RIVANNA
WATER & SEWER AUTHORITY

Board of Directors Meeting

June 27, 2023

2:15pm

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

BOARD OF DIRECTORS

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

DATE: **JUNE 27, 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 MAY 23, 2023***

4. ***RECOGNITION***
   Drinking Water and Wastewater Professionals Day

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 Term Contract for Professional Water Treatment Plant Engineering Services*

g. *Approval of Capital Improvement Plan Budget Amendment – South Fork Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right of Way*

h. *Approval of Engineering Services – Moores Creek Pump Station Slide Gates, Valves, Bypass, and Septage Receiving Upgrades – Design, Bidding and Construction Administration – Hazen and Sawyer*

i. *Adoption of 2023 Thomas Jefferson Planning District Commission Natural Hazard Mitigation Plan*

9. OTHER BUSINESS

a. *Presentation: Water Treatment Facilities Overview*
Dave Tungate, Director of Operations

b. *Presentation: Long Range Utility Concepts*
Bill Mawyer, Executive Director

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

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

RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
May 23, 2023

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, May 23, 2023 at 2:15 p.m.

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

Board Members Absent: Jeff Richardson.

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Jennifer Whitaker, Victoria Fort, Santino Granato, Betsy Nemeth, Katie McIlwee, David Tungate, Deborah Anama, Jacob Woodson.

Attorney(s) Present: Carrie Stanton.

1. CALL TO ORDER

Mr. Gaffney convened the May 23, 2023 regular meeting of the Board of Directors of the Rivanna Water and Sewer Authority at 2:37 p.m.

2. AGENDA APPROVAL

Mr. Pinkston moved that the Board adopt the agenda as presented. The motion was seconded by Mr. O'Connell, and passed unanimously (6-0).

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

Mr. Rogers moved that the Board approve the minutes of the April 25, 2023 meeting. The motion was seconded by Mr. O'Connell, and passed unanimously (6-0).

4. RECOGNITION

There was no recognition.

5. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer stated that he was pleased to announce that one of their employees, Brenda Clifford, recently graduated from Liberty University with a Bachelor of Science degree in Business Administration with a concentration in Finance. He stated that Ms. Clifford was an Accounting Associate with RWSA in the Finance Department and had been in that position since August 2021. He stated that Mr. David Tungate, Director of Operations, recently attended a utilities leadership program in Cincinnati.

Mr. Mawyer stated that May 31, 2023 was National Dam Safety Awareness Day. He stated that

there were five reservoirs and the Lickinghole Creek stormwater basin, for a total of six dams managed for the community by RWSA. He stated that Ms. Victoria Fort would give an update in December about the dam safety program.

Mr. Mawyer stated that they continued to work on major projects with UVA and the UVA Foundation, including the South Fork to Ragged Mountain Reservoir Water Pipeline project. He stated that they delivered all the documents needed for UVAF to sign last week, including the deeds of easement, plats, and appraisals.

Mr. Mawyer stated that they hoped to move forward with signatures on easements from UVAF on the Westover and Foxhaven properties, plus purchase of a one-acre parcel on the Foxhaven property for a pump station. He stated that the University notified them in March that there was a conflict with the proposed route of the water pipeline in the Fontaine Avenue area, so they were working to determine where in that area the pipe should be located.

Mr. Mawyer stated that the Central Water Line through the City continued to move forward, with 60% of the design due to be finished in July. He stated that they would then do a team review with the City and ACSA just like they did with the 30% design documents. He stated that the project was due for advertisement in December, and when they had a contractor, they would meet with neighborhoods and give details on the area affected and how the project would proceed. He stated that the work would go down Jefferson Park Avenue to Cleveland, to Cherry Avenue, across 5th Street, to Elliott, cutting down East High Street to Free Bridge.

Mr. Mawyer stated that they were pleased to receive a permit from the Army Corps of Engineers to complete repairs on the Allen Farm Lane Bridge on the Buck Mtn property, where concrete piers needed repairs at the waterline in the stream. He stated that May 7 through 13 was National Drinking Water Week, which celebrated water professionals who made the essential drinking water in our community. He stated that Andrea Bowles, Water Resources Manager, participated in Rivanna Riverfest on Sunday, where she represented RWSA at the Rivanna Conservation Alliance event.

