimization Team's second strategy is to protect the workforce and the public through a continually growing Rivanna culture of safety. She stated this included submitting an emergency response plan to the EPA in September 2020; installing six web-based cameras at Crozet, three at Glenmore, and three at Scottsville Wastewater Treatment Plant; conducting a Glenmore needs assessment, which is currently in the study phase; and installing a card access system on all entrance doors at Rivanna facilities.

Ms. McIlwee stated the next steps are to add new web-based cameras to Glenmore and Scottsville Wastewater Treatment Plants, and to Crozet and Observatory Water Treatment Plants, and to continually review and update the safety manual.

Ms. McIlwee stated the Communication and Collaboration team has three strategies, the first being to create and maintain an internal communication platform. She stated this is being achieved through continued implementation of the document management system. She stated they have also begun to migrate documents out of the legacy system into the new system. They also continue to publish a bimonthly newsletter for Rivanna employees.

Ms. McIlwee stated next steps are continuing the migration of the legacy system and creating how-to guides and training videos for employees on how to use the new document management system.

Ms. McIlwee stated the second strategy is to create and implement a comprehensive public outreach plan. She stated this is achieved through updating the website content with new photos, developing a social media policy, and creating a Rivanna Authority Facebook page.

Ms. McIlwee stated the next steps are to continue planning and scheduling project and facility videos, and continued maintenance and updating of the website and the Facebook page.

Ms. McIlwee stated the last strategy for the Communication and Collaboration Team is to enhance internal and external communications. She stated that, in collaboration with the City of Charlottesville and the Albemarle County Service Authority, Rivanna completed their sixth annual "Imagine a Day Without Water" art contest. She stated they continue to livestream monthly board meetings.

Ms. McIlwee stated the next steps are that when board meetings return to in-person status, they plan to continue to live stream the meetings for the public to watch in real-time. Planning for Fix-a-Leak Week activities with the City and ACSA have also begun.

Ms. McIlwee stated the Environmental Stewardship team has three strategies. She stated the first is to increase internal environmental engagement. She stated that COVID has impacted the Environmental Stewardship Goal Team's ability to fully engage in this strategy, because of the challenges of planning social activities while maintaining COVID safety protocols. She stated they are looking for new and different ways to get internal engagement in a safe manner. She stated they have also been limited in terms of school visits, and presentations to area schoolchildren have been put on hold for the time being.

Ms. McIlwee stated the next strategy is to provide regional leadership and environmental stewardship partnerships. She stated Environmental Stewardship also has a part in the planning and hosting of "Imagine a Day Without Water" events. She stated they are also a part of the planning for the Rivanna Flow Fest and continue to meet regularly to plan for future events. She stated they are a member of the Stormwater Partnership and the James River Riparian Consortium.

Ms. McIlwee stated the team's last strategy is to evaluate potential opportunities for additional environmental activities at RWSA facilities. She stated this included development of the Buck Mountain Management Plan, evaluating potential for silviculture and solar at Buck Mountain properties, and continued invasive species management. She stated they created a Sustainability Working Group.

Ms. McIlwee stated the next steps are to evaluate the potential for solar at RWSA facilities and implement the Buck Mountain Management Plan.

Ms. McIlwee stated the Solid Waste Services Team has two strategies. She stated the first is to determine community needs and preferred level of service. Which was done through expanded involvement in the oyster shell recycling program, supporting establishment of the new Recycling Ambassador Program at McIntire, and installing enhanced signage at both Ivy and McIntire. She stated RSWA also completed the first timber sale of the forested buffer at Ivy MUC.

Ms. McIlwee stated the next steps for this strategy are to continue to expand the Ambassador Program, roll out an interactive recycling quiz via Facebook, and complete processing of oyster shells for seeding and returning to the bay.

Ms. McIlwee stated the team's second strategy is to enhance partnerships with local governments and UVA, which was done through establishing a glass collection agreement with UVA, outreach to neighboring counties to coordinate their glass collection efforts, and support of various UVA and student projects related to recycling.

Ms. McIlwee stated their next steps are to further the glass collection collaboration by establishing agreements and infrastructure with neighboring counties, and to upgrade the used cooking oil collection program for composting at all sites.

Ms. McIlwee stated the Infrastructure and Master Planning Team's first strategy is to implement an Authority-wide Asset Management Program. She stated that they have completed all workshops and condition assessment related to Phase 2 of the Asset Management Program development process, have procured a new CMMS with Cityworks, finalized an implementation scope of work with the contractor, and kicked off the CMMS implementation process.

Ms. McIlwee stated the next steps will be to begin scheduling workshops associated with implementation, and to draft the Tactical Asset Management Plan and review with staff.

Ms. McIlwee stated the team's second strategy is to develop and maintain long-term master plans for all critical assets. She stated this was done by holding multiple meetings and workshops associated with Moores Creek Treatment Plant and Finished Water Master Plans. She stated the draft reports are being developed for review. She stated a presentation was prepared for the North Rivanna Water Treatment Plant decommissioning findings, and a meeting was held with ACSA to review the results.

Ms. McIlwee stated the next steps are to develop a work authorization with a consultant to perform the master plan and needs assessments for Glenmore and Stone Robinson, finalize reports associated with the Moores Creek Master Plan and the Finished Water Master plan, and schedule the annual master planning gap assessment.

Dr. Palmer asked how the work with PVCC on developing the training relative to the positions and departments within the Authorities works. She asked if someone at PVCC does this specific to Rivanna's type of jobs.

Ms. McIlwee stated that the Human Resources Manager, Ms. Betsey Nemeth, has been working with the PVCC Workforce Development Coordinator to develop programs specific to Rivanna and implement them.

Mr. Wood stated this was correct.

Dr. Palmer stated that there are not many organizations with jobs similar to those at the Rivanna Authorities have, so she was trying to understand if PVCC has a staff that does training development for a variety of different employers in town.

Mr. Wood stated they have been using PVCC for a couple of years and work with two or three people to develop training. He stated they have some one-on-one coaching that can be tailored to a specific person where they want to address things that a particular manager or operator may struggle with. He stated PVCC also has a program where they can tailor management or leadership training needs to the audience that is going to attend the training.

Mr. Mawyer stated the state now requires that the Water Treatment Operators and Wastewater Treatment Plant Operators receive leadership training. He stated when they go to PVCC, they are getting training on leadership and supervisory skills, and not so much on specific skills, such as water or wastewater treatment. He stated this is very helpful in developing middle managers in their individual development plans so that they can rise into upper management one day. He stated as Mr. Wood explained, PVCC does provide individual mentor-type trainers and counselors to help and work one-on-one with staff.

Dr. Palmer stated one of the issues for the treatment plants was putting up cameras for safety. She stated she remembered hearing that three rope swings were taken down at the reservoir at Sugar Hollow. She asked if anyone was considering cameras out there for safety of the drinking water supply.

Mr. Mawyer replied that there are now cameras at Sugar Hollow for safety and to help them monitor the reservoir level.

Dr. Palmer asked if those cameras were there when the three rope swings went up, and if these were different cameras or the same ones.

Mr. Mawyer replied that the cameras look at the dam and at the water behind the dam. He stated that if a swing is below the dam where, perhaps the rope swings were, or up at the Blue Hole, the cameras do not monitor that.

Dr. Palmer stated she was not expecting the cameras at the swimming holes, but she did at the reservoir itself, and since Rivanna took down rope swings, perhaps they would consider monitoring swimming in the reservoir in the summer. She stated the rope swings are evidence of a variety of people swimming in the reservoir.

Ms. Hildebrand mentioned that the City has a similar partnership with PVCC training throughout various departments. She stated Utilities personnel take advantage of the training, and PVCC

does an excellent job with setting up tailored programs. She stated what she finds valuable is that people who have not had any supervisory experience are sent through the program, and it has been an asset and opportunity for those employees who want to advance.

Mr. Gaffney stated he wanted to take a moment to thank not only Mr. Mawyer, but all the goal team leaders and everyone at Rivanna who has taken on the Strategic Plan as strongly as they have over the past three years. He stated one of the big concerns when entering into the contract to create a Strategic Plan was whether they would actually implement it, and he does not think he has ever seen a Strategic Plan so consciously implemented. He stated it has been very impressive to see, and he appreciates everyone's continued work and focus.

Mr. Mawyer thanked Mr. Gaffney. He stated strategic plans sometimes get put on the shelf, but Rivanna staff have done a good job keeping it alive and active. He stated that the end of the five-year plan is around the corner, so it will not be long until they start a new five-year Strategic Plan. He stated the current plan provides guidance on many different topics and has proved very beneficial. He stated they appreciate the board giving the direction to put a plan in place, and it has worked very well.

10. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

There were none.

11. CLOSED MEETING – Personnel Review

At 2:58 p.m., Mr. O'Connell moved that the Board of Directors of the Rivanna Water and Sewer Authority enter into a joint closed session with the Rivanna Solid Waste Authority Board to discuss confidential personnel matters as permitted by Section 2.2-3711-A1 of the Code of Virginia. Ms. Hildebrand seconded the motion, which passed unanimously (7-0).

At 3:49 p.m., Dr. Palmer moved the following: "Whereas, the Rivanna Water and Sewer Authority has convened a joint closed meeting with the Rivanna Solid Waste Authority on this date pursuant to an affirmative, recorded vote and in accordance with the provisions of the Virginia Freedom of Information Act, and whereas Section 2.2-3712D of the Code of Virginia requires a certification by the Rivanna Water and Sewer Authority that such closed meeting was conducted in conformity with Virginia law. Now therefore, be it resolved that the Rivanna Water and Sewer hereby certifies that, to the best of each member's knowledge, (1) only public business matters lawfully exempted from open meeting requirements by Virginia law were discussed in the executive meeting to which the certification resolution applies, and (2) only such public business matters, as were identified in the motion convening the closed meeting, were heard, discussed, or considered by the Rivanna Solid Waste Authority." Mr. O'Connell seconded the motion, which passed unanimously (7-0).

Mr. O'Connell moved to approve a merit increase for Executive Director Bill Mawyer of 4% to be effective on the third pay period of 2021, starting on January 24. Dr. Palmer seconded the motion, which passed unanimously (7-0).

12. ADJOURNMENT

At 3:51 p.m., Dr. Palmer moved to adjourn the meeting of the Rivanna Water and Sewer Authority. The motion was seconded by Mr. Snook and passed unanimously (7-0).

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **EXECUTIVE DIRECTOR'S REPORT**

DATE: **FEBRUARY 23, 2021**

STRATEGIC PLAN GOAL: WORKFORCE DEVELOPMENT

Recognitions

The professional qualifications of our staff continue to improve and enhance our services. The following employees have successfully completed the requirements for a license from the State:

- Matthew Mitchell – Class 1 Water Operator License
- Ron Dudash – Class 1 Water Operator License
- Robbie McMullen – Class 4 Wastewater License

COVID Vaccinations

We are coordinating through the Vaccine Administration Management System, and the State's new vaccine registration system, to schedule appointments for our employees.

STRATEGIC PLAN GOAL: INFRASTRUCTURE AND MASTER PLANNING

S. Rivanna to Ragged Mtn Reservoir Water Line

Progress continues in our efforts to acquire 9.5 miles of easements and agreements (with VDOT) for this 36" water line. We anticipate completion of an easement agreement with the County School Board in April. Discussions continue with 3 private owners and UVAF.

STRATEGIC PLAN GOAL: COMMUNICATION AND COLLABORATION

Contemplative Commons Building, UVA

We are coordinating with UVA Facilities Management to upgrade a water distribution pipe located adjacent to this new facility. Our water pipe conveys treated drinking water from the Observatory WTP to Emmett Street through the "dell" area of UVA. Construction of this new building in the dell area and upgrade of our water pipe will be completed by UVA's contractor beginning in August 2021.

League of Women Voters

I was invited to speak as part of a virtual panel, with 10 other speakers, on topics that highlight our community's water supply and drinking water systems.

Stream Health Webinar Series

Andrea Bowles, Water Resources Manager, and Jennifer Whitaker, Director of Engineering and Maintenance, have been invited to participate in Albemarle County's Stream Health Webinar Series on March 5. This is part of the County's Stream Health Initiative, and staff will provided information on "Local Water Supply and Source Water Protection".

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

FROM: **LONNIE WOOD, DIRECTOR OF FINANCE AND ADMINISTRATION**

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **DECEMBER MONTHLY FINANCIAL SUMMARY – FY 2021**

DATE: **FEBRUARY 23, 2021**

Urban Water flow and rate revenues are 5% over budget estimates through December, and Urban Wastewater flow and rate revenues are 17% over budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 4,042,520	$ 5,121,172	$ 1,142,062	$ 10,305,754
Expenses	(4,353,705)	(4,336,620)	(1,139,467)	(9,829,792)
Surplus (deficit)	$ (311,185)	$ 784,552	$ 2,595	$ 475,962
Debt Service				
Revenues	$ 3,444,046	$ 4,292,936	$ 828,250	$ 8,565,232
Expenses	(3,467,655)	(4,272,603)	(834,249)	(8,574,507)
Surplus (deficit)	$ (23,609)	$ 20,333	$ (5,999)	$ (9,275)
Total				
Revenues	$ 7,486,566	$ 9,414,108	$ 1,970,312	$ 18,870,986
Expenses	(7,821,360)	(8,609,223)	(1,973,716)	(18,404,299)
Surplus (deficit)	$ (334,794)	$ 804,885	$ (3,404)	$ 466,687

When reviewing the Authority as a whole, operating revenues are $943,000 over budget and operating expenses are $467,000 over budget.

A. Annual Transactions

Some revenues and expenses are over the prorated year-to-date budget due to one-time annual payments made or revenues received for the year. These transactions appear to be significant impacts on the budget vs. actual monthly comparisons, but will even out as the year progresses. Septage receiving support revenue of $109,441 is received annually from

the County. Annual payments made for certain leases and maintenance agreements and some quarterly insurance premiums are some good examples.

B. Personnel Costs (various departments) – Unbudgeted Special Award bonuses were paid to staff in October, and Maintenance department salaries were underbudgeted this year in error.
C. Professional Services (Urban Water – page 2) – Urban Water has incurred unbudgeted professional fees, but much of those fees will be reimbursed by UVA pursuant to our Supplemental Water Treatment Systems Study, Design and Construction Agreement.
D. Other Services and Charges (Urban Water – page 2) – Urban Water incurred $47,000 of unbudgeted watershed management costs due to unexpected charges related to mitigation plan compliance.
E. Operations and Maintenance (Urban Water – page 2) – Urban Water is $331,000 over its total annual budget for Pipeline and Appurtenances repairs due to several major line breaks.
F. Communications (Urban Water, Crozet Water – pages 2 and 3) – Urban Water and Crozet Water are experiencing higher than expected telephone and data service costs.

Attachments

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020
Fiscal Year 2021

Consolidated
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 17,381,293	$ 8,690,647	$ 9,547,298	$ 856,651	9.86%
Lease Revenue		105,000	52,500	56,023	3,523	6.71%
Admin., Maint. & Engineering Revenue		545,000	272,500	329,455	56,955	20.90%
Other Revenues		542,788	271,394	491,444	220,050	81.08%
Use of Reserves-GAC		535,220	267,610	85,600	(182,010)	-68.01%
Rate Stabilization Reserves		240,027	120,014	120,014	-	0.00%
Interest Allocation		35,100	17,550	5,375	(12,175)	-69.37%
Total Operating Revenues		**$ 19,384,428**	**$ 9,692,214**	**$ 10,635,208**	**$ 942,994**	**9.73%**
Expenses						
Personnel Cost	**A, B**	$ 8,913,257	$ 4,456,628	$ 4,513,996	$ (57,367)	-1.29%
Professional Services	**A, C**	602,700	301,350	408,527	(107,177)	-35.57%
Other Services & Charges	**A, D**	3,136,780	1,568,390	1,711,553	(143,163)	-9.13%
Communications	**A**	161,020	80,510	113,584	(33,074)	-41.08%
Information Technology	**A**	392,950	196,475	166,854	29,621	15.08%
Supplies		47,045	23,523	21,111	2,412	10.25%
Operations & Maintenance	**A, E**	4,918,416	2,459,208	2,655,122	(195,914)	-7.97%
Equipment Purchases		352,250	176,125	138,501	37,624	21.36%
Depreciation		860,000	430,000	430,000	(0)	0.00%
Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 19,384,418**	**$ 9,692,209**	**$ 10,159,247**	**$ (467,038)**	**-4.82%**
Operating Surplus/(Deficit)		**$ 10**	**$ 5**	**$ 475,961**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 15,861,016	$ 7,930,508	$ 7,930,512	$ 4	0.00%
Use of Reserves		954,652	477,326	477,326	-	
Septage Receiving Support - County		109,440	54,720	109,441	54,721	100.00%
Buck Mountain Lease Revenue		1,600	800	-	(800)	-100.00%
Trust Fund Interest		135,900	67,950	4,753	(63,197)	-93.01%
Reserve Fund Interest		666,000	333,000	43,201	(289,799)	-87.03%
Total Debt Service Revenues		**$ 17,728,608**	**$ 8,864,304**	**$ 8,565,232**	**$ (299,072)**	**-3.37%**
Debt Service Costs						
Total Principal & Interest		$ 14,380,219	$ 7,190,110	$ 7,190,110	$ -	0.00%
Reserve Additions-Interest		666,000	333,000	43,201	289,799	87.03%
Debt Service Ratio Charge		725,000	362,500	362,500	-	0.00%
Reserve Additions-CIP Growth		1,957,394	978,697	978,697	-	0.00%
Total Debt Service Costs		**$ 17,728,613**	**$ 8,864,307**	**$ 8,574,507**	**$ 289,799**	**3.27%**
Debt Service Surplus/(Deficit)		**$ (5)**	**$ (3)**	**$ (9,275)**		

Summary

Total Revenues	$ 37,113,036	$ 18,556,518	$ 19,200,441	$ 643,923	3.47%
Total Expenses	37,113,031	18,556,515	18,733,754	(177,239)	-0.96%
Surplus/(Deficit)	**$ 5**	**$ 3**	**$ 466,687**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Urban Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 7,118,541	$ 3,559,271	$ 3,731,501	$ 172,230	4.84%
Lease Revenue		75,000	37,500	41,469	3,969	10.58%
Miscellaneous	C	-	-	134,587	134,587	
Use of Reserves-GAC		500,000	250,000	85,600	(164,400)	-65.76%
Rate Stabilization Reserves		94,254	47,127	47,127	-	0.00%
Interest Allocation		14,600	7,300	2,236	(5,064)	-69.37%
Total Operating Revenues		**$ 7,802,395**	**$ 3,901,198**	**$ 4,042,520**	**$ 141,322**	**3.62%**
Expenses						
Personnel Cost	B	$ 1,918,361	$ 959,180	$ 983,233	$ (24,053)	-2.51%
Professional Services	C	134,000	67,000	257,693	(190,693)	-284.62%
Other Services & Charges	D	738,130	369,065	447,360	(78,295)	-21.21%
Communications	A, F	76,000	38,000	53,250	(15,250)	-40.13%
Information Technology		85,500	42,750	29,072	13,678	32.00%
Supplies		5,745	2,873	4,305	(1,432)	-49.85%
Operations & Maintenance	E	2,159,300	1,079,650	1,298,683	(219,033)	-20.29%
Equipment Purchases		28,000	14,000	11,263	2,737	19.55%
Depreciation		300,000	150,000	150,000	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 5,445,036	$ 2,722,518	$ 3,234,858	$ (512,340)	-18.82%
Allocation of Support Departments		2,357,359	1,178,680	1,118,847	59,832	5.08%
Total Operating Expenses		**$ 7,802,395**	**$ 3,901,197**	**$ 4,353,705**	**$ (452,508)**	**-11.60%**
Operating Surplus/(Deficit)		**$ 0**	**$ 0**	**$ (311,186)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 6,178,645	$ 3,089,323	$ 3,089,298	$ (25)	0.00%
Trust Fund Interest		49,000	24,500	1,716	(22,784)	-93.00%
Reserve Fund Interest		339,600	169,800	22,032	(147,768)	-87.02%
Use of Reserves		662,000	331,000	331,000	-	0.00%
Lease Revenue		1,600	800	-	(800)	-100.00%
Total Debt Service Revenues		**$ 7,230,845**	**$ 3,615,423**	**$ 3,444,046**	**$ (171,376)**	**-4.74%**
Debt Service Costs						
Total Principal & Interest		$ 5,215,445	$ 2,607,723	$ 2,607,723	$ -	0.00%
Reserve Additions-Interest		339,600	169,800	22,032	147,768	87.02%
Debt Service Ratio Charge		400,000	200,000	200,000	-	0.00%
Reserve Additions-CIP Growth		1,275,800	637,900	637,900	-	0.00%
Total Debt Service Costs		**$ 7,230,845**	**$ 3,615,423**	**$ 3,467,655**	**$ 147,768**	**4.09%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ (23,609)**		
Rate Center Summary						
Total Revenues		$ 15,033,240	$ 7,516,620	$ 7,486,566	$ (30,054)	-0.40%
Total Expenses		15,033,240	7,516,620	7,821,360	(304,740)	-4.05%
Surplus/(Deficit)		**$ 0**	**$ 0**	**$ (334,794)**		
Costs per 1000 Gallons		$ 2.30		$ 2.44		
Operating and DS		$ 4.42		$ 4.39		
Thousand Gallons Treated		3,397,700	1,698,850	1,781,145	82,295	4.84%
or						
Flow (MGD)		9.309		9.680		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Crozet Water Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 1,028,808	$ 514,404	$ 514,404	$ -	0.00%
Lease Revenues		30,000	15,000	14,554	(446)	-2.98%
Use of Reserves-GAC		26,000	13,000	-	(13,000)	-100.00%
Interest Allocation		2,100	1,050	317	(733)	-69.80%
Total Operating Revenues		**$ 1,086,908**	**$ 543,454**	**$ 529,275**	**$ (14,179)**	**-2.61%**
Expenses						
Personnel Cost	**B**	$ 302,598	$ 151,299	$ 156,820	$ (5,521)	-3.65%
Professional Services		15,000	7,500	12,440	(4,940)	-65.86%
Other Services & Charges		142,360	71,180	44,621	26,559	37.31%
Communications	**A, F**	5,600	2,800	9,511	(6,711)	-239.68%
Information Technology		2,250	1,125	409	716	63.65%
Supplies		1,350	675	1,061	(386)	-57.21%
Operations & Maintenance	**A**	353,292	176,646	221,307	(44,661)	-25.28%
Equipment Purchases		3,000	1,500	1,500	-	0.00%
Depreciation		40,000	20,000	20,000	0	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 865,450	$ 432,725	$ 467,669	$ (34,944)	-8.08%
Allocation of Support Departments		221,456	110,728	105,883	4,845	4.38%
Total Operating Expenses		**$ 1,086,906**	**$ 543,453**	**$ 573,552**	**$ (30,099)**	**-5.54%**
Operating Surplus/(Deficit)		**$ 2**	**$ 1**	**$ (44,277)**		

Debt Service Budget vs. Actual

	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 1,311,312	$ 655,656	$ 655,656	$ -	0.00%
Trust Fund Interest	11,600	5,800	404	(5,396)	-93.03%
Use of Reserves	198,252	99,126	99,126	-	0.00%
Reserve Fund Interest	15,700	7,850	1,037	(6,813)	-86.79%
Total Debt Service Revenues	**$ 1,536,864**	**$ 768,432**	**$ 756,223**	**$ (12,209)**	**-1.59%**
Debt Service Costs					
Total Principal & Interest	$ 1,217,569	$ 608,785	$ 608,785	$ -	0.00%
Reserve Additions-Interest	15,700	7,850	1,037	6,813	86.79%
Reserve Additions-CIP Growth	303,600	151,800	151,800	-	0.00%
Total Debt Service Costs	**$ 1,536,869**	**$ 768,435**	**$ 761,621**	**$ 6,813**	**0.89%**
Debt Service Surplus/(Deficit)	**$ (5)**	**$ (3)**	**$ (5,398)**		

Rate Center Summary

Total Revenues	$ 2,623,772	$ 1,311,886	$ 1,285,498	$ (26,388)	-2.01%
Total Expenses	2,623,775	1,311,887	1,335,173	(23,286)	-1.77%
Surplus/(Deficit)	**$ (3)**	**$ (1)**	**$ (49,676)**		
Costs per 1000 Gallons	$ 5.47		$ 4.85		
Operating and DS	$ 13.20		$ 11.29		
Thousand Gallons Treated	198,830	99,415	118,275	18,860	18.97%
Flow (MGD)	0.545		0.643		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Scottsville Water Rate Center
Revenues and Expenses Summary

	Budget FY 2021	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual					
Notes					
Revenues					
Operations Rate Revenue	$ 520,812	$ 260,406	$ 260,406	$ -	0.00%
Use of Reserves-GAC	9,220	4,610	-	$ (4,610)	-100.00%
Interest Allocation	1,000	500	156	(344)	-68.83%
Total Operating Revenues	**$ 531,032**	**$ 265,516**	**$ 260,562**	**$ (4,954)**	**-1.87%**
Expenses					
Personnel Cost	$ 184,031	$ 92,016	$ 95,691	$ (3,675)	-3.99%
Professional Services	71,000	35,500	2,026	33,474	94.29%
Other Services & Charges	22,780	11,390	13,273	(1,883)	-16.54%
Communications	4,600	2,300	3,063	(763)	-33.16%
Information Technology	650	325	844	(519)	-159.61%
Supplies	200	100	0	100	99.54%
Operations & Maintenance	87,662	43,831	30,071	13,760	31.39%
Equipment Purchases	2,500	1,250	1,250	(0)	0.00%
Depreciation	20,000	10,000	10,000	(0)	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	$ 393,423	$ 196,712	$ 156,218	$ 40,493	20.59%
Allocation of Support Departments	137,604	68,802	67,328	1,474	2.14%
Total Operating Expenses	**$ 531,027**	**$ 265,513**	**$ 223,546**	**$ 41,967**	**15.81%**
Operating Surplus/(Deficit)	**$ 5**	**$ 3**	**$ 37,016**		
Debt Service Budget vs. Actual					
Revenues					
Debt Service Rate Revenue	$ 128,749	$ 64,375	$ 64,374	$ (1)	0.00%
Trust Fund Interest	1,200	600	43	(557)	-92.87%
Reserve Fund Interest	8,300	4,150	518	(3,632)	-87.51%
Total Debt Service Revenues	**$ 138,249**	**$ 69,125**	**$ 64,935**	**$ (4,189)**	**-6.06%**
Debt Service Costs					
Total Principal & Interest	$ 126,032	$ 63,016	$ 63,016	$ -	0.00%
Reserve Additions-Interest	8,300	4,150	518	3,632	
Reserve Additions-CIP Growth	3,917	1,959	1,959	-	
Total Debt Service Costs	**$ 138,249**	**$ 69,125**	**$ 65,493**	**$ 3,632**	**5.25%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ (558)**		

Rate Center Summary

Total Revenues	$ 669,281	$ 334,641	$ 325,497	$ (9,143)	-2.73%
Total Expenses	669,276	334,638	289,039	45,599	13.63%
Surplus/(Deficit)	**$ 5**	**$ 3**	**$ 36,458**		
Costs per 1000 Gallons	$ 30.79		$ 19.98		
Operating and DS	$ 38.81		$ 25.83		
Thousand Gallons Treated	17,245	8,623	11,191	2,569	29.79%
or					
Flow (MGD)	0.047		0.061		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Urban Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 8,033,620	$ 4,016,810	$ 4,701,231	$ 684,421	17.04%
Stone Robinson WWTP		22,788	11,394	7,344	(4,050)	-35.55%
Septage Acceptance		475,000	237,500	260,291	22,791	9.60%
Nutrient Credits		45,000	22,500	86,999	64,499	286.66%
Rate Stabilization Reserve		121,233	60,617	60,617	-	0.00%
Miscellaneous Revenue		-	-	2,224	2,224	
Interest Allocation		16,100	8,050	2,467	(5,583)	-69.35%
Total Operating Revenues		**$ 8,713,741**	**$ 4,356,871**	**$ 5,121,172**	**$ 764,301**	**17.54%**
Expenses						
Personnel Cost		$ 1,299,876	$ 649,938	$ 624,032	$ 25,906	3.99%
Professional Services	**A**	143,400	71,700	90,079	(18,379)	-25.63%
Other Services & Charges	**A**	2,020,300	1,010,150	1,107,698	(97,548)	-9.66%
Communications		10,700	5,350	7,973	(2,623)	-49.02%
Information Technology		69,500	34,750	11,104	23,646	68.04%
Supplies		1,900	950	1,219	(269)	-28.27%
Operations & Maintenance		1,767,000	883,500	863,356	20,144	2.28%
Equipment Purchases		125,250	62,625	40,738	21,887	34.95%
Depreciation		470,000	235,000	235,000	(0)	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 5,907,926	$ 2,953,963	$ 2,981,199	$ (27,236)	-0.92%
Allocation of Support Departments		2,805,815	1,402,908	1,355,421	47,487	3.38%
Total Operating Expenses		**$ 8,713,741**	**$ 4,356,871**	**$ 4,336,620**	**$ 20,250**	**0.46%**
Operating Surplus/(Deficit)		**$ (0)**	**$ (0)**	**$ 784,552**		

Debt Service Budget vs. Actual

	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 8,229,090	$ 4,114,545	$ 4,114,572	$ 27	0.00%
Septage Receiving Support - County	109,440	54,720	109,441	54,721	100.00%
Trust Fund Interest	74,000	37,000	2,586	(34,414)	-93.01%
Use of Reserves	94,400	47,200	47,200	-	0.00%
Reserve Fund Interest	295,200	147,600	19,138	(128,462)	-87.03%
Total Debt Service Revenues	**$ 8,802,130**	**$ 4,401,065**	**$ 4,292,936**	**$ (108,129)**	**-2.46%**
Debt Service Costs					
Total Principal & Interest	$ 7,812,130	$ 3,906,065	$ 3,906,065	$ -	0.00%
Reserve Additions-Interest	295,200	147,600	19,138	128,462	87.03%
Debt Service Ratio Charge	325,000	162,500	162,500	-	0.00%
Reserve Additions-CIP Growth	369,800	184,900	184,900	-	0.00%
Total Debt Service Costs	**$ 8,802,130**	**$ 4,401,065**	**$ 4,272,603**	**$ 128,462**	**2.92%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ 20,334**		

Rate Center Summary

Total Revenues	$ 17,515,871	$ 8,757,936	$ 9,414,108	$ 656,173	7.49%
Total Expenses	17,515,871	8,757,936	8,609,223	148,713	1.70%
Surplus/(Deficit)	**$ (0)**	**$ (0)**	**$ 804,885**		
Costs per 1000 Gallons	$ 2.57		$ 2.19		
Operating and DS	$ 5.17		$ 4.34		
Thousand Gallons Treated	3,390,400	1,695,200	1,984,478	289,278	17.06%
or					
Flow (MGD)	9.289		10.785		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 370,524	$ 185,262	$ 185,262	$ -	0.00%
Rate Stabilization Reserve		24,540	12,270	12,270	-	0.00%
Interest Allocation		700	350	108	(243)	-69.29%
Total Operating Revenues		**$ 395,764**	**$ 197,882**	**$ 197,640**	**$ (243)**	**-0.12%**
Expenses						
Personnel Cost		$ 97,804	$ 48,902	$ 45,248	$ 3,654	7.47%
Professional Services		24,200	12,100	87	12,013	
Other Services & Charges		36,800	18,400	17,145	1,255	6.82%
Communications		3,200	1,600	1,960	(360)	-22.49%
Information Technology		4,050	2,025	915	1,110	54.83%
Supplies		-	-	358	(358)	
Operations & Maintenance	A	109,100	54,550	73,172	(18,622)	-34.14%
Equipment Purchases		3,700	1,850	1,850	0	0.00%
Depreciation		10,000	5,000	5,000	0	0.00%
Subtotal Before Allocations		$ 288,854	$ 144,427	$ 145,735	$ (1,308)	-0.91%
Allocation of Support Departments		106,907	53,454	53,235	218	0.41%
Total Operating Expenses		**$ 395,761**	**$ 197,881**	**$ 198,971**	**$ (1,090)**	**-0.55%**
Operating Surplus/(Deficit)		**$ 3**	**$ 1**	**$ (1,331)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 3,778	$ 1,889	$ 1,890	$ 1	0.05%
Trust Fund Interest		-	-	-	-	
Reserve Fund Interest		3,000	1,500	216	(1,284)	-85.60%
Total Debt Service Revenues		**$ 6,778**	**$ 3,389**	**$ 2,106**	**$ 1**	**0.03%**
Debt Service Costs						
Total Principal & Interest		$ 1,579	$ 790	$ 790	$ -	0.00%
Reserve Additions-CIP Growth		2,199	1,100	1,100	-	0.00%
Reserve Additions-Interest		3,000	1,500	216	1,284	85.60%
Total Debt Service Costs		**$ 6,778**	**$ 3,389**	**$ 2,105**	**$ 1,284**	**37.89%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 1**		
Rate Center Summary						
Total Revenues		$ 402,542	$ 201,271	$ 199,746	$ (1,526)	-0.76%
Total Expenses		402,539	201,270	201,076	194	0.10%
Surplus/(Deficit)		**$ 3**	**$ 1**	**$ (1,330)**		
Costs per 1000 Gallons		$ 9.51		$ 8.58		
Operating and DS		$ 9.67		$ 8.67		
Thousand Gallons Treated		41,629	20,815	23,185	2,371	**11.39%**
or						
Flow (MGD)		0.114		0.126		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 308,988	$ 154,494	$ 154,494	$ -	0.00%
Interest Allocation		600	300	91	(209)	-69.55%
Total Operating Revenues		**$ 309,588**	**$ 154,794**	**$ 154,585**	**$ (209)**	**-0.13%**
Expenses						
Personnel Cost		$ 97,317	$ 48,658	$ 45,248	$ 3,411	7.01%
Professional Services		2,100	1,050	87	963	91.68%
Other Services & Charges		23,710	11,855	15,289	(3,434)	-28.96%
Communications		3,720	1,860	2,012	(152)	-8.16%
Information Technology		1,500	750	478	272	36.29%
Supplies		500	250	0	250	99.86%
Operations & Maintenance		57,812	28,906	19,309	9,597	33.20%
Equipment Purchases		3,700	1,850	1,850	0	0.00%
Depreciation		20,000	10,000	10,000	(0)	0.00%
Subtotal Before Allocations		$ 210,359	$ 105,179	$ 94,273	$ 10,907	10.37%
Allocation of Support Departments		99,228	49,614	49,125	489	0.99%
Total Operating Expenses		**$ 309,587**	**$ 154,794**	**$ 143,398**	**$ 11,396**	**7.36%**
Operating Surplus/(Deficit)		**$ 1**	**$ 0**	**$ 11,188**		

