RIVANNA
WATER & SEWER AUTHORITY

Board of Directors Meeting

May 23, 2023

2:15pm

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

BOARD OF DIRECTORS

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

DATE: **MAY 23, 2023**

LOCATION: **Conference Room, Administration Building**
695 Moores Creek Lane, Charlottesville, VA

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

AGENDA

1. ***CALL TO ORDER***

2. ***AGENDA APPROVAL***

3. ***MINUTES OF PREVIOUS BOARD MEETING ON APRIL 25, 2023***

4. ***RECOGNITION***

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

6. ***ITEMS FROM THE PUBLIC***
   Matters Not Listed for Public Hearing on the Agenda

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

8. ***CONSENT AGENDA***

   a. *Staff Report on Finance*

   b. *Staff Report on Operations*

   c. *Staff Report on CIP Projects*

   d. *Staff Report on Wholesale Metering*

   e. *Staff Report on Drought Monitoring*

   f. *Approval of Fiscal Year 2023-2024 Pay Scale Adjustment, Restructuring and Regrading*

   g. *Approval of Engineering Services - Beaver Creek Dam Design Services – Schnabel Engineering*

h. *Approval to Increase Construction Contingency – MCAWRRF 5 kV Electrical Infrastructure Improvements – Pyramid Electrical Contractors, LLC*

i. *Approval of Engineering Services – South Fork Rivanna Reservoir to Ragged Mountain Reservoir Pipeline, Intake & Facilities Project – Pipeline Design, Bidding, and Construction Administration– Kimley-Horn*

j. *Approval of Engineering Services – South Fork Rivanna Reservoir to Ragged Mountain Reservoir Pipeline, Intake & Facilities Project – South Fork Rivanna Reservoir Intake and Pump Station Preliminary Engineering Report– Kimley-Horn*

k. *Approval of Engineering Services – Crozet Pump Stations Rebuild – Design, Bidding and Construction Administration – Wiley|Wilson*

l. *Approval of Engineering Services – Emmet Streetscape Water Line Betterment Design Services – Whitman, Requardt & Associates, LLP*

9. OTHER BUSINESS

a. *Presentation, Public Hearing, and Vote to Consider Approval of the Resolution to Adopt the FY 2023-2024 Rate Schedule, FY 2024-2028 Capital Improvement Plan and FY 2023 – 2024 Budget; Bill Mawyer, Executive Director*

(Joint Session with the RSWA)

b. *Presentation: Asset Management Program Update*
Katie McIlwee, Asset Management Coordinator

c. *Presentation: Leadership Development Program*
Betsy Nemeth, Human Resources Manager

d. *Presentation: Administration Building Renovation and Addition*
Santino Granato, P.E., Senior Civil Engineer
Steve Davis, AIA, LEED Fellow – Principal, Thrive Architecture

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

11. CLOSED MEETING

12. ADJOURNMENT

GUIDELINES FOR PUBLIC COMMENT AT RIVANNA BOARD OF DIRECTORS MEETINGS

If you wish to address the Rivanna Board of Directors during the time allocated for public comment, please raise your hand or stand when the Chairman asks for public comments.

Members of the public requesting to speak will be recognized during the specific time designated on the meeting agenda for "Items From The Public, Matters Not Listed for Public Hearing on the Agenda." 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.

During public hearings, the Board will attempt to hear all members of the public who wish to speak on a subject, but it must be recognized that on rare occasion comments may have to be limited because of time constraints. If a previous speaker has articulated your position, it is recommended that you not fully repeat the comments and instead advise the Board of your agreement. The time allocated for speakers at public hearings are the same as for regular Board meetings, although the Board can allow exceptions at its discretion.

Speakers should keep in mind that Board of Directors meetings are formal proceedings and all comments are recorded on tape. For that reason, speakers are requested to speak from the podium and wait to be recognized by the Chairman. In order to give all speakers proper respect and courtesy, the Board requests that speakers follow the following guidelines:

- Wait at your seat until recognized by the Chairman.
- Come forward and state your full name and address and your organizational affiliation if speaking 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;
- Summarize your key points and provide the Board with a written statement, or supporting rationale, when possible;
- If you represent a group, you may ask others at the meeting to be recognized by raising their hand or standing;
- Be respectful and civil in all interactions at Board meetings;
- The Board may ask speakers questions or seek clarification, but recognize that Board meetings are not a forum for public debate; Board Members will not recognize comments made from the audience and ask that members of the audience not interrupt the comments of speakers and remain silent while others are speaking so that other members in the audience can hear the speaker;
- 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 citizens 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/RSWA Administration office upon request or can be viewed on the Rivanna website.

Rev. September 7, 2022

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RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
April 25, 2023

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, April 25, 2023 at 2:15 p.m. at the Conference Room of the Administration Building at 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Mike Gaffney, Michael Rogers, Brian Pinkston, Ann Mallek, Lauren Hildebrand, Gary O'Connell, and Jeff Richardson.

Board Members Absent: None

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Jennifer Whitaker, Deborah Anama, Victoria Fort, David Tungate, Scott Schiller, Andrea Bowles

Attorney(s) Present: Carrie Stanton

1. CALL TO ORDER
Mr. Gaffney convened the April 25, 2023, regular meeting of the Board of Directors of the Rivanna Water and Sewer Authority at 2:15 p.m.

2. AGENDA APPROVAL
There were no comments on, changes to, or questions regarding the agenda.

Mr. Rogers moved that the Board adopt the agenda as presented. The motion was seconded by Ms. Mallek and passed unanimously (7-0).

3. MINUTES OF PREVIOUS BOARD MEETING
a. Minutes of Regular Board Meeting on March 28, 2023 (Virtual via Zoom)
There were no comments on, changes to, or questions regarding the minutes of the meeting held on March 28, 2023.

Ms. Mallek moved that the Board approve the minutes of the March 28, 2023 meeting. The motion was seconded by Mr. O'Connell and passed unanimously (7-0).

4. RECOGNITIONS

There were none.

5. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer recognized four staff members who continued to improve their credentials and the credibility of the Authority. He stated that Alison Henry, who received her Class 1 Water Operator License, was now a dual licensee, meaning that she also had a Class 1 license for wastewater. He stated that Ceara Schwake Lyon had recently received her Class 1 Water

Operator License. He stated that Tyrone Hughes and David Jeffries were in the Maintenance Department, and through the Virginia Apprentice Program and working through Valley Vo-Tech, Mr. Hughes received his HVAC Refrigeration License Level 4, the highest license achievable; Mr. Jeffries received his Backflow Prevention Device Worker Certification.

Mr. Mawyer reported that under the strategic plan priority of planning and infrastructure, the Observatory Water Treatment Plant began producing water yesterday in a small amount and would be increasing in the next few days to 6 million gallons per day, with an expected capacity reached in the summertime of 10 million gallons per day. He stated that Mr. Scott Schiller had been the lead on the project, and Ms. Whitaker and staff had substantially completed the work to this point, however there were a few months of work remaining. He stated that a grand opening for the project would be held later in the year as soon as the plant was ready.

Mr. Pinkston asked if they were tracking the closure at Alderman Road and McCormick Road happening this summer.

Mr. Mawyer stated that yes, they had been invited to a meeting about that project. He reported that they continued to work with UVA and the UVA Foundation on two of the three major pipeline projects, one from Rivanna to Ragged Mountain Reservoir and one from Ragged Mountain Reservoir to the Observatory Treatment Plant, both of which were 36-inch major water pipes of about 13 miles in length. He stated that the details were currently being worked out with the UVA Foundation about the pump station property including architectural approvals and other items.

Mr. Mawyer noted that for those two pipeline projects, there were 19 easements required on 31 parcels, which included 14 private property owners and five public property owners, which were UVA, the UVA Foundation, the Department of Forestry, Albemarle County Public Schools, and the City of Charlottesville. He stated that the efforts to acquire these easements had been successful, and they had acquired all of the private easements at this point as well.

Mr. Mawyer stated that the third pipeline project was the Central Water Pipeline, going from the Scott Stadium area through the City along Cherry Avenue to East High Street and Free Bridge. He stated that the 30% design plans had been completed, as well as a team review with the staff of the City, the Service Authority, and the RWSA. He stated that they were now moving toward the 60% design completion goal, with an advertisement for construction anticipated later in the year. In approximately one year they expected to begin construction on the project. He stated that there would be an extensive community outreach program before the contractor began work.

Mr. Mawyer stated that the Beaver Creek Dam modifications project included the ability to pass additional rainwater through the spillway that protected Beaver Creek Dam, which was a state reservoir dam requirement. He stated that the federal Natural Resources Conservation Services approved a $1M grant to pay for the design services and project administration components of the project, and along with other grant funding previously received would make a total of $1.7M toward this project. He stated that there would be a new spillway going through the middle of the dam, with a new bridge to maintain vehicle traffic on Brownsville Gap Turnpike.

Mr. Mawyer stated that the project was funded through the ACSA as well as this grant. He stated that associated with that, they had to ask the Albemarle County Board of Supervisors and the Thomas Jefferson Soil and Water Conservation District (TJSWD) to approve a Supplemental Watershed Plan Agreement, which staff also requested the RWSA Board of Directors to approve today. He stated that this agreement transferred the sponsors of the project; when the original dam was built, the sponsors were Albemarle County and the TJSWCD, but that sponsorship was to be transferred to the RWSA. The agreement also set forth the funding terms and conditions of that project.

Mr. Mawyer stated that Mr. David Tungate gave a presentation at the Virginia section of the American Waterworks Association at their conference in Richmond. He stated that he discussed the Granular Activated Carbon system and the history and successes they had had with that filtering system, not only from removing disinfection byproducts but also PFAS from water sources. He clarified that Rivanna water had recently been tested and did not have any detection of any PFAS compounds as of February 2023. He stated that the group also participated with the Rivanna Conservation Alliance and an education program about stream water quality, which was attended by Henley and Lakeside Middle School students.

Mr. Mawyer stated that the drought monitoring report, Item 8E in the packet, stated that in 2021, they were about 8 inches low on rain, and in 2022, they were 2 inches high. He stated that through March of 2023, it was reported that they were 4 inches low. He stated that today, the state announced a drought watch for Virginia, and the map displaying the drought condition assessment was on the slide. He stated that the state reported that they were five inches low from the beginning of the year, with a net of 11 inches low over the past 28 months. He stated that all reservoirs were at maximum capacity, but they continued to monitor the situation.

Mr. O'Connell asked if reservoir levels declined as they overflowed.

Mr. Mawyer stated that they all were full and spilling right now.

Mr. Pinkston stated that in a number of reports, it had been the case that they were working with the UVA Foundation to gain easements for the large waterline projects. He asked if progress was being made.

Mr. Mawyer stated that they had met with Mr. Tim Rose, head of the UVA Foundation, and had one or two additional meetings with his staff. He stated that acquisition of these easements was moving forward.

Mr. O'Connell asked if there was a joint commitment to be done by June.

Mr. Mawyer stated yes. He stated that the remaining issue was buying land for the pump station for both the Rivanna and Ragged Mountain pipeline projects, as the UVA Foundation had remaining architectural details that they wanted to address in the easement and purchase documents.

Mr. Pinkston clarified that the process was moving forward.

Mr. Mawyer stated yes. He stated that they would continue to update the Board on the matter.

Ms. Mallek asked if they would be signing in June.

Mr. Mawyer stated that was what was requested.

Ms. Mallek asked if the UVA Board of Visitors had to approve the easements.

Mr. Mawyer stated that they did not have to for the Foundation, which had a Board of Directors.

6. ITEMS FROM THE PUBLIC

Mr. Gaffney opened the meeting to the public. He asked speakers to identify their name and where they live, and to keep in mind the three-minute time limit.

Mr. James Bennett stated that he lived at 6430 Sugar Hollow Road in Albemarle County and was speaking on behalf of the Mormon Scenic River Advisory Board. He stated that the Virginia Department of Conservation and Recreation Board was formed in 2022 of volunteer individuals who were approved to serve based on their interest and health of the scenic Moormans River. He thanked the Board for the opportunity to speak to them today as they had last month. He stated that they were concerned that current and proposed water flows in the Moormans River were not aligned with modern biological concepts of the dependence on oxygen and internal temperature of normal metabolism in aquatic animals.

Mr. Bennett stated that all life forms, both aquatic and terrestrial, or land-based, required water to survive, and lack of water lead to dehydration, and ultimately impaired cell function and death. He stated that dehydration develops over days to weeks of water deprivation, and often overlooked was that all life forms composed of dividing cells, but not all bacteria, also required oxygen. He stated that aquatic and terrestrial animals, including humans, ingested oxygen from the air they breathed, while on the other hand, aquatic animals such as diatoms, benthic invertebrates, many other invertebrates, and fish, required oxygen from the water they lived in and depended on a continuous supply of oxygen in their water environments.

Mr. Bennett stated that within seconds of loss of oxygen access, all animal cells shift to metabolism and energy creation that occurred in oxygen absence, or anaerobic metabolism, which worked for 2 to 5 minutes at most, and not days like dehydration due to loss of water. He stated that if oxygen access was not restored, irreversible buildup of lactic acid occurred, and cells died in spite of certain genetic programs activated for survival in low-oxygen or no-oxygen environments, thus, proper river ecology depended on supplying water to prevent dehydration in both aquatic and terrestrial animals, and oxygen for the aquatic animals.

Mr. Bennett stated that ironically, if the water temperature increases, the internal temperatures of aquatic animals also increases as the life forms did not maintain constant internal temperatures as did humans and other mammals, and as their internal temperatures increased, aquatic animals experienced increases in metabolism that required more oxygen at the same time the increased water temperatures were decreasing oxygen solubility. He stated that for these reasons, flows in

biodiversity in complex river systems like the Moormans River must be both continuous and as cold as possible. He stated that it was asked of the Board to consider these biological forces as they proposed flow regimes for the Moormans River.

Ms. Dede Smith stated that she lived at 2652 Jefferson Park Circle in the City of Charlottesville, which made her an urban ratepayer. She stated that she was familiar with the 2008 DEQ permit as it related to releasing natural flow into the Moormans River but was confused by the proposed changes. She stated that when she read that if the reservoir were not spilling, operators would open the release valve and close the valve when spilling resumed. She stated that she immediately was concerned that it would be left open and unmeasured for what sometimes could be a month at a time, typically in a dry season, and there were reports that RWSA typically had to submit to DEQ of very detailed information on natural flow from the gages, the reservoir levels, and how much was released.

Ms. Smith stated that she was concerned that they knew how much they would be releasing and needed to tell DEQ that it was not about natural flow, which for other biological reasons that they had in and of themselves, and that they were not depleting the urban drought protection during a period when it was most vulnerable, when it would be spilling. She stated that she also was confused about how the gage was on the Moormans below the dam, and if they were releasing water above that was unmeasured, how they would know the natural flow if it also was reading what they were releasing.

Ms. Smith stated that she would listen to the explanation and hopefully would have those questions answered. She stated that the DEQ reports had information about the number of days the reservoir was not spilling. She stated that she was curious about whether the Moormans River Scenic Advisory Committee was talking about taking the dam down once the pipeline was discontinued, because then they would have fully normal flow.

Mr. Gaffney closed the items from the public.

7. RESPONSES TO PUBLIC COMMENT

Mr. Gaffney asked Mr. Mawyer if he had a response.

Mr. Mawyer stated that Mr. Bennett had talked about how much water they released into the river, and since they had a permit in 2008, they had followed the conditions set forth in the permit about how much they released. He stated that those conditions were set by The Nature Conservancy and other environmental groups in the community along with Virginia DEQ. He stated that they would be meeting with the Moormans River Scenic Advisory Committee on May 8 to help them understand what the permit requirements were. He stated that everyone wanted to be protective of the environment, but they also had a charge to ensure they were storing the water for the urban water users to have when needed. He stated that they were up for a DEQ permit renewal, for which new flow measurements procedures had been drafted, and were similar to what they had.

Mr. Mawyer stated that they had to release the quantity of water that came into the Sugar Hollow Reservoir in most cases, so they measured that with a gage below the dam, then used a

hydrologic equation to calculate how much water that was across the entire watershed. He stated that it was approved by DEQ and how they calculated the water that went in the reservoirs the day before, then were required to release the same amount of water the next day if the reservoir was not overflowing. He stated that if it was overflowing, the minimum amount was assumed to be satisfied by the overflow, and they did not have to release additionally.

Mr. Mawyer stated that the DEQ required them to make this adjustment twice per week to see if it was overflowing and how much water they needed to release. He stated that they had offered to the Moormans River group that they would analyze and make adjustments every day, so if the reservoir stopped overflowing, they would release more water. He stated that the previous process was to send out a crew to Sugar Hollow to open and close the valve, but it could now be done remotely through SCADA and camera to see the overflow of the dam.

Mr. O'Connell asked if that had been begun recently.

Mr. Mawyer stated yes.

Mr. O'Connell asked if this went beyond the permit requirements.

Mr. Mawyer stated yes.

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. Staff Report on Drought Monitoring

f. Approval of Preliminary Engineering Services – Beaver Creek Raw Water Pump Station and Intake – Hazen & Sawyer Engineers

g. Approval of Beaver Creek Dam No. 1 Supplemental Watershed Plan Agreement (Supplement No. 2)

Mr. Pinkston moved that the Board approve the Consent Agenda. The motion was seconded by Ms. Mallek and passed unanimously (7-0).

9. OTHER BUSINESS

a. Presentation and Vote to Consider Approval: Transfer of Scottsville Drinking Water Infrastructure to RWSA; Jennifer Whitaker, P.E., Director of Engineering and Maintenance

Ms. Whitaker stated that she would discuss how this water system operated and the

rearrangement proposed between the Albemarle County Service Authority (ACSA) and RWSA responsibility areas. She stated that for background, the Scottsville Water System served the Town of Scottsville and the neighborhoods in the immediate vicinity of the town. She stated that it was currently operated jointly by ACSA and Rivanna, with ownership of the system based on the original 1973 Four-Party Agreement and the supplemental documents of 1983, 1989, and 2015. She stated that this agreement stated that RWSA would operate the Totier Creek Reservoir, Scottsville Water Treatment Plant, some limited Piping, and a 0.25MG water tank.

Ms. Whitaker stated that additionally, the current agreement stated that the system transmission and distribution piping, as well as control valves, were operated by ACSA, and there was a second tank of 0.3MG at the Stoney Point neighborhood. She stated that the agreements and protocols are less clear concerning a pump station located on James River Road that was owned by the ACSA but operated daily by the operators at Rivanna. She stated that the pump station controlled the amount of water that moved through the treatment plant and in between the tanks, which set pressures, flows, and a variety of parameters. She stated that relatively recently, Mr. O'Connell had approached them about clarifying the operations and the operating responsibilities in order to provide efficiency in the Scottsville system.

Ms. Whitaker indicated on the screen was a current map of the system. She stated that there was Totier Creek Dam and pump station, a line running north which was the raw-water piping, then to the left was the Totier Creek Treatment Plant and pump station. She stated that there were two raw-water sources, a pump station that could withdraw from the creek, and one that could withdraw from the reservoir. She stated that then, water was treated at the plant, traveling northeast along James River Road and to the RWSA 0.25MG tank. She stated that at that point, there was a co-located pump station that pumped water to the rest of the system, heading north and east to the ACSA 0.3MG tank and all of the piping in between those two tanks was owned and operated currently by ACSA. She stated that there were three valves that controlled pressure zones within the system.

Ms. Whitaker stated that the objective of the proposed agreement was to transfer key assets from ACSA to RWSA to accomplish several things, including simplification of operations, and definition of responsibilities. She stated that this would allow for responsibilities similar to that of the urban system. She stated that in this case, RWSA would be responsible for raw-water storage, pumping, and treatment, and finished water pumping, transmission, and tanks. She stated that ACSA would be responsible for finished water distribution, fire flow, and customer service.

Ms. Whitaker stated that the next steps were the final review of transfer documents in April 2023, review and approval of ACSA Board of Directors in May 2023, filing and recording of transfer documents in June 2023, and staff transfer operation and maintenance responsibilities in July and August of 2023. She stated that staff requested approval from the Board of the transfer of Scottsville drinking water system from the ACSA to RWSA and to authorize the Executive Director to execute any required documents.

Mr. Pinkston asked if they anticipated significant maintenance costs to RWSA.

Ms. Whitaker stated that some of the maintenance was being done now, and there were some places with multiple agencies working in the same facility. She stated that they hoped the total cost of operation would come down.

Mr. O'Connell stated that there was an approved ACSA capital project to improve sections of the line that would eventually be transferred. He stated that this fits more logically with how they ran the urban system. He stated that there may be new customers and growth in Scottsville.

Ms. Mallek moved the Board to approve the transfer of Scottsville drinking water system from the Albemarle County Service Authority to the Rivanna Water and Sewer Authority and authorize the Executive Director to execute any required documents. Ms. Hildebrand seconded the motion, which passed unanimously (7-0).

b. Presentation: Urban Water System Permit Update including Releasees from the Sugar Hollow Reservoir; Andrea Bowles, Water Resources Manager

Ms. Andrea Bowles stated that she would be giving an update on the Urban Water System permit, including a description and discussion about releases from Sugar Hollow Reservoir specifically. She stated that the urban system included South Fork Rivanna Reservoir, Ragged Mountain Reservoir, and Sugar Hollow Reservoir, as well as the North Fork Rivanna River intake. She stated that those sources were permitted under a Virginia Water Protection Permit. She stated that the Crozet system was currently being evaluated for the same type of permit, and that Scottsville had an operating permit from VDH.

Ms. Bowles stated that focusing on the urban system, during the water supply planning process, their plan was to increase the capacity and reliability of the urban public drinking water supply by building a dam at Ragged Mountain Reservoir and building a new pipe from South Fork Rivanna Reservoir to Ragged Mountain Reservoir. She stated that once that was finished, the existing pipe from Sugar Hollow to Ragged Mountain Reservoir would be closed.

Ms. Bowles stated that the 2008 DEQ and USACE permits allowed for creation of a new dam downstream of what was the existing lower dam at Ragged Mountain and allowed for building of a pipeline between Ragged Mountain and South Fork Rivanna Reservoirs.

Mr. Pinkston asked for clarification about the new dam downstream of the existing dam at Ragged Mountain.

Ms. Bowles stated that there was a previously existing dam, and the new dam was downstream of that. She stated that they purposefully breached both dams and raised the level of the water. She stated that also included in the permits were the pipeline from Ragged Mountain Reservoir to Observatory Water Treatment Plant and two water pumping stations. She stated that the DEQ permit expired in February 2023, and the USACE permit expires in June 2023. She stated that Rivanna submitted a joint permit application in May 2021, and was granted an administrative continuance by DEQ in August 2022. She stated that they were coordinating with the Army Corps of Engineers and were expecting a 15-year permit extension from them.

Ms. Bowles stated that many modifications had been made to the permit since 2008. She stated that the bottom three that were not bolded on the presentation were separate and did not pertain to Sugar Hollow Reservoir or the Moormans River and did not change anything related to instream flows. She stated that a minor modification was made in December of 2020, which changed the gage that they used to estimate inflows to Sugar Hollow from the Mechums River gage to the Moormans River gage. She stated that a minor modification made in December 2022 modified the definition of "natural inflow" and stream gage used regarding the South Fork Rivanna Reservoir, to more accurately reflect inflows to the reservoir, and also added to the definition of "natural inflow" regarding Sugar Hollow Reservoir to more accurately represent inflows under low-flow conditions.

Ms. Bowles stated that the Sugar Hollow Reservoir was composed of 837 acres owned by the City of Charlottesville. She stated that its dam was built in 1920 as a source of water supply, and the current dam was built in 1947 and upgraded in 1999. She stated that the reservoir was bordered to the north and west by Shenandoah National Park, and private owners to the south. She discussed the history of instream releases from Sugar Hollow Reservoir beginning in 2004, when The Nature Conservancy contracted with HydroLogics to develop instream flow recommendations in the South Rivanna Watershed.

Ms. Bowles stated that the community-wide process included The Nature Conservancy, RWSA, Albemarle County, the City of Charlottesville, ACSA, state, federal, and local regulatory agencies, and other interested parties to develop the instream flow provisions that eventually ended up in the 2008 Urban Virginia Protection Permit. She stated that a VWPP was required for withdrawal of surface waters from waters of the United States. She stated that this process was recognized to be the first of its kind in Virginia and a model for other communities.

Ms. Bowles stated that prior to the construction and initial fill of the expanded Ragged Mountain Reservoir, RWSA voluntarily implemented a release of 400,000 GPD from Sugar Hollow Reservoir when the reservoir was not spilling. She stated that when the Ragged Mountain Reservoir completed its initial fill in 2015, instream flow provisions which mimic natural inflow were required in lieu of the 400,000 GPD release.

Ms. Bowles stated that the minimum instream flow requirements for Sugar Hollow were based on the definition of natural inflow to the Sugar Hollow Reservoir and the total usable storage in the Ragged Mountain Reservoir. She stated that the Moormans River gage was located approximately at the point at which the Moormans flowed into the South Rivanna River. The Mechums River was the location of the previous gage used. She stated that the watershed went all the way up to Sugar Hollow and the North Fork of the Moormans River. She stated that the North Fork of the Moormans River had a gage run by the USGS between 1952 and 1962 but had since been taken out for reasons unknown.

Mr. O'Connell asked if the permit was amended to put the new gage in to be more accurate.

Ms. Bowles stated no. The gage at the Moormans River already existed. She stated that back in 2016, they looked at the gages again and performed an inflow study with consultants who looked at the period of record and tried to find the best data. She stated that it was reported that if they

switched from the Mechums gage to the Moormans gage, it would be a better tool for estimating what was coming into Sugar Hollow. She stated that she could provide this information on the website. She stated that they had had questions from the Moormans River Scenic Advisory Committee about whether they should reinstate a gage above Sugar Hollow Reservoir, and that idea had been broached in 2016 and was not pursued because of the costs.

Ms. Mallek asked what a rough estimate of distance was between the dam at Sugar Hollow and where the Moormans gage was.

Ms. Bowles stated that it was several miles. She noted that the previous gage on the North Fork had a watershed of 11.4 square miles, and the entire watershed of Sugar Hollow was 18 square miles, so if there was a gage placed above Sugar Hollow and used as an estimate, they would also need to estimate the South Fork Moormans River flow as well.

Mr. Pinkston stated that he did not understand why the original gage was in the Mechums River.

Ms. Bowles stated that was the gage used in the original analysis by The Nature Conservancy. It was realized that it was a completely different environment and was the reason why the study was performed. She stated that the study was extensive, and the gage chosen had also been recommended by DEQ and the Virginia Division of Wildlife Resources, which was why they approved of the minor modification. She stated that there were currently three phases for instream flows in the permit, the first phase being what they had to release before the new Ragged Mountain was filled, which was the 400,000 gallons per day, which was built into the permit. She stated that in the current phase 2, they had to release 100% of inflow or 10 MGD, whichever was less, which was the same requirement made in 2004 with The Nature Conservancy.

Mr. Mawyer clarified that when the Sugar Hollow Reservoir was spilling, they assumed it to be at least 10 MGD.

Ms. Bowles stated that was part of the analysis.

Ms. Whitaker stated that if the reservoir was spilling, 100% of inflow was going over the spillway.

Ms. Bowles stated that on April 16, 2023, as an example, the dam was spilling at about 6:30 a.m. She stated that around 12:40 p.m., it had stopped, and by 2 p.m., it was fully spilling and remained spilling through the evening. She stated that the face of the dam could be dry during the day, but it did not mean that they were required to turn the release on. She stated that if Sugar Hollow spilled at all during the day, the minimum release requirements for the permit had been met.

Mr. Gaffney asked if it was possible that the bladder heated up, stopping the water from spilling until the water went into that level.

Ms. Bowles stated yes. She stated that there were engineering dynamics about how the bladder

inflated that made it fluctuate. She stated that nothing had changed with the operation of the bladder system since the new bladder was installed.

Mr. O'Connell stated that the stilling basin that released into the stream would stay full of water even when it was not coming over the dam.

Ms. Bowles stated yes. She stated that there was a time of day when water was not going down the stilling basin to the river, but there were other times of day when it was.

Mr. O'Connell asked if the stilling basin was the original dam from the 1920s.

Ms. Bowles stated yes, and there is currently a bladder on top of the dam now where previously there were gate structures.

Ms. Mallek stated that there used to be an amount of 400,000 gallons continuously distributed into the river and not done only when there was overflow. She stated that while she did not know the exact mechanisms, they could see that there were no living organisms in those pools that were allowed to dry out completely for hours at a time. She stated that the environment was changing, even from five years ago, and to think that it was acceptable five years ago was concerning.

Ms. Bowles stated that 400,000 gallons as a constant flow was not seen as the best option for the river according to The Nature Conservancy and DEQ.

Ms. Mallek asked if that was publicly discussed and when that change happened.

Ms. Bowles stated that occurred when the permit was instituted in 2008 and had not changed since then.

Mr. Mawyer stated that now that they could see the dam's face and open the valve remotely, they were going to release more water because it could be addressed every day rather than twice per week.

Ms. Bowles stated that the release requirements previously required operators to go to the dam and open the valve themselves, and it was stated in the permit that they had to check it twice per week. She stated that they had proposed that when the reservoir stopped spilling, if the water department saw that it was dry at about 6:00 a.m., they would release the amount of water that matched the inflow and would stay open until it overflowed again. She stated that Ms. Dede Smith was correct in that they were not suggesting it remain on consistently but would remain on and adjusted until it began flowing again.

Ms. Mallek asked if there was an answer as to why, if one were on the North Fork of the Moormans River and saw that it was 4 or 5 inches deep and 6 feet wide, yet below the dam where they should have more water because of the inflow from the South Fork of the Moormans River, they would see that it was 12 inches wide and not moving at all. She asked where the water was going.

Ms. Bowles stated that no water had been taken out of Sugar Hollow Dam since December 5, so it was not going to the Ragged Mountain Reservoir and they had not moved any water. She stated that whatever was coming in was going out somehow, whether it was going through the surface water system or into the groundwater and flowing under the ground, there were processes happening, and Rivanna was not making changes or taking any water at this time.

Mr. O'Connell stated that evaporation and trees contributed to this.

Ms. Mallek stated that it was a large amount to be disappearing from 0.25 miles away.

Ms. Bowles stated that Sugar Hollow Reservoir was the designated raw-water source for the Ragged Mountain Reservoir, and the transfer pipeline from Sugar Hollow supplied about 3 MGD to Ragged Mountain when there is an adequate water supply in Sugar Hollow Reservoir. She stated that the minimum instream flow release requirements of our permit were met at all times, including during transfers, and seasonal operating transfer strategies were developed by staff and presented to the Board in 2017 to provide additional protections for the water level in the Sugar Hollow Reservoir.

Ms. Bowles indicated the Sugar Hollow Reservoir, the Sugar Hollow Reservoir to Ragged Mountain Reservoir outfall pipe, and the Ragged Mountain Reservoir on the presentation.

Mr. Mawyer stated that there would be 12 additional feet of water added to the Ragged Mountain Reservoir for a total normal pool elevation of 683 feet.

Mr. O'Connell asked if the tower was built in anticipation of that.

Mr. Mawyer stated that was correct. He stated that they had to modify the gates and grading around the reservoir to add the additional 12 feet, which was a 50% increase in the amount of water at Ragged Mountain Reservoir. He stated that 1.4B currently was held, and with the additional 700M, there would be 2.1B gallons.

Ms. Bowles added that all of the impacts to streams and wetlands between the 671 feet and 683 feet had been accounted for, permitted, and mitigated in their current mitigation plan. She stated that there were two operational transfer strategies as to whether South Rivanna was overflowing or not, and looking at the top green square, if South Rivanna was overflowing, they could transfer 3 MGD, but they were putting a limit on the Sugar Hollow Reservoir level and not take any more water when Sugar Hollow Reservoir reached 19 feet below to top of dam. It has been taken all the way down to 37 feet below to top of dam, which is allowable by the permit. The operational strategy would mean they could not transfer any more water to Ragged Mountain Reservoir if Sugar Hollow was down 19 feet, only during the winter, and during the summer, no greater than 10 feet.

Ms. Mallek asked for clarification that Ms. Bowles was referring to 10 feet down from the top of dam.

Ms. Bowles stated yes. She stated that for community outreach, RWSA was currently meeting with the Moormans River Scenic Advisory Committee on May 8 at the Sugar Hollow Reservoir to review the release of water procedures. She stated that the "Flow Measurement Design Plan and Operations Manual" was currently under revision to reflect Minor Modification 4. She stated that a public meeting to discuss the draft report would be held on May 16, 2023 at the Crozet Library at 3:00 p.m., and after public comment was received, the revised report must be submitted to DEQ prior to August 22, 2023. (This meeting has been postponed to a later date.)

Ms. Bowles stated that they had reapplied for the Virginia Water Protection Permit which was currently under review by DEQ. She stated that in response to comments offered by the Moormans River Scenic Advisory Board, RWSA would reduce the time to begin the flow release from three days to one. She stated that the release requirements were regulated by the Virginia DEQ and its VWP permit.

c. Presentation: Moores Creek Wastewater Master Plan Update; Scott Schiller, P.E., Engineering Manager

Mr. Scott Schiller stated that he would provide a summary on the Moores Creek Wastewater Facilities Master Plan. He stated that for the master plan, the objectives were to understand the specific challenges of the Moores Creek Wastewater Facilities, provide trigger-based master planning, and identification of near and long-term CIP projects. He stated that the Moores Creek Advanced Water Resource Recovery Facility provided wastewater treatment for urban area public utility customers of the City of Charlottesville, parts of Albemarle, and the community of Crozet for a population totaling approximately 130,000.

Mr. Schiller stated that the plant capacity was to treat 15 million gallons per day with a peak flow of 45 million gallons per day. He stated that hydraulic capacity was 85 million gallons per day, including inflow and infiltration from a 2-year storm. He stated that flow projections were required to be updated every five years by the Wastewater Projects Cost Allocation Agreement of 2014. He stated that the initial construction of the Moores Creek facility was in 1958, a much smaller facility than today's, followed by 1977 and 1979 expansions, which largely laid the footprint for the current facilities on the north and south side of Moores Creek.

Mr. Schiller stated that in 2005, they added an influent screen building, in 2009 they had enhanced nutrient removal improvements, and in 2010, they had pump station improvements. He stated that in 2012, there were digester improvements, then in 2013 they began the new Rivanna Pump Station and Rivanna Interceptor Tunnel, followed by odor control improvements in 2016. He stated that the considerations for master planning were flow rates, constituent loading, mechanical, electrical, structural, pipe infrastructure, regulations, and market conditions. He stated that uncertainty was associated with the conditions of wet weather, regulations, and market conditions.

Mr. Schiller stated that challenges to address through the master planning process were increasing flows and loads, non-process space deficiencies, aging infrastructure, a tight site plan, an evolving regulatory landscape, and uncertainty in the regulatory and economic landscapes. He stated that the aging infrastructure examples included holding pond overflow, digester roof, the

primary building, holding ponds, and EQ basin.

Mr. Schiller stated that the non-process space deficiencies included the extensive personnel growth over the 45 years of operations, personnel spaces such as locker rooms and break rooms, small and large parts storage, offices, meeting space, and computer network, laboratories, line break and equipment storage, and parking for personnel and RWSA fleet vehicles.

Mr. Schiller stated that they were also anticipating increasing flows due to projected population increases. He stated that projected 2070 flows had decreased due to the inflow and infiltration reduction efforts of RWSA, the City and ACSA.

Mr. Mawyer clarified that large, urban areas often had combined sewer systems for both wastewater and stormwater to be treated, and if it rained enough, the untreated water would be released into the river because there was insufficient capacity to store it to be treated.

Mr. Pinkston asked if the wastewater and stormwater systems were owned by the City and the County.

Mr. Mawyer stated yes. The County's wastewater system is owned by the Albemarle County Service Authority.

Ms. Mallek asked for clarification about the 45 MGD peak and the bypasses. She asked if this was when there was lots and lots of inflow.

Mr. Schiller stated yes. He stated that a normal capacity was about 15 MGD, and recognizing that there was a storm event, there was a step feed treatment process.

Ms. Mallek asked if that was partial treatment.

Mr. Schiller stated that they bypassed the primary clarifiers and send it to a different section of the aeration basins. He stated that because of the diluted nature of the flow, they could still meet the treatment requirements with bypassing parts of the plant.

Ms. Mallek asked if the initial step was bypassed.

Mr. Schiller stated yes, but the next steps were followed. He stated that anything above 15 MGD was diverted to holding ponds, and as the storm receded, it was sent back to the head of the plant for treatment.

Ms. Hildebrand stated that if they did not do so, it could wash out the processes and their bugs.

Mr. Schiller stated that the loading was the strength of the wastewater, measured in pounds per day for various constituents, and the biological oxygen demand (BOD), total suspended solids (TSS) and ammonia (NH4) were the three measured loads. He stated that the BOD had increased substantially, to the point that in 2021 they exceeded the trigger for the 17.5 MGD upgrade and expansion project. He stated that the level went back down below the trigger threshold in 2022,

but it had been a good indication that they needed to look at load more than flow in this regard.

Mr. Pinkston asked what the cause of the increase was.

Mr. Schiller stated that it was an indication of an increase in industrial discharges. He stated that BOD was an indicator of organic strength of wastewater.

Ms. Mallek asked if there were large industrial wastewater dischargers in the area.

Mr. Schiller stated that there were a few, but not many. He stated that they were undertaking a sampling program to better understand the issue. He stated that there were a number of restrictions at the Moores Creek site, including the creek running through the middle of the site and its resulting buffer requirements and flood plain requirements. He stated that there were developments on either side and critical slopes, both managed and preserved. He indicated the proposed long-term planning site plan on the screen. He stated that there would be a lot of rotation of projects and ensuring that all was accounted for in utilizing the tight space of the site in the long-term planning period.

Mr. O'Connell stated that the long-term planning period was 30 to 55 years.

Mr. Schiller stated that was correct. He stated that the intent for the master planning process was for it to be triggered by certain data being collected, and there were to be two triggers, one for "when" something was due to happen within a planning period, and "if" triggers for uncertainties in potential regulatory, wet weather, and economic landscapes through the long-term planning period. He stated that planning should include project footprints on site plans for build-out conditions.

Mr. Schiller stated that they came up with four main strategies for the master plan's roadmap. He stated that there was a liquids strategy, solids strategy, sustainability, and energy roadmaps. He stated that these roadmaps would serve as a reference as the planning period continued into the future. He stated that as a result of those analyses and condition assessments, major near-term projects were listed and included the 17.5 MGD plant expansion, mechanical thickeners, replacement of digesters, removal of solids handling facilities, and relocation of biogas facilities.

Mr. Schiller stated that these were all projects that would be scheduled based on triggers, and those estimated timelines for the triggers were provided with each project. He stated that major long-term projects for the years 2040-2080 included the ammonia and phosphorous removal, PFAS treatment/GAC, 20 MGD expansion, 90 MGD hydraulic expansion, and facilities to remove contaminants of emerging concern.

Mr. Schiller stated that the next step was to look at near-term projects and decide which were of most concern. He stated that the 17.5 MGD capacity expansion and mechanical thickening projects were high priorities and would need to be followed through soon. He stated that they were currently undergoing a sampling program to better understand the source of some of the higher BOD and how it could be better controlled, and that information would help them understand what further treatment procedures and facilities were needed at their plant.

Mr. Schiller stated that inside of their toolbox was also the potential for some pretreatment system by dischargers and for surcharges for strong waste levels greater than domestic wastewater. He stated that as the schedule indicated, if BOD loading projections were accurate, the facility would need to be in operation by 2036, meaning that they must begin in 2029, so they were trying to fine-tune that scheduling and move forward with where it needed to be.

Mr. Schiller summarized that the intent of this wastewater master planning process was to develop a list of near-term and long-term projects that they could plan for and build into their procedures based upon growth in the community and regulatory enhancements and regulations. He stated that there would be improvements to the plant largely related to the increase in capacity to 17.5 MGD in 2036, the 20 MGD treatment capacity in 2060, and a pretreatment program or strong waste surcharge may potentially be necessary in the near term. He stated that the costs for these facilities would be strategically integrated into the CIP budget to maintain reasonable charges.

Mr. O'Connell asked if the pretreatment program would be implemented before the others listed.

Mr. Schiller stated that was correct.

Mr. O'Connell asked if the investigation currently underway was to determine the type and level of pretreatment.

Mr. Schiller stated yes, it was to better understand what to do about it.

Mr. Mawyer stated that the question was who should treat the strong waste, dischargers or Rivanna, and if there should be a strong waste charge.

Mr. Pinkston stated that there may be sources of strong waste that were causing peaks in the treatment capacity.

Mr. Schiller stated that was true, and there may be other fluctuations as well, which was why they were investigating it to fully understand those external forces as well as the internal measurements for BOD to ensure those were correct.

Mr. Gaffney asked how they tested for the BOD levels.

Mr. Mawyer stated that ideally, they would capture the waste as it came out of a building as a sample from a nearby manhole.

Mr. O'Connell asked how often this was tested.

Mr. Tungate stated that collection system sampling was performed daily for a 7-day period at manholes adjacent to the facilities with composite samplers. He stated that the samplers collected a certain amount of liquid every 15 to 30 minutes to make a daily composite sample.

Ms. Mallek asked if this was a continually ongoing process after the first round.

Mr. Tungate stated that they were sampling three times for businesses considered the top 10 contributors of BOD waste, so they had one more round to go and were not repeating any businesses yet.

Ms. Mallek asked if there was any entity that currently had a pretreatment requirement, which was a standard in other communities.

Mr. Mawyer stated that there were three industrial businesses that have a pretreatment permit, but not for BOD, rather for metals and other materials.

Ms. Mallek asked if someone had a change in their process such as adding a washing facility, was there a permitting authority to make sure that they were required to give information about such a process change before it began.

Mr. Mawyer stated that every new entity in the system had to report what they would be discharging. He stated that no other monitoring was done unless there was reason to, but the evolution of the program may include a change in that part of the monitoring process.

Mr. Schiller stated that there was a development review process with the City and the County, where new developments as they came in or changed facilities submitted plans, and they were reviewing those procedures to see if they could get a heads-up on some of those changes.

Ms. Mallek asked if they included residential and commercial types.

Mr. Schiller stated yes, and it included small industry as well.

Ms. Mallek stated that these industries could be responsible for contamination of entire reservoirs, such as the Spring Hollow Reservoir in Roanoke being contaminated by a single company.

Mr. Pinkston asked how long the master plan took to execute.

Mr. Schiller stated it was approximately one and a half years to complete the master plan including the supplement to the original master plan, which included the 2016 and 2020 projections. He stated that the supplement was necessary to show the significant difference in peak flows.

Mr. Pinkston asked if this was a living document.

Mr. Schiller stated that this document would be analyzed as part of the annual CIP planning, including the roadmaps, the triggers, and then they would engage with a consultant as needed for a substantial update.

Mr. O’Connell stated that every five years, the wastewater was a part of this as well.

Mr. Pinkston asked for clarification.

Mr. Schiller stated that there was a wastewater cost allocation program that was used as part of the billing process, so they had to determine the flows and their origin in order to determine percentages.

Ms. Hildebrand stated that this was a great plan.

Mr. Richardson stated that in the last budget season, the County began looking at the process of street-sweeping in the area where the County meets the City, and residents in the urban ring stated that it was clear where the City swept the streets and where the County did not. He stated that Mr. Lance Stewart began this program in April 2023, and in the first in the first three days, they swept 22 lane miles of road and collected 10.8 tons of debris that otherwise would have washed into the stormwater system and streams.

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

Mr. Mawyer stated that next month, there would be public hearings on both the RWSA and RSWA budgets to conclude the budget season.

11. CLOSED MEETING

There was no reason for a closed meeting.

12. ADJOURNMENT

At 3:58 p.m., Mr. O'Connell moved to adjourn the meeting of the Rivanna Water and Sewer Authority. Ms. Mallek seconded the motion, which passed unanimously (7-0).

RIVANNA WATER & SEWER AUTHORITY
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MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **EXECUTIVE DIRECTOR'S REPORT**

DATE: **MAY 23, 2023**

STRATEGIC PLAN PRIORITY: WORKFORCE DEVELOPMENT

Recognitions

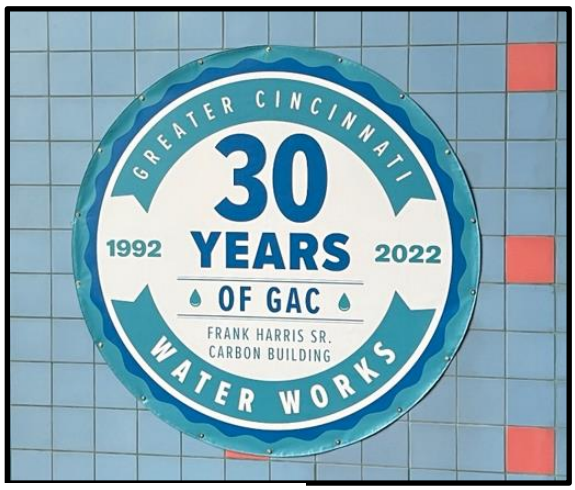
The professional credentials of our staff continue to improve and enhance our services. We congratulate the following employee for successfully completing the requirements for a college degree:

- Brenda Clifford, Accounting Associate; Bachelor of Science in Business Administration with a concentration in Finance from Liberty University. The Authority provided financial assistance for Brenda to complete her degree.

Leadership Training

Our Director of Operations, David Tungate, recently attended a "Transformative Utility Leaders Course" in Cincinnati, Ohio sponsored by Raftelis. The theme of the program was to support creation of dynamic utility leaders who are prepared to break through the "we've always done it this way" mindset to help their organizations thrive.

While in Cincinnati, Dave toured the Richard H. Miller surface water treatment plant, a 240 MGD facility located on the Ohio River. The facility has 7.2 M lbs. of GAC in service and its own reactivation furnace.