Mr. Mawyer stated that they met with the Moormans River Scenic Advisory Group and representatives of Trout Unlimited at the Sugar Hollow Reservoir on May 8 to talk about some options to better support the Moormans River and the trout population below the dam. He stated that they were working with those groups, DEQ, and Virginia Department of Wildlife Resources about possible changes to release more water into the Moormans River.

Mr. Mawyer stated that they had a public meeting planned for May 16 to talk about the new flow measurement design plan and operations manual, but postponed the meeting in order to incorporate comments from the Moorman's River group into the plan and to discuss them with DEQ, so they would reschedule that meeting.

Mr. O'Connell asked if those changes would be incorporated into the permit.

Mr. Mawyer stated that the amount of water to be released, measurement of the water, and how they reported it possibly could be incorporated. He stated this was because they must report all

water released into the river, and they currently had a large meter that measured large flows but did not measure small flows very well. He stated that the Trout Unlimited representatives were advocating for a small amount of water to be released from the pipe all the time, and from the lower levels of the reservoir where the water is cooler. He stated that when there was no water overflowing the reservoir dam, they were required to release it from that pipe anyway.

Mr. Mawyer stated that Ms. Bowles presented images last month that depicted the transition period in which the bladder or gate at the top of the dam stopped the water overflowing from the dam as the weather got warmer throughout the day, and they previously were not adjusting to have any release during those times. He stated that sometimes, when the weather was cooler during the evening, the water would flow over the dam again, but the Trout Unlimited personnel had concerns that during the hours of no flow, there was negative effect on the trout and the stream ecology.

Mr. Mawyer stated that they had a camera that allowed them to watch the dam and see if it was overflowing 24 hours per day, and instead of looking at it and adjusting the valve once every three days, they now looked at it every day, multiple times per day during the transitions of flow to no flow. He stated that in instances of no flow, they could remotely open the valve and begin a small flow coming out of the bottom of the reservoir. He stated that they were attempting to accommodate the wishes of the Moormans River Group and help the river as best as possible, but they must discuss some of the proposed changes with DEQ before they could be incorporated.

Mr. O'Connell thanked Mr. Mawyer for balancing the needs of nature and the need for drinking water.

Mr. Mawyer stated that it was understood that the priority was providing water for the community, but they wanted to accommodate the stream as well, so that was what the DEQ monitoring would assist with. He stated that the Director of Engineering and Maintenance, Jennifer Whitaker, gave a presentation to the Crozet Community Advisory Committee on all of the projects for water and sewer in the Crozet area, including the Beaver Creek Dam Project and the GAC at the Crozet Water Treatment Plant.

6. ITEMS FROM THE PUBLIC

Mr. Gaffney opened the items from the public. He asked speakers to identify themselves for the record and noted that this was not the public comment time for the budget.

Mr. William Lucia stated that he resided at 3360 Ridge Road in Charlottesville, and was speaking as representative of the Thomas Jefferson Chapter of Trout Unlimited in addition to his own feelings on water management that Mr. Mawyer had already discussed. He stated that his purpose for speaking today was to ask that the Water Authority, as operator of the Sugar Hollow Reservoir and Dam, change the current method of water release into the Moormans River.

Mr. Lucia stated that it was a matter of river health, and it was the opinion of the Board of Thomas Jefferson Trout Unlimited that the current release method was injurious to the

Moormans River's health and ecosystem, a system prior to a year ago supported a wide population of spawning brook, rainbow trout, and many other species of fish and aquatic insects and invertebrates.

Mr. Lucia stated that the current method used by RWSA to meet its DEQ permit required for minimum in-stream flow that was to release water over the spillway in a manner that allowed the flow in the immediate vicinity of the dam to go from adequate to no flow at all. He stated that Mr. Mawyer alluded to this in discussing the heating of the bladder. He stated that while meeting the spirit of the DEQ permit, the current method did more harm than good for the overall health of the river and the tail water would end further downstream, and the result was a stream with little or no movement of water in the tail water section of the Moormans River below the dam.