Debt Service Budget vs. Actual

	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 9,442	$ 4,721	$ 4,722	$ 1	0.02%
Trust Fund Interest	100	50	5	(45)	-90.56%
Reserve Fund Interest	4,200	2,100	259	(1,841)	-87.66%
Total Debt Service Revenues	**$ 13,742**	**$ 6,871**	**$ 4,986**	**$ (1,885)**	**-27.44%**
Debt Service Costs					
Total Principal & Interest	$ 7,464	$ 3,732	$ 3,732	$ -	0.00%
Reserve Additions-Interest	4,200	2,100	259	1,841	87.66%
Estimated New Principal & Interest	2,078	1,039	1,039	-	0.00%
Total Debt Service Costs	**$ 13,742**	**$ 6,871**	**$ 5,030**	**$ 1,841**	**26.79%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ (44)**		

Rate Center Summary

	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 323,330	$ 161,665	$ 159,571	$ (2,094)	-1.30%
Total Expenses	323,329	161,665	148,428	13,237	8.19%
Surplus/(Deficit)	**$ 1**	**$ 0**	**$ 11,143**		
Costs per 1000 Gallons	$ 13.39		$ 9.29		
Operating and DS	$ 13.98		$ 9.62		
Thousand Gallons Treated	23,126	11,563	15,429	3,866	**33.43%**
or					
Flow (MGD)	0.063		0.084		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Administration

Operating Budget vs. Actual

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 543,000	$ 271,500	$ 271,500	$ -	0.00%
Miscellaneous Revenue		2,000	1,000	45,344	44,344	4434.44%
Total Operating Revenues		**$ 545,000**	**$ 272,500**	**$ 316,844**	**$ 44,344**	**16.27%**
Expenses						
Personnel Cost	**B**	$ 1,906,136	$ 953,068	$ 957,755	$ (4,687)	-0.49%
Professional Services		183,000	91,500	36,842	54,658	59.74%
Other Services & Charges		80,600	40,300	44,392	(4,092)	-10.15%
Communications		21,500	10,750	10,960	(210)	-1.96%
Information Technology	**A**	177,000	88,500	96,324	(7,824)	-8.84%
Supplies		24,250	12,125	10,571	1,554	12.82%
Operations & Maintenance		75,200	37,600	43,711	(6,111)	-16.25%
Equipment Purchases		24,000	12,000	7,000	5,000	41.67%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,491,686**	**$ 1,245,843**	**$ 1,207,554**	**$ 38,288**	**3.07%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,946,686)**	**$ (973,343)**	**$ (890,710)**	**$ (82,633)**	**8.49%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 856,542**	**$ 428,271**	**$ 391,912**	**$ 36,358**	
Crozet Water	4.00%	**$ 77,867**	**38,934**	**35,628**	**3,305**	
Scottsville Water	2.00%	**$ 38,934**	**19,467**	**17,814**	**1,653**	
Urban Wastewater	48.00%	**$ 934,409**	**467,205**	**427,541**	**39,664**	
Glenmore Wastewater	1.00%	**$ 19,467**	**9,733**	**8,907**	**826**	
Scottsville Wastewater	1.00%	**$ 19,467**	**9,733**	**8,907**	**826**	
	100.00%	**$ 1,946,686**	**$ 973,343**	**$ 890,710**	**$ 82,633**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Maintenance

Operating Budget vs. Actual

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ -	$ -	
Miscellaneous Revenue		-	-	3,101	3,101	
Total Operating Revenues		**$ -**	**$ -**	**$ 3,101**	**$ 3,101**	
Expenses						
Personnel Cost	**B**	$ 1,233,605	$ 616,803	$ 680,350	$ (63,548)	-10.30%
Professional Services		-	-	-	-	
Other Services & Charges		50,700	25,350	14,046	11,304	44.59%
Communications	**A**	17,400	8,700	14,082	(5,382)	-61.87%
Information Technology		8,500	4,250	5,894	(1,644)	-38.68%
Supplies		2,000	1,000	170	830	83.02%
Operations & Maintenance	**A**	84,550	42,275	49,129	(6,854)	-16.21%
Equipment Purchases		139,000	69,500	61,500	8,000	11.51%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,535,755**	**$ 767,878**	**$ 825,172**	**$ (57,294)**	**-7.46%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,535,755)**	**$ (767,878)**	**$ (822,070)**	**$ 60,395**	**-7.87%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 460,727**	**$ 230,363**	**$ 246,621**	**$ (16,258)**	
Crozet Water	3.50%	**53,751**	**26,876**	**28,772**	**(1,897)**	
Scottsville Water	3.50%	**53,751**	**26,876**	**28,772**	**(1,897)**	
Urban Wastewater	56.50%	**867,702**	**433,851**	**464,470**	**(30,619)**	
Glenmore Wastewater	3.50%	**53,751**	**26,876**	**28,772**	**(1,897)**	
Scottsville Wastewater	3.00%	**46,073**	**23,036**	**24,662**	**(1,626)**	
	100.00%	**$ 1,535,755**	**$ 767,878**	**$ 822,070**	**$ (54,192)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Laboratory

Operating Budget vs. Actual

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
N/A						
Expenses						
Personnel Cost		$ 404,171	$ 202,085	$ 198,979	$ 3,106	1.54%
Professional Services		-	-	-	-	
Other Services & Charges		7,600	3,800	855	2,945	77.50%
Communications		2,100	1,050	764	286	
Information Technology		2,500	1,250	102	1,149	91.88%
Supplies		1,300	650	638	12	1.82%
Operations & Maintenance		97,250	48,625	34,666	13,959	28.71%
Equipment Purchases		1,600	800	800	0	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 516,521**	**$ 258,260**	**$ 236,803**	**$ 21,457**	**8.31%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (516,521)**	**$ (258,260)**	**$ (236,803)**	**$ (21,457)**	**8.31%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 227,269**	**$ 113,635**	**$ 104,193**	**$ 9,441**	
Crozet Water	4.00%	**20,661**	**10,330**	**9,472**	**858**	
Scottsville Water	2.00%	**10,330**	**5,165**	**4,736**	**429**	
Urban Wastewater	47.00%	**242,765**	**121,382**	**111,298**	**10,085**	
Glenmore Wastewater	1.50%	**7,748**	**3,874**	**3,552**	**322**	
Scottsville Wastewater	1.50%	**7,748**	**3,874**	**3,552**	**322**	
	100.00%	**$ 516,521**	**$ 258,260**	**$ 236,803**	**$ 21,457**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2020

Engineering

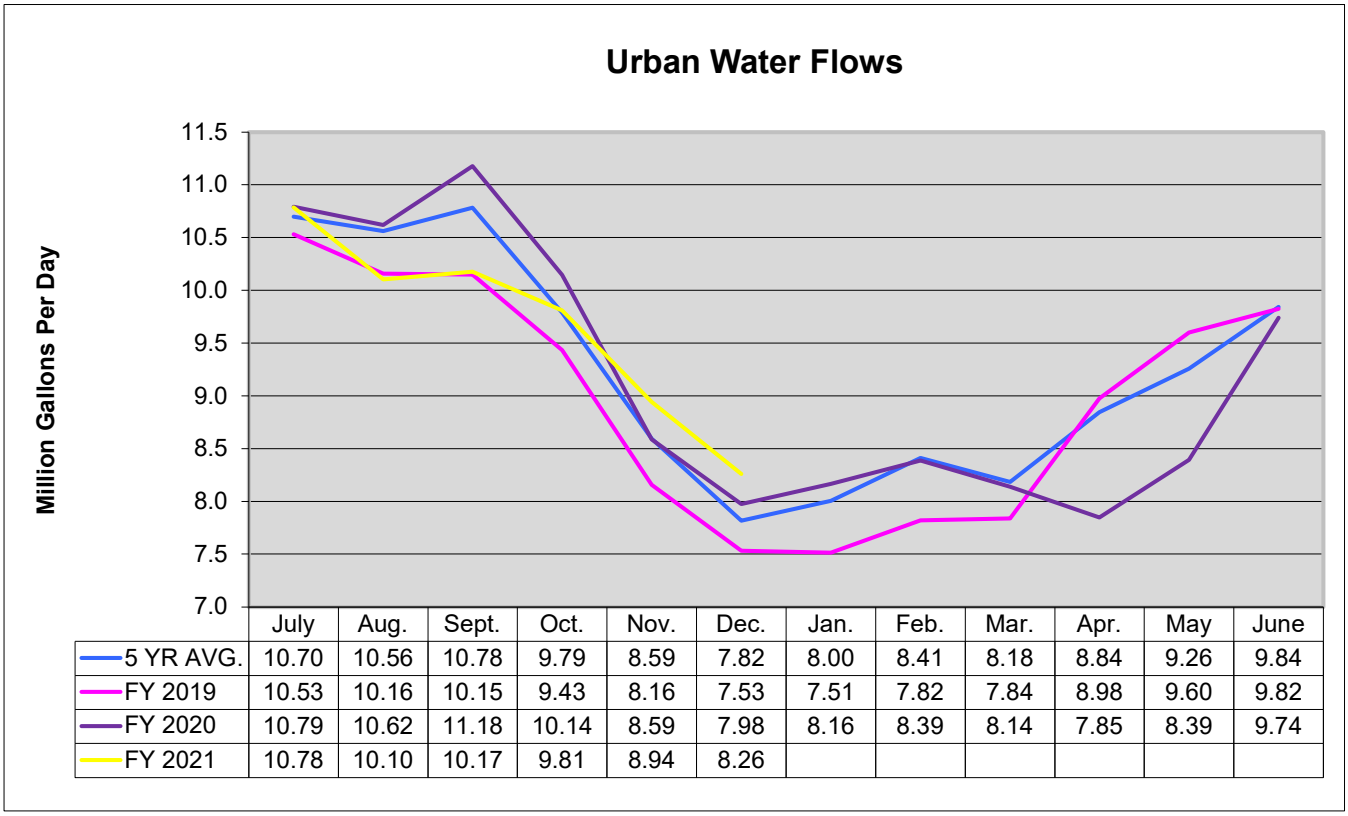
Operating Budget vs. Actual

	Budget FY 2021	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues					
Payment for Services SWA	$ -	$ -	$ 9,510	$ 9,510	
Total Operating Revenues	**$ -**	**$ -**	**$ 9,510**	**$ 9,510**	
Expenses					
Personnel Cost	$ 1,469,358	$ 734,679	$ 726,641	$ 8,038	1.09%
Professional Services	30,000	15,000	9,273	5,727	38.18%
Other Services & Charges	13,800	6,900	6,873	27	0.39%
Communications	16,200	8,100	10,009	(1,909)	-23.57%
Information Technology	41,500	20,750	21,714	(964)	-4.64%
Supplies	9,800	4,900	2,788	2,112	43.09%
Operations & Maintenance	127,250	63,625	21,718	41,907	65.87%
Equipment Purchases	21,500	10,750	10,750	(0)	0.00%
Depreciation & Capital Reserve Transfers	-	-	-	-	
Total Operating Expenses	**$ 1,729,408**	**$ 864,704**	**$ 809,766**	**$ 54,938**	**6.35%**

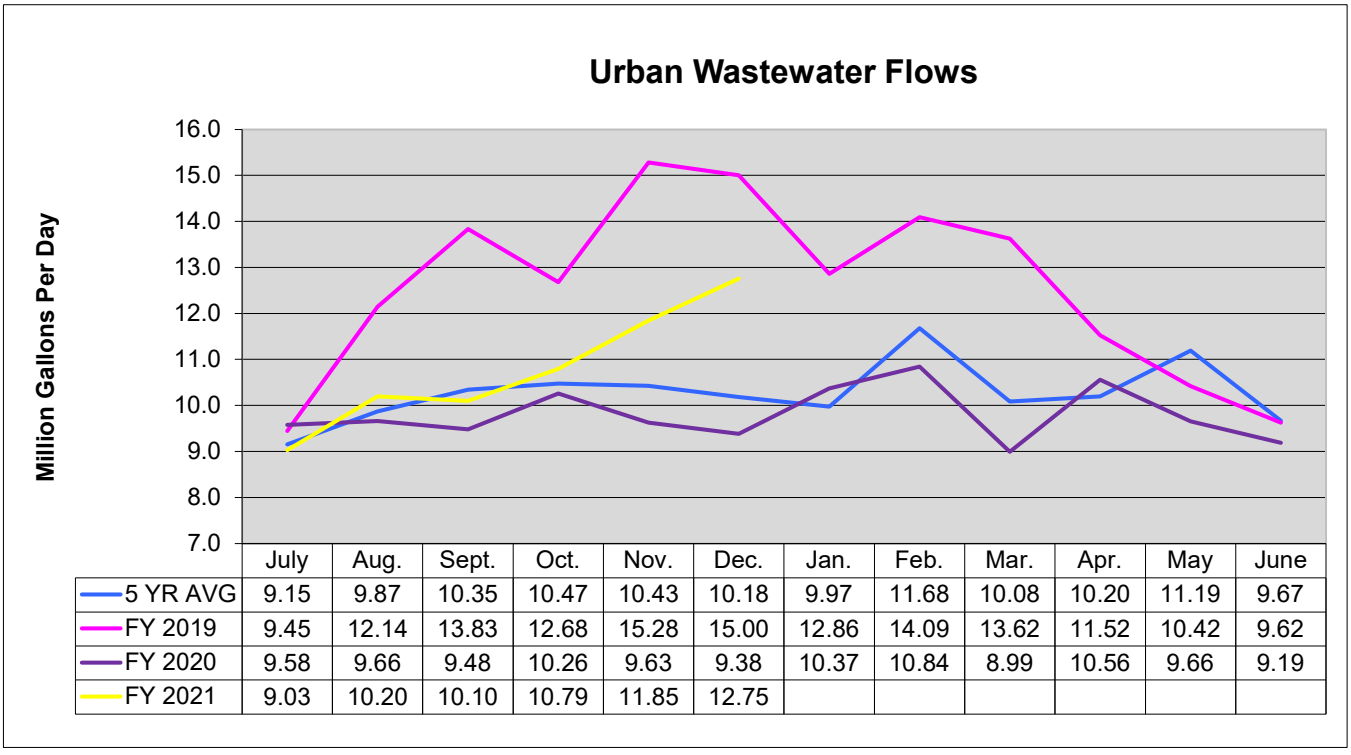
Department Summary

Net Costs Allocable to Rate Centers	**$ (1,729,408)**	**$ (864,704)**	**$ (800,256)**	**$ (45,428)**	**5.25%**
Allocations to the Rate Centers					
Urban Water 47.00%	**$ 812,822**	**$ 406,411**	**$ 376,120**	**$ 30,290**	
Crozet Water 4.00%	**69,176**	**34,588**	**32,010**	**2,578**	
Scottsville Water 2.00%	**34,588**	**17,294**	**16,005**	**1,289**	
Urban Wastewater 44.00%	**760,939**	**380,470**	**352,113**	**28,357**	
Glenmore Wastewater 1.50%	**25,941**	**12,971**	**12,004**	**967**	
Scottsville Wastewater 1.50%	**25,941**	**12,971**	**12,004**	**967**	
100.00%	**$ 1,729,408**	**$ 864,704**	**$ 800,256**	**$ 64,448**	

Rivanna Water and Sewer Authority
Flow Graphs



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG.	10.70	10.56	10.78	9.79	8.59	7.82	8.00	8.41	8.18	8.84	9.26	9.84
FY 2019	10.53	10.16	10.15	9.43	8.16	7.53	7.51	7.82	7.84	8.98	9.60	9.82
FY 2020	10.79	10.62	11.18	10.14	8.59	7.98	8.16	8.39	8.14	7.85	8.39	9.74
FY 2021	10.78	10.10	10.17	9.81	8.94	8.26						



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG	9.15	9.87	10.35	10.47	10.43	10.18	9.97	11.68	10.08	10.20	11.19	9.67
FY 2019	9.45	12.14	13.83	12.68	15.28	15.00	12.86	14.09	13.62	11.52	10.42	9.62
FY 2020	9.58	9.66	9.48	10.26	9.63	9.38	10.37	10.84	8.99	10.56	9.66	9.19
FY 2021	9.03	10.20	10.10	10.79	11.85	12.75						

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

FROM: **DAVE TUNGATE, DIRECTOR OF OPERATIONS**

REVIEWED BY: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **OPERATIONS REPORT FOR JANUARY 2021**

DATE: **FEBRUARY 23, 2021**

WATER OPERATIONS:

The average daily/monthly total water distributed for January 2021 was as follows:

Water Treatment Plant	***Average Daily Production (MGD)***	***Total Monthly Production (MG)***	***Maximum Daily Production in the Month (MGD)***
Observatory	1.91	59.36	2.96 (01/28/21)
South Rivanna	5.84	180.92	6.77 (01/31/21)
North Rivanna	0.32	9.95	0.44 (01/06/21)
Urban Total	8.07	250.23	9.23 (01/11/21)
Crozet	0.57	17.79	0.77 (01/25/21)
Scottsville	0.053	1.65	0.07 (01/11/21)
Red Hill	0.0018	0.57	0.004 (01/04/21)
RWSA Total	8.70	269.73	---

- All RWSA water treatment facilities were in regulatory compliance during the month of January.

Status of Reservoirs (as of February 16, 2021):

- Urban Reservoirs: 97.69 % of Total Useable Capacity
- Ragged Mountain Reservoir is full (100%)
- Sugar Hollow Reservoir is not full (81.92%)*
- South Rivanna Reservoir is full (100%)
- Beaver Creek Reservoir is full (100%)
- Totier Creek Reservoir is full (100%)

*The Sugar Hollow Reservoir has been lowered 5 ft. for replacement of the rubber bladder on the dam.

WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during January 2021. Stone-Robinson School had zero discharge for January. Performance of the WRRFs in January was as follows compared to the respective VDEQ permit limits:

WRRF	*Average Daily Effluent Flow (mgd)*	*Average $CBOD_5$ (ppm)*		*Average Total Suspended Solids (ppm)*		*Average Ammonia (ppm)*	
		RESULT	*LIMIT*	*RESULT*	*LIMIT*	*RESULT*	*LIMIT*
Moores Creek	10.06	2.0	10	1.0	22	0.23	7.0
Glenmore	0.116	5.0	15	7.0	30	NR	NL
Scottsville	0.076	7.0	25	9.0	30	NR	NL
Stone Robinson	0.000	NR	30	NR	30	NR	NL

NR = Not Required
NL = No Limit
<QL: Less than analytical method quantitative level (2.0 ppm for CBOD, 1.0 ppm for TSS, and 0.1 ppm for Ammonia).

Nutrient discharges at the Moores Creek AWRRF were as follows for January 2021.

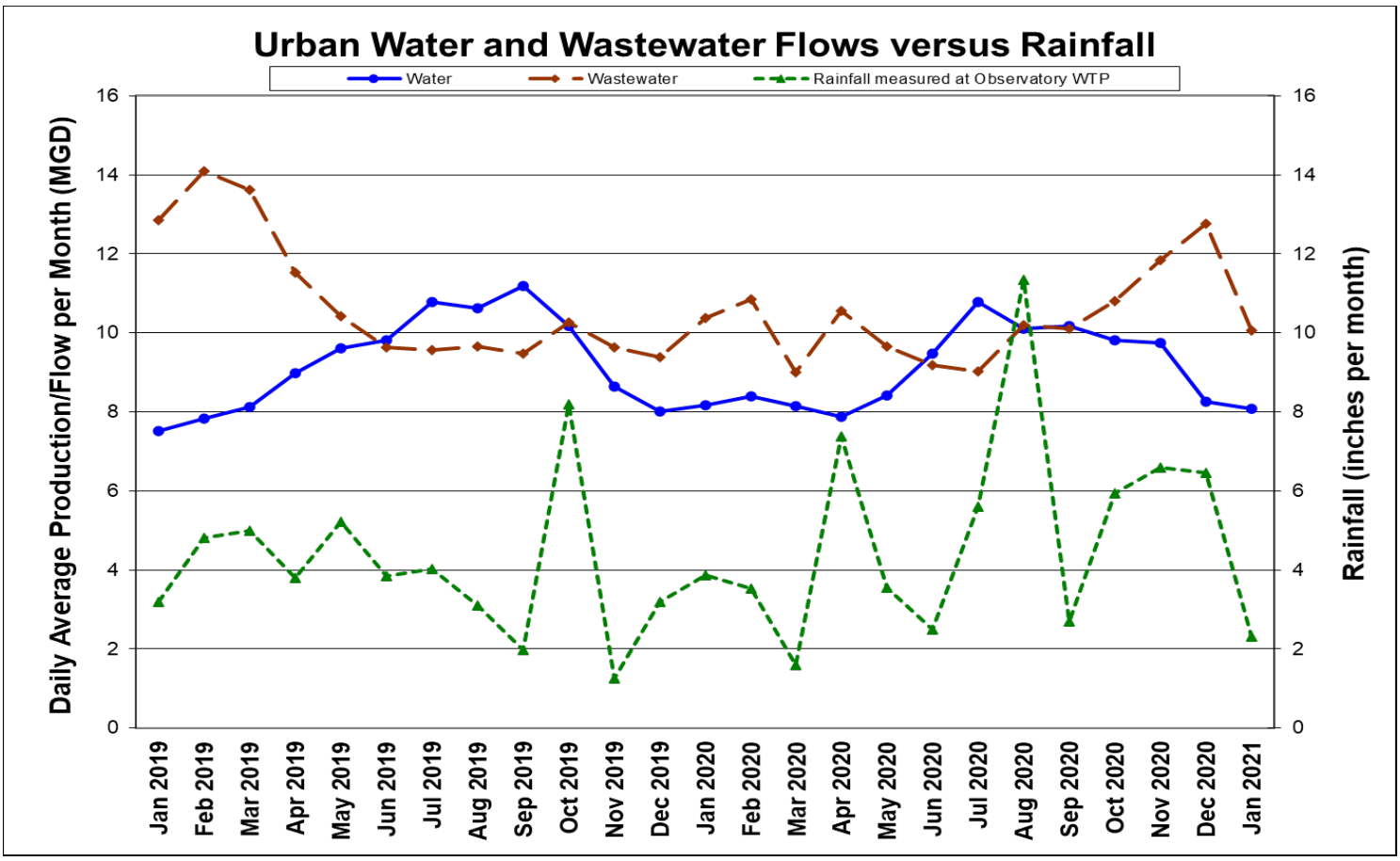
State Annual Allocation (lb./yr.) Permit		*Average Monthly Allocation (lb./mo.) **	*Moores Creek Discharge January (lb./mo.)*	*Performance as % of monthly average Allocation**	*Year to Date Performance as % of annual allocation*
Nitrogen	282,994	23,583	7,045	30%	2%
Phosphorous	18,525	1,544	172	11%	1%

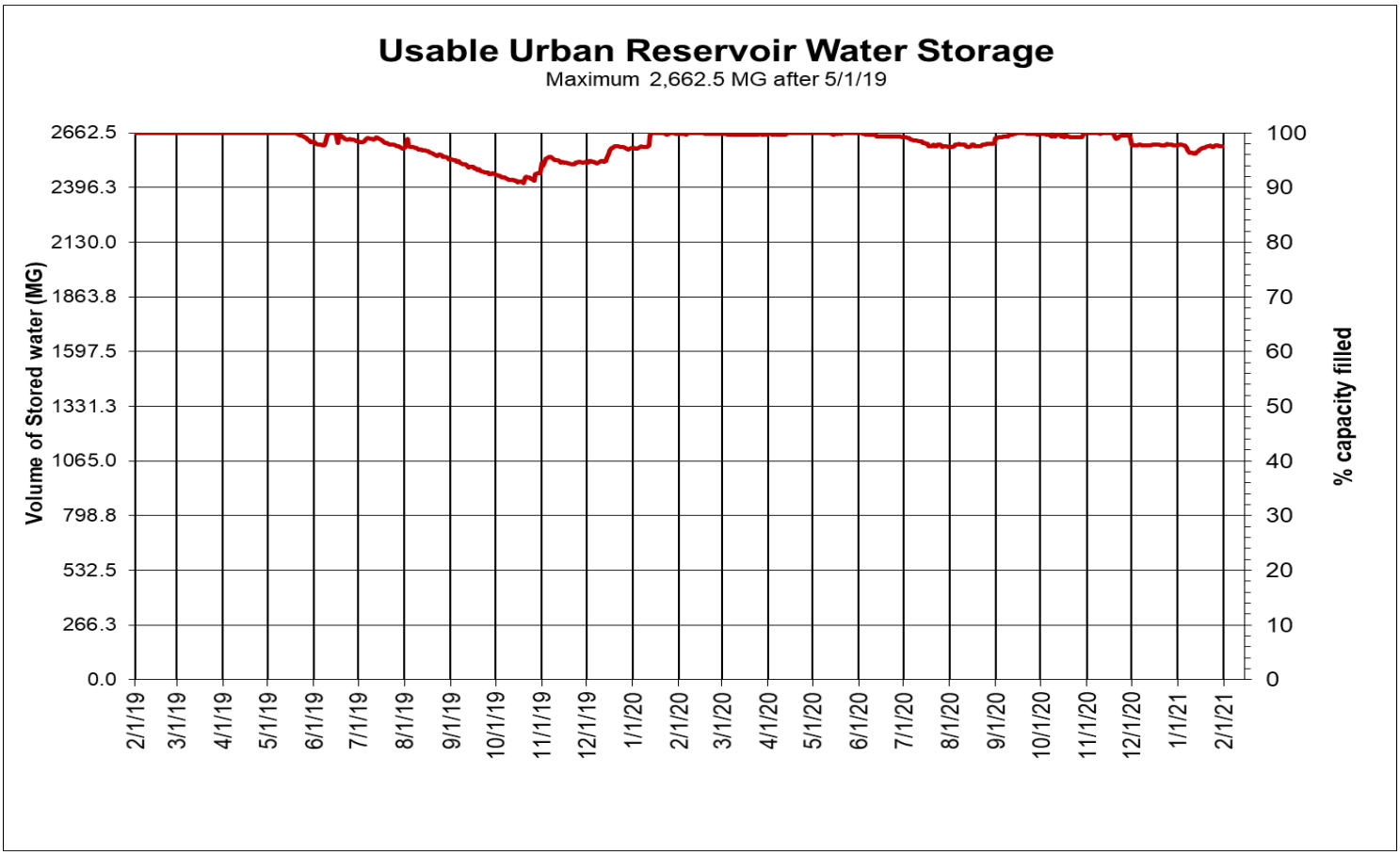
*State allocations are expressed as annual amounts. One-twelfth of that allocation is an internal monthly benchmark for comparative purposes only.

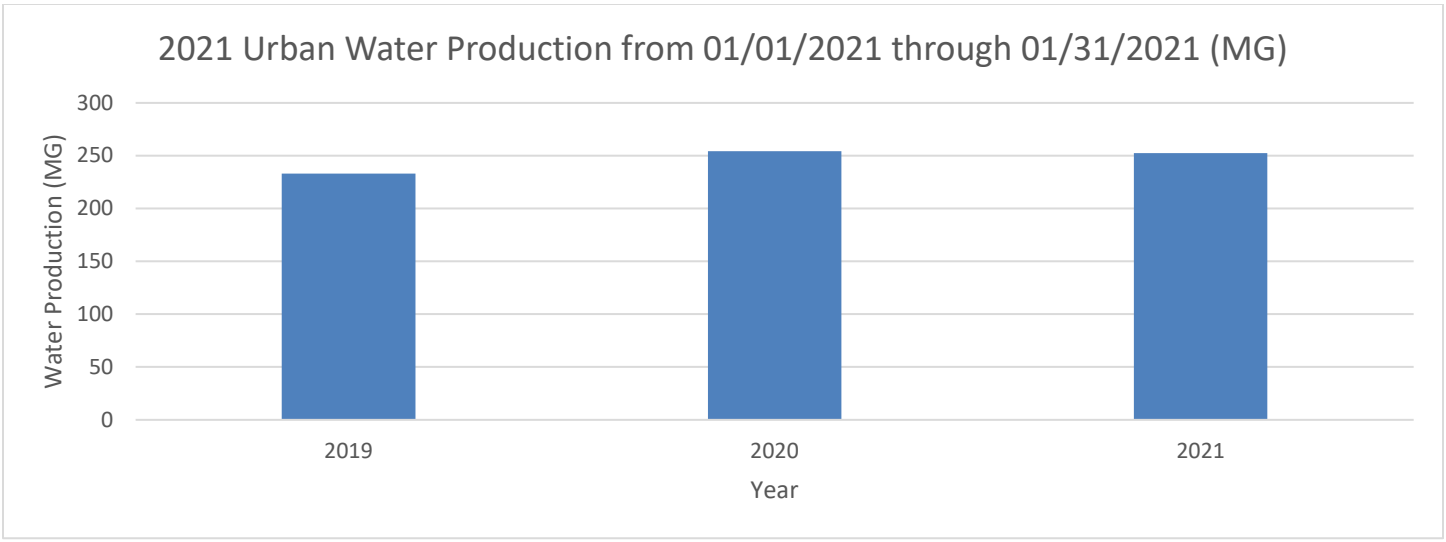
WATER AND WASTEWATER DATA:

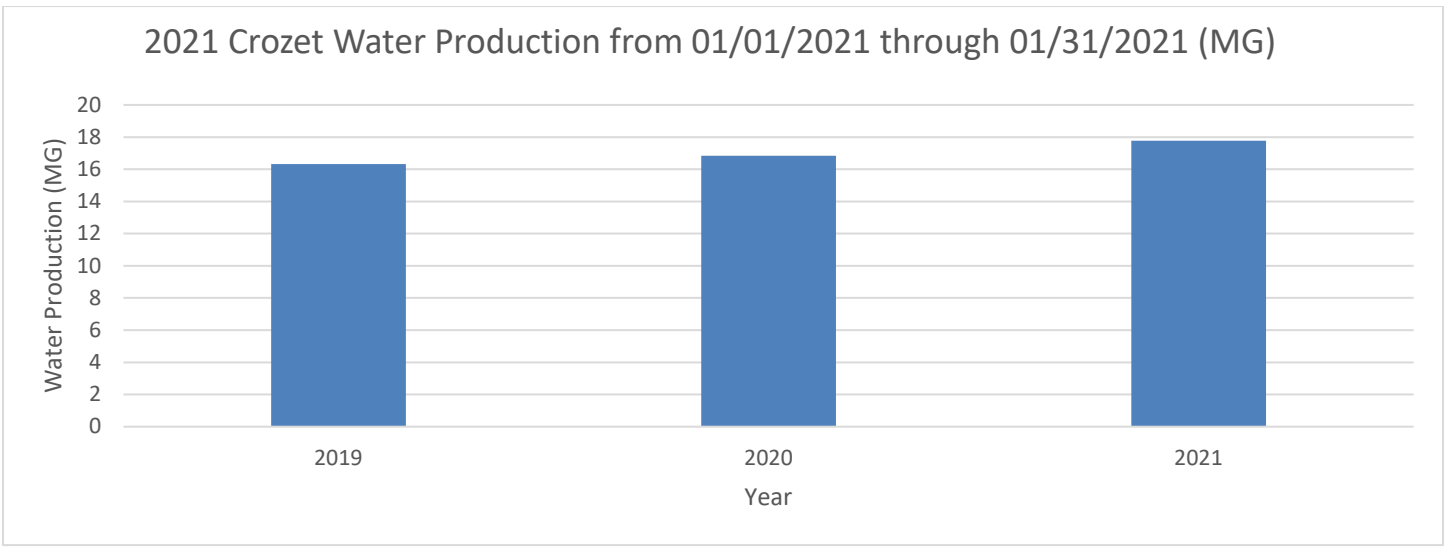
The following graphs are provided for review:

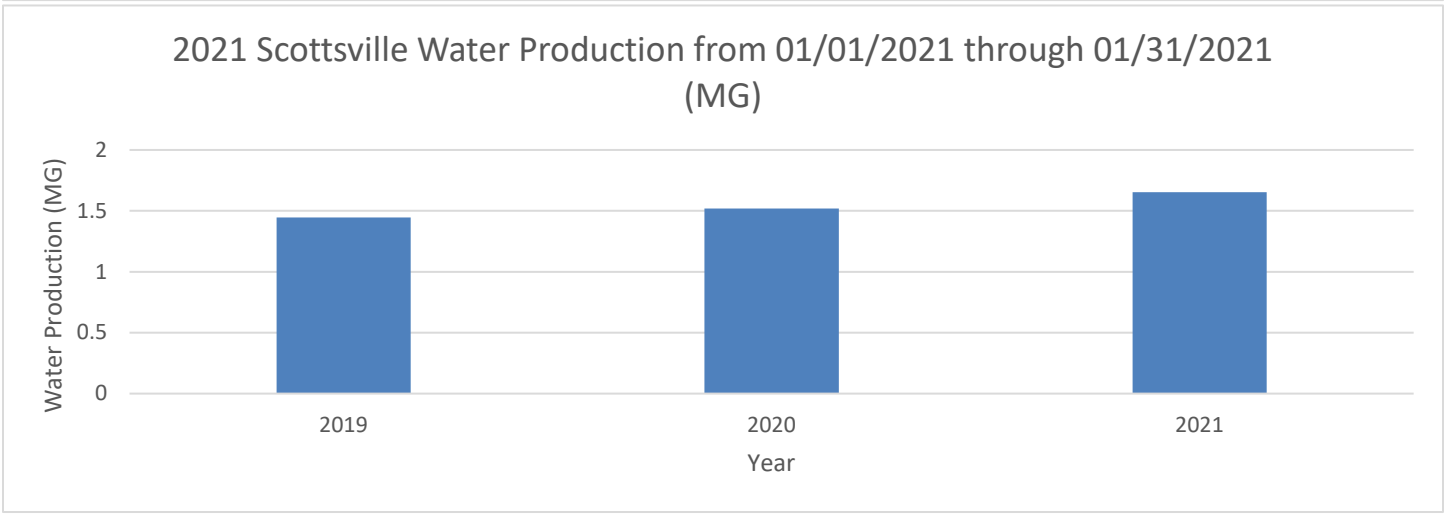
- Usable Urban Reservoir Water Storage
- Urban Water and Wastewater Flows versus Rainfall
- Yearly water production by system


Urban Water and Wastewater Flows versus Rainfall
Water
Wastewater
Rainfall measured at Observatory WTP
Daily Average Production/Flow per Month (MGD)
Rainfall (inches per month)
0
2
4
6
8
10
12
14
16
Jan 2019
Feb 2019
Mar 2019
Apr 2019
May 2019
Jun 2019
Jul 2019
Aug 2019
Sep 2019
Oct 2019
Nov 2019
Dec 2019
Jan 2020
Feb 2020
Mar 2020
Apr 2020
May 2020
Jun 2020
Jul 2020
Aug 2020
Sep 2020
Oct 2020
Nov 2020
Dec 2020
Jan 2021


Usable Urban Reservoir Water Storage
Maximum 2,662.5 MG after 5/1/19
Volume of Stored water (MG)
% capacity filled
0.0
266.3
532.5
798.8
1065.0
1331.3
1597.5
1863.8
2130.0
2396.3
2662.5
0
10
20
30
40
50
60
70
80
90
100
2/1/19
3/1/19
4/1/19
5/1/19
6/1/19
7/1/19
8/1/19
9/1/19
10/1/19
11/1/19
12/1/19
1/1/20
2/1/20
3/1/20
4/1/20
5/1/20
6/1/20
7/1/20
8/1/20
9/1/20
10/1/20
11/1/20
12/1/20
1/1/21
2/1/21


2021 Urban Water Production from 01/01/2021 through 01/31/2021 (MG)
Water Production (MG)
300
250
200
150
100
50
0
2019
2020
2021
Year


2021 Crozet Water Production from 01/01/2021 through 01/31/2021 (MG)
Water Production (MG)
20
18
16
14
12
10
8
6
4
2
0
2019
2020
2021
Year


2021 Scottsville Water Production from 01/01/2021 through 01/31/2021 (MG)
Water Production (MG)
2
1.5
1
0.5
0
2019
2020
2021
Year

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

FROM: **JENNIFER WHITAKER, DIRECTOR OF ENGINEERING & MAINTENANCE**

REVIEWED BY: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **STATUS REPORT: ONGOING PROJECTS**

DATE: **FEBRUARY 23, 2021**

This memorandum reports on the status of the following Capital Projects as well as other significant operating, maintenance and planning projects.