Greater Cincinnati Water Works

STRATEGIC PLAN PRIORITY: PLANNING AND INFRASTRUCTURE

National Dam Safety Awareness Day

Major Projects

We continue to work with UVA and UVAF to acquire the final easements on the following major water piping projects:

1. S. F. Rivanna to Ragged Mtn Reservoir Water Pipe: 8 miles of 36" pipe

   Status: All of the required documents (deeds of easement, plats, compensation agreements, appraisals) have been updated to include requests from UVAF. These documents were delivered to UVAF on May 15, 2023 for final consideration and execution.

2. Ragged Mtn Reservoir to Observatory WTP Water Pipe and Pump Station: 5 miles of 36" pipe

   Status: The University identified a potential conflict with the routing of the proposed 36" raw water line between Fontaine Avenue and the Stadium Road pump station. We are coordinating with UVA to resolve the conflict.

3. Central Water Line: 5 miles of 24" and 36" water pipe primarily along Cherry Ave

   Status: Engineering plans and specifications are moving forward to the 60% completion stage. Construction is expected to begin in April 2024. An extensive communication effort will be completed with the communities adjacent to the project before construction begins.

Allen Farm Lane Bridge Repairs, Buck Mtn Property

We have obtained the necessary environmental permits from the U.S. Army Corps of Engineers to complete repairs to the Allen Farm Lane bridge. We expect the work to be completed in 1 – 2

weeks in late June. We do not anticipate any major disruptions to traffic during completion of the repairs.

STRATEGIC PLAN PRIORITY: COMMUNICATION AND COLLABORATION

National Drinking Water Week

We celebrate the essential work water professionals do around the clock to ensure high quality drinking water is always available to our community. National Drinking week, May 7- 13, recognizes water professionals and the vital role drinking water plays in our daily lives.

RiverFest

Andrea Bowles, Water Resources Manager participated in RiverFest on May 20th celebrating the benefits of the Rivanna River. Andrea shared information with the community about water conservation and appreciation of our water resources. This free, family-friendly event benefits the Rivanna Conservation Alliance.

Sugar Hollow Reservoir

On May 8, we met with the Moormans Scenic River Advisory Group and representatives of Trout Unlimited at the Sugar Hollow Reservoir to discuss our operational procedures to release water from the reservoir, and to receive suggestions from the group to improve downstream water flow conditions for the benefit of the stream ecology. Several proposals suggested during our meeting will be reviewed with VDEQ and considered in the update of our Flow Measurement Design Plan and Operations Manual. Consequently, we will postpone the public information meeting planned for May 16 until such time as we have completed our discussions with VDEQ and any additional revisions to the Manual.

Crozet Community Advisory Committee (CAC) Meeting

On May 10th, our Director of Engineering and Maintenance, Jennifer Whitaker, presented information to the Crozet CAC about topics including RWSA and ACSA roles and responsibilities; water and wastewater facilities in the Crozet service area; recent capital improvements and demand projection studies, as well as future capital projects including: the Beaver Creek dam & pump station modifications, the Crozet Water Treatment Granular Activated Carbon expansion, and the Crozet Wastewater Pump Stations rehabilitation project. Members of the Crozet CAC and the attending public had several questions about these projects, water quality and quantity impact due

to development, as well as the security of our water and wastewater facilities against physical and cyber-attack.

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MEMORANDUM

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

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

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **MARCH 2023 MONTHLY FINANCIAL SUMMARY – FY 2023**

DATE: **MAY 23, 2023**

Financial Snapshot

March ended with an overall net deficit of $673,700, or 1.6% above the annual budget of $41.8 M. Operating rate revenues for the first nine months of the fiscal year are above average. However, operating expenses are currently over the prorated annual budget. Total revenues are $1.4 million over budget estimates, and total expenses are $2.1 million over budget. Urban Water flows and operating rate revenues are slightly (1%) below budget estimates through March, and Urban Wastewater flows and operating rate revenues are 7.5% over budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 6,949,368	$ 7,817,900	$ 1,960,113	$ 16,727,381
Expenses	(7,149,104)	(8,287,450)	(2,124,478)	(17,561,032)
Surplus (deficit)	$ (199,736)	$ (469,550)	$ (164,365)	$ (833,651)
Debt Service				
Revenues	$ 6,605,044	$ 7,159,159	$ 1,792,627	$ 15,556,830
Expenses	(6,553,437)	(7,062,951)	(1,780,488)	(15,396,876)
Surplus (deficit)	$ 51,607	$ 96,208	$ 12,139	$ 159,954
Total				
Revenues	$ 13,554,412	$ 14,977,059	$ 3,752,740	$ 32,284,211
Expenses	(13,702,541)	(15,350,401)	(3,904,966)	(32,957,908)
Surplus (deficit)	$ (148,129)	$ (373,342)	$ (152,226)	$ (673,697)

A more detailed financial analysis is in the following monthly report which reviews more closely actual financial performance compared to budgeted estimates. There are comments listed that reference the applicable line items in the financial statement for each rate center and each support department in the following pages. Please refer to the Budget vs. Actual financial statements when reviewing these comments.

Detailed Financials

The Authority's actual operating revenues through March are $590,900 over the prorated annual budget estimate, and operating expenses exceed budget by $1,030,000. The following comments help explain most of the other budget vs. actual variances.

A. Annual and Quarterly Transactions - Some revenues and expenses are over the prorated year-to-date budget due to one-time receipts of revenues for the year and quarterly or annual payments of expenses. These transactions appear to be significant impacts on the budget vs. actual monthly comparisons but usually even out as the year progresses. Septage receiving support revenue of $109,440 is billed to the County annually in July. Annual payments are made for leases, health savings account contributions, and certain maintenance agreements. Insurance premiums are paid quarterly.
B. Personnel Costs (Urban Water, All Wastewater, Engineering – pages 2, 5, 6, 7, 11) – Urban Wastewater salaries are higher than budget due to salary overlap in one position and payout of accumulated leave upon leaving employment. The prorated budget amounts through March are calculated as 9/12 (or 75%) of the annual budget on these financial statements. However, actual payroll is paid biweekly, and there have been 20 out of 26 total pay periods through March (or 76.92%). This affects the comparison of budget vs. actual payroll costs.
C. Professional Services (Crozet Water, Urban Wastewater, Glenmore Wastewater, Administration – pages 3, 5, 6, 8) – Urban Wastewater, Glenmore Wastewater, and Crozet Water spent $43,700, $15,000, and $8700, respectively, on unbudgeted engineering and technical services for various surveys and studies. The Administration department incurred $90,000 of unbudgeted engineering and technical services for grant program strategy and application development.
D. Other Services & Charges (All Water, Urban Wastewater – pages 2, 3, 4, 5) – Utilities are running high for Urban Wastewater and all Water rate centers.
E. Information Technology (Urban Wastewater, Scottsville Wastewater, Administration – pages 5, 7, 8) – The Administration department has spent $246,600 more than its annual budget in this category for computer hardware, software, and support costs. Urban Wastewater and Scottsville Wastewater are over budget $33,000 and $10,000, respectively, on SCADA Standard Graphics Rollout costs.
F. Communication (Administration – page 8) – The Administration department switched to a new telephone system which was not included in the budget.
G. Operations and Maintenance (Crozet Water, Scottsville Water, Urban Wastewater, Maintenance – pages 3, 4, 5, 9) – Crozet Water and Scottsville Water are over the prorated budget for chemicals due to carbon exchanges. Urban Wastewater has spent $304,000 more than the prorated budget and $123,000 more than the annual budget on chemicals costs, primarily due to price increases. The Maintenance department is over budget on supplies and fuel costs.

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023
Fiscal Year 2023

Consolidated Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 20,614,425	$ 15,460,819	$ 15,899,180	$ 438,361	2.84%
Lease Revenue		85,000	63,750	90,260	26,510	41.58%
Admin., Maint. & Engineering Revenue		656,000	492,000	535,691	43,691	8.88%
Other Revenues		639,036	479,277	497,385	18,108	3.78%
Use of Reserves-GAC		150,000	112,500	147,600	35,100	31.20%
Interest Allocation		7,170	5,378	92,958	87,580	1628.64%
Total Operating Revenues		**$ 22,151,631**	**$ 16,613,723**	**$ 17,263,073**	**$ 649,349**	**3.91%**
Expenses						
Personnel Cost	**B**	$ 10,494,727	$ 7,871,045	$ 8,087,790	$ (216,744)	-2.75%
Professional Services	**C**	629,900	472,425	588,374	(115,949)	-24.54%
Other Services & Charges	**A, D**	3,427,460	2,570,595	2,999,498	(428,903)	-16.68%
Communications	**F**	200,342	150,257	189,532	(39,276)	-26.14%
Information Technology	**E**	816,626	612,470	1,016,905	(404,436)	-66.03%
Supplies		39,950	29,963	35,276	(5,313)	-17.73%
Operations & Maintenance	**A, G**	5,222,531	3,916,898	4,318,503	(401,605)	-10.25%
Equipment Purchases		420,100	315,075	185,848	129,227	41.01%
Depreciation		900,000	675,000	675,000	-	0.00%
Total Operating Expenses		**$ 22,151,636**	**$ 16,613,727**	**$ 18,096,725**	**$ (1,482,998)**	**-8.93%**
Operating Surplus/(Deficit)		**$ (5)**	**$ (4)**	**$ (833,653)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 19,522,929	$ 14,642,197	$ 14,642,199	$ 2	0.00%
Septage Receiving Support - County	**A**	109,440	82,080	109,440	27,360	33.33%
Buck Mountain Lease Revenue		1,600	1,200	6,101	4,901	408.39%
Trust Fund Interest		990	743	128,434	127,691	17197.51%
Reserve Fund Interest		64,230	48,173	670,657	622,484	1292.20%
Total Debt Service Revenues		**$ 19,699,189**	**$ 14,774,392**	**$ 15,556,831**	**$ 782,439**	**5.30%**
Debt Service Costs						
Total Principal & Interest		$ 16,165,241	$ 12,123,931	$ 12,123,931	$ -	0.00%
Reserve Additions-Interest		64,230	48,173	670,657	(622,484)	-1292.20%
Debt Service Ratio Charge		725,000	543,750	543,750	-	0.00%
Reserve Additions-CIP Growth		2,744,717	2,058,538	2,058,538	-	0.00%
Total Debt Service Costs		**$ 19,699,188**	**$ 14,774,391**	**$ 15,396,875**	**$ (622,484)**	**-4.21%**
Debt Service Surplus/(Deficit)		**$ 1**	**$ 1**	**$ 159,955**		

Summary

Total Revenues	$ 41,850,820	$ 31,388,115	$ 32,819,903	$ 1,431,788	4.56%
Total Expenses	41,850,824	31,388,118	33,493,601	(2,105,483)	-6.71%
Surplus/(Deficit)	**$ (4)**	**$ (3)**	**$ (673,697)**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Urban Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 9,014,863	$ 6,761,147	$ 6,691,153	$ (69,995)	-1.04%
Lease Revenue		60,000	45,000	65,726	20,726	46.06%
Miscellaneous		-	-	6,405	6,405	
Use of Reserves-GAC		150,000	112,500	147,600	35,100	31.20%
Interest Allocation		3,000	2,250	38,484	36,234	1610.42%
Total Operating Revenues		**$ 9,227,863**	**$ 6,920,897**	**$ 6,949,368**	**$ 28,471**	**0.41%**
Expenses						
Personnel Cost	**B**	$ 2,234,714	$ 1,676,035	$ 1,708,685	$ (32,649)	-1.95%
Professional Services		222,000	166,500	130,493	36,007	21.63%
Other Services & Charges	**A, D**	716,300	537,225	669,528	(132,303)	-24.63%
Communications		100,920	75,690	76,465	(775)	-1.02%
Information Technology		104,950	78,713	76,165	2,548	3.24%
Supplies		5,400	4,050	5,920	(1,870)	-46.16%
Operations & Maintenance		2,511,396	1,883,547	1,848,595	34,952	1.86%
Equipment Purchases		16,000	12,000	13,618	(1,618)	-13.48%
Depreciation		300,000	225,000	225,000	-	0.00%
Subtotal Before Allocations		$ 6,211,680	$ 4,658,760	$ 4,754,469	$ (95,709)	-2.05%
Allocation of Support Departments		3,016,183	2,262,137	2,394,636	(132,499)	-5.86%
Total Operating Expenses		**$ 9,227,863**	**$ 6,920,897**	**$ 7,149,105**	**$ (228,208)**	**-3.30%**
Operating Surplus/(Deficit)		**$ (0)**	**$ (0)**	**$ (199,737)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 8,302,224	$ 6,226,668	$ 6,226,668	$ -	0.00%
Trust Fund Interest		400	300	47,007	46,707	15568.94%
Reserve Fund Interest		31,000	23,250	325,269	302,019	1299.00%
Lease Revenue		1,600	1,200	6,101	4,901	408.39%
Total Debt Service Revenues		**$ 8,335,224**	**$ 6,251,418**	**$ 6,605,044**	**$ 353,626**	**5.66%**
Debt Service Costs						
Total Principal & Interest		$ 6,964,724	$ 5,223,543	$ 5,223,543	$ -	0.00%
Reserve Additions-Interest		31,000	23,250	325,269	(302,019)	-1299.00%
Debt Service Ratio Charge		400,000	300,000	300,000	-	0.00%
Reserve Additions-CIP Growth		939,500	704,625	704,625	-	0.00%
Total Debt Service Costs		**$ 8,335,224**	**$ 6,251,418**	**$ 6,553,437**	**$ (302,019)**	**-4.83%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 51,607**		

Rate Center Summary

Total Revenues	$ 17,563,087	$ 13,172,315	$ 13,554,412	$ 382,097	2.90%
Total Expenses	17,563,087	13,172,315	13,702,542	(530,227)	-4.03%
Surplus/(Deficit)	**$ (0)**	**$ (0)**	**$ (148,129)**		
Costs per 1000 Gallons	$ 2.72		$ 2.83		
Operating and DS	$ 5.17		$ 5.43		
Thousand Gallons Treated	3,397,700	2,548,275	2,522,108	(26,167)	-1.03%
or					
Flow (MGD)	9.309		9.205		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Crozet Water Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 1,197,084	$ 897,813	$ 897,813	$ -	0.00%
Lease Revenues		25,000	18,750	24,533	5,783	30.84%
Interest Allocation		400	300	5,206	4,906	1635.20%
Total Operating Revenues		**$ 1,222,484**	**$ 916,863**	**$ 927,552**	**$ 10,689**	**1.17%**
Expenses						
Personnel Cost		$ 352,559	$ 264,420	$ 271,447	$ (7,027)	-2.66%
Professional Services	C	22,900	17,175	31,634	(14,459)	-84.18%
Other Services & Charges	D	118,700	89,025	107,393	(18,368)	-20.63%
Communications		17,600	13,200	14,832	(1,632)	-12.37%
Information Technology		4,950	3,713	6,576	(2,863)	-77.13%
Supplies		1,500	1,125	837	288	25.62%
Operations & Maintenance	G	358,500	268,875	296,078	(27,203)	-10.12%
Equipment Purchases		3,000	2,250	2,985	(735)	-32.68%
Depreciation		60,000	45,000	45,000	-	0.00%
Subtotal Before Allocations		$ 939,709	$ 704,782	$ 776,782	$ (72,000)	-10.22%
Allocation of Support Departments		282,780	212,085	223,777	(11,692)	-5.51%
Total Operating Expenses		**$ 1,222,489**	**$ 916,867**	**$ 1,000,559**	**$ (83,692)**	**-9.13%**
Operating Surplus/(Deficit)		**$ (5)**	**$ (4)**	**$ (73,007)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 2,161,704	$ 1,621,278	$ 1,621,278	$ -	0.00%
Trust Fund Interest		80	60	10,917	10,857	18094.78%
Reserve Fund Interest		1,200	900	12,742	11,842	1315.83%
Total Debt Service Revenues		**$ 2,162,984**	**$ 1,622,238**	**$ 1,644,937**	**$ 22,699**	**1.40%**
Debt Service Costs						
Total Principal & Interest		$ 1,217,280	$ 912,960	$ 912,960	$ -	0.00%
Reserve Additions-Interest		1,200	900	12,742	(11,842)	-1315.83%
Reserve Additions-CIP Growth		944,500	708,375	708,375	-	0.00%
Total Debt Service Costs		**$ 2,162,980**	**$ 1,622,235**	**$ 1,634,077**	**$ (11,842)**	**-0.73%**
Debt Service Surplus/(Deficit)		**$ 4**	**$ 3**	**$ 10,860**		

Rate Center Summary

Total Revenues	$ 3,385,468	$ 2,539,101	$ 2,572,489	$ 33,388	1.31%
Total Expenses	3,385,469	2,539,102	2,634,637	(95,535)	-3.76%
Surplus/(Deficit)	**$ (1)**	**$ (1)**	**$ (62,148)**		
Costs per 1000 Gallons	$ 6.03		$ 6.21		
Operating and DS	$ 16.70		$ 16.35		
Thousand Gallons Treated	202,697	152,023	161,130	9,107	5.99%
Flow (MGD)	0.555		0.588		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Scottsville Water Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 569,556	$ 427,167	$ 427,167	$ -	0.00%
Interest Allocation		200	150	2,417	2,267	1511.27%
Total Operating Revenues		**$ 569,756**	**$ 427,317**	**$ 429,584**	**$ 2,267**	**0.53%**
Expenses						
Personnel Cost		$ 212,797	$ 159,598	$ 165,429	$ (5,831)	-3.65%
Professional Services		5,000	3,750	8,728	(4,978)	-132.74%
Other Services & Charges	**D**	27,100	20,325	30,414	(10,089)	-49.64%
Communications		6,400	4,800	5,247	(447)	-9.31%
Information Technology		4,400	3,300	6,994	(3,694)	-111.93%
Supplies		100	75	138	(63)	-83.36%
Operations & Maintenance	**G**	97,925	73,444	100,435	(26,992)	-36.75%
Equipment Purchases		1,600	1,200	2,275	(1,075)	-89.56%
Depreciation		40,000	30,000	30,000	0	0.00%
Subtotal Before Allocations		$ 395,322	$ 296,492	$ 349,659	$ (53,167)	-17.93%
Allocation of Support Departments		174,433	130,825	135,283	(4,458)	-3.41%
Total Operating Expenses		**$ 569,755**	**$ 427,316**	**$ 484,942**	**$ (57,626)**	**-13.49%**
Operating Surplus/(Deficit)		**$ 1**	**$ 1**	**$ (55,358)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 150,300	$ 112,725	$ 112,725	$ -	0.00%
Trust Fund Interest		10	8	1,156	1,148	15312.00%
Reserve Fund Interest		850	638	8,719	8,081	1267.61%
Total Debt Service Revenues		**$ 151,160**	**$ 113,370**	**$ 122,599**	**$ 9,229**	**8.14%**
Debt Service Costs						
Total Principal & Interest		$ 148,726	$ 111,545	$ 111,545	$ -	0.00%
Reserve Additions-Interest		850	638	8,719	(8,081)	
Reserve Additions-CIP Growth		1,589	1,192	1,192	-	
Total Debt Service Costs		**$ 151,165**	**$ 113,374**	**$ 121,455**	**$ (8,081)**	**-7.13%**
Debt Service Surplus/(Deficit)		**$ (5)**	**$ (4)**	**$ 1,145**		

Rate Center Summary

Total Revenues	$ 720,916	$ 540,687	$ 552,183	$ 11,496	2.13%
Total Expenses	720,920	540,690	606,397	(65,707)	-12.15%
Surplus/(Deficit)	**$ (4)**	**$ (3)**	**$ (54,214)**		
Costs per 1000 Gallons	$ 33.07		$ 32.93		
Operating and DS	$ 41.84		$ 41.17		
Thousand Gallons Treated	17,230	12,923	14,728	1,806	13.97%
or					
Flow (MGD)	0.047		0.054		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Urban Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 9,033,662	$ 6,775,247	$ 7,283,602	$ 508,356	7.50%
Stone Robinson WWTP		39,036	29,277	14,502	(14,775)	-50.47%
Septage Acceptance		500,000	375,000	437,349	62,349	16.63%
Nutrient Credits		100,000	75,000	39,129	(35,871)	-47.83%
Miscellaneous Revenue		-	-	-	-	
Interest Allocation		3,300	2,475	43,318	40,843	1650.23%
Total Operating Revenues		**$ 9,675,998**	**$ 7,256,999**	**$ 7,817,900**	**$ 560,902**	**7.73%**
Expenses						
Personnel Cost	**B**	$ 1,325,384	$ 994,038	$ 1,130,464	$ (136,427)	-13.72%
Professional Services	**C**	75,000	56,250	119,699	(63,449)	-112.80%
Other Services & Charges	**A, D**	2,276,980	1,707,735	1,999,575	(291,840)	-17.09%
Communications		1,900	1,425	9,491	(8,066)	-566.00%
Information Technology	**E**	110,400	82,800	143,546	(60,746)	-73.36%
Supplies		1,200	900	628	272	30.21%
Operations & Maintenance	**A, G**	1,698,660	1,273,995	1,681,350	(407,355)	-31.97%
Equipment Purchases		143,000	107,250	37,500	69,750	65.03%
Depreciation		470,000	352,500	352,500	(0)	0.00%
Subtotal Before Allocations		$ 6,102,524	$ 4,576,893	$ 5,474,752	$ (897,859)	-19.62%
Allocation of Support Departments		3,573,476	2,680,107	2,812,699	(132,592)	-4.95%
Total Operating Expenses		**$ 9,675,999**	**$ 7,256,999**	**$ 8,287,451**	**$ (1,030,452)**	**-14.20%**
Operating Surplus/(Deficit)		**$ (1)**	**$ (1)**	**$ (469,551)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 8,878,107	$ 6,658,580	$ 6,658,578	$ (2)	0.00%
Septage Receiving Support - County	**A**	109,440	82,080	109,440	27,360	33.33%
Trust Fund Interest		500	375	69,226	68,851	18360.25%
Reserve Fund Interest		31,000	23,250	321,915	298,665	1284.58%
Total Debt Service Revenues		**$ 9,019,047**	**$ 6,764,285**	**$ 7,159,159**	**$ 394,874**	**5.84%**
Debt Service Costs						
Total Principal & Interest		$ 7,808,347	$ 5,856,260	$ 5,856,260	$ -	0.00%
Reserve Additions-Interest		31,000	23,250	321,915	(298,665)	-1284.58%
Debt Service Ratio Charge		325,000	243,750	243,750	-	0.00%
Reserve Additions-CIP Growth		854,700	641,025	641,025	-	0.00%
Total Debt Service Costs		**$ 9,019,047**	**$ 6,764,285**	**$ 7,062,951**	**$ (298,665)**	**-4.42%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 96,209**		
Rate Center Summary						
Total Revenues		$ 18,695,045	$ 14,021,284	$ 14,977,059	$ 955,776	6.82%
Total Expenses		18,695,046	14,021,285	15,350,401	(1,329,117)	-9.48%
Surplus/(Deficit)		**$ (1)**	**$ (1)**	**$ (373,342)**		
Costs per 1000 Gallons		$ 2.85		$ 3.03		
Operating and DS		$ 5.51		$ 5.61		
Thousand Gallons Treated		3,390,400	2,542,800	2,734,085	191,285	7.52%
or						
Flow (MGD)		9.289		9.978		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 443,640	$ 332,730	$ 332,730	$ -	0.00%
Interest Allocation		150	113	1,952	1,840	1635.22%
Total Operating Revenues		**$ 443,790**	**$ 332,843**	**$ 334,682**	**$ 1,840**	**0.55%**
Expenses						
Personnel Cost	**B**	$ 115,815	$ 86,861	$ 99,043	$ (12,181)	-14.02%
Professional Services	**C**	5,000	3,750	20,082	(16,332)	-435.51%
Other Services & Charges		35,750	26,813	31,725	(4,913)	-18.32%
Communications		-	-	2,544	(2,544)	
Information Technology		4,425	3,319	10,383	(7,064)	-212.86%
Supplies		-	-	-	-	
Operations & Maintenance		134,950	101,213	81,935	19,278	19.05%
Equipment Purchases		3,800	2,850	2,850	(0)	0.00%
Depreciation		10,000	7,500	7,500	0	0.00%
Subtotal Before Allocations		$ 309,740	$ 232,305	$ 256,061	$ (23,756)	-10.23%
Allocation of Support Departments		134,045	100,533	100,911	(378)	-0.38%
Total Operating Expenses		**$ 443,785**	**$ 332,839**	**$ 356,972**	**$ (24,133)**	**-7.25%**
Operating Surplus/(Deficit)		**$ 5**	**$ 4**	**$ (22,290)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 20,484	$ 15,363	$ 15,363	$ -	0.00%
Trust Fund Interest		-	-	-	-	
Reserve Fund Interest		80	60	671	611	1017.68%
Total Debt Service Revenues		**$ 20,564**	**$ 15,423**	**$ 16,034**	**$ -**	**0.00%**
Debt Service Costs						
Total Principal & Interest		$ 18,717	$ 14,038	$ 14,038	$ -	0.00%
Reserve Additions-CIP Growth		1,761	1,321	1,321	-	0.00%
Reserve Additions-Interest		80	60	671	(611)	-1017.68%
Total Debt Service Costs		**$ 20,558**	**$ 15,419**	**$ 16,029**	**$ (611)**	**-3.96%**
Debt Service Surplus/(Deficit)		**$ 6**	**$ 5**	**$ 5**		
Rate Center Summary						
Total Revenues		$ 464,354	$ 348,266	$ 350,716	$ 2,450	0.70%
Total Expenses		464,343	348,257	373,001	(24,744)	-7.11%
Surplus/(Deficit)		**$ 11**	**$ 8**	**$ (22,285)**		
Costs per 1000 Gallons		$ 10.72		$ 11.97		
Operating and DS		$ 11.22		$ 12.50		
Thousand Gallons Treated		41,401	31,051	29,830	(1,221)	**-3.93%**
or						
Flow (MGD)		0.113		0.109		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

	Notes	Budget FY 2023	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 355,620	$ 266,715	$ 266,715	$ -	0.00%
Interest Allocation		120	90	1,580	1,490	1655.88%
Total Operating Revenues		**$ 355,740**	**$ 266,805**	**$ 268,295**	**$ 1,490**	**0.56%**
Expenses						
Personnel Cost	**B**	$ 115,795	$ 86,846	$ 99,043	$ (12,196)	-14.04%
Professional Services		5,000	3,750	3,053	697	18.58%
Other Services & Charges		26,650	19,988	23,467	(3,479)	-17.41%
Communications		3,770	2,828	2,797	31	1.09%
Information Technology	**E**	4,125	3,094	14,073	(10,980)	-354.90%
Supplies		-	-	-	-	
Operations & Maintenance		52,000	39,000	27,495	11,505	29.50%
Equipment Purchases		3,800	2,850	2,850	(0)	0.00%
Depreciation		20,000	15,000	15,000	(0)	0.00%
Subtotal Before Allocations		$ 231,140	$ 173,355	$ 187,778	$ (14,422)	-8.32%
Allocation of Support Departments		124,604	93,453	94,227	(774)	-0.83%
Total Operating Expenses		**$ 355,744**	**$ 266,808**	**$ 282,005**	**$ (15,197)**	**-5.70%**
Operating Surplus/(Deficit)		**$ (4)**	**$ (3)**	**$ (13,709)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 10,110	$ 7,583	$ 7,587	$ 5	0.06%
Trust Fund Interest		-	-	128	128	
Reserve Fund Interest		100	75	1,341	1,266	1688.59%
Total Debt Service Revenues		**$ 10,210**	**$ 7,658**	**$ 9,057**	**$ 1,399**	**18.27%**
Debt Service Costs						
Total Principal & Interest		$ 7,447	$ 5,585	$ 5,585	$ -	0.00%
Reserve Additions-Interest		100	75	1,341	(1,266)	-1688.59%
Estimated New Principal & Interest		2,667	2,000	2,000	-	0.00%
Total Debt Service Costs		**$ 10,214**	**$ 7,661**	**$ 8,927**	**$ (1,266)**	**-16.53%**
Debt Service Surplus/(Deficit)		**$ (4)**	**$ (3)**	**$ 130**		

Rate Center Summary

Total Revenues	$ 365,950	$ 274,463	$ 277,352	$ 2,890	1.05%
Total Expenses	365,958	274,469	290,932	(16,463)	-6.00%
Surplus/(Deficit)	**$ (8)**	**$ (6)**	**$ (13,580)**		
Costs per 1000 Gallons	$ 15.05		$ 18.94		
Operating and DS	$ 15.48		$ 19.53		
Thousand Gallons Treated	23,643	17,732	14,893	(2,839)	**-16.01%**
or					
Flow (MGD)	0.065		0.054		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Administration

Operating Budget vs. Actual

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 654,000	$ 490,500	$ 505,500	$ 15,000	3.06%
Bond Proceeeds Funding Bond Issuance Costs		-	-	-	-	
Miscellaneous Revenue		2,000	1,500	9,460	7,960	530.65%
Total Operating Revenues		**$ 656,000**	**$ 492,000**	**$ 514,960**	**$ 22,960**	**4.67%**
Expenses						
Personnel Cost		$ 2,450,092	$ 1,837,569	$ 1,832,231	$ 5,338	0.29%
Professional Services	**C**	170,000	127,500	227,279	(99,779)	-78.26%
Other Services & Charges		162,600	121,950	113,805	8,145	6.68%
Communications	**F**	24,780	18,585	59,467	(40,882)	-219.97%
Information Technology	**E**	404,876	303,657	651,480	(347,823)	-114.54%
Supplies		23,000	17,250	22,538	(5,288)	-30.65%
Operations & Maintenance		67,850	50,888	48,041	2,846	5.59%
Equipment Purchases		13,100	9,825	9,825	(0)	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 3,316,298**	**$ 2,487,224**	**$ 2,964,666**	**$ (477,443)**	**-19.20%**

Department Summary

Net Costs Allocable to Rate Centers	**$ (2,660,298)**	**$ (1,995,224)**	**$ (2,449,706)**	**$ 454,483**	**-22.78%**
Allocations to the Rate Centers					
Urban Water	44.00% **$ 1,170,531**	**$ 877,898**	**$ 1,077,871**	**$ (199,972)**	
Crozet Water	4.00% **$ 106,412**	**79,809**	**97,988**	**(18,179)**	
Scottsville Water	2.00% **$ 53,206**	**39,904**	**48,994**	**(9,090)**	
Urban Wastewater	48.00% **$ 1,276,943**	**957,707**	**1,175,859**	**(218,152)**	
Glenmore Wastewater	1.00% **$ 26,603**	**19,952**	**24,497**	**(4,545)**	
Scottsville Wastewater	1.00% **$ 26,603**	**19,952**	**24,497**	**(4,545)**	
	100.00% **$ 2,660,298**	**$ 1,995,224**	**$ 2,449,706**	**$ (454,483)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Maintenance

Operating Budget vs. Actual

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ -	$ -	
Miscellaneous Revenue		-	-	2,162	2,162	
Total Operating Revenues		**$ -**	**$ -**	**$ 2,162**	**$ 2,162**	
Expenses						
Personnel Cost		$ 1,477,565	$ 1,108,174	$ 1,083,947	$ 24,228	2.19%
Professional Services		-	-	4,207	(4,207)	
Other Services & Charges		33,600	25,200	13,585	11,615	46.09%
Communications		24,500	18,375	10,848	7,527	40.97%
Information Technology		32,500	24,375	19,779	4,596	18.86%
Supplies		2,500	1,875	657	1,218	64.93%
Operations & Maintenance	G	104,900	78,675	109,522	(30,847)	-39.21%
Equipment Purchases		212,600	159,450	96,450	63,000	39.51%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,888,165**	**$ 1,416,124**	**$ 1,338,995**	**$ 77,129**	**5.45%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,888,165)**	**$ (1,416,124)**	**$ (1,336,834)**	**$ (74,968)**	**5.29%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 566,450**	**$ 424,837**	**$ 401,050**	**$ 23,787**	
Crozet Water	3.50%	**66,086**	**49,564**	**46,789**	**2,775**	
Scottsville Water	3.50%	**66,086**	**49,564**	**46,789**	**2,775**	
Urban Wastewater	56.50%	**1,066,814**	**800,110**	**755,311**	**44,799**	
Glenmore Wastewater	3.50%	**66,086**	**49,564**	**46,789**	**2,775**	
Scottsville Wastewater	3.00%	**56,645**	**42,484**	**40,105**	**2,379**	
	100.00%	**$ 1,888,165**	**$ 1,416,124**	**$ 1,336,834**	**$ 79,291**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Laboratory

Operating Budget vs. Actual

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
	N/A					
Expenses						
Personnel Cost		$ 415,324	$ 311,493	$ 314,893	$ (3,400)	-1.09%
Professional Services		-	-	-	-	
Other Services & Charges		11,780	8,835	3,159	5,676	64.24%
Communications		1,700	1,275	760	515	40.37%
Information Technology		1,000	750	1,165	(415)	-55.29%
Supplies		1,250	938	1,267	(329)	-35.11%
Operations & Maintenance		121,050	90,788	95,109	(4,322)	-4.76%
Equipment Purchases		1,700	1,275	1,370	(95)	-7.45%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 553,804**	**$ 415,353**	**$ 417,723**	**$ (2,369)**	**-0.57%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (553,804)**	**$ (415,353)**	**$ (417,723)**	**$ 2,369**	**-0.57%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 243,674**	**$ 182,755**	**$ 183,798**	**$ (1,042)**	
Crozet Water	4.00%	**22,152**	**16,614**	**16,709**	**(95)**	
Scottsville Water	2.00%	**11,076**	**8,307**	**8,354**	**(47)**	
Urban Wastewater	47.00%	**260,288**	**195,216**	**196,330**	**(1,114)**	
Glenmore Wastewater	1.50%	**8,307**	**6,230**	**6,266**	**(36)**	
Scottsville Wastewater	1.50%	**8,307**	**6,230**	**6,266**	**(36)**	
	100.00%	**$ 553,804**	**$ 415,353**	**$ 417,723**	**$ (2,369)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2023

Engineering

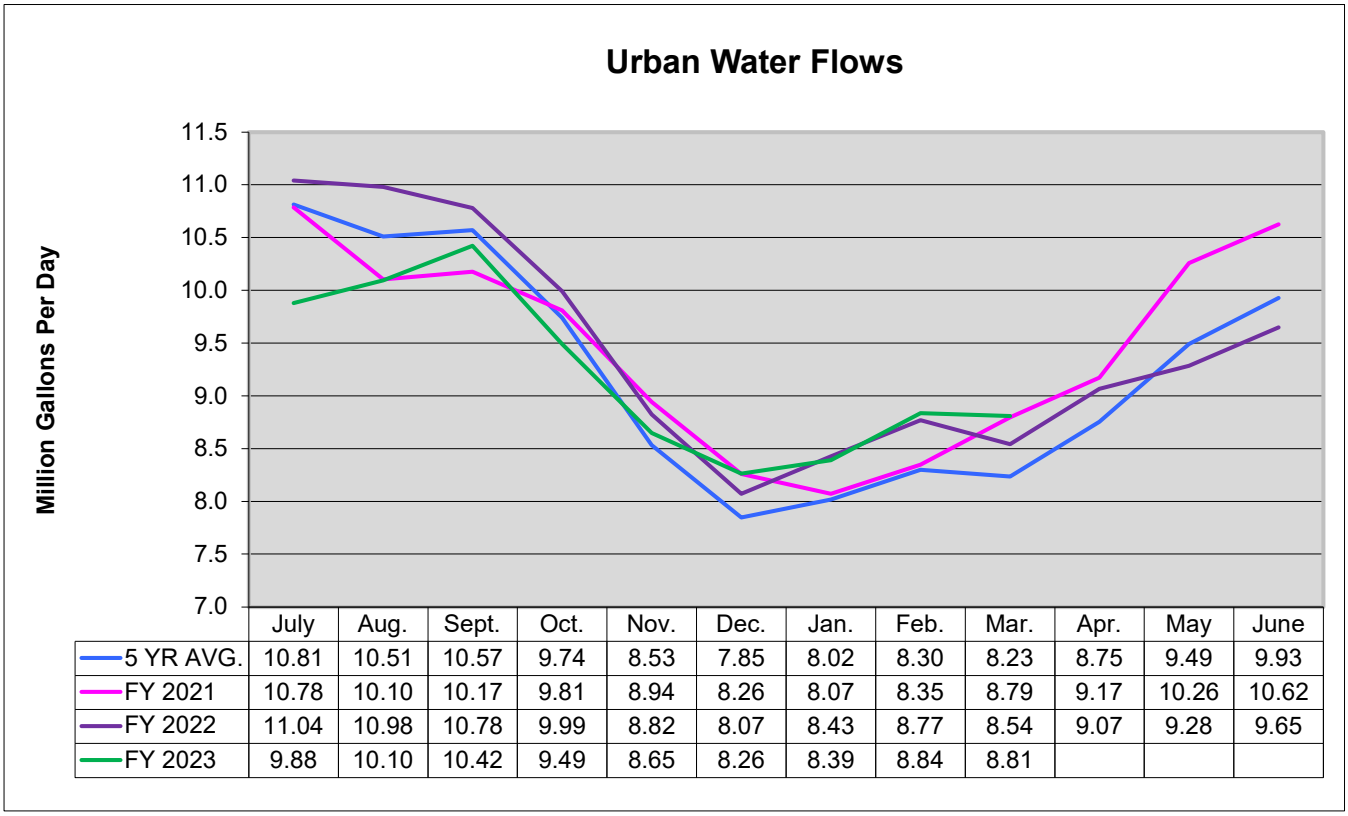
Operating Budget vs. Actual

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ 18,570	$ 18,570	
Total Operating Revenues		**$ -**	**$ -**	**$ 18,570**	**$ 18,570**	
Expenses						
Personnel Cost	**B**	$ 1,794,680	$ 1,346,010	$ 1,382,608	$ (36,598)	-2.72%
Professional Services		125,000	93,750	43,199	50,551	53.92%
Other Services & Charges		18,000	13,500	6,847	6,653	49.28%
Communications		18,772	14,079	7,082	6,997	49.70%
Information Technology		145,000	108,750	86,746	22,004	20.23%
Supplies		5,000	3,750	3,292	458	12.21%
Operations & Maintenance		75,300	56,475	29,942	26,533	46.98%
Equipment Purchases		21,500	16,125	16,125	0	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,203,252**	**$ 1,652,439**	**$ 1,575,841**	**$ 76,598**	**4.64%**

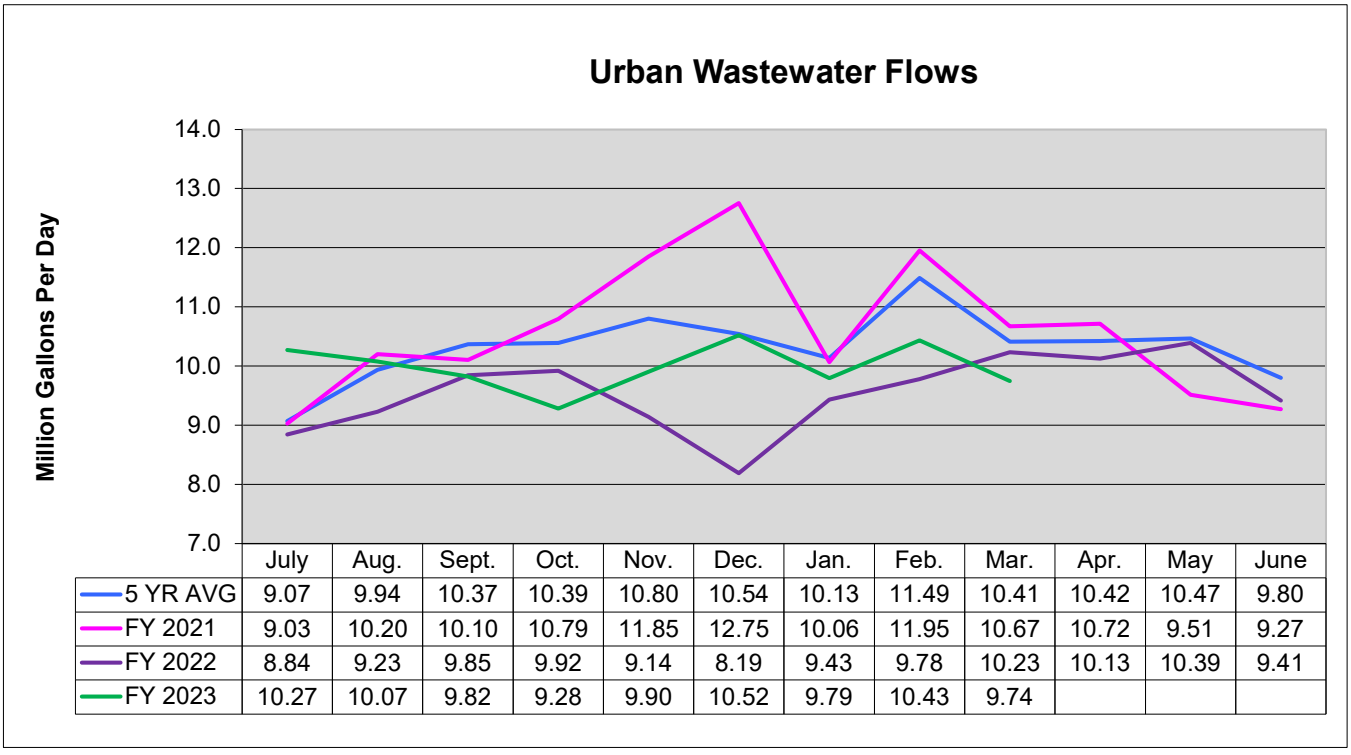
Department Summary

Net Costs Allocable to Rate Centers		**$ (2,203,252)**	**$ (1,652,439)**	**$ (1,557,271)**	**$ (58,029)**	**3.51%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 1,035,528**	**$ 776,646**	**$ 731,917**	**$ 44,729**	
Crozet Water	4.00%	**88,130**	**66,098**	**62,291**	**3,807**	
Scottsville Water	2.00%	**44,065**	**33,049**	**31,145**	**1,903**	
Urban Wastewater	44.00%	**969,431**	**727,073**	**685,199**	**41,874**	
Glenmore Wastewater	1.50%	**33,049**	**24,787**	**23,359**	**1,428**	
Scottsville Wastewater	1.50%	**33,049**	**24,787**	**23,359**	**1,428**	
	100.00%	**$ 2,203,252**	**$ 1,652,439**	**$ 1,557,271**	**$ 95,168**	

Rivanna Water and Sewer Authority
Flow Graphs



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG.	10.81	10.51	10.57	9.74	8.53	7.85	8.02	8.30	8.23	8.75	9.49	9.93
FY 2021	10.78	10.10	10.17	9.81	8.94	8.26	8.07	8.35	8.79	9.17	10.26	10.62
FY 2022	11.04	10.98	10.78	9.99	8.82	8.07	8.43	8.77	8.54	9.07	9.28	9.65
FY 2023	9.88	10.10	10.42	9.49	8.65	8.26	8.39	8.84	8.81			



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG	9.07	9.94	10.37	10.39	10.80	10.54	10.13	11.49	10.41	10.42	10.47	9.80
FY 2021	9.03	10.20	10.10	10.79	11.85	12.75	10.06	11.95	10.67	10.72	9.51	9.27
FY 2022	8.84	9.23	9.85	9.92	9.14	8.19	9.43	9.78	10.23	10.13	10.39	9.41
FY 2023	10.27	10.07	9.82	9.28	9.90	10.52	9.79	10.43	9.74			

RIVANNA WATER & SEWER AUTHORITY
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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 APRIL 2023**

DATE: **MAY 23, 2023**

WATER OPERATIONS:

The average and maximum daily water volumes produced in April 2023 were as follows:

Water Treatment Plant	*Average Daily Production (MGD)*	*Maximum Daily Production in the Month (MGD)*
South Rivanna	8.93	10.43 (4/20/2023)
Observatory	0.16	1.39 (4/27/2023)
North Rivanna	0.45	0.58 (4/21/2023)
Urban Total	9.54	10.98 (4/21/2023)
Crozet	0.58	0.69 (4/12/2023)
Scottsville	0.05	0.072 (4/14/2023)
Red Hill	0.0022	0.005 (4/5/2023)
RWSA Total	10.17	-

- All RWSA water treatment facilities were in regulatory compliance during the month of April .
- Observatory Water Treatment Plant was operational on a limited basis on April 24, 2023. It has been off-line for the renovation project since 12/01/2022.

Status of Reservoirs (as of May 17, 2023):

- Urban Reservoirs are 100% of Total Useable Capacity
  - Ragged Mountain Reservoir is 100% full
  - Sugar Hollow Reservoir is 100% full
  - South Rivanna Reservoir is 100% full
- Beaver Creek Reservoir (Crozet) is 100% full
- Totier Creek Reservoir (Scottsville) is 100% full

WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during April 2023. Performance of the WRRFs in April 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	9.94	<QL	9	<QL	22	0.45	2.2
Glenmore	0.113	2.8	15	3.4	30	NR	NL
Scottsville	0.06	2.8	25	7.1	30	NR	NL
Stone Robinson	0.002	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 April 2023.