Mr. Lucia stated that this in turn resulted in a river with fluctuating temperatures, as much as 10 degrees between releases, but expected to be much higher in summer months. He stated that additionally, lower dissolved oxygen levels resulted, with fluctuation of oxygen carrying capacity as well. He stated that lower flow, lower oxygen saturation, and higher water temperature all contributed to the inability of the aquatic life, insects, invertebrates, and fish to thrive and survive. He stated that algae proliferation and growth was increased in these conditions and resulted in further deterioration of the aquatic environment.

Mr. Lucia stated that in order to support a healthy Moormans ecosystem and mitigate the deleterious effects the current release method had created, they proposed implementation of a release method that would be beneficial to the ecosystem. He stated they would like the RWSA to consider using the cold water pipe system in a manner that released the required minimum in-stream flow to provide continuous release from the pipe, 24 hours per day, every day. He stated that this would result in more consistent flows, lower in-stream temperatures in the tail water, and high, more consistent dissolved oxygen levels.

Mr. Lucia stated that using this method would improve water quality in the river and all aquatic life would benefit. He stated that they welcomed the opportunity to work with the RWSA to improve the river ecosystem in a manner that allowed the RWSA to meet its permit requirements and its purpose of providing clean, safe drinking water to Charlottesville area communities.

Jim Bennett stated that he lived at 6430 Sugar Hollow Road. He stated that he was a northwest Albemarle County resident and spoke on behalf of the Moormans Scenic River Advisory Board. He stated that this Virginia Department of Conservation and Recreation Board was formed in 2022 of volunteer individuals who were approved to serve based on their interest in the health of the state scenic Moormans River.

Mr. Bennett stated that they had spoken to the RWSA several times recently and thanked them for the opportunity to speak today. He stated that they encouraged the prioritization of biodiversity of the Moormans River corridor as a major consideration in the water supply permit being prepared. He stated that it was recognized that this represented a paradigm shift in their approach to water supply design, but it was necessary for all of them to recognize and incorporate 21st century ecological science into their thinking.

Mr. Bennett stated that in that context, and being concerned about the effects on aquatic life, water flow, water temperature, dissolved oxygen, and chemical nutrients, they had the following concerns. He stated that they had documented proof from pictures taken and personal observations that the in-flow rates in the north fork of the Moormans River into the Sugar Hollow Reservoir frequently exceeded the water delivery into the Moormans River immediately downstream of the Sugar Hollow Dam. He stated the second was that the replacement in 2021-2022 of the rubber bladder on top of the Sugar Hollow Dam resulted in expansion of the reservoir volume such that previously dry areas at the western end of the reservoir were now inundated with 3 to 4 feet of water.

Mr. Bennett stated that they did not know the effects that these new wetlands had on the net volume of the reservoir, or their observations of lack of overtopping of the Sugar Hollow Dam when there appeared to be no reduction of water in-flow into the reservoir from the north fork. He stated that they planned on supplementing their personal observations and pictures with quantitative data about water in-flow into the reservoir from the north fork. He stated that as soon as they could acquire the water technology to measure flow, they would do this, and these data would supplement water temperature and dissolved oxygen levels at multiple locations that they were beginning to measure.

Mr. Bennett stated that third, the USGS Moormans River flow gauge, about 12 miles downstream of the Sugar Hollow Dam, did not provide meaningful data about flows in the upstream Moormans River below the dam. He stated that a review of recent flow data from this gauge showed recorded flows peaking on May 14, 2023 at 64 cubic feet per second, returning to 40 cubic feet per second on May 16, and then having an approximately linear decline to about 30 cubic feet per second on May 22. He stated that it was noted that over this period of time, their observations and digital images revealed minimal if any change in in-flow from the north fork and variable Sugar Hollow Dam overtopping on different days.

Mr. Gaffney informed Mr. Bennett that he had exceeded his three-minute timeframe and could submit his remaining comments to be included in the record.

Mr. Bennett stated that the group had a number of recommendations about these concerns, and he hoped they would include those concepts as aspirational guidelines to help conserve and protect the biodiversity of the Moormans River corridor and the water supply permit they were poised to submit to the DEQ.

Dede Smith stated that she was in the City of Charlottesville and was a rate-payer. She stated that she attended the May 16 meeting at the Crozet library, and there was no one there, but it was not a public meeting about this issue, for which there had not been one, so she was disappointed to say the least that things were proceeding without the potential input of people who would pay for it. She stated that she was an environmentalist who believed in doing the right thing by the rivers, but she also had a strong science background and did not think that personal observation was science, as heard by the last speaker.