For the current, approved CIP, please visit: https://www.rivanna.org/wp-content/uploads/2020/06/2021-2025-CIP-Final.pdf

Under Construction

1. Crozet Water Treatment Plant Expansion
2. South Rivanna and Observatory Water Treatment Plant Renovations
3. Crozet Flow Equalization Tank
4. MC Aluminum Slide Gate Replacements
5. South Rivanna Dam – Gate Repairs
6. Sugar Hollow Dam – Gate Replacement and Intake Tower Repairs
7. MC Exterior Lighting Improvements

Design and Bidding

8. Ragged Mtn Reservoir to Observatory WTP Raw Water Line and Pump Station
9. Beaver Creek Dam, Pump Station and Piping Improvements
10. Airport Road Water Pump Station and Piping
11. South Fork Rivanna River Crossing
12. MC Clarifier and Silo Demolition
13. MC Generator Fuel Expansion
14. MC Facility Renovations
15. MC 5kV Electrical System Upgrades
16. Glenmore WRRF Influent Pump & VFD Addition

Planning and Studies

17. South Rivanna Reservoir to Ragged Mtn Reservoir Water Line Right-of-Way
18. Urban Finished Water Infrastructure Master Plan
19. Upper Schenks Branch Interceptor, Phase II
20. Asset Management Plan
21. Albemarle-Berkeley PS Capacity Analysis
22. MC Facilities Master Plan
23. SRR to RMR Pipeline – Pretreatment Pilot Study
24. Central Water Line - Routing Study

Other Significant Projects

25. Urgent and Emergency Repairs
26. Interceptor Sewer & Manhole Repair
27. Security Enhancements

Under Construction

1. Crozet Water Treatment Plant Expansion

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Orders Construction Co. (WVA)
Construction Start:	December 2018
Percent Complete:	96%
Base Construction Contract + Change Orders to Date = Current Value:	$7,170,000 - $47,372.73 = $7,122,627.27
Completion:	March 2021
Budget:	$8,500,000

Current Status: Work is being completed on the chemical feed lines associated with the liquid lime system and the addition of new intermediate pumps and a new raw water pump are being considered for the project.

2. South Rivanna and Observatory Water Treatment Plant Renovations

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Construction Contractor:	English Construction Company (Lynchburg, VA)
Construction Start:	May 2020
Percent Complete:	20%
Base Construction Contract + Change Orders to Date = Current Value:	$36,748,500 + $222,723.32 = $36,971,223,32
Completion:	March 2023
Budget:	$43,000,000

Current Status: Work continues at the SRWTP with the continued construction of the filter building

expansion, installation of baffle walls in the flocculation basins and excavation work for the foundations of the Alum and Fluoride Chemical Storage Building and Administration Building. The contractor has mobilized to the OBWTP and has begun installation of E&S measures.

3. Crozet Flow Equalization Tank

Design Engineer:	Schnabel Engineering
Construction Contractor:	Anderson Construction (Lynchburg, VA)
Construction Start:	September 2020
Percent Complete:	10%
Based Construction Contract + Change Orders to Date = Current Value:	$4,406,300
Completion:	November 2022
Budget:	$5,400,000

Current Status: Site preparation and clearing have been completed. The berm around the pump station has been cut in preparation for the installation of new sewer lines. Excavating for the sewer line is underway.

4. MC Aluminum Slide Gate Replacements

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Waco Incorporated (Sandston, VA)
Construction Start:	September 2020
Percent Complete:	20%
Base Construction Contract + Change Orders to Date = Current Value:	$373,600 - $30,400 = $343,200
Completion:	October 2021
Budget:	$675,000

Current Status: Waco mobilized to Moores Creek in January 2021 and has completed the replacement and testing of the new slide gates in the UV Facility. During the work, Waco discovered that the mud gates at the UV Facility were very deteriorated and RWSA is negotiating a change order to either replace or demolish the mud gates.

5. South Rivanna Dam – Gate Repairs

Design Engineer:	N/A
Contractor:	Bander Smith, Inc. (Richmond, VA)
Construction Start:	December 2020
Project Status:	90%
Completion:	February 2021
Budget:	$500,000

Current Status: Replacement of missing stem guides and actuators to improve the seal of the existing gates is underway, and will be completed by the end of February 2021. There was a delay in the replacement work as a result of COVID-19 impacts on the contractor's staff. If replacement of one or more of the gates is determined to be necessary, that work will take place in the spring of 2021.

6. Sugar Hollow Dam – Gate Replacement and Intake Tower Repairs

Design Engineer:	Schnabel Engineering
Construction Contractor:	Allegheny Construction (Roanoke, VA)
Construction Start:	October 2020
Percent Complete:	45%
Base Construction Contract + Change Order to Date = Current Value:	$1,410,875
Completion:	December 2021
Budget:	$1,900,000

Current Status: The existing rubber inflatable crest gate was fully deflated on November 30, 2020 and was removed in early January 2021. The new bladder is expected to be installed in March-April 2021. Periodic lowering of the reservoir by 2-5 feet will be required by the contractor for remaining construction activities. A project specific web page has been developed to inform the public of impacts to the area as a result of construction activities, and a media notification was issued.

7. MC Exterior Lighting Improvements

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Pyramid Electrical Contractors (Richmond, VA)
Construction Start:	February 2021
Percent Complete:	0%
Base Construction Contract + Change Order to Date = Current Value:	$349,000
Completion:	February 2022
Budget:	$900,000

Current Status: The Contractor will begin work in March. Our Maintenance department is also purchasing and installing some of the lighting.

Design and Bidding

8. Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line and Pump Station

Design Engineer:	Michael Baker International (Baker)
Project Start:	August 2018
Project Status:	Prelim Design & Easement Acquisition
Construction Start:	2023

Completion:	2027
Budget:	$24,000,000

Current Status:

Easement negotiations with two private owners, UVA, the UVA Foundation and the Virginia Department of Forestry are in progress.

9. Beaver Creek Dam, Pump Station and Piping Improvements

Design Engineer:	Schnabel Engineering (Dam)
Design Engineer:	Hazen & Sawyer (Pump Station)
Project Start:	February 2018
Project Status:	15% Design and Permitting Underway
Construction Start:	2024
Completion:	2026
Budget:	$27,000,000

Current Status: A site selection study for the new Raw Water Pump Station, Intake and Piping is being updated. Hazen continues with environmental investigations required for development of a Joint Permit Application to be submitted to the VDEQ in early 2021. A two-year planning study kicked off in late August 2020. The study is being completed with 100% funding from the Natural Resources Conservation Service (NRCS), part of the US Department of Agriculture (USDA). Following completion of the study and approval by NRCS in 2022, staff will pursue additional federal funding for up to 65% of the cost of design and construction. A virtual Public Meeting was held on December 10, 2020 to provide information about this project.

10. Airport Road Water Pump Station and Piping

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	July 2019
Project Status:	60% Design
Construction Start:	September 2021
Completion:	June 2023
Budget:	$7,600,000

Current Status: SEH is finalizing the PER to submit to VDH and begin final design .

11. South Fork Rivanna River Crossing

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2020
Project Status:	8% Design
Construction Start:	Spring 2022
Completion:	Fall 2023
Budget:	$3,655,000

Current Status: Baker has developed preliminary alignments for the new river crossing. RWSA met with VDOT regarding the alignments within the Berkmar Bridge and Route 29 right-of-ways and are awaiting feedback.

12. MC Clarifier and Lime Silo Demolition

Design Engineer:	Hazen and Sawyer
Project Start:	October 2020
Project Status:	25% Design
Construction Start:	Summer 2021
Completion:	Summer 2022
Budget:	$655,000

Current Status: Design is underway.

13. MC Generator Fuel Storage Expansion

Design Engineer:	SEH, Inc.
Project Start:	August 2020
Project Status:	90% Design
Construction Start:	Winter 2021
Completion:	Summer 2021
Budget:	$100,000

Current Status: A Request for Quotes is being finalized as geotechnical information from the MC 5kV Electrical Systems Upgrades project became available to better inform the tank base slab design.

14. MC Facility Renovations

Design Engineer:	SEH, Inc.
Project Start:	August 2020
Project Status:	0% Design
Construction Start:	Winter 2020/2021
Completion:	Summer 2021
Budget:	$750,000

Current Status: Staff is evaluating the Duty Station for conversion into office space. This conversion will require extensive cleaning and the relocation of load bearing walls. An updated cost estimate has been developed by SEH to confirm the viability of this conversion.

15. MC 5 kV Electrical System Upgrades

Design Engineer:	Hazen and Sawyer
Project Start:	August 2020
Project Status:	15% Design
Construction Start:	March 2022

Completion:	June 2024
Budget:	$4,600,000

Current Status: Hazen is investigating maintenance of Plant operations during the work, which will be critical to ensure that the various treatment processes can remain active during replacement of the electrical equipment.

16. Glenmore WRRF Influent Pump and VFD Addition

Design Consultant:	Wiley|Wilson
Project Start:	August 2020
Project Status:	5% Design
Construction Start:	2021
Completion:	Fall 2021
Budget:	$65,000

Current Status: Design is in progress.

Planning and Studies

17. South Rivanna Reservoir to Ragged Mtn. Reservoir Water Line Right-of-Way

Design Engineer:	Michael Baker International (Baker)
Project Start:	October 2017
Project Status:	Easement Acquisition
Completion:	2021
Budget:	$2,295,000

Current Status: Progress continues in our efforts to acquire the 9.5 miles of easements and agreements (with VDOT) for this 36" water line. Discussions continue on remaining easements with 3 private owners, UVA Foundation, and the County School Board.

18. Urban Finished Water Infrastructure Master Plan

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2018
Project Status:	90% complete
Completion:	April 2021
Budget:	$253,000

Current Status: the draft Master Plan is under review. Workshops with stakeholders will be scheduled.

19. Upper Schenks Branch Interceptor, Phase II

Design Engineer:	Frazier Engineering, P.A.
Project Start:	TBD
Project Status:	Alignment Analysis
Construction Start:	TBD
Completion:	TBD
Budget:	$3,985,000

Current Status: Discussions about the pipe alignment continue with the County and the City. Following pipe alignment determinations, the design plans will be updated and the construction approach will be coordinated with a City project planned for the same general area.

20. Asset Management Plan

Design Engineer:	GHD, Inc.
Project Start:	July 2018
Project Status:	Phase 2 – 87% Complete CMMS Implementation – 3% Complete
Completion:	2021
Budget:	$1,115,000

Current Status: Development of the final pilot study components is being completed. Following the kick-off meeting for CMMS implementation services, a number of workshops have been held with the Maintenance and Operations Departments to identify their current workflows for eventual incorporation into the new CMMS.

21. Albemarle-Berkley PS Capacity Analysis

Design Consultant:	GHD, Inc.
Project Start:	September 2019
Project Status:	99% Complete
Completion:	February 2021
Budget:	$40,000

Current Status: The Design Consultant has sent a finalized version of the report to RWSA following receipt of comments from ACSA, ACPS, and RWSA. RWSA is reviewing the report internally prior to distribution to ACSA, City and ACPS. RWSA will conduct a final review meeting with ACSA, City and ACPS later this month, if desired.

22. MC Facilities Master Plan

Design Consultant:	Hazen and Sawyer
Project Start:	August 2019
Project Status:	80% Complete

Completion:	April 2021
Budget:	$275,000

Current Status: Multiple workshops have been held with staff. Hazen will evaluate another future site layout option in more detail and then submit the draft report.

23. SRR to RMR Pipeline – Pretreatment Pilot Study

Design Consultant:	SEH
Project Start:	August 2020
Project Status:	25% Complete
Completion:	July 2022
Budget:	$22,969 (Phase 1)

Current Status: Phase 1, analysis of existing water quality and seasonal weather data, is underway. The Design Consultant has received the applicable data from RWSA, and has begun analyzing the data to better understand the water quality in RWSA's South Rivanna, Ragged Mountain, and Sugar Hollow Reservoirs, as well as look for trends. A meeting between the Design Consultant, RWSA, and DiNatale Water Consultants was conducted to discuss previous work and preliminary trends, given DiNatale's previous experience with RWSA's reservoirs.

24. Central Water Line Project - Routing Study

Design Consultant:	Michael Baker International (Baker)
Project Start:	February 2021
Project Status:	0% Complete
Completion:	June 2021
Budget:	$63,070

Current Status: Baker began work on the Preliminary Engineering Report for the water line formerly referred to as the Avon to Pantops Water Main in August 2017. That work was placed on hold until additional modeling and comprehensive analysis was completed under the Urban Finished Water Infrastructure Master Plan. The draft Master Plan recommends that a central water line corridor across the City will best hydraulically connect the Observatory WTP and the Pantops area, and is necessary to utilize the increased water capacity at the Observatory WTP once upgrades are completed. This month Baker will begin a more detailed water line routing study to better define feasible paths.

Other Significant Projects

25. Urgent and Emergency Repairs

Staff are currently working on several urgent repairs within the water and wastewater systems as listed below:

Project No.	Project Description	Approx. Cost
2018-06	South Rivanna Dam Apron and River Bank Repairs	$200,000
2019-07	Urban Water Line Valve and Blow-off Repair	$175,000
2020-14	MCWWPS Gate Valve 205 Replacement	TBD
2020-09	RVI-MH-64 Erosion	$10,000
2020-18	NRW Erosion Near Airport Road	$5,000
2020-19	RMRW Erosion Near RMRW-015	$10,000
2020-20	Finished Water Sampling Stations	$150,000
2020-21	PCI Erosion	$125,000
2020-23	MCI Erosion @ Moores Creek Crossing (Near Avon Ct)	$50,000
2020-24	CZI Erosion Between MH-55 and MH-56	TBD
2020-25	Upper MRI Point Repair/New MH Installation	$175,000
2021-01	Erosion Between WBI MH-27 & 28	TBD
2021-02	CZI-MH-96 Slope Failure	$30,000
2021-03	UWL Leak @ SRWTP Finished Flow Meter	TBD
2021-04	UWL-ARV-15 Settlement	$25,000

- South Rivanna Dam Apron and River Bank Repairs: Repairs to the north and south concrete aprons are being designed by Schnabel Engineering and a manufacturer's representative was recently on site to review repair procedures. As this approach is finalized, repair services will be procured from the on-call dam maintenance contractor.
- Urban Water Line Valve and Blow-off Repair: Faulconer Construction has completed the installation of a new drain valve at UWL-017, as well as the associated modifications to the drain line outlet and creek bank. With the installation of the new drain valve in March 2020, leakage in this location has ceased. Staff continues to coordinate the logistics of the UWL-025 replacement near Gasoline Alley with the County and Property Owner, including the appropriate location of the discharge. CCTV inspections of adjacent stormwater infrastructure have been completed , and staff is planning to complete the project with Faulconer Construction after the Upper MRI Point Repair/New MH Installation. Relocation of a nearby ARV in a difficult to access location is also anticipated to be included in the scope of work at Gasoline Alley. Staff has also been notified of a similar (slight leakage) issue at UWL-010 near Route 29. This assembly currently is blind flanged and is not actively leaking into any adjacent creeks or stormwater structures. Staff will continue planning with this repair with Faulconer Construction.
- Moores Creek WWPS Gate Valve 205 Replacement: In July 2020, RWSA Operations staff identified a valve had become stuck in nearly the fully closed position, causing a reduction in the discharge capacity of the pumping station (PS), especially during wet weather events where both of the 24" force mains leaving the PS are required. Waco, Inc. was selected to perform the work under an Emergency Declaration by the Executive Director, and staff worked with Waco to plan for the associated force main shutdown and valve replacement. Due to excessive lead times and impending weather, a spool piece of pipe was procured for temporary installation while the replacement valve is procured. The existing gate valve was ultimately replaced with the spool

piece of pipe during a planned pumping station shutdown during the early morning hours of August 2, 2020, restoring full pumping capabilities to the PS. In the preliminary attempts to shut down one of the two discharge force mains and replace the No. 205 valve, it was discovered that additional valves inside the PS are not fully holding when placed in a closed position. Staff is currently evaluating the needs associated with bypass pumping around MCWWPS, which would allow for the permanent installation of the No. 205 Gate Valve Replacement, as well as replacement of the adjacent valves mentioned above and inspections of equipment inside of the PS that normally can't be inspected due to the incoming flows.

- RVI-MH-64 Erosion: During routine line maintenance activities, the RWSA Maintenance Department identified an area of minor erosion adjacent to RVI-MH-64. The manhole is located adjacent to a small creek in the Still Meadow/Westmoreland Subdivision. Staff has visited the site with Faulconer Construction, who will complete the repairs as availability and weather allows.
- NRW Erosion Near Airport Road: During routine line maintenance activities, the Maintenance Department identified an area of minor erosion along the North Rivanna Waterline (NRW) near Airport Road. Staff has visited the site with Faulconer Construction, who will complete the repairs as schedule allows.
- RMRW Erosion Near RMRW-015: While marking for a Miss Utility Locate, the Engineering Department identified an area of minor erosion along the Ragged Mountain Raw Waterline (RMRW) near RMRW-015, which is located along Stribling Avenue. RMRW crosses a small stream, which appears to have caused minor erosion along a pipe joint. Staff has visited the site with Faulconer Construction, who is expected to complete the repairs by installing rip-rap along the bank on either side of the crossing.
- Finished Water Sampling Stations: As a part of its ongoing Water Quality Monitoring Program, members of the Water & Laboratory Departments collect water samples from throughout the distribution system to track parameters such as Chlorine Residuals and Disinfection Byproducts. Historically, this has meant that staff must enter local businesses to collect the samples, which takes several minutes and further exposes staff to members of the public. In order to minimize staff exposure to the public and overall impact to local businesses/offices, seven (7) pre-fabricated sampling stations will be installed along ACSA finished water lines throughout the distribution system, which will allow staff to quickly and safely retrieve water samples. Faulconer Construction is performing this work for RWSA, with ACSA providing the associated wet taps. These 7 sites were completed by the week of December 7th. In addition, RWSA staff is coordinating with ACSA, the City, and UVA on a new set of five (5) additional sites. This work is slated to be completed by Faulconer Construction following the Upper MRI Point Repair and New MH Installation, as well as the UWL Blowoff Repairs at Gasoline Alley.
- PCI Erosion: Maintenance Department staff finished its annual inspection of the Powell Creek Interceptor in early October, and a number of erosion concerns were identified throughout the interceptor alignment. Engineering and Maintenance Department staff determined that two of the repairs were more urgent, and should be performed by Faulconer Construction as soon as possible. Both of the areas in question are large drainage ditches that have caused large wash-outs over the

sewer line. RWSA coordinated access through Sutherland Middle School property with ACPS, and Faulconer began these repairs during the week of October 26. The scope of these two repairs was to backfill the ditches and install a large HDPE culvert pipe to safely and effectively move the storm water across the sewer line while minimizing erosion. The two ditch lines were completed by Faulconer Construction during the week of November 2, with the site fully restored by the week of November 9. Four creek crossings along the interceptor were also identified as needing light rip-rap armament, as well as minor bank modifications to allow for enhanced access for RWSA staff. This work will also be coordinated with Faulconer Construction. A site visit was conducted on November 24, 2020, with the work being scheduled as crews have availability and site conditions allow.

- MCI Erosion @ Moores Creek Crossing (Near Avon Ct): While performing routine line maintenance activities, the RWSA Maintenance Department identified erosion along the Moores Creek Interceptor (MCI), at its creek crossing between MH-39 and MH-40. This is just downstream of the previous bank repair made in this area using imbricated stone in early 2019, which remains standing in good condition. No infrastructure is exposed at this time, and staff will continue to monitor the area and plan for the associated bank repairs, which will likely include the placement of large rip-rap to protect the sewer line from future high flow/erosion events.
- CZI Erosion Between MH-55 and MH-56: While performing routine line maintenance activities, RWSA Maintenance staff identified an area of erosion between Crozet Interceptor MH-55 and MH-56, located adjacent to the Buckingham Branch Railroad. A culvert under the railroad seems to be directing stormwater directly across the RWSA easement, causing the washout. No RWSA infrastructure is exposed at this time. Staff has reached out to the railroad to inform them of the issue, as well as begin discussions on the overall responsibility for the repair.
- Upper MRI Point Repair/New MH Installation: RWSA is in the final stages of rehabilitation efforts along the upper Morey Creek Interceptor. The final piece of rehabilitation is to complete a point repair, which includes the installation of approximately 65' of new Ductile Iron Pipe, as well as a new manhole, due to a sag in the existing, Vitrified Clay Pipe. Rather than perform this work under the Sanitary Sewer Rehabilitation Contract, since that contractor generally performs no-dig style rehabilitation, RWSA has elected to shift this project to the On-Call Maintenance Construction Services Contract. RWSA and Faulconer Construction performed a constructability review on site on February 5th, which identified a conflict with a nearby Dominion Energy power pole. Staff is coordinating with Dominion Energy, and is continuing to coordinate with Faulconer Construction in an effort to maintain the current schedule of mobilization in late February.
- Erosion Between WBI MH-27 & 28: During routine line maintenance activities, the RWSA Maintenance Department identified an area of minor erosion along the Woodbrook Interceptor (WBI), caused by a drainage ditch. No infrastructure is exposed at this time, and staff will have the repairs scheduled either with the RWSA Maintenance Department or On-Call Contractor as soon as availability allows.
- CZI-MH-96 Slope Failure: Following recent heavy rains, the RWSA Engineering Department performed a 1-year inspection of the previous bank repair at CZI-MH-96. While the vast majority

of the repair was found to be in good condition, a short stretch of the imbricated stone wall was undercut from behind, which caused a short stretch of the wall to become dislodged and fall over. Staff will coordinate the repairs with its On-Call Contractor, which will include repairs to the wall and additional erosion control measures behind the wall.

- UWL Leak @ SRWTP Finished Flow Meter: During calibration of the finished flow meter at SRWTP on January 26th, a leak was identified on an existing flange adapter. Staff immediately began coordinating and put together a shutdown plan, and on January 28th, the SRWTP was temporarily shut down to allow English Construction to repair the leak by replacing the existing flange adapter with a new, restrained flange adapter. Within 5-hours, the Urban Waterline was isolated and drained, the necessary repairs were made, and the waterlines at WTP were placed back into service.
- UWL-ARV-15 Settlement: While marking a Miss Utility Ticket, the RWSA Engineering Department identified an ARV that was settling with a small section of Kenwood Lane. No immediate danger to the ARV is present, however, staff has looked at the issue with its On-Call Maintenance Contractor and is coordinating the necessary repairs for completion following some adjacent City sanitary sewer replacement.

26. Interceptor Sewer and Manhole Repair

Design Engineer:	Frazier Engineering
Construction Contractor:	IPR Northeast
Construction Start:	November 2017
Percent Complete:	40%
Base Construction Contract + Change Orders to Date = Current Value:	$1,000,838.79
Expected Completion:	June 2021
Total Capital Project Budget:	$1,088,330 (Urban) + $880,000 (Crozet) = $1,968,330

Current Status: Repairs to the Upper Morey Creek Interceptor remain underway. Staff and the Design Consultant are finalizing the plans for the upper MRI point repair and new manhole installation. As described in the Urgent/Emergency Projects section above, this work has been shifted to the On-Call Maintenance Construction Services Contract. Staff continues to coordinate with all groups involved to get the repairs completed as soon as possible on this portion of MRI, with mobilization scheduled for late February. Staff also continues coordination on the lower Powell Creek Interceptor and a portion of the Woodbrook Interceptor, as these are the next high-priority areas to be addressed based upon the latest CCTV footage. The scope of this rehabilitation work is likely to include several sections of Cured in Place Piping, as well as manhole rehabilitation. IPR Northeast will be mobilizing during the week of February 15th to clean and CCTV the sewer, which will help staff better finalize the scope of repairs.

27. Security Enhancements

Design Engineer:	N/A

Construction Contractor:	Security 101
Construction Start:	March 2020
Percent Complete:	95%
Based Construction Contract + Change Orders to Date = Current Value:	$744,136.80 - $25,708.80 = $718,428.00 (WA#1)
Completion:	March 2021 (WA #1)
Approved Capital Budget:	$2,730,000

Current Status: Access control system installation is underway for all exterior doors at MCAWRRF, as well as all WTP motorized gates. Device installation at the MCAWRRF site has been completed. In addition, all WTP gates have also been completed. The Card Access System is in use at the Administration and Engineering Buildings at MCAWRRF, as well as at the WTP gates where the installations have been completed. Programming has been completed by Security 101, and the only task that remains is some door/lock improvements at MCAWRRF, which will help enhance the functionality of the access control system and allow it to be placed fully online. Security 101 is pricing and preparing for these modifications, and is also preparing for the next round of installations, which will likely be conducted at the Scottsville and Crozet WTP exterior doors.

History

Under Construction

1. **Crozet Water Treatment Plant Expansion**

   This project was created to increase the supply capacity of the existing Crozet WTP by modernizing plant systems. The goal was to not drastically increase the plant footprint in regard to the existing filter plant, flocculation tanks, and sedimentation basins. By modernizing the outdated equipment within these treatment systems, the plant treatment capacity will be improved by approximately 100% (from 1 to 2 MGD). A Notice to Proceed was issued on December 13, 2018 and the contractor mobilized on February 26, 2019.

2. **South Rivanna and Observatory Water Treatment Plant Renovations**

   An informational meeting with prospective contractors was held on September 26, 2019 to maximize interest in the project. A project kickoff meeting with staff was held on November 14, 2018 and 30% design documents were provided in February. A Value Engineering Workshop took place the week of April 8, 2019, and a memo summarizing the results has being completed. Agreed upon results were incorporated into the project. The project was advertised, and bids were received. English Construction was awarded the contract and a Notice to Proceed was issued on May 18, 2020.

   Observatory: This project will upgrade the plant from 7.7 to 10 MGD capacity. Costs to upgrade the plant to 12 MGD were determined to be too high at this time. Much of the Observatory Water Treatment Plant is original to the 1953 construction. A Condition Assessment Report was completed by SEH in October of 2013. The approved Capital Improvement Plan project was based on the findings from this report. The flocculator systems were replaced and upgraded as part of the Drinking Water Activated Carbon and WTP Improvements project (GAC). Four additional GAC contactors will be included in the design.

South Rivanna: The work herein includes expansion of the coagulant storage facilities; installation of additional filters to meet firm capacity needs; the addition of a second variable frequency drive at the Raw Water Pump Station; the relocation for the electrical gear from a sub terrain location at the Sludge Pumping Station; a new building on site for additional office, lab, control room and storage space; improvements to storm sewers to accept allowable WTP discharges; of new metal building to cover the existing liquid lime feed piping and tanks. The scope of this project will not increase the 12 MGD plant treatment capacity.

3. Crozet Flow Equalization Tank

A 2016 update to the 2006 model was completed which evaluated the I&I reduction goals previously established and future capital project needs. Based on the results of that study, it was determined that the Crozet Interceptor system and the existing Crozet Pump Stations (1 through 4) have adequate capacity to handle the 2015 peak wet weather flow from the Crozet Service Area during a two-year storm. However, as projected growth in the service area occurs, peak wet weather flows in the area under the storm conditions established in the updated model will begin to exceed the firm capacities of the pump stations by 2025. Additional I&I reductions in order to reduce flows enough to not exceed the pump station firm capacities are not feasible and as a result, the construction of a flow equalization tank was identified as the best method to alleviate wet weather capacity issues.

While the study indicates that capacity should not be an issue until 2025, a flow equalization tank would also provide a significant benefit to the maintenance of the Crozet Pumping Station system which currently lacks system storage necessary to allow adequate time to perform repairs on the pumps and the associated force mains while the system is down.

Greeley and Hansen completed a siting study to determine the location for the flow equalization tank based on the results of the comprehensive model update. The results of the siting study were reviewed with ACSA and a final tank location was determined.

A work authorization with Schnabel Engineering was finalized and a Project Kick-off Meeting was held on July 12, 2018. The construction bids were received on July 16, 2020. Anderson Construction of Lynchburg,VA was awarded the construction contract. Notice to Proceed on this project was given on October 9, 2020 and now construction is in progress.

4. MC Aluminum Slide Gate Replacements

Several large aluminum slide gates are located at the influent side of the Moores Creek Pump Station. These gates allow staff to stop or divert flow to perform maintenance activities. After repeated attempts to repair the deteriorated gates, it is now necessary to replace the gates and modify the gate arrangement. There are also several deteriorated gates at the Ultraviolent disinfection facility that leak water, causing a reduced capacity of the facility. Replacement of these gates will restore the process to full capacity. Work also includes replacement of the cast iron gates in the holding pond pump station and new actuators on the headworks gates. A Notice to Proceed for these efforts was provided on October 6, 2020. The work specific to the Moores Creek Pump Station will be bid under a separate project due to the extensive bypass pumping.

5. **South Rivanna Dam – Gate Repairs**

The South Rivanna Dam, originally constructed in 1965, is equipped with two 36" diameter slide gates and conduits, one each on the north and south abutments of the dam, which can be utilized to dewater the facility or to meet minimum instream flow (MIF) requirements when the dam is not spilling. These gates are original to the dam and while they are operable and are exercised regularly, they are deteriorated and can no longer provide a complete seal, therefore allowing some leakage through the dam. RWSA has protocols in place to temporarily stop leakage through the gates when necessary to conserve water; however, there is a desire to repair or replace the gates and components as needed to restore full functionality. The project includes other repairs to the facility, including improvements to the concrete wall adjacent to the Raw Water Pump Station as well as improvements to the north dam tower to provide safer access by staff while still discouraging access by the general public.

6. **Sugar Hollow Dam – Rubber Crest Gate Replacement and Intake Tower Repairs**

In 1998, the Sugar Hollow Dam underwent a significant upgrade to improve structural stability and spillway capacity. The original metal spillway gates were replaced with a manufactured five-foot-high inflatable rubber dam that is bolted to the existing concrete structure. This rubber dam allows for the normal storage of water in the reservoir with the ability to be lowered during extreme storm events. The rubber dam has an approximate service life of twenty years and is therefore now due for replacement. The aging intake tower structure has been inspected and evaluated. Recommended repairs include repair or replacement of intake trash racks and sealing/grouting of minor concrete wall cracks. This project was advertised for construction in July 2020 and Allegheny Construction was awarded the project. A Notice to Proceed was provided on October 1, 2020.

7. **MC Exterior Lighting Improvements**

The lighting at the 80-acre MCAWRRF consists of over 300 fixtures installed over the entire life of the facilities presence at Moores Creek. In 2019, Albemarle County investigated the lighting plan at the facility and issued a Zoning Notice of Violation.

RWSA and Albemarle County staff have been working together to best address the issue. A photo metric plan of existing lighting was submitted to the county for review. RWSA has submitted a minor site plan amendment and Architectural Review Board submission that will include a large scale replacement of non-compliant fixtures as well as address industrial lighting standards for the entire facility. The submission was approved by the County and design is underway.

The design has been completed by Hazen and Sawyer and the project was awarded to Pyramid Electrical Contractors, LLC.

Design and Bidding

8. **Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line and Raw Water Pump Station**

A Work Authorization was executed in December 2018 with Michael Baker International for the raw water line routing study, preliminary design, plat creation and the easement acquisition process for this portion of the project. Raw water is transferred from the Ragged Mountain Reservoir (RMR) to the Observatory Water Treatment Plant (WTP) by way of two 18-inch cast iron pipelines, which have

been in service for more than 110 and 70 years, respectively. The increased frequency of emergency repairs and expanded maintenance requirements are one impetus for replacing these pipelines. The proposed water line will be able to reliably transfer water to the expanded Observatory plant. The new pipeline will be constructed of 36-inch ductile iron and will be approximately 2.6 miles feet in length. The segment of the project immediately east of the RMR will constitute a portion of the proposed South Rivanna Reservoir to RMR raw water main project as part of the approved 50-year Community Water Supply Plan.

The RMR to Observatory WTP raw water pump station is planned to replace the existing Stadium Road and Royal pump stations, which have exceeded their design lives or will require significant upgrades with the Observatory WTP expansion. The pump station will pump up to 10 million gallons per day (MGD) of raw water to the Observatory WTP. The new pump station site selection and design are being conducted in coordination with the South Rivanna Reservoir to RMR pipeline in the interest of improved operational and cost efficiencies. An integrated pump station would also include the capacity to transfer up to 16 MGD of raw water from RMR back to the SR WTP.

9. <u>Beaver Creek Dam and Pump Station Improvements</u>

<u>Dam:</u> RWSA operates the Beaver Creek Dam and reservoir as the sole raw water supply for the Crozet Area. In 2011, an analysis of the Dam Breach inundation areas and changes to Virginia Department of Conservation and Recreation (DCR) *Impounding Structures Regulations* prompted a change in hazard classification of the dam from Significant to High Hazard. This change in hazard classification requires that the capacity of the spillway be increased. This CIP project includes investigation, preliminary design, public outreach, permitting, easement acquisition, final design, and construction of the anticipated modifications. Work for this project will be coordinated with the new relocated raw water pump station and intake and a reservoir oxygenation system project.

Schnabel Engineering developed three alternatives for upgrading the capacity of the Beaver Creek Dam Spillway in 2012. Following the adoption of a new Probable Maximum Precipitation (PMP) Study on December 9, 2015 and the release of DCR guidelines for implementing the PMP study in March of 2016, RWSA determined it would proceed with an updated alternatives analysis and Preliminary Engineering Report for upgrading the dam spillway. Following the completion of an updated alternatives analysis by Schnabel Engineering, staff met with members of Albemarle County and ACSA staff to discuss the preferred alternative. It was determined that staff would proceed with design of a labyrinth spillway and chute through the existing dam with a bridge to allow Browns Gap Turnpike to cross over the new spillway.