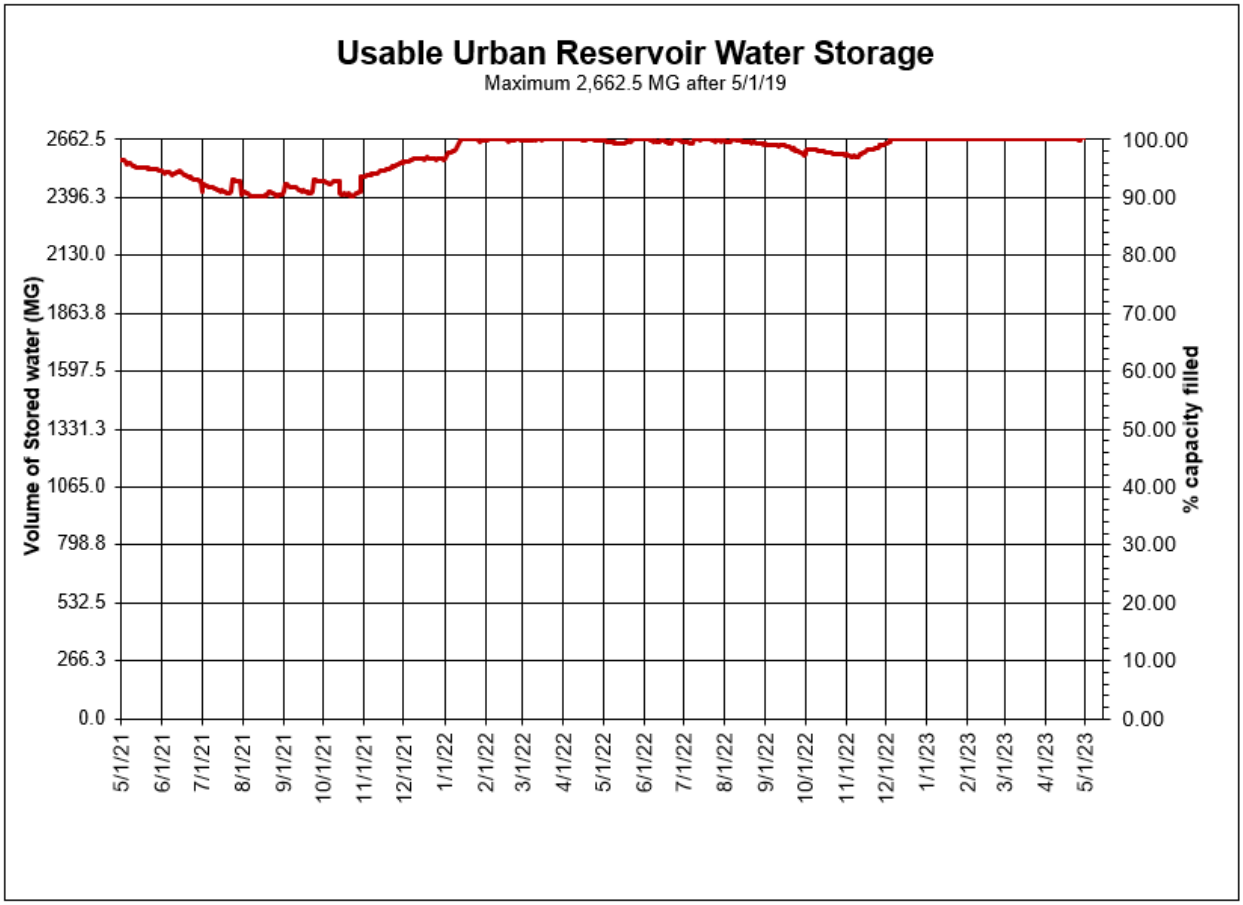
State Annual Allocation (lb./yr.) Permit		*Average Monthly Allocation (lb./mo.) **	*Moores Creek Discharge April (lb./mo.)*	*Performance as % of monthly average Allocation**	*Year to Date Performance as % of annual allocation*
Nitrogen	282,994	23,583	9,322	40%	13%
Phosphorous	18,525	1,544	469	30%	7%

*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


Usable Urban Reservoir Water Storage
Maximum 2,662.5 MG after 5/1/19
Volume of Stored water (MG)
% capacity filled
2662.5
2396.3
2130.0
1863.8
1597.5
1331.3
1065.0
798.8
532.5
266.3
0.0
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
5/1/21
6/1/21
7/1/21
8/1/21
9/1/21
10/1/21
11/1/21
12/1/21
1/1/22
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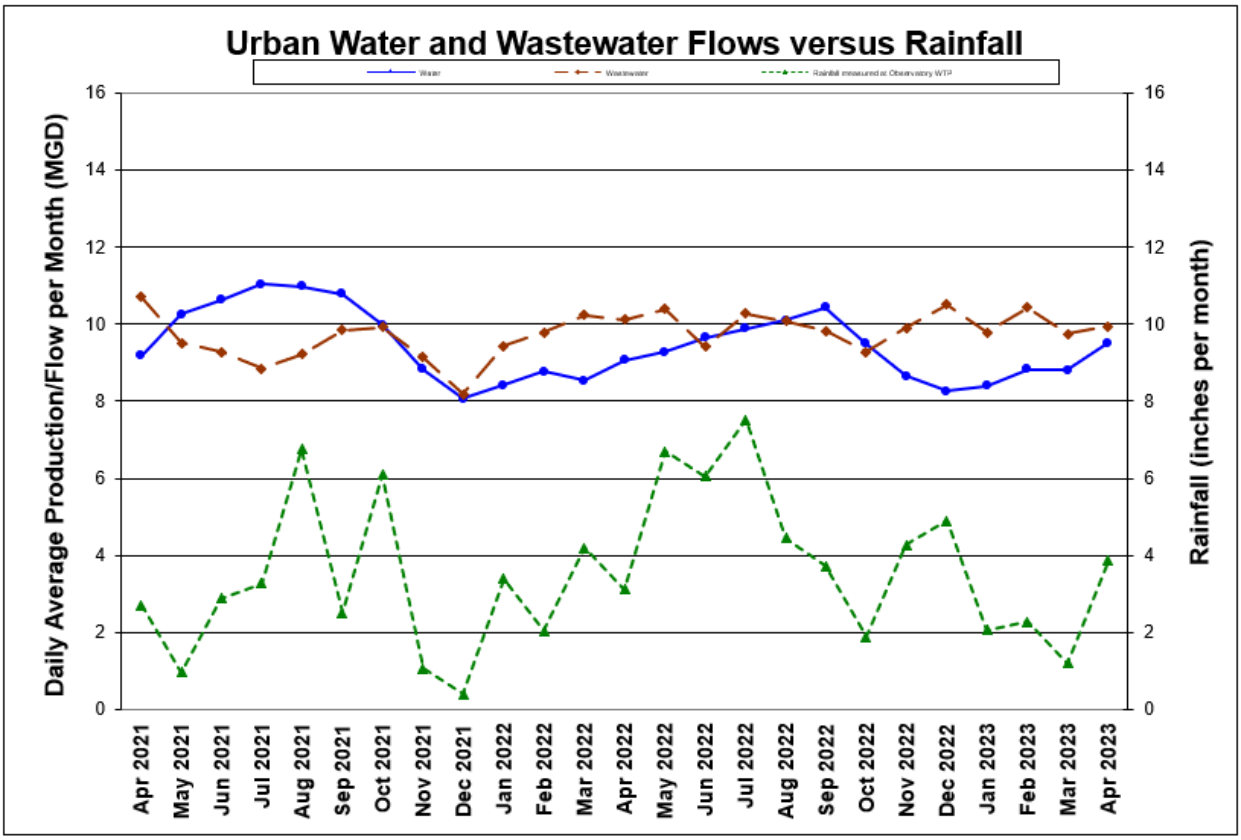
5/1/23


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)
16
14
12
10
8
6
4
2
0
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Oct 2021
Nov 2021
Dec 2021
Jan 2022
Feb 2022
Mar 2022
Apr 2022
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022
Nov 2022
Dec 2022
Jan 2023
Feb 2023
Mar 2023
Apr 2023

RIVANNA WATER & SEWER AUTHORITY
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MEMORANDUM

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

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

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

SUBJECT: **CIP PROJECTS REPORT**

DATE: **MAY 23, 2023**

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/2022/06/Final-2023-2027-CIP.pdf

Summary Table

	Project	Bid Advertise Date	Construction Completion Date
1	SRWTP and OBWTP Renovations	November 2019	October 2023
2	Airport Rd. Water Pump Station and Piping	September 2021	September 2024
3	MC 5kV Electrical System Upgrades	December 2021	December 2024
4	South Fork Rivanna River Crossing	September 2023	September 2025
5	Red Hill Water Treatment Plant Upgrades	September 2023	November 2024
6	Central Water Line	December 2023	December 2028
7	Scottsville WRRF Whole Plant Generator and ATS	December 2023	June 2025
8	MC Administration Building Renovation and Addition	January 2024	June 2026
9	RMR to OBWTP Raw Water Line and Pump Station	April 2024	December 2028
10	MC Building Upfits and Gravity Thickener Improvements	April 2024	December 2025
11	Emmet Street Water Line Betterment	January 2024	July 2026
12	MC Structural and Concrete Rehabilitation	September 2024	June 2026
13	Crozet Pump Stations Rehabilitation	November 2024	December 2026
14	Beaver Creek Dam, Pump Station and Piping	April 2025	June 2028
15	SFRR to RMR Pipeline, Intake, and Facilities	December 2025	December 2030
16	Upper Schenks Branch Interceptor, Phase II	TBD	TBD

Under Construction

1. South Rivanna and Observatory Water Treatment Plant Renovations
2. Airport Road Water Pump Station and Piping
3. MC 5kV Electrical System Upgrades

Design and Bidding

4. South Fork Rivanna River Crossing
5. Red Hill Water Treatment Plant Upgrades
6. Central Water Line
7. Scottsville WRRF Whole Plant Generator and ATS
8. MC Administration Building Renovation and Addition
9. RMR to OBWTP Raw Water Line and Pump Station
10. MC Building Upfits and Gravity Thickener Improvements
11. Emmet Street Water Line Betterment
12. MC Structural and Concrete Rehabilitation
13. Crozet Pump Stations Rehabilitation
14. Beaver Creek Dam, Pump Station and Piping
15. SFRR to RMR Pipeline, Intake, and Facilities
16. Upper Schenks Branch Interceptor, Phase II

Planning and Studies

17. Asset Management Plan
18. SFRR to RMR Pipeline – Pretreatment Pilot Study
19. MCAWRRF Biogas Upgrades
20. North Rivanna Water Treatment Plant Decommissioning
21. Second N. Rivanna River Crossing & Select Pipe Replacement

Other Significant Projects

22. Urgent and Emergency Repairs
23. Security Enhancements

Under Construction

1. 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:	85%
Base Construction Contract + Change Orders to Date = Current Value:	$36,748,500 + $1,141,441 = $37,889,941
Completion:	October 2023
Budget:	$43,000,000

Current Status: . The official shutdown of the OBWTP ended on April 24, 2023, with the plant coming

back online with three of its five filters rebuilt and in operation. Additional improvements at the Observatory and S. Rivanna plants will continue until project completion with the plants fully in operation.

2. Airport Road Water Pump Station and Piping

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction, Inc. (ACI) (Lynchburg, VA)
Construction Start:	December 2021
Percent Complete:	43%
Base Construction Contract + Change Order to Date = Current Value:	$8,520,312
Completion:	September 2024
Budget:	$10,000,000

Current Status: The block walls are being erected for the pump station. Installation of two parallel water lines is on-going along Berkmar Drive between the pump station site and Timberwood Blvd, however, production has been slow due to the amount of rock encountered.

3. MCAWRRF 5kV Electrical System Upgrades

Design Engineer:	Hazen and Sawyer (Hazen)
Construction Contractor:	Pyramid Electrical Contractors (Richmond, VA)
Construction Start:	May 2022
Percent Complete:	16%
Base Construction Contract + Change Order to Date = Current Value:	$5,180,000 - $970,000 + $78,812 = $4,288,812
Completion:	December 2024
Budget:	$5,050,000

Current Status: All major site-related work, including underground electrical ductbank, equipment pads, and curb and gutter replacements is now complete. The Contractor is performing turf restoration in the affected areas this month. The necessary electrical equipment for this project is still in a substantial lead time period, with the majority of the equipment scheduled to arrive in the Fall/Winter.

Design and Bidding

4. South Fork Rivanna River Crossing

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2020
Project Status:	87% Design
Construction Start:	December 2023
Completion:	September 2025
Budget:	$7,000,000

Current Status: Easement acquisition work is on-going and a draft easement package for the work in Brookhill Park was sent to the County. A required easement on the south side of the river is on a

remnant property from the VDOT Berkmar Bridge project and we cannot finalize that easement until the property transfer back to the original property owner is complete. WPO plans are being finalized and a submittal to the County is expected in May.

5. Red Hill Water Treatment Plant Upgrades

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	July 2022
Project Status:	95% Design
Construction Start:	November 2023
Completion:	November 2024
Budget:	$800,000

Current Status: A work authorization amendment is being finalized to incorporate GAC contactors and rehabilitation of the existing hydropneumatic tank with an anticipated bid advertisement this fall. This project was selected by Albemarle County to receive ARPA grant funding.

6. Central Water Line

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2021
Project Status:	37% Design
Construction Start:	April 2024
Completion:	December 2028
Budget:	$41,000,000

Current Status: Baker is incorporating comments from the 30% design workshop and advancing the plans to 60% design. Next steps include conducting soil borings along the alignment and beginning easement acquisition.

7. Scottsville WRRF Whole Plant Generator and ATS

Design Engineer:	Wiley|Wilson
Project Start:	December 2021
Project Status	100% Design
Construction Start:	April 2024
Completion:	June 2025
Budget:	$520,000

Current Status: Site Plan approval has been obtained from the Town of Scottsville. Additionally, a preliminary proposal was obtained for the generator set, to include both the automatic and manual transfer set; this proposal will be finalized, and equipment ordered pending grant funding. A grant application has been submitted to VDEM, and incorporation of the timeline associated with grant review, approval and award is anticipated to delay the start of construction until the end of this calendar year.

8. Moores Creek Administration Building Renovation and Addition

Design Engineer:	SEH

Project Start:	October 2022
Project Status:	30% Design
Construction Start:	March 2024
Completion:	June 2026
Budget:	$17,000,000

Current Status: Conceptual elevations have been presented to the leadership team with a selection preliminarily made. Floor plans and elevations will be presented to the Board at this month's meeting. The project has an initial site plan submittal to the County anticipated in early June pending feedback from the Board.

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

Design Engineer:	Kimley-Horn
Project Start:	August 2018
Project Status:	Design (65%)
Construction Start:	2024
Completion:	December 2028
Budget:	$44,000,000

Current Status: Preparation of engineering plans and specifications continues as well as easement and property negotiations with UVA and the UVA Foundation. Design of the pump station is underway. Waterline design continues to progress towards 90% completion between Ragged Mountain Reservoir and UVA Foundation property, as well as between the new pump station site and Fontaine Avenue. Utility test holes and geotechnical borings are also underway.

10. MCAWRRF Building Upfits and Gravity Thickener Improvements

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	Spring 2023
Project Status:	Preliminary Engineering
Construction Start:	August 2024
Completion:	December 2025
Budget:	$5,000,000

Current Status: A work authorization has been finalized for this project, requiring a needs assessment to be completed as part of the preliminary engineering effort prior to initiating design. A project kickoff meeting is scheduled for Tuesday, May 9th.

11. Emmet Street Water Line Betterment

Design Engineer:	Whitman, Requardt & Associates (WRA)
Project Start:	September 2021
Project Status:	Ivy Corridor Public Realm – Complete Contemplative Commons – Complete Emmet Streetscape – Preliminary Design Hydraulic/29 – Preliminary Design

Completion:	July 2026, Phase I
Budget:	$2,900,000

Current Status: RWSA is coordinating with the City for design of a 24-30" water main in Emmet Street from Ivy Road to Arlington Boulevard as part of the City's Emmet Streetscape Phase I project. RWSA has initiated discussion with VDOT on potential pipe routing in the upcoming design-build Hydraulic/29 project.

12. MCAWRRF Structural and Concrete Rehabilitation

Design Engineer:	Hazen and Sawyer (Hazen)
Project Start:	April 2023
Project Status:	Preliminary Engineering
Completion:	June 2026
Budget:	$13,550,000

Current Status: NTP was issued on April 24, 2023 and preliminary engineering work is ongoing. The initial draft submittals for various tasks on this project are anticipated in July.

13. Crozet Pump Stations Rehabilitation

Design Engineer:	Wiley | Wilson
Project Start:	Fall 2022
Project Status:	Work Authorization Development
Construction Start:	November 24
Completion:	December 2026
Budget:	$10,350,000

Current Status: A work authorization has been developed for the completion of this project. Project funds required for design have been included in the proposed FY24 CIP and as a result, a request to the Board for approval to proceed has been included in this month's Board Packet to coincide with adoption of the proposed FY24 to FY28 CIP.

14. 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:	99% NRCS Planning Process
Construction Start:	2025
Completion:	June 2028
Budget:	$43,000,000

Current Status: A Joint Permit Application and supporting documents were submitted to VDEQ in October 2022, and are under review. The revised Plan-Environmental Assessment was approved by the NRCS National Water Management Center on October 18, 2022, and the Draft Report was posted for public comment from November 4-December 19, 2022. The final report was approved by NRCS in April of 2023. A funding request for final design of the spillway upgrades has been approved by

NRCS. Construction funds will be requested near the end of the design phase.

15. SFRR to RMR Pipeline, Intake, and Facilities

Design Engineer:	Kimley Horn
Project Start:	July 2023
Project Status:	1% Design
Construction Start:	June 2026
Completion:	December 2030
Budget:	$79,700,000

Current Status: This project will include construction of a 36" raw water pipeline from the South Fork Rivanna Reservoir (SFRR) to the northern terminus of the previously constructed Birdwood Raw Water Line (6.5 miles). This project, combined with the Ragged Mountain Reservoir (RMR) to Observatory Water Treatment Plant Raw Water Line, will complete the SFRR-RMR transfer line. The project will also include the construction of a new 25 MGD raw water intake and pump station at SFRR. The section of waterline previously to be constructed under the Birdwood to Old Garth Project will now be included in this larger effort, due to the schedule advancement discussed at the February Board Meeting. Staff continue to work with CSX railroad on the draft permit documents. One remaining easement is under negotiation with the UVA Foundation for this portion of the project.

16. Upper Schenks Branch Interceptor, Phase II

Design Engineer:	Frazier Engineering, P.A.
Project Start:	July 2021
Project Status:	Design
Construction Start:	TBD
Completion:	TBD
Budget:	$4,725,000

Current Status: Project, easement and valuation information was submitted to the County for review. The County has provided some initial comments related to tree protection which are being evaluated for project impacts. A regional coordination meeting to discuss the project was held on May 2, 2023 and the design team is gathering additional information to assist the County in continuing the easement acquisition process.

Planning and Studies

17. Asset Management Plan

Design Engineer:	GHD, Inc.
Project Start:	July 2018
Project Status:	CMMS Implementation – 93% Complete AMP Implementation – 35% Complete
Completion:	CMMS Implementation – April 2023 AMP Implementation – 2024
Budget:	$1,180,000

Current Status: Cityworks training continues with use of the software going live on May 8, 2023.

Work continues to fully implement the Asset Management program across all applicable Authority facilities with development of management strategy group assignments and attributes for both vertical and horizontal assets and preparation for condition assessments.

18. SFRR to RMR Pipeline – Pretreatment Pilot Study

Design Consultant:	SEH/DiNatale
Project Start:	August 2020
Project Status:	5% Complete (Phase 3)
Completion:	December 2023
Budget:	$31,739 (Phase 3)

Current Status: Final efforts by the consultant to better clarify operations of the raw water transfer system and associated reservoir levels during drought conditions have been completed. The next phase of the study is underway, which will include installation of nutrient monitoring/measuring equipment, as well as a summary write-up detailing the effectiveness of the equipment and the summary/takeaways from the study.

19. MCAWRRF Biogas Upgrades

Design Engineer:	SEH
Project Start:	October 2021
Project Status:	Preliminary Engineering/Study (99%)
Completion:	December 2024
Budget:	$2,145,000

Current Status: This project now includes the Methane Sphere Rehabilitation, in addition to the Cogeneration Upgrades. RWSA and City staff will be meeting in June to discuss other potential options for beneficial reuse of the biogas, outside of cogeneration.

20. North Rivanna Water Treatment Plant Decommissioning

Design Engineer:	SEH
Project Start:	July 2019
Project Status:	Work Authorization Development (0%)
Completion:	March 2027
Budget:	$2,425,000

Current Status: Staff is coordinating with SEH to develop a scope of work for design of the plant decommissioning. Staff is also pursuing funding and administrative assistance for removal of the North Fork Rivanna low head dam from the U.S. Fish and Wildlife Service through their Partners for Fish and Wildlife Program.

21. Second N. Rivanna River Crossing & Select Pipe Replacement

Design Engineer:	TBD
Project Start:	FY28
Project Status:	0%
Completion:	2031
Budget:	$5,850,000

Current Status: No work is anticipated on this project until FY2028 when a consulting engineer will be selected for design and preliminary design will begin.

Other Significant Projects

22. 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
2022-09	CZI Force Main ARV Replacements	$300,000
2022-02/05/12	Miscellaneous MCI/PCI/RVI MH Repairs	$70,000
2023-01	Finished Water System ARV Repairs	TBD
2023-02	WWM 32-02 Valve Replacement	$40,000

- CZI Force Main ARV Replacements: Over the past several years, staff have been monitoring the condition of the air release valves (ARVs) up and down the force main portions of the Crozet Interceptor, as they have been continuing to degrade. These valves are 1980s-vintage, and while they have been serviced and partially rebuilt over the years by the RWSA Maintenance Department, replacement of the tapping saddle and corporation stop has not been possible, since shutdown of the force main is required. Historically, it has taken several hours to drain the force main to allow for the work to take place, and by the time that has occurred, the upstream pump stations need to turn on to prevent overflow. Now with the Flow Equalization Tank complete, this work can take place with the force main offline for up to a 24-hr period. All materials for the job arrived near the end of January, and the work started on March 6th. Five of the six ARV replacements have been replaced as of April 11th, with work anticipated to be completed at the final site by the end of June.
- Miscellaneous MCI/PCI/RVI MH Repairs: Over the past several months, staff have identified issues with various manholes on the Moores Creek, Powell Creek, and Rivanna Interceptors (MCI, PCI, and RVI, respectively). These include one manhole on MCI that needs to be raised, as it was historically buried but found in Summer 2021 by the RWSA Maintenance & Engineering Departments, one manhole on RVI that needs a failing HDPE liner to be removed and cementitious mortar to be installed, and one manhole each on PCI and MCI that need to be coated with cementitious mortar due to root intrusion and groundwater infiltration. This work will be performed through the On-Call Maintenance contract with Digs, and staff visited the site with the Contractor on July 15th. The appropriate MH on MCI was raised on November 1st, 2022. The remaining coating efforts were completed during the week of January 30th. Two additional small MH repairs are being planned for the spring, including one additional MH coating and height adjustment of one MH.
- RWSA Finished Water ARV Repairs: RWSA Engineering staff recently met with Maintenance staff to identify a list of Air Release Valves (ARVs) that need to be repaired, replaced, or abandoned. Several of these locations will require assistance from RWSA On-Call Maintenance Contractors, due to the complexity of the sites (proximity to roadways, depth, etc.). The initial round will include six (6) sites, all along the South Rivanna Waterline, and will be completed starting late Spring/early Summer.

- WWM 32-02 Replacement: An 8" gate valve at RWSA's Wholesale Water Meter site 32 was identified as defective during a recent meter calibration effort. Staff is coordinating the replacement efforts for this valve for late Spring/early Summer time period with its On-Call Maintenance Contractor, as well as ACSA and the RWSA Water & Maintenance Departments. Due to the amount and critical nature of customers that would be impacted in a potential shutdown, RWSA is exploring the use of an insertion valve in this location.

23. Security Enhancements

Design Engineer:	Hazen & Sawyer
Construction Contractor:	Security 101 (Richmond, VA)
Construction Start:	March 2020
Percent Complete:	95% (WA5), 0% (WA6), 0% (WA7)
Based Construction Contract + Change Orders to Date = Current Value:	$718,428 (WA1) + $611,764 (WA2-7)
Completion:	October 2022 (WA5), May 2023 (WA6)
Budget:	$2,810,000

Current Status: WA5, which authorizes card access installation at Glenmore Water Resource Recovery Facility (GWRRF), Scottsville Water Resource Recovery Facility (SVWRRF), and Red Hill Water Treatment Plant (RHWTP), began during the week of June 20th, 2022. Conduit and cable pulling is complete at all facilities covered in the WA, and the only work that remains is programming work at each site, likely to be completed by this Spring. WA6 will include card access installation at RWSA's remote sites, including all dams and pump stations. This work was authorized in early August, with completion scheduled for July 2023. WA7, which includes a pilot of a program that will test electronic padlocks at several RWSA facilities, has been authorized. These electronic padlocks have the potential to add an extra layer of security to unmanned facilities such as tanks, dams, and other facilities. If the pilot is successful, wide scale implementation of this technology is possible. Staff has also kicked off final design of a project with Hazen & Sawyer to improve the front entrance of MCAWRRF and install additional fencing, gates, and card access. This will allow staff to better control access to the facility and provide staff with the means to vet access by visitors, vendors, consultants, and contractors. Design is underway, with discussions with Dominion Energy also ongoing, as relocation of existing electrical infrastructure will be required. This relocation process will need to be finalized prior to the project proceeding to the permitting phase.

History

Under Construction

1. 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% of 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 been 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. Coordination with UVA and Dominion on a new electrical easement at the plant has been completed and documents are being finalized.

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.

2. **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.

Bids were opened on October 7, 2021 and this work was awarded at the October 2021 Board of Directors meeting. The contract was signed, and the pre-construction conference was held on December 9, 2021.

3. **MCAWRRF 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. 50% Design Documents were provided in Spring 2021, with staff feedback provided soon thereafter. A follow-up site visit by Hazen was performed in July 2021, in order to confirm the availability of spare conduits across the site and plan for the associated cable replacements. 95% Design Documents were provided by Hazen in September 2021, and staff returned comments in October 2021. Field work was conducted in Fall 2021 to evaluate the condition of conduits within the existing duct bank network, as well as verify pathways and connectivity within the network.

A Request for Bids (RFB) was issued on December 22, 2021, and bids were submitted on February 3, 2022. A Construction Contract Award for Pyramid Electrical Contractors was approved by the RWSA Board of Directors on February 22, 2022, and a Notice of Award (NOA) was provided to Pyramid on March 4, 2022. Notice to Proceed (NTP) was issued on May 17, 2022.

Design and Bidding

4. South 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.

5. 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, a 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.

6. Central Water Line

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 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, with connections to City water lines to support the water distribution system in the City and County. The RWSA Board approved the Southern (Cherry Ave) Route in June 2022.

7. 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 offer greater treatment flexibility and monitoring capability for the operations staff, particularly when the plant is unmanned and monitored remotely.

8. Moores Creek Administration Building Renovation and Addition

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 between 2003-2010 that house the Engineering department. 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 educational outreach. This project was coordinated with the recent MCAWRRF Master Plan and expansion of the building will take place in the lower parking lot adjacent to the existing building.

9. 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.

Both Design Work Authorizations received Board of Directors approval on July 27, 2021. A kickoff meeting was held on September 17, 2021, and a meeting to begin establishing boundary conditions for the RMR Pump Station was held on October 25, 2021. An internal RMR Pump Station Operations workshop was held on February 23, 2022 to set the boundary conditions for the facility, and this information was provided promptly to the Design Consultant to allow design efforts to continue progressing. The waterline was the primary focus throughout the Spring and Summer months. A subsequent workshop was held on November 1, 2022, in which pump type and other internal staff preferences were confirmed.

10. MCAWRRF Building Upfits and Gravity Thickener Improvements

This project includes work associated with the following projects: Operations and Maintenance Building Upfits, New Actuators for Secondary Clarifiers, and the MCAWRRF Gravity Thickener Pumping and Chem Feed Improvements. The Moores Creek Maintenance and Operations Department facilities are over 40 years old, and no longer meeting current staffing and operational needs. In accordance with the Moores Creek Master Plan dated 6-25-21, this project will increase and update personnel spaces such as offices, lunchrooms, labs, and locker rooms in the Maintenance, Blower, and Sludge Pumping Buildings to meet needs over an interim timeframe of approximately 15 years. Additionally, the project will construct increased oil and grease storage facility that will meet all current best practices for safety and address the need for additional parts storage.

As part of the existing gravity thickener system, RWSA added temporary provisions to dose polymer to improve settling and thickening performance, which has proved to be effective and increased operational performance. The current polymer feed system consists of a bulk polymer tote stored on grade adjacent to the gravity thickener rapid mix and splitter structure. The current system is located on grade, uncovered, and manually operated with totes being moved as needed for chemical feed. This project will allow for a permanent polymer feed system with proper provisions for chemical deliveries and weather protection, to include additional space for sodium hypochlorite chemical storage and feed as part of the gravity thickener odor control system. The relocation of the odor control sodium hypochlorite storage and feed will also allocate spacing needs as part of the previously discussed operational building renovations in the existing sludge pumping building. Furthermore, access points will be installed on the thickener effluent line feeding the existing sludge pumps to allow for flushing, cleaning, and inspection efforts to occur.

The current secondary clarifier influent gate valves are manually operated, which can be time consuming, and during a wet weather event, the clarifiers need to be placed in service as quickly and safely as possible. The use of SCADA controlled actuators would streamline the process immensely. This work includes the installation of 8 new actuators on the influent gates of the secondary clarifiers.

11. Emmet Street Water Line Betterment

The Urban Finished Water Master Plan identified several necessary upgrades to the urban water distribution system to improve system performance and reliability. One of the identified improvements is an upgrade and extension of the existing RWSA water main along the Emmet Street corridor from the University of Virginia to Hydraulic Road. This project will utilize planned road, streetscape, utility, and development projects along the Emmet Street corridor to complete portions of the Emmet Street

water main improvements as betterment, with the goal of completing the water main improvements by 2030. The project scope includes planning and coordination between RWSA, UVA, the City of Charlottesville, and VDOT, design services for the betterment and "gap" sections of water line, construction funding, and construction management services. Current identified projects with betterment opportunities include: the UVA Ivy Corridor Redevelopment, UVA Contemplative Commons, the City of Charlottesville Emmet Streetscape Projects (multiple phases), and VDOT intersection improvements at Barracks Road, the US-250/Emmet Street Interchange, and Hydraulic Road. Upgrading a section of 16" water main in Emmet Street to 30" as part of the UVA Ivy Corridor Public Realm project is complete. Upgrading a section of 16" water main adjacent to the Dell Pond to 30" as part of the UVA Contemplative Commons project was completed December 1, 2022.

12. <u>MCAWRRF Structural and Concrete Rehabilitation</u>

This project includes work associated with the following CIP projects: Digester Repair, Compost Shed Roof Rehabilitation, Miscellaneous Concrete Repair, Structural Modifications, and Primary Clarifier Rehabilitation. For the Digester Repair work, the facility has a total of five digester vessels. 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 will need to be installed in this area. This project includes addressing remaining repairs to the existing digester complex, including safety repairs, to extend the useful life approximately 10-15 years while RWSA plans, designs, and constructs a new digester complex at another location on the Moores Creek site.
For the Compost Shed Roof work, 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 showing signs of rafter deterioration and ongoing drainage issues. This project will evaluate and perform remediation needs at this facility.

For the miscellaneous concrete repair work, 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 the 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.

For the structural modifications work, 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 (NRCY) 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 permanent means to pull, move, and load the pumps during maintenance activities. Also, two of the six pumps in the 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. This project will install a catwalk from the upper mezzanine level to each valve to provide a safer, walkable access to each valve.

For the Primary Clarifier rehabilitation work, in September 2021, an inspection was performed on the two existing Primary Clarifiers at MCAWRRF, in which several deficiencies were noted. Most notably, both clarifier drives had structural and mechanical components in need of repair or replacement, and due to advanced corrosion of metal components within the clarifiers, coatings were recommended to avoid additional deterioration. This project will utilize consultant assistance to provide design services for the project, develop bidding documents, assist with the administration of the contract and provide specialty inspections as needed.

13. Crozet Pump Station Rehabilitation

The Crozet Pump Stations were constructed in the 1980's and many of the components are original. This project includes the replacement of pump and valves and other components at Pump Station 2 to improve pumping capabilities at this location, as well as Pump Stations 1 and 3 as the pumps are reaching the end of their useful life. 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. This project also now intends to include new back-up generators at Pump Stations 1 through 3 as the generators have also reached the end of their useful life.

14. Beaver Creek Dam and Pump Station and Piping Improvements

Dam: A spillway upgrade alternative for the dam has been selected and was presented in a public meeting on October 6, 2021. A new raw water pump station site and pipe access route were selected and approved by the Board in August 2021. 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 early 2023. 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.

Pump Station: 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.

15. SFRR to RMR Pipeline, Intake, and Facilities

The South Fork Rivanna Reservoir (SFRR) to Ragged Mountain Reservoir (RMR) Pipeline is a part of the approved and permitted Community Water Supply Plan. The pipeline and associated facilities will give RWSA the ability to move water between the two reservoirs, further enhancing the management capabilities of the Urban System water supply. The SFRR to RMR Pipeline, Intake, and Facilities Project is intended to allow for continued analysis on the transfer system, including the need and magnitude of pretreatment required in order to remove excess nutrients and convey water between the two reservoirs. To date, this has included study of existing water quality data from the two reservoirs, as well as a detailed nutrient model which helped staff better understand the fate of any nutrients transferred between the reservoirs. Analysis continues to determine the suitable alternatives to transfer water safely and effectively between the two reservoirs. In addition, this project currently includes the design and construction of approximately 380 LF of piping along the alignment, as a betterment opportunity through the Victorian Heights development, located on Woodburn Road. The previously separate Westover Project has been reincorporated into this project, as well as the Birdwood to Old Garth Project.

16. 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 being evaluated to determine whether it will be installed in an easement on County property (baseball field and County Office Building) adjacent to McIntire Road or in McIntire Road itself.

Planning and Studies

17. 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.

18. 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 and was completed in July 2021. Phase 2 began in June 2021. The Excel Desktop Modeling portion of the analysis was completed in February 2022. The more detailed nutrient model development began in March 2022 and was completed in February 2023. Based upon the findings of this phase of the study, Phase 3 became procurement and installation of nutrient monitoring equipment, and combined with the final report, represents the final phase of the study. This phase began in March 2023.

19. MCAWRRF Biogas Upgrades

The MCAWRRF has an existing cogeneration facility that was constructed in 2011. The purpose of the facility was to provide a beneficial use of the methane gas produced by the digester process at the plant, and in doing so, provide both digester heating and 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 for installation of a new cogeneration facility as described in the Cogeneration System Analysis.

A state of the industry study was initiated, to confirm the appropriate manufacturers of such cogeneration

units and to determine how the unit would be procured. This study began in December 2021.

20. North Rivanna Water Treatment Plant Decommissioning

The North Rivanna Water Treatment Plant (NRWTP) has been in use since the 1970's with minimal upgrades aside from the addition of Granular Activated Carbon filters in 2018. A Needs Assessment was performed that identified additional improvements that would be required for the plant to continue to reliably provide drinking water to the North Rivanna Pressure Zone. Due to the anticipated expense of these proposed improvements, a feasibility study was performed to determine if the NRWTP should be upgraded or decommissioned. The study concluded that the plant should be decommissioned and that expenses saved could be better applied to other improvements throughout the Urban Water System. As a result, this project includes demolition of the plant facilities, removal of the low head dam on the North Fork Rivanna River and returning the property to its pre-existing conditions.

21. Second N. Rivanna River Crossing & Select Pipe Replacement

The North Rivanna water distribution system has a 12-inch water line crossing of the North Rivanna River which is difficult to access and vulnerable to erosion and washout. The Finished Water Master Plan recommended we install a second redundant river crossing to ensure water can be conveyed north of the river to the Piney Mountain Tank from the new Airport Road Pump Station once the North Rivanna Water Treatment Plant is decommissioned. Approximately 1.2 miles of cast iron water line which has the highest system pressures and has experienced numerous emergency line breaks would be replaced as part of this project to improve system resiliency.

Other Significant Projects

22. Urgent and Emergency Repairs

- MCAWRRF Primary Clarifier Building 36" Sanitary Sewer Leak: On July 7th, RWSA Engineering Staff was made aware of a small leak through the wall in the basement of the Primary Clarifier Building at MCAWRRF. An inspection was performed by Hazen & Sawyer on August 3rd, and a report with repair recommendations has been prepared. The repairs will include specialty grouting work to plug the voids discovered in the field in order to stop the leak, as well as possible installation of a coating system for further protection of the concrete. During the week of September 26th, RWSA Maintenance staff performed the required grouting work on the inside of the splitter box to stop the leak. Some further grouting work on the building side of the wall was completed on October 31st to ensure that the repair holds long-term, and then a coating system will be applied inside of the splitter box in the affected areas during the MCAWRRF Concrete Repairs CIP Project.

23. 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 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. RWSA authorized improvements to locks and doors across the MCAWRRF site on May 4, 2021, in order to improve the condition of the hardware and subsequently, operations of the access control system. In addition, installation of the card access system on all exterior doors at the Scottsville and Crozet Water Treatment Plants (SVWTP and CZWTP, respectively) was authorized shortly thereafter. RWSA also authorized installation of security conduits not already included at SRWTP and OBWTP under the Improvements Project in August 2021.

Access Control on exterior doors at the CZWTP and SVWTP was substantially completed in November 2021. Conduit work at SRWTP and OBWTP was substantially complete in May 2022.

Access Control on Exterior doors at RHWTP, SVWRRF, and GWRRF was authorized in March 2022, and Access Control on Exterior Doors at remaining dams, pump stations, and other remote facilities (twelve total) was authorized in August 2022. A pilot program for electronic padlocks, utilized at remote facilities where traditional padlocks would normally be used, was authorized in September 2022.

RIVANNA WATER & SEWER AUTHORITY
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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 APRIL 2023**

DATE: **MAY 23, 2023**

The monthly and average daily Urban water system usages by the City and the ACSA for April 2023 were as follows:

	Month	***Daily Average***	
City Usage (gal)	140,682,384	4,689,413	**49.3%**
ACSA Usage (gal)	144,423,698	4,814,123	**50.7%**
Total (gal)	**285,106,082**	**9,503,536**	

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 May 2022), and that usage relative to the maximum allocation for each party (6.71 MGD for the City and 11.99 MGD for ACSA). Completed in 2019 for a cost of about $3.2 M, our Wholesale Metering Program consists of 25 remote meter locations around the City boundary and 3 finished water flow meters at treatment plants.

Figure 1: City of Charlottesville Monthly Water Usage and Allocation

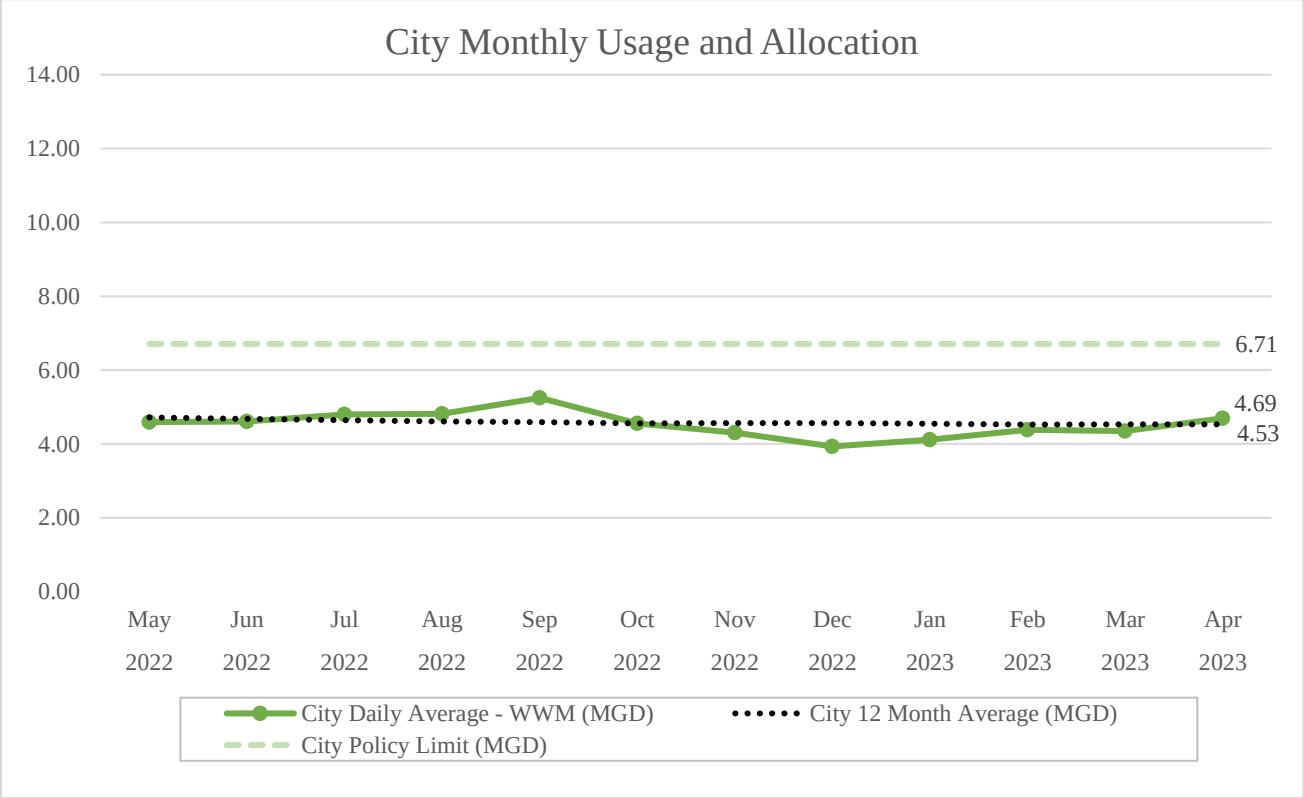
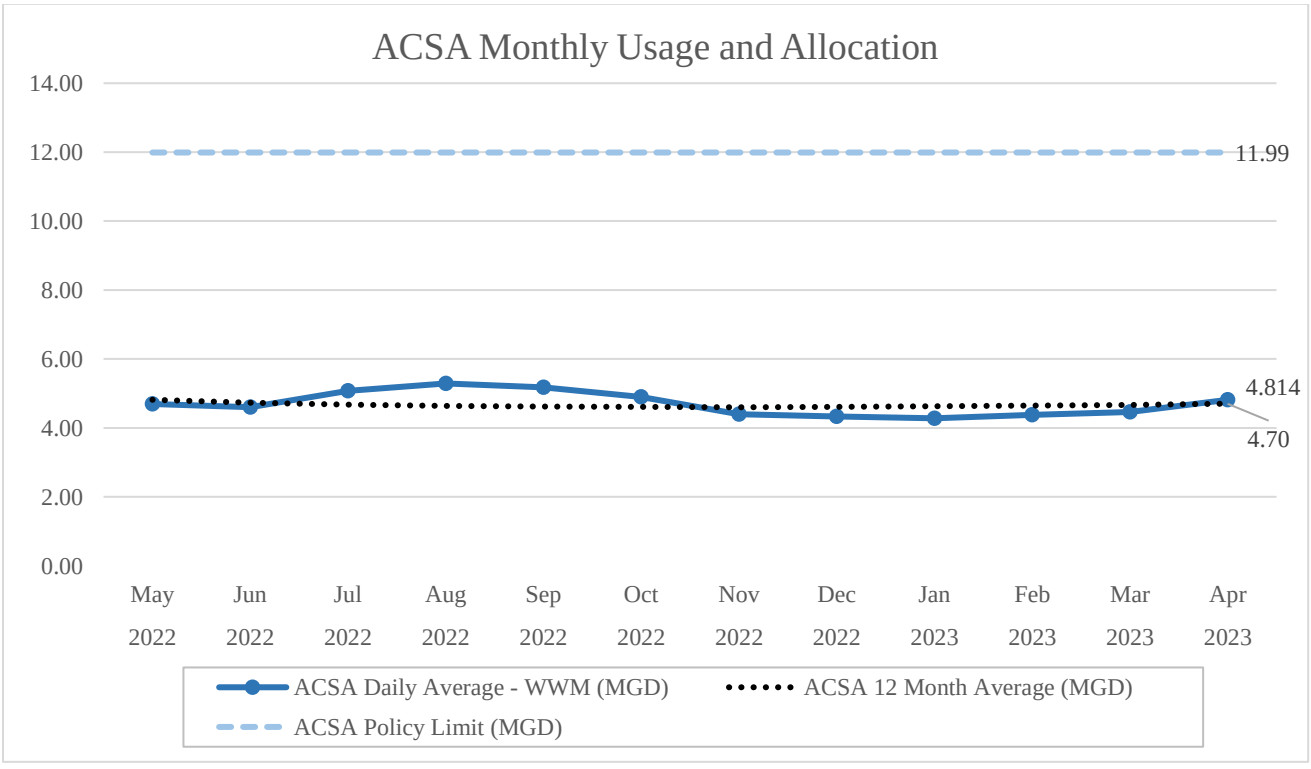


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation



Meter Locations for the Wholesale Water Metering Project

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

FROM: **ANDREA BOWLES, WATER RESOURCES MANAGER**
JENNIFER WHITAKER, DIRECTOR OF ENGINEERING & MAINTENANCE

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **DROUGHT MONITORING REPORT**

DATE: **MAY 23, 2023**

Drinking Water Supply and Drought Monitoring, as of May 12, 2023:

A. U.S. Drought Monitoring Report:
   - Albemarle County has been downgraded to no drought conditions for most of the Urban Area. Southern portions of Albemarle County are listed as Abnormally Dry.

B. VDEQ Drought Status Report:
   - Our region is downgraded to a "Watch" level for groundwater.

C. Reservoirs; Sugar Hollow, South Rivanna, Ragged Mountain, Beaver Creek, Totier Creek:
   - 100% full.

Precipitation

Charlottesville Precipitation				
Year	Month	Observed (in.)	Normal (in.)	Departure (in.)
2021	Total: Jan - Dec	33.82	41.61	-7.79
2022	Total: Jan - Dec	43.53	41.61	+1.92
2023	Total: Jan - Apr	9.49	13.47	-3.98

Source: National Weather Service, National Climatic Data Center.