Ms. Smith stated that with that being stated, it was important as they discussed this matter whether they were talking about releasing natural flows of water or unnatural flows of water. She

stated that they were listening to people at Trout Unlimited who had a legitimate private interest in fishing as opposed to what might be a problematic river. She stated that they always knew that Moormans had been a flashy river, and she wanted to know whether anyone in that group had discussed taking the dam down in regard to creating natural flows.

Ms. Smith stated that in a bad drought when they really needed that water, the water would never reach the Rivanna but would be absorbed by the groundwater and by all the people in between who were not rate payers and who would stick their pumps in that river. She stated that was known from experience and from data in the original community water plan. She reiterated that they should take the dam down if they wanted natural flows. She stated that they did not need it anymore with the massive Ragged Mountain Dam.

Ms. Smith stated that the capital improvement discussion would also highlight who they were listening to versus who was paying the bill. She stated that the whole system would never be equitable in a system where a lot of people paid water bills, but a lot of people with a lot of influence did not. She repeated that it would never be equitable, and stated that she expected her City representatives to represent the rate payers, but did not always see it.

7. RESPONSES TO PUBLIC COMMENTS

Mr. Mawyer stated that Mr. Bennett was present with the group they met with at Sugar Hollow and were aware of his thoughts on the matter. He stated that Mr. Lucia was not at the meeting, but appreciated his thoughts from Trout Unlimited. He stated that group did have a representative at their meeting. He stated that they were looking at the various items that they suggested, and as Ms. Smith discussed whether they were considering releasing natural or unnatural flows, they would release natural flows. He stated that if water was coming over the dam, they could supplement that with a small amount of water out of a lower pipe. The Trout Unlimited representatives were interested in using the lower gate in the tower of the reservoir, which contained the coldest water.

Mr. Mawyer stated that they released some of the water from the lower gate all the time, and Ms. Bowles, the Water Resources Manager, had concern that the water in the lower reaches of the reservoir had very low oxygen, especially in the summer, and could have a negative effect on the ecology downstream. He stated that they were trying to gather as much information as possible in order to try different water releases in the future and see how they worked. He stated that they looked to their customers first to make sure they were not unduly draining the reservoir for the purpose of maintaining the Moormans River.

Mr. O'Connell stated that the DEQ permit was focused almost exclusively on administering flows and not the water supply issue and bigger scheme, so they would not be balanced in the issue.

Mr. Mawyer stated that was correct. He stated that DEQ looked heavily at environmental impacts of building a dam and impounding the water. He stated that the Authority wanted the water for customers and the DEQ was protecting the environment as best as possible by requiring minimum flow releases to the stream, and they achieved the balance of both needs

through the permit. He stated that DEQ worked with environmental agencies and created requirements for how much water must be released and when. He stated that the environmental concerns were protected through DEQ.

Mr. Mawyer stated that a comment was made that the new bladder was causing a different operational process at Sugar Hollow. He stated that they were unfamiliar with that, so they would have to research the matter. He stated that the new bladder was the same size and operated the same way the old one did, and any differences should be minor. He stated that it inflated five feet to maintain a higher pool level, but for stormwater control, the bladder could deflate and allow more water to go over the dam and lower the normal pool level.

Mr. Gaffney stated that he heard Mr. Bennett say that when water was overflowing, the reservoir was 3 to 4 feet higher than it used to be.

Mr. Mawyer stated that they were unaware of that being the case. He stated that the new bladder was essentially the same size as the old bladder. He stated that they would continue to work with all groups about this and try to work out a good solution.

Mr. Pinkston asked Mr. Mawyer if there had been any consideration of removing the Sugar Hollow Reservoir and Dam.

Mr. Mawyer stated not in his time at the Authority. He asked Ms. Whitaker if she had heard of consideration of the subject.

Ms. Whitaker stated no.

Mr. Mawyer stated that it was viewed as a critical component of the water supply system, and when they had the Rivanna to Ragged Mountain Pipeline built, they would have Ragged Mountain connected to Rivanna Reservoir and effectively to Sugar Hollow Reservoir through the stream. He stated that Ms. Smith may be correct that in a major drought the amount of water that went through the reservoir to the stream may be affected, but he could not really comment on that. He stated that however, under normal circumstances, the Sugar Hollow Reservoir was an essential part of their collective water supply in the community.