In 2020, staff received grant funding for a planning and environmental study from the Natural Resources Conservation Service (NRCS). The project kicked off in August 2020 and is expected to be completed in July 2022. Following completion of the study and acceptance of the Plan-Environmental document by NRCS, staff will pursue additional grant funding through NRCS that, if available, could cover up to 65% of final design and construction costs.

<u>Pump Station:</u> The Drinking Water Infrastructure Plan for the Crozet water service area, developed by Hazen and Sawyer, recommends installation of a new Raw Water Pump Station and Intake at the Beaver Creek Dam in order to meet new minimum instream flow requirements and provide adequate raw water pumping capacity to serve the growing Crozet community for the next 50 years. The pump

station will be moved out of its existing location at the toe of the dam to a new location, to be determined during design. The new intake structure will include enhanced controls to allow for access to the best quality water at any given time.

10. Airport Road Water Pump Station and Piping

The Rt. 29 Pump Station and Pipeline master plan was developed in 2007 and originally envisioned a multi-faceted project that reliably connected the North and South Rivanna pressure bands, reduced excessive operating pressures, and developed a new Airport pressure zone to serve the highest elevations near the Airport and Hollymead Town Center. The master plan update was completed in June of 2018 to reflect the changes in the system and demands since 2007. This project, along with the South Rivanna River Crossing and North Rivanna Transmission Main project, will provide a reliable and redundant finished water supply to the North Rivanna area. The proposed pump station will be able to serve system demands at both the current high pressure and future low pressure conditions. These facilities will also lead to future phase implementation which will include a storage tank and the creation of the Airport water pressure zone. The North Rivanna Transmission Main improvements included under a separate CIP project have been added to this project to allow connection of the pump station to the distribution system.

11. South Fork Rivanna River Crossing

RWSA has previously identified through master planning that a 24-inch water main will be needed from the South Rivanna Water Treatment Plant (SRWTP) to Hollymead Town Center to meet future water demands. Two segments of this water main were constructed as part of the VDOT Rt. 29 Solutions projects, including approximately 10,000 LF of 24-inch water main along Rt. 29 and 600 LF of 24-inch water main along the new Berkmar Drive Extension, behind the Kohl's department store. To complete the connection between the SRWTP and the new 24-inch water main in Rt. 29, there is a need to construct a new river crossing at the South Fork Rivanna River. Acquisition of right-of-way will be required at the river crossing.

12. MC Clarifier and Lime Silo Demolition

The two in-plant clarifiers were constructed in the late 1950's and were taken out of service as a result of the Odor Control Project at the plant. Due to the age of the tanks, various components have significantly deteriorated over time and no additional uses for these tanks have been identified. In addition, due to their out-of-service status, they remain empty and a safety concern for plant staff and visitors. There is also an abandoned lime silo currently located adjacent to the Solids Handling Building. Lime was previously used with the old plat and frame presses before centrifuges were installed for sludge dewatering purposes. This project will include the complete demolition of the in-plant clarifiers by removing all existing components, backfilling the area and returning the area to open space and removing the lime silo from the plant and properly disposing of it.

13. MC Generator Fuel Expansion

The Moores Creek AWRRF south side electrical facilities have a single large system back-up power generator that was installed between 2009 – 2012 during the ENR plant upgrade. The generator has a belly tank that allows for approximately 22 hours of operation. This project will install an ancillary fuel tank that will allow for approximately three days of operation.

14. MC Facility Renovations

The RWSA Administration Building Board Room finishes are generally original to the facility. The proposed project will update the wall and floor coverings, alter the shelving and update the room furnishings in order to create a more modern and useable meeting space.

The Duty Pump Station was construction in 1958 and no longer functions as an actual pump station. It currently houses electrical equipment that serves the plant, but otherwise has available space that could be beneficially used for other purposes. RWSA has a need for additional office space and has evaluated repurposing portions of the Duty Pump Station for office and work space in order to make use of all available space at the plant before proceeding with more significant administrative expansions. This project includes demolition of a select portion of the interior of the station, cleaning and sanitizing of the areas to be repurposed, and an interior upfit of the space to provide additional office and work space. Costs related to this effort have been updated and the budget is being evaluated through the CIP process.

15. MC 5 kV Electrical System Upgrades

After discussions through the Moores Creek Facilities Master Plan, it was identified that several areas of the MCAWRRF, including the Blower Building, Sludge Pumping Building, Grit Removal Building, Moores Creek Pumping Station, and the Administration Building are all still connected to the original 5kV switchgear in the Blower Building. This equipment, including the associated cabling, switchgear, transformers and motor control centers (MCCs), has a useful life expectancy of 20-30 years. Most of this equipment was installed around 1980. With the equipment having well exceeded its useful life expectancy at this point, safety is a concern given the large electric loads that the cabling and other equipment are handling on a day-to-day basis. Failure of the existing 5kV infrastructure could also result in temporary outages of certain treatment processes, and repairs could take weeks to months given the lead times associated with equipment of this age. A technical memo was provided in July 2020 by Hazen & Sawyer, which recommended that a CIP Project be added immediately to encompass replacement of the original 1980s-vintage 5kV cables, switchgear, transformers, and MCCs. A CIP Amendment Recommendation and Engineering Services Work Authorization was approved during the August 2020 Board of Directors Meeting. The Design Work Authorization was executed on October 6, 2020.

A Design Kickoff Meeting was held virtually on October 20, 2020. A site visit was attended on November 5, 2020 by Hazen & Sawyer staff, as well as RWSA Maintenance and Engineering Department staff.

16. Glenmore WRRF Influent Pump and VFD Addition

The 0.381-mgd water resource recovery facility, located within the Glenmore subdivision, is operated by RWSA. The facility includes an influent pumping station located immediately adjacent to the treatment facility. The Glenmore WRRF is predicted to see additional dry and wet weather flows as construction within the service area continues. Future wet weather flows will require higher influent pumping capacity and an additional pump and electrical variable frequency drive will be required to maintain firm capacity. After discussions with the Operations and Maintenance departments, installation of a new exhaust fan in the influent pump station will also be included. A work authorization for this project has been finalized and design is underway.

Planning and Studies

17. South Rivanna Reservoir to Ragged Mtn. Reservoir Water Line Right-of-Way

The approved 50-year Community Water Supply Plan includes the construction of a raw water line from the South Rivanna Reservoir to the Ragged Mountain Reservoir. This water line will replace the existing Upper Sugar Hollow Pipeline and increase raw water transfer capacity in the Urban Water System. The preliminary route for the water line followed the proposed Route 29 Charlottesville Bypass; however, the Bypass project was suspended by VDOT in 2014, requiring a more detailed routing study for the future water line. This project includes a routing study, preliminary design and preparation of easement documents, as well as acquisition of water line easements along the approved route.

Baker has completed the routing study. Preliminary design, plat creation and the acquisition of easements are underway. Property owners were contacted to request permission to access properties for topographical surveying. A community information meeting was held in June 2018.

18. Urban Finished Water Infrastructure Master Plan

As identified in the 2017 Strategic Plan, the Authority has a goal to plan, deliver and maintain dependable infrastructure in a financially responsible manner. Staff has identified asset master planning as a priority strategy to improve overall system development. Many previously identified projects in the urban finished water treatment and distribution system are in preliminary engineering, design or construction. As such, staff have identified a need to develop a current and ongoing finished water master plan.

19. Upper Schenks Branch Interceptor, Phase II

The Schenks Branch Sanitary Sewer interceptor is a pipeline operated by RWSA that serves the City of Charlottesville. 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 though the Route 250 Interchange.

The remaining sections, which are considered the Upper Schenks Branch Interceptor, were split into 2 phases. The first phase has been completed and is located within City-owned Schenks Greenway adjacent to McIntire Road, and the second phase is to be located on County property (baseball field and County Office Building) adjacent to McIntire Road or within McIntire Road.

20. Asset Management Plan

Asset management is the practice of managing our infrastructure to minimize the total cost of owning and operating these assets while providing desired service levels. In doing so, it is used to make sure planned maintenance activities take place and that capital assets are replaced, repaired or upgraded at the right time, while ensuring that the money necessary to perform those activities is available. RWSA

has some components of an asset management program in place (i.e. GIS, work order system), but has identified the need to further develop the program as part of our Strategic Planning process. In order to continue to build the program, a consultant has been procured to assist with a three-phase process that will include facilitation and development of an asset management strategic plan, development and management of a pilot study where the results of the strategic plan will be applied to a specific class of assets, and assistance through a full implementation process. As part of this three-phase process, the consultant also assisted RWSA with the procurement of a new CMMS software package to facilitate the overall program. Cityworks was selected and implementation has begun.

21. Albemarle-Berkeley PS Capacity Analysis

The Albemarle Berkley wastewater pump station serves the schools and other connections in the area near Albemarle High School. Due to unacceptably high run times on the pumps, a capacity analysis of the pump station, given the current and projected upstream conditions, will be completed to provide design data for replacement of the pump station.

The Capacity Analysis Study began in Spring 2020, and the first report draft was reviewed by staff in September 2020. A final draft was issued to RWSA/ACSA/ACPS by the Design Consultant in December 2020, and comments were received in January 2021.

22. MC Facilities Master Plan

The majority of the Moores Creek Water Resource Recovery Facility was constructed in the early 1980's. At the time, the plant layout was developed with space held open for future process expansion. With the Enhanced Nutrient Removal (ENR) project in 2009, the operation and layout of the plant was fundamentally altered, as needed to meet the new regulation. The project did anticipate the need for future expansion and some of the processes have readily available space. However, a full expansion plan was not developed at the time. As identified in the Strategic Plan, the Authority has a goal to plan, deliver and maintain dependable infrastructure in a financially responsible manner. Staff has identified asset master planning as a priority strategy to improve overall system development. As such, this project will serve to evaluate and plan for future space and process needs to accommodate capacity expansion and/or anticipated regulatory changes.

23. SRR to RMR Pipeline – Pretreatment Pilot Study

As part of the SRR to RMR Pipeline project, the impact of sending raw water from the SRR to RMR has been previously studied and a significant amount of pretreatment was initially identified as being needed to avoid reducing the quality of the raw water contained within the RMR. With the pipeline easement acquisition process well underway and additional information now available associated with the proposed timing of this overall project based on water demand projections, the intent of this project is to update the pretreatment needs anticipated.

The study is anticipated to be completed in 4 phases: 1. Analysis and Correlation of Existing Water Quality and Seasonal Weather Data 2. Enhanced Water Quality Sampling 3. Pretreatment Piloting 4. Level Setting for the Final Pretreatment Solution. Phase 1 commenced in January 2021.

24. Central Water Line Project – Routing Study

Route alignment determination, hydraulic modeling, and preliminary design were underway in 2017. Due to the complicated nature of our finished water systems, it was decided at the August 2018 Board meeting that a more comprehensive approach was warranted and we should complete the Finished Water Master Plan prior to moving forward with final design and construction of the Central Water Line (formerly referred to as the Avon to Pantops Water Main). The focus of this project was on the southern half of the urban area water system which is currently served predominantly by the Avon Street and Pantops water storage tanks. The Avon Street tank is hydraulically well connected to the Observatory Water Treatment Plant, while the Pantops tank is well connected to the South Rivanna Water Treatment Plant. The hydraulic connectivity between the two tanks, however, is less than desired, creating operational challenges and reduced system flexibility. In 1987, the City and ACSA developed the Southern Loop Agreement which laid out two key phases (with the first being built at the time). The 1987 Agreement and planning efforts were a starting point for this current project. An engineering contract has been negotiated and was approved by the Board of Directors in July 2017. Recent efforts and modeling for the Urban Finished Water Infrastructure Master Plan have determined that a central water line corridor through the City is the best option to hydraulically connect the Observatory Water Treatment Plant to the Pantops area.

Other Significant Projects

25. Urgent and Emergency Repairs

- South Rivanna Dam Apron and River Bank Repairs

  Intense rainfall between May 30-31, 2018 resulted in extensive flooding throughout Charlottesville and parts of Albemarle County, with flows over the South Fork Rivanna Dam reaching more than 7 feet over the spillway crest at its peak. Staff has inspected the dam and abutments to determine the extent of damage resulting from the extreme flooding. Although there is no discernible damage to the dam itself, staff found erosion damage to the north downstream river bank and substantial displacement of large stone downstream of the dam to form a rock dam and pool below the north apron. Additionally, some damage to concrete structures on both aprons was noted, including possible creation of voids beneath the concrete and loss of concrete joint filler. Repairs to the river bank and removal of the rock dam were completed June 3-7, 2019 under RWSA's on-call construction contract.

- Urban Water Line Valve and Blow-off Repair

  During its routine inspections of the Water System, the Maintenance Department discovered a blowoff (drain) valve along the Urban Waterline (UWL-017) that had significant leakage. In addition, during one of the numerous heavy rain events received in 2018, the water in the creek adjacent to the drain line rose, eroding the area around the drain line and causing the headwall to become disconnected from the end of the pipe. Staff will be coordinating internally to confirm the overall scope of the project, including whether the drain line will need to be further reinforced or restrained.

26. Interceptor Sewer and Manhole Repair

Results from 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 professional engineering services to aid in the rehabilitation and repair of the sewer collection system. Engineering services will be used for sewer infrastructure condition assessments and the development of a sewer rehabilitation bid package for the procurement of a contractor to perform the recommended rehabilitation work.

Lining work on the Upper Morey Creek Interceptor began in Fall 2019 and was completed in Fall 2020. A critical section of upper Morey Creek Interceptor under Rt. 250 was lined on August 28, 2020.

27. Security Enhancements

As required by the Federal Bioterrorism Act of 2002 and the American Water Infrastructure Act of 2018, water utilities must conduct Vulnerability Assessments and have Emergency Response Plans. RWSA recently completed an updated Risk Assessment of its water system in collaboration with the Albemarle County Service Authority (ACSA), City of Charlottesville (City), and University of Virginia (UVA). A number of security improvements that could be applied to both the water and wastewater systems were identified. The purpose of this project will be to install security improvements at RWSA facilities including additional security gate and fencing components, vehicle bollards, facility signage, camera system enhancements, additional security lighting, intrusion detection systems, door and window hardening, installation of industrial strength locks, communication technology and cable hardening, and an enhanced access control program.

RWSA Engineering staff held a meeting with Operations staff to discuss overall project needs and priorities in October 2018. Meetings with ACSA and City staff were held in Fall/Winter 2018-2019 to discuss how access control and intrusion detection systems have been implemented into to the day-to-day operations of the two utilities. A Request for Proposal (RFP) for an Implementer to facilitate selection of an access control system, confirmation of design requirements based upon RWSA's facilities and project goals, and installation of the selected system was issued on June 6, 2019. RWSA conducted a Pre-Proposal Meeting on June 14, 2019, and proposals were opened on June 27, 2019. Interviews were conducted on July 15-16, 2019, and a Contract Award Recommendation was approved by the Board on July 23, 2019. Access Control System Installation at MCAWRRF began in March 2020. Access Control System Installation was completed in the Administration and Engineering Buildings by the week of November 30, 2020, completing installation of the physical access control system across the MCAWRRF site. Training for staff was completed on November 10, 2020.

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

FROM: **JENNIFER WHITAKER, DIRECTOR OF ENGINEERING & MAINTENANCE**

REVIEWED BY: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **WHOLESALE METERING REPORT FOR JANUARY 2021**

DATE: **FEBRUARY 23, 2021**

The monthly and average daily Urban water system usages by the City and the ACSA for January 2021 were as follows:

	Month	***Daily Average***	
City Usage (gal)	113,919,888	3,674,835	**45.5%**
ACSA Usage (gal)	136,315,085	4,397,261	**54.5%**
Total (gal)	**250,234,973**	**8,072,096**	

The *RWSA Wholesale Metering Administrative and Implementation Policy* requires that water use be measured based upon the annual average daily water demand of the City and ACSA over the trailing twelve (12) consecutive month period. The *Water Cost Allocation Agreement (2012)* established a maximum water allocation for each party. If the annual average water usage of either party exceeds this value, a financial true-up would be required for the debt service charges related to the Ragged Mountain Dam and the SRR-RMR Pipeline projects. Below are graphs showing the calculated monthly water usage by each party, the trailing twelve-month average (extended back to February 2020), and that usage relative to the maximum allocation for each party (6.71 MGD for the City and 11.99 MGD for ACSA).

Figure 1: City of Charlottesville Monthly Water Usage and Allocation

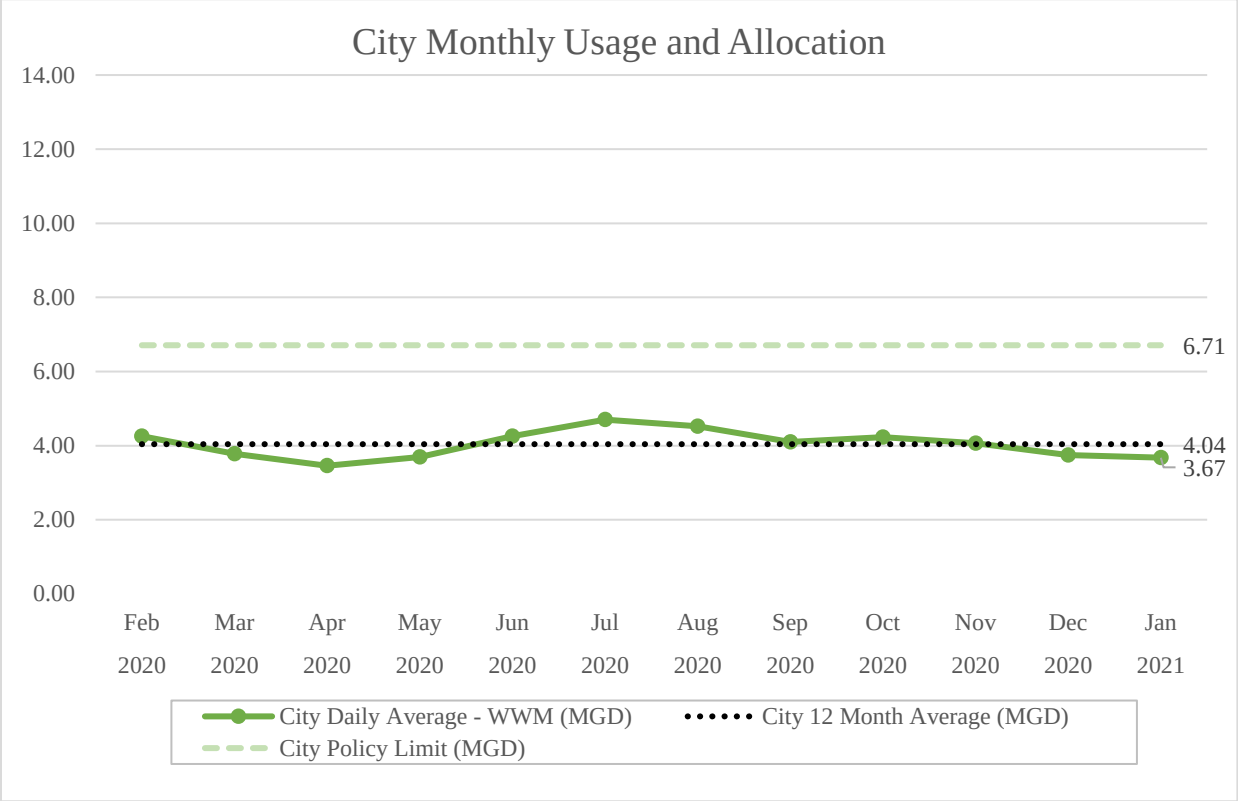
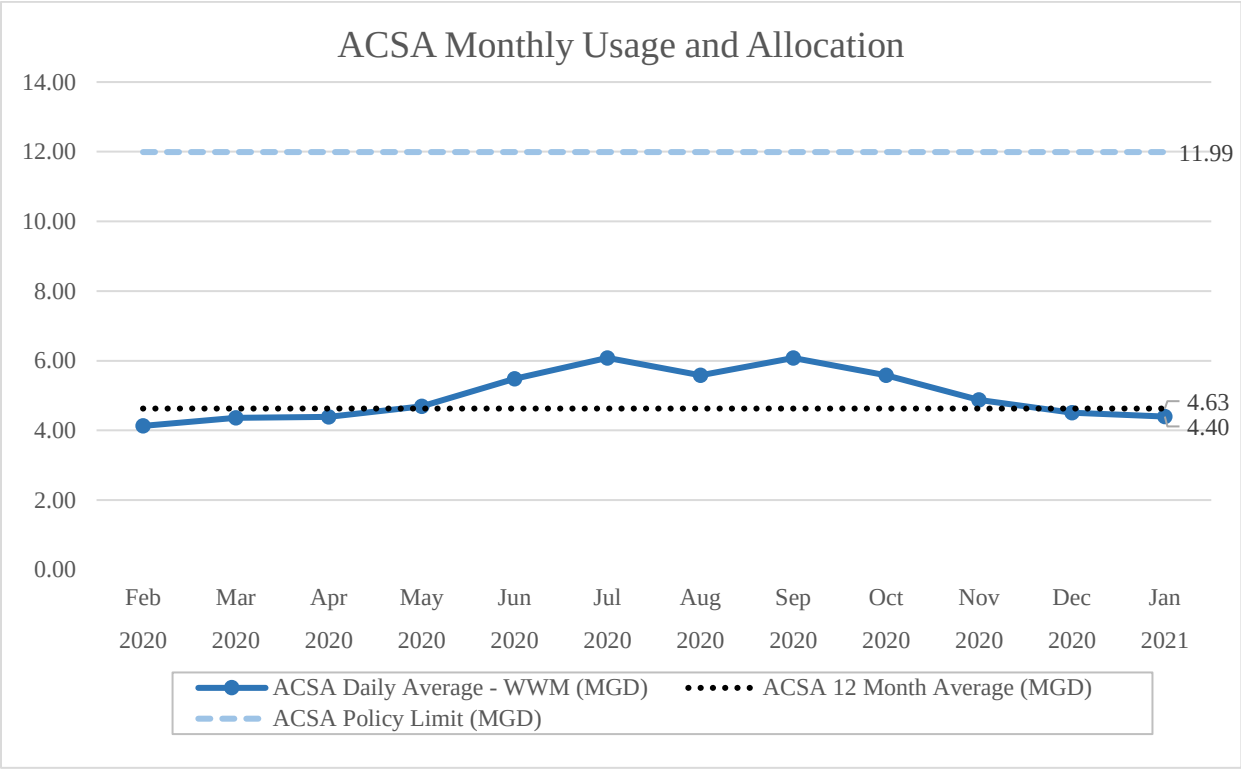


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation



RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

FROM: **JENNIFER A. WHITAKER, DIRECTOR OF ENGINEERING AND MAINTENANCE**

REVIEWED BY: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **AWARD OF ENGINEERING SERVICES - TERM CONTRACT FOR WATER AND SEWER ENGINEERING CONSULTING SERVICES**

DATE: **FEBRUARY 23, 2021**

RWSA has maintained a water and sewer engineering consulting services contract now for two full five-year terms. Over the course of those contracts, access to different consulting firms with varying skills, capabilities and resources has been invaluable as assistance has been needed with water storage tank inspection and engineering services, water system modeling and planning, construction inspection assistance, finished and raw water line design services, and many other miscellaneous needs. As the current contract will be expiring soon, RWSA needed to procure these services again.

A Request for Proposals (RFP) was developed and advertised with proposals due on January 28, 2021. RWSA received twelve proposals. The selection committee interviewed four of the prospective firms on February 8 and 9, 2021 and determined that based on the qualifications listed in the RFP that Kimley Horn; Wiley|Wilson; and Whitman, Requardt & Associates (WRA) were best qualified to provide these services. All three firms have offices in Virginia and have vast experience working under municipal term contracts. Kimley Horn currently holds term contracts with ACSA, the City of Charlottesville and UVA and also contains team members that have worked on important RWSA projects in the past, Wiley|Wilson holds an existing term contract with RWSA for wastewater treatment engineering services and has been an effective partner with the ability to expand those services, and WRA currently holds term contracts with ACSA and the City of Charlottesville and brings a deep understanding of local needs and infrastructure. All three are well qualified to provide consulting services related to water transmission and sewer collection and are equipped to provide a diverse range of services to meet RWSA's needs. The term of each contract will be for one year, with the option for four one-year renewals.

Board Action Requested:
Authorize the Executive Director to execute Professional Engineering Services Term Agreements with Kimley Horn, Wiley|Wilson and Whitman, Requardt & Associates for Water and Sewer Engineering Consulting Services, and future work authorizations under the conditions of the Term Agreements.

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **INTRODUCTION OF THE FY 2022 – 2026 CAPITAL IMPROVEMENT PLAN**

DATE: **FEBRUARY 23, 2021**

We are pleased to present the proposed FY 2022 – 2026 Capital Improvement Plan (CIP) totaling $169.7 M for your consideration. We continue to strategically plan for the water supply, drinking water, and wastewater treatment facilities required to meet the requirements of State and Federal regulations, as well as the reliability, quantity and quality expectations of our community. Projects to achieve these objectives in a financially responsible manner have been included in this proposed CIP.

During this five-year period, the CIP will significantly strengthen our drinking water systems with expenditures of $125 M for essential projects including:

- Renovations and Upgrades to our largest Water Treatment Plants (South Rivanna and Observatory)
- Additional Granular Activated Carbon Water Filtering Facilities at the Observatory Water Treatment Plant
- Replacement of Raw Water Piping and Pumping Stations from Ragged Mountain Reservoir to the Observatory Water Treatment Plant
- An Additional Water Pumping Station and Piping located near Airport Road
- Modifications to the Beaver Creek Reservoir Dam, Pump Station and Piping

We will also complete significant improvements to our wastewater treatment and piping facilities to ensure our environment is protected. The proposed FY 22 – 26 CIP includes $40 M for essential wastewater projects including:

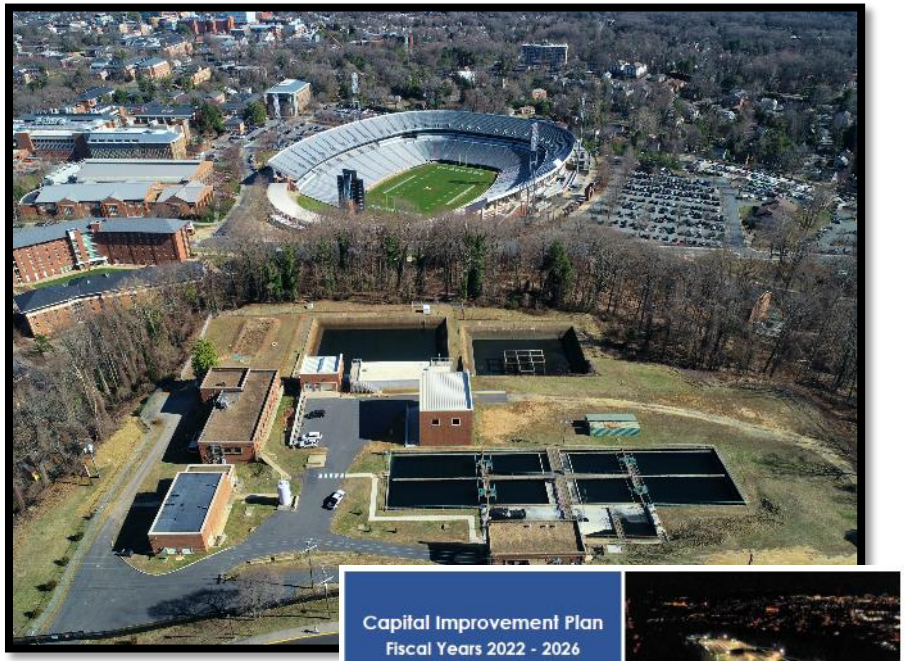
- A Wastewater Storage Tank to serve the Crozet area
- Renovations and Repairs to Wastewater Facilities (Moores Creek, Scottsville, Glenmore, and Crozet Pump Stations and Piping)
- Repairs and Replacement of Wastewater Piping and Manholes (Lower Morey Creek, Powell Creek, Moores Creek, Upper Rivanna Interceptors)

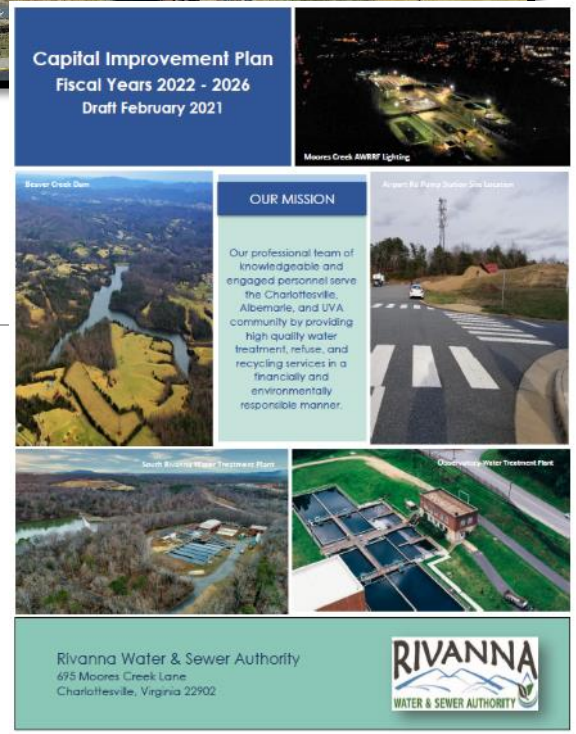
This proposed CIP will continue the efforts of the Authority to provide reliable drinking water and wastewater infrastructure for our community.

Board Action Requested:

The FY 22 – 26 CIP totaling $169.7 M is provided for review by the Board of Directors.

Proposed Capital Improvement Plan FY 2022-2026





FOR THE BOARD OF DIRECTORS

BY BILL MAWYER, EXECUTIVE DIRECTOR

FEBRUARY 23, 2021

RIVANNA
WATER & SEWER AUTHORITY

Strategic Plan

"Infrastructure and Master Planning"

is one of our six strategic goals

- "To plan, deliver, and maintain dependable infrastructure in a financially responsible manner."