Drought History in Virginia

Severe: 1930, 1966, 1982, 2002

Longest: May 2007 – April 2009 = 103 weeks

Significant: every 10 -15 years

Drought of Record: 2001-2002

Source: National Drought Information System – NOAA

RIVANNA AUTHORITIES
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MEMORANDUM

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

FROM: **LONNIE WOOD, DIRECTOR OF FINANCE & ADMINISTRATION**
BETSY NEMETH, HUMAN RESOURCES MANAGER

SUBJECT: **FISCAL YEAR 2023-2024 PAY SCALE ADJUSTMENT, RESTRUCTURING AND REGRADING**

DATE: **MAY 23, 2023**

This request is to authorize:

- A 10% increase in the pay ranges included in our pay scale to help us hire and retain a highly qualified workforce, reduce compression, and keep pace with high inflation in a competitive hiring market. The budget impact for this scale increase is $2800 for the RSWA and $12,000 for the RWSA to bring all salaries to the scale minimum.

- Restructuring of our unified pay scale from grades 30 – 240 to grades 10 – 270, which includes adding four higher level pay grades to the top of our pay scale to be more comparable with other local government agencies, three new positions included in the FY 2024 proposed budget, and career ladder positions for our Utility Locator and Engineering Inspectors. There is no impact to the budget resulting from these changes.

- Changing the pay grade for a number of positions to more accurately reflect market pay ranges. There is no impact to the budget resulting from these changes.

Background

The Rivanna Authorities Personnel Management Plan establishes a procedure for the Executive Director to recommend adjustments to the pay scale. This recommendation supports our Strategic Plan – Workforce Development goal of attracting and retaining a highly-skilled team of professionals, by increasing starting pay at the lower end of our pay scale and reducing compression at the higher end of our pay scale. Based on the continued significant inflation in our country and area, we recommend the pay scale be increased by 10% and that four additional pay grades be added on July 1, 2023. While the national unemployment rate in April 2023 was 3.4%, Virginia (3.2% in March) and the Charlottesville area (2.6% in March) have lower unemployment rates which continues to make the local job market very competitive. These changes will also help us to maintain the lower turnover rate of 7.4% for this fiscal year to date, which meets our Strategic Plan goal of keeping turnover below 10%. For the past five years we have averaged an annual turnover rate of 19% for RSWA and 15% for RWSA. This change allows the Authorities to attract and retain high-level management talent and remain comparable to other salaries in our area for that level of management. As shown by the chart below, Rivanna pay ranges are significantly less than other local agencies for director- level employees.

Local Salary Ranges - Department Director				
	Charlottesville	**Albemarle County**	**ACSA**	**RWSA/RSWA**
Current	$92K - $197K	$108K - $217K	$113K - $182K	$98K - $163K
Proposed FY2024	$101K - $244K*	$107K - $226K*	$121K - $195K	$103K - $198K
Positions	Directors/Deputies	Directors/Deputies	Directors	Directors

* = Approved salary range

Taking this into account, and to make the pay scale easier to understand, we have started the proposed FY 2024 pay scale at pay grade 10, instead of pay grade 30. We have also added four pay grades to the top of the scale which allows the Authorities to be more competitive in the market for high level management talent. The new paygrades are highlighted below.

Current Adopted FY2023 Pay Scale			
Grade	**Min**	**Mid**	**Max**
30	$33,672	$44,785	$55,898
40	$35,357	$47,023	$58,692
50	$37,125	$49,375	$61,626
60	$38,980	$51,844	$64,707
70	$40,929	$54,436	$67,943
80	$42,975	$57,159	$71,340
90	$45,125	$60,016	$74,907
100	$47,381	$63,018	$78,652
110	$49,750	$66,168	$82,585
120	$52,238	$69,476	$86,714
130	$54,849	$72,950	$91,050
140	$57,593	$76,598	$95,603
150	$60,472	$80,427	$100,383
160	$63,496	$84,448	$105,402
170	$66,670	$88,670	$110,672
180	$70,004	$93,105	$116,206
190	$73,503	$97,760	$122,015
200	$77,178	$102,648	$128,117
210	$81,037	$107,780	$134,523
220	$85,090	$113,169	$141,249
230	$89,345	$118,827	$148,311
240	$93,811	$124,768	$155,727
250	$98,502	$131,007	$163,512

Current Pay Scale with 4 Additional Grades			
Grade	**Min**	**Mid**	**Max**
10	$33,672	$44,785	$55,898
20	$35,357	$47,023	$58,692
30	$37,125	$49,375	$61,626
40	$38,980	$51,844	$64,707
50	$40,929	$54,436	$67,943
60	$42,975	$57,159	$71,340
70	$45,125	$60,016	$74,907
80	$47,381	$63,018	$78,652
90	$49,750	$66,168	$82,585
100	$52,238	$69,476	$86,714
110	$54,849	$72,950	$91,050
120	$57,593	$76,598	$95,603
130	$60,472	$80,427	$100,383
140	$63,496	$84,448	$105,402
150	$66,670	$88,670	$110,672
160	$70,004	$93,105	$116,206
170	$73,503	$97,760	$122,015
180	$77,178	$102,648	$128,117
190	$81,037	$107,780	$134,523
200	$85,090	$113,169	$141,249
210	$89,345	$118,827	$148,311
220	$93,811	$124,768	$155,727
230	$98,502	$131,007	$163,512
240	$103,427	$137,557	$171,688
250	$108,598	$144,435	$180,272
260	$114,028	$151,657	$189,286
270	$119,729	$159,240	$198,750

Proposed FY2024 Pay Scale - 10% Increase			
Grade	**Min**	**Mid**	**Max**
10	$37,040	$49,263	$61,488
20	$38,892	$51,726	$64,561
30	$40,837	$54,313	$67,788
40	$42,878	$57,028	$71,178
50	$45,022	$59,880	$74,738
60	$47,273	$62,875	$78,474
70	$49,637	$66,017	$82,398
80	$52,119	$69,320	$86,518
90	$54,725	$72,785	$90,843
100	$57,461	$76,424	$95,386
110	$60,334	$80,245	$100,155
120	$63,352	$84,257	$105,163
130	$66,519	$88,470	$110,421
140	$69,845	$92,893	$115,942
150	$73,337	$97,537	$121,739
160	$77,004	$102,415	$127,826
170	$80,853	$107,536	$134,217
180	$84,896	$112,913	$140,928
190	$89,141	$118,558	$147,975
200	$93,599	$124,486	$155,374
210	$98,279	$130,710	$163,143
220	$103,192	$137,245	$171,299
230	$108,352	$144,108	$179,864
240	$113,770	$151,313	$188,857
250	$119,458	$158,879	$198,299
260	$125,431	$166,823	$208,215
270	$131,702	$175,164	$218,625

We have also assigned new pay grades to each position. Because we started our proposed pay scale at pay grade 10 instead of pay grade 30, all positions need to be moved down two grades to remain in the same pay range. We have moved some positions to higher grades based on the current hiring market to make them comparable to similar positions internally or with other local agencies. The education or licensing credential requirements have also been increased for some of the positions. The positions we recommend moving up to a higher pay grade include:

Position	Proposed FY24 New Grade	Minimum	Midpoint	Maximum
RSWA Operator/Attendant	20	$38,892	$51,726	$64,561
Scale Clerk	30	$40,837	$54,313	$67,788
Administrative Assistant	30	$40,837	$54,313	$67,788
AP Associate	70	$49,637	$66,017	$82,398
AR Associate	70	$49,637	$66,017	$82,398
Payroll & Benefits Coordinator	70	$49,637	$66,017	$82,398
Accounting Associate	70	$49,637	$66,017	$82,398
RSWA Driver/Equipment Operator	80	$52,119	$69,320	$86,518
Executive Assistant	90	$54,725	$72,785	$90,843
Water Quality Specialist	90	$54,725	$72,785	$90,843
Assistant IT Administrator	130	$66,519	$88,470	$110,421
Laboratory Manager	180	$84,896	$112,913	$140,928
Maintenance Manager	180	$84,896	$112,913	$140,928
Senior Civil Engineer	180	$84,896	$112,913	$140,928
Senior IT Administrator	180	$84,896	$112,913	$140,928
Solid Waste Manager	180	$84,896	$112,913	$140,928
Wastewater Manager	180	$84,896	$112,913	$140,928
Water Manager	180	$84,896	$112,913	$140,928
Engineering Manager	210	$98,279	$130,710	$163,143
IT Manager	210	$98,279	$130,710	$163,143
Director of Solid Waste	240	$113,770	$151,313	$188,857
Director of Engineering & Maintenance	250	$119,458	$158,879	$198,299
Director of Finance & IT	250	$119,458	$158,879	$198,299
Director of Operations & Environmental Services	250	$119,458	$158,879	$198,299

We have also added three new positions that will be filled in the upcoming fiscal year if approved by the Board of Directors. Those positions include the Director of Administration & Communications, a Finance Manager, and an Engineering Inspection Supervisor. Also, in keeping with our Workforce Development strategy for succession management, we have created a career ladder for the Engineering Inspector position to the following positions: Utility Locator; Engineering Inspectors 1, 2, and 3. These new positions are designed to allow our Engineering Inspectors to have a career path through which they progress based on their continued learning and the certifications they obtain. These new positions and corresponding pay grades are listed below.

Position	Proposed Pay Grade	Minimum	Midpoint	Maximum
Utility Locator	40	$42,878	$57,028	$71,178
Engineering Inspector 3	60	$47,273	$62,875	$78,474
Engineering Inspector 2	80	$52,119	$69,320	$86,518
Engineering Inspector 1	100	$57,461	$76,424	$95,386
Engineering Inspection Supervisor	140	$69,845	$92,893	$115,942
Finance Manager	180	$84,896	$112,913	$140,928
Director of Administration & Communication	240	$113,770	$151,313	$188,857

Board Action Requested:

Approve the following changes to our Personnel Management Plan, effective July 1, 2023:

- a 10% increase in the pay ranges included in our pay scale to help us hire and retain a highly qualified workforce, reduce compression, and keep pace with high inflation in a competitive hiring market.

- Restructuring of our unified pay scale from grades 30 – 240 to grades 10 – 270, which includes adding four higher level pay grades to the top of our pay scale, three new positions, and career ladder positions for our Utility Locator and Engineering Inspectors

- Change the pay grade for a number of positions to more accurately reflect market pay ranges

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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: **APPROVAL OF ENGINEERING SERVICES - BEAVER CREEK DAM DESIGN SERVICES – SCHNABEL ENGINEERING**

DATE: **MAY 23, 2023**

This request is to authorize the Executive Director to execute a Work Authorization with Schnabel Engineering totaling $1,717,050 to provide design engineering services for the Beaver Creek Dam Improvements project. The total project cost is estimated to be $22.6 million. Grant funding from the Natural Resources Conservation Service (NRCS) has been approved in the amount of $980,250 to cover eligible design tasks, which include all tasks related to upgrading the spillway for dam safety compliance. Design of a temporary detour road for construction, design of a spillway bridge for Browns Gap Turnpike, and permitting assistance are not eligible tasks for reimbursement.

Background

The Beaver Creek Dam and Reservoir were constructed in 1963 to provide raw water supply and flood control for the Crozet Community. Changes to the Virginia Department of Conservation and Recreation (DCR) *Impounding Structures Regulations* prompted a change in hazard classification of the Beaver Creek Dam from Significant Hazard to High Hazard, necessitating an upgrade to the capacity of the dam's spillway. To address this requirement, RWSA and its consultants developed a Supplemental Watershed Work Plan-Environmental Assessment (Plan-EA) for the rehabilitation of the dam with funding and support from NRCS. This Plan-EA identified the best rehabilitation option to be a labyrinth-crested chute spillway over the existing dam embankment.

RWSA entered into a term agreement with Schnabel Engineering on August 15, 2022, for Professional Dam Engineering Services. Under this contract, Schnabel Engineering will provide engineering services for the final design of the Beaver Creek Dam Spillway Upgrades. Engineering staff has negotiated a scope of work for these services to include the tasks listed below. All tasks are eligible for NRCS grant reimbursement except where noted below:

- Field Investigations, including field surveys and mapping, geologic exploration, and an assessment of existing structural conditions of the concrete riser structure and principal spillway conduit
- Reviews and revisions to rock and soil mechanics analyses, hydrologic calculations, and

hydraulic design of the labyrinth-crested chute spillway completed during development of the Plan-EA

- Development of an Engineering Design Report, Design Specifications, and Construction Documents, and coordination with NRCS for review and approval
- Design of an on-site Detour and Maintenance of Traffic (MOT) Plans (not eligible for grant reimbursement)
- Design of a Spillway Bridge and coordination with the Virginia Department of Transportation for review and approval (not eligible for grant reimbursement)
- Permitting Support (not eligible for grant reimbursement)

The fee for this design work is within the proposed CIP Budget for the Beaver Creek Dam Improvements project. Bid Phase and Construction Phase services will be negotiated once the availability of funding for construction has been determined, since NRCS involvement would have a significant impact on the required scope of work.

Board Action Requested:

Authorize the Executive Director to execute a Work Authorization with Schnabel Engineering for design engineering services for the Beaver Creek Dam Improvements project totaling $1,717,050, with $980,250 to be reimbursed through an NRCS grant, and any amendments needed to complete the tasks identified above, not to exceed 25% of the Work Authorization amount provided the resulting total cost is within the approved CIP project budget.

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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: **APPROVAL TO INCREASE CONSTRUCTION CONTINGENCY – MCAWRRF 5 KV ELECTRICAL INFRASTRUCTURE IMPROVEMENTS – PYRAMID ELECTRICAL CONTRACTORS, LLC**

DATE: **MAY 23, 2023**

This request is to authorize an increase in the Construction Contingency from 10% to 15% % (from $390,000 to $585,000 = an increase of $195,000) of the original construction contract value ($3.905 M) due to Change Orders required to address unforeseen conditions and other necessary changes which have utilized the majority of the 10% contingency. Additional changes including installation of a manual transfer switch at the Administration Building to support the hookup of temporary generators, and additional site improvements around the new electrical switchgear building, are anticipated to exceed that 10% value and require an increase in the construction contingency. This increase is within the total approved CIP project budget of $5.635 M.

Background

The MCAWRRF Electrical Infrastructure Improvements Project was bid in the midst of the COVID-19 Pandemic, and due to a variety of factors related to market conditions and overall economic volatility, Pyramid Electrical Contractors, LLC (Pyramid) was the sole bidder for this project. RWSA and Hazen (the design consultant for the project) reviewed Pyramid's qualifications and submitted cost, and ultimately recommended proceeding with Pyramid's bid, given RWSA's favorable past experiences with Pyramid, and the overall urgency associated with this project. On February 22, 2022, the Board of Directors approved award of a Construction Contract to Pyramid Electrical Contractors, LLC for the MCAWRRF Electrical Infrastructure Project in the amount of $3,905 M including any change orders not to exceed 10% of this original contract amount. Since the project began, various Change Orders have been issued to account for scope changes and unforeseen conditions which have utilized the majority of the originally approved 10% contingency value. Additional changes including the addition of a manual transfer switch at the Administration Building to ease the hookup of temporary generators and additional site improvements around the new electrical switchgear building location are anticipated to exceed that 10% value and require an increase in the construction contingency.

Board Action Requested:

Authorize an increase in total Construction Contingency from 10% to 15% of the original contract value of $3,905,000 for the MCAWRRF 5 KV Electrical Infrastructure Improvements Project.

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: **APPROVAL OF ENGINEERING SERVICES – SOUTH FORK RIVANNA RESERVOIR TO RAGGED MOUNTAIN RESERVOIR PIPELINE, INTAKE & FACILITIES PROJECT – PIPELINE DESIGN, BIDDING, AND CONSTRUCTION ADMINISTRATION– KIMLEY-HORN**

DATE: **MAY 23, 2023**

This request is to authorize design, bidding, and construction administration services for the planned raw water pipeline from the South Fork Rivanna Reservoir to Route 250W for an amount not to exceed $1,380,460. The total project budget is estimated to be $82 million.

Background

The South Fork Rivanna Reservoir (SFRR) to Ragged Mountain Reservoir (RMR) raw water pipeline is a part of the community's approved and permitted Water Supply Plan. The pipeline and associated facilities will give RWSA the ability to move water between the two reservoirs and two water treatment plants. This flexibility will enhance the operational capabilities of the Urban Water System and provide increased drinking water supply to support our community during drought conditions. This section of the new raw water pipe is expected to be constructed of 36-inch ductile iron and will span approximately 6.5 miles, extending from the South Rivanna WTP to Route 250, tying into the northern terminus of the previously constructed pipeline in the Birdwood Golf Course.

RWSA entered into a term agreement with Kimley-Horn and Associates on May 4, 2021, for Professional Water & Sewer Engineering Services. Under this current authorization, Kimley-Horn will provide design, bidding, and construction administration services for this portion of the pipeline project, excluding topographic survey. The topographic survey is currently being completed by Kimley-Horn and Associates, after these services were expedited to allow for aerial survey prior to full spring foliage and was approved by the Board via a separate request on February 28, 2023.

Board Action Requested:

Authorize the Executive Director to execute a Work Authorization with Kimley-Horn and Associates for Professional Engineering services related to design, bidding and construction administration for the SFRR to RMR Pipeline, Intake & Facilities Project, for an amount not to exceed $1,380,460, and any amendments needed to complete the tasks identified above, not to exceed 25% of the original contract amount provided the resulting total cost is within the approved CIP project budget.

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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: **APPROVAL OF ENGINEERING SERVICES – SOUTH FORK RIVANNA RESERVOIR TO RAGGED MOUNTAIN RESERVOIR PIPELINE, INTAKE & FACILITIES PROJECT – SOUTH FORK RIVANNA RESERVOIR INTAKE AND PUMP STATION PRELIMINARY ENGINEERING REPORT– KIMLEY-HORN**

DATE: **MAY 23, 2023**

This request is to authorize completion of a Preliminary Engineering Report for the new SFRR Raw Water Intake and Pump Station as part of the SFRR to RMR Pipeline, Intake & Facilities Project, for an amount not to exceed $709,150. The estimated cost of the total project is $82 million.

Background

The South Fork Rivanna Reservoir (SFRR) to Ragged Mountain Reservoir (RMR) Pipeline, Intake & Facilities project is a part of the community's approved and permitted Water Supply Plan. The SFRR intake, pump station, and associated facilities are a part of this project and will give RWSA the ability to move water between the two reservoirs and two water treatment plants. This flexibility will enhance the operational capabilities of the Urban Water System and provide increased drinking water supply to support our community during drought conditions. The new raw water intake and pump station will be sized to support 25 MGD of transfer capabilities to fill RMR quickly in times of drought, as well as provide water to both SRWTP and OBWTP from deeper levels in SFRR previously unavailable with the current intake. The preliminary engineering report (PER) will confirm the location and layout of the new intake and pump station, hydraulic requirements, and coordination with appropriate DEQ and U.S. Army Corps of Engineers Permits, as well as traditional engineering design considerations associated with the process, mechanical, electrical, civil, and architectural disciplines.

RWSA entered into a term agreement with Kimley-Horn and Associates on May 4, 2021, for Professional Water & Sewer Engineering Services. Under this current authorization, Kimley-Horn will provide a PER for the new SFRR Intake and Pump Station for the SFRR to RMR Pipeline, Intake & Facilities project.

Board Action Requested:

Authorize the Executive Director to execute a Work Authorization with Kimley-Horn and Associates for Professional Engineering services to provide a Preliminary Engineering Report for the SFRR to RMR Pipeline, Intake & Facilities Project, for an amount not to exceed $709,150, and any amendments needed to complete the tasks identified above, not to exceed 25% of the original contract amount, provided the resulting total cost is within the approved CIP project budget.

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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: **APPROVAL OF ENGINEERING SERVICES – CROZET PUMP STATIONS REBUILD – DESIGN, BIDDING AND CONSTRUCTION ADMINISTRATION – WILEY|WILSON**

DATE: **MAY 23, 2023**

This request is to authorize design, bidding, and construction administration services for the Crozet Wastewater Pump Stations Rebuild project for an amount not to exceed $1,021,000. The estimated total project cost is $10.3 million.

Background

The Crozet Interceptor Pump Stations were constructed in the 1980's and many of the components are original. The interceptor conveys sewer flows from Crozet through the Urban collection system into the Moores Creek Advanced Water Resource Recovery Facility. There are four pump stations in the Crozet area that lift the sewage to facilitate conveyance to downstream gravity sewers as part of that system.

This project includes the replacement of pumps, valves, roofs, building siding, new non-potable water wells, motor control centers, generators, and transfer switches at these four pump stations. This project was initially conceived to included limited replacement pumps and valves, but after further evaluation and condition assessments of the four existing pump stations, it was determined that many of the other components were at or past their useful life as well.

RWSA entered into a term agreement with Wiley|Wilson on May 13, 2019, for Professional Wastewater Treatment Plant Engineering Services. Under this contract Wiley|Wilson will provide design, bidding, and construction administration services for this project.

Board Action Requested:

Authorize the Executive Director to execute a Work Authorization with Wiley|Wilson for Professional Engineering services related to design, bidding and construction administration for the Crozet Pump Stations Rebuild project, for an amount not to exceed $1,021,000, and any amendments needed to complete the tasks identified above, not to exceed 25% of the original contract amount, provided the resulting total cost is within the approved CIP project budget.

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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: **APPROVAL OF ENGINEERING SERVICES – EMMET STREETSCAPE WATER LINE BETTERMENT DESIGN SERVICES – WHITMAN, REQUARDT & ASSOCIATES, LLP**

DATE: **MAY 23, 2023**

This request is to authorize the Executive Director to execute a Work Authorization with Whitman, Requardt & Associates, LLP (WRA) totaling $381,276 to provide engineering design, bidding, and construction phase services for a new 24-30" water main in Emmet Street between Ivy Road and Arlington Boulevard. This water main will be constructed as part of the City of Charlottesville's Emmet Street Streetscape project (Emmet Streetscape project). The total cost for this section of water main, including design, construction, and construction phase services, is $4.6 million.

Background

The Urban Finished Water Master Plan identified several necessary upgrades to the urban water distribution system to improve system performance and reliability. One identified upgrade is an extension of the existing RWSA water main along the Emmet Street corridor from the University of Virginia to Hydraulic Road. Where possible, this project will utilize planned road, streetscape, utility, and development projects along Emmet Street to complete portions of the Emmet Street Water Main as betterment.

The City of Charlottesville's Emmet Streetscape project is currently under design, and the City has agreed to allow construction of approximately 2,400 LF of new 24-30" RWSA water main as part of this project. RWSA is responsible for completing the design of the water main, and the City's Engineer, Clark-Nexsen (C-N), will be responsible for incorporating the water main design into the Construction Drawings and Maintenance of Traffic (MOT) plans for the streetscape project.

RWSA entered into a term agreement with WRA on May 25, 2021, for Professional Water and Sewer Engineering Services. Under this contract, WRA will provide design, bidding, and construction phase services for 2,400 LF of 24-30" water main within the limits of the Emmet Streetscape project. Engineering staff has negotiated a scope of work with WRA which includes

the tasks listed below:

- Field Investigation, including utility test holes and limited geotechnical investigation
- Development of 70%, 90%, and Final Design Documents and Cost Estimates
- Coordination with the City's Engineer, Clark Nexsen (C-N), for incorporation of the water main drawings into the construction drawings for the Emmet Streetscape project
- Review and Coordination Meetings with RWSA and C-N
- Permitting Support for VDH, CSX, and other required permits, in coordination with C-N
- Bidding Assistance
- Construction Phase Services, to include Contractor Meetings, review of technical submittals and shop drawings, RFI responses, change order review, and on-call inspection services

The fee for this work is within the proposed CIP Budget for the Emmet Street Water Line Betterment Project.

Staff are currently negotiating a Betterment Agreement with the City of Charlottesville that will outline the terms of reimbursement for Clark-Nexsen's additional design work and the cost of the water main construction. This Agreement will be presented to the Board for approval at a later date.

Board Action Requested:

Authorize the Executive Director to execute a Work Authorization with Whitman, Requardt & Associates, LLP for engineering design, bidding, and construction phase services for the Emmet Street Water Line Betterment Project totaling $381,276, and any amendments needed to complete the tasks identified above, not to exceed 25% of the Work Authorization amount, provided the resulting total cost is within the approved CIP project budget.

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MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **APPROVAL OF THE FY 2024– 2028 CAPITAL IMPROVEMENT PLAN**

DATE: **MAY 23, 2023**

The proposed FY 2024-2028 Capital Improvement Plan (CIP) totaling 56 projects and $326.1 M was reviewed in detail with the Board during the February 2023 meeting, and will be briefly reviewed again today. We continue to strategically plan for the water supply, drinking water, and wastewater treatment facilities required to meet the requirements of Federal and State regulations, as well as the quantity, quality, and reliability expectations of the public drinking water and wastewater customers in our community. Projects to achieve these objectives in a financially responsible manner have been included in this proposed CIP.

This CIP will provide significant advancements towards completion of the community's water supply plan, our defense against a changing climate and the resulting extended drought conditions. The five-year plan will also expand our advanced drinking water treatment system and improve water facilities in the Rt. 29 North area. Collectively, we will continue to meet the quantity, quality, and reliability expectations of the public drinking water and wastewater customers in our community. While generational inflation has significantly increased our budget, we have collaborated with the ACSA and City Utilities to achieve these objectives in a financially responsible manner with the projects included in this proposed CIP.

During this five-year period, the CIP will significantly strengthen our drinking water systems with expenditures of $192.2 M for essential projects including:

- Accelerating completion of the South Fork Rivanna Reservoir to Ragged Mtn Reservoir Water Pipe and Pumping Project from 2033 to 2030
- Additional Granular Activated Carbon Water Filtering Facilities at the Crozet and Red Hill Water Treatment Plants, utilizing $3.17 M in grant funding for the $5 M project
- Replacement of Raw Water Piping and Pumping Stations from Ragged Mountain Reservoir to the Observatory Water Treatment Plant
- A Major Urban Area Water Distribution Pipe, the Central Water Line
- Modifications to the Beaver Creek Reservoir Dam, Pump Station and Piping
- Additional Water Pipe Crossings of the South and North Forks of the Rivanna River
- Completion of the Airport Road Water Pump Station

We will also complete significant improvements to our wastewater treatment and piping facilities to ensure regulatory compliance and environmental protection. The proposed CIP includes $58.2 M for essential wastewater projects including:

- Replacement of Major Electrical Systems at Moores Creek

- Renovations and Repairs to Wastewater Facilities (Moores Creek, Scottsville, Glenmore, and Crozet Pump Stations and Piping)
- Repairs and Replacement of Wastewater Piping and Manholes (Crozet, Albemarle-Berkley, 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:

Approve the FY 2024 – 2028 CIP totaling $326.1 million.

Capital Improvement Plan

Fiscal Years 2024-2028

Draft May 2023


Beaver Creek Reservoir


Moores Creek AWRRF

OUR MISSION

Our knowledgeable and professional team serves the Charlottesville, Albemarle, and UVA community by providing high-quality water and wastewater treatment, refuse, and recycling services in a financially responsible and sustainable manner.


South Rivanna Water Treatment Plant


Observatory Water Treatment Plant


Ragged Mountain Reservoir

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

RIVANNA
WATER & SEWER AUTHORITY

Introduction

The Capital Improvement Plan (CIP) for Fiscal Years 2024-2028 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 2024-2028 CIP. These projects account for approximately $8.74 million or 4% of the FY 2023-2027 CIP. These projects include:

- 17 Scottsville Water Treatment Plan Lagoon Liner Replacement
- 20 Crozet Interceptor Rehabilitation
- 21 Crozet Flow Equalization Tank
- 25 Moores Creek AWRRF Aluminum Slide Gate Replacement
- 37 Glenmore WRRF Influent Pump and VFD Addition
- 38 Radio Upgrades

The total 5-year 2024-2028 CIP is approximately $326.1 million, with the previous expenditures on active projects totaling $35.6 million, leaving a net proposed 5-year projected expenditure of $290.5 million.

There are six (6) new projects added to the CIP this year. The total estimated expenditures for the projects equal $7.7 million and include:

- 16 Berkmar Drive Ext. Waterline - Phase 2
- 17 Urban Storage Evaluation and Tank(s) Addition
- 20 South Rivanna WTP-PAC Upgrades
- 39 Interceptor Sewer and Manhole Repair – Phase 3
- 47 Moores Creek AWRRF MCPS – Slide Gates, Valves, Bypass & Septage Receiving Upgrades
- 56 Climate Change Flood Resilience Enhancements

There were two (2) projects with mid-year cost additions totaling $0.685 million:

- 17 Scottsville Water Treatment Plant Lagoon Liner Replacement

- 19 South Rivanna Water Treatment Plant Improvements

There were seventeen (17) projects that rolled in to the 5-Year CIP totaling $6.966 million:

- 06 South Fork Rivanna Reservoir Aeration & Ragged Mountain Reservoir HLOS Systems
- 08 Urban WTP's – GAC Building Dehumidification
- 09 OBWTP – Backwash Basin Sludge Removal and Inspection
- 13 Avon, Pantops and Observatory Tank Painting
- 14 Second N. Rivanna River Crossing & Select Pipe Replacement
- 24 Buck's Elbow Tank and Waterball Painting
- 25 Crozet WTP – GAC Building Dehumidification
- 26 Crozet AC Pipe Replacement
- 28 Crozet Finished Water Greyrock Pump Station
- 29 Scottsville WTP – Upgrade
- 31 Scottsville AC Pipe Replacement
- 33 Scottsville WTP – GAC Building Dehumidification
- 35 Maury Hill Branch Sewer Replacement
- 37 Albemarle Berkley Pump Station Upgrade
- 49 Scottsville WRRF Lagoon Outfall Rehabilitation
- 50 Scottsville WRRF Polymer Feed Addition
- 51 Glenmore WRRF Polymer Feed Addition

There were three (3) projects whose timeline was accelerated totaling $39.545 million:

- 04 SFRR to RMR Pipeline, Intake & Facilities
- 27 Crozet WTP – Full GAC Treatment
- 32 Red Hill WTP – Full GAC Treatment

There were twenty-three (23) projects that were subject to inflation and scope progression resulting in a total proposed increase of $74.964 million. Below are those projects showing the existing amount and the recommended total CIP amount:

- 02 Ragged Mountain Reservoir to Observatory WTP Raw Water Line ($16.9 million existing / $33 million proposed)
- 03 Ragged Mountain Reservoir to Observatory WTP Raw Water Pump Station ($8.8 million existing / $11.3 million proposed
- 05 SRR to RMR – Birdwood to Old Garth ($1.9 million existing / $3.8 million proposed)
- 10 Central Water Line ($24 million existing / $41 million proposed)
- 11 South Fork Rivanna River Crossing ($5.8 million existing / $6.9 million proposed)
- 15 Emmet Street Betterment ($2.9 million existing / $10.6 proposed)
- 21 North Rivanna WTP Decommissioning ($2.4 million existing / $2.7 million proposed)
- 22 Beaver Creek Dam Alteration ($16.1 million existing / $22.7 million proposed)
- 23 Beaver Creek New Raw Water Pump Station ($15.6 million existing / $20.2 million proposed)
- 30 Red Hill WTP – Upgrades ($0.41 million existing / $0.44 Million proposed)
- 34 Upper Schenks Branch Interceptor ($4.7 million existing / $5.3 million proposed)

- 36 Crozet Pump Station 1, 2, 3 Rehabilitation ($0.590 million existing / $10.3 million proposed
- 38 Interceptor Sewer and Manhole Repair – Phase 2 ($0.965 million existing / $1.2 million proposed)
- 40 Moores Creek AWRRF Engineering and Administration Building ($8.5 million existing / $10.5 million proposed)
- 41 Moores Creek AWRRF Biogas Upgrades ($2.9 million existing / $3.6 million proposed)
- 42 Moores Creek AWRRF Building Upfits and Gravity Thickener Improvements ($4.2 million existing / $4.5 million proposed)
- 46 Moores Creek AWRRF Structural and Concrete Rehabilitation ($8.9 million existing / $11.3 million proposed)
- 44 Moores Creek AWRRF 5kV Electrical System Upgrade ($5 million existing / $5.6 million proposed)
- 45 Moores Creek AWRRF Yard Piping Upgrades ($0 existing / $0.315 million proposed)
- 47 Moores Creek AWRRF MCPS – Slide Gates, Valves, Bypass & Septage Receiving Upgrades ($0 existing / $3.6 million proposed)
- 48 Scottsville WRRF Whole Plant Generator and ATS ($0.2 million existing / $0.5 million proposed)
- 53 Security Enhancements ($2.8 million existing / $2.9 million proposed)
- 55 ACM Remediation ($0 existing / $0.94 million proposed)

In summary, the FY 24-28 CIP is largely driven by an increase in project costs and accelerated projects. The impact of all cost factors can be seen in Table 1 below:

Table 1	
FY Line Item	Cost
23-27 Capital Improvement Plan	$205,120,000
Mid-Year Additions	$ 685,000
FY 28 Projects	$ 6,966,000
Inflation and Scope Additions	$ 74,946,000
New Projects	$ 7,700,000
Accelerated Projects	$ 39,545,000
Completed Projects	$ (8,915,000)
Total	**$326,125,000**

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 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress**
Urban Water (UW)										
Community Water Supply Plan	$33,565,000	$54,540,000	$7,400,000	$6,195,000	$13,170,000	$16,250,000	$22,000,000	$23,090,000	$88,105,000	$2,160,511
Observatory WTP & Ragged Mountain/Sugar Hollow Reservoir System	$23,000,000	($750,000)	$22,000,000	$0	$0	$0	$0	$250,000	$22,250,000	$9,090,262
Finished Water Storage/Distribution	$42,750,000	$30,300,000	$13,235,000	$9,280,000	$10,635,000	$15,375,000	$13,875,000	$10,650,000	$73,050,000	$2,947,593
South & North Fork Rivanna Water System	$23,150,000	$3,035,000	$22,795,000	$160,000	$2,440,000	$790,000	$0	$0	$26,185,000	$17,919,462
Subtotal (UW)	$122,465,000	$87,125,000	$65,430,000	$15,635,000	$26,245,000	$32,415,000	$35,875,000	$33,990,000	$209,590,000	$32,117,828
Non-Urban Water (NUW)										
Crozet Water System	$31,800,000	$19,510,000	$2,278,000	$7,297,000	$18,530,000	$17,500,000	$4,005,000	$1,700,000	$51,310,000	$1,186,926
Scottsville Water System	$410,000	$1,010,000	$410,000	$101,000	$134,000	$95,000	$0	$680,000	$1,420,000	$0
Subtotal (NUW)	$32,210,000	$20,520,000	$2,688,000	$7,398,000	$18,664,000	$17,595,000	$4,005,000	$2,380,000	$52,730,000	$1,186,926
WATER TOTAL	$154,675,000	$107,645,000	$68,118,000	$23,033,000	$44,909,000	$50,010,000	$39,880,000	$36,370,000	$262,320,000	$33,304,754

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 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress**
Urban Wastewater (UWW)										
Wastewater Interceptors and Pumping Stations	$6,280,000	$11,665,000	$5,690,000	$1,150,000	$7,295,000	$2,745,000	$0	$1,065,000	$17,945,000	$93,054
Moores Creek AWRRF	$30,460,000	$9,815,000	$10,355,000	$9,055,000	$14,855,000	$5,640,000	$0	$370,000	$40,275,000	$495,350
Subtotal (UWW)	$36,740,000	$21,480,000	$16,045,000	$10,205,000	$22,150,000	$8,385,000	$0	$1,435,000	$58,220,000	$588,404
Non-Urban Wastewater (NUWW)										
Scottsville WRRF	$200,000	$371,000	$191,000	$304,000	$25,000	$0	$0	$51,000	$571,000	$5,000
Glenmore WRRF	$0	$30,000	$0	$0	$0	$0	$0	$30,000	$30,000	$0
Subtotal (NUWW)	$200,000	$401,000	$191,000	$304,000	$25,000	$0	$0	$81,000	$601,000	$5,000
WASTEWATER TOTAL	$36,940,000	$21,881,000	$16,236,000	$10,509,000	$22,175,000	$8,385,000	$0	$1,516,000	$58,821,000	$593,404
All Systems Security & Technology	$4,590,000	$394,000	$3,722,000	$848,000	$320,000	$0	$0	$94,000	$4,984,000	$1,748,910
TOTAL	$196,205,000	$129,920,000	$88,076,000	$34,390,000	$67,404,000	$58,395,000	$39,880,000	$37,980,000	$326,125,000	$35,647,068

PROJECT DETAILS

Completed Projects

During fiscal year 2023, 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 six (6) completed projects, pertinent information on the adopted budgets, as well as the projected final costs and any anticipated savings. There was a total completed project cost savings of $0.5 million.

17. Scottsville Water Treatment Plant Lagoon Liner Replacement: The Scottsville Water Treatment Plant has two waste lagoons that receive filter backwash water, filter-to-wastewater, 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 reached the end of its useful life and was showing sections of wear and degradation. In order to maintain the integrity of the lagoons, new HDPE liners were installed. Albemarle County awarded this project an ARPA Grant of $315,000.

20. 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 required rehabilitation. In order to minimize future infrastructure improvements, ACSA and RWSA agreed to rehabilitate this interceptor and the sewers that flow to the interceptor. The initial phase of rehabilitation to repair the highest priority defects in manholes and pipelines contributing to the inflow and infiltration in the interceptor upstream of Crozet Pump Station No. 4 was completed under a previous project. Evaluation of the entire interceptor downstream of Crozet Wastewater Pump Station No. 4 (CZWWPS4), as well as remaining rehabilitation upstream of CZWWPS4, was completed under this latest project. 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. Rehabilitation efforts downstream of Crozet Pump Station No. 4 will take place in Phase 2 of the Interceptor Sewer and Manhole Repair Project.

21. 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. The results of the 2016 Comprehensive Sanitary Sewer Model & Study confirmed the need to proceed with the construction of a flow equalization tank in the Crozet Area. Based on those results, a preliminary engineering evaluation and siting analysis of a flow equalization tank upstream of Crozet Pump Station No. 4 was performed. Design, permitting and construction of the facility is complete, and it is ready for operation to meet projected two-year storm flow targets.

25. Moores Creek AWRRF Aluminum Slide Gate Replacement: In the fall of 2022 RWSA completed replacement of several leaky slide gates at the Ultraviolet disinfection facility, which restored the full capacity of the facility. Two additional gates in the holding pond pump station from the original 1977 Moores Creek facility construction were non-operational and were replaced as part of this work. In addition, motor operated valves were added at the

headworks to improve wet weather operations related to the new grit facility, and three broken mud valves from the original 1977 Moores Creek facility construction were replaced.

Through separate procurements, inspections of the large aluminum slide gates at the influent side of the Moores Creek Pump Station have been conducted to determine the extent of repairs needed to stop them from leaking. Results of these investigations will be used to design a new project in the next CIP to repair the existing slide gates and add new gates so staff can have the flexibility to stop or divert flow to perform maintenance activities.

37. Glenmore WRRF Influent Pump and VFD Addition: The Glenmore WRRF is owned by ACSA and operated by the RWSA. The facility is an extended aeration treatment facility for domestic wastewater. A 2014 capacity evaluation confirmed that the facility was designed for growth in the Glenmore neighborhood and surrounding jurisdictional areas and could accommodate expansion. The Glenmore neighborhood reached the point where a third pump is now necessary. A new pump and VFD have been installed.

38. Radio Upgrades: The regional 800 MHz Public Safety Communication System, in which the Rivanna Water and Sewer Authority participates in to provide internal and emergency radio communication, was nearing the end of its service life. Because of technology changes (software and hardware) the Charlottesville-UVA-Albemarle County Emergency Communications Center (ECC) needed to upgrade or replace the system to keep it useable. This project planned 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 was apportioned a part of the project cost proportionately based on the number of radios. In addition to this assessment from the ECC, the Authority replaced its fleet of portable radios.

Completed Projects

			Five-Year Capital Program			
Line No.	**Proj. No.**	**Project Description**	**Adopted Budget 5/2022**	**Previous Expenditures (6/30/2022)**	**Final Projected Costs/Close Out**	**Savings**
17	21.04	Scottsville Water Treatment Plant Lagoon Liner Replacement	$540,000	$235,153	$456,970	$83,030
20	20.27	Crozet Interceptor	$880,000	$262,251	$880,000	$0
21	20.28	Crozet Flow Equalization Tank	$5,400,000	$4,745,954	$5,112,970	$287,030
25	20.36	Moores Creek AWRRF Aluminum Slide Gate Replacement	$950,000	$553,727	$900,000	$50,000
37	20.42	Glenmore WRRF Influent Pump and VFD Addition	$370,000	$288,513	$330,853	$39,147
38	20.44	Radio Upgrades	$600,000	$341,164	$600,000	$0
		TOTAL	$8,740,000	$6,426,762	$8,280,793	$459,207

CIP 23-27 Total	**CIP 24-28 Completed or Removed**	**CIP 24-28 Remaining**	**CIP 24-28 New Funding**	**CIP 24-28 New Total**
$205,120,000	$8,915,000	$196,205,000	$129,920,000	$326,125,000

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. This 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.

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 Fork 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 is also being completed as part of this project.

2. 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 (OBWTP) 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 OBWTP, 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 21,400 linear feet, including the connection of the proposed RMR raw water pump station with the Southern terminus of the Birdwood raw water line completed in 2019.

3. Ragged Mountain Reservoir to Observatory Water Treatment Plan Raw Water Pump Station: The Ragged Mountain Reservoir (RMR) to Observatory Water Treatment Plant (OBWTP) 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 reliably meet the upgraded capacity of the Observatory WTP. The pump station will be designed initially to pump up to 10 million gallons per day (MGD) to the expanded Observatory WTP and will be integrated with the planned South Fork Rivanna Reservoir (SFRR) to RMR pipeline for improved operational flexibility and cost efficiencies. This integrated pump station will include the capacity to transfer up to 16 MGD of raw water from RMR back to the South Rivanna WTP, as well as boost water from SFRR up to RMR and OBWTP. The pump station property is being purchased as part of the SFRR to RMR raw water main preliminary design and right of way acquisition project.

4. South Rivanna Reservoir to Ragged Mountain Pipeline, Intake and Facilities: The South Fork Rivanna Reservoir (SFRR) to Ragged Mountain Reservoir (RMR) Pipeline is a part of the approved and permitted Community Water Supply Plan. The pipeline and associated facilities will give RWSA the ability to move water between the two reservoirs, further enhancing the management capabilities of the Urban System water supply. The SFRR to RMR Pipeline, Intake, and Facilities Project is intended to allow for continued analysis on the transfer system, including the need and magnitude of pretreatment required in order to remove excess nutrients and convey water between the two reservoirs. To date, this has included study of existing water quality data from the two reservoirs, as well as a detailed nutrient model which helped staff better understand the fate of any nutrients transferred between the reservoirs. Analysis continues to determine the suitable alternatives to transfer water safely and effectively between the two reservoirs. In addition, this project currently includes the design and construction of approximately 380 LF of piping along the alignment, as a betterment opportunity through the Victorian Heights development, located on Woodburn Road. The previously separate Westover Project has been reincorporated into this project.

5. South Rivanna Reservoir to Ragged Mountain Reservoir WL – Birdwood to Old Garth: RWSA is planning 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.

6. South Rivanna Reservoir Aeration & Ragged Mountain Reservoir Hypolimnetic Oxygenation Systems: Through RWSA's ongoing Reservoir Water Quality Monitoring Program and the South Fork Rivanna Reservoir (SFRR) to Ragged Mountain Reservoir (RMR) Pretreatment Evaluation Study, water quality benefits for an Aeration System at SFRR and a Hypolimnetic Oxygenation System (HLOS) at RMR have been identified. While these systems would be configured differently for each reservoir, the purpose of each system is to inject Oxygen into the depths of each reservoir. Iron and manganese concentrations are reduced, thus improving water quality within the reservoir and for downstream treatment processes. In addition, the systems can potentially mitigate concerns with excess phosphorus and other nutrients by

locking them in the cooler depths of the reservoir and preventing the nutrients from reaching the warmer, upper portions where algae growth is more likely.

Community Water Supply Plan

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
1	20.01	South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way	$2,740,000		$2,740,000						$2,740,000	$1,710,291
2	20.03	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line	$16,900,000	$16,100,000	$700,000	$3,200,000	$8,000,000	$9,000,000	$8,000,000	$4,100,000	$33,000,000	$221,153
3	20.04	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pump Station	$8,840,000	$2,460,000	$375,000	$1,800,000	$2,500,000	$2,700,000	$3,000,000	$925,000	$11,300,000	$121,843
4	20.48	South Rivanna Reservoir to Ragged Mountain Pipeline, Intake & Facilities	$3,105,000	$32,760,000	$1,605,000	$675,000	$1,370,000	$4,550,000	$11,000,000	$16,665,000	$35,865,000	$32,398
5	22.01	South Rivanna Reservoir to Ragged Mountain Reservoir - Birdwood to Old Garth	$1,980,000	$1,820,000	$1,980,000	$520,000	$1,300,000				$3,800,000	$74,826
6	23.02	South Rivanna Reservoir Aeration and Ragged Mountain Reservoir HLOS Sytems		$1,400,000						$1,400,000	$1,400,000	
		TOTAL	$33,565,000	$54,540,000	$7,400,000	$6,195,000	$13,170,000	$16,250,000	$22,000,000	$23,090,000	$88,105,000	$2,160,511

Observatory WTP and Ragged Mountain/Sugar Hollow Reservoir System

The Observatory Water Treatment Plant (OBWTP) 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 OBWTP. The Ragged Mountain Raw Water Main conveys water from the Ragged Mountain Reservoir through the Stadium Road Pumping Station and terminates at the OBWTP.

Project Descriptions:

7. 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 which commenced on July 1, 2020.