Mr. O'Connell requested that Mr. Bennett's statement be shared with Board members.

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 & Associated, LLP*
m. *Approval of Fiscal Year 2023-2024 Personnel Management Plan Update*

Mr. Pinkston moved the Board to adopt the Consent Agenda. The motion was seconded by Mr. O'Connell and passed unanimously (6-0).

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*

Mr. Mawyer stated that the CIP was presented in February and the Operating Budget was presented in March. He stated that the budget was an incorporation of the Capital account and operating expenses, so he would give a brief review of both of those before the public hearing was held on the items. He stated that the strategic plan guided this process, and the focus of the FY 2023-2024 budget was to address the objectives of the 2024-2028 Capital Improvement Program, to establish a framework with resources to achieve the strategic plan priorities, to support the workforce during a period of extreme inflation, and to translate their objectives and priorities into reasonable charges to the City and ACSA.

Mr. Mawyer stated that the FY24-28 CIP included 56 projects at a cost of $326.1M, and the funding for the program was an accumulation of funds from different sources. He stated that they had available funds that they had already borrowed, grants, reserves, new debt, and had already paid $35.6M toward the full expense of these projects. He stated that the primary objectives of the CIP included accelerating completion of the South Fork Rivanna Reservoir to Ragged Mountain Pipeline and Pumping project to 2030 rather than 2033, providing additional Granular Activated Carbon treatment capacity at Crozet and Red Hill Water Treatment Plants, leverage of partnerships with the City, UVA, and VDOT on drinking water piping projects in Emmet Street, and to improve drinking water capacity and reliability in the Route 29 North area.

Mr. Mawyer stated that the CIP and Operating expenses accumulated to a $47.7M budget, which was a $5.8M or 13.9% increase from FY23. He stated that the debt service was one of the largest components of the budget, totaling $23.3M, which was an increase of 18.2% over last year, in large part because they accelerated a major piping project. He stated that the operations cost was $24.4M, which was a $2.2M increase or 10.1%. He stated that City charges were estimated to be

$17.8M, which was a $1.5M or 9.3% increase, and the ACSA charges would be $27M, which was a $3.2M or 13.4% increase over this year.

Mr. Mawyer stated that the debt service was $23M or 49% of the budget because the Authority carried the major utility debt for the City and County by design. He stated that workforce expenses would be $11.6M or 24%. He stated that operations and maintenance were $7.5M or 16%, and general services was $5.4M or 11% of the budget. He stated that the cost increases for FY2024 compared to FY2023 were substantially composed of debt service, which was $3.6M or 62% of the increase, workforce costs were $1.1M or 19%, chemicals were $680,000 or 11%, and information technology was $453,000 or 8%. He stated that the total increase was $5.8M.

Mr. Mawyer stated that through operational optimization savings, they created $187,000 in savings largely through technology improvements and injecting need-paced chemicals in the water treatment process via sensors giving instantaneous readings on what the levels in flows were, allowing for injection of chemicals at a variable rate based on need rather than setting the injection pump at a constant rate to pump all day. He stated that this variable, paced flow process would save chemical costs.

Mr. Mawyer stated that major programs in FY2024 included construction of the Airport Road Water Pump Station, the MC 5kv Electrical Upgrade, the South Rivanna River Crossing, the Ragged Mountain Reservoir to Observatory Water Treatment Plan Pipeline and Pump Station, the Central Water Line, the Red Hill Water Treatment Plant Upgrades and Granular Activated Carbon, the Scottsville WRRF Emergency Power Generator, and the Moores Creek Administration Building Renovation and Addition. He stated that in design for FY2024 were the South Fork Rivanna River to Ragged Mountain Reservoir Pipeline, the Beaver Creek Dam, Pump Station and Piping project, and the Crozet Water Treatment Plant GAC System. He stated that also requested to be approved for FY2024 was the new Administration and Communications Division in the Authority.