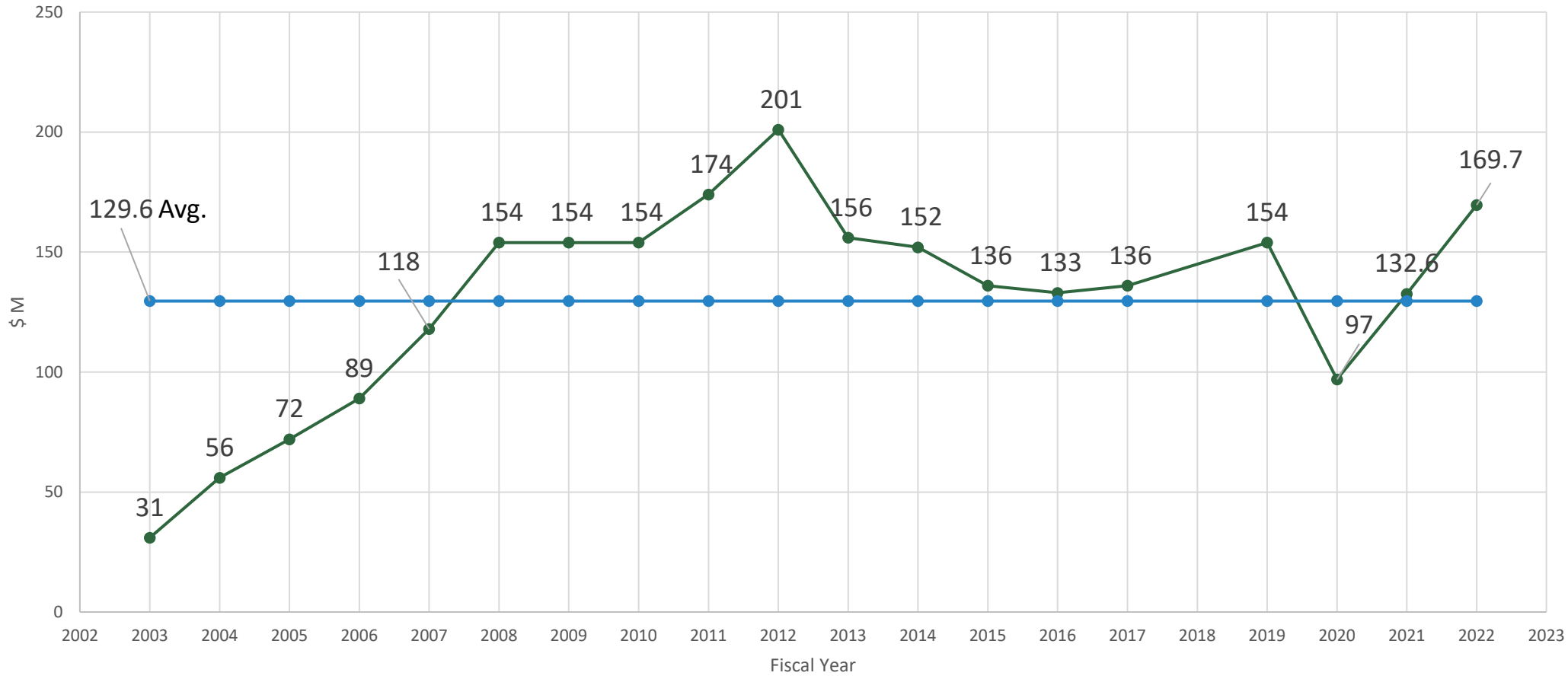
FY 22-26 CIP Summary

- 54 Projects, $169.7 M

Water	Wastewater	Non-Urban & Shared
Urban: $96 M	Urban: $40 M	$34 M

- $37 M increase from FY 21-25 CIP of $132.5 M
- $37 M = $31 M from incoming FY 26 projects + $11 M increase in existing projects + $9 M new projects less $14 M in completed projects
- Use of Cash Reserves FY 22-26: $14.4 M
- New Debt FY 22-26: $129 M

RWSA CIP 20-Year History



15 Year CIP Planning Forecast

• FY 22-26	$169.7 M
• FY 27-31	$100.4 M
• FY 32-36	$ 52.9 M
	$323 M

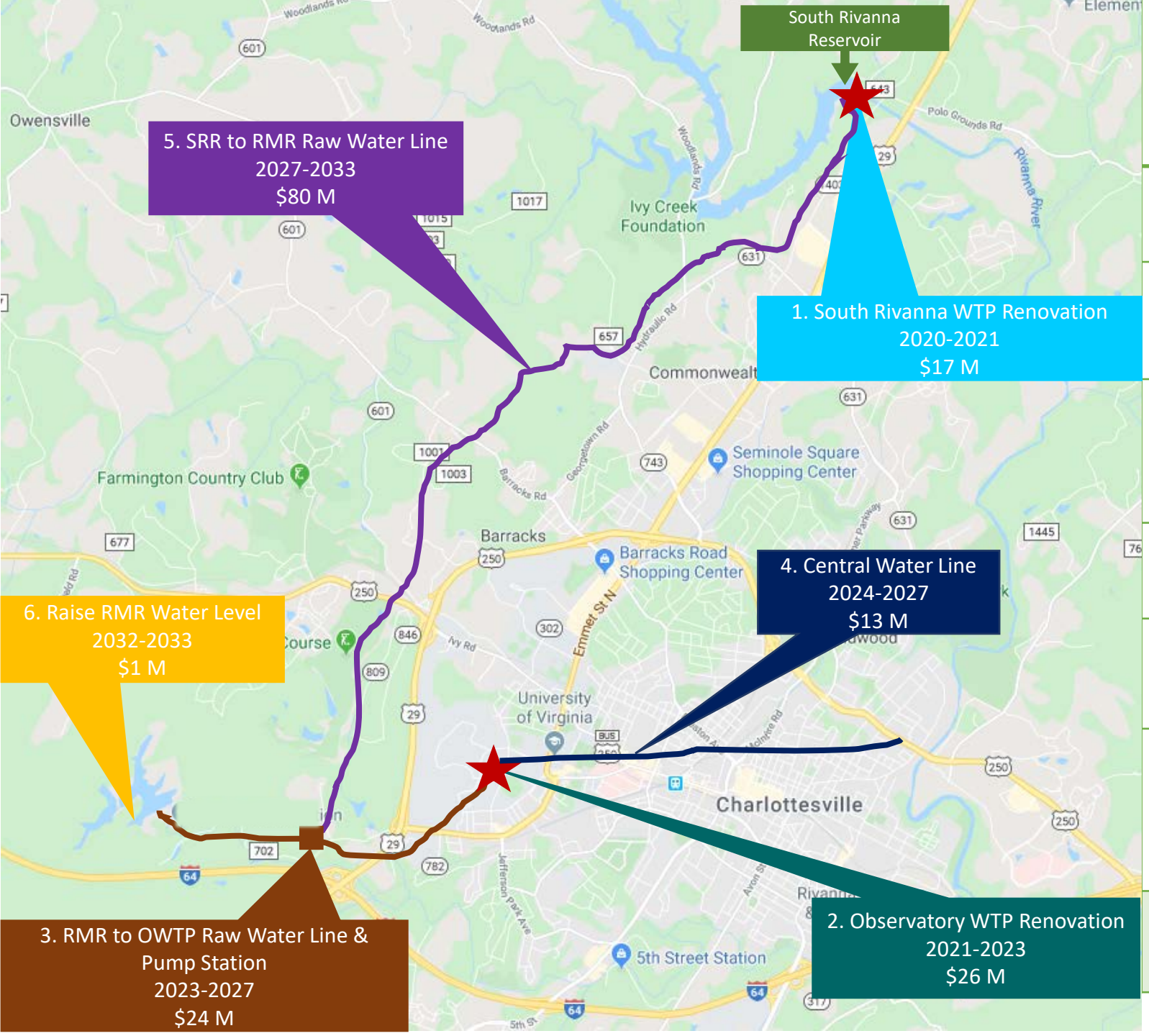
FY 22 – 26		FY 21 - 25
Projects: 54	In comparison with	Projects: 56
$169.7		$132.5

Changes to the 5-Yr CIP from last year : *$37.2 M net increase*

1. FY 26 budgets for 16 projects transitioned into the FY 22-26 CIP + $31 M
2. 6 projects were added to the FY 22-26 CIP + $9 M
3. Budgets for existing projects increased + $11 M
   a. RMR – OB WTP Pipe and Pump Station $11M
   b. Beaver Creek Reservoir and Pump Station $6.2M
   c. Airport Rd. WPS and Piping $1.7M
4. 9 projects were completed - $14 M
   a. Crozet WTP Upgrade from 1 to 2 MGD
   b. SR Dam Gate Repairs
   c. MC Odor Control Pond/Basin Cleanouts
   d. Scottsville WTP and WWTP Improvements

Major Programs and Projects

- **Upgrade the Water Treatment Plants: $43 M**
  - South Rivanna
  - Observatory
- **Regulatory: $34 M**
  - Crozet Wastewater Flow Equalization Tank
  - MC Exterior Lighting Upgrades
  - Beaver Creek Dam, Pump Station and Piping
- **Redundancy / Resiliency: $65 M**
  - Airport Road Pump Station and Piping
  - Central Water Line
  - SR River Water Line Crossing
  - SRR to RMR Pipeline
- **Operations and Maintenance / Security: $40 M**
  - Sugar Hollow Dam Gate Replacement
  - Security Enhancements
  - WW Interceptor and MH Repairs
  - RMR to OWTP Piping and Pumping
  - MC 5kv Electrical Upgrade
  - MC Digester Sludge Storage Repairs
  - MC Aluminum Slide Gate Replacements
  - MC Clarifier and Lime Silo Demolition
- **Growth: $52 M**
  - SRR to RMR Pipeline
  - Upper Schenks Branch Interceptor
  - Admin Building Renovation
- **Master Planning: $2 M**
  - Urban Water System
  - MC WW Facilities
  - Asset Management
  - Information Technology Systems



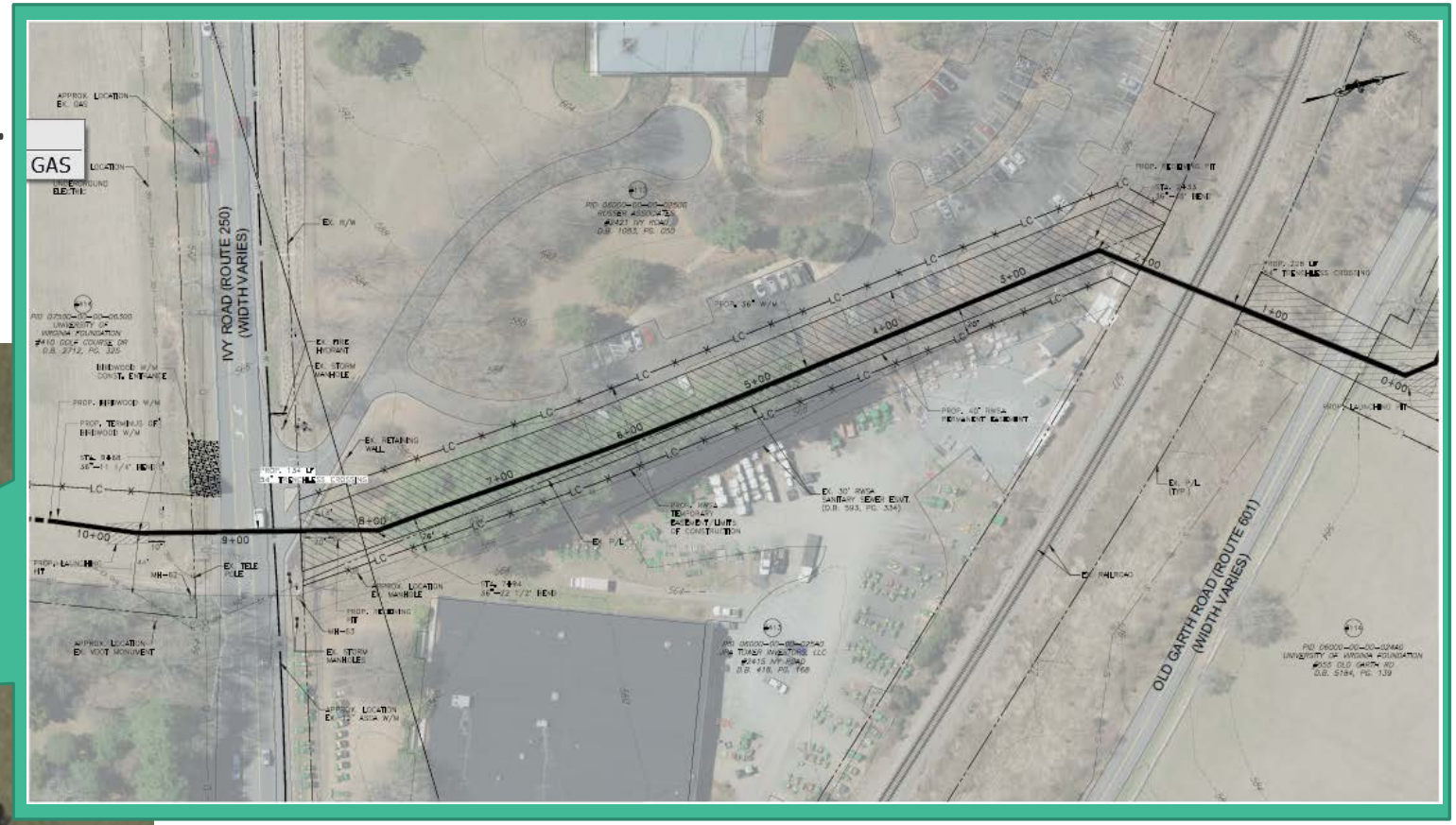
Community Water Supply Projects

1. SR WTP Renovation 2020-2021	$17 M
2. OB WTP Renovation 2021-2023	$26 M
3. RMR to OB WTP Raw Water Line & Pump Station 2023-2027	$24 M
4. Central Water Line 2024-2027	$13 M
5. SRR to RMR Raw Water Line 2027-2033	$80 M
6. Raise RMR Water Level 2032-2033	$1 M
	$161 M

New Projects in FY 22 - 26

	Budget ($M)		Schedule
1 - #5 SRR to RMR WL • Birdwood to Old Garth section to precede private development	$2.0		FY 22 – 24
2 - #15 SR WTP – Additional Plate Settlers • Optimize settling treatment process	$0.2	$4.9	FY 26 FY 27 – 28
3 - #23 Scottsville WTP & Pump Station – Upgrade • Renovate treatment equipment and facilities built in 1964	$0.3	$11.1	FY 26 FY 27 – 29
4 - #24 Red Hill WTP – Upgrade • Additional space for chemical treatment equipment	$0.15		FY 22 – 23
5 - #47 MC Concrete Repairs • Cracked / spalled concrete in Equalization Basins and Holding Ponds	$2.65		FY 22 – 24
6 - #48 MC Digester Repairs / Replacement • Major repairs to 3 digesters which are leaking methane gas	$3.6	$7.4	FY 25 – 26 FY 27 – 28
Total	$8.9	$25.4	

Birdwood to Old Garth Rd. 36” RWL



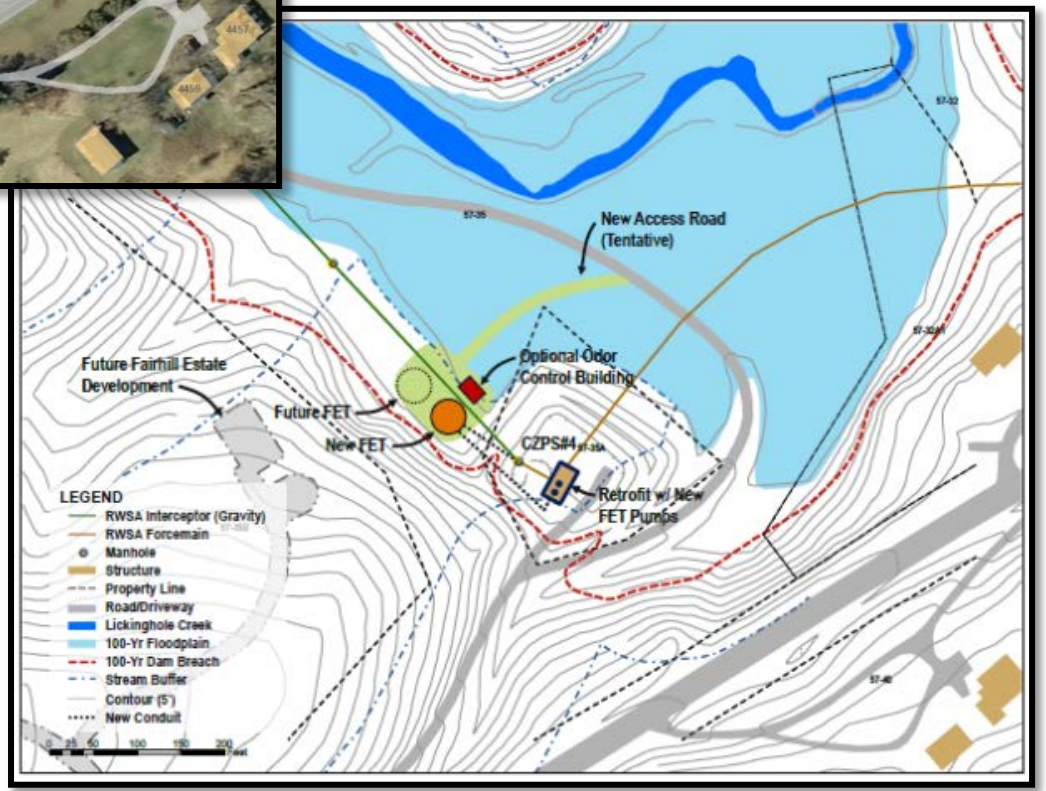
- To precede private development and avoid costs
- Budget: $2 M
- Schedule: FY 22-24

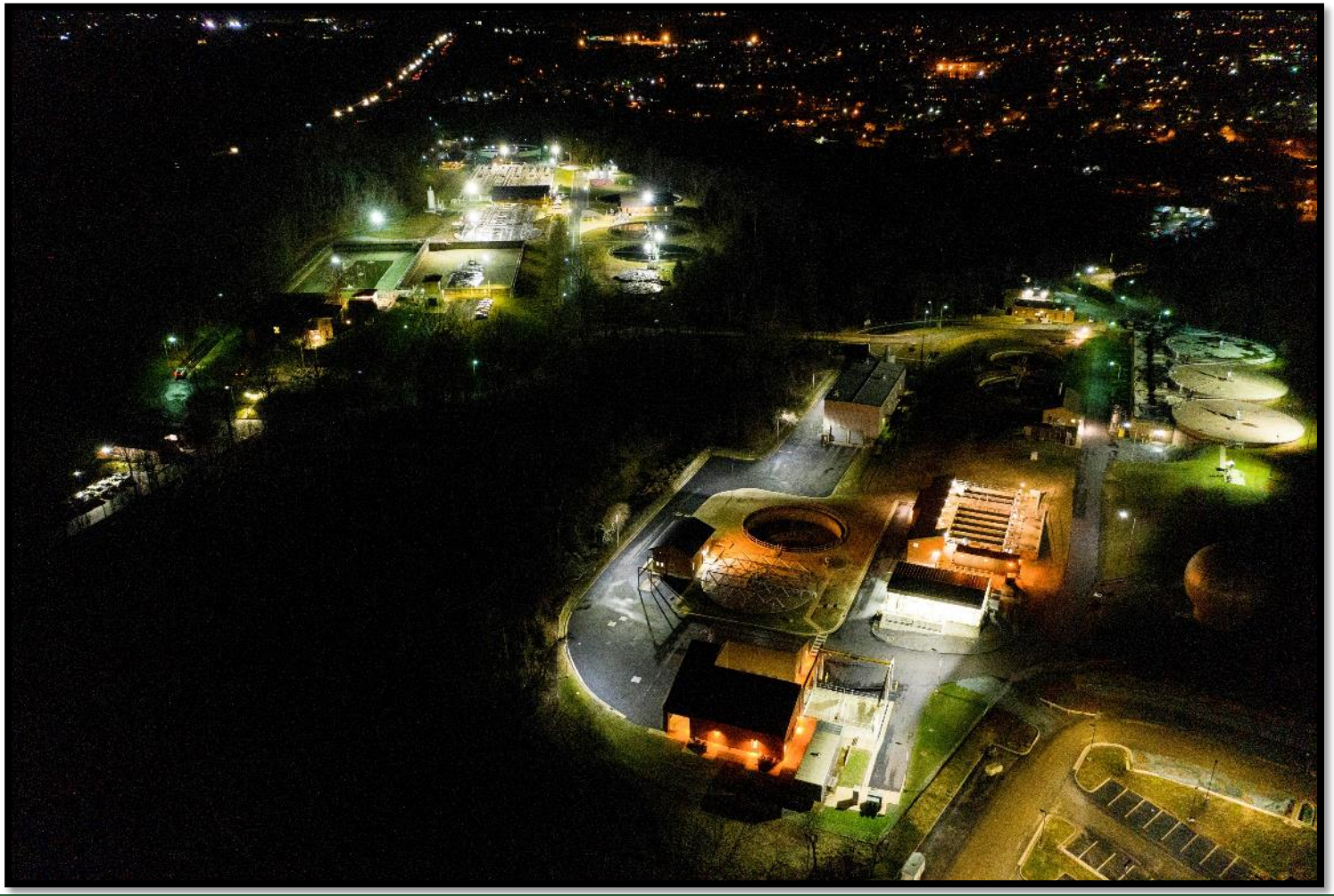
Sugar Hollow Dam Gate Replacement

- Cost: $1.1 M
- Completion:
- September 2021

Crozet Flow Equalization Tank

- Controls Peak Wastewater Flows within the Entire Crozet System to Avoid Overflows
- Includes New Tank, Odor Control and Modifications to the existing Crozet PS No. 4
- Cost: $5.5 M
- Completion: 2021 – 2022



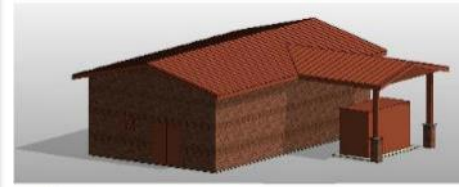


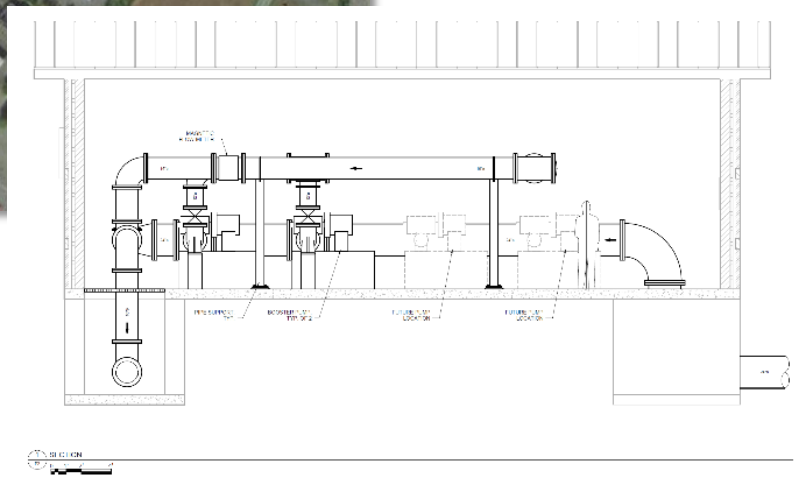
Moores Creek Lighting Upgrades

- Cost: $0.9 M
- Completion: 2021 -2022

Airport Road Pump Station and Piping

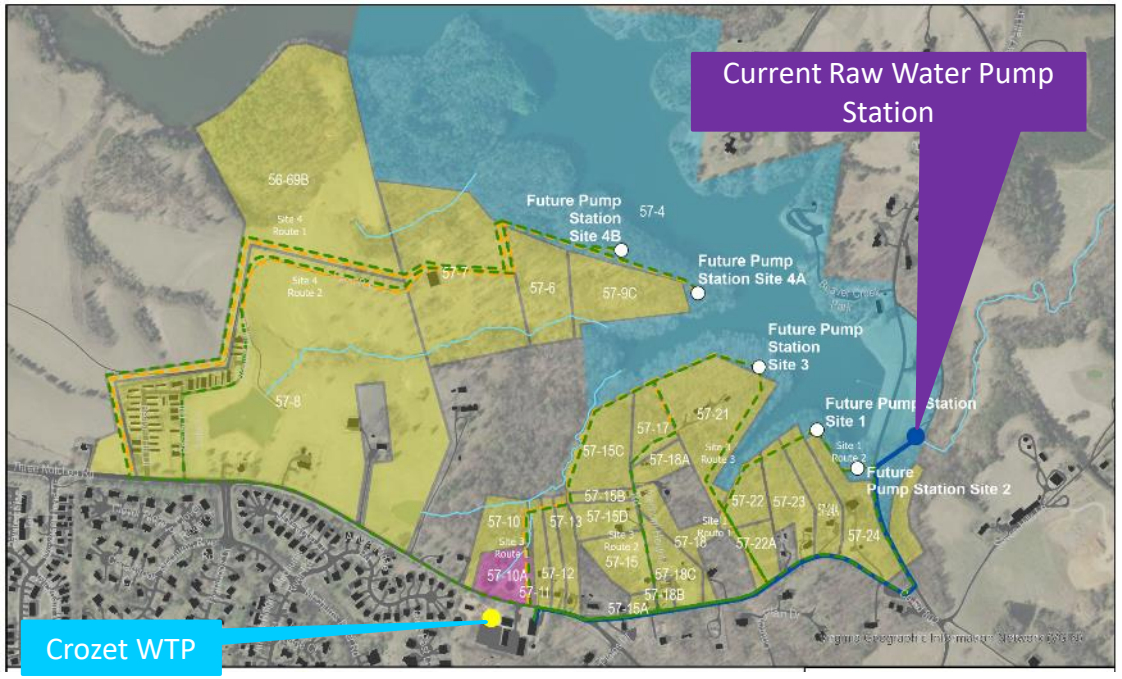
- Provide Redundant Water Supply to North Rivanna Pressure Zone
- Eliminate the Need for Temporary Pumping
- Cost: $7.6 M
- Completion: 2021 – 2022





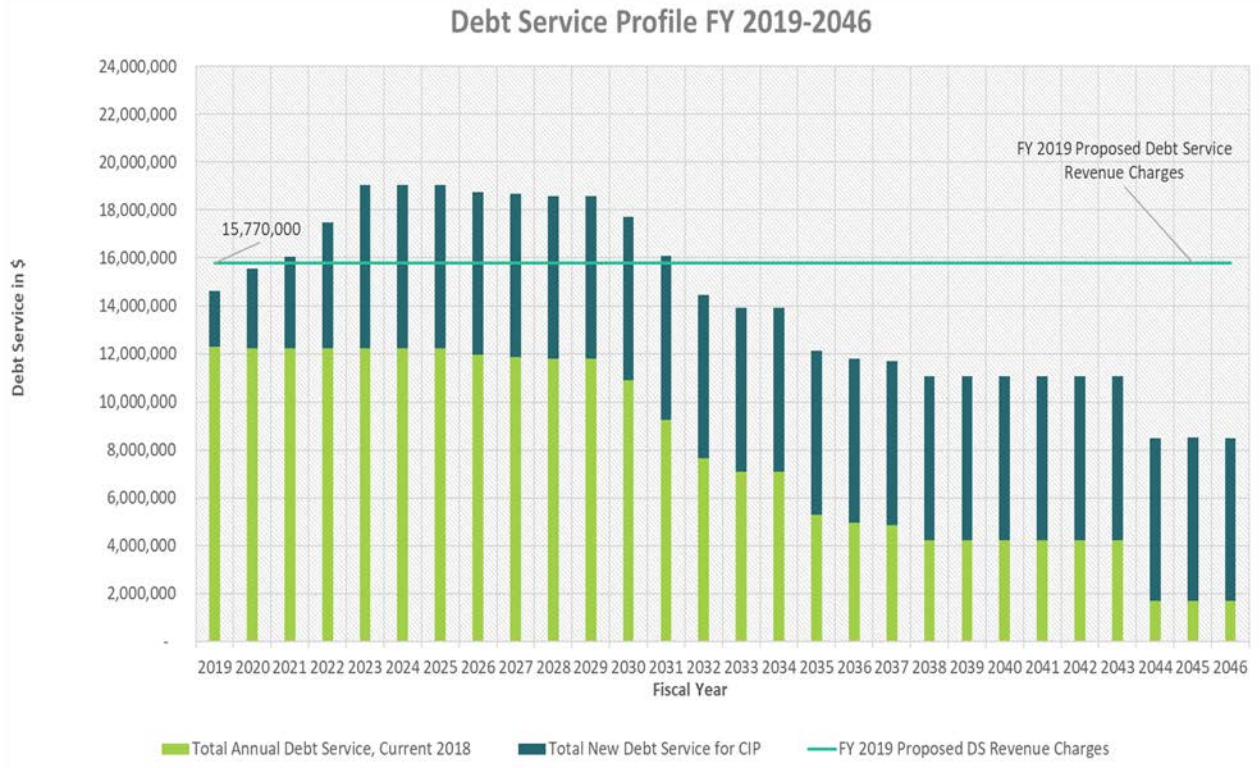
Beaver Creek Dam, Pump Station & Piping Modifications

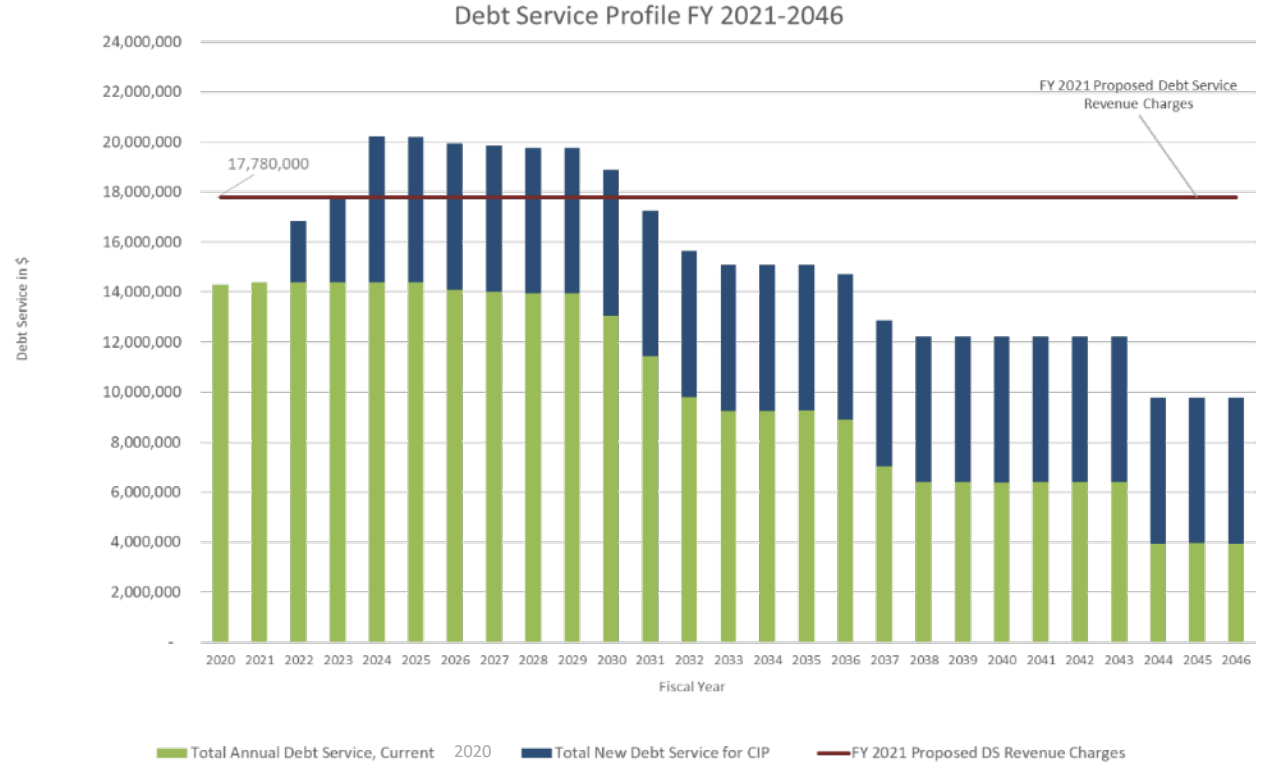
- Upgrade the spillway to meet VDCR Dam Safety standards
- Replace the raw water pump station, intake, and pipe to the Crozet WTP
- Completion 2024 – 2026
- Budget $27 M
- Possible Federal Funding (up to 65%). Design review process underway.



Proposed Labyrinth Spillway thru Dam with Bridge

Existing Raw Water Pump Station to be relocated


Debt Service Profile FY 2019-2046
Debt Service in $
24,000,000
22,000,000
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
15,770,000
FY 2019 Proposed Debt Service Revenue Charges
2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046
Fiscal Year
Total Annual Debt Service, Current 2018
Total New Debt Service for CIP
FY 2019 Proposed DS Revenue Charges


Debt Service Profile FY 2021-2046
Debt Service in $
24,000,000
22,000,000
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
17,780,000
FY 2021 Proposed Debt Service Revenue Charges
2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046
Fiscal Year
Total Annual Debt Service, Current 2020
Total New Debt Service for CIP
FY 2021 Proposed DS Revenue Charges

FY 22-26 CIP Summary

54 Projects, $169.7 M

Water	Wastewater	Non-Urban & Shared
Urban: $96 M	Urban: $40 M	$34 M

- Use of Cash Reserves: $14.4 M
- New Debt: $129 M
- RWSA Charge Increase (%):

	FY 21	22	23	24	25	26
City	0	9.9	7.8	7.2	7.3	6.9
ACSA	0	14.0	9.0	8.8	8.9	8.4

- Includes annual increases in Operating expenses (avg. 8%)

Questions?

SRR to RMR Pipeline Route Video

Link to Video:

https://youtu.be/C3E5x3eO2Qg

Questions?

Capital Improvement Plan

Fiscal Years 2022 - 2026

Draft February 2021

Moores Creek AWRRF Lighting

Beaver Creek Dam

OUR MISSION

Our professional team of knowledgeable and engaged personnel serve the Charlottesville, Albemarle, and UVA community by providing high quality water treatment, refuse, and recycling services in a financially and environmentally responsible manner.

Airport Rd Pump Station Site Location

South Rivanna Water Treatment Plant

Observatory Water Treatment Plant

Rivanna Water & Sewer Authority
695 Moores Creek Lane
Charlottesville, Virginia 22902

RIVANNA
WATER & SEWER AUTHORITY

Introduction

The Capital Improvement Plan (CIP) for Fiscal Years 2022-2026 has been prepared as a strategic and financially responsible plan for the Rivanna Water and Sewer Authority (RWSA) to complete major infrastructure construction projects. The projects included in the CIP are necessary to achieve the RWSA's core mission of providing safe, high-quality drinking water and environmentally responsible wastewater treatment services for the City of Charlottesville and the Albemarle County Service Authority (ACSA). The CIP is a 5-year planning document which provides an estimated budget and schedule for projects as they advance through the design and construction process.

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

During the past year, several capital projects were completed, and as such are being removed from the 2022-2026 CIP. These projects account for approximately $13.8 million or 10.4% of FY 2021-2025 CIP. These projects include:

- 7 Valve Repair & Replacement (Phase 2)
- 11 Finished Water System Master Plan
- 14 South Rivanna Dam – Gate Repairs
- 18 Crozet WTP Expansion
- 21 Scottsville WTP LT2 Improvements
- 29 Albemarle-Berkeley Pump Station – Basin Demolition
- 31 Moores Creek AWRRF Odor Control (Phase 2)
- 35 Moores Creek AWRRF Master Plan
- 48 Scottsville WRRF Air Control Improvements

The total 5-year 2022-2026 CIP is approximately $169.7 million, with the previous expenditures on active projects totaling approximately $6.4 million, leaving a net proposed 5-year projected expenditure of $163.3 million.