8. Urban WTPs – GAC Building Dehumidification: Granular Activated Carbon (GAC) treatment was installed at the Urban water treatment plants (South Rivanna and Observatory) in 2018. The buildings constructed around the GAC vessels were not conditioned and only included unit heaters and portable dehumidifiers. As a result of the large GAC vessels in these buildings, the humidity levels in the area tend to promote condensation which can then lead to corrosion of the equipment and general degradation. While the portable dehumidifiers were beneficial, they tended to be unreliable and insufficient to maintain lower humidity levels in the buildings. As a result, the purpose of this project is to install permanent industrial dehumidification systems in the GAC buildings associated with the Urban water treatment plants. This project would include the dehumidification units as well as the necessary ductwork, electrical improvements, and architectural modifications required for a complete installation.

9 . OBWTP – Backwash Basin Sludge Removal and Inspection: The concrete backwash basins were built in the 1920's and 1950's as part of the original water treatment plant to be used as open storage for the filtered water. They are currently used to settle solids out of the backwash water before it is decanted to the sanitary sewer system. This project involves removal of the settled sludge and a complete inspection of the basins to determine the extent of concrete repairs needed to extend their useful life.

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 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
7	20.06	Observatory Water Treatment Plant Improvements	$23,000,000	($1,000,000)	$22,000,000						$22,000,000	$9,090,262
8	23.04	Urban Water Treatment Plants - GAC Building Dehumidification		$200,000						$200,000	$200,000	
9	23.05	Observatory Water Treatment Plant - Backwash Basin Sludge Removal and Inspection		$50,000						$50,000	$50,000	
		TOTAL	$23,000,000	($750,000)	$22,000,000	$0	$0	$0	$0	$250,000	$22,250,000	$9,090,262

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:

10. 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 ACSA 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 was 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. The Finished Water Master plan was completed in 2021 and the Central Water Line project was prioritized for design and construction in coordination with the City and ACSA. The project will consist of approximately 5 miles of new 24-inch and 30-inch through the City to connect the Observatory Water Treatment Plant to an existing RWSA transmission main at East High and Long St. to ensure the increased hydraulic capacity of 10 MGD from the water treatment plant upgrades can be utilized.

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. The selected alternative will include a trenchless river crossing to minimize environmental impacts. Acquisition of right-of-way will be required at the river crossing and along Rio Mills Road.

12. 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 the South Rivanna River Crossing project, will provide a reliable and redundant finished water supply to the North Rivanna area. Once the North Rivanna Water Treatment Plant is abandoned, the Airport Road Pump Station will be the primary means to supply water to the North Zone. 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 was required on the Kohl's Property at Hollymead Town Center. This project is under construction.

13. Avon, Pantops, and Observatory Tank Painting: 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 and ACSA critical customers (UVA, UVA/MJ Hospital, Senior Living Facilities, Defense Contractors, etc.). Each of the tanks plat 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, 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.

14. Second N. Rivanna River Crossing & Select Pipe Replacement: The North Rivanna water distribution system has a 12-inch water line crossing of the North Rivanna River which is difficult to access and vulnerable to erosion and washout. The Finished Water Master Plan recommended we install a second redundant river crossing to ensure water can be conveyed north of the river to the Piney Mountain Tank from the new Airport Road Pump Station once the North Rivanna Water Treatment Plant is decommissioned. Approximately 1.2 miles of cast iron water line which has the highest system pressures and has experienced numerous emergency line breaks would be replaced as part of this project to improve system resiliency.

15. Emmet Street Betterment: The Urban Finished Water Master Plan identified several necessary upgrades to the urban water distribution system to improve system performance and reliability. One of the identified improvements is an upgrade and extension of the existing RWSA water main along the Emmet Street corridor from the UVA Dell Pond to Hydraulic Road. This project

will utilize planned road, streetscape, utility, and development projects along the Emmet Street corridor to complete portions of the Emmet Street water main improvements as betterment, with the goal of completing the approximately 2-mile-long water main by 2030. The project scope includes planning and coordination between RWSA, UVA, the City of Charlottesville, and VDOT, design services for the betterment and "gap" sections of water line, construction funding, and construction management services. Current identified projects with betterment opportunities include: the UVA Ivy Corridor Redevelopment, UVA Contemplative Commons, the City of Charlottesville Emmet Streetscape Projects (multiple phases), and intersection improvements at Barracks Road, the US-250/Emmet Street Interchange, and Hydraulic Road.

16. Berkmar Drive Ext. Waterline Phase 2: This water line project will be completed as betterment with the construction of the last section of the VDOT Berkmar Drive Extended project. VDOT has begun preliminary design, however, the construction is not anticipated for several years. This betterment will include approximately 1,000 feet of 16-inch waterline which will connect the new Airport Road Pump Station to an RWSA main in Airport Road. This second feed out of the new pump station will provide more redundancy to supply the North Zone once the North Rivanna Water Treatment Plant is decommissioned

17. Urban Storage Evaluation and Tank(s) Addition: The Finished Water Master Plan outlined the need to evaluate our water storage system for fire suppression, to address frequent tank cycling, and to evaluate alternatives for realizing more useable volume in each tank. Once an evaluation is completed, this project will determine the best pressure bands to add storage to ease operational constraints. This project envisions the addition of two more water storage tanks which may be at existing tank locations or new ones.

Finished Water Storage/Transmission – Urban System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
10	20.10	Central Water Line	$24,000,000	$17,000,000	$3,300,000	$1,000,000	$5,800,000	$12,500,000	$12,400,000	$6,000,000	$41,000,000	$541,686
11	20.12	South Fork Rivanna River Crossing	$5,850,000	$1,050,000	$1,100,000	$4,400,000	$1,400,000				$6,900,000	$143,901
12	20.13	Airport Rd. Pump Station and North Rivanna Transmission Main	$10,000,000		$6,880,000	$3,120,000					$10,000,000	$1,965,920
13	20.50	Avon, Pantops and Observatory Tank Painting		$2,200,000					$100,000	$2,100,000	$2,200,000	
14	20.58	Second North Rivanna River Crossing and Select Pipe Replacement		$30,000						$30,000	$30,000	
15	23.06	Emmet Street Betterment	$2,900,000	$7,750,000	$1,955,000	$540,000	$2,845,000	$2,235,000	$1,075,000	$2,000,000	$10,650,000	$296,086
16	24.09	Berkmar Drive Ext. Waterline - Phase 2		$1,400,000		$220,000	$590,000	$590,000			$1,400,000	
17	24.12	Urban Storage Evaluation and Tank(s) Addition		$870,000				$50,000	$300,000	$520,000	$870,000	
		TOTAL	$42,750,000	$30,300,000	$13,235,000	$9,280,000	$10,635,000	$15,375,000	$13,875,000	$10,650,000	$73,050,000	$2,947,593

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:

18. 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 and the decommissioning of the facility, which includes removing defunct electrical components, abandoning components of the turbine and re-establishment of the penstock as a reservoir drain will follow.

19. 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.

20. South Rivanna Water Treatment Plant – PAC Upgrades: The SRWTP currently utilizes a repurposed lime silo reconfigured to feed powdered activated carbon (PAC). PAC is fed in the mixing basin where it is mixed with the raw water prior to entering the rapid mix basins. The PAC storage silo and feed system has reached the end of its useful life and requires frequent maintenance attention to maintain operations. The purpose of this project is to replace the existing PAC system with a new modern PAC storage and slurry feed system similar to the one installed at the Crozet WTP and the one under construction at the Observatory WTP. This project would include demolition of the existing PAC silo and feed pumps, site work and grading required for the new PAC silo location and installation of a new PAC storage and slurry feed system complete with all necessary dry feed equipment, metering pumps, HVAC equipment and electrical and control equipment.

21. North Rivanna Water Treatment Plant Decommissioning: The North Rivanna Water Treatment Plant (NRWTP) has been in use since the 1970's with minimal upgrades aside from the addition of Granular Activated Carbon in 2018. A Needs Assessment was performed that identified additional improvements that would be required for the plant to continue to reliably provide drinking water to the North Rivanna Pressure Zone. Due to the anticipated expense of these proposed improvements, a feasibility study was performed to determine if the NRWTP should be upgraded or decommissioned. The study concluded that the plant should be decommissioned, and expenses saved could be better applied to other improvements throughout the Urban Water System. As a result, this project includes demolition of the plant facilities, removal of the low head dam on the North Fork Rivanna River and returning the property to its pre-existing conditions.

South and North Rivanna Water Systems

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
18	20.15	South Rivanna Hydropower Plant Decommissioning	$725,000	$285,000	$1,010,000						$1,010,000	$205,591
19	20.16	South Rivanna Water Treatment Plant Improvements	$20,000,000	$1,400,000	$21,400,000						$21,400,000	$17,637,761
20	24.01	South Rivanna Water Treatment Plant - PAC Upgrades		$1,100,000		$60,000	$250,000	$790,000			$1,100,000	
21	20.18	North Rivanna Water Treatment Plant Decommissioning	$2,425,000	$250,000	$385,000	$100,000	$2,190,000				$2,675,000	$76,110
		TOTAL	$23,150,000	$3,035,000	$22,795,000	$160,000	$2,440,000	$790,000	$0	$0	$26,185,000	$17,919,462

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:

22. 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 a planning study in 2023, staff will proceed with final design and construction of a labyrinth spillway and chute 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 through the Natural Resources Conservation Service is being pursued to cover a portion of the design and construction costs.

23. 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 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 adjacent to the dam on the Beaver Creek Reservoir. 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.

24. 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 2028. 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. The repairs will precede the painting work due to necessity of repairs.

25. Crozet Water Treatment Plant – GAC Building Dehumidification: Granular Activated Carbon (GAC) treatment was installed at the Crozet Water Treatment Plant in 2018. The building constructed around the GAC vessels was not conditioned and only included unit heaters and portable dehumidifiers. As a result of the large GAC vessels in this building, the humidity levels in the area tend to promote condensation which can then lead to corrosion of the equipment and general degradation. While the portable dehumidifiers were beneficial, they tended to be unreliable and insufficient to maintain lower humidity levels in the building. As a result, the purpose of this project is to install a permanent industrial dehumidification system in the GAC building. This project would include the dehumidification units as well as the necessary ductwork, electrical improvements, and architectural modifications required for a complete installation.

26. Crozet AC Pipe Replacement: This project includes the installation of approximately 5,000 linear feet of new 18-inch ductile iron water line along Three Notched Road in Crozet. It will replace the final remaining section of 12-inch RWSA transite (asbestos cement) pipe built in the 1970's which is difficult to repair due to health and safety hazards. The new water line will connect the new Crozet Finished Water Pump Station at the Water Treatment Plant to the end of the previous transite replacement project at the entrance to Western Ridge and will provide more reliable service to carry the capacity of the recent water treatment plant upgrades.

27. Crozet Water Treatment Plant – Full GAC Treatment: In order to enhance RWSA's resiliency and commitment to long term finished water quality, the Authority has committed to expanding the Granular Activated Carbon (GAC) capacity at the Crozet WTP to match the current plant capacity. GAC has been identified as a leading best management practice to remove disinfection by product pre-cursers and similar potential contaminants from source water and can be used to manage removal of other emerging contaminants and compounds that are under consideration for regulation in the future. As a result, full GAC treatment capacity will provide the Crozet WTP with the flexibility to provide high quality drinking water under various future conditions. This project includes an expansion of the existing GAC building, additional GAC vessels and the necessary pumps, piping, and electrical components to connect the expanded facility to the existing treatment plant.

28. Crozet Finished Water Greyrock Pump Station: RWSA's Bucks Elbow Ground Storage Tank (BET) currently can only be cycled as low as 26-feet (11-feet below overflow), due to the high elevation of several homes in the Greyrock area of Crozet. This results in about 0.6 million gallons (MG) of the total 2 MG being available for use. As a part of the proposed improvements, a small booster station will be installed near the tank site with a series of pressure reducing valves in order to allow the tank to cycle as low as 18-feet, making an additional 0.4 MG of water inside BET available for use. This will allow RWSA staff to cycle the tank lower, reducing water age and improving overall water quality in this area of the distribution system.

Crozet Water System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
22	20.19	Beaver Creek Dam Alteration	$16,150,000	$6,550,000	$1,225,000	$2,750,000	$8,300,000	$8,300,000	$2,125,000		$22,700,000	$884,033
23	20.20 21.15	Beaver Creek New Raw Water Pump Station & Intake	$15,650,000	$4,550,000	$1,053,000	$3,097,000	$7,150,000	$7,100,000	$1,800,000		$20,200,000	$302,893
24	21.01	Buck's Elbow Tank and Waterball Painting		$1,180,000			$80,000		$80,000	$1,020,000	$1,180,000	
25	23.10	Crozet Water Treatment Plant - GAC Building Dehumidification		$50,000						$50,000	$50,000	
26	23.13	Crozet AC Pipe Replacement		$450,000						$450,000	$450,000	
27	23.14	Crozet Water Treatment Plant - Full GAC Treatment		$6,550,000		$1,450,000	$3,000,000	$2,100,000			$6,550,000	
28	23.30	Crozet Finished Water Greyrock Pump Station		$180,000						$180,000	$180,000	
		TOTAL	$31,800,000	$19,510,000	$2,278,000	$7,297,000	$18,530,000	$17,500,000	$4,005,000	$1,700,000	$51,310,000	$1,186,926

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:

29. Scottsville Water Treatment Plant – Upgrade: The Scottsville Water Treatment Plant was originally constructed in 1967, and other then the addition of Granular Activated Carbon (GAC) treatment and interior finished water piping improvements, much of the original plant, including process and electrical equipment, remains in service. As a result, a needs assessment for the plant was completed that identified a number of additional improvements required to maintain a high level of treatment and water quality for the Scottsville community. Improvements include upgrades to the raw water pump stations, general electrical system upgrades, construction of a building addition to allow for more effective chemical storage and other general space needs, rehabilitation of the existing lab space, and other treatment process based upgrades.

30. Red Hill Water Treatment Plant – Upgrades: The Red Hill Water Treatment Plant 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. Originally the facility was operated primarily as a well head and pump house. More recently the facility has operated 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.

31. Scottsville Asbestos-Cement Pipeline Replacement: This project is intended to replace all remaining RWSA waterline in Scottsville that is constructed of asbestos-cement not included under ACSA's Phase 4 Waterline Replacement Project. The scope of the project includes approximately 500 LF of raw waterline replacement between the filter building and Totier Creek intake behind Scottsville WTP.

32. Red Hill WTP - Full GAC Treatment: In order to enhance RWSA's resiliency and commitment to long term finished water quality, the Authority has committed to adding Granular Activated Carbon (GAC) treatment at the Red Hill WTP, sized to match the current plant capacity. GAC has been identified as a leading best management practice to remove disinfection by product pre-cursers and similar potential contaminants from source water and can be used to manage removal of other emerging contaminants and compounds that are under consideration for regulation in the future. As a result, full GAC treatment capacity will provide the Red Hill WTP with the flexibility to provide high quality drinking water under various future

conditions. This project includes the addition of a GAC vessel into the building expansion currently be designed and constructed under the Red Hill Water Treatment Plant – Upgrades project, as well as piping, valves and pumping improvements necessary to incorporate these components into the existing treatment plant.

33. Scottsville Water Treatment Plant – GAC Building Dehumidification: Granular Activated Carbon (GAC) treatment was installed at the Scottsville Water Treatment Plant in 2018. The building constructed around the GAC vessels was not conditioned and only included unit heaters and portable dehumidifiers. As a result of the large GAC vessels in this building, the humidity levels in the area tend to promote condensation which can then lead to corrosion of the equipment and general degradation. While the portable dehumidifiers were beneficial, they tended to be unreliable and insufficient to maintain lower humidity levels in the building. As a result, the purpose of this project is to install a permanent industrial dehumidification system in the GAC building. This project would include the dehumidification units as well as the necessary ductwork, electrical improvements, and architectural modifications required for a complete installation.

Scottsville Water System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
29	22.06	Scottsville Water Treatment Plant - Upgrade		$550,000						$550,000	$550,000	
30	22.07	Red Hill Water Treatment Plant - Upgrades	$410,000	$35,000	$410,000	$35,000					$445,000	
31	23.16	Scottsville AC Pipe Replacement		$80,000						$80,000	$80,000	
32	23.17	Full GAC Treatment - Red Hill Water Treatment Plant		$295,000		$66,000	$134,000	$95,000			$295,000	
33	23.18	Scottsville Water Treatment Plant - GAC Building Dehumidification		$50,000						$50,000	$50,000	
		TOTAL	$410,000	$1,010,000	$410,000	$101,000	$134,000	$95,000	$0	$680,000	$1,420,000	$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:

34. 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 as easement negotiations with Albemarle County are completed.

35. Maury Hill Branch Sewer Replacement: The Maury Hill Branch Sewer is an 8-inch diameter clay sewer constructed in the 1970's. It ties into the Morey Creek Interceptor and primarily collects wastewater from the UVA Fontaine Research Park and a small portion of the adjacent City of Charlottesville neighborhoods. As a result of growth at the research park and increasing wastewater flows, the sewer line will need to be upsized to 12-inch diameter ductile iron pipe to properly convey flows for current and future needs. Since the existing pipe is also a clay sewer, the system has experienced a significant amount of inflow and infiltration (I&I). Installing a new ductile iron pipe and concrete manholes will reduce the I&I in the system and have a positive impact on the capacity of downstream sewers as well.

36. Crozet Pump Station 1, 2, and 3 Rehabilitation: The Crozet Interceptor Pump Stations were constructed in the 1980's and many of the components are original. This project initially included 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 included 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. The pump station improvements now also include new electrical motor control centers as they are obsolete and past their useful life, generators and power transfer switches.

37. Albemarle Berkley PS Upgrade: The Albemarle-Berkeley Pump Station was constructed in 1975 and conveys flows from several Albemarle County Public Schools (ACPS) 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 has been completed, 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. With the Capacity Analysis complete, this Pump Station Upgrade Project will utilize consultant assistance in order to formulate a set of bidding documents that will include the construction of a new pumping station that is sized to meet the current and future flows as determined by the Capacity Analysis, along with all equipment necessary for staff to safely remove individual pumps from service for maintenance purposes or temporarily bypass the station entirely as needed. Once the new pump station has been constructed and is in service, the existing pump station will be demolished, with that portion of the site returned to pre-existing conditions. This project is also being coordinated with the ongoing ACPS Master Planning Process.

38. 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 the 42/48" Upper Rivanna Interceptor & 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 and Woodbrook Interceptors. Planned projects for Phase 2 include completion of the baseline evaluation by performing closed-circuit television (CCTV) inspections of the Upper Rivanna Interceptor, as well as cleaning as necessary. Cleaning and CCTV inspections will also be performed on the gravity portions of the Crozet Interceptor, in order to complete investigations associated with the Crozet Wastewater Pump Station Rehabilitation Project. In addition, the force mains on the Crozet and Albemarle-Berkely Interceptors will be inspected, as well as inverted siphons on the Powell Creek and Moores Creek Interceptors. These inspections will require specialty equipment to complete due to the vastly different flow conditions in these portions of the interceptors. Additional high-priority rehabilitation will be completed under this phase as funds allow, with more substantial rehabilitation efforts to take place under Phase 3. Sanitary sewer evaluation includes identification of inflow & infiltration (I & I), as well as structural defects and other maintenance issues to enable overall program planning and future rehabilitation scoping. 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 and protecting downstream treatment processes.

39. Interceptor Sewer and Manhole Repair - Phase 3: 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 2 of the Interceptor Sewer and Manhole Repair Project, which is currently underway, includes completion of the baseline evaluation of all RWSA interceptors, including the 42 to 48-inch Upper Rivanna Interceptor, gravity portions of the Crozet Interceptor (downstream of Crozet Pump Station No. 4), force mains on the Crozet and Albemarle-Berkeley Interceptors, as well as inverted siphons on the Powell Creek and Moores Creek Interceptors. Phase 3 of this project will take data from the previous two phases and utilize that

to perform rehabilitation on RWSA's largest interceptors, including the Moores Creek Interceptor, Upper Rivanna Interceptor, Crozet Interceptor, and others. Rehabilitation is anticipated to include continued usage of cured in place piping (CIPP) and point replacements of pipe as necessary, as well as cementitious manhole coatings and frame and cover replacements.

Urban Wastewater Interceptors/Pumping Stations

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
34	20.25	Upper Schenks Branch Interceptor	$4,725,000	$575,000	$4,725,000		$575,000				$5,300,000	$50,787
35	20.29	Maury Hill Branch Sewer Replacement		$350,000						$350,000	$350,000	
36	20.30	Crozet Pump Station 1, 2, 3 Rehabilitation	$590,000	$9,760,000	$535,000	$570,000	$6,500,000	$2,745,000			$10,350,000	$42,267
37	20.31	Albemarle Berkley Pump Station Upgrade		$115,000						$115,000	$115,000	
38	21.07	Interceptor Sewer and Manhole Repair (Phase 2)	$965,000	$265,000	$430,000	$580,000	$220,000				$1,230,000	
39	24.02	Interceptor Sewer and Manhole Repair (Phase 3)		$600,000						$600,000	$600,000	
		TOTAL	$6,280,000	$11,665,000	$5,690,000	$1,150,000	$7,295,000	$2,745,000	$0	$1,065,000	$17,945,000	$93,054

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:

40. Moores Creek AWRRF 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. 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 was coordinated with the recent MCAWRRF Master Plan and expansion of the building will take place in the lower parking lot adjacent to the existing building.

41. Moores Creek AWRRF Biogas Upgrades: This project combines the previous Moores Creek AWRRF (MCAWRRF) Cogeneration Upgrades and Gas Sphere Rehabilitation into a single project. 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. After an evaluation of the current status of the cogeneration industry, it was identified that many facilities are seeing the same issues. Some are trending away from cogeneration systems altogether, with a new focus towards other emerging technologies such as microturbines and treatment of digester gas with injection into nearby natural gas pipelines.

    As the preliminary biogas evaluation is completed and a method to beneficially reuse the gas is finalized, staff will utilize consultant assistance to design and bid a project that not only allows the chosen technology to be implemented, but also performs critical spot and coating repairs to the existing gas sphere that was constructed in the 1980s. The work will also include adjustments as appropriate to the biogas processing system in order to make the process as efficient and suitable as possible for the chosen utilization technology.

42. Moores Creek AWRRF Building Upfits and Gravity Thickener Improvements: This project will address the renovation needs of the current Maintenance and Operations building space requirements, improvements to the existing gravity thickener system, and installation of

actuators on the secondary clarifier influent gate valves. The Moores Creek Maintenance and Operations Department facilities are over 40 years old, no longer meeting current staffing and operational needs. In accordance with the Moores Creek Master Plan, this project will increase and update personnel spaces such as offices, lunchrooms, labs, and locker rooms in the Maintenance, Blower, and Sludge Pumping Buildings to meet needs over an interim timeframe of approximately 15 years. Additionally, the project will construct increased oil and grease storage that will meet all current best practices for safety and address the need for additional parts storage. As part of the existing gravity thickener system, RWSA added temporary provisions to dose polymer to improve settling and thickening performance, which has proved to be effective and increased operational performance. The current polymer feed system consists of a bulk polymer tote stored on grade adjacent to the gravity thickener rapid mix and splitter structure. The current system is uncovered and manually operated with totes being moved as needed for chemical feed. This project will allow for a permanent polymer feed system with proper provisions for chemical deliveries and weather protection, including additional space for sodium hypochlorite chemical storage and feed as part of the gravity thickener odor control system. The relocation of the sodium hypochlorite storage and feed will also allocate spacing needs as part of the previously discussed operational building renovations in the existing Sludge Pumping Building. Furthermore, access points will be installed on the thickener effluent line feeding the existing sludge pumps to allow for flushing, cleaning and inspection efforts to occur. Finally, the current secondary clarifier influent gate valves are manually operated, which can be time consuming, and during a wet weather event, the clarifiers need to be placed in service as quickly and safely as possible. The use of SCADA controlled actuators would streamline the process immensely. This work includes the installation of eight (8) new actuators on the influent gates of the secondary clarifiers.

43. Moores Creek AWRRF Meter and Valve Replacements: As part of the 2018 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 line 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 existing meters, in addition to installation of new meters for the primary and thickened sludge is necessary for process and operational efficiency and is currently under construction.

44. 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. Design work has been completed, and construction is under way. All work has been coordinated with the Moores Creek Facilities Master Plan

45. Moores Creek AWRRF Yard Piping Upgrades: The original 36-inch Rivanna Pump Station force main was constructed around 1980 and carried flow from the original 25 MGD pump station in Riverview Park. Now that the pump station has been relocated to MCAWRRF and upsized to 53 MGD, it is desirable to install a second force main based on the age of the pipe and for redundancy. This work will include construction of a second parallel 36-inch force main from the Rivanna Pump Station, across Moores Creek, and up to the headworks.

46. Moores Creek AWRRF Structural and Concrete Rehabilitation: This project comprises rehabilitation, repair and installation of multiple structural components throughout the MCAWRRF facility, to include concrete repairs in both the equalization basins and holding ponds, rehabilitation to the existing primary clarifiers and associated influent splitter box, installation of a bridge crane over the aeration basins for NRCY pump removal, improved access to the elevated valves and associated actuators in the Rivanna pump station, and rehabilitation to both the digester complex and compost shed roof and drainage system.

    The existing holding ponds and equalization basins were constructed in 1977 and are showing signs of degradation. With now completed condition assessment inspections and subsequent recommendations, this project includes crack repair, spalling repair, joint repair, and coating of miscellaneous metals and valves associated with these critical structures. Inspections performed on the two existing primary clarifiers and associated influent splitter box noted several deficiencies including structural and mechanical components, concrete degradation and corrosion around pipe penetrations in need of repair or replacement. This project will provide for the rehabilitation, replacement and/ or coatings of these previously identified components within the primary clarifiers and influent splitter box.

    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 is ten nutrient recycle (NRCY) pumps. When maintenance or replacement of these pumps are required, staff must currently hire a long boom crane, which can be costly and disruptive to operations, especially in emergency conditions. This project will provide for the permanent means to remove and reinstall existing NRCY pumps.

Two of the six pumps in the Rivanna Pump Station are smaller and were designed to be replaced if future average day flows warrant increased capacity. The current configuration resulted in some 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 either modify the piping configuration or install a catwalk from the upper mezzanine level to each valve to provide a safer means of accessing each valve.

Moores Creek AWRRF has five (5) digester vessels. 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. This project includes addressing remaining repairs to the existing digester complex, including safety repairs, to extend the useful life approximately 10-15 years while RWSA plans, designs, and constructs a new digester complex at another location on the Moores Creek site.

Finally, in the early 1980's a large metal-framed roof was constructed to house the biosolids composting operations, which has subsequently ceased operation. The area was repurposed as a covered equipment maintenance yard, solids handling facility and material storage lock-up. The roof system is exhibiting signs of rafter deterioration and ongoing drainage and leakage issues. This project will evaluate and perform remediation needs at this facility.

47. Moores Creek AWRRF MCPS Slide Gates, Valves and Bypass & Septage Receiving Upgrades: Through separate procurements, previous inspections of the large aluminum slide gates at the influent side of the Moores Creek Pump Station have been conducted to determine the extent of repairs needed to stop them from leaking. Results of these investigations will be used to design the repair of the existing slide gates and add new gates so staff can have the flexibility to stop or divert flow to perform maintenance activities. In addition, this project will include the repair of 3 control valves within the pump station and provide permanent bypass connections so the entire pump station can be bypassed more efficiently in the future when needed. To reduce odors and address maintenance concerns at the existing north septage receiving station, the project will enclose the leachate discharge pit, modify the station to accommodate a wider variety of haulers, provide for better containment of discharged materials, and install rock traps and grinders with all associated process piping to prevent downstream blockages at the Moores Creek Pump Station.

Moores Creek Advanced Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
40	20.34	Moores Creek AWRRF Engineering and Administration Building	$8,500,000	$2,000,000	$225,000	$975,000	$5,900,000	$3,400,000			$10,500,000	
41	20.67	Moores Creek AWRRF Biogas Upgrades	$2,985,000	$610,000	$2,235,000	$1,130,000	$230,000				$3,595,000	$8,240
42	20.68	Moores Creek AWRRF Building Upfits and Gravity Thickener Improvements	$4,240,000	$315,000	$440,000	$825,000	$2,515,000	$720,000		$55,000	$4,555,000	
43	21.11	Moores Creek AWWRF Meter and Valve Replacements	$775,000		$775,000						$775,000	$38,597
44	21.18	Moores Creek AWRRF 5kV Electrical System Upgrade	$5,050,000	$585,000	$3,430,000	$1,950,000	$255,000				$5,635,000	$433,063
45	22.10	Moores Creek AWRRF Yard Piping Upgrades		$315,000						$315,000	$315,000	
46	22.12	Moores Creek AWRRF Structural and Concrete Rehabilitation	$8,910,000	$2,390,000	$3,250,000	$3,845,000	$3,900,000	$305,000			$11,300,000	$15,450
47	24.08	Moores Creek AWRRF MCPS Slide Gates, Valves, Bypass and Septage Receiving Upgrades		$3,600,000		$330,000	$2,055,000	$1,215,000			$3,600,000	
		TOTAL	$30,460,000	$9,815,000	$10,355,000	$9,055,000	$14,855,000	$5,640,000	$0	$370,000	$40,275,000	$495,350

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:

48. Scottsville WRRF Whole Plant Generator and ATS: The current back-up power generator at the Scottsville Water Resource Recovery Facility does not power the entire plant. It serves only the facilities needed to send flow to the lagoon for storage. This project will provide back-up power for the entire plant and will offer greater treatment flexibility and monitoring capability for the operations staff, particularly when the plant is unmanned and monitored remotely.

49. Scottsville Lagoon Outfall Rehabilitation: The Scottsville Wastewater Lagoon outfall is original to the wastewater plant from its construction. The overflow tower was recently inspected in 2021 by Bander Smith and recommended a few repairs. The concrete tower has 4 intakes, and the 4th intake is currently buried under debris. The tower is in fair condition and could use some general concrete repairs the 4th intake is buried under material. All valves are recommended for replacement and removal of 2-3 feet of material is recommended from around the outflow tower.

50. Scottsville WRRF Polymer Feed Addition: The Scottsville WRRF Polymer Feed system has reached the end of its useful life and needs replacement. This project will focus on constructing a new polymer feed system and an enclosure to house the chemicals for the plant.

Scottsville Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
48	21.12	Scottsville WRRF Whole Plant Generator and ATS	$200,000	$320,000	$191,000	$304,000	$25,000				$520,000	$5,000
49	23.24	Scottsville WRRF Lagoon Outfall Rehabilitation		$25,000						$25,000	$25,000	
50	23.25	Scottsville WRRF Polymer Feed Addition		$26,000						$26,000	$26,000	
		TOTAL	$200,000	$371,000	$191,000	$304,000	$25,000	$0	$0	$51,000	$571,000	$5,000

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:

51. Glenmore WRRF Polymer Feed Addition: The Glenmore WRRF currently has two existing automated chemical feed systems, one of which includes polymer. The polymer system is primarily used to feed polymer to the WAS as a settling aid for the sludge holding tank. The current systems are near the end of their useful life and are in need of replacement. The new polymer feed system will consist of drums or totes and chemical feed pumps to dose polymer to the WAS to improve sludge settling in the digester.

Glenmore Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
51	23.26	Glenmore WRRF Polymer Feed Addition		$30,000						$30,000	$30,000	
		TOTAL	$0	$30,000	$0	$0	$0	$0	$0	$30,000	$30,000	$0

All Systems

Project Descriptions:

52. Asset Management: Asset management is the practice of managing infrastructure to minimize the total cost of owning and operating assets while providing desired levels of service. By doing so, asset management ensures planned maintenance activities occur and that capital assets are replaced, repaired, or upgraded at the right time, while guaranteeing that the necessary resources are available to perform these activities. 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. To continue building the program, a consultant was procured to assist with a four-phase process. Phase one includes facilitation and development of an asset management strategic plan; phase two includes development and management of a pilot study where the results of the strategic plan were applied to a specific facility; phase three includes procurement of software to facilitate the overall program; and phase 4 includes assistance through full implementation of the complete asset management program.

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 addition, upgrades will be made to the entrance of MCAWRRF, to better secure the facility and vet individuals as they enter. 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 has been completed at the Moores Creek Advanced Water Resource Recovery Facility (MCAWRRF), Crozet Water Treatment Plant (CZWTP), and Scottsville Water Treatment Plant (SVWTP), and implementation work is underway at several other RWSA water and wastewater facilities, including South Rivanna Water Treatment Plant (SRWTP), Observatory Water Treatment Plant (OBWTP), Red Hill Water Treatment Plant (RHWTP), Glenmore Water Resource Recovery Facility (GWRRF), Scottsville Water Resource Recovery Facility (SVWRRF), and all RWSA pump stations and dams.

54. IT Infrastructure: At many remote water storage tank sites, control panels and PLCs associated with operation and monitoring of the tanks are located in valve vaults. These locations are a concern based on limited access to the electrical and instrumentation components as well as the condition of the space and the associated impact to the longevity of the devices. This project includes installation of new control panels and PLCs aboveground in weatherproof enclosures under a self-supporting canopy that would protect staff from direct weather impacts during operation or maintenance activities at seven water storage tank sites throughout the

RWSA water distribution system. The components located in the valve vaults would be demolished after the new components were installed to minimize monitoring downtime.

55. ACM Remediation: Based on the age of many RWSA facilities, the potential for the presence of Asbestos-Containing Materials (ACM) in various buildings has been assumed. A 2005 Workplace Assessment that evaluated the presence of ACM at the Moores Creek Advanced Water Resource Recovery Facility (MCAWRRF) was performed and then many facilities had individual assessments prior to construction projects where the ACM needed to be disposed of properly before refurbishment of the existing building or as a part of a larger demolition process. In order to confirm the presence of any ACM at all remaining RWSA facilities, an asbestos survey was completed in 2022. Based on this report, additional abatement procedures were identified for seven buildings at the MCAWRRF that had not been remediated previously and the filter building at the Scottsville Water Treatment Plant. This project includes proper removal and disposal of these ACM and refurbishment of the associated building components required as a result.

56. Climate Change Flood Resilience Enhancements: RWSA owns and operates a number of water and wastewater facilities that may be at risk of future flooding. One of the ways climate change is expected to manifest itself in Central Virginia is via more frequent and intense rainfall and flooding events. While RWSA facilities were generally designed to perform during 100-year flood level conditions, future flooding could result in higher water levels that would require facility improvements to ensure continued operation during these events. This project includes installation of flood mitigation measures at vulnerable assets/facilities throughout the RWSA system that are likely to be impacted by these potential higher flood levels. Necessary improvements have been identified at six separate facilities and multiple structures and building at many of the sites. Improvements include raising electrical and control equipment to higher levels, replacement of existing pumps with submersible style/rated pumps, raising HVAC intakes and exhausts to higher elevations, and dry floodproofing structures when feasible to minimize floodwater intrusion.

All Systems

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
52	20.45	Asset Management	$1,180,000		$1,012,000	$133,000	$35,000				$1,180,000	$672,876
53	20.46	Security Enhancements	$2,810,000	$170,000	$2,410,000	$285,000	$285,000				$2,980,000	$1,076,034
54	20.47	IT Infrastructure	$600,000		$300,000	$300,000					$600,000	
55	23.27	ACM Remediation		$94,000						$94,000	$94,000	
56	24.06	Climate Change Flood Resiliance		$130,000		$130,000					$130,000	
		TOTAL	$4,590,000	$394,000	$3,722,000	$848,000	$320,000	$0	$0	$94,000	$4,984,000	$1,748,910

APPENDICES

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CIP Financial Summary

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
1	20.01	South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way	$2,740,000	$0	$2,740,000						$2,740,000	$1,710,291
2	20.03	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line	$16,900,000	$16,100,000	$700,000	$3,200,000	$8,000,000	$9,000,000	$8,000,000	$4,100,000	$33,000,000	$221,153
3	20.04	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pump Station	$8,840,000	$2,460,000	$375,000	$1,800,000	$2,500,000	$2,700,000	$3,000,000	$925,000	$11,300,000	$121,843
4	20.48	South Rivanna Reservoir to Ragged Mountain Pipeline, Intake & Facilities	$3,105,000	$32,760,000	$1,605,000	$675,000	$1,370,000	$4,550,000	$11,000,000	$16,665,000	$35,865,000	$32,398
5	22.01	South Rivanna Reservoir to Ragged Mountain Reservoir - Birdwood to Old Garth	$1,980,000	$1,820,000	$1,980,000	$520,000	$1,300,000				$3,800,000	$74,826
6	23.02	South Rivanna Reservoir Aeration and Ragged Mountain Reservoir HLOS Sytems	$0	$1,400,000	$0					$1,400,000	$1,400,000	
7	20.06	Observatory Water Treatment Plant Improvements	$23,000,000	($1,000,000)	$22,000,000						$22,000,000	$9,090,262
8	23.04	Urban Water Treatment Plants - GAC Building Dehumidification	$0	$200,000	$0					$200,000	$200,000	
9	23.05	Observatory Water Treatment Plant - Backwash Basin Sludge Removal and Inspection	$0	$50,000	$0					$50,000	$50,000	
10	20.10	Central Water Line	$24,000,000	$17,000,000	$3,300,000	$1,000,000	$5,800,000	$12,500,000	$12,400,000	$6,000,000	$41,000,000	$541,686

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	Proj. No.	Project Description	Current CIP Adopted 5/2022	Proposed Changes	Current Capital Budget	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2022)
11	20.12	South Fork Rivanna River Crossing	$5,850,000	$1,050,000	$1,100,000	$4,400,000	$1,400,000				$6,900,000	$143,901
12	20.13	Airport Rd. Pump Station and North Rivanna Transmission Main	$10,000,000	$0	$6,880,000	$3,120,000					$10,000,000	$1,965,920
13	20.50	Avon, Pantops and Observatory Tank Painting	$0	$2,200,000	$0				$100,000	$2,100,000	$2,200,000	
14	20.58	Second North Rivanna River Crossing and Select Pipe Replacement	$0	$30,000	$0					$30,000	$30,000	
15	23.06	Emmet Street Betterment	$2,900,000	$7,750,000	$1,955,000	$540,000	$2,845,000	$2,235,000	$1,075,000	$2,000,000	$10,650,000	$296,086
16	24.09	Berkmar Drive Ext. Waterline - Phase 2	$0	$1,400,000	$0	$220,000	$590,000	$590,000			$1,400,000	
17	24.12	Urban Storage Evaluation and Tank(s) Addition	$0	$870,000	$0			$50,000	$300,000	$520,000	$870,000	
18	20.15	South Rivanna Hydropower Plant Decommissioning	$725,000	$285,000	$1,010,000						$1,010,000	$205,591
19	20.16	South Rivanna Water Treatment Plant Improvements	$20,000,000	$1,400,000	$21,400,000						$21,400,000	$17,637,761
20	24.01	South Rivanna Water Treatment Plant - PAC Upgrades	$0	$1,100,000	$0	$60,000	$250,000	$790,000			$1,100,000	

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
21	20.18	North Rivanna Water Treatment Plant Decommissioning	$2,425,000	$250,000	$385,000	$100,000	$2,190,000				$2,675,000	$76,110
22	20.19	Beaver Creek Dam Alteration	$16,150,000	$6,550,000	$1,225,000	$2,750,000	$8,300,000	$8,300,000	$2,125,000		$22,700,000	$884,033
23	20.20 21.15	Beaver Creek New Raw Water Pump Station & Intake	$15,650,000	$4,550,000	$1,053,000	$3,097,000	$7,150,000	$7,100,000	$1,800,000		$20,200,000	$302,893
24	21.01	Buck's Elbow Tank and Waterball Painting	$0	$1,180,000	$0		$80,000		$80,000	$1,020,000	$1,180,000	
25	23.10	Crozet Water Treatment Plant - GAC Building Dehumidification	$0	$50,000	$0					$50,000	$50,000	
26	23.13	Crozet AC Pipe Replacement	$0	$450,000	$0					$450,000	$450,000	
27	23.14	Crozet Water Treatment Plant - Full GAC Treatment	$0	$6,550,000	$0	$1,450,000	$3,000,000	$2,100,000			$6,550,000	
28	23.30	Crozet Finished Water Greyrock Pump Station	$0	$180,000	$0					$180,000	$180,000	
29	22.06	Scottsville Water Treatment Plant - Upgrade	$0	$550,000	$0					$550,000	$550,000	
30	22.07	Red Hill Water Treatment Plant - Upgrades	$410,000	$35,000	$410,000	$35,000					$445,000	

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		Project Description	Current CIP Adopted 5/2022	Proposed Changes	Current Capital Budget	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2022)
31	23.16	Scottsville AC Pipe Replacement	$0	$80,000	$0					$80,000	$80,000	
32	23.17	Full GAC Treatment - Red Hill Water Treatment Plant	$0	$295,000	$0	$66,000	$134,000	$95,000			$295,000	
33	23.18	Scottsville Water Treatment Plant - GAC Building Dehumidification	$0	$50,000	$0					$50,000	$50,000	
34	20.25	Upper Schenks Branch Interceptor	$4,725,000	$575,000	$4,725,000		$575,000				$5,300,000	$50,787
35	20.29	Maury Hill Branch Sewer Replacement	$0	$350,000	$0					$350,000	$350,000	
36	20.30	Crozet Pump Station 1, 2, 3 Rehabilitation	$590,000	$9,760,000	$535,000	$570,000	$6,500,000	$2,745,000			$10,350,000	$42,267
37	20.31	Albemarle Berkley Pump Station Upgrade	$0	$115,000	$0					$115,000	$115,000	
38	21.07	Interceptor Sewer and Manhole Repair (Phase 2)	$965,000	$265,000	$430,000	$580,000	$220,000				$1,230,000	
39	24.02	Interceptor Sewer and Manhole Repair (Phase 3)	$0	$600,000	$0					$600,000	$600,000	
40	20.34	Moores Creek AWRRF Engineering and Administration Building	$8,500,000	$2,000,000	$225,000	$975,000	$5,900,000	$3,400,000			$10,500,000	

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
41	20.67	Moores Creek AWRRF Biogas Upgrades	$2,985,000	$610,000	$2,235,000	$1,130,000	$230,000				$3,595,000	$8,240
42	20.68	Moores Creek AWRRF Building Upfits and Gravity Thickener Improvements	$4,240,000	$315,000	$440,000	$825,000	$2,515,000	$720,000		$55,000	$4,555,000	
43	21.11	Moores Creek AWWRF Meter and Valve Replacements	$775,000	$0	$775,000						$775,000	$38,597
44	21.18	Moores Creek AWWRF 5kV Electrical System Upgrade	$5,050,000	$585,000	$3,430,000	$1,950,000	$255,000				$5,635,000	$433,063
45	22.10	Moores Creek AWRRF Yard Piping Upgrades		$315,000						$315,000	$315,000	
46	22.12	Moores Creek AWRRF Structural and Concrete Rehabilitation	$8,910,000	$2,390,000	$3,250,000	$3,845,000	$3,900,000	$305,000			$11,300,000	$15,450
47	24.08	Moores Creek AWRRF MCPS Slide Gates, Valves, Bypass and Septage Receiving Upgrades		$3,600,000		$330,000	$2,055,000	$1,215,000			$3,600,000	
48	21.12	Scottsville WRRF Whole Plant Generator and ATS	$200,000	$320,000	$191,000	$304,000	$25,000				$520,000	$5,000
49	23.24	Scottsville WRRF Lagoon Outfall Rehabilitation	$0	$25,000	$0					$25,000	$25,000	
50	23.25	Scottsville WRRF Polymer Feed Addition	$0	$26,000	$0					$26,000	$26,000	

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.		**Project Description**	**Current CIP Adopted 5/2022**	**Proposed Changes**	**Current Capital Budget**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2022)**
51	20.42	Glenmore WRRF Polymer Feed Addition	$0	$30,000	$0					$30,000	$30,000	
52	20.45	Asset Management	$1,180,000	$0	$1,012,000	$133,000	$35,000				$1,180,000	$672,876
53	20.46	Security Enhancements	$2,810,000	$170,000	$2,410,000	$285,000	$285,000				$2,980,000	$1,076,034
54	20.47	IT Infrastructure	$600,000	$0	$300,000	$300,000					$600,000	
55	23.27	ACM Remediation	$0	$94,000	$0					$94,000	$94,000	
56	24.06	Climate Change Flood Resiliance		$130,000		$130,000					$130,000	
		Total	$196,205,000	$129,920,000	$88,076,000	$34,390,000	$67,404,000	$58,395,000	$39,880,000	$37,980,000	$326,125,000	$35,647,068

Water System Summary

	Summary			Projected Future Expenses by Year						
Urban Water System	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**Recommended CIP**	**Work-in -Progress**
PROJECT COSTS										
Community Water Supply Plan	$ 33,565,000	$ 54,540,000	$ 7,400,000	$ 6,195,000	$ 13,170,000	$ 16,250,000	$ 22,000,000	$ 23,090,000	$ 88,105,000	$ 2,160,510
Observatory WTP/Ragged Mtn/Sugar Hollow Systems	23,000,000	(750,000)	22,000,000	-	-	-	-	250,000	22,250,000	9,090,262
Finished Water Storage/Distribution - Urban System	42,750,000	30,300,000	13,235,000	9,280,000	10,635,000	15,375,000	13,875,000	10,650,000	73,050,000	2,947,593
South & North Fork Rivanna WTP and Reservoir System	23,150,000	3,035,000	22,795,000	160,000	2,440,000	790,000	-	-	26,185,000	17,919,462
Total Projects Urban Water Systems	**$ 122,465,000**	**$ 87,125,000**	**$ 65,430,000**	**$ 15,635,000**	**$ 26,245,000**	**$ 32,415,000**	**$ 35,875,000**	**$ 33,990,000**	**$ 209,590,000**	**$ 32,117,827**
FUNDING SOURCES URBAN SYSTEM - TO DATE										
Work-in-Progress			$ 32,041,700	$ -	$ -	$ -	$ -	$ -	$ 32,041,700	
Debt Proceeds - 2018 & 2021Bond			24,925,000	-	-	-	-	-	24,925,000	
Capital Funds Available			-	-	-	-	-	-	-	
SUBTOTAL			56,966,700	-	-	-	-	-	56,966,700	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash reserve transfer to Capital Fund				$ 1,000,000	$ 500,000	$ 500,000	$ 1,000,000	$ 500,000	$ 3,500,000	
New Debt Needed			8,463,300	14,635,000	25,745,000	31,915,000	34,875,000	33,490,000	149,123,300	
SUBTOTAL			8,463,300	15,635,000	26,245,000	32,415,000	35,875,000	33,990,000	152,623,300	
TOTAL URBAN WATER FUNDING			**$ 65,430,000**	**$ 15,635,000**	**$ 26,245,000**	**$ 32,415,000**	**$ 35,875,000**	**$ 33,990,000**	**$ 209,590,000**	
									$209,590,000	
Estimated Bond Issues					**$48,843,300**		**$100,280,000**		**$149,123,300**	