Mr. Mawyer stated that expense increases included the cost-of-living increase proposed for staff of 6% with a 2% merit pool, retirement and insurance increases, and four additional positions as part of workforce investment. He stated that the additional positions included a Director of Administration and Communications in the first quarter, then a Finance Manager, IT Technician for cybersecurity, and an Engineering Inspector Supervisor in the second quarter. He stated that they had eliminated a part-time position, so this would result in a net total of 3.6 FTE positions. He stated that operations and maintenance expense increases included costs for chemicals, technology, communications, and equipment maintenance. He noted that they had reduced the professional and other services costs by $160,000.

Mr. O'Connell asked what specifically was causing the increase in chemical costs.

Mr. Mawyer stated that they received higher bid prices for chemicals used for water and wastewater treatment..

Mr. Tungate stated that between FY22 and FY23, costs for chemicals went up 60%, and the bids were due for FY24 on Thursday, so he would see where they were at that point.

Mr. O'Connell asked if the issue was isolated to GAC.

Mr. Tungate stated no, it was across the board for all chemicals. He stated that it was thought to be tied to the unpredictability of the diesel fuel market, but they had also heard that raw materials had changed, and odor control prices had gone up based on the market rates, and the conflict in Ukraine and Russia had an impact on supply as well.

Mr. Mawyer stated that with the pandemic behind them, and if the national legislature could pass a budget, and if fuel prices stabilized, and if OPEC did not have a special meeting, then perhaps chemical prices would go down. He stated that currently there were multiple reasons why the prices were up.

Mr. Mawyer stated that the new Administration and Communications division would manage the Human Resource programs, including recruiting, hiring, payroll, and benefits, as well as public-facing brand identity initiatives identified in the strategic plan goals. He stated that they were transferring the Safety Program to this group to manage the enhancements of the Safety Program. He stated that the Finance Manager would supervise staff and become proficient with all finance programs of RWSA and RSWA. He stated that the Information Technology Technician would support systems including cybersecurity, SCADA, asset management, and Human Resources Information System. He stated that the Engineering Inspectors Supervisor would supervise and manage the work programs of the four Engineering Inspectors, as well as the consultant inspectors, while also providing special inspections.

Mr. Pinkston asked if the Inspectors would be inspecting weld quality and other things of that nature.

Mr. Mawyer stated that they would be inspecting for contract compliance, so their responsibility was to make sure the contractor followed the construction contract, including materials specified, approval of submittals, and correct installation of materials.

Mr. Pinkston asked if they currently leaned on architects and engineers for that work.

Mr. Mawyer stated they did, but they were growing the internal inspector group during his tenure, and they would now have five inspectors.

Mr. O'Connell asked if they had run the numbers as to whether it would cover most or all of the consultant expenses that would otherwise be incurred.

Mr. Mawyer stated that he would have to return with that information because it had been collected a few years ago. He stated that they still needed consultant inspections to some degree, especially special inspections if there was unusual construction with which they had less familiarity. He stated that the growth of the RWSA employees had been slow and steady for the past 18 years, and had added 19 positions, or a little over one position per year, which was reasonable for their growing population and the services provided at their multiple large facilities. He stated that they forecast the rates for the ACSA and the City based on the Capital

Budget for this year and the CIP, and anticipated about $230M in new debt over those five years. He stated that they issued the debt, and the City and ACSA reimbursed them for the debt costs.

Mr. O'Connell stated that there was a large shift in future years.

Mr. Mawyer stated that the total budget proposed was $47.7M, of which the City charges would total about $17.8M and the ACSA charges total $27M. He requested the Chair to conduct a public hearing on the proposed rate schedule if there were no questions or comments. He stated the public hearing was advertised twice in the local paper.

Mr. Gaffney opened the public hearing for the Rate Schedule, CIP, and FY 2023–2024 Budget.

Ms. Dede Smith stated that after the Ragged Mountain option was chosen for the community water plan, an expensive pipe project between Ragged Mountain and South Fork was proposed. She stated that the project was initially delayed because the required rate increase to fund the project was too high. She stated that the current proposed rate increase was similar. She stated that there was an affordability crisis, and people were often evicted for not being able to afford utilities.

Ms. Smith stated that low-cost housing was less efficient and more expensive to heat and cool. She stated the proposed CIP was reckless, racist, and went against historical precedent. She stated the County ratepayers would see worse rate hikes compared to the City, and County ratepayers had almost no representation on the Board. She stated that Ms. Mallek did not pay utility rates and neither did her predecessor.