There are six new projects added to the CIP this year. The total estimated expenditures for the projects equal $8.9 million from 2022-2026 and include:

- 5 South Rivanna Reservoir to Ragged Mountain Reservoir RWL – Birdwood to Old Garth ($1.98 million)
- 15 South Rivanna WTP – Plate Settlers Addition ($0.2 million)
- 23 Scottsville WTP - Upgrade ($0.3 million)
- 24 Red Hill WTP - Upgrade ($0.015 million)
- 47 Moores Creek AWRRF Miscellaneous Concrete Repair ($2.65 million)
- 48 Moores Creek AWWRF Digester Replacement/Repair ($3.62 million)

An additional four projects that were in the previous 10-year plan that are now transitioning into the 5-year horizon. These projects equal $1.8 million from 2022-2026 and include:

- 11 Avon, Pantops and Observatory Tank Rehabilitation ($1.045 million)
- 12 Second North Rivanna River Crossing ($0.45 million)
- 22 Scottsville Tank Rehabilitation ($0.085 million)
- 32 Moores Creek AWRRF Engineering and Administration Building ($0.25 million)

There are several projects where the proposed budgets have been modified based on the anticipated project requirements and necessitate funding adjustments. The projects with changes include:

- 1 South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-Of-Way ($2.3 million existing / $2.74 proposed)
- 3 Ragged Mountain Reservoir to Observatory WTP Raw Water Line ($7.5 million existing / $15.3 million proposed)
- 4 Ragged Mountain Reservoir to Observatory WTP Raw Water Pump Station ($2.5 million existing / $5.8 million proposed)
- 6 Observatory WTP Improvements ($26 million existing / $23 million proposed)
- 7 Sugar Hollow Dam Rubber Crest Gate Replacement ($1.7 million existing / $1.9 million proposed)
- 9 South Rivanna River Crossing ($2.8 million existing / $3.655 million proposed)
- 10 Airport Road Pump Station and North Rivanna Transmission Main ($5.85 million existing / $7.6 million proposed)
- 14 South Rivanna WTP Improvements ($17 million existing / $20 million proposed)
- 16 North Rivanna WTP Upgrade ($1.35 million existing / $2.35 million proposed)
- 17 Beaver Creek Dam Alteration ($10.6 million existing / $16.2 million proposed)
- 18 Beaver Creek New Raw Water Pump Station & Intake ($10.2 million existing / $10.8 million proposed)
- 20 Crozet Ground Storage Tank Leak Repair ($0.1 million existing / $0.16 million proposed)
- 28 Crozet Flow Equalization Tank ($4.86 million existing / $5.4 million proposed)
- 34 Moores Creek AWWRF Aluminum Slide Gate Replacement ($0.0675 million existing / $ 1.35 million proposed)
- 40 Moores Creek AWRRF Structural Modifications ($0.5 million existing / $0.9 million proposed)
- 43 Moores Creek AWRRF Meter and Valve Replacements ($0.6 million existing / $0.75 million proposed)
- 44 Moores Creek AWRRF Facility Renovations ($0.375 million existing / $0.75 million proposed)
- 46 Moores Creek AWRRF Lighting Upgrade ($1 million existing / $1.9 million proposed)
- 49 Scottsville WRRF Whole Plant Generator and ATS ($0.125 million existing / $0.2 million proposed)

- 50 Glenmore WRRF Influent Pump and VFD Addition ($0.065 million existing / $0.12 million proposed)
- 51 Radio Upgrades ($0.4 million existing / $0.6 million proposed)
- 52 Asset Management ($1.12 million existing / $1.2 million proposed)

FINANCIAL SUMMARY

MAJOR SYSTEM CATEGORIES

FINANCIAL SUMMARY
Major System Categories – Water

	Five-Year Capital Program			Projected Future Expenses by Year						
System Description	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress**
Urban Water (UW)										
Community Water Supply Plan	$12,342,000	$13,553,000	$2,295,000	$1,201,000	$3,106,000	$3,043,000	$8,125,000	$8,125,000	$25,895,000	$951,513
Observatory WTP & Ragged Mountain/Sugar Hollow Reservoir System	$27,700,000	-$2,800,000	$8,930,000	$10,520,000	$5,450,000	$0	$0	$0	$24,900,000	$1,553,946
Finished Water Storage/Distribution	$13,600,000	$8,228,000	$3,410,000	$4,405,000	$4,264,000	$1,276,000	$2,850,000	$5,623,000	$21,828,000	$245,848
South & North Fork Rivanna Water System	$19,050,000	$4,200,000	$16,510,000	$1,800,000	$3,740,000	$0	$0	$1,200,000	$23,250,000	$1,985,524
Subtotal (UW)	$72,692,000	$23,181,000	$31,145,000	$17,926,000	$16,560,000	$4,319,000	$10,975,000	$14,948,000	$95,873,000	$4,736,831
Non-Urban Water (NUW)										
Crozet Water System	$20,941,000	$6,834,000	$1,443,000	$15,000	$900,000	$5,790,000	$9,200,000	$10,427,000	$27,775,000	$423,097
Scottsville Water System	$315,000	$535,000	$0	$35,000	$255,000	$175,000	$0	$385,000	$850,000	$0
Subtotal (NUW)	$21,256,000	$7,369,000	$1,443,000	$50,000	$1,155,000	$5,965,000	$9,200,000	$10,812,000	$28,625,000	$423,097
WATER TOTAL	$93,948,000	$30,550,000	$32,588,000	$17,976,000	$17,715,000	$10,284,000	$20,175,000	$25,760,000	$124,498,000	$5,159,928

FINANCIAL SUMMARY
Major System Categories – Wastewater

	Five-Year Capital Program			Projected Future Expenses by Year						
System Description	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress**
Urban Wastewater (UWW)										
Wastewater Interceptors and Pumping Stations	$12,138,330	$2,207,000	$10,333,330	$1,345,000	$480,000	$575,000	$630,000	$982,000	$14,345,330	$1,139,285
Moores Creek AWRRF	$7,690,000	$17,690,000	$3,965,000	$5,235,000	$4,490,000	$2,855,000	$1,115,000	$7,720,000	$25,380,000	$40,722
Subtotal (UWW)	$19,828,330	$19,897,000	$14,298,330	$6,580,000	$4,970,000	$3,430,000	$1,745,000	$8,702,000	$39,725,330	$1,180,007
Non-Urban Wastewater (NUWW)										
Scottsville WRRF	$125,000	$75,000	$0	$11,000	$180,000	$9,000	$0	$0	$200,000	$0
Glenmore WRRF	$65,000	$55,000	$65,000	$55,000	$0	$0	$0	$0	$120,000	$0
Subtotal (NUWW)	$190,000	$130,000	$65,000	$66,000	$180,000	$9,000	$0	$0	$320,000	$0
WASTEWATER TOTAL	$20,018,330	$20,027,000	$14,363,330	$6,646,000	$5,150,000	$3,439,000	$1,745,000	$8,702,000	$40,045,330	$1,180,007
All Systems Security & Technology	$4,695,000	$415,000	$2,985,000	$1,236,000	$735,000	$154,000	$0	$0	$5,110,000	$573,081
TOTAL	$118,661,330	$50,992,000	$49,936,330	$25,858,000	$23,600,000	$13,877,000	$21,920,000	$34,462,000	$169,653,330	$6,913,016

PROJECT DETAILS

Completed Projects

During fiscal year 2021, several capital improvement projects were completed, were advanced to the final phases of close-out, or were determined to be no longer necessary. As such they will be removed from consideration in future planning documents. Presented in the table below are the nine (9) completed projects, pertinent information on the adopted budgets, as well as the projected final costs and any anticipated savings. There was a total completed projects cost savings of $1.0 million.

7. Valve Repair & Replacement (Phase 2): Isolation valves are critical for normal operation of the water distribution system and timely emergency response to water main breaks. Staff continuously reviews results from an ongoing valve exercising and condition assessment program performed by the RWSA Maintenance Department. This project repaired valves identified during the condition assessment as having a repairable deficiency and replaced the highest priority valves that were deemed inoperable and/or unrepairable. This phase of the Valve Repair-Replacement Project included the repair of an existing valve on the Southern Loop Waterline and replacement of valves on the North Rivanna, South Rivanna, Pantops, and Crozet Waterlines. In all, 12 existing gate valves, sizes 8" – 24", were replaced during the project. A new 2" ARV Assembly and 24" Insertion Valve were also installed during the course of the project.

11. Finished Water System Master Plan: As identified in the 2017 Strategic Plan, the Authority has a goal to plan, deliver and maintain dependable infrastructure in a financially responsible manner. Staff has identified asset master planning as a priority strategy to improve overall system development. There are asset classes where comprehensive and ongoing plans exist or are in development (e.g. wastewater collection, raw water supply, Crozet water, etc.). In the case of the urban finished water system, many of the previously identified capital projects are in design or construction. As such, staff have identified a need to develop a current and ongoing finished water master plan. This work utilized the demand forecasting from the Water Demand Project and Safe Yield Study.

14. South Rivanna Dam - Gate Repairs: The South Rivanna Dam, originally constructed in 1965, is equipped with two 36-inch diameter slide gates and conduits, one on the north and south abutments of the dam. These gates can be utilized to dewater the facility or to meet minimum instream flow (MIF) requirements when the dam is not spilling. These gates are original to the dam and while they are operable and exercised regularly, they can no longer provide a complete seal, therefore allowing some leakage through the dam. RWSA has protocols in place to temporarily stop leakage through the gates when necessary to conserve water; however, there is a desire to repair the gates and components to restore full functionality. The project also included repairs to the concrete wall adjacent to the raw water pump station to address seepage and improvements to the north dam tower to provide safer and more secure access by staff and contractors.

18. Crozet Water Treatment Plant Expansion: The Crozet water treatment system is currently permitted and rated to supply up to 1.0 mgd of water to the ACSA distribution system. Over the past several years, average day usage of water has increased steadily, with maximum day

demand approaching plant capacity. In addition, much of the existing plant systems are the same as when the plant was constructed in the 1960's.

Expanding the plant capacity to 2 MGD at Crozet WTP will require a new Virginia Department of Environmental Quality Water Withdrawal Permit and will include possible stream release requirements. In order to fully analyze all aspects of the design required for this project a Preliminary Engineering Report (PER), plant field testing, preliminary permitting work and coordination with pertinent regulators were completed. The results of the PER found that the treatment plant could be upgraded, and the capacity increased, through installation of newer, and more technologically advanced equipment into the existing footprint of the filter plant. Work associated with this project included general building rehabilitation, filter improvements, sedimentation expansion and improvements, chemical feed improvements, flocculator expansion, alum storage/containment improvements and waste sludge handling and removal improvements.

21. Scottsville Water Treatment Plant LT2 Improvements: RWSA conducts routine regulatory sampling of the raw water from Totier Creek and Totier Creek Reservoir for compliance with the EPA Long Term 2 Enhanced Surface Water Treatment Rule (LT2). The rule provides risk based guidance on the needed level of treatment for the deactivation of microbial pathogens. This project included the design and construction of additional of ultraviolet (UV) disinfection to the treatment process in Scottsville.

29. Albemarle-Berkeley Pump Station – Basin Demolition: Historically, the Albemarle-Berkley Pump Station was located adjacent to an open-air basin that occasionally collected sewage during power outages. With the addition of a back-up power generator, the basin no longer served a technical purpose. Given the proximity of the deteriorating structure to school property, this project served to demolish and fill the area of the existing basin to allow for a more beneficial use of the property. Demolition of other existing above and below grade structures, as well as various yard piping removal/abandonment was also included in the project. Design of the basin demolition began in Fall 2019, and the demolition was completed in Summer 2020.

31. Moores Creek AWRRF Odor Control Phase 2: As part of the implementation of the next phase of the 2007 Odor Control Master Plan at the MCAWRRF, operations audits were performed, liquid and vapor phase sampling was conducted, and a computerized dispersion model was developed from 2013 to 2014. Recommendations for odor control improvements that would significantly control odors from traveling beyond the MCAWRRF fence line were presented to the RWSA Board of Directors in December 2014 and the CIP project was approved at the January 2015 Meeting, with subsequent increases due to project challenges. The final design for odor control improvements includes covering the head works and screening channels, installing grit facilities, constructing a bypass line through one equalization basin, covering the primary clarifiers, building additional odor scrubbing facilities to treat the foul air from the covered sources, removing the post-digestion clarifiers from service, modifying the handling, and hauling and storage of bio solids, and coating the interior of the digesters, all of which has been recently completed in Odor Control Improvements Project. The remaining odor control

work included in the current CIP budget includes cleaning the equalization basins and holding ponds which was completed from fall 2020 to winter 2021.

35. Moores Creek AWRRF Master Plan: The majority of the Moores Creek Water Resource Recovery Facility was constructed in the early 1980's. At the time, the plant layout was developed with space held open for future process expansion. With the Enhanced Nutrient Removal (ENR) project in 2009, the operation and layout of the plant was fundamentally altered, as needed to meet the new regulation. The project did anticipate the need for future expansion and some of the processes have readily available space. However, a full expansion plan was not developed at the time. As identified in the Strategic Plan, the Authority has a goal to plan, deliver and maintain dependable infrastructure in a financially responsible manner. Staff has identified asset master planning as a priority strategy to improve overall system development. As such, this project serves to evaluate and plan for future space and process needs to accommodate capacity expansion and/or anticipated regulatory changes.

48. Scottsville WRRF Air Control Improvements: This project has evaluated methods to automate air control for the biological treatment process. The current method of air control produces inconsistent results, adversely impacting treatment and operations. This project will include an automated system to control air to the equalization basin.

Completed Projects

			Five-Year Capital Program			
Line No.	**Proj. No.**	**Project Description**	**Adopted Budget 6/2020**	**Previous Expenditures (6/30/2020)**	**Final Projected Costs/Close Out**	**Savings**
7	20.08	Valve Repair & Replacement (Phase 2)	$1,132,914	$914,463	$956,914	$176,000
11	20.14	Finished Water System Master Plan	$253,000	$139,205	$253,000	$0
14	20.17	South Rivanna Dam - Gate Repairs	$900,000	$49,981	$500,000	$400,000
18	20.22	Crozet Water Treatment Plant Expansion	$8,500,000	$5,566,078	$8,300,000	$200,000
21	20.24	Scottsville Water Treatment Plant LT2 Improvements	$160,000	$21,582	$160,000	$0
29	20.32	Albemarle-Berkeley Pump Station - Basin Demolition	$200,000	$30,128	$184,000	$16,000
31	20.33	Moores Creek AWRRF Odor Control Phase 2	$2,216,632	$1,258,890	$1,996,000	$220,632
35	20.37	Moores Creek AWRRF Master Plan	$275,000	$157,177	$275,000	$0
48	20.41	Scottsville WRRF Air Control Improvements	$210,000	$11,650	$187,000	$23,000
		TOTAL	$13,847,546	$8,149,154	$12,811,914	$1,035,632

CIP 21-25 Total	**CIP 22-26 Completed**	**CIP 22-26 Remaining**	**CIP 22-26 New Funding**	**CIP 22-26 New Total**
$132,508,876	$13,837,546	$118,671,330	$50,982,000	$169,653,330

Community Water Supply Plan

The Community Water Supply Plan represents the program developed with substantial community input to fulfill RWSA's contractual obligation to the City of Charlottesville (City) and the Albemarle County Service Authority (ACSA) to provide adequate drinking water for their future needs. An initiative started in 2003 to find a long-term solution that could achieve both local support and meet federal and state requirements. After multiple community meetings, updates with local officials, and frequent consultations with federal and state agencies, local support was obtained to apply for federal and state permits to expand the Ragged Mountain Reservoir and build a future pipeline between the South Rivanna and Ragged Mountain Reservoirs, with stream and wetlands mitigation to be provided through property in the Buck Mountain Creek area and property adjacent to a lower reach of Moores Creek near its confluence with the Rivanna River. Federal and state permits were granted in 2008 and amended in 2011.

The first phase of this long-term program centered around the expansion of the Ragged Mountain Reservoir, a project that would simultaneously address a legal obligation to correct safety deficiencies on the existing site. Through a combination of technical investigations, engineering evaluations, and continued public discussion, a decision was reached in February 2011 through the City Council and Board of Supervisors to build the new dam as an earthen dam, with the initial phase raising the reservoir pool height by 30 feet. The decision also outlined an objective of the further pursuit of water conservation through the City and ACSA, and the pursuit of opportunities for dredging of the South Rivanna Reservoir, with the second phase of reservoir expansion in the future as necessary.

Project Descriptions:

1. South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way: The approved 50-year Community Water Supply Plan includes the future construction of a new raw water pipeline from the South Rivanna River to the Ragged Mountain Reservoir. This new pipeline will replace the Upper Sugar Hollow Pipeline along an alternative alignment to increase raw water transfer capacity in the Urban Water System. The project includes a detailed routing study to account for recent and proposed development and road projects in Albemarle County and the University of Virginia. Preliminary design, preparation of easement documents, and acquisition of water line easements along the approved route will also be completed as part of this project. Prior expenditures covered a previous review of the 2009 conceptual design that was requested by the Board.

2. South Rivanna Reservoir Dredging: The South Rivanna Reservoir stores raw water for treatment at the South Rivanna Water Treatment Plant and in the future, is proposed to provide water for transfer to the enlarged Ragged Mountain Reservoir. River flow into the reservoir is from a drainage area, almost entirely within Albemarle County, of approximately 259 square miles. Soil erosion from natural events, from land use in the agricultural area, from land disturbances in the developed areas, and from re-suspension of flood plain deposits created during the 19th century (stream bank erosion), are likely the causes of sediment becoming trapped within the reservoir. The initial design of the reservoir anticipated the accumulation of

these sediments, and a significant portion of the total storage volume was designated for this purpose. Currently the sediment stored does not exceed the available sediment storage capacity.

The January 2012 Ragged Mountain Dam Project Agreement outlines that "the City and ACSA agree to direct, and RWSA agrees, to perform such dredging projects at the South Fork Rivanna Reservoir as may be specified jointly by the City and ACSA pursuant to the Water Cost Allocation Agreement." The Cost Allocation Agreement stipulates that target maintenance dredging shall be performed, and that the dredging be market driven, cost effective, and opportunistic and shall not exceed $3.5M. In 2012 and 2013, RWSA, via the Public-Private Education Facilities and Infrastructure Act (PPEA) process, solicited proposals to provide maintenance dredging. In July 2013, the one qualified PPEA proposer withdrew its proposal, citing difficulties in obtaining necessary land agreements.

Future Board decisions on the project contracting approach will dictate the next steps. This project remains in the CIP as the fulfillment of a contractual obligation from the January 2012 Ragged Mountain Dam Cost Allocation Agreement.The project has been moved to FY 2026.

3. Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line: Raw water is transferred from the Ragged Mountain Reservoir (RMR) to the Observatory Water Treatment Plant (WTP) by way of two 18-inch cast iron water lines which have been in service for more than 110 and 70 years, respectively. In addition to the need to increase transfer capacity between the RMR and Observatory WTP, increased frequency of emergency repairs and expanded maintenance requirements necessitates replacement of these water lines with a single, new raw water main. This new raw water main is expected to be constructed of 36-inch ductile iron pipe and will span a distance of approximately 14,000 feet.

4. Ragged Mountain Reservoir to Observatory Raw Water Pump Station: The Ragged Mountain Reservoir (RMR) to Observatory Water Treatment Plant (WTP) raw water pump station is planned to replace the existing Stadium Road and Royal pump stations, which have exceeded their design lives and would require significant upgrades to meet the upgraded capacity of the Observatory WTP. The pump station will be designed to pump up to 10 million gallons per day (mgd) to the Observatory WTP and will be integrated with the planned South Rivanna Reservoir (SRR) to RMR pipeline for improved operational and cost efficiencies. This integrated pump station will also include the capacity to transfer up to 16 mgd of raw water from RMR back to the SRR WTP. The pump station property will be purchased as part of the SRR to RMR raw water main preliminary design and right of way acquisition, which is currently underway.

Community Water Supply Plan

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
1	20.01	South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way	$2,295,000	$445,000	$2,295,000	$445,000					$2,740,000	$951,513
2	20.02	South Rivanna Reservoir Dredging									$0	
3	20.03	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line	$7,497,000	$7,828,000		$375,000	$1,150,000	$2,100,000	$5,850,000	$5,850,000	$15,325,000	
4	20.04	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pump Station	$2,550,000	$3,300,000		$215,000	$300,000	$785,000	$2,275,000	$2,275,000	$5,850,000	
5	22.01	South Rivanna Reservoir to Ragged Mountain Reservoir - Birdwood to Old Garth		$1,980,000		$166,000	$1,656,000	$158,000			$1,980,000	
		TOTAL	$12,342,000	$13,553,000	$2,295,000	$1,201,000	$3,106,000	$3,043,000	$8,125,000	$8,125,000	$25,895,000	$951,513

Observatory WTP and Ragged Mountain/Sugar Hollow Reservoir System

The Observatory Water Treatment Plant (WTP) and Ragged Mountain/Sugar Hollow Reservoir System is comprised of the water treatment facility on Observatory Mountain and the associated raw water infrastructure that stores and conveys source water to the plant. The raw water storage system includes the new Ragged Mountain Dam (constructed in 2014, with a useable raw water storage capacity of 1.44 billion gallons) and the Sugar Hollow Dam (originally constructed in 1947, upgraded in 1999 and downstream discharge improvements completed in September 2014, with a useable raw water storage capacity of 339 million gallons as updated by a 2015 bathymetric survey). The system also includes 17.6 miles of 18-inch raw water cast-iron mains, originally installed in 1908, 1922, and 1946. The Sugar Hollow Raw Water Main historically conveyed water from the Sugar Hollow Dam to the Observatory Water Treatment Plant, however, as a result of the New Ragged Mountain Dam project, the main now discharges directly into Ragged Mountain Reservoir. The remaining downstream section of the Sugar Hollow main now conveys raw water from the Ragged Mountain Reservoir to the treatment plant. The line crosses the Mechums River (where an abandoned pumping station is sited) on its way to Ragged Mountain Reservoir, and eventually passes through the Royal Pumping Station and terminates at the Observatory WTP. The Ragged Mountain Raw Water Main conveys water from the Ragged Mountain Reservoir through the Stadium Road Pumping Station and terminates at the Observatory Water Treatment Plant.

Project Descriptions:

5. South Rivanna Reservoir to Ragged Mountain Reservoir WL – Birdwood to Old Garth: RWSA is expediting construction of a portion of the future South Rivanna to Ragged Mountain 36-inch raw water main from the northern end of the Birdwood Raw Water Line to the UVA Foundation Westover Property at Old Garth Road. This project will enable pipeline work to proceed ahead of planned redevelopment of the two adjacent Ivy Road Parcels to prevent subsequent disruption to the properties and decrease future construction and site restoration costs. This work includes approximately 1,200 linear feet of 36-inch raw water main, plus two trenchless crossings at Ivy Road and CSX Railroad/Old Garth Road.

6. Observatory Water Treatment Plant Improvements: The Observatory Water Treatment Plant was originally constructed in the mid-1950s, and since very little has been replaced or upgraded at the facility, much of the original equipment remains. As a result, that equipment is inefficient, prone to unexpected failure, and does not have readily accessible replacement parts. Based on a Needs Assessment Study, the plant will undergo a wholesale upgrade including improvements to the flocculators, sedimentation basins, filters, and chemical feed facilities to enhance future reliability. In addition, the existing reinforced concrete flume, which conveys treated water from the sedimentation basins to the filters, is in need of replacement, filter control valves and piping will be replaced, and electrical and SCADA control systems upgraded. A portion of this project was completed during the Granular Activated Carbon (GAC) project, where the flocculator systems were upgraded with new mechanical and electrical equipment, including variable speed drives for optimal efficiency.

   In addition to providing needed equipment upgrades, these improvements will increase the plant's capacity from 7.7 million gallons per day to 10 million gallons per day based on a

feasibility analysis performed during the Preliminary Engineering phase of the project. It was determined that the capacity upgrades could be performed economically and would provide needed reliability and redundancy in the Urban System. As part of this capacity increase, it was also determined that the plant's GAC treatment capacity should increase as well. As a result, this project also includes efforts required for the addition of four GAC contactors.

It should be noted that the Observatory Water Treatment Plant is sited on land leased to RWSA by the University of Virginia. A new 49-year lease was signed this past year commencing on July 1, 2020.

7. Sugar Hollow Dam Rubber Crest Gate Replacement: In 1998 the Sugar Hollow Dam underwent a significant upgrade to improve structural stability and spillway capacity following the 1995 flood and landslide. The original metal spillway gates were replaced with a manufactured five-foot-high inflatable rubber dam that is bolted to the existing concrete structure. This rubber dam allows for the normal storage of water in the reservoir with the ability to be lowered during extreme storm events for a controlled release of water from the reservoir. The rubber dam has an approximate service life of twenty years and is therefore now due for replacement. In addition to replacement of the rubber crest gate, the project includes funding for minor repairs to the concrete surfaces of the dam and replacement of the intake trash racks.

Observatory Water Treatment Plant and Ragged Mountain/Sugar Hollow Reservoir System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
6	20.06	Observatory Water Treatment Plant Improvements	$26,000,000	($3,000,000)	$7,700,000	$9,850,000	$5,450,000				$23,000,000	$1,487,586
7	20.07	Sugar Hollow Dam Rubber Crest Gate Replacement	$1,700,000	$200,000	$1,230,000	$670,000					$1,900,000	$66,360
		TOTAL	$27,700,000	($2,800,000)	$8,930,000	$10,520,000	$5,450,000	$0	$0	$0	$24,900,000	$1,553,946

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 Rivanna, and North Rivanna) 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 Mountain. (0.7 MG), Stillhouse (0.7 MG), Observatory (3 MG), and Lewis Mountain (0.5 MG), and the Alderman Road and Stillhouse pumping stations.

Project Descriptions:

8. Central Water Line: The southern half of the Urban Area water system is currently served by the Avon Street and Pantops storage tanks. The Avon Street tank is hydraulically well connected to the Observatory Water Treatment Plant while the Pantops tank is well connected to the South Rivanna Water Treatment Plant. The hydraulic connectivity between the two tanks, however, is less than desired, creating operational challenges and reducing system flexibility. In 1987, the City and ASCA developed the Southern Loop Agreement, outlining project phasing and cost allocations, as envisioned at the time. The first two phases of the project were constructed shortly thereafter. The third phase, known as the "Eastern Branch" is the subject of the current project. The initial funding for this project was used for route alignment determination, hydraulic modeling, and preliminary design. Due to the complicated nature of our finished water systems, it was decided at the August 2018 Board meeting that a more comprehensive approach is warranted and we should complete the Finished Water Master Plan prior to moving forward with final design and construction of the Avon to Pantops Water Main. When the Finished Water Master plan is completed in early 2021, projects will be prioritized for design and construction in coordination with the City and ACSA. It is anticipated that the first few water line upgrades will be concentrated in the vicinity of the Observatory Water Treatment Plant to ensure the increased hydraulic capacity of 10 MGD from the water treatment plant upgrades can be met. Staff will also coordinate upgrades with current development and City streetscape projects to minimize future construction impacts in busy street corridors.

9. South Fork Rivanna River Crossing: RWSA has previously identified through master planning that a 24-inch water main will be needed from the South Rivanna Water Treatment Plant (SRWTP) to Hollymead Town Center to meet future water demands. Two segments of this water main were constructed as part of the VDOT Rt. 29 Solutions projects, including approximately 10,000 LF of 24-inch water main along Rt. 29 and 600 LF of 24-inch water main along the new Berkmar Drive Extension, behind the Kohl's department store. To complete the connection between the SRWTP and the new 24-inch water main in Rt. 29, there is a need to construct a new river crossing at the South Fork Rivanna River. Acquisition of right-of-way will be required at the river crossing and along Rio Mills Road

10. Airport Rd. Pump Station and North Rivanna Transmission Main: The Rt. 29 Pipeline and Pump Station master plan was developed in 2007 and originally envisioned a multi-faceted project that reliably connected the North and South Rivanna pressure bands, reduced excessive operating pressures, and developed a new Airport pressure zone to serve the highest elevations near the Airport and Hollymead Town Center. The master plan was updated in 2018 to reflect the changes in the system and demands since 2007. This project, along with project above will provide a reliable and redundant finished water supply to the North Rivanna area. The proposed pump station will be able to serve system demands at both the current high pressure and a future low-pressure condition. These facilities will also lead to a future phase implementation which will include a storage tank and the creation of the Airport pressure zone.

    To complete the connection between the new 24-inch water main in Rt. 29 and the pump station, construction will include two "gap" sections of 24-inch water main between the already completed sections in the vicinity of Kohl's. Much of the new water main route is within VDOT right-of-way; however, acquisition of right-of-way will be required on the Kohl's Property at Hollymead Town Center.

11. Avon, Pantops and Observatory Tank Rehabilitation: The Avon, Pantops, and Observatory Ground Storage Tanks have volumes of 2-million, 3-million, and 5-million gallons respectively, and each of the tanks are located within the Urban Pressure Band of RWSA's Finished Water Distribution System. The Urban Pressure Band services most of the City of Charlottesville and the urban areas of Albemarle County, including numerous City and ACSA critical customers (UVA, UVA/MJ Hospital, Senior Living Facilities, Defense Contractors, etc.). Each of the tanks play a pivotal role in maintaining system pressures and providing increased flows during fires and other system emergencies.

    RWSA inspects its tanks on a regular basis and following recent inspections of the interior and exterior of each of the three tanks it was determined that these tanks are due for rehabilitation and necessary repairs. Each tank is slated to have its interior and exterior coatings rehabilitated, which will help protect the tank from corrosion and prolong its service life. Each tank must be taken out of service, in turn, in order to complete repairs. While each tank is offline, roofing/structural repairs and safety enhancements will be made as appropriate to further protect the integrity of the tank.

12. Second North Rivanna River Crossing: As a result of water distribution system master planning, critical sections of the distribution system were identified where improvements were needed in order to improve the resiliency of the system. One particular location was the North Rivanna Water Line crossing at the North Fork Rivanna River where there is a single 12-inch diameter water main that interconnects the northern portion of the Piney Mountain Pressure Zone and the North Rivanna Water Treatment Plant with the southern portion of that pressure zone and the interconnection with the Urban Pressure Zone. As a result, the intent of this project is to provide a second crossing of the North Fork Rivanna River with a redundant 12-inch diameter water main to maintain the connection between those sections should one crossing be out of service.

Finished Water Storage/Transmission – Urban System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
8	20.10	Central Water Line	$4,950,000	$4,133,000	$1,375,000			$725,000	$2,850,000	$4,133,000	$9,083,000	$137,749
9	20.12	South Fork Rivanna River Crossing	$2,800,000	$855,000	$260,000	$530,000	$2,314,000	$551,000			$3,655,000	
10	20.13	Airport Rd. Pump Station and North Rivanna Transmission Main	$5,850,000	$1,750,000	$1,775,000	$3,875,000	$1,950,000				$7,600,000	$108,099
11	20.50	Avon, Pantops and Observatory Tank Rehabilitation		$1,045,000						$1,045,000	$1,045,000	
12	20.58	Second North Rivanna River Crossing		$445,000						$445,000	$445,000	
		TOTAL	$13,600,000	$8,228,000	$3,410,000	$4,405,000	$4,264,000	$1,276,000	$2,850,000	$5,623,000	$21,828,000	$245,848

South and North Rivanna Water Systems

The South 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 Rivanna Reservoir is treated at the South Rivanna treatment plant (12-mgd rated capacity).

The North 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 (2-mgd rated capacity built in 1973). The North Rivanna System provides water to the ACSA service area located along US Route 29, between Forest Lakes subdivision and Piney Mountain Road.

Project Descriptions:

13. South Rivanna Hydropower Plant Decommissioning: The South Fork Hydropower Plant is a small hydroelectric generating facility constructed in 1987. The plant had historically operated intermittently, as river flows allow. The generated power was used at the South Rivanna Water Treatment Plant, thereby reducing power purchased off the electric grid. During an effort to troubleshoot and repair the turbine, a large rain and lightning event caused unexpected flooding into the facility. Insurance paid damages to more recent improvements, but not the pre-existing needs to repair the turbine. Engineering investigations in 2013 associated with the failed mechanical equipment and flood event confirmed the need for further disassembly and inspection of the turbine shaft and blade linkages from a remote factory location.

    Due to the complexity of possible rehabilitation, the associated Federal Energy Regulatory Commission (FERC) dam permitting, and the numerous variables in the economic analysis, proposals were solicited from national hydropower experts to initiate a feasibility study to determine the cost effectiveness of rehabilitating the hydropower plant while making sure to account for FERC-related costs and issues. The feasibility study was completed in May 2016 and determined that rehabilitation of the facility had a small likelihood for a positive return on investment. This conclusion was brought to the Board of Directors along with a recommendation to initiate the surrender of the exemption to licensure and decommission the facility. The Board approved this recommendation and staff filed the Surrender Application with FERC. The application was approved in 2020. The budget includes regulatory support as well as physical improvements such as removing defunct electrical components, abandoning components of the turbine and re-establishment of the penstock as a reservoir drain.

14. South Rivanna Water Treatment Plant Improvements: The South Rivanna Water Treatment Plant recently completed limited upgrades as part of the Urban Granular Activated Carbon project. Over the course of that project, several other significant needs were identified and assembled into a single project within this Capital Plan. The project components include, but are not limited to, the following: a new alum and fluoride storage facility; installation of two additional filters to meet firm capacity needs and new filter control panels; building around the lime storage facilities; the addition of a second variable frequency drive at the Raw Water Pump Station as well as other general pump station improvements; the relocation for the

electrical gear from a sub terrain location at the Sludge Pumping Station to a new aboveground enclosure; a new administration building on site for additional office, meeting, and storage space; high service pump improvements and the addition of variable frequency drives to three of the pumps; sedimentation basin improvements; replacement of filter inlet valves and actuators; remodeling of the existing filter building for better lab and control space and painting throughout; new clarifier drives; and incoming electrical system improvements for the facility. Currently this facility operates at 80-90% of capacity and the identified upgrades will improve reliability and resiliency, particularly at higher flow rates.

15. South Rivanna Water Treatment Plant – Plate Settlers Addition: Recent water treatment plant upgrades at the Crozet and Observatory Water Treatment Plants have included the installation of plate settlers in the sedimentation basins to increase plant capacity within limited footprints. This occurs by increasing the solids removal efficiency within the existing sedimentation basins and avoids the need to install additional basins. As these units have been placed into operation, the additional solids removal efficiency has been very beneficial to plant operations and allowed for increased flexibility in daily procedures. While the South Rivanna Water Treatment Plant is currently under construction for general plant upgrades to improve its reliability at a capacity of 12 MGD, the installation of plate settlers was anticipated to take place once the plant was upgraded to a capacity of 16 MGD. However, based on the benefits that have been realized by the plate settlers installed at other plants, Operations staff have prioritized the installation of them at the South Rivanna Water Treatment Plant, as well, in advance of the 16 MGD upgrade. As a result, the purpose of this project would be to install plate settlers in five of the six sedimentation basins at the plant. Due to plate settler interference with the existing sludge collectors, the sludge collectors in those five basins would also be replaced. Only five basins are included as the sixth basin is expected to be converted into a flocculation basin once the 16 MGD upgrade takes place.

16. North Rivanna Water Treatment Plant Upgrade: The North Rivanna Water Treatment Plant was recently upgraded with Granular Activated Carbon (GAC) treatment. While components of the plant's electrical system were upgraded during the GAC project, the remaining equipment and process controls are original to the plant and in need of upgrades. As a result, a needs assessment for the plant was updated to identify potential improvements and the associated costs. At the same time, future regulatory impacts to the plant are being evaluated which may limit the benefit of investing those significant dollars in plant upgrades. In order to clarify this process, this project will include an abandonment and alternatives analysis which will evaluate the costs and implications of maintaining operations at the North Rivanna Water Treatment Plant versus adjusting our Urban System operational guidelines in an attempt to maintain our overall withdrawal and finished water production capabilities should the plant be taken out of service. This analysis is being coordinated with other system analyses including the Finished Water System Master Plan and the Urban Water System Virginia Water Protection Individual Permit renewal process.

South and North Rivanna Water Systems

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
13	20.15	South Rivanna Hydropower Plant Decommissioning	$725,000		$725,000						$725,000	$136,067
14	20.16	South Rivanna Water Treatment Plan Improvements	$17,000,000	$3,000,000	$15,400,000	$1,800,000	$2,800,000				$20,000,000	$1,847,327
15	22.05	South Rivanna Water Treatment Plant - Plate Settlers Addition		$200,000						$200,000	$200,000	
16	20.18	North Rivanna Water Treatment Plant Upgrade	$1,325,000	$1,000,000	$385,000		$940,000			$1,000,000	$2,325,000	$2,130
		TOTAL	$19,050,000	$4,200,000	$16,510,000	$1,800,000	$3,740,000	$0	$0	$1,200,000	$23,250,000	$1,985,524

Crozet Water System

The Crozet Water System includes the source water, raw water conveyance, finished water treatment, transmission and storage infrastructure for the Crozet community in western Albemarle County. The source water for this system is the Beaver Creek Reservoir and Garnett Dam which were built in 1964 with a current useable storage capacity of 521 million gallons. Raw water is treated at the Crozet Water Treatment Plant (1.0 mgd rated capacity, soon to be 2 mgd) and provides finished water to the Albemarle County Service Authority. The system includes the Crozet Elevated (Waterball) Tank (0.05 MG) for water treatment plant backwash; the Crozet Ground Storage Tank (0.5 MG) and pump station, and the Buck's Elbow Storage Tank (2.0 MG).

Project Descriptions:

17. Beaver Creek Dam Alteration: RWSA operates the Beaver Creek Dam and reservoir as the sole raw water supply for the Crozet Area. In 2011, an analysis of the Dam Breach inundation areas and changes to the Virginia Department of Conservation and Recreation (DCR) *Impounding Structures Regulations* prompted a change in hazard classification of the dam from Significant to High Hazard. This change in hazard classification requires that the capacity of the spillway be increased. Following the completion of an alternatives analysis by Schnabel Engineering in 2018, staff decided to proceed with design of a labyrinth spillway and chute through the existing dam with a bridge to allow Browns Gap Turnpike to cross over the new spillway. Work for this project will be coordinated with the new relocated raw water pump station and intake. Federal funding thru the Natural Resources Conservation Service is being pursued to cover a portion of the design and construction costs.