	Summary			Projected Future Expenses by Year						
Non-Urban Water System	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**Recommended CIP**	**Work-in -Progress**
PROJECT COSTS										
Crozet Water System	$ 31,800,000	$ 19,510,000	$ 2,278,000	$ 7,297,000	$ 18,530,000	$ 17,500,000	$ 4,005,000	$ 1,700,000	$ 51,310,000	$ 1,186,926
Scottsville Water System	410,000	1,010,000	410,000	101,000	134,000	95,000	-	680,000	1,420,000	-
Total Rural Water Systems	**$ 32,210,000**	**$ 20,520,000**	**$ 2,688,000**	**$ 7,398,000**	**$ 18,664,000**	**$ 17,595,000**	**$ 4,005,000**	**$ 2,380,000**	**$ 52,730,000**	**$ 1,186,926**
Non-URBAN FUNDING SOURCES										
Work in Progress			$ 1,186,900	$ -	$ -	$ -	$ -	$ -	$ 1,186,900	
Grants				3,176,898	8,049,932	7,595,000	1,738,170		20,560,000	
Capital Funds Available			-						-	
Debt Proceeds - 2018 & 2021Bond			-	-	-	-	-	-	-	
Future Cash reserve transfer to Capital Fund			-	450,000	450,000	100,000	-	-	1,000,000	
New Debt Needed			1,501,100	3,771,102	10,164,068	9,900,000	2,266,830	2,380,000	29,983,100	
TOTAL NON-URBAN WATER FUNDING			**$ 2,688,000**	**$ 7,398,000**	**$ 18,664,000**	**$ 17,595,000**	**$ 4,005,000**	**$ 2,380,000**	**$ 52,730,000**	
Estimated Bond Issues				**$15,436,300**			**14,546,800**		**$29,983,100**	

Wastewater System Summary

	Summary			Projected Future Expenses by Year						
Urban Wastewater System	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Wastewater Interceptor/Pumping Stations	$ 6,280,000	$ 11,665,000	$ 5,690,000	$ 1,150,000	$ 7,295,000	$ 2,745,000	$ -	$ 1,065,000	$ 17,945,000	$ 93,054
Moores Creek WWTP	30,460,000	9,815,000	10,355,000	9,055,000	14,855,000	5,640,000	-	370,000	40,275,000	495,350
Total Urban Wastewater Systems	**$ 36,740,000**	**$ 21,480,000**	**$16,045,000**	**$10,205,000**	**$22,150,000**	**$8,385,000**	**$0**	**$1,435,000**	**$58,220,000**	**$588,404**
FUNDING SOURCES URBAN SYSTEM - IN PLACEA										
Work-in-Progress			$ 588,400	$ -	$ -	$ -	$ -	$ -	$ 588,400	
Debt Proceeds - 2018 & 2021Bond			547,300	-	-	-	-		547,300	
Capital Funds Available			2,000,000	-	-	-	-	-	2,000,000	
SUBTOTAL			3,135,700	-	-	-	-	-	3,135,700	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash Reserves			$ -	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ -	$ 1,435,000	$ 5,935,000	
New Debt Needed			12,909,300	8,705,000	20,650,000	6,885,000	-	-	49,149,300	
SUBTOTAL			12,909,300	$10,205,000	22,150,000	8,385,000	-	1,435,000	55,084,300	
TOTAL URBAN WASTEWATER FUNDING			**$ 16,045,000**	**$ 10,205,000**	**$ 22,150,000**	**$ 8,385,000**	**$ -**	**$ 1,435,000**	**$ 58,220,000**	
Estimated Bond Issues					**$ 42,264,300**		**$ 6,885,000**		**$ 49,149,300**	

	Summary			Projected Future Expenses by Year						
Non-Urban Wastewater System	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Glenmore WWTP	$ -	$ 30,000	$ -	$ -	$ -	$ -	$ -	$ 30,000	$ 30,000	$ -
Scottsville WWTP	200,000	371,000	191,000	304,000	25,000	-	-	51,000	571,000	5,000
Total Rural Wastewater Systems	**$200,000**	**$401,000**	**$ 191,000**	**$ 304,000**	**$ 25,000**	**$ -**	**$ -**	**$ 81,000**	**$ 601,000**	**$ 5,000**
FUNDING SOURCES RURAL SYSTEM - NEEDS										
Work in Progress			$ 5,000	$ -	$ -	$ -	$ -	$ -	$ 5,000	
Debt Proceeds - 2018 & 2021Bond			$ -	$ -					-	
Future Cash Reserve			-	-	-	-			-	
New Debt Needed			186,000	304,000	25,000	-	-	81,000	596,000	
TOTAL RURAL WASTEWATER FUNDING			**$ 191,000**	**$ 304,000**	**$ 25,000**	**$ -**	**$ -**	**$ 81,000**	**$ 601,000**	
Estimated Bond Issues					**$ 515,000**					

All Systems Summary

	Summary			Projected Future Expenses by Year						
Shared Projects - All Rate Centers	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY24**	**FY25**	**FY26**	**FY27**	**FY28**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Authority Wide Projects	$ 4,590,000	$ 394,000	$ 3,722,000	$ 848,000	$ 320,000	$ -	$ -	$ 94,000	$ 4,984,000	$ 1,748,909
Total Projects Urban Water Systems	**$ 4,590,000**	**$ 394,000**	**$ 3,722,000**	**$ 848,000**	**$ 320,000**	**$ -**	**$ -**	**$ 94,000**	**$ 4,984,000**	**$ 1,748,909**
FUNDING SOURCES										
Work in Progress			$ 1,748,900						$ 1,748,900	
Possible Future Reserves			$ -	$ -	$0				$ -	
New Debt Needed			$ 1,973,100	$ 848,000	$ 320,000	$ -	$ -	$ 94,000	$ 3,235,100	
									-	
TOTAL URBAN WATER FUNDING			**$ 3,722,000**	**$ 848,000**	**$ 320,000**	**$ -**	**$ -**	**$ 94,000**	**$ 4,984,000**	
Estimated Bond Issues					**$3,235,100**					

*Budget and Charges were adjusted in October 2021 & in September 2022

		FY 2022*	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
City of Charlottesville Charges													
Urban Water													
Operating Rate	Per 1000 gal.	$ 2.346	$ 2.653	$ 2.949	$ 3.126	$ 3.313	$ 3.512	$ 3.723	$ 3.946	$ 4.183	$ 4.434	$ 4.700	$ 4.982
	% Change	12.0%	13.1%	11.2%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	246,188	249,497	307,200	367,058	418,361	477,024	535,923					
		27.2%	1.3%	23.1%	19.5%	14.0%	14.0%	12.3%					
Revenue Requirements:													
Operating Rate Revenue	Annual	$ 3,906,000	$ 4,417,300	$ 4,810,300	$ 5,098,918	$ 5,404,853	$ 5,729,144	$ 6,072,893	$ 6,437,266	$ 6,823,502	$ 7,232,913	$ 7,666,887	$ 8,126,901
Debt Service Revenues	Annual	2,954,300	2,994,000	3,686,400	4,404,693	5,020,327	5,724,287	6,431,078	-	-	-	-	-
Total		**$ 6,860,300**	**$ 7,411,300**	**$ 8,496,700**	**$ 9,503,611**	**$ 10,425,180**	**$ 11,453,431**	**$ 12,503,971**	**$ 6,437,266**	**$ 6,823,502**	**$ 7,232,913**	**$ 7,666,887**	**$ 8,126,901**
	$ Change		**$ 551,000**	**$ 1,085,400**	**$ 1,006,911**	**$ 921,569**	**$ 1,028,251**	**$ 1,050,540**	**$ 364,374**	**$ 386,236**	**$ 409,410**	**$ 433,975**	**$ 460,013**
	% Change		**8.0%**	**14.6%**	**11.9%**	**9.7%**	**9.9%**	**9.2%**					
Urban Wastewater													
Operating Rate	Per 1000 gal.	2.517	2.664	2.922	3.127	3.314	3.513	3.724	3.947	4.184	4.435	4.701	4.983
	% Change	6.2%	5.8%	9.7%	7.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	376,036	$ 384,637	394,890	406,962	419,902	432,492	445,282					
		-7.7%	2.3%	2.7%	3.1%	3.2%	3.0%	3.0%					
Revenue Requirements:													
Operating Rate Revenue	Annual	$ 4,096,900	$ 4,245,800	$ 4,557,800	$ 4,876,846	$ 5,169,457	$ 5,479,624	$ 5,808,402	$ 6,156,906	$ 6,526,320	$ 6,917,899	$ 7,332,973	$ 7,772,952
Debt Service Revenues	Annual	4,512,500	4,615,644	4,738,800	4,883,540	5,038,820	5,189,900	5,343,380	-	-	-	-	-
Total		**$ 8,609,400**	**$ 8,861,444**	**$ 9,296,600**	**$ 9,760,386**	**$ 10,208,277**	**$ 10,669,524**	**$ 11,151,782**	**$ 6,156,906**	**$ 6,526,320**	**$ 6,917,899**	**$ 7,332,973**	**$ 7,772,952**
	$ Change		**$ 252,044**	**$ 435,156**	**$ 463,786**	**$ 447,891**	**$ 461,247**	**$ 482,257**	**$ 348,504**	**$ 369,414**	**$ 391,579**	**$ 415,074**	**$ 439,978**
	% Change		**2.9%**	**4.9%**	**5.0%**	**4.6%**	**4.5%**	**4.5%**					
Total all Rate Centers													
Operating Rate Revenue		**$ 8,002,900**	**$ 8,663,100**	**$ 9,368,100**	**$ 9,975,764**	**$ 10,574,310**	**$ 11,208,768**	**$ 11,881,295**	**$ 12,594,172**	**$ 13,349,823**	**$ 14,150,812**	**$ 14,999,861**	**$ 15,899,852**
Debt Service Revenues		**7,466,800**	**7,609,644**	**8,425,200**	**9,288,233**	**10,059,147**	**10,914,187**	**11,774,458**	**11,774,458**	**11,774,458**	**11,774,458**	**11,774,458**	**11,774,458**
Total City All Revenues		**$ 15,469,700**	**$ 16,272,744**	**$ 17,793,300**	**$ 19,263,997**	**$ 20,633,457**	**$ 22,122,955**	**$ 23,655,753**	**$ 24,368,630**	**$ 25,124,281**	**$ 25,925,270**	**$ 26,774,319**	**$ 27,674,310**
	$ Change		**$ 803,044**	**$ 1,520,556**	**$ 1,470,697**	**$ 1,369,460**	**$ 1,489,499**	**$ 1,532,797**	**$ 712,878**	**$ 755,650**	**$ 800,989**	**$ 849,049**	**$ 899,992**
	% Change		**5.2%**	**9.3%**	**8.3%**	**7.1%**	**7.2%**	**6.9%**					
									1,011,335	**725,025**	**511,508**	**689,725**	**956,426**
10-Year CIP Debt Service					**249,048**	**636,571**	**1,143,834**	**1,929,768**	**2,941,103**	**3,666,128**	**4,177,636**	**4,867,361**	**5,823,787**
Total Estimated Charge		**$ 15,469,700**	**$ 16,272,744**	**$ 17,793,300**	**$ 19,513,045**	**$ 21,270,028**	**$ 23,266,789**	**$ 25,585,521**	**$ 27,309,733**	**$ 28,790,408**	**$ 30,102,906**	**$ 31,641,680**	**$ 33,498,097**
% Change			**$ 0**	**9.3%**	**9.7%**	**9.0%**	**9.4%**	**10.0%**	**6.7%**	**5.4%**	**4.6%**	**5.1%**	**5.9%**
		Additional Annual Revenues		***$ 1,520,556***	***$ 1,719,745***	***$ 1,756,983***	***$ 1,996,762***	***$ 2,318,731***	***$ 1,724,213***	***$ 1,480,675***	***$ 1,312,497***	***$ 1,538,774***	***$ 1,856,417***
				9.3%	***9.7%***	***9.0%***	***9.4%***	***10.0%***	***6.7%***	***5.4%***	***4.6%***	***5.1%***	***5.9%***

		FY 2022*	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
ACSA Charges													
Urban Water													
Operating Rate	Per 1000 gal.	2.346	2.653	2.949	3.126	3.313	3.512	3.723	3.946	4.183	4.434	4.700	4.982
	% Change	12.0%	0.0%	11.2%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 388,956	$ 442,355	542,282	648,984	746,826	851,640	957,358					
		21.1%	8.1%	22.6%	19.7%	15.1%	14.0%	12.4%					
Revenue Requirements:													
Operating Rate Revenue	Annual	$ 4,065,500	$ 4,597,600	$ 5,211,100	$ 5,523,766	$ 5,855,192	$ 6,206,503	$ 6,578,894	$ 6,973,627	$ 7,392,045	$ 7,835,568	$ 8,305,702	$ 8,804,044
Debt Service Revenues	Annual	4,667,500	5,308,200	6,507,400	7,787,808	8,961,914	10,219,674	11,488,294	-	-	-	-	-
Total		**$ 8,733,000**	**$ 9,905,800**	**$ 11,718,500**	**$ 13,311,574**	**$ 14,817,106**	**$ 16,426,177**	**$ 18,067,188**	**$ 6,973,627**	**$ 7,392,045**	**$ 7,835,568**	**$ 8,305,702**	**$ 8,804,044**
	$ Change		**$ 1,172,800**	**$ 1,812,700**	**$ 1,593,074**	**$ 1,505,532**	**$ 1,609,072**	**$ 1,641,010**	**$ 394,734**	**$ 418,418**	**$ 443,523**	**$ 470,134**	**$ 498,342**
	% Change		**13.4%**	**18.3%**	**13.6%**	**11.3%**	**10.9%**	**10.0%**					
Urban Wastewater													
Operating Rate	Per 1000 gal.	2.517	2.664	2.922	3.127	3.314	3.513	3.724	3.947	4.184	4.435	4.701	4.983
	% Change	0	5.8%	9.7%	7.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 337,983	$ 355,205	383,403	413,498	441,408	469,318	497,228					
		0.215005716	5.1%	7.9%	7.8%	6.7%	6.3%	5.9%					
Revenue Requirements:													
Operating Rate Revenue	Annual	$ 4,438,300	$ 4,787,800	$ 5,350,500	$ 5,725,035	$ 6,068,537	$ 6,432,649	$ 6,818,608	$ 7,227,725	$ 7,661,388	$ 8,121,072	$ 8,608,336	$ 9,124,836
Debt Service Revenues	Annual	4,055,800	4,262,460	4,600,800	4,961,976	5,296,896	5,631,816	5,966,736	-	-	-	-	-
Total		$ 8,494,100	$ 9,050,260	$ 9,951,300	$ 10,687,011	$ 11,365,433	$ 12,064,465	$ 12,785,344	$ 7,227,725	$ 7,661,388	$ 8,121,072	$ 8,608,336	$ 9,124,836
	$ Change		**$ 556,160**	**$ 901,040**	**$ 735,711**	**$ 678,422**	**$ 699,032**	**$ 720,879**	**$ 409,116**	**$ 433,663**	**$ 459,683**	**$ 487,264**	**$ 516,500**
	% Change		**6.5%**	**10.0%**	**7.4%**	**6.3%**	**6.2%**	**6.0%**					
Non-Urban Rate Centers													
Operating Rate Revenue	Annual	$ 2,303,900	$ 2,565,900	2,797,300	2,993,111	3,172,698	3,363,060	3,564,843	3,778,734	4,005,458	4,245,785	4,500,532	4,770,564
Debt Service Revenues	Annual	2,004,000	2,342,600	2,585,800	2,844,600	3,103,400	3,362,200	3,621,000	-				
Total		**$ 4,307,900**	**$ 4,908,500**	**$ 5,383,100**	**$ 5,837,711**	**$ 6,276,098**	**$ 6,725,260**	**$ 7,185,843**	**$ 3,778,734**	**$ 4,005,458**	**$ 4,245,785**	**$ 4,500,532**	**$ 4,770,564**
			$ 600,600	**$ 474,600**	**$ 454,611**	**$ 438,387**	**$ 449,162**	**$ 460,584**	**$ 213,891**	**$ 226,724**	**$ 240,327**	**$ 254,747**	**$ 270,032**
			13.9%	**9.7%**	**8.4%**	**7.5%**	**7.2%**	**6.8%**					
Total all Rate Centers													
Operating Rate Revenue		**$ 10,807,700**	**$ 11,951,300**	**$ 13,358,900**	**$ 14,241,912**	**$ 15,096,427**	**$ 16,002,212**	**$ 16,962,345**	**$ 17,980,086**	**$ 19,058,891**	**$ 20,202,424**	**$ 21,414,570**	**$ 22,699,444**
Debt Service Revenues		**10,727,300**	**11,913,260**	**13,694,000**	**15,594,384**	**17,362,210**	**19,213,690**	**21,076,030**	**21,076,030**	**21,076,030**	**21,076,030**	**21,076,030**	**21,076,030**
Total ACSA All Revenues		**$ 21,535,000**	**$ 23,864,560**	**$ 27,052,900**	**$ 29,836,296**	**$ 32,458,637**	**$ 35,215,902**	**$ 38,038,375**	**$ 39,056,116**	**$ 40,134,921**	**$ 41,278,454**	**$ 42,490,600**	**$ 43,775,474**
	$ Change		**$ 2,329,560**	**$ 3,188,340**	**$ 2,783,396**	**$ 2,622,341**	**$ 2,757,266**	**$ 2,822,473**	**$ 1,017,741**	**$ 1,078,805**	**$ 1,143,533**	**$ 1,212,145**	**$ 1,284,874**
	% Change		**10.8%**	**13.4%**	**10.3%**	**8.8%**	**8.5%**	**8.0%**					
10-Year CIP Debt Service					**574,419**	**1,511,603**	**2,698,096**	**4,207,913**	**6,024,301**	**7,005,452**	**7,760,703**	**8,676,074**	**9,845,100**
Total Estimated Charge		**$ 21,535,000**	**$ 23,864,560**	**$ 27,052,900**	**$ 30,410,715**	**$ 33,970,240**	**$ 37,913,998**	**$ 42,246,288**	**$ 45,080,417**	**$ 47,140,373**	**$ 49,039,157**	**$ 51,166,673**	**$ 53,620,574**
% Change			**$ 0**	**13.4%**	**12.4%**	**11.7%**	**11.6%**	**11.4%**	**6.7%**	**4.6%**	**4.0%**	**4.3%**	**4.8%**
		Additional Annual Revenues		***$ 3,188,340***	***$ 3,357,815***	***$ 3,559,525***	***$ 3,943,759***	***$ 4,332,290***	***$ 2,834,129***	***$ 2,059,956***	***$ 1,898,784***	***$ 2,127,516***	***$ 2,453,901***
				13.4%	***12.4%***	***11.7%***	***11.6%***	***11.4%***	***6.7%***	***4.6%***	***4.0%***	***4.3%***	***4.8%***

	FY 2022*	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
RWSA												
Operations Revenues												
Urban Water	$ 7,971,500	$ 9,014,900	$ 10,021,400	$ 10,622,684	$ 11,260,045	$ 11,935,648	$ 12,651,787	$ 13,410,894	$ 14,215,547	$ 15,068,480	$ 15,972,589	$ 16,930,944
Urban Wastewater	8,535,200	9,033,600	9,908,300	10,601,881	11,237,994	11,912,273	12,627,010	13,384,630	14,187,708	15,038,971	15,941,309	16,897,788
Other Rate Centers	2,303,900	2,565,900	2,797,300	2,993,111	3,172,698	3,363,060	3,564,843	3,778,734	4,005,458	4,245,785	4,500,532	4,770,564
Total	$ 18,810,600	$ 20,614,400	$ 22,727,000	$ 24,217,676	$ 25,670,737	$ 27,210,981	$ 28,843,640	$ 30,574,258	$ 32,408,713	$ 34,353,236	$ 36,414,430	$ 38,599,296
Change $		1,803,800	2,112,600	1,490,676	1,453,061	1,540,244	1,632,659	1,730,618	1,834,455	1,944,523	2,061,194	2,184,866
Change %		9.6%	10.2%	6.6%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge Revenues												
Urban Water	7,621,800	8,302,200	10,193,800	12,192,501	13,982,241	15,943,961	17,919,372					
Urban Wastewater	8,568,300	8,878,104	9,339,600	9,845,516	10,335,716	10,821,716	11,310,116					
Other Rate Centers	2,004,000	2,342,600	2,585,800	2,844,600	3,103,400	3,362,200	3,621,000					
	$ 18,194,100	$ 19,522,904	$ 22,119,200	$ 24,882,617	$ 27,421,357	$ 30,127,877	$ 32,850,488	$ 32,850,488	$ 32,850,488	$ 32,850,488	$ 32,850,488	$ 32,850,488
Change $		1,328,804	2,596,296	2,763,417	2,538,740	2,706,520	2,722,611					
Change %		7.3%	13.3%	12.5%	10.2%	9.9%	9.0%					
Total RWSA Customer Revenues	**$ 37,004,700**	**$ 40,137,304**	**$ 44,846,200**	**$ 49,100,293**	**$ 53,092,094**	**$ 57,338,858**	**$ 61,694,128**	**$ 63,424,746**	**$ 65,259,201**	**$ 67,203,724**	**$ 69,264,918**	**$ 71,449,784**
Change $		**$ 3,132,604**	**$ 4,708,896**	**$ 4,254,093**	**$ 3,991,801**	**$ 4,246,764**	**$ 4,355,270**	**$ 1,730,618**	**$ 1,834,455**	**$ 1,944,523**	**$ 2,061,194**	**$ 2,184,866**
Change %		**8.5%**	**11.7%**	**9.5%**	**8.1%**	**8.0%**	**7.6%**	**2.8%**	**2.9%**	**3.0%**	**3.1%**	**3.2%**
Additional for 10-Year CIP				**823,467**	**2,148,174**	**3,841,930**	**6,137,681**	**8,965,404**	**10,671,580**	**11,938,339**	**13,543,435**	**15,668,887**
Total Estimated Charge	**$ 37,004,700**	**$ 40,137,304**	**$ 44,846,200**	**$ 49,923,760**	**$ 55,240,268**	**$ 61,180,788**	**$ 67,831,809**	**$ 72,390,150**	**$ 75,930,781**	**$ 79,142,063**	**$ 82,808,353**	**$ 87,118,671**
% Change		**0.0%**	**11.7%**	**11.3%**	**10.6%**	**10.8%**	**10.9%**	**6.7%**	**4.9%**	**4.2%**	**4.6%**	**5.2%**
			$ 44,846,200	***$ 49,923,760***	***$ 55,240,268***	***$ 61,180,788***	***$ 67,831,809***	***$ 72,390,150***	***$ 75,930,781***	***$ 79,142,063***	***$ 82,808,353***	***$ 87,118,671***
	Additional Annual Revenues		***$ 4,708,896***	***$ 5,077,560***	***$ 5,316,508***	***$ 5,940,520***	***$ 6,651,021***	***$ 4,558,342***	***$ 3,540,631***	***$ 3,211,282***	***$ 3,666,290***	***$ 4,310,318***
			11.7%	***11.3%***	***10.6%***	***10.8%***	***10.9%***	***6.7%***	***4.9%***	***4.2%***	***4.6%***	***5.2%***

Rivanna Water and Sewer Authority
FY 2024 CIP Update Summary Analysis
5-Year Summary

New rate revenue needed

Five Year Summary of Revenue needed

		FY 2023	5-Year Revenue Growth	FY 2028	Change %	Annual 5-year Average	
City - Charges From RWSA							
Urban Water							
Operating Rate Charges		$ 4,417,300	$ 1,679,832	$ 6,097,132	38.0%		
Debt Service Charges		2,994,000	3,437,078	6,431,078	114.8%		
		$ 7,411,300	$ 5,116,910	$ 12,528,210	69.0%		
Urban Wastewater							
Operating Rate Charges		$ 4,245,800	$ 1,586,050	$ 5,831,850	37.4%		
Debt Service Charges	*	4,615,700	727,680	5,343,380	15.8%		
		$ 8,861,500	$ 2,313,730	$ 11,175,230	26.1%		
Year 5-10 CIP							
Debt Service Charges		$ -	$ 1,929,768	$ 1,929,768			
Total City Charges		**$ 16,272,800**	**$ 9,360,409**	**$ 25,633,209**	**57.5%**	11.5%	$ 1,872,082
ACSA - Charges From RWSA							
Urban Water							
Operating Rate Charges		$ 4,597,600	$ 2,007,553	$ 6,605,153	43.7%		
Debt Service Charges		5,308,200	6,180,094	11,488,294	116.4%		
		$ 9,905,800	$ 8,187,647	$ 18,093,447	82.7%		
Urban Wastewater							
Operating Rate Charges		$ 4,787,800	$ 2,058,335	$ 6,846,135	43.0%		
Debt Service Charges	*	4,262,500	1,704,236	5,966,736	40.0%		
		$ 9,050,300	$ 3,762,571	$ 12,812,871	41.6%		
Other Rate Centers							
Operating Rate Charges		$ 2,565,900	$ 998,943	$ 3,564,843	38.9%		
Debt Service Charges		2,342,600	1,278,400	3,621,000	54.6%		
		$ 4,908,500	$ 2,277,343	$ 7,185,843	46.4%		
Year 5-10 CIP							
Debt Service Charges		$ -	$ 4,207,913	$ 4,207,913			
Total ACSA Charges		**$ 23,864,600**	**$ 18,435,474**	**$ 42,300,074**	**77.3%**	15.5%	$ 3,687,095
RWSA Customer Revenue Charges							
Operating Rate Revenues							
Urban Water		$ 9,014,900	$ 3,687,386	$ 12,702,286	40.9%		
Urban Wastewater		9,033,600	3,644,385	12,677,985	40.3%		
Other Rate Centers		2,565,900	998,943	3,564,843	38.9%		
		$ 20,614,400	$ 8,330,714	$ 28,945,114	40.4%		
Debt Service Rate Revenues							
Urban Water		$ 8,302,200	$ 9,617,172	$ 17,919,372	115.8%		
Urban Wastewater		8,878,200	2,431,916	11,310,116	27.4%		
Other Rate Centers		2,342,600	1,278,400	3,621,000	54.6%		
		$ 19,523,000	$ 13,327,488	$ 32,850,488	68.3%		
Year 5-10 CIP							
Debt Service Charges		$ -	$ 6,137,681	$ 6,137,681			
Total RWSA Customer Revenues		**$ 40,137,400**	**$ 27,795,883**	**$ 67,933,283**	**69.3%**	13.9%	$ 5,559,177

Summary Information

	2024 - 2028 *Proposed* CIP	2023 - 2027 Adopted CIP	Change $
Project Cost			
Urban Water Projects	$ 209,590,000	$ 122,465,000	$ 87,125,000
Urban Wastewater Projects	58,220,000	44,370,000	13,850,000
Non-Urban Projects & Shared	58,315,000	38,285,000	20,030,000
Total Project Cost Estimates	**$ 326,125,000**	**$ 205,120,000**	**$ 121,005,000**
Funding in place			
Work-in-Progress (paid for)	$ 35,570,900	$ 23,146,700	12,424,200
Debt Proceeds Available	25,472,300	46,355,250	(20,882,950)
Cash-Capital Available	2,000,000	4,000,000	(2,000,000)
	$ 63,043,200	$ 73,501,950	$ (10,458,750)
Financing Needs			
Possible Future Reserves	$ 10,435,000	$ 9,950,000	485,000
Grants	20,560,000	-	20,560,000
New Debt	232,086,800	121,668,050	110,418,750
	$ 263,081,800	$ 131,618,050	$ 131,463,750
Total Funding	**$ 326,125,000**	**$ 205,120,000**	**$ 121,005,000**
Percentage of funding in place	19.3%	35.8%	
Ratio of debt to expense	89.9%	93.2%	
Ratio of grant to expense	6.3%		
Ratio of cash to expense	3.8%	6.8%	

Summary Information

Detail by Major Systems	Total *Proposed* CIP	Urban Water Projects	Urban Wastewater Projects	Shared Projects	Water Non-Urban Projects	Wastewater Non-Urban Projects
Project Cost						
Urban Water Projects	$ 209,590,000	$ 209,590,000	$ -		$ -	$ -
Urban Wastewater Projects	58,220,000	-	58,220,000		-	-
Non-Urban Projects & Shared	58,315,000	-	-	4,984,000	52,730,000	601,000
Total Project Cost Estimates	**$ 326,125,000**	**$ 209,590,000**	**$ 58,220,000**	**$ 4,984,000**	**$ 52,730,000**	**$ 601,000**
Funding in place						
Work-in-Progress (paid for)	$ 35,570,900	$ 32,041,700	$ 588,400	$ 1,748,900	$ 1,186,900	$ 5,000
Debt Proceeds available	25,472,300	24,925,000	547,300	-	-	-
Cash-Capital Available	2,000,000	-	2,000,000	-	-	-
Subtotal	$ 63,043,200	$ 56,966,700	$ 3,135,700	$ 1,748,900	$ 1,186,900	$ 5,000
Financing Needs						
Possible Future Reserves	$ 10,435,000	3,500,000	5,935,000	-	1,000,000	-
Grants	20,560,000	-	-	-	20,560,000	
New Debt	232,086,800	149,123,300	49,149,300	3,235,100	29,983,100	596,000
Subtotal	$ 263,081,800	$ 152,623,300	$ 55,084,300	$ 3,235,100	$ 51,543,100	$ 596,000
Total Funding	**$ 326,125,000**	**$ 209,590,000**	**$ 58,220,000**	**$ 4,984,000**	**$ 52,730,000**	**$ 601,000**
Percentage of funding in place	19.3%	27.2%	5.4%	35.1%	2.3%	0.8%
Ratio of debt to expense	89.9%	83.0%	85.4%	64.9%	56.9%	99.2%
Ratio of cash to expense	3.8%	1.7%	13.6%	0.0%	1.9%	0.0%

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: **ADOPTION OF THE FY 2023-2024 RATE SCHEDULE AND APPROVAL OF THE FY 2023-2024 BUDGET**

DATE: **MAY 23, 2023**

The proposed Fiscal Year 2023-2024 budget totaling $47,698,000 was reviewed in detail with the Board during the March 27, 2023 meeting, and will be briefly reviewed again today. The proposed budget includes $24,406,000 for Operating expenses and $23,291,000 for Debt Service charges, and represents a 13.9% increase above the current budget. The proposed budget includes resources required to improve our water supply and water treatment infrastructure, meet debt service obligations, comply with regulatory mandates, and invest in our workforce. Through these resources, wholesale water and wastewater services will be provided to the City of Charlottesville and the Albemarle County Service Authority (ACSA) in a collaborative, effective, and fiscally responsible manner.

The proposed budget includes a $2.2 million increase in Operating expenses primarily due to inflation-driven cost increases for water and wastewater treatment chemicals, licensing and enhancements for our information technology systems, and support for our workforce. Debt service costs will increase $3.6 million due to inflationary cost increases for our capital projects including a three-year acceleration of a major water supply project (SFRR-RMR Pipeline), increased GAC treatment facilities at our Crozet and Red Hill WTPs, improvements to the Beaver Creek Dam, as well as to leverage local partnerships and complete water pipe projects in the Emmet Street corridor in a cost-effective manner. Charges will increase 9.3% to the City and 13.4% to the ACSA to support these essential services.

The proposed budget includes a 6% cost of living increase for all RWSA and RSWA staff, including the Executive Director, and a merit pool of 2% for eligible employees, with both to be effective in July 2023. The proposed cost of living adjustment will help the Authorities retain the specialized, licensed, and professional employees we require to provide our drinking water, wastewater, refuse and recycling services for our community. Competition for qualified employees in the utility and solid waste workforce marketplace has become more challenging due to the high rate of inflation, which has increased 7% since we last gave our employees a cost-of-living increase in February of 2022, and low unemployment (2.6%) in the Charlottesville/Albemarle region. The proposed merit pool will allow us to reward employees for successful completion of performance goals over the past year.

In support of our Strategic Plan goal to "attract, develop and retain a professional, highly skilled, dedicated and versatile team", we have been monitoring the recent escalations in the cost-of-living index and other compensation factors in our area and industry. We are currently meeting our Strategic Plan turnover goal of under 10%, with a fiscal year-to-date turnover rate of 7.4%. However, competition to hire and retain skilled trade and professional employees is a challenge as the Charlottesville/Albemarle County region.

In addition, the proposed budget includes creation of a new Administration and Communications Division to support our Strategic Plan priorities, along with four additional positions including:

- Director of Administration and Communications
- Finance Manager
- Information Technology Technician
- Engineering Inspector Supervisor

Board Action Requested:
Adopt the attached Rate Schedule with any revisions after conducting a Public Hearing, and approve the Fiscal Year 2023-2024 Budget totaling $47.6 million which includes:

- a 6% cost of living increase for all employees including the Executive Director
- a 2% merit pool for eligible employees
- creation of a new Administration and Communications Division
- four additional positions

with all to be effective on July 1, 2023.

Attachments

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

RESOLUTION
TO ADOPT THE RATE SCHEDULE
FOR FISCAL YEAR 2023-2024, EFFECTIVE JULY 1, 2023
BY THE RIVANNA WATER AND SEWER AUTHORITY

WHEREAS, the Rivanna Water and Sewer Authority (the "Authority") Board of Directors has reviewed the proposed Rate Schedule for Fiscal Year 2023-2024; and

WHEREAS, the Authority conducted a public hearing for the proposed Rate Schedule on May 23, 2023 after advertising the actual date fixed for the public hearing in the Daily Progress on April 10, 2023 and April 17, 2023, and

NOW, THEREFORE, BE IT RESOLVED that the Rivanna Water and Sewer Authority hereby adopts the Rate Schedule for Fiscal Year 2023-2024, to be effective on July 1, 2023.

RATE SCHEDULE

Water Rates & Charges

Urban Area

ACSA & City	Operating	$	2,949	Per 1,000 gallons
City	Debt Service	$	307,200	Per month
ACSA	Debt Service	$	542,282	Per month

Crozet

ACSA	Operating	$	102,896	Per month
ACSA	Debt Service	$	198,810	Per month

Scottsville

ACSA	Operating	$	54,705	Per month
ACSA	Debt Service	$	13,228	Per month

Wastewater Rates & Charges

Urban Area

ACSA & City	Operating	$	2,922	Per 1,000 gallons
City	Debt Service	$	394,890	Per month
ACSA	Debt Service	$	383,403	Per month

Glenmore

ACSA	Operating	$	43,493	Per month
ACSA	Debt Service	$	1,890	Per month

Scottsville

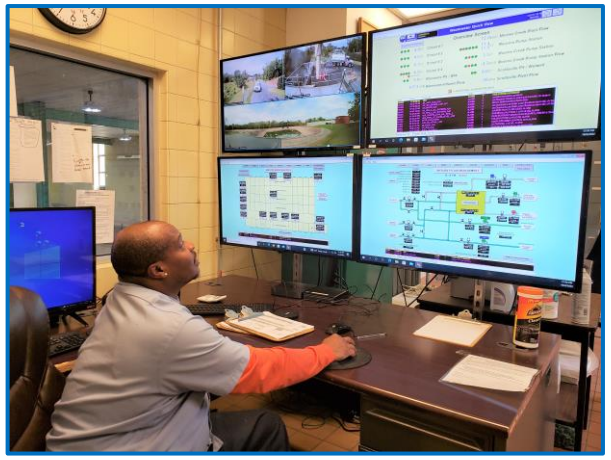
ACSA	Operating	$	32,016	Per month
ACSA	Debt Service	$	1,553	Per month

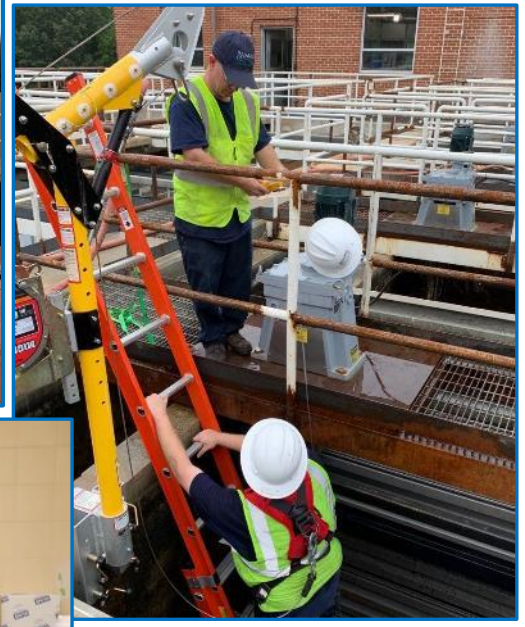
The Rivanna Water & Sewer Authority (Rivanna) was created by the City of Charlottesville (City) and the County of Albemarle to supply and treat water for drinking and to provide wastewater treatment. The above fees represent Rivanna's fees and charges to the City and the Albemarle County Service Authority (ACSA) for these services and are not the same as the City and ACSA charges to individual residents and businesses. Debt Service covers capital related project costs and are different for the City and ACSA reflecting terms of contractual agreements.

The City and the ACSA distribute drinking water and collect wastewater from individual residents and businesses and charge retail rates that combine charges from the above schedule to reflect their service costs, including Rivanna's costs.

Information about the budget may be obtained on the Rivanna website at www.rivanna.org. Please call 977-2970 ext. 0 or send e-mail to info@rivanna.org with any questions you may have.

Proposed
FY 2023 - 2024 Budget





PRESENTED TO THE BOARD OF DIRECTORS

BY BILL MAWYER, EXECUTIVE DIRECTOR

MAY 23, 2023

RIVANNA WATER & SEWER AUTHORITY

Guided by the Priorities of Our Strategic Plan 2023-2028

OPTIMIZATION AND RESILIENCY

To empower a culture of innovative and collaborative thinking that advances efficient operational processes, technology modernization, and risk mitigation.

ENVIRONMENTAL STEWARDSHIP

To demonstrate and promote best practices in sustainability, resources conservation, and environmental education.

WORKFORCE DEVELOPMENT

To attract, develop, and retain a professional, highly skilled, engaged, and diverse team.

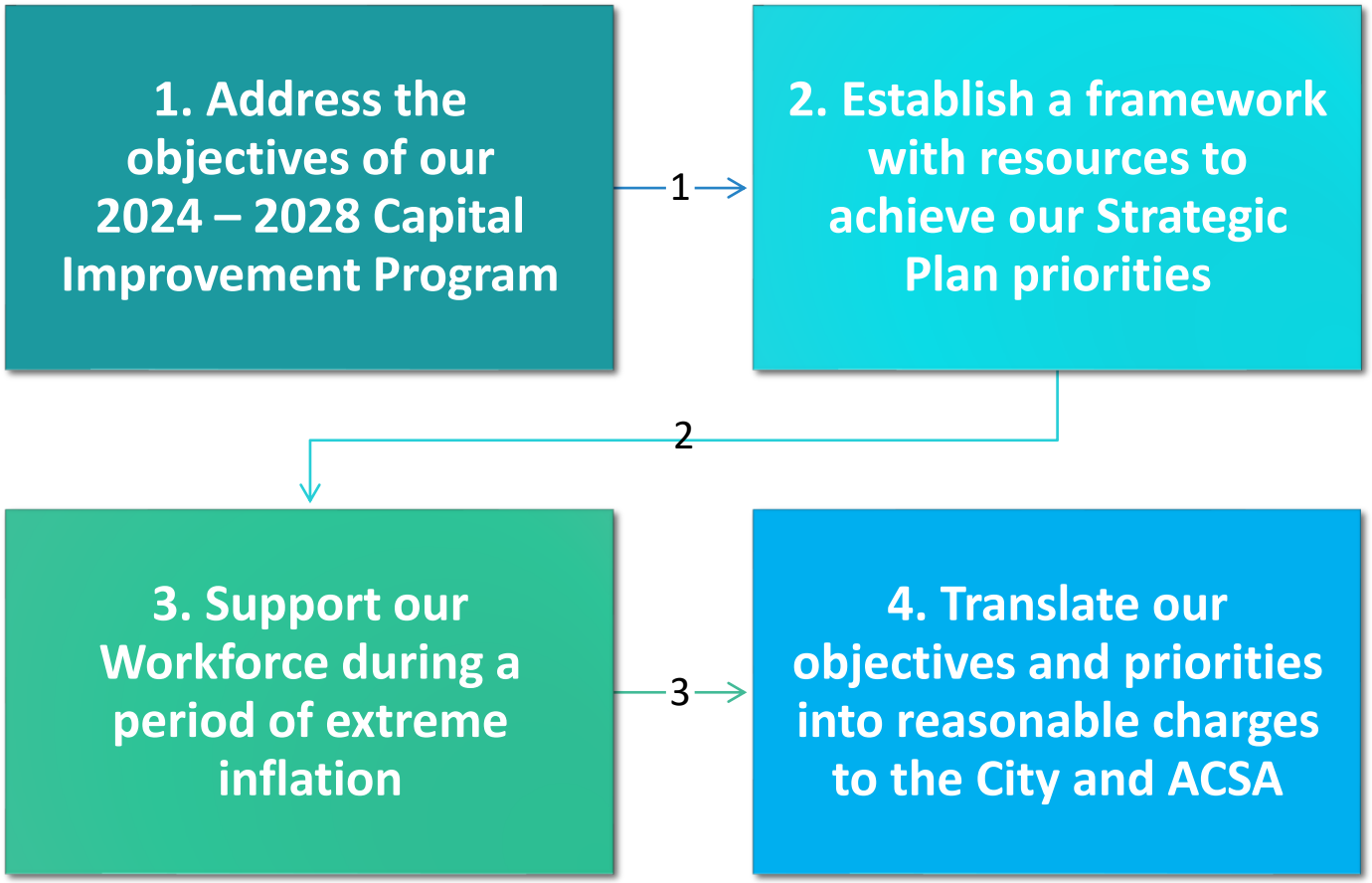
COMMUNICATION AND COLLABORATION

To elevate awareness of the Authorities' impact and value through proactive communication, effective partnerships, and community involvement.

PLANNING AND INFRASTRUCTURE

To address evolving needs by planning, delivering, and maintaining dependable infrastructure and facilities in a financially responsible manner.