Mr. Gaffney noted there were no more speakers and closed the public hearing.

Mr. O'Connell stated that there were weekly headlines about how water systems were failing in other parts of the country and water safety was in question. He stated that trust in public water had declined rapidly. He stated that the Authority had invested and continued to invest in initiatives to ensure safe, reliable drinking water. He stated that many of the projects were major maintenance requirements that had been delayed. He stated that they were concerned about affordability for retail consumers and low-volume consumers. He stated that they had a lower cost than the state average and national averages. He stated that the discussion should not only be focused on the rates because the quality of the product was also important.

Mr. Pinkston noted that there was an escalation of project costs across the country. He stated that they should take advantage of the opportunity to fill Ragged Mountain Reservoir. He stated that in terms of the infrastructure, they were in good shape, and he supported the proposed budget.

Ms. Mallek stated that the budget was a bold step. She stated that she supported the addition of the communications division. She stated that she and Mr. Tungate hosted a table-top exercise on risk communications at the EPA event. She stated she supported the budget.

Mr. Gaffney stated that prior to the 2002 drought, they had some of the lowest rates in the state, but their infrastructure was aging. He stated that they had to address the sewer infrastructure

before addressing the water supply due to a consent order from the DEQ. He stated that they sought to continue building state-of-the-art water and sewer utilities.

Mr. Pinkston noted the rate increases for the City were about 9% year-over-year. He asked if there was a six to 10-year range. He stated that the Urban Water Master Plan was close to completion. He asked whether they would reach a peak investment and then transition to mainly maintenance costs.

Mr. Mawyer stated that regulations may change the requirements. He stated that they were awaiting regulations for PFAS. He stated that they hoped the budgets would stabilize where they could focus on infrastructure renewal. He stated that they had a long-range CIP, and they would have a presentation on the long-range vision for the water and wastewater system in June.

Ms. Mallek clarified that the long-range CIP would include paying off loans to take on new debt.

Mr. Mawyer responded that debt would increase, but they made monthly debt payments which decreased overall debt.

Ms. Mallek stated that downstream localities used the water as drinking water. She stated there was a moral obligation to do the best to preserve water quality.

Mr. Pinkston moved to adopt the rate schedule for FY 2023–2024, effective July 1, 2023. Ms. Mallek seconded the motion, which passed unanimously (6-0).

Mr. Pinkston moved to approve the FY 2024–2028 CIP. Ms. Mallek seconded the motion, which passed unanimously (6-0).

Mr. Pinkston moved to approve the FY 2023–2024 Budget. Ms. Mallek seconded the motion, which passed unanimously (6-0).

(Joint Session with the RSWA)

a. Presentation: Asset Management Program Update
Katie McIlwee, Asset Management Coordinator

Ms. Katie McIlwee, Asset Management Coordinator, stated that the Strategic Plan guided all of the Authority projects, and the Asset Management Project was no different, and that this project falls under the goals of the Planning and Infrastructure team. She stated that the Asset Management Policy linked to the Strategic Plan to aid in setting goals for asset investment and development. She stated that asset management was 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. She stated there was a framework of five core questions, developed by the EPA that aids in the development of a comprehensive asset management program. She stated the questions helped to determine the current state of assets, required level of service, business risks, best operations/maintenance practices and CIP investment strategies, and the best long-term funding strategy.

Ms. McIlwee stated that the Authorities had approximately $320M in total assets, which included horizontal and vertical assets. She stated that horizontal assets mainly encompass underground assets, such as manholes, water and sewer lines, system valves, and other related devices. She stated that there were approximately 764 horizontal wastewater assets and approximately 1,644 horizontal water assets. She stated that vertical assets were those that were at the WTPs including buildings and contained within infrastructure. She stated that for wastewater, there were about 1,858 vertical assets, and for water, that were about 1,426 assets.

Ms. McIlwee stated they reviewed the benefits of the program and determined that it would prolong the life of assets and improve decisions about asset rehabilitation, repair, and replacement. She stated that the program would reduce the overall cost for operational and capital expenditures, and it would help meet customer demands. She stated that they would be able to set rates based on operational planning, and the budget could focus on critical activities. She stated the program would improve emergency response and improve the security, safety, and reliability of all assets.