18. Beaver Creek New Raw Water Pump Station & Intake: The existing Raw Water Pump Station and Intake at the Beaver Creek Reservoir was constructed in 1964 and is located at the foot of the Beaver Creek Dam. Obligatory dam safety upgrades to the Beaver Creek Dam spillway necessitate moving the pump station away from its current location downstream of the dam. Additionally, the *Drinking Water Infrastructure Plan* for the Crozet water service area recommends installation of a new Raw Water Pump Station and Intake in order to meet new minimum instream flow requirements and provide adequate raw water pumping capacity to serve the growing Crozet community for the next 50 years. The new pump station will be constructed in a new location on the Beaver Creek Reservoir, to be determined during design. The new intake structure will include enhanced controls as well as a Hypolimnetic Oxygenation System that will serve to enhance water quality within the reservoir.

19. Buck's Elbow Tank and Waterball Painting: The 2,000,000-gallon Buck's Elbow Ground Storage Tank provides finished water storage for the Crozet Area while the 50,000-gallon Crozet Waterball Tank serves as filter backwash storage at the Crozet Water Treatment Plant (CZWTP). Routine inspections of these tanks in 2012 indicated that the tanks would require recoating by 2020. The current coating system has lasted beyond this initial prediction and as such was moved to 2025. The project includes recoating the interior and top-coating the exterior of both tanks to prevent corrosion. Minor repairs and improvements to both tanks will also be included in this work, such as foundation repairs and safety enhancements.

20. Crozet Ground Storage Tank Leak Repair: The 500,000-gallon Crozet Ground Storage Tank serves as the wet well for the finished water pumps at the Crozet Water Treatment Plant and is one of two finished water storage tanks in the Crozet Service Area. In late 2017, a small leak at the base of the tank was discovered, and a subsequent inspection by a remotely operated vehicle (ROV) in February of 2018 confirmed that the leak was likely in the floor of the tank near the tank drain pipe. The tank will need to first drained and inspected following the completion of the Crozet WTP Expansion in order to determine the overall scope of the repairs, and then consultant assistance will be utilized for design and quote solicitation purposes. The tank is scheduled to be taken out of service for inspection in early 2021, with the repairs commencing following the quote solicitation process.

Crozet Water System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
17	20.19	Beaver Creek Dam Alteration	$10,598,000	$5,552,000	$845,000		$470,000	$3,200,000	$5,630,000	$6,005,000	$16,150,000	$293,315
18	20.20 21.15	Beaver Creek New Raw Water Pump Station & Intake	$10,160,000	$620,000	$498,000		$430,000	$2,590,000	$3,490,000	$3,772,000	$10,780,000	$129,782
19	21.01	Buck's Elbow Tank and Waterball Painting	$83,000	$647,000					$80,000	$650,000	$730,000	
20	21.03	Crozet Ground Storage Tank Leak Repair	$100,000	$15,000	$100,000	$15,000					$115,000	
		TOTAL	$20,941,000	$6,834,000	$1,443,000	$15,000	$900,000	$5,790,000	$9,200,000	$10,427,000	$27,775,000	$423,097

Scottsville Water System

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

Project Description:

21. Scottsville Water Treatment Plant Lagoon Liner Replacement: The Scottsville Water Treatment Plant has two waste lagoons that receive filter backwash water, filter-to-waste water and flow from the sedimentation basin sludge collectors. These basins also receive drainage flows from the flocculator and sedimentation basins. The lagoons were initially lined in 2007, but that liner has now reached the end of its useful life and is showing sections of wear and degradation. In order to maintain the integrity of the lagoons, new HDPE liners need to be installed.

22. Scottsville Tank Rehabilitation: The 250,000-gallon Scottsville Standpipe Tank helps maintain pressures for RWSA's Scottsville finished water distribution system, as well as provides increased flows for fires and other system emergencies. This tank, along with all RWSA storage tanks, is inspected for structural and coating defects regularly. Per the results of a recent inspection, the Scottsville Standpipe Tank is due for coating rehabilitation, in order to protect the steel tank from corrosion. Other minor foundation/structural repairs and safety improvements will also be included in the work.

23. Scottsville Water Treatment Plant – Upgrade: The Scottsville WTP was constructed in the 1960's and has undergone several small process specific upgrades since that time with projects such as a filter rehabilitation, lagoon lining, the addition of GAC and UV disinfection. The remainder of the plant is comprised of original infrastructure and equipment. A preliminary needs assessment for the facility is currently underway. To date staff has identified the following needs: chemical storage building expansion, roofing replacement, masonry repairs, door and window replacement, replacement of the main electrical switchgear, replacement and relocation of the generator automatic transfer switch, HVAC improvements, automation of second filter, replacement of finished water pumps, chemical feed upgrades, replacement of sludge collection equipment, replacement of the Totier Creek raw water pump station and improvements to the access road. The completed Needs Analysis and Preliminary Engineering Report will define the final scope of work for the comprehensive improvements.

24. Red Hill Water Treatment Plant – Upgrades: The Red Hill WTP was constructed in a joint effort of ACSA and RWSA in 2009 and consists of a well, pneumatic tank and pump house that provides treated water to the Red Hill Elementary School and adjoining neighborhood. The project was constructed in response to groundwater contamination as a result of a nearby leak of underground fuel storage tanks. Originally the facility was operated primarily as a well head and pump house. More recently the facility has operated more as a

water treatment facility with a well as source water. As such, there have been several chemical process additions, automation, online monitoring and an increase in operator wet chemistry testing. The current building is well beyond its physical capacity and this project will serve to expand the building and improve the configuration of the process and laboratory needs of the WTP.

Scottsville Water System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
21	21.04	Scottsville Water Treatment Plant Lagoon Liner Replacement	$315,000				$140,000	$175,000			$315,000	
22	20.66	Scottsville Tank Rehabilitation		$85,000						$85,000	$85,000	
23	22.06	Scottsville Water Treatment Plant - Upgrade		$300,000						$300,000	$300,000	
24	22.07	Red Hill Water Treatment Plant - Upgrades		$150,000		$35,000	$115,000				$150,000	
		TOTAL	$315,000	$535,000	$0	$35,000	$255,000	$175,000	$0	$385,000	$850,000	$0

Wastewater Interceptors/Pumping Stations

The RWSA wastewater interceptors and pumping stations convey wastewater from the collection systems of the City of Charlottesville and Albemarle County Service Authority to the Moores Creek Advanced Water Resource Recovery Facility (MCAWRRF). This grouping includes: the Crozet Interceptor and four associated pumping stations; the Moores Creek Interceptor and Relief Sewer; 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 MCAWRRF, the Rivanna and Moores Creek Pump Stations.

Project Descriptions:

25. Upper Schenks Branch Interceptor: The Schenks Branch Interceptor is located in the eastern part of the City of Charlottesville and ties into the Meadowcreek Interceptor. The interceptor was constructed in the mid-1950s of 21-inch clay and concrete pipe. The existing interceptor is undersized to serve present and future wet weather flows as determined by the City, and is to be upgraded to 30-inch pipe. The Upper Schenks Branch Interceptor consists of two sections along McIntire Road. Both of these sections have been designed with the first phase of this project located in the City's Schenks Branch Greenway, completed in early 2016. The second phase of the Upper Schenks Interceptor will be replaced by RWSA in coordination with the City of Charlottesville's sewer upgrades once easement negotiations with Albemarle County are complete (or the City authorizes the second phase project be constructed under McIntire Road).

26. Interceptor Sewer and Manhole Repair – Phase 1: This project is used to conduct assessments of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Planned projects to complete Phase 1 include the completion of rehabilitation efforts along the upper Morey Creek Interceptor, high-priority rehabilitation on the Powell Creek Interceptor, and evaluation of the Upper Rivanna Interceptor. Rehabilitation of the Moores Creek, Moores Creek Relief, and Upper Rivanna Interceptors, as well as completion of rehabilitation efforts along the Morey Creek and Powell Creek Interceptors, will take place during subsequent phases. A sewer rehabilitation contract has been developed under this project which procured a dedicated contractor for all evaluation and rehabilitation work. The intent of this project is to complete a condition assessment of all RWSA interceptors (except those replaced during the period with new pipe) by 2022 and complete this phase of repairs as defects are identified. Such periodic assessment of all sewer pipe reflects industry best practices and the maintenance expectations of federal and state regulators as a part of avoiding sanitary sewer overflows.

27. Crozet Interceptor: The Crozet Interceptor is located in western Albemarle County and serves the Crozet and Ivy areas. Flow metering indicated that the interceptor experienced substantial inflow and infiltration and requires rehabilitation. In order to minimize future infrastructure improvements, ACSA and RWSA have agreed to rehabilitate this interceptor and the sewers that flow to the interceptor. The initial phase of rehabilitation to repair high-priority defects in manholes and pipelines contributing to the inflow and infiltration in the interceptor upstream of Crozet Pump Station No. 4 has been completed. The current budget accounts for high-

priority rehabilitation needs on the downstream portion of the interceptor, as well as outstanding rehabilitation items on upstream portions of the interceptor. While wet weather flows have moderately improved based on the initial phase of work, the ACSA and RWSA continue to investigate and remediate deficiencies along the entire interceptor.

28. Crozet Flow Equalization Tank: Rehabilitation work in the RWSA and ACSA sewer systems is on-going to meet the Inflow and Infiltration (I/I) reduction goals in the Crozet Interceptor. This is based on the flow metering and modeling results of the Comprehensive Sanitary Sewer Model & Study conducted in 2006 and as part of the Crozet Interceptor CIP project. The results of the 2006 study were updated in 2016 to evaluate I/I reduction goals and future capital project needs. The need to proceed with construction of a flow equalization tank in the Crozet area was confirmed as a result of this study update, which took in to account recent flow monitoring data that had been collected following previous I/I reduction efforts. Based on those results, a preliminary engineering evaluation and siting analysis of a flow equalization tank upstream of Crozet Pump Station No. 4 was completed to ensure that the facility could be designed, permitted, constructed and ready for operation to meet projected two-year storm flow targets. A construction contract has been awarded with completion expected in FY23.

29. Crozet Pump Station 1, 2, 3 Rehabilitation: The Crozet Interceptor Pump Stations were constructed in the 1980's and many of the components are original. This project includes the replacement of pumps and valves at Pump Station 2 in order to improve pumping capabilities at this location and provide spare parts for the pumps at Pump Station 1. It also includes roof replacements at all four pump stations, siding replacement for the wet well enclosure at Pump Station 3, and installation of new wells at Pump Stations 3 and 4.

30. Albemarle-Berkeley Pump Station Upgrade: The Albemarle-Berkeley Pump Station was constructed in 1975 and conveys flows from several Albemarle County Public Schools and other ACSA customers into RWSA's gravity Albemarle-Berkeley Interceptor. Recently, the pump station's run times have increased, with the pumps running nearly continuously for some periods. It is anticipated that much of the pumping infrastructure has reached or exceeded its expected lifespan, and that the equipment may be in need of replacement.

    A Capacity Analysis of the existing pump station is underway, which is utilizing present flow rates, area-specific population projections, and known development projects on and adjacent to the ACPS campus in order to provide pump station buildout sizing to serve the area for the next 50 years. Once the capacity analysis is complete, staff will review the results, and utilize consultant assistance in order to formulate a set of bidding documents that will include the installation of bypass pumping, demolition of the existing pump station, and construction of a new pumping station that is sized to meet the current and future flows as determined by the Capacity Analysis.

31. Interceptor Sewer and Manhole Repair – Phase 2: This project is used to conduct assessments of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Phase 1 of the Interceptor Sewer and Manhole Repair Project included completion of the baseline evaluation of all RWSA interceptors (except those replaced with new pipe), as

well as completion of rehabilitation on the Upper Morey Creek Interceptor and high-priority rehabilitation on the Powell Creek Interceptor. Planned projects for Phase 2 include continuation of rehabilitation on the Lower Morey Creek and Powell Creek Interceptors, as well as rehabilitation along the Moores Creek, Moores Creek Relief, and Upper Rivanna Interceptors. Similar to Phase 1, a sewer rehabilitation contract will be developed under this project in order to procure a dedicated contractor for any evaluation and rehabilitation work specified. Rehabilitation of existing sanitary sewer pipe and manholes reduces Inflow & Infiltration (I & I) in the system, thus reducing the chance for sanitary sewer overflows (SSOs) during high flow events.

Urban Wastewater Interceptors/Pumping Stations

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
25	20.25	Upper Schenks Branch Interceptor	$3,985,000		$3,300,000	$685,000					$3,985,000	$50,787
26	20.26	Interceptor Sewer and Manhole Repair (Phase 1)	$1,088,330		$1,088,330						$1,088,330	$468,537
27	20.27 21.10	Crozet Interceptor	$880,000		$790,000	$90,000					$880,000	$250,223
28	20.28	Crozet Flow Equalization Tank	$4,860,000	$540,000	$4,860,000	$540,000					$5,400,000	$354,156
29	20.30	Crozet Pump Station 1, 2, 3 Rehabilitation	$590,000		$295,000	$30,000	$210,000	$55,000			$590,000	$15,582
30	20.31	Alb. Berkley PS Upgrade	$40,000	$412,000					$50,000	$402,000	$452,000	
31	21.07	Interceptor Sewer and Manhole Repair (Phase 2)	$695,000	$1,255,000			$270,000	$520,000	$580,000	$580,000	$1,950,000	
		TOTAL	$12,138,330	$2,207,000	$10,333,330	$1,345,000	$480,000	$575,000	$630,000	$982,000	$14,345,330	$1,139,285

Moores Creek Advanced Water Resource Recovery Facility

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

Project Descriptions:

32. Moores Creek AWWRF Engineering and Administration Building: RWSA currently has its administrative headquarters in two buildings on the grounds of the Moores Creek Advanced Water Resource Recovery Facility. The two-story Administration Building was constructed in the early 1980's and houses offices, IT server space, meeting space and a full-service laboratory. The second building is a series of four trailers installed in between 2003-2010 that house the Engineering department. The Administration building is located at the head of the wastewater treatment plant and is surrounded by underground piping and process functions that may conflict with existing parking and/or the building in a future plant expansion. There is currently a need to house additional staff; increase office and meeting space; plan for the replacement of the trailers; bring the IT server workrooms to modern standards; and provide classroom space for education outreach. This project is currently planned to begin after the results of the MCAWRRF Master Plan have been considered.

33. Moores Creek AWWRF Digester Sludge Storage Improvements: The sole sludge storage tank at the MCAWRRF was constructed in 1959 of reinforced concrete and is in need of repairs. The scope of work would include piping modifications, hydraulic improvements, tank safety improvements such as handrail and lights, and structural improvements to the existing sludge storage tank roof.

34. Moores Creek AWWRF Aluminum Slide Gate Replacement: Several large aluminum slide gates are located at the influent side of the Moores Creek Pump Station. These gates allow staff to stop or divert flow to perform maintenance activities. After repeated attempts to access and repair the gates, it is now necessary to replace and modify the gate arrangement. The replacement includes new gates for greater flexibility and resiliency as well as significant flow bypass pumping. Likewise, there are several gates at the Ultraviolet disinfection facility that leak water, causing a reduced capacity of the facility. Replacement of these gates will restore the process to full capacity. Two additional gates in the holding pond pump station from the original 1977 Moores Creek facility construction are broken and non-operational and will be replaced as part of this work. In addition, motor operated valves at the headworks will improve wet weather operations related to the new grit facility.

35. Moores Creek AWRRF Mechanical Thickener: During the design of the Moores Creek AWRRF Phase 2 Odor Control project, the consultants conducted a detailed evaluation of all facility odor sources. One of the key sources identified, was the post-digestion clarifiers. These clarifiers are two round open-topped tanks of digested wastewater sludge,

located on the north side of the plant. During the ENR upgrade, the characteristics of the post-aeration sludge changed. This change has led to less predictable sludge handing through the existing gravity thickeners. This change in the post-aeration sludge characteristics has made obtaining a clear thickener overflow more difficult without chemical addition. Removing the post-digestion clarifiers from service combined with solids carryover from the existing gravity thickeners create a number of downstream consequences in primary clarification, sludge digestion and solids dewatering. Removing these facilities from service reduces the sludge thickness and therefore the plant's ability to adequately process it. This project includes the design and installation of a mechanical thickener prior to digestion that will increase plant solids processing reliability and capacity.

36. Moores Creek AWRRF Compost Shed Roof Rehabilitation: In the early 1980's a large metal-framed shed roof was constructed to house the biosolids composting operations. Subsequent to stopping composting at Moores Creek AWRRF, the shed serves as an equipment maintenance yard, solids handling facility and material storage lock-up. The shed roof is exhibiting signs of rafter deterioration and ongoing drainage issues. This project will evaluate and perform remediation needs at this facility.

37. Moores Creek AWRRF Gas Sphere Rehabilitation: The gas sphere was constructed in 1980 and is used to house pressurized methane gas as part of the boiler and cogeneration system at the Moores Creek Advanced Water Resource Recovery Facility (MCAWRRF). An inspection of the sphere determined that the coating system was nearing the end of its serviceable life and the tank would require some additional minor repairs and safety improvements. The project will include an updated inspection to confirm the necessary improvements, recoating the exterior of the tank, repairs to the grout around the concrete ring wall, installation of a safety climb on the exterior of the tank and other minor repairs.

38. Moores Creek AWRRF Cogeneration Upgrades: The MCAWRRF has an existing cogeneration facility that was constructed in 2011. The purpose of the facility was to provide a beneficial purpose for using the gas produced by the digester process at the plant, and in doing so provide both process heating fluid to the digester tanks and electrical energy to the plant's electrical distribution system. Unfortunately, the existing cogeneration facility requires expensive recurring maintenance services, has proprietary equipment which further complicates servicing needs, and has had a number of operational issues that have impeded the benefit this facility was intended to provide. As a result, a Cogeneration System Analysis was performed to determine a recommended approach for proceeding with improvements to the existing facility, installation of a new cogeneration facility without the issues of the previous facility or removing the cogeneration facility altogether and providing a backup boiler. This project includes costs of installation of a new cogeneration facility as described in the Cogeneration System Analysis. The project is intended to commence following a review of the MCAWRRF digester system as part of the MCAWRRF Master Plan to ensure the expected gas to be produced would remain the same as that used during the Cogeneration System Analysis.

39. Moores Creek AWRRF Maintenance Building Space: The Moores Creek Maintenance Department facilities are undersized to serve the current staffing; parts storage and oil and

grease storage needs. The Moores Creek Master Plan is currently evaluating plant needs into the future and will provide specific recommendations for the Maintenance Department. Preliminarily, this project will increase personal spaces such as offices and a locker room. Additionally, the project will construct a new oil and grease storage facility that will meet all current best practices for safety and fire suppression. Lastly, the project will address the need for additional conditioned parts storage.

40. Moores Creek AWRRF Structural Modifications: The aeration basins located at Moores Creek are a series of chambers that each have uniquely controlled oxygen and nutrient loading conditions. Mid-way thru the basins are ten nitrogen recycle (NCRY) pumps. Due to the corrosive atmosphere, these submersed pumps require being pulled and rebuilt frequently. To remove the pumps, staff must currently hire a long boom crane. This project will provide the means to pull, move, and load the pumps during maintenance activities.

    Two of the six pumps in the New Rivanna Pump Station are smaller and were designed to be replaced if future average day flows warrant increased capacity. The current configuration resulted in several valves being located approximately 40 feet above the pump floor level. Valve maintenance activities have been challenging due to their height. A project is proposed to install a catwalk from the upper mezzanine level to each valve to provide a safer, walkable access to each valve.

41. Moores Creek AWRRF In-plant Clarifier and Lime Silo Demolition: The two in-plant clarifiers were constructed in the late 1950's and were taken out of service as a result of the Odor Control Project at the plant. Due to the age of the tanks, various components have significantly deteriorated over time and no additional uses for these tanks have been identified. In addition, due to their out-of-service status, they remain empty and a safety concern for plant staff and visitors. There is also an abandoned lime silo currently located adjacent to the Solids Handling Building. Lime was previously used with the old plate and frame presses before centrifuges were installed for sludge dewatering purposes. This project will include the complete demolition of the in-plant clarifiers by removing all existing components, backfilling the area and returning the area to open space and removing the lime silo from the plant and properly disposing of it.

42. Moores Creek AWRRF Generator Fuel Storage Expansion: The Moores Creek AWRRF south side electrical facilities have a single large system back-up power generator that was installed between 2009-2012 during the ENR plant upgrade. The generator has a belly tank that allows for approximately 22 hours of operation. This project will install an ancillary fuel tank that will allow for approximately three days of operation.

43. Moores Creek AWRRF Meter and Valve Replacements: As part of the Odor Control Phase II Project, the post digestion clarifiers were eliminated from use and the gravity thickener overflow was diverted through existing piping directly to the Moores Creek Pump Station at the head of the treatment facility. This resulted in less odor generation, however, the gravity thickener overflow lost its metering location at the post digestion clarifiers. A new metering manhole location was installed near the Moores Creek Pump Station where several plant recycle flows come together. Unfortunately, this meter location has been problematic and is subject to backwater flows from the pump station and meter fouling from grease and

solids. This project involves installation of individual meters on each recycle flow at locations that will provide less operation and maintenance problems.

The circulation of Waste Activated Sludge (WAS) and Return Activated Sludge (RAS) is important in the wastewater process to maintain a healthy balance of microorganisms. The existing WAS and RAS flow meters are original to the 1980's construction of the facility and are nearly 40 years old. These meters can no longer be calibrated and replacement parts are not available. Replacement of these meters is necessary for process and operational efficiency.

44. Moores Creek AWWRF Facility Renovations: The Duty Pump Station was constructed in 1958 and no longer functions as an actual pump station. It currently houses electrical equipment that serves the plant, but otherwise has available space that could be beneficially used for other purposes. RWSA has a need for additional office space and has evaluated repurposing portions of the Duty Pump Station for office and workspace in order to make use of all available space at the plant before proceeding with more significant administrative expansions. This project includes demolition of a select portion of the interior of the station, cleaning and sanitizing of the areas to be repurposed, and an interior upfit of the space to provide additional office and workspace. The viability of this project will be reviewed with the final recommendation of the Moores Creek AWRRF Master Plan.

45. Moores Creek AWRRF 5kV Electrical System Upgrade: After discussions through the Moores Creek Facilities Master Plan, it was identified that several areas of the MCAWRRF, including the Blower Building, Sludge Pumping Building, Grit Removal Building, Moores Creek Pumping Station, and the Administration Building are all still connected to the original 5kV switchgear in the Blower Building. This equipment, including the associated cabling, switchgear, transformers and motor control centers (MCCs), has a useful life expectancy of 20-30 years. Most of this equipment was installed around 1980. With the equipment having well exceeded its useful life expectancy at this point, safety is a concern given the large electric loads that the cabling and other equipment are handling on a day-to-day basis. Failure of the existing 5kV infrastructure could also result in temporary outages of certain treatment processes, and repairs could take weeks to months given the lead times associated with equipment of this age. In July 2020, staff recommended that a CIP Project be started as soon as possible to encompass replacement of the original 1980s-vintage 5kV cables, switchgear, transformers, and MCCs.

46. Moores Creek AWRRF Lighting Upgrade: The lighting at the 80-acre MCAWRRF consists of over 300 fixtures installed at various times over the entire life of the facility's presence. In 2019, Albemarle County investigated the existing and historic lighting at the facility and determined that upgrades were required to bring Moores Creek AWRRF in to compliance. RWSA and Albemarle County staff have been working together to best address the issue. A Minor Site plan amendment was submitted to the county and the Architectural Review Board for review. RWSA is currently working on a design, bid, build package that will include a large scale replacement of non-compliant fixtures as well as address industrial lighting standards for the entire facility.

47. Moores Creek AWRRF Miscellaneous Concrete Repair: The two Holding Ponds and the two Equalization Basins were built with the 1977 Moores Creek Upgrades and are critical to the plant infrastructure to contain wet weather flows. The 40 year old concrete is showing signs of degradation. Following inspections in Fall 2020, Hazen recommended we implement concrete repairs soon to extend the life of the concrete basins. Work will include crack repair, spalling repair, joint repair, and coating of miscellaneous metals and valves in the basins.

48. Moores Creek AWRRF Digester Replacement/Repair: The two smaller digesters were part of the original 1958 plant construction. The three larger digesters were part of the 1979 plant upgrades following construction of the bridge over Moores Creek and the south side of the plant. Although numerous upgrades have been constructed at the digester complex over the last 11 years (including heating, mixing, gas compression, and roof repairs), the overall condition of the concrete and complex is reaching its useful life. Furthermore, through the Moores Creek master planning process, Hazen has identified future plant improvements which are most advantageously built around the existing filters, UV facility and plant outfall and therefore utilizing the space for any future digester complex expansions. This project includes addressing remaining repairs to the digester complex, including safety repairs, to extend the useful life approximately 7-10 years while RWSA plans, designs, and constructs a new digester complex at another location on the Moores Creek site.

Moores Creek Advanced Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
32	20.34	Moores Creek AWRRF Engineering and Administration Building	$250,000	($25,000)						$225,000	$225,000	
33	20.35	Moores Creek AWRRF Digester Sludge Storage Improvements	$550,000		$550,000						$550,000	$15,450
34	20.36	Moores Creek AWRRF Aluminum Slide Gate Replacements	$675,000	$675,000	$675,000	$630,000	$45,000				$1,350,000	$25,272
35	20.38	Moores Creek AWRRF Mechanical Thickener Improvement	$100,000	$3,000,000					$400,000.00	$2,700,000	$3,100,000	
36	20.39	Moores Creek AWRRF Compost Shed Roof Rehabiliation	$200,000			$200,000					$200,000	
37	20.40	Moores Creek AWRRF Gas Sphere Rehabilitation	$80,000	$760,000					$90,000	$750,000	$840,000	
38	20.67	Moores Creek AWRRF Cogeneration Upgrades	$1,865,000		$245,000	$1,620,000					$1,865,000	
39	20.68	Moores Creek AWRRF Maintenance Building	$105,000	$1,220,000	$275,000				$105,000	$945,000	$1,325,000	
40	20.69 21.06	Moores Creek AWRRF Structural Modifications	$575,000	$325,000			$110,000	$790,000			$900,000	
41	21.05	Moores Creek AWRRF In-plant Clarifier and Lime Silo Demolition	$655,000		$185,000	$470,000					$655,000	

Moores Creek Advanced Water Resource Recovery Facility (Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
42	21.09	Moores Creek AWRRF Generator Fuel Storage Expansion	$100,000		$100,000						$100,000	
43	21.11 21.17	Moores Creek AWWRF Meter and Valve Replacements	$660,000	$90,000	$380,000	$370,000					$750,000	
44	21.13 21.20	Moores Creek AWRRF Facility Renovations	$375,000	$375,000	$375,000	$375,000					$750,000	
45	21.18	Moores Creek AWRRF 5kV Electrical System Upgrade	$500,000	$4,100,000	$180,000	$420,000	$2,685,000	$1,315,000			$4,600,000	
46	21.21	Moores Creek AWRRF Lighting Upgrade	$1,000,000	$900,000	$1,000,000	$900,000					$1,900,000	
47	22.11	Moores Creek AWRRF Miscellaneous Concrete Repair		$2,650,000		$250,000	$1,650,000	$750,000			$2,650,000	
48	22.12	Moores Creek AWRRF Digester Replacement/Repair		$3,620,000					$520,000	$3,100,000	$3,620,000	
		TOTAL	$7,690,000	$17,690,000	$3,965,000	$5,235,000	$4,490,000	$2,855,000	$1,115,000	$7,720,000	$25,380,000	$40,722

Scottsville Wastewater System

The Scottsville Wastewater System includes the influent pumping station, the water resource recovery facility constructed in 1983, and the historical treatment lagoon (now incorporated into the plant operation). The water resource recovery facility has a rated capacity of 0.2 mgd.

Project Descriptions:

49. Scottsville WRRF Whole Plant Generator and ATS: The current back-up power generator at the Scottsville Water Treatment Plant does not power the entire plant, serving only the facilities needed to send flow to the lagoons. This project will provide for a plant-wide generator and automatic transfer switch. This project will offer greater treatment flexibility and monitoring capability for the operations staff; particularly when the plant is unmanned and monitored remotely.

Scottsville Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
49	21.12	Scottsville WRRF Whole Plant Generator and ATS	$125,000	$75,000		$11,000	$180,000	$9,000			$200,000	
		TOTAL	$125,000	$75,000	$0	$11,000	$180,000	$9,000	$0	$0	$200,000	$0

Glenmore Wastewater System

The 0.381-mgd water resource recovery facility, located within the Glenmore subdivision, is operated by RWSA. The facility includes an influent pumping station located immediately adjacent to the treatment facility.

Project Descriptions:

50. Glenmore WRRF Influent Pump & VFD Addition: The Glenmore WRRF is predicted to see additional dry and wet weather flows as residential and commercial construction within the service area continues. Future wet weather flows will require higher influent pumping capacity and an additional pump and electrical variable frequency drive will be required to maintain firm capacity.

Glenmore Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
50	20.42	Glenmore WRRF Influent Pump and VFD Addition	$65,000	$55,000	$65,000	$55,000					$120,000	
		TOTAL	$65,000	$55,000	$65,000	$55,000	$0	$0	$0	$0	$120,000	$0

All Systems

Project Descriptions:

51. Radio Upgrades: The regional 800 MHz Public Safety Communication System, in which the Rivanna Water and Sewer Authority participates to provide internal and emergency radio communication, is nearing the end of its service life. Because of technology changes (software and hardware) the Charlottesville-UVA-Albemarle County Emergency Communications Center (ECC) will need to upgrade or replace the system to keep it useable. This project plans for the upgrade or replacement of major technology components and equipment of the existing system include: electronic components at all tower sites and the prime site at the ECC facility; new console equipment at the regional ECC; equipment such as tower site generators and UPS systems; an additional tower site (to improve service in southern Albemarle County); microwave backbone; and replacement of the system recording facilities. RWSA is being apportioned a part of the project cost proportionately based on the number of radios. In addition to this assessment from the ECC, the Authority will replace its fleet of portable radios.

52. Asset Management: Asset management is the practice of managing our infrastructure to minimize the total cost of owning and operating these assets while providing desired service levels. In doing so, it is used to make sure planned maintenance activities take place and that capital assets are replaced, repaired or upgraded at the right time, while ensuring that the resources necessary to perform those activities is available. RWSA has some components of an asset management program in place (i.e. GIS, work order system), but has identified the need to further develop the program as part of our Strategic Planning process. In order to continue to build the program, a consultant was procured to assist with a three-phase process that will include facilitation and development of an asset management strategic plan, development and management of a pilot study where the results of the strategic plan will be applied to a specific facility, and assistance through a full implementation process. Procurement of software to facilitate the overall program is also included in this project.

53. Security Enhancements: Water utilities are required by federal law to conduct vulnerability assessments (VA) and have emergency response plans. RWSA completed an update of its VA for the water system in collaboration with other regional partners and identified a number of security improvements that could be applied to both its water and wastewater systems. The purpose of this project will be to install security improvements at RWSA facilities, with the initial focus on an enhanced access control program. Other improvements will include: industrial strength door and window components, security gate and fencing modifications, an improved lock and key program, facility signage, closed circuit television (CCTV) enhancements, intrusion detection systems (IDS), additional security lighting, mass emergency notification systems, and emergency call stations/panic buttons. In order to implement an access control system at Authority-owned facilities, staff has procured an Implementer that will finalize system design/requirements, procure all necessary equipment, and install the chosen system. Implementation of the access control system began at MCAWRRF in Spring 2020, with additional facilities to follow.

54. IT Master Plan – Software: Staff is currently updating an IT Master Plan which assessed and benchmarked current software and business practices. Work is currently underway to reconfigure the Network infrastructure and to install and implement major software initiatives. This project will continue to address those Authority wide needs.