Focus of the FY 2023 – 2024 Budget



FY 24 – 28
Capital Improvement Program

➢56 Projects, $326.1 M

	Water	Wastewater
• Urban Systems:	$209.6 M	$58.2 M

• Non-Urban & Shared Water & Wastewater: $58.3 M

Funding

•Available	$27.5	M
•Grants:	$20.6	M
•Reserves:	$10.4	M
•New Debt:	$232.0	M
•Completed and Paid:	$35.6	M
	$326.1	M

Objectives of our FY 24 – 28 CIP

- ***Complete the South Fork Rivanna Reservoir to Ragged Mtn Reservoir Pipeline and Pumping project by 2030 rather than 2033.***
  - *Accelerating this project will enhance the capacity, reliability and resiliency of our community's drinking water supply. Extended droughts and more intense storms are predicted. Completing this pipeline and increasing the water storage capacity in RMR by 700 MG will optimize our infrastructure and mitigate this concern.*

- ***Provide additional Granular Activated Carbon treatment capacity at Crozet and Red Hill WTPs.***
  - *Additional GAC facilities will enhance drinking water quality and serve anticipated growth while utilizing grant funding from VDH (currently $3.17 M of $5M budgeted).*

- ***Leverage partnerships with the City, UVA and VDOT on drinking water piping projects in Emmet Street.***
  - *To reduce costs and disruption to the public in the Emmet Street corridor.*

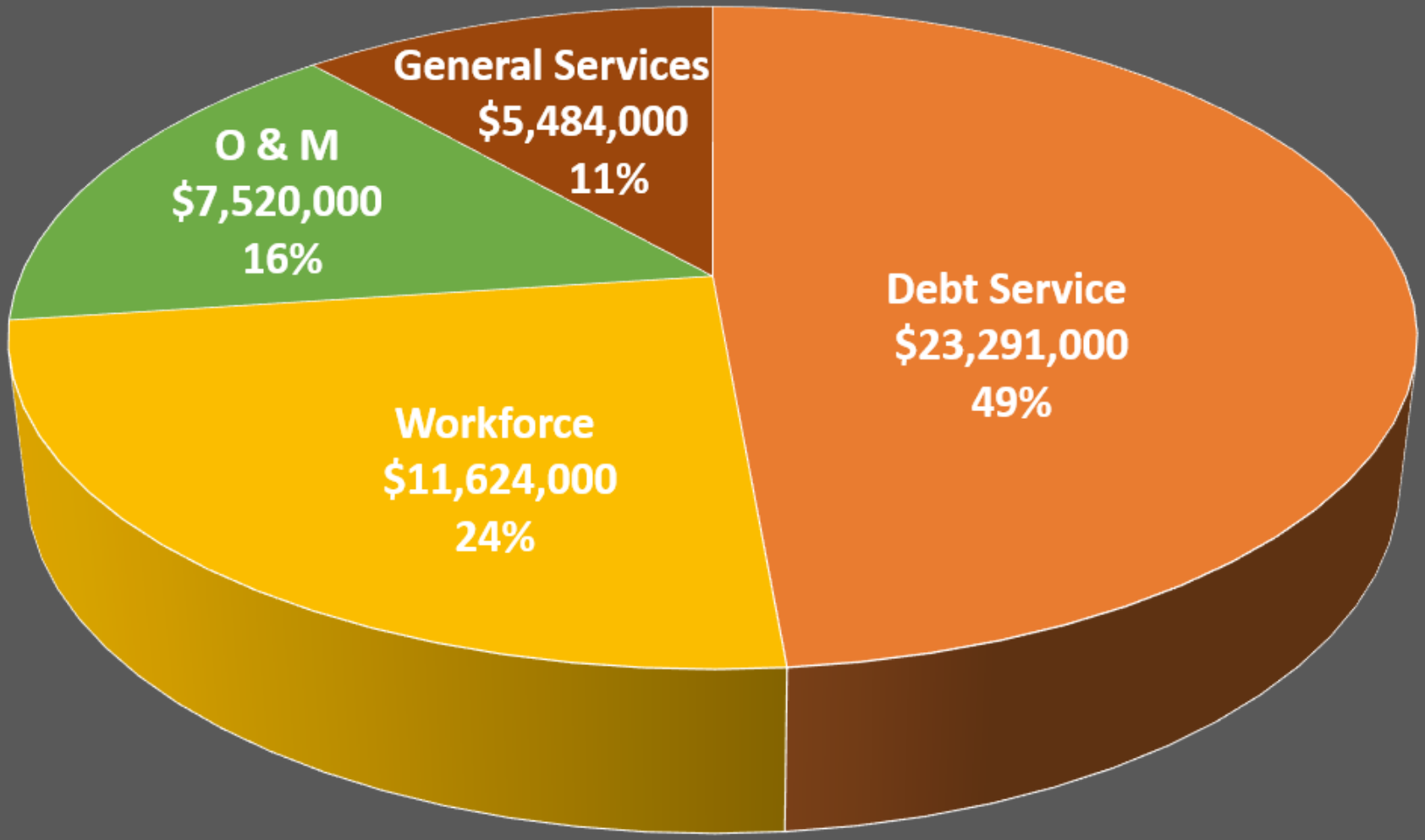
- ***Improve drinking water capacity and reliability in the Rt. 29 North area.***
  - *Additional river crossings and the Airport Pump Station will strengthen our drinking water infrastructure, support growth opportunities, and allow decommissioning of the North Rivanna WTP.*

Budget Summary
FY 2023 – 2024

➢ Total Budget	$47.7 m	$5.8 m increase = 13.9%
1. Debt Service	$23.3 m	$3.6 m increase = 18.2%
2. Operations	$24.4 m	$2.2 m increase = 10.1%
➢ City Charges	$17.8 m	$1.5 m increase = 9.3 %
➢ ACSA Charges	$27.0 m	$3.2 m increase = 13.4 %

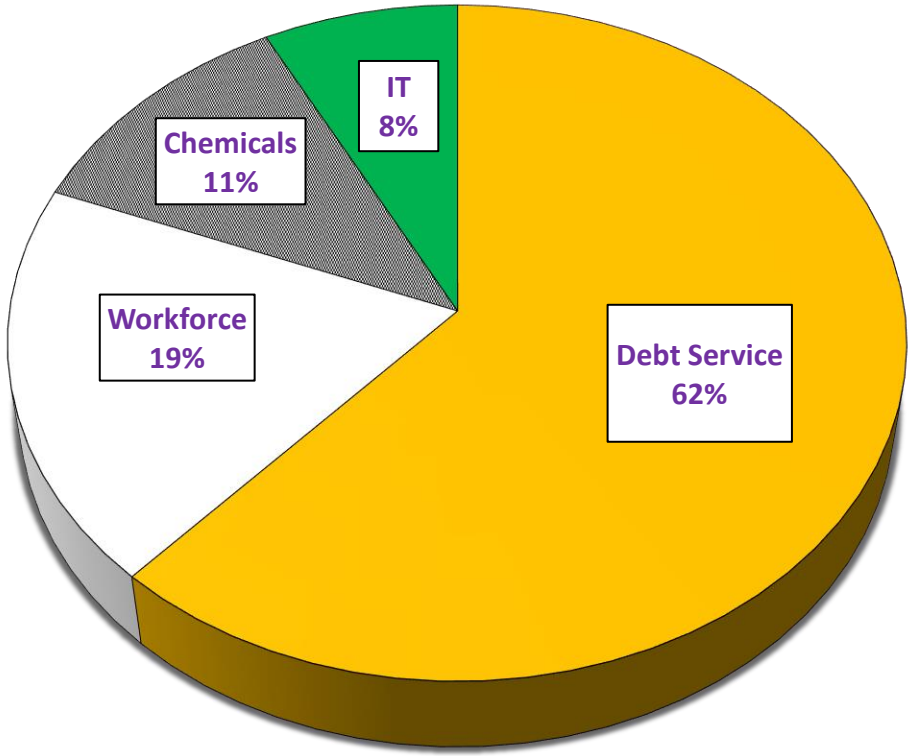
FY 2023– 2024 Budget

$47.7 M



Cost Increases

FY 2024 vs 2023



Debt Service	$3,592,000	62%
Workforce	$1,130,000	19%
Chemicals	$680,000	11%
Information Technology	$453,000	8%
Total Increase	**$5.8 million**	

Strategic Plan Priority

Operational Optimization Savings

- Advance efficient operational processes, technology modernization, and risk management

System	Savings
Provide In-house Covid Testing	$40,000
Transition to Liquid Lime from Dry Chemical	$37,000
Use TOC Analyzer for Real Time GAC Adjustment, SRWTP	$30,000
Purchased high quality used in lieu of new lab equipment	$20,000
Reduced cost of Micro C chemical through contracting strategy	$17,000
Use Meter to Optimize Alum Dosing, SRWTP	$16,000
Use SCADA to Optimize Alum Dosing, Moores Creek	$15,000
Change coagulant from PACL to Alum, OBWTP	$11,000
Reduce Advertising frequency in newspaper	$1,000
Total Estimated Annual Savings	**$187,000**

Major Programs in FY 2024

- In Construction:
  - Airport Rd Water Pump Station*
  - MC 5kv Electrical Upgrade **
  - S. Rivanna River Crossing*
  - RMR – OBWTP Pipeline & Pump Station **
  - Central Water Line**
  - Red Hill WTP Upgrades and GAC*
  - Scottsville WRRF Emergency Power Generator*
  - MC Admin Building Renovation & Addition **

- In Design:
  - SFRR – RMR Pipeline ***
  - Beaver Creek Dam, Pump Station & Piping *
  - Crozet WTP GAC Systems *

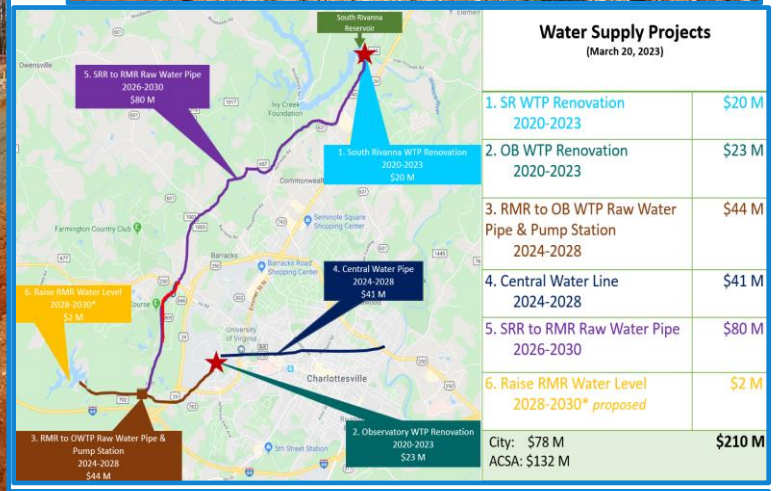
  100% ACSA; ** 52% ACSA/48% City; * 80% ACSA/20% City;*

- New Administration & Communications Division


Airport Rd WPS – Vertical Turbine Pumps


Airport Rd WPS- Vertical Turbine Pump Cans


24" Pipe




Beaver Creek Reservoir

Expense Increases

~*Inflation and Investment*~

Workforce: *$1.1 m*

- *Cola (6%); Merit (2%)* *$601 k*
- *VRS, Taxes, Health/Life Insur* *$274 k*
- *4 Additional Positions** *$255 k*
  - *1. Director Admin & Communications:* *1st quarter*
  - *2. Financial Manager:* *2nd quarter*
  - *3. IT Technician- Cyber Security:* *2nd quarter*
  - *4. Engineering Inspector Supervisor:* *2nd quarter*

**Eliminated 0.4 position; net 3.6 additional positions*

Operations and Maintenance: *$1.1 m*

- *Chemicals* *$680 k*
- *Technology & Communications* *$453 k*

  ~Licenses & Support Services for SCADA, Security, HRIS~
- *Equipment Maintenance* *$200 k*
  - *Biosolids Centrifuge Service (1 of 2)*
  - *WW Ultraviolet Disinfection Lamps*

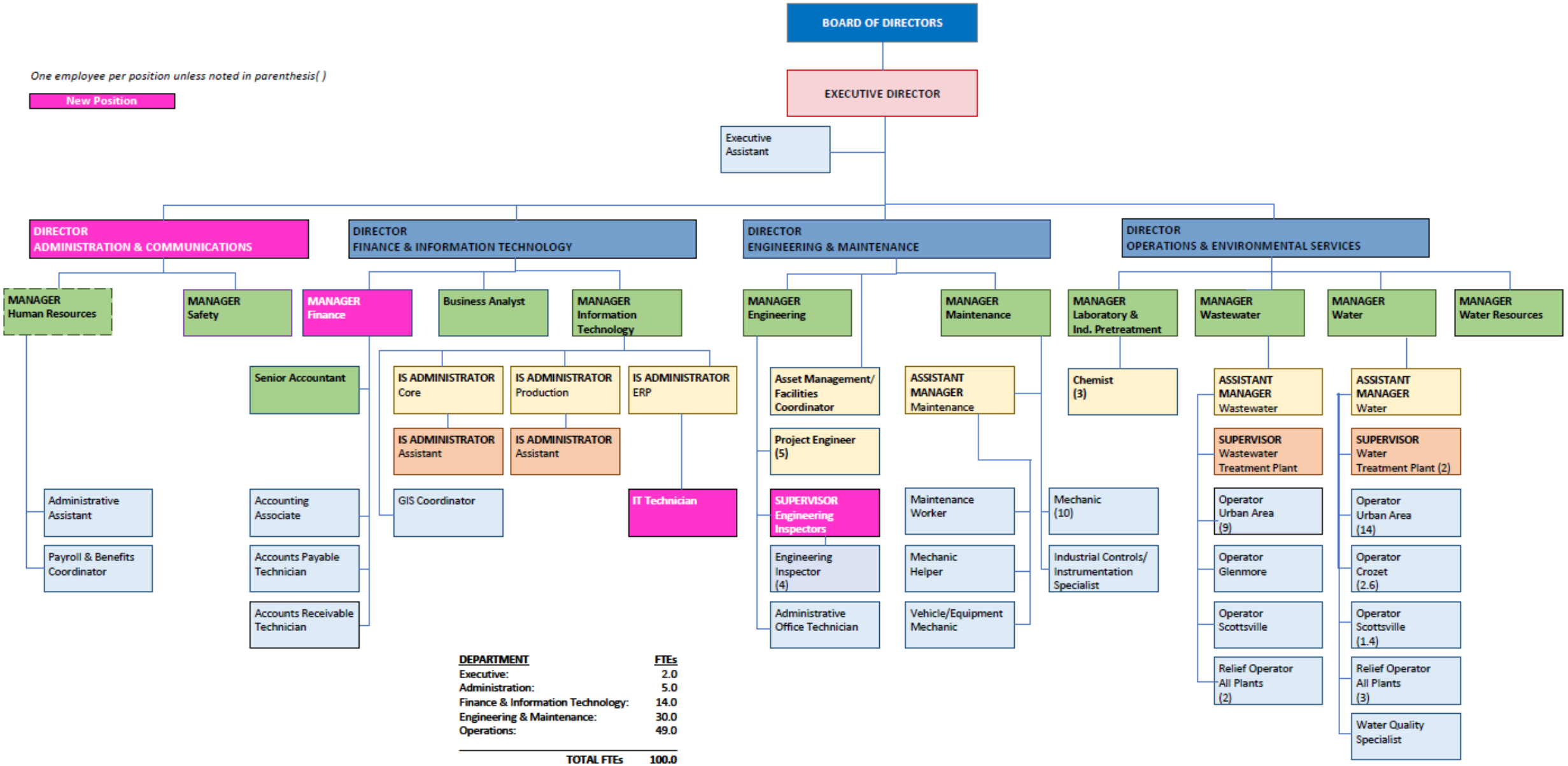
    ~replace 108 of 864 UV lamps~
- *Professional & Other Services* *reduction* *<$160 k>*

RIVANNA WATER & SEWER AUTHORITY
Organizational Chart

FY 2023 – 2024 Proposed Budget

One employee per position unless noted in parenthesis( )

New Position



DEPARTMENT	FTEs
Executive:	2.0
Administration:	5.0
Finance & Information Technology:	14.0
Engineering & Maintenance:	30.0
Operations:	49.0
TOTAL FTEs	100.0

New Administration & Communications Division

Responsibilities will include:

- *Managing Human Resource programs*
  - *recruiting, hiring, payroll and benefits*
  - *personnel management and training*
  - *leadership development*
  - *compensation and classification studies*
  - *new Human Resources Information System*

- *Designing, implementing and managing our Strategic Plan initiatives*
  - *developing a public-facing brand identity in our community.*
  - *promoting our services to the community thru educational outreach and partnerships.*
  - *increasing recruitment and retention of women and minority candidates in support of our DEI initiative.*
  - *enhancing our web page and social media sources to make them more impactful, communicative, and user friendly.*
  - *creating educational videos and notices to the media/public to highlight improvements and achievements; support the ACSA and City in their efforts to communicate with their customers to explain cost increases.*

- *Managing continued enhancements of our Safety Program*

Additional Positions

1. Director of Administration and Communications:

- *manage Human Resources services – recruiting, hiring, personnel topics, new Human Resources Information System (HRIS); Safety Program; initiatives prioritized by our Strategic Plan.*

2. Finance Manager:

- *supervise staff and become proficient with all Finance programs of the RWSA and RSWA including budgets, accounts payable/ receivable, bonds, rate models, and procurement; make presentations to the Executive Management Team and the Rivanna Boards; serve as a backup to the Division Director.*

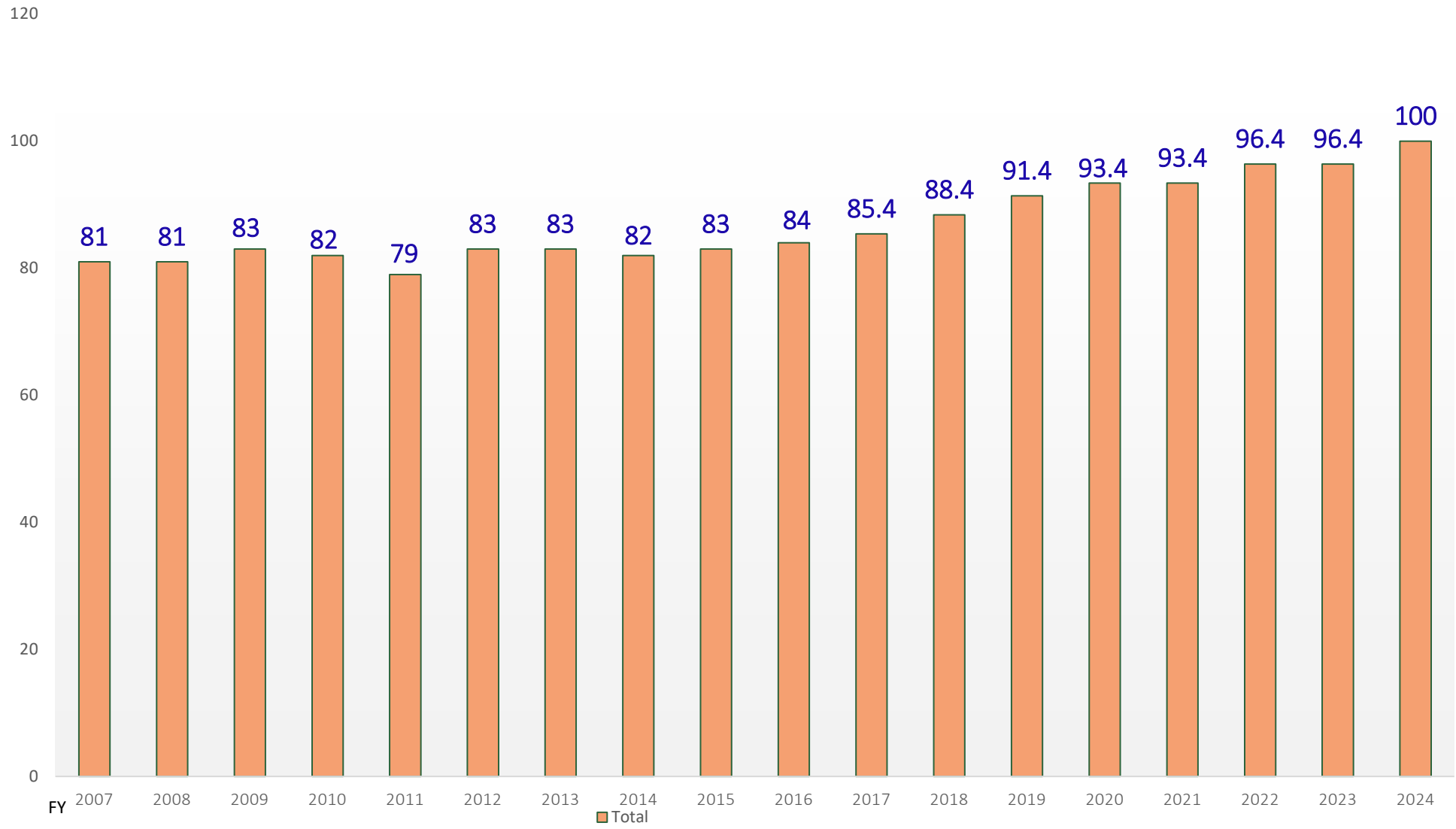
3. Information Technology Technician:

- *support systems including cybersecurity, SCADA, Asset Management (Cityworks), HRIS.*

4. Supervisory Engineering Inspector:

- *supervise and manage the work programs for our 4 Engineering Inspectors, as well as our consultant inspectors, while also providing field inspections as needed. Manage inspection services for the significant large piping and building projects scheduled to begin construction in CY 2024. This position will be somewhat self-funding by avoiding costly consultant inspection expenses.*

18 Year History: Number of RWSA Employees



Financial Forecast

RWSA Charge Increase (%): FY	24	25	26	27	28
• City	9.3	9.7	9.0	9.4	10.0
• ACSA	13.4	12.4	11.7	11.6	11.4

- FY 24 Capital Budget: $34.3 m
- FY 24-28 CIP: $326.1 m, less Grants of $20.6 m
- New CIP Debt Anticipated: $232 m

Note: Actual Urban water and wastewater *flows in FY 2022 and terms of the Northern Area Drinking Water Agreement resulted in a $480,000 shift in operating costs = 2.9% decrease for City and 2.0% increase for ACSA*

Budget Summary
FY 2023 – 2024

➢ Total Budget	$47.7 m	$5.8 m increase = 13.9%
1. Debt Service	$23.3 m	$3.6 m increase = 18.2%
2. Expenses	$24.4 m	$2.2 m increase = 10.1%
➢ City Charges	$17.8 m	$1.5 m increase = 9.3 %
➢ ACSA Charges	$27.0 m	$3.2 m increase = 13.4%

Questions?

Actions to be Considered by the Board:

1. Conduct a Public Hearing on the proposed Rate Schedule.
2. After receiving any comments, consider:
   - Approval of the Resolution to Adopt the FY 2023 - 2024 Rate Schedule
   - Approval of the FY 2024-2028 Capital Improvement Plan
   - Approval of the FY 2023-2024 Budget

RESOLUTION
TO ADOPT THE RATE SCHEDULE
FOR FISCAL YEAR 2023-2024, EFFECTIVE JULY 1, 2023
BY THE RIVANNA WATER AND SEWER AUTHORITY

WHEREAS, the Rivanna Water and Sewer Authority (the "Authority") Board of Directors has reviewed the proposed Rate Schedule for Fiscal Year 2023-2024; and

WHEREAS, the Authority conducted a public hearing for the proposed Rate Schedule on May 23, 2023 after advertising the actual date fixed for the public hearing in the Daily Progress on April 10, 2023 and April 17, 2023, and

NOW, THEREFORE, BE IT RESOLVED that the Rivanna Water and Sewer Authority hereby adopts the Rate Schedule for Fiscal Year 2023-2024, to be effective on July 1, 2023.

RATE SCHEDULE

Water Rates & Charges

Urban Area

ACSA & City	Operating	$ 2,949	Per 1,000 gallons
City	Debt Service	$ 307,200	Per month
ACSA	Debt Service	$ 542,282	Per month

Crozet

ACSA	Operating	$ 102,896	Per month
ACSA	Debt Service	$ 198,810	Per month

Scottsville

ACSA	Operating	$ 54,705	Per month
ACSA	Debt Service	$ 13,228	Per month

Wastewater Rates & Charges

Urban Area

ACSA & City	Operating	$ 2,922	Per 1,000 gallons
City	Debt Service	$ 394,890	Per month
ACSA	Debt Service	$ 383,403	Per month

Glenmore

ACSA	Operating	$ 43,493	Per month
ACSA	Debt Service	$ 1,890	Per month

Scottsville

ACSA	Operating	$ 32,016	Per month
ACSA	Debt Service	$ 1,553	Per month

The Rivanna Water & Sewer Authority (Rivanna) was created by the City of Charlottesville (City) and the County of Albemarle to supply and treat water for drinking and to provide wastewater treatment. The above fees represent Rivanna's fees and charges to the City and the Albemarle County Service Authority (ACSA) for these services and are not the same as the City and ACSA charges to individual residents and businesses. Debt Service covers capital related project costs and are different for the City and ACSA reflecting terms of contractual agreements.

The City and the ACSA distribute drinking water and collect wastewater from individual residents and businesses and charge retail rates that combine charges from the above schedule to reflect their service costs, including Rivanna's costs.

Information about the budget may be obtained on the Rivanna website at www.rivanna.org. Please call 977-2970 ext. 0 or send e-mail to info@rivanna.org with any questions you may have.

Asset Management Program Update

for the RWSA & RSWA Board of Directors

May 23, 2023

RIVANNA AUTHORITIES

Presented By:

Katie McIlwee

Asset Management Coordinator

Strategic Planning

Planning and Infrastructure

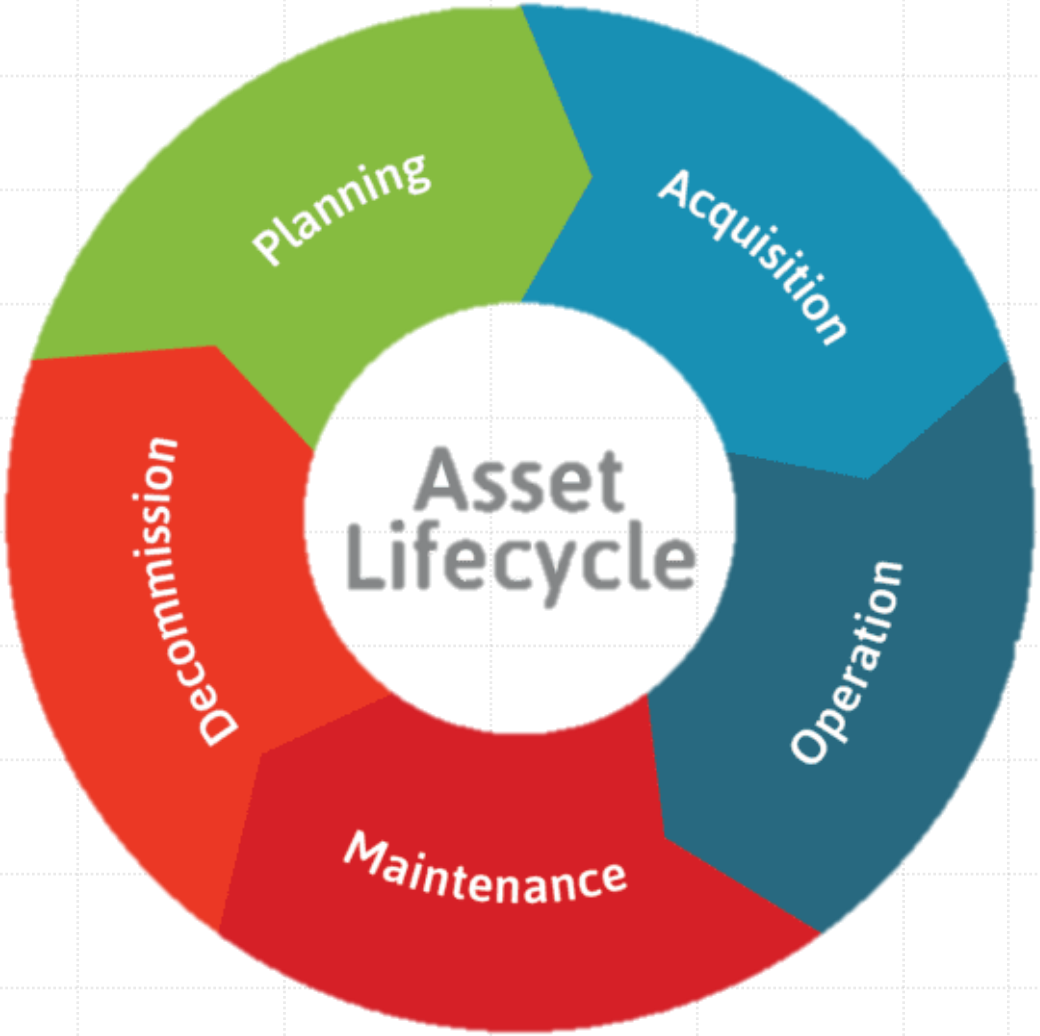
- **Goal:** To address evolving needs by planning, delivering, and maintaining dependable infrastructure and facilities in a financially responsible manner.
- **Strategy:** Expand adoption and use of the asset management program.

Asset Management Policy

- Our management and staff are committed to implementing an Asset Management Program that will provide established levels of service, while minimizing life cycle costs and managing risk.
- The Asset Management Program will link to the Authority's Strategic Framework and Goals for asset related investments and action plans.

What is Asset Management?

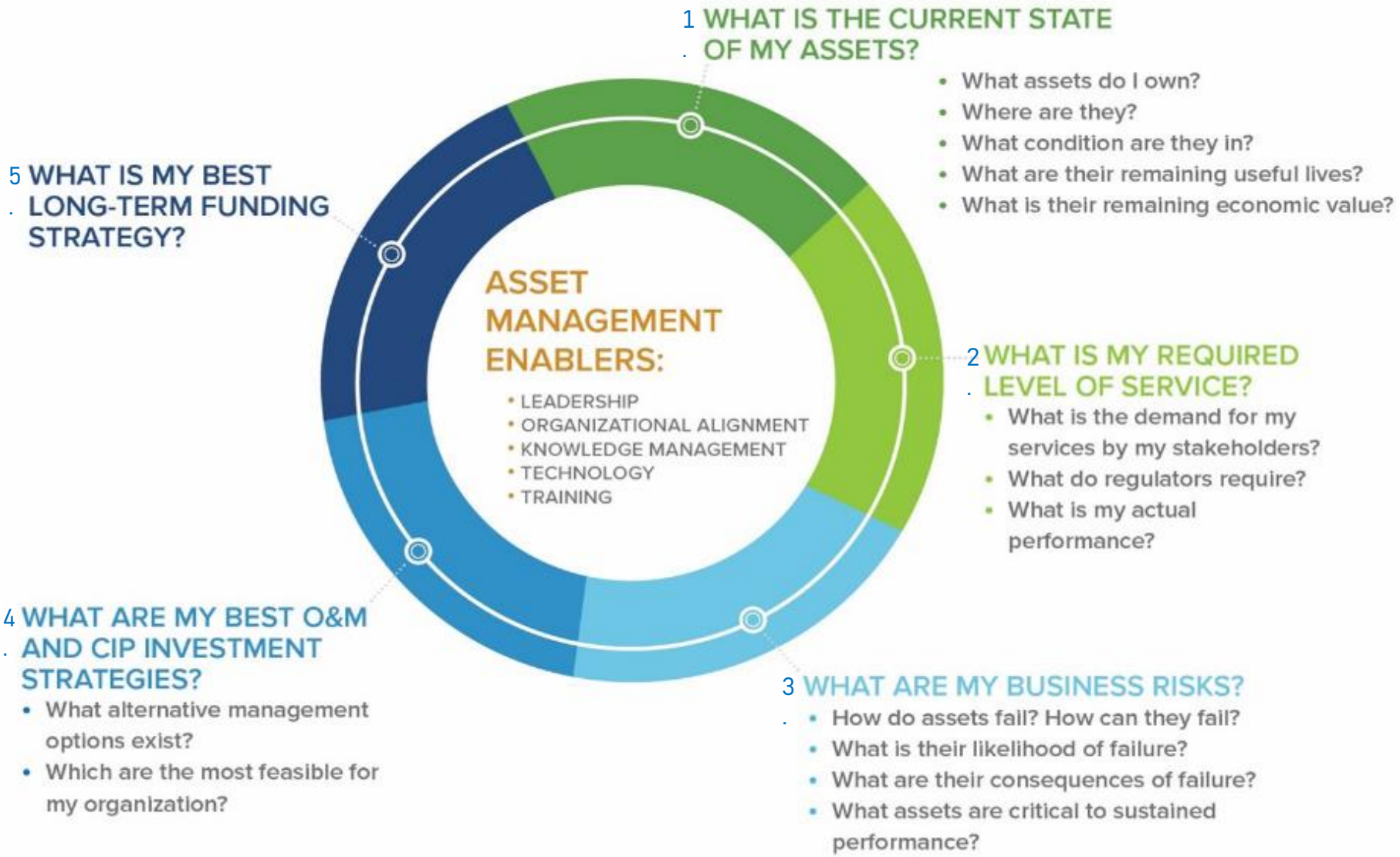
- A ***long-term*** program to attain and sustain the chosen level of service for the life of an asset in the most ***cost-effective*** manner.
- A management paradigm and a body of management practices that is applied to the entire portfolio of assets at all levels of the organization that seeks to minimize the total cost of acquiring, operating, maintaining and renewing the assets within an environment of limited resources while continuously delivering the service levels customers desire and regulators require at an acceptable level of business risk to the organization. ~WERF*



* WERF - Water Environment Research Foundation

Five Core Questions

- Asset management is centered on a framework of five core questions, which provide the foundation for asset management best practices:



Rivanna's Assets: Horizontal

"What you can't see."

WW Horizontal Asset Type	Number of Assets	Length
Gravity Main Segments	720	37.8 miles
Force Main Segments	44	6.2 miles
Manholes	718	N/A
Totals	**764**	**44 miles**

Water Horizontal Asset Type	Number of Assets	Length
Raw Main Segments	233	20.8 miles
Potable Main Segments	1,411	46.9 miles
System Valves	657	N/A
Totals	**1,644**	**67.7 miles**

Airport Road Pump Station Line

Birdwood Raw Water Main

Rivanna's Assets: Vertical

"What you can see."

Aeration Basins

Filter Belt Press

Switchgear

GAC Contactor

Slide Gate

Influent Pump

Wastewater Facility Type	Total Number of Associated Assets
Wastewater Pumping Stations	126
Advanced Water Resource Recovery Facility	1,402
Water Resource Recovery Facilities	330
Totals	**1,858**

Water Facility Type	Total Number of Associated Assets
Finished Water Pumping Station	48
Raw Water Pumping Station	118
Storage Tanks	56
Dams	11
Water Treatment Plant	1,176
Hydropower Plant	7
Reservoir	10
Totals	**1,426**

Benefits of an Asset Management Program

- Prolonging asset life and improving decisions about asset rehabilitation, repair, and replacement
- Reducing overall costs for both operations and capital expenditures
- Meeting customer demands with a focus on system sustainability
- Setting rates based on sound operational and financial planning
- Budgeting focused on critical activities for sustained performance
- Meeting service expectations and regulatory requirements
- Improving responses to emergencies
- Improving the security and safety of assets

Goals of the Asset Management Program

- Integrate information across the Authorities and make available to all internal stakeholders
- Monitor asset lifecycle to proactively predict asset replacement and minimize financial impact
- Quantify asset condition and risk, and contribute to improving the Authority's long-term asset planning
- Achieve consistent and accurate performance monitoring and reporting based on objective asset data
- Compare, optimize, and prioritize among potential capital projects and maintenance activities
- Achieve benefit/cost efficiencies for the Authority and our customers
- Increase and retain institutional knowledge through asset knowledge management and training/capabilities development of staff

AM Implementation Phases

Current Phases

Phase 1
(Complete)

Develop AM Framework

- Gap Assessment
- Strategic Asset Management Plan (SAMP)
- Identification of Software Requirements

Phase 2
(Complete)

Test AM Framework

- Develop Asset Register
- Pilot of Rivanna Pump Station
  - Tactical Asset Management Plan (TAMP)

Procurement of CMMS: Cityworks

Phase 3

CMMS* Implementation

- Configuration of Cityworks
- Integration Workshops
- Development of Geodatabase
- Admin/Employee Training
- Go-Live

Phase 4

Full AM Program Implementation

- Asset Register Review & Revisions
- Management Strategy Groups
- Level 1 & 2 Condition Assessments
- Assign COF Scores & Identify Mitigation
- Calculate Risk
- DSS Tool

*CMMS – Computerized Maintenance Management System

Major Milestones

2018
Phase 1 Begins
AM Plan Development

2019
Phase 2 Begins
Asset Hierarchy Developed

2020
Strategic AM Plan
Pilot Tactical AM Plan
Acquisition of Cityworks

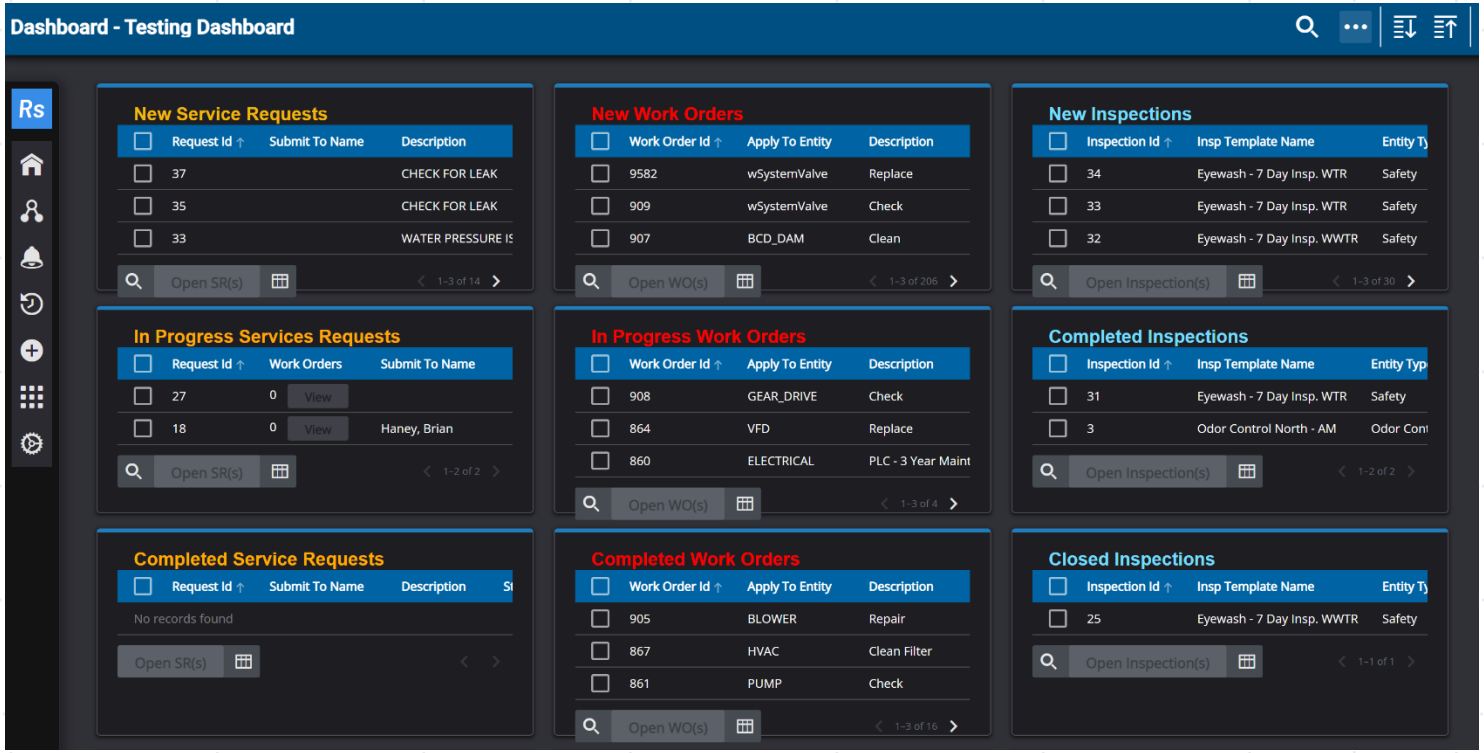
2021
Phase 3 Begins
Asset Register Development
Cityworks Configuration

2022
Phase 4 Begins
AM Program Implementation

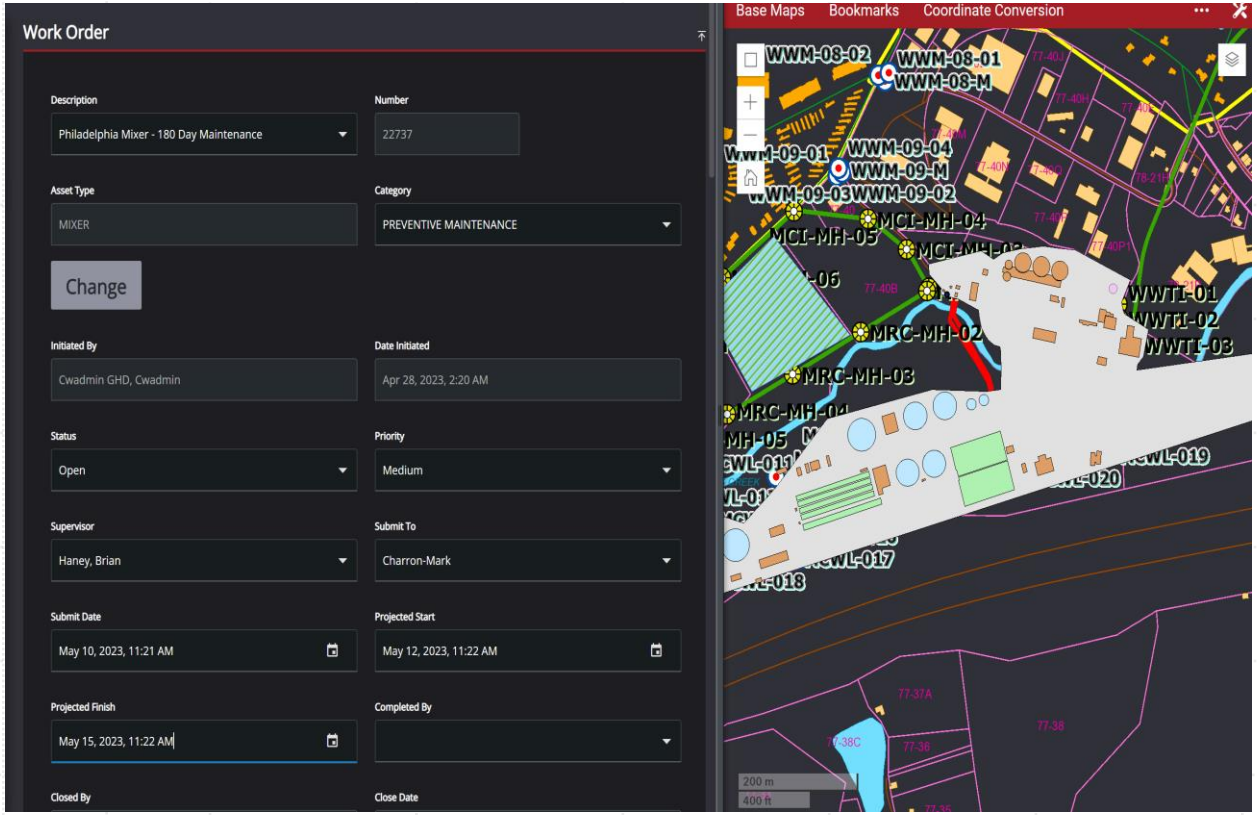
2023
CW Go-Live
Continue Full AM Implementation

CMMS Implementation

- Cityworks was chosen to be the new Computerized Maintenance Management System (CMMS) in September 2020
- Implementation began in December 2020
- Configuration and system testing completed March 2023
- Admin and user training April–May 2023
- Go-Live May 2023



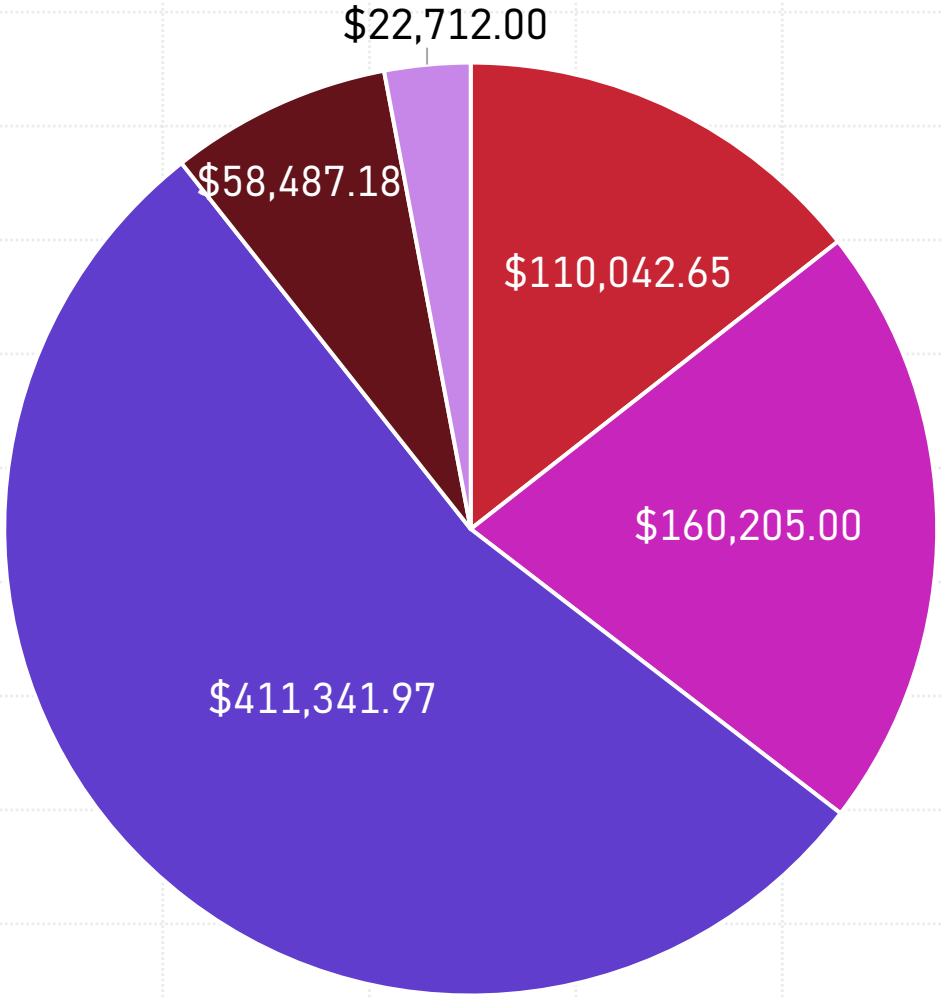
Benefits of Cityworks



- All asset information is in one location
- Streamlines and provides tracking for work requests between departments
- Maximize preventative maintenance for all asset in order to decrease reactive maintenance, which provides cost savings
- Large Authority-wide initiative to develop a CMMS that would provide tangible benefits for asset management and maintenance

AM Program Budget

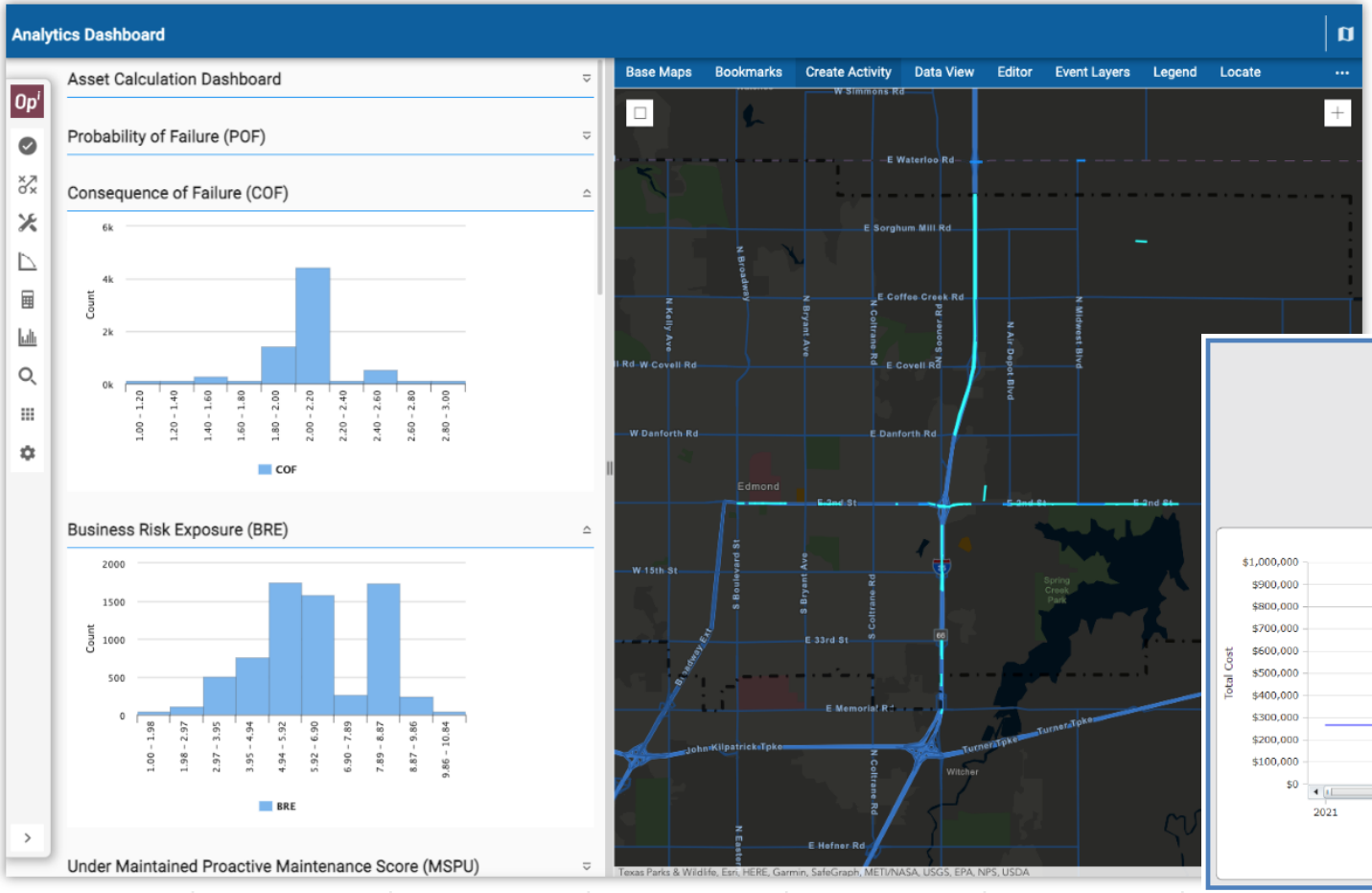
- **Phase 1:** Development of the Asset Management Strategic Plan & Framework
- **Phase 2:** Development of Asset Hierarchy, Inventory, Register, and Pilot Tactical Asset Management Plan
- **Phase 3:** CMMS Implementation
- **Phase 4:** Asset Management Program Implementation
- **Additional Program Expenses**: Server, Software, Integrations

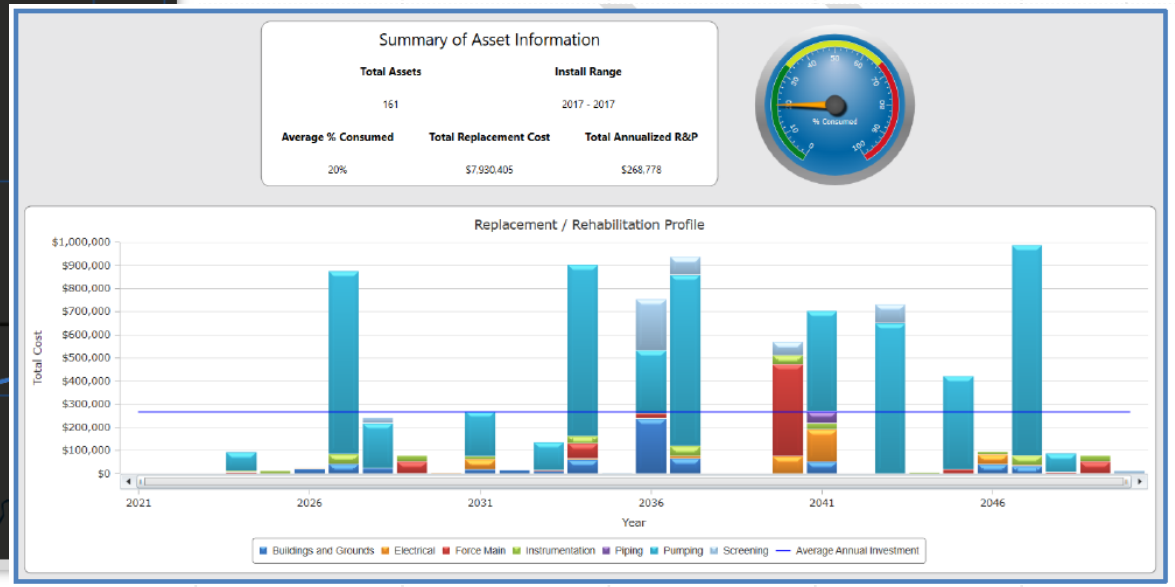


Current CIP Budget	**$1,180,000.00**
Total Spent to Date	$762,788.80
Total CIP Remaining	$417,211.20

AMP Short-Term Goals

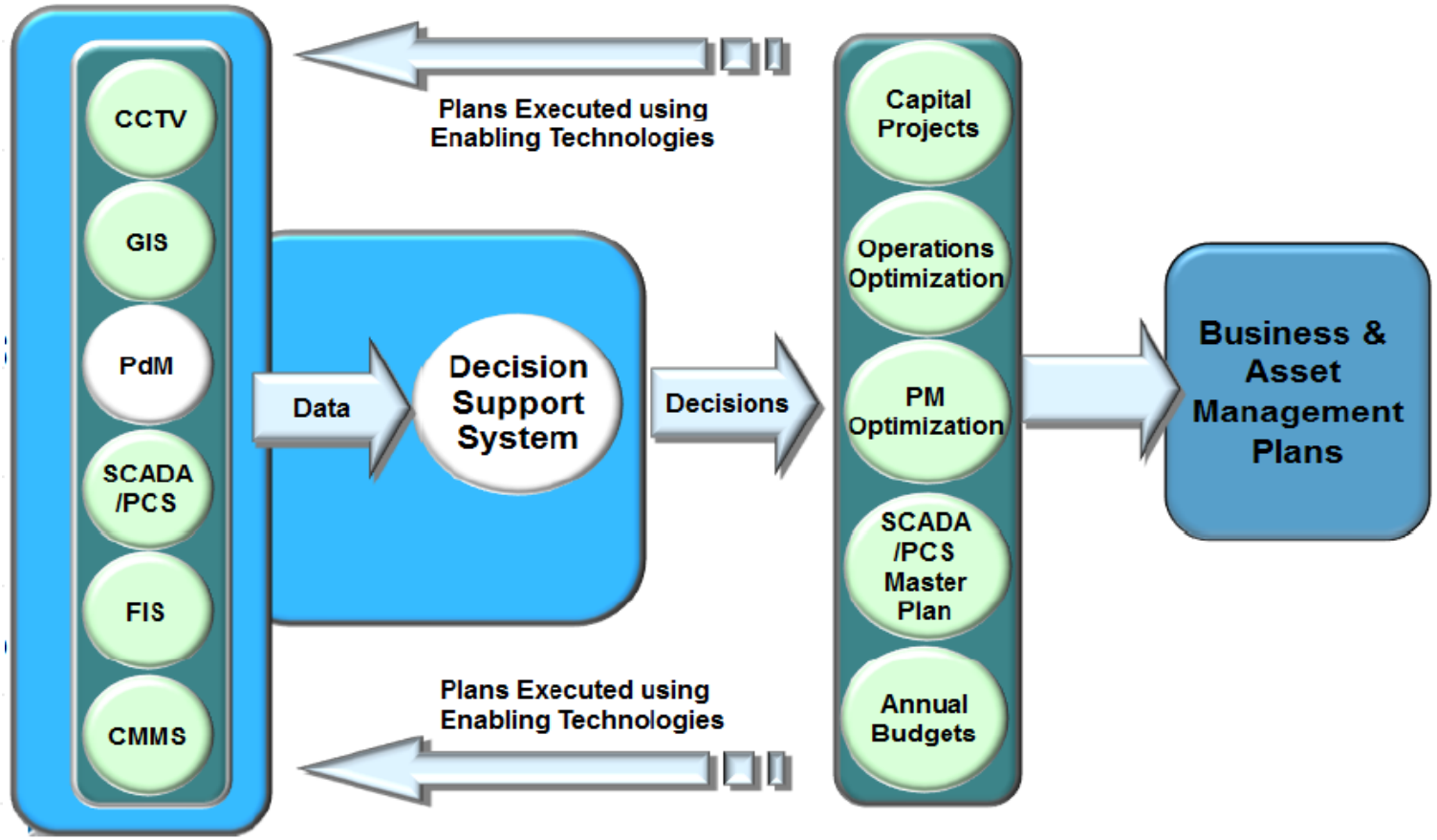
- Complete Level 1 & 2 Condition Assessments on Vertical and Horizontal Assets
- Assign Consequence of Failure and Mitigation Factor Scores to Vertical Assets
- Assign Consequence of Failure Scores to Linear Assets
- Calculate Risk
- Implement a Decision Support System (DSS) Tool





AMP Long-Term Goals

- Fully Implement Asset Management Program
- Develop Capital Investment Needs & Business Case Evaluation Process
- Develop Tactical Asset Management Plans for All Rivanna Assets
- Refine Levels of Service Performance Standards
- Develop Maintenance Optimization Recommendations
- Implement Asset Performance Monitoring Process
- Discussions with RSWA to implement an AMP for their assets



Questions?

Leadership Development Program

~Preparing the Next Generation of Rivanna Leaders ~

PRESENTED TO THE BOARDS OF DIRECTORS

BY: BETSY NEMETH, HUMAN RESOURCES MANAGER

MAY 23, 2023

Succession Planning Process

Objective

Continue organizational growth and development of the Authorities by

Recognizing, developing and retaining leadership talent and

Strategically planning for our future

Growing Leaders at the Rivanna Authorities thru the Leadership Development Program

Purpose

To invest in the professional growth and development of our employees and prepare them to take on leadership roles within the Authorities.

Objectives

- Identify potential future leaders at all levels of the organization.
- Coach and allow employees to practice the skills necessary to become leaders in the organization.
- Foster active learning, networking, and peer support among our employees.
- Empower our employees to make decisions, manage change, and resolve conflicts.
- Create individualized development plans that will allow employees to develop their strengths and mitigate their opportunities.
- Increase employee engagement and retain internal talent.

Leadership Development Group 1
Directors/High-Level Managers

- Completion of the "Clifton Strengths" Assessment tool
- Four development learning sessions
  - *Strengths Based Leadership*
  - *Emotional Intelligence, Conflict Management*
  - *Managing Change*
  - *Visionary Leadership*
- Capstone Project to be presented in December
- Led by an Executive Leadership Coach with Barren Ridge Consulting

Leadership Development Groups 2 & 3
Managers, Asst. Managers, Supervisors and Other Staff

- Completion of the "Clifton Strengths" Assessment Tool
- Four development learning sessions
  - *Strengths Based Leadership*
  - *Emotional Intelligence, Conflict Management*
  - *Effective Communication*
  - *Managing Change*

Summary

- *We have a refreshed Leadership Development Program to support our Succession Management objectives.*

- *Leadership skills are being cultivated with identified internal candidates thru a structured training program provided by our Human Resources staff with consultant assistance.*

Questions?

Moores Creek Administration Building Renovation & Addition Project

Presented by:
Santino Granato, P.E. - Senior Civil Engineer, RWSA
Brian Bergstrom, AIA, NCARB – Short, Elliot, Hendrickson Engineers
Steve Davis, AIA, LEED Fellow – Principal, Thrive Architecture

To the Rivanna Boards of Directors

May 23, 2023

Agenda

- Background & Key Program Elements
- Site and Floor Plans Overview
- Exhibit and Graphic Display Opportunities
- Building Massing and Renderings
- Sustainable Features
- Project Schedule and Cost

Background

- Constructed in the early 1980's, MC Admin building is 12,850 SF
- Provides space for 26 staff positions including a water & wastewater laboratory.
- Consultant completed a needs assessment in 2018:
  - Addition of approx. 15,000 SF
  - Total renovation and addition of 27,850 SF
  - Designed to accommodate 48 staff positions
  - $8 million project estimate

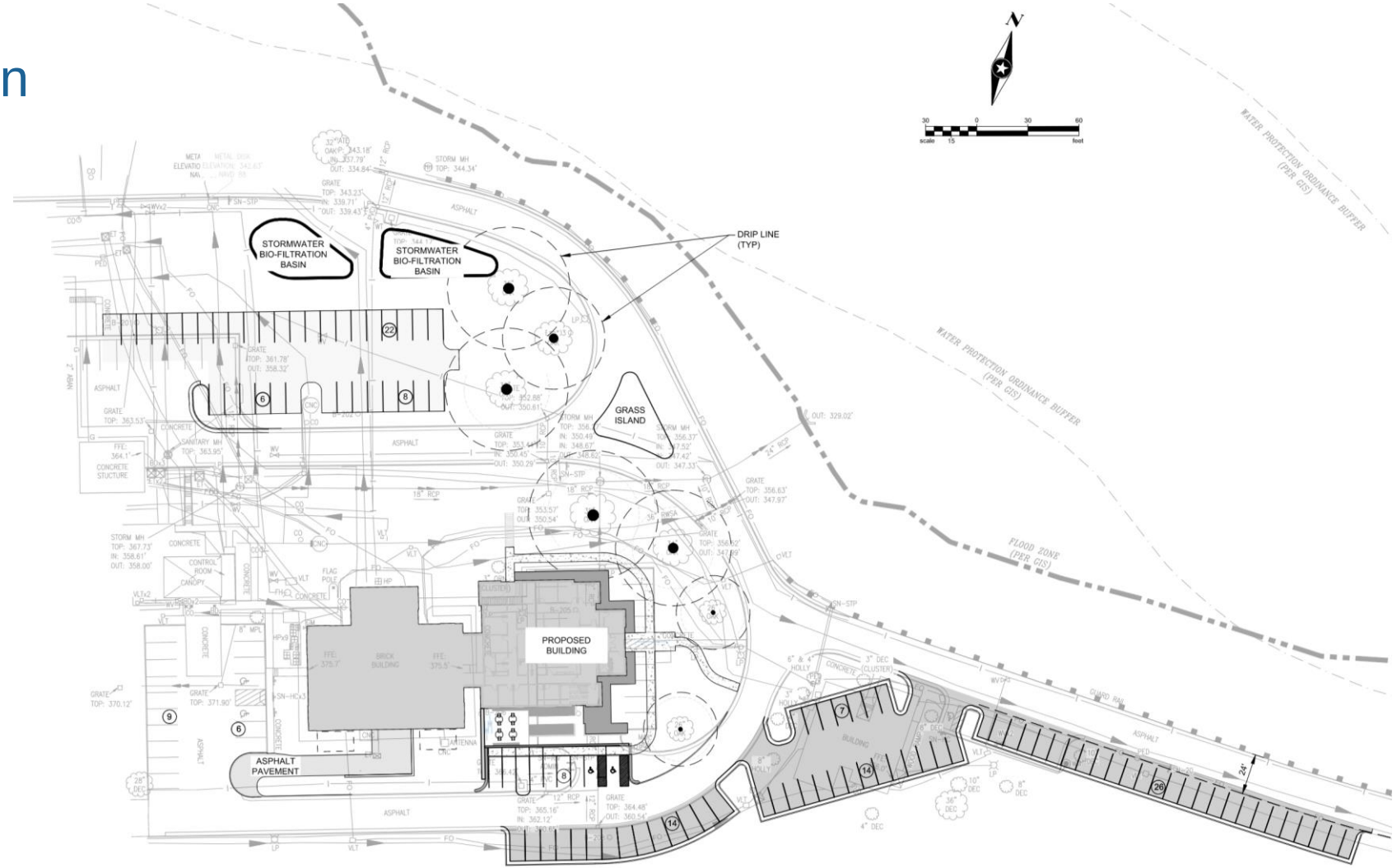
Key Program Elements

- Achieve Strategic Plan and Succession Management priorities:
  - Move Engineering staff into the building and eliminate trailers
  - Provide space for 49 staff positions upon completion in 2026, with space for 68 staff positions by 2035
  - Include Office, Laboratory, Data Center, Education, Conference/Board Room and Support Spaces
  - Approximately 30,400 SF

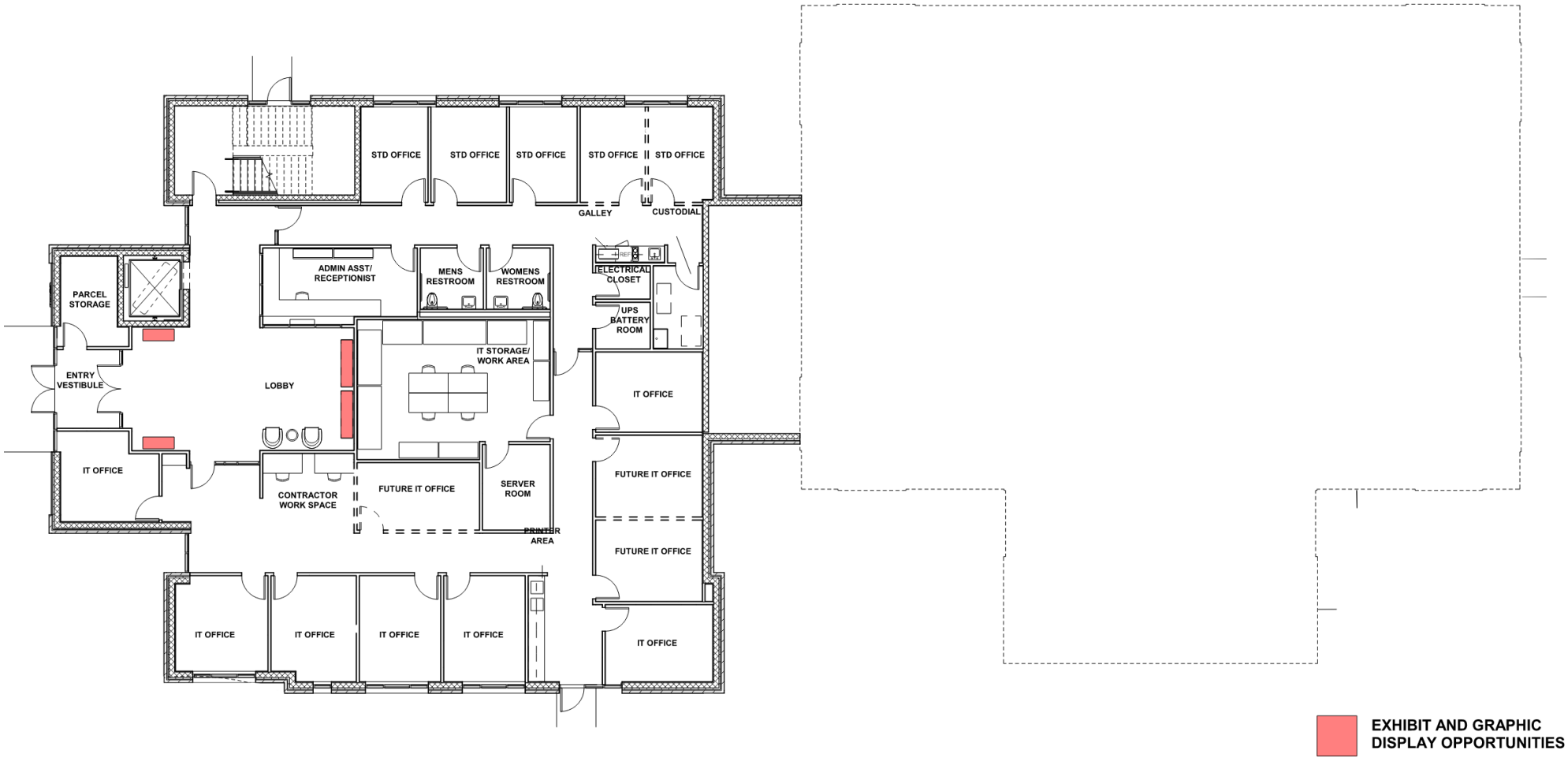
- Phased staffing occupancy approach:
  - Initial construction to accommodate 58 staff positions by 2030
  - Space included for 10 future staff positions = 68 through 2035

Site and Floor Plans

Site Plan


N
30 0 30 60
scale 15 feet
STORMWATER BIO-FILTRATION BASIN
STORMWATER BIO-FILTRATION BASIN
DRIP LINE (TYP)
GRASS ISLAND
PROPOSED BUILDING
ASPHALT PAVEMENT
WATER PROTECTION ORDINANCE BUFFER (PER GIS)
WATER PROTECTION ORDINANCE BUFFER (PER GIS)
FLOOD ZONE (PER GIS)

Level 1


STD OFFICE
STD OFFICE
STD OFFICE
STD OFFICE
STD OFFICE
GALLEY
CUSTODIAL
ADMIN ASST/ RECEPTIONIST
MENS RESTROOM
WOMENS RESTROOM
ELECTRICAL CLOSET
UPS BATTERY ROOM
PARCEL STORAGE
ENTRY VESTIBULE
LOBBY
IT STORAGE/ WORK AREA
IT OFFICE
IT OFFICE
CONTRACTOR WORK SPACE
FUTURE IT OFFICE
SERVER ROOM
PRINTER AREA
FUTURE IT OFFICE
FUTURE IT OFFICE
IT OFFICE
IT OFFICE
IT OFFICE
IT OFFICE
IT OFFICE
EXHIBIT AND GRAPHIC DISPLAY OPPORTUNITIES

Level 2

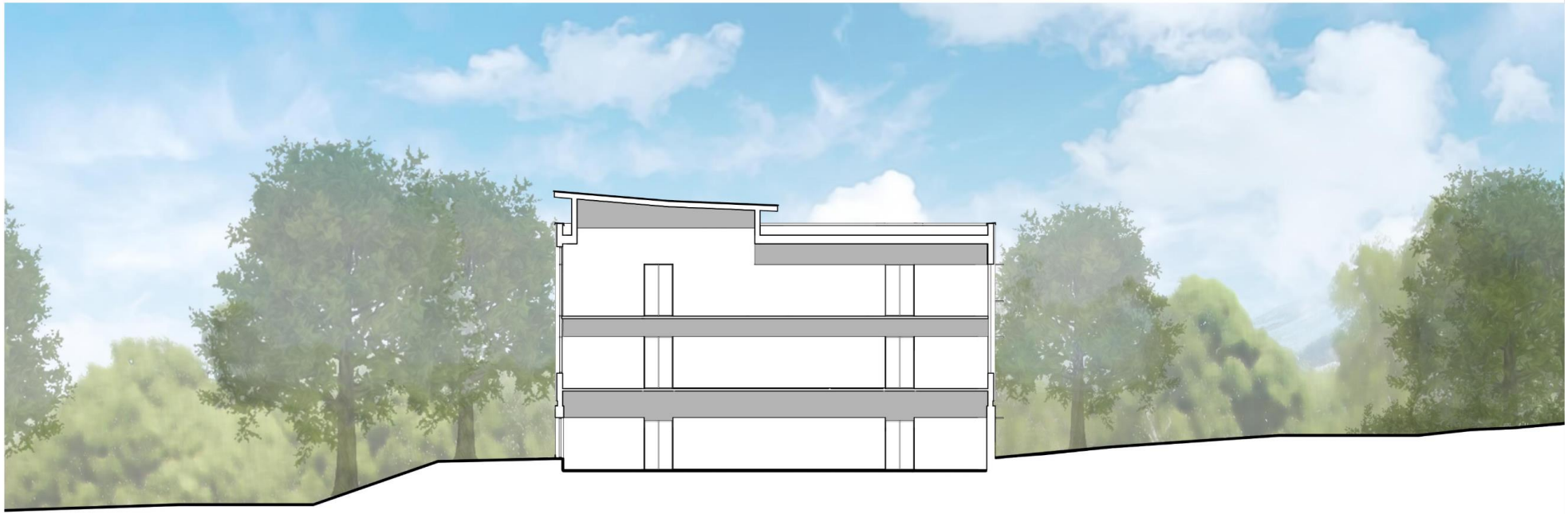

STD OFFICE
STD OFFICE
STD OFFICE
STD OFFICE
STD OFFICE
WASTEWATER LAB
SHIPPING/ RECEIVING
GAS SUPPLY
WATER ROOM
CHEMISTS
WATER LAB
DARK ROOM
VESTIBULE
EQUIPMENT ROOM
TECH. CLOSET
CUSTODIAL
WOMENS RESTROOM
MENS RESTROOM
FILE STORAGE
STD OFFICE
HUDDLE ROOM
PHONE BOOTH
ENGINEERING WORK AND COLLAB AREA
GALLEY
CONFERENCE
STD OFFICE
MAIN ELECTRICAL
RECORD STORAGE
MGR OFFICE
MAIN IT
MGR OFFICE
STD OFFICE
LAB STORAGE/ COAT CLOSET
RECYCLING
STD OFFICE
MECHANICAL ROOM
GALLEY
PRINTER AREA
SHOWER
LACTATION ROOM
MGR OFFICE
MGR OFFICE
STD OFFICE
STD OFFICE
STD OFFICE
STD OFFICE
MGR OFFICE
EXHIBIT AND GRAPHIC DISPLAY OPPORTUNITIES

Level 3

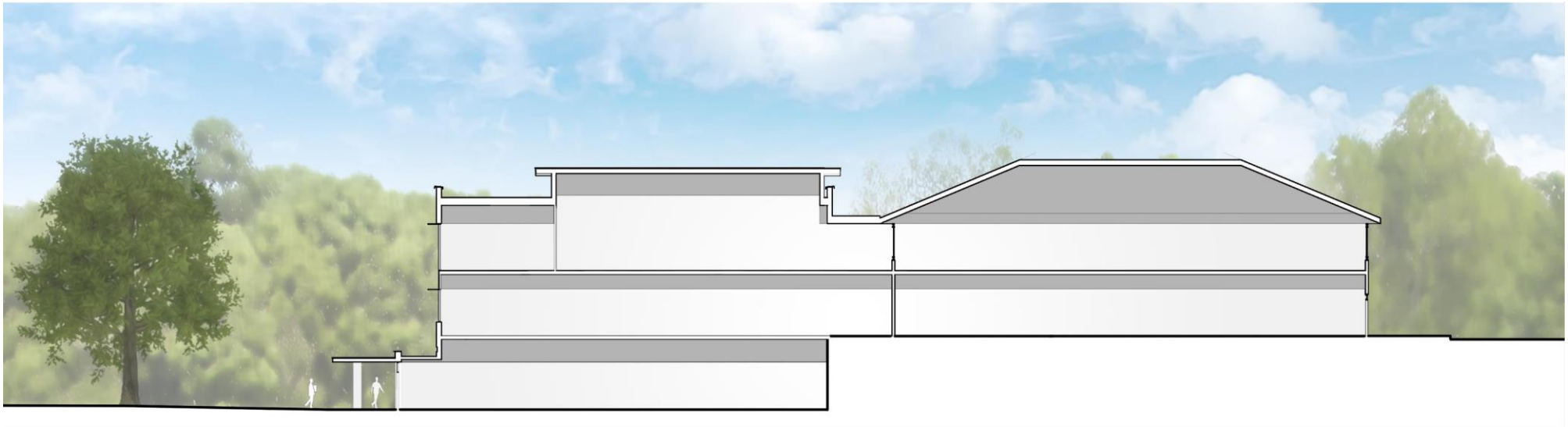

EXEC DIRECTOR'S BATHROOM
CONFERENCE
MGR OFFICE
MGR OFFICE
MGR OFFICE
STD OFFICE
EXECUTIVE DIRECTOR
MGR OFFICE
MGR OFFICE
MGR OFFICE
MGR OFFICE
ELECTRICAL CLOSET
PRINTER AREA
STD OFFICE
WORK ROOM
OFFICE SUPPLY/ STORAGE
TECH. CLOSET
CUSTODIAL
STD OFFICE
STD OFFICE
BREAK AREA
RESTROOM
RESTROOM
HUDDLE ROOM
REF
WOMENS RESTROOM
MENS RESTROOM
TECH. CLOSET
CLOSET
UPPER WAITING AREA
MGR OFFICE
STD OFFICE
STD OFFICE
STD OFFICE
MECHANICAL ROOM
STD OFFICE
STD OFFICE
FURNITURE STORAGE
EDUCATION DEMONSTRATION AREA
STD OFFICE
STD OFFICE
AV CONTROL ROOM
MULTIPURPOSE ROOM
IT OFFICE
IT OFFICE
REF
TRAINING KITCHEN
MULTIPURPOSE ROOM
FUTURE IT OFFICE
EXHIBIT AND GRAPHIC DISPLAY OPPORTUNITIES

Building Massing and Renderings

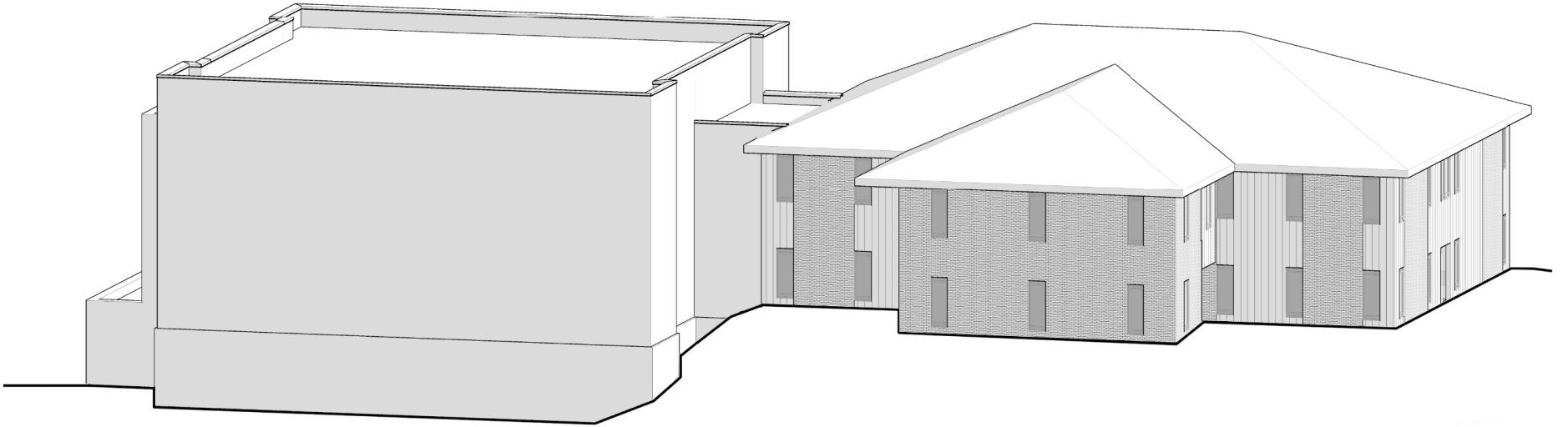
Site Section – New Addition Side View



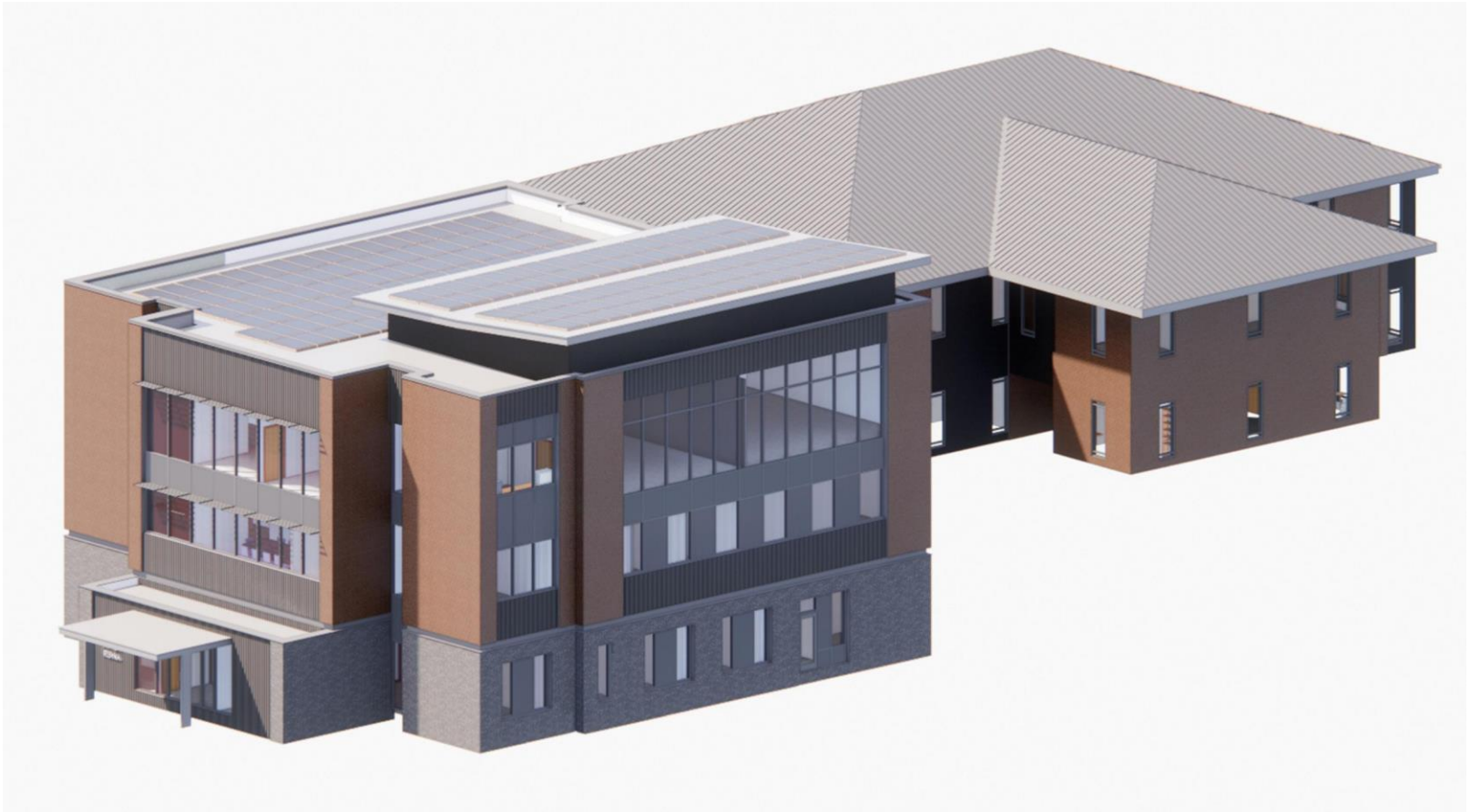
Site Section – Existing to New



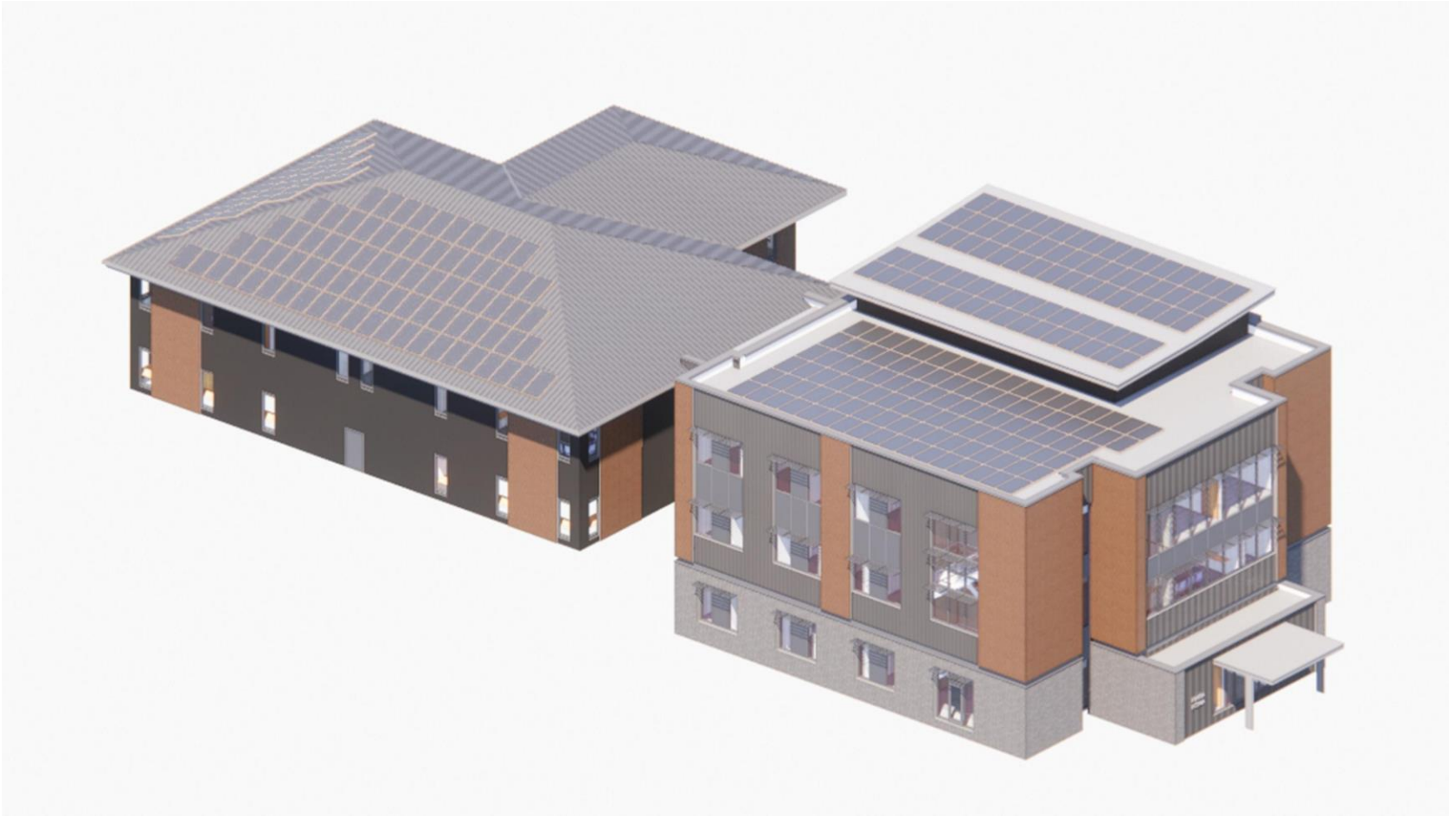
Massing



Rendering View – Approach or North Facing



Rendering View – South Facing or I-64 Side



Approach Rendering

Entry Rendering

Sustainable Features

Sustainable Building Features

Building Reuse

Maintain Existing Tree Canopy

Native Landscaping

Low Impact Development Strategies

Energy Efficient Building Envelope

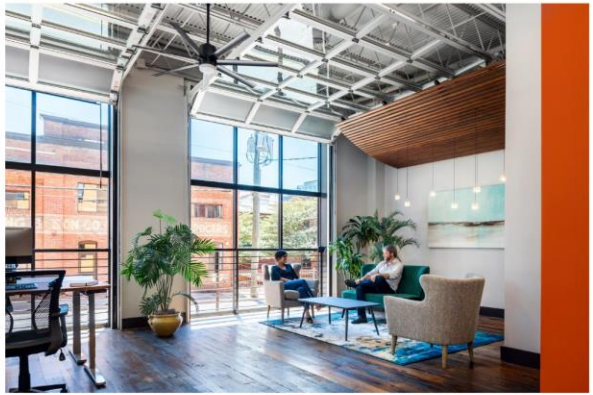
Sustainable Building Features

Renewable Energy Ready

Low Carbon Building Materials

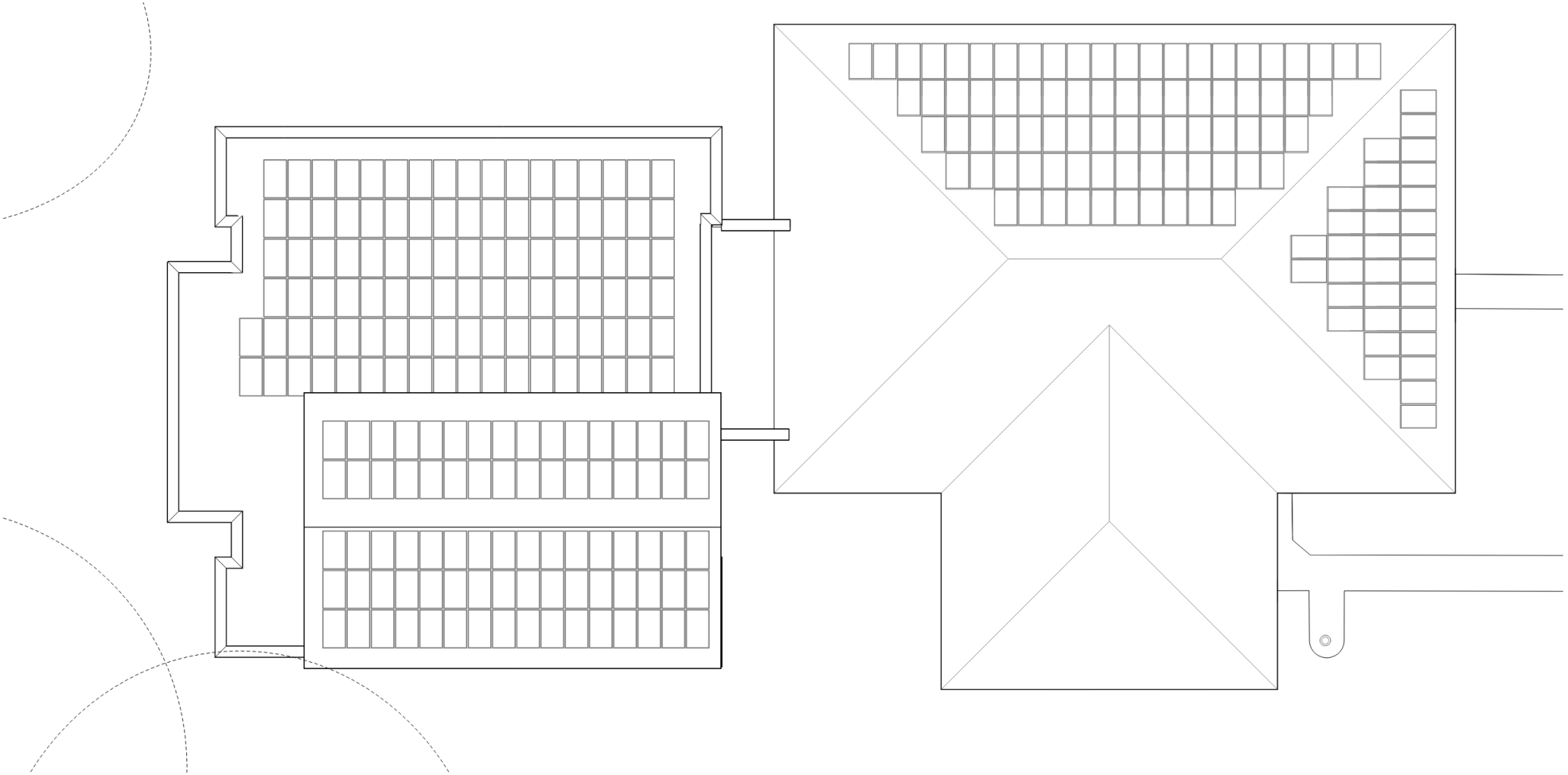
Water Efficient Fixtures

Energy Efficient Mechanical System



Healthy Indoor Air Quality

Sustainable Building Features



Project Schedule and Cost

Project Schedule

- June 2023 – Submit Site Plan to Albemarle Co.
- December 2023 – Design Complete
- January to May 2024 – Bidding and Award
- June 2024 to June 2026 - Construction

Estimated Project Cost*

ITEM	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Building Addition	17,220	SF	$497.51	$8,567,122
Existing Building Renovation	12,853	SF	$267.91	$3,443,447
Site Work	1	LS		$950,363
Building and Site Subtotal:				**$12,960,932**
Phasing and Staging				($432,941)
Subtotal:				*$12,527,991*
Inflation to Midpoint of Construction (8.8%)				$1,102,463
Subtotal:				*$13,630,454*
Design Contingency (12%)				$1,635,654
Fixtures, Furniture and Equipment Allowance				$1,150,000
Engineering Fees				$1,035,117
TOTAL PROJECT ESTIMATE:				**$17,451,225**

- Estimates are based on Concept Estimate Report prepared by Downey & Scott dated March 22, 2023, and revised on March 31, 2023
- Inflation is estimated at 5% per year or 0.42% per month (21 months x 0.42 = 8.8%)
- The following are not included in this estimate:
  - Permit Fees
  - Hazardous material testing and removal (if required)
  - Construction phase materials testing

The preliminary Estimate of Probable Cost prepared by the Architect represent the Architect's judgement as a design professional. It is recognized that neither the Architect nor the Owner has control over the cost of labor, materials or equipment; the Contractor's methods of determining bid process, or competitive bidding market conditions. Accordingly, the Architect cannot and does not warrant or represent that bid process will not vary from the Owner's budget for the Cost of the Work or from any Estimates of Probable Cost prepared or agreed to by the Architect.

*Total Project Estimate does not include costs for Solar Panel Installation or Educational Outreach

Project Summary

- Renovation of 12,850 SF
- Addition of 17,200 SF
- Moves Engineering staff into the building
- Modernizes Laboratory
- Space for staff growth to 68 positions thru 2035
- Pending: Education Component; Rental space during construction
- Schedule: June 2024 – June 2026
- Budget: $17.5 million

Questions?