All Systems

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
51	20.44	Radio Upgrades	$400,000	$200,000	$400,000	$200,000					$600,000	$130,742
52	20.45	Asset Management	$1,115,000	$65,000	$735,000	$180,000	$185,000	$80,000			$1,180,000	$183,069
53	20.46	Security Enhancements	$2,730,000		$1,550,000	$556,000	$550,000	$74,000			$2,730,000	$203,489
54	20.47	IT Master Plan - Software	$450,000	$150,000	$300,000	$300,000					$600,000	$55,781
		TOTAL	$4,695,000	$415,000	$2,985,000	$1,236,000	$735,000	$154,000	$0	$0	$5,110,000	$573,081

APPENDICES

CIP Financial Summary

Water System Summary

Wastewater System Summary

All Systems Summary

CIP Financial Summary

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	Proj. No.	Project Description	Current CIP Adopted 6/2020	Proposed Changes	Current Capital Budget	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2020)
1	20.01	South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way	$2,295,000	$445,000	$2,295,000	$445,000					$2,740,000	$951,513
2	20.02	South Rivanna Reservoir Dredging	$0	$0	$0						$0	$0
3	20.03	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line	$7,497,000	$7,828,000	$0	$375,000	$1,150,000	$2,100,000	$5,850,000	$5,850,000	$15,325,000	$0
4	20.04	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pump Station	$2,550,000	$3,300,000	$0	$215,000	$300,000	$785,000	$2,275,000	$2,275,000	$5,850,000	$0
5	22.01	South Rivanna Reservoir to Ragged Mountain Reservoir - Birdwood to Old Garth	$0	$1,980,000	$0	$166,000	$1,656,000	$158,000			$1,980,000	$0
6	20.06	Observatory Water Treatment Plant Improvements	$26,000,000	($3,000,000)	$7,700,000	$9,850,000	$5,450,000				$23,000,000	$1,487,586
7	20.07	Sugar Hollow Dam Rubber Crest Gate Replacement	$1,700,000	$200,000	$1,230,000	$670,000					$1,900,000	$66,360
8	20.10	Central Water Line	$4,950,000	$4,133,000	$1,375,000			$725,000	$2,850,000	$4,133,000	$9,083,000	$137,749
9	20.12	South Fork Rivanna River Crossing	$2,800,000	$855,000	$260,000	$530,000	$2,314,000	$551,000			$3,655,000	$0
10	20.13	Airport Rd. Pump Station and North Rivanna Transmission Main	$5,850,000	$1,750,000	$1,775,000	$3,875,000	$1,950,000				$7,600,000	$108,099

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		Project Description	Current CIP Adopted 6/2020	Proposed Changes	Current Capital Budget	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2020)
11	20.50	Avon, Pantops and Observatory Tank Rehabilitation	$0	$1,045,000	$0					$1,045,000	$1,045,000	$0
12	20.58	Second North Rivanna River Crossing	$0	$445,000	$0					$445,000	$445,000	$0
13	20.15	South Rivanna Hydropower Plant Decomissioning	$725,000	$0	$725,000						$725,000	$136,067
14	20.16	South Rivanna Water Treatment Plant Improvements	$17,000,000	$3,000,000	$15,400,000	$1,800,000	$2,800,000				$20,000,000	$1,847,327
15	22.05	South Rivanna Water Treatment Plant - Plate Settlers Addition	$0	$200,000	$0					$200,000	$200,000	$0
16	20.18	North Rivanna Water Treatment Plant Upgrade	$1,325,000	$1,000,000	$385,000		$940,000			$1,000,000	$2,325,000	$2,130
17	20.19	Beaver Creek Dam Alteration	$10,598,000	$5,552,000	$845,000		$470,000	$3,200,000	$5,630,000	$6,005,000	$16,150,000	$293,315
18	20.20 21.15	Beaver Creek New Raw Water Pump Station & Intake	$10,160,000	$620,000	$498,000		$430,000	$2,590,000	$3,490,000	$3,772,000	$10,780,000	$129,782
19	21.01	Buck's Elbow Tank and Waterball Painting	$83,000	$647,000	$0				$80,000	$650,000	$730,000	$0
20	21.03	Crozet Ground Storage Tank Leak Repair	$100,000	$15,000	$100,000	$15,000					$115,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
21	21.04	Scottsville Water Treatment Plant Lagoon Liner Replacement	$315,000	$0	$0		$140,000	$175,000			$315,000	
22	20.66	Scottsville Tank Rehabilitation	$0	$85,000	$0					$85,000	$85,000	
23	22.06	Scottsville Water Treatment Plant - Upgrade	$0	$300,000	$0					$300,000	$300,000	
24	22.07	Red Hill Water Treatment Plant - Upgrades	$0	$150,000	$0	$35,000	$115,000				$150,000	
25	20.25	Upper Schenks Branch Interceptor	$3,985,000	$0	$3,300,000	$685,000					$3,985,000	$50,787
26	20.26	Interceptor Sewer and Manhole Repair - Phs 1	$1,088,330	$0	$1,088,330						$1,088,330	$468,537
27	20.27 21.10	Crozet Interceptor	$880,000	$0	$790,000	$90,000					$880,000	$250,223
28	20.28	Crozet Flow Equalization Tank	$4,860,000	$540,000	$4,860,000	$540,000					$5,400,000	$354,156
29	20.30	Crozet Pump Station 1, 2, 3 Rehabilitation	$590,000	$0	$295,000	$30,000	$210,000	$55,000			$590,000	$15,582
30	20.31	Alb. Berkley Pump Station Upgrade	$40,000	$412,000	$0				$50,000	$402,000	$452,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		Project Description	Current CIP Adopted 6/2020	Proposed Changes	Current Capital Budget	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2020)
31	21.07	Interceptor Sewer and Manhole Repair - Phs 2	$695,000	$1,255,000	$0		$270,000	$520,000	$580,000	$580,000	$1,950,000	$0
32	20.34	Moores Creek AWWRF Engineering and Administration Building	$250,000	($25,000)	$0					$225,000	$225,000	$0
33	20.35	Moores Creek AWWRF Digester Sludge Storage Improvements	$550,000	$0	$550,000						$550,000	$15,450
34	20.36	Moores Creek AWWRF Aluminum Slide Gate Replacements	$675,000	$675,000	$675,000	$630,000	$45,000				$1,350,000	$25,272
35	20.38	Moores Creek AWWRF Mechanical Thickener Improvement	$100,000	$3,000,000	$0				$400,000	$2,700,000	$3,100,000	$0
36	20.39	Moores Creek AWRRF Compost Shed Roof Rehabiliation	$200,000	$0	$0	$200,000					$200,000	$0
37	20.40	Moores Creek AWRRF Gas Sphere Rehabilitation	$80,000	$760,000	$0				$90,000	$750,000	$840,000	$0
38	20.67	Moores Creek AWRRF Cogeneration Upgrades	$1,865,000	$0	$245,000	$1,620,000					$1,865,000	$0
39	20.68	Moores Creek AWRRF Maintenance Building	$105,000	$1,220,000	$275,000				$105,000	$945,000	$1,325,000	$0
40	20.69 21.06	Moores Creek AWWRF Structural Modifications	$575,000	$325,000	$0		$110,000	$790,000			$900,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
41	21.05	Moores Creek AWWRF In-plant Clarifier and Lime Silo Demolition	$655,000	$0	$185,000	$470,000					$655,000	$0
42	21.09	Moores Creek AWWRF Generator Fuel Storage Expansion	$100,000	$0	$100,000						$100,000	$0
43	21.11 21.17	Moores Creek AWWRF Meter and Valve Replacements	$660,000	$90,000	$380,000	$370,000					$750,000	$0
44	21.13 21.20	Moores Creek AWWRF Facility Renovations	$375,000	$375,000	$375,000	$375,000					$750,000	$0
45	21.18	Moores Creek AWWRF 5kV Electrical System Upgrade	$500,000	$4,100,000	$180,000	$420,000	$2,685,000	$1,315,000			$4,600,000	$0
46	21.21	Moores Creek AWWRF Lighting Upgrade	$1,000,000	$900,000	$1,000,000	$900,000					$1,900,000	$0
47	22.11	Moores Creek AWRRF Miscellaneous Concrete Repair	$0	$2,650,000	$0	$250,000	$1,650,000	$750,000			$2,650,000	$0
48	22.12	Moores Creek AWRRF Digester Replacement/Repair	$0	$3,620,000	$0				$520,000	$3,100,000	$3,620,000	$0
49	21.12	Scottsville WRRF Whole Plant Generator and ATS	$125,000	$75,000	$0	$11,000	$180,000	$9,000			$200,000	$0
50	20.42	Glenmore WRRF Influent Pump & VFD Addition	$65,000	$55,000	$65,000	$55,000					$120,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 6/2020**	**Proposed Changes**	**Current Capital Budget**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2020)**
51	20.44	Radio Upgrades	$400,000	$200,000	$400,000	$200,000					$600,000	$130,742
52	20.45	Asset Management	$1,115,000	$65,000	$735,000	$180,000	$185,000	$80,000			$1,180,000	$183,069
53	20.46	Security Enhancements	$2,730,000	$0	$1,550,000	$556,000	$550,000	$74,000			$2,730,000	$203,489
54	20.47	IT Master Plan - Software	$450,000	$150,000	$300,000	$300,000					$600,000	$55,781
		Total	$118,661,330	$50,992,000	$49,936,330	$25,858,000	$23,600,000	$13,877,000	$21,920,000	$34,462,000	$169,653,330	$6,913,016

Water System Summary

Urban Water System	Summary: Current CIP	Summary: Proposed Changes	Current Capital Budget	Projected Future Expenses by Year: FY22	FY23	FY24	FY25	FY26	Recommended CIP	Work-in -Progress
PROJECT COSTS										
Community Water Supply Plan	$ 12,342,000	$ 13,553,000	$ 2,295,000	$ 1,201,000	$ 3,106,000	$ 3,043,000	$ 8,125,000	$ 8,125,000	$ 25,895,000	$ 951,513
Observatory WTP/Ragged Mtn/Sugar Hollow Systems	27,700,000	(2,800,000)	8,930,000	10,520,000	5,450,000	-	-	-	24,900,000	1,553,946
Finished Water Storage/Distribution - Urban System	14,985,914	8,228,000	3,410,000	4,405,000	4,264,000	1,276,000	2,850,000	5,623,000	21,828,000	245,848
South & North Fork Rivanna WTP and Reservoir System	19,950,000	4,200,000	16,510,000	1,800,000	3,740,000	-	-	1,200,000	23,250,000	1,985,524
Total Projects Urban Water Systems	**$ 74,977,914**	**$ 23,181,000**	**$ 31,145,000**	**$ 17,926,000**	**$ 16,560,000**	**$ 4,319,000**	**$ 10,975,000**	**$ 14,948,000**	**$ 95,873,000**	**$ 4,736,831**
FUNDING SOURCES URBAN SYSTEM - TO DATE										
Work-in-Progress			$ 4,736,831	$ -	$ -	$ -	$ -	$ -	$ 4,736,831	
Debt Proceeds Available 2015B			14,451,300	-	-	-	-	-	14,451,300	
Capital Funds Available			553,000	-	-	-	-	-	553,000	
SUBTOTAL			19,741,131	-	-	-	-	-	19,741,131	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash reserve transfer to Capital Fund				$ 1,000,000	$ 1,000,000	$ 1,500,000	$ 1,500,000	$ 500,000	$ 5,500,000	
New Debt Needed			11,403,869	16,926,000	15,560,000	2,819,000	9,475,000	14,448,000	70,631,869	
SUBTOTAL			11,403,869	17,926,000	16,560,000	4,319,000	10,975,000	14,948,000	76,131,869	
TOTAL URBAN WATER FUNDING			**$ 31,145,000**	**$ 17,926,000**	**$ 16,560,000**	**$ 4,319,000**	**$ 10,975,000**	**$ 14,948,000**	**$ 95,873,000**	
									$95,873,000	
Estimated Bond Issues					**$30,000,000**		**$40,631,869**		**$70,631,869**	

Non-Urban Water System	Summary: Current CIP	Summary: Proposed Changes	Current Capital Budget	Projected Future Expenses by Year: FY22	FY23	FY24	FY25	FY26	Recommended CIP	Work-in -Progress
PROJECT COSTS										
Crozet Water System	$ 29,441,000	$ 6,834,000	$ 1,443,000	$ 15,000	$ 900,000	$ 5,790,000	$ 9,200,000	$ 10,427,000	$ 27,775,000	$ 423,097
Scottsville Water System	475,000	565,000	-	35,000	255,000	175,000	-	385,000	850,000	-
Total Rural Water Systems	**$ 29,916,000**	**$ 7,399,000**	**$ 1,443,000**	**$ 50,000**	**$ 1,155,000**	**$ 5,965,000**	**$ 9,200,000**	**$ 10,812,000**	**$ 28,625,000**	**$ 423,097**
Non-URBAN FUNDING SOURCES										
Work in Progress			$ 423,097	$ -	$ -	$ -	$ -	$ -	$ 423,097	
Capital Funds Available			-						-	
Debt Proceeds 2018 Bond			303,800	-	-	-	-	-	303,800	
Future Cash reserve transfer to Capital Fund			300,000	50,000	100,000	150,000	-	-	600,000	
New Debt Needed			416,103	-	1,055,000	5,815,000	9,200,000	10,812,000	27,298,103	
TOTAL NON-URBAN WATER FUNDING			**$ 1,443,000**	**$ 50,000**	**$ 1,155,000**	**$ 5,965,000**	**$ 9,200,000**	**$ 10,812,000**	**$ 28,625,000**	
Estimated Bond Issues				**$ 1,471,100**			**25,827,000**		**$27,298,100**	

Wastewater System Summary

	Summary			Projected Future Expenses by Year						
Urban Wastewater System	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Wastewater Interceptor/Pumping Stations	$ 12,338,330	$ 2,207,000	$ 10,333,330	$ 1,345,000	$ 480,000	$ 575,000	$ 630,000	$ 982,000	$ 14,345,330	$ 1,139,285
Moores Creek WWTP	10,181,632	17,690,000	3,965,000	5,235,000	4,490,000	2,855,000	1,115,000	7,720,000	25,380,000	40,722
Total Urban Wastewater Systems	**$ 22,519,962**	**$ 19,897,000**	**$14,298,330**	**$6,580,000**	**$4,970,000**	**$3,430,000**	**$1,745,000**	**$8,702,000**	**$39,725,330**	**$1,180,007**
FUNDING SOURCES URBAN SYSTEM - IN PLACEA										
Work-in-Progress			$ 1,180,007	$ -	$ -	$ -	$ -	$ -	$ 1,180,007	
Debt Proceeds - 2018			4,500,000	-	-	-	-		4,500,000	
Capital Funds Available			4,135,000	-	-	-	-	-	4,135,000	
SUBTOTAL			9,815,007	-	-	-	-	-	9,815,007	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash Reserves			$ -	$ 1,000,000	$ 500,000	$ 500,000	$ 500,000	$ 1,000,000	$ 3,500,000	
New Debt Needed			4,483,323	5,580,000	4,470,000	2,930,000	1,245,000	7,702,000	26,410,323	
SUBTOTAL			4,483,323	$6,580,000	4,970,000	3,430,000	1,745,000	8,702,000	29,910,323	
TOTAL URBAN WASTEWATER FUNDING			**$ 14,298,330**	**$ 6,580,000**	**$ 4,970,000**	**$ 3,430,000**	**$ 1,745,000**	**$ 8,702,000**	**$ 39,725,330**	
Estimated Bond Issues					**$14,533,300**		**$11,877,000**		**$ 26,410,300**	

	Summary			Projected Future Expenses by Year						
Non-Urban Wastewater System	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Glenmore WWTP	$ 65,000	$ 55,000	$ 65,000	$ 55,000	$ -	$ -	$ -	$ -	$ 120,000	$ -
Scottsville WWTP	335,000	75,000	-	11,000	180,000	9,000	-	-	200,000	-
Total Rural Wastewater Systems	**$400,000**	**$130,000**	**$ 65,000**	**$ 66,000**	**$ 180,000**	**$ 9,000**	**$ -**	**$ -**	**$ 320,000**	**$ -**
FUNDING SOURCES RURAL SYSTEM - NEEDS										
Capital Funds Available			$ -	$ -					-	
Future Cash Reserve			-	66,000	34,000	-			100,000	
New Debt Needed			65,000	-	146,000	9,000	-	-	220,000	
TOTAL RURAL WASTEWATER FUNDING			**$ 65,000**	**$ 66,000**	**$ 180,000**	**$ 9,000**	**$ -**	**$ -**	**$ 320,000**	
Estimated Bond Issues					$ 220,000					

All Systems Summary

	Summary			Projected Future Expenses by Year						
Shared Projects - All Rate Centers	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY22**	**FY23**	**FY24**	**FY25**	**FY26**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Asset management/Security/IT Master Plan	$ 4,695,000	$ 415,000	$ 2,985,000	$ 1,236,000	$ 735,000	$ 154,000	$ -	$ -	$ 5,110,000	$ 573,080
Total Projects Urban Water Systems	**$ 4,695,000**	**$ 415,000**	**$ 2,985,000**	**$ 1,236,000**	**$ 735,000**	**$ 154,000**	**$ -**	**$ -**	**$ 5,110,000**	**$ 573,080**
FUNDING SOURCES										
Work in Progress			$ 573,080						$ 573,080	
Possible Future Reserves			$ -	$ -					$ -	
New Debt Needed			$ 2,411,920	$ 1,236,000	$ 735,000	$ 154,000	$ -	$ -	$ 4,536,920	
									-	
TOTAL URBAN WATER FUNDING			**$ 2,985,000**	**$ 1,236,000**	**$ 735,000**	**$ 154,000**	**$ -**	**$ -**	**$ 5,110,000**	
Estimated Bond Issues					**$4,536,920**					

Summary Information

	2022 - 2026 *Draft Proposed* CIP	2021 - 2025 Adopted CIP	Change $
Project Cost			
Urban Water Projects	$ 95,873,000	$ 74,977,900	$ 20,895,100
Urban Wastewater Projects	39,725,330	22,520,000	17,205,330
Non-Urban Projects & Shared	34,055,000	35,011,000	(956,000)
Total Project Cost Estimates	**$ 169,653,330**	**$ 132,508,900**	**$ 37,144,430**
Funding in place			
Work-in-Progress (paid for)	$ 6,913,000	$ 5,402,500	1,510,500
Debt Proceeds Available	19,255,100	29,488,800	(10,233,700)
Cash-Capital Available	4,688,000	7,686,300	(2,998,300)
	$ 30,856,100	$ 42,577,600	$ (11,721,500)
Financing Needs			
Possible Future Reserves	$ 9,700,000	10,630,000	(930,000)
New Debt	129,097,230	79,301,300	49,795,930
	$ 138,797,230	$ 89,931,300	$ 48,865,930
Total Funding	**$ 169,653,330**	**$ 132,508,900**	**$ 37,144,430**
Percentage of funding in place	18.2%	32.1%	
Ratio of debt to expense	91.5%	86.2%	
Ratio of cash to expense	8.5%	13.8%	

Summary Information

Detail by Major Systems	Total *Draft* CIP	Urban Water Projects	Urban Wastewater Projects	Shared Projects	Water Non-Urban Projects	Wastewater Non-Urban Projects
Project Cost						
Urban Water Projects	$ 95,873,000	$ 95,873,000	$ -		$ -	$ -
Urban Wastewater Projects	39,725,330	-	39,725,330		-	-
Non-Urban Projects & Shared	34,055,000	-	-	5,110,000	28,625,000	320,000
Total Project Cost Estimates	**$ 169,653,330**	**$ 95,873,000**	**$ 39,725,330**	**$ 5,110,000**	**$ 28,625,000**	**$ 320,000**
Funding in place						
Work-in-Progress (paid for)	$ 6,913,000	$ 4,736,800	$ 1,180,000	$ 573,100	$ 423,100	$ -
Debt Proceeds available	19,255,100	14,451,300	4,500,000	-	303,800	-
Cash-Capital Available	4,688,000	553,000	4,135,000	-	-	-
Subtotal	$ 30,856,100	$ 19,741,100	$ 9,815,000	$ 573,100	$ 726,900	$ -
Financing Needs						
Possible Future Reserves	$ 9,700,000	5,500,000	3,500,000	-	600,000	100,000
New Debt	129,097,230	70,631,900	26,410,330	4,536,900	27,298,100	220,000
Subtotal	$ 138,797,230	$ 76,131,900	$ 29,910,330	$ 4,536,900	$ 27,898,100	$ 320,000
Total Funding	**$ 169,653,330**	**$ 95,873,000**	**$ 39,725,330**	**$ 5,110,000**	**$ 28,625,000**	**$ 320,000**
Percentage of funding in place	18.2%	20.6%	24.7%	11.2%	2.5%	0.0%
Ratio of debt to expense	91.5%	88.7%	77.8%	88.8%	96.4%	68.8%
Ratio of cash to expense	8.5%	6.3%	19.2%	0.0%	2.1%	31.3%

Summary Information

	Urban Water	Urban Wastewater	Non-Urban	Shared	Total
Current Adopted CIP 2021 - 2025	$ 74,977,900	$ 22,520,000	$ 30,316,000	$ 4,695,000	$ 132,508,900
Changes:					
Completed or Closed Projects	(2,285,914)	(2,691,632)	(8,870,000)	-	(13,847,546)
Roll over from FY 2026 (roughly)	13,961,000	13,513,632	6,932,000	-	34,406,632
Adjustments on existing Projects	7,030,014	(111,670)	107,000	415,000	7,440,344
New Projects	2,180,000	6,495,000	450,000	-	9,125,000
New costs	9,210,014	6,383,330	557,000	415,000	16,565,344
Total Changes	**20,885,100**	**17,205,330**	**(1,381,000)**	**415,000**	**37,124,430**
Total Draft CIP 2022 - 2026	$ 95,863,000	$ 39,725,330	$ 28,935,000	$ 5,110,000	$ 169,633,330
Years 6 - 10 (FY 2027-31)					$ 100,359,000
Years 11 - 15 (FY2032-36)					$ 52,867,000
			TOTAL 15 YEAR CIP		**$ 322,859,330**

Summary Information

		FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	
City of Charlottesville Charges														
Urban Water														
Operating Rate	Per 1000 gal.	2.095	2.095	2.388	2.579	2.734	2.898	3.072	3.256	3.452	3.659	3.878	4.111	
	% Change		0.0%	14.0%	8.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
Debt Service Charge	Per month	$ 193,580	$ 193,580	244,673	273,140	301,420	329,791	350,582						
			0.0%	26.4%	11.6%	10.4%	9.4%	6.3%						
Revenue Requirements:				26.4%	11.6%	10.4%	9.4%	6.3%						
Operating Rate Revenue	Annual	$ 3,630,500	$ 3,630,500	$ 4,138,770	$ 4,469,872	$ 4,738,064	$ 5,022,348	$ 5,323,689	$ 5,643,110	$ 5,981,697	$ 6,340,598	$ 6,721,034	$ 7,124,296	
Debt Service Revenues	Annual	2,323,000	2,323,000	2,936,077	3,277,679	3,617,044	3,957,486	4,206,980	-	-	-	-	-	
Total		**$ 5,953,500**	**$ 5,953,500**	**$ 7,074,847**	**$ 7,747,551**	**$ 8,355,108**	**$ 8,979,834**	**$ 9,530,669**	**$ 5,643,110**	**$ 5,981,697**	**$ 6,340,598**	**$ 6,721,034**	**$ 7,124,296**	
	$ Change		**$ -**	**$ 1,121,347**	**$ 672,704**	**$ 607,557**	**$ 624,726**	**$ 550,835**	**$ 319,421**	**$ 338,587**	**$ 358,902**	**$ 380,436**	**$ 403,262**	
	% Change		**0.0%**	**18.8%**	**9.5%**	**7.8%**	**7.5%**	**6.1%**						
Urban Wastewater														
Operating Rate	Per 1000 gal.	2.369	2.369	2.559	2.738	2.902	3.076	3.261	3.456	3.664	3.883	4.116	4.363	
	% Change		0.0%	8.0%	7.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
Debt Service Charge	Per month	$ 407,588	$ 407,588	410,258	422,378	432,778	443,208	455,518						
			0.0%	0.7%	3.0%	2.5%	2.4%	2.8%						
Revenue Requirements:														
Operating Rate Revenue	Annual	$ 4,016,800	$ 3,936,500	$ 4,251,420	$ 4,549,019	$ 4,821,961	$ 5,111,278	$ 5,417,955	$ 5,743,032	$ 6,087,614	$ 6,452,871	$ 6,840,043	$ 7,250,446	
Debt Service Revenues	Annual	4,891,100	4,891,100	4,923,095	5,068,535	5,193,335	5,318,495	5,466,215	-	-	-	-	-	
Total		**$ 8,907,900**	**$ 8,827,600**	**$ 9,174,515**	**$ 9,617,554**	**$ 10,015,296**	**$ 10,429,773**	**$ 10,884,170**	**$ 5,743,032**	**$ 6,087,614**	**$ 6,452,871**	**$ 6,840,043**	**$ 7,250,446**	
	$ Change		**$ (80,300)**	**$ 346,915**	**$ 443,039**	**$ 397,741**	**$ 414,478**	**$ 454,397**	**$ 325,077**	**$ 344,582**	**$ 365,257**	**$ 387,172**	**$ 410,403**	
	% Change		**-0.9%**	**3.9%**	**4.8%**	**4.1%**	**4.1%**	**4.4%**						
Total all Rate Centers														
Operating Rate Revenue		**$ 7,647,300**	**$ 7,567,000**	**$ 8,390,190**	**$ 9,018,891**	**$ 9,560,024**	**$ 10,133,626**	**$ 10,741,643**	**$11,386,142**	**$ 12,069,311**	**$12,793,469**	**$13,561,077**	**$ 14,374,742**	
Debt Service Revenues		**7,214,100**	**7,214,100**	**7,859,172**	**8,346,214**	**8,810,379**	**9,275,981**	**9,673,195**	**9,673,195**	**9,673,195**	**9,673,195**	**9,673,195**	**9,673,195**	
Total City All Revenues		**$14,861,400**	**$ 14,781,100**	**$ 16,249,362**	**$ 17,365,105**	**$ 18,370,403**	**$ 19,409,607**	**$ 20,414,838**	**$21,059,337**	**$ 21,742,506**	**$22,466,664**	**$23,234,272**	**$ 24,047,937**	
	$ Change		**$ (80,300)**	**$ 1,468,262**	**$ 1,115,743**	**$ 1,005,298**	**$ 1,039,203**	**$ 1,005,232**	**$ 644,499**	**$ 683,169**	**$ 724,159**	**$ 767,608**	**$ 813,665**	
	% Change		**-0.5%**	**9.9%**	**6.9%**	**5.8%**	**5.7%**	**5.2%**						
									368,221					
10-Year CIP Debt Service					**153,848**	**412,733**	**742,451**	**1,125,212**	**1,493,433**	**1,782,596**	**2,053,726**	**1,881,245**	**1,203,561**	
Total Estimated Charge		**$14,861,400**	**$ 14,781,100**	**$ 16,249,362**	**$ 17,518,953**	**$ 18,783,136**	**$ 20,152,058**	**$ 21,540,050**	**$22,552,770**	**$ 23,525,102**	**$24,520,390**	**$25,115,518**	**$ 25,251,498**	**$ 10,470,398**
	% Change		**-0.5%**	**9.9%**	**7.8%**	**7.2%**	**7.3%**	**6.9%**	**4.7%**	**4.3%**	**4.2%**	**2.4%**	**0.5%**	**70.8%**

Summary Information

		FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	
ACSA Charges														
Urban Water														
Operating Rate	Per 1000 gal.	2.095	2.095	2.388	2.579	2.734	2.898	3.072	3.256	3.452	3.659	3.878	4.111	
	% Change		0.0%	14.0%	8.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
Debt Service Charge	Per month	$ 321,303	$ 321,303	387,384	422,232	457,563	494,446	520,678						
			0.0%	20.6%	9.0%	8.4%	8.1%	5.3%						
Revenue Requirements:														
Operating Rate Revenue	Annual	$ 3,488,100	$ 3,488,100	$ 3,976,434	$ 4,294,549	$ 4,552,222	$ 4,825,355	$ 5,114,876	$ 5,421,769	$ 5,747,075	$ 6,091,899	$ 6,457,413	$ 6,844,858	
Debt Service Revenues	Annual	3,855,600	3,855,600	4,648,607	5,066,780	5,490,759	5,933,349	6,248,135	-	-	-	-	-	
Total		**$ 7,343,700**	**$ 7,343,700**	**$ 8,625,041**	**$ 9,361,329**	**$ 10,042,981**	**$ 10,758,704**	**$ 11,363,011**	**$ 5,421,769**	**$ 5,747,075**	**$ 6,091,899**	**$ 6,457,413**	**$ 6,844,858**	
	$ Change		**$ -**	**$ 1,281,341**	**$ 736,288**	**$ 681,652**	**$ 715,723**	**$ 604,307**	**$ 306,893**	**$ 325,306**	**$ 344,824**	**$ 365,514**	**$ 387,445**	
	% Change		**0.0%**	**17.4%**	**8.5%**	**7.3%**	**7.1%**	**5.6%**						
Urban Wastewater														
Operating Rate	Per 1000 gal.	2.369	2.369	2.559	2.738	2.902	3.076	3.261	3.456	3.664	3.883	4.116	4.363	
	% Change		0.0%	8.0%	7.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
Debt Service Charge	Per month	$ 278,174	$ 278,174	299,146	313,266	327,386	341,506	355,206						
			0.0%	7.5%	4.7%	4.5%	4.3%	4.0%						
Revenue Requirements:														
Operating Rate Revenue	Annual	$ 4,016,800	$ 4,097,100	$ 4,424,868	$ 4,734,609	$ 5,018,685	$ 5,319,806	$ 5,638,995	$ 5,977,334	$ 6,335,975	$ 6,716,133	$ 7,119,101	$ 7,546,247	
Debt Service Revenues	Annual	3,338,100	3,338,100	3,589,749	3,759,189	3,928,629	4,098,069	4,262,469	-	-	-	-	-	
Total		$ 7,354,900	$ 7,435,200	$ 8,014,617	$ 8,493,798	$ 8,947,314	$ 9,417,875	$ 9,901,464	$ 5,977,334	$ 6,335,975	$ 6,716,133	$ 7,119,101	$ 7,546,247	
	$ Change		**$ 80,300**	**$ 579,417**	**$ 479,181**	**$ 453,517**	**$ 470,561**	**$ 483,588**	**$ 338,340**	**$ 358,640**	**$ 380,158**	**$ 402,968**	**$ 427,146**	
	% Change		**1.1%**	**7.8%**	**6.0%**	**5.3%**	**5.3%**	**5.1%**						
Non-Urban Rate Centers														
Operating Rate Revenue	Annual	$ 2,229,100	$ 2,229,100	2,407,428	2,551,874	2,704,986	2,867,285	3,039,322	3,221,682	3,414,983	3,619,882	3,837,074	4,067,299	
Debt Service Revenues	Annual	1,453,300	1,453,300	1,994,324	2,338,165	2,682,006	3,025,847	3,369,688	-					
Total		**$ 3,682,400**	**$ 3,682,400**	**$ 4,401,752**	**$ 4,890,039**	**$ 5,386,992**	**$ 5,893,132**	**$ 6,409,010**	**$ 3,221,682**	**$ 3,414,983**	**$ 3,619,882**	**$ 3,837,074**	**$ 4,067,299**	
				$ 719,352	**$ 488,287**	**$ 496,953**	**$ 506,140**	**$ 515,878**	**$ 182,359**	**$ 193,301**	**$ 204,899**	**$ 217,193**	**$ 230,224**	
				19.5%	**11.1%**	**10.2%**	**9.4%**	**8.8%**						
Total all Rate Centers														
Operating Rate Revenue		**$ 9,734,000**	**$ 9,814,300**	**$ 10,808,730**	**$ 11,581,031**	**$ 12,275,893**	**$ 13,012,447**	**$ 13,793,193**	**$14,620,785**	**$ 15,498,032**	**$16,427,914**	**$17,413,589**	**$ 18,458,404**	
Debt Service Revenues		**8,647,000**	**8,647,000**	**10,232,680**	**11,164,134**	**12,101,394**	**13,057,265**	**13,880,292**	**13,880,292**	**13,880,292**	**13,880,292**	**13,880,292**	**13,880,292**	
Total ACSA All Revenues		**$18,381,000**	**$ 18,461,300**	**$ 21,041,410**	**$ 22,745,165**	**$ 24,377,287**	**$ 26,069,712**	**$ 27,673,485**	**$28,501,077**	**$ 29,378,324**	**$30,308,206**	**$31,293,881**	**$ 32,338,696**	
	$ Change		**$ 80,300**	**$ 2,580,110**	**$ 1,703,755**	**$ 1,632,122**	**$ 1,692,425**	**$ 1,603,774**	**$ 827,592**	**$ 877,247**	**$ 929,882**	**$ 985,675**	**$ 1,044,815**	
	% Change		**0.4%**	**14.0%**	**8.1%**	**7.2%**	**6.9%**	**6.2%**						
10-Year CIP Debt Service					**189,661**	**572,703**	**1,112,016**	**1,778,382**	**2,568,891**	**3,428,780**	**4,323,492**	**4,588,219**	**4,471,702**	
Total Estimated Charge		**$18,381,000**	**$ 18,461,300**	**$ 21,041,410**	**$ 22,934,826**	**$ 24,949,990**	**$ 27,181,728**	**$ 29,451,867**	**$31,069,968**	**$ 32,807,104**	**$34,631,698**	**$35,882,100**	**$ 36,810,398**	**$ 18,349,098**
	% Change		**0.4%**	**14.0%**	**9.0%**	**8.8%**	**8.9%**	**8.4%**	**5.5%**	**5.6%**	**5.6%**	**3.6%**	**2.6%**	**99.4%**

Summary Information

	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	
RWSA													
Operations Revenues													
Urban Water	$ 7,118,600	$ 7,118,600	$ 8,115,204	$ 8,764,420	$ 9,290,286	$ 9,847,703	$ 10,438,565	$11,064,879	$ 11,728,771	$12,432,498	$13,178,448	$ 13,969,154	
Urban Wastewater	8,033,600	8,033,600	8,676,288	9,283,628	9,840,646	10,431,085	11,056,950	11,720,367	12,423,589	13,169,004	13,959,144	14,796,693	
Other Rate Centers	2,229,100	2,229,100	2,407,428	2,551,874	2,704,986	2,867,285	3,039,322	3,221,682	3,414,983	3,619,882	3,837,074	4,067,299	
Total	$17,381,300	$ 17,381,300	$ 19,198,920	$ 20,599,922	$ 21,835,917	$ 23,146,073	$ 24,534,837	$26,006,927	$ 27,567,343	$29,221,383	$30,974,666	$ 32,833,146	
Change $		-	1,817,620	1,401,002	1,235,995	1,310,155	1,388,764	1,472,090	1,560,416	1,654,041	1,753,283	1,858,480	
Change %		0.0%	10.5%	7.3%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	
Debt Service Charge Revenues													
Urban Water	6,178,600	6,178,600	7,584,684	8,344,459	9,107,803	9,890,835	10,455,115						
Urban Wastewater	8,229,200	8,229,200	8,512,844	8,827,724	9,121,964	9,416,564	9,728,684						
Other Rate Centers	1,453,300	1,453,300	1,994,324	2,338,165	2,682,006	3,025,847	3,369,688						
	$15,861,100	$ 15,861,100	$ 18,091,852	$ 19,510,348	$ 20,911,773	$ 22,333,246	$ 23,553,487	$23,553,487	$ 23,553,487	$23,553,487	$23,553,487	$ 23,553,487	
Change $		-	2,230,752	1,418,496	1,401,425	1,421,473	1,220,241						
Change %		0.0%	14.1%	7.8%	7.2%	6.8%	5.5%						
Total RWSA Customer Revenues	**$33,242,400**	**$ 33,242,400**	**$ 37,290,772**	**$ 40,110,270**	**$ 42,747,690**	**$ 45,479,319**	**$ 48,088,324**	**$49,560,414**	**$ 51,120,830**	**$52,774,870**	**$54,528,153**	**$ 56,386,633**	
Change $		**$ -**	**$ 4,048,372**	**$ 2,819,498**	**$ 2,637,420**	**$ 2,731,628**	**$ 2,609,005**	**$ 1,472,090**	**$ 1,560,416**	**$ 1,654,041**	**$ 1,753,283**	**$ 1,858,480**	
Change %		**0.0%**	**12.2%**	**7.6%**	**6.6%**	**6.4%**	**5.7%**	**3.1%**	**3.1%**	**3.2%**	**3.3%**	**3.4%**	
Additional for 10-Year CIP				**343,509**	**985,436**	**1,854,467**	**2,903,594**	**4,062,324**	**5,211,376**	**6,377,217**	**6,469,464**	**5,675,263**	
Total Estimated Charge	**$33,242,400**	**$ 33,242,400**	**$ 37,290,772**	**$ 40,453,779**	**$ 43,733,126**	**$ 47,333,786**	**$ 50,991,918**	**$53,622,738**	**$ 56,332,206**	**$59,152,088**	**$60,997,617**	**$ 62,061,897**	**$ 28,819,497**
% Change		**0.0%**	**12.2%**	**8.5%**	**8.1%**	**8.2%**	**7.7%**	**5.2%**	**5.1%**	**5.0%**	**3.1%**	**1.7%**	**86.7%**
Audit check			*$ 37,290,772*	*$ 40,453,779*	*$ 43,733,126*	*$ 47,333,786*	*$ 50,991,918*	*$ 53,622,738*	*$ 56,332,206*	*$ 59,152,088*	*$ 60,997,617*	*$ 62,061,897*	
			4,048,372	*3,163,007*	*3,279,347*	*3,600,659*	*3,658,132*	*2,630,820*	*2,709,468*	*2,819,882*	*1,845,530*	*1,064,279*	
			12.2%	*8.5%*	*8.1%*	*8.2%*	*7.7%*	*5.2%*	*5.1%*	*5.0%*	*3.1%*	*1.7%*	