Ms. McIlwee stated that the goals of the program were to integrate information across the Authorities, monitor asset lifecycle, quantify asset condition and risk, achieve consistent and accurate performance monitoring, compare and prioritize potential capital project and maintenance activities, achieve benefit/cost efficiencies for customers, and increase and retain institutional knowledge.

Ms. McIlwee stated that there were four phases of the asset management program. She stated that the first phase, developing an asset management framework, had been completed, which included conducting a gap assessment, developing a Strategic Asset Management Plan, and identification of software requirements. the initial development of the asset management framework. She stated that the second phase, Test AM Framework, included development of the asset register and completing a Tactical Asset Management Pilot plan for the Rivanna Pump Station. She stated that the third phase was nearly complete, and it was the Cityworks software implementation phase. She stated that the fourth phase was full asset management program implementation.

Ms. McIlwee noted several major milestones throughout the project. The first milestone was the start of Phase 1 in 2018 with the asset plan development. She stated that in 2019, Phase 2 began and included asset hierarchy development. She stated in 2020, they completed the strategic asset management plan and the tactical asset management plan. She stated in 2021, they began Phase 3 with the asset register development and Cityworks configuration. She stated in 2022, the full asset management program implementation began, and in 2023, Cityworks had gone online.

Ms. McIlwee stated that Phase 3 was a large part of the project. She stated that Cityworks was chosen to be the computerized maintenance and management system (CMMS) in September 2020, and implementation began December of that year. She stated that configuration and systems testing were completed in March 2023. She stated that on May 8, Cityworks went live. She stated that the program maximized preventative maintenance. She stated that Cityworks was an Authority-wide initiative to provide tangible benefits for asset management. She stated that the system had all asset information in one location and it was linked to the GIS. She stated that

the system allowed work order tracking across departments.

Ms. McIlwee stated that the asset management program budget was about $1.18M. She stated that the largest portion of the budget was Phase 3. She stated that as part of Phase 4, they were looking to complete the Level 1 and Level 2 condition assessments, and after completion, they would assign consequence of failure scores and mitigation factor scores to the vertical assets. She stated the consequence of failure scores would be assigned to the linear assets, and those would be used to calculate risk. All of this information would then be used in conjunction with a decision support tool to help make well-informed planning and financial decisions.

Ms. McIlwee stated long-term goals included full implementation of the program. She stated they would develop capital investment needs and a business case evaluation process. She stated that they would develop tactical asset plans for all assets, and they would refine the level of service performance standards. She stated that they would seek to reduce maintenance costs, implement performance monitoring processes, and implement an asset management program with the RSWA.

Mr. Pinkston asked if a consultant helped in the implementation of Cityworks.

Ms. McIlwee stated they hired a consultant (GHD) to implement Cityworks and the asset management program. She stated the consultant helped with the procurement of Cityworks.

Mr. Smalls asked how they selected Cityworks.

Ms. McIlwee stated that when they began looking for a system, neighboring localities and municipalities were using Cityworks. She stated that they issued an RFP, and by that time, Cityworks had transitioned its platform. She stated once the vendor had transitioned, they were able to provide 95% of the Authority's request at the lowest cost.

Mr. Smalls asked whether RSWA assets were included.

Ms. McIlwee stated they were not yet included.

Mr. Mawyer responded that they would be in the near future.

Mr. Pinkston asked if the consultant helped develop and identify the risk assessments and points of failure.

Ms. McIlwee stated that they had developed several metrics to aid in decision making. She stated that the usage and surrounding infrastructure influenced the risk of failure score.

Mr. Mawyer asked what all the metrics added together would indicate.

Ms. McIlwee stated that it indicated the business risk exposure.

Mr. Gaffney stated he supported the program. He asked if there was a method to sell assets that

were no longer needed or used by the Authority.

Ms. McIlwee stated that they currently perform a surplus sale of equipment every year.

Mr. O'Connell asked if they would be able to gather enough data for the next CIP process.

Ms. McIlwee stated that they hoped to gather enough data. She stated that they were six to eight months from being able to input the first data into the decision support tool. She stated that the information would become more robust every year.

Mr. Smalls asked for more information about the decision support system.

Ms. McIlwee stated that after a decision support tool was implemented, there would be a review process for the recommendations provided by the software, and no recommendation would be taken without a review.

Mr. Mawyer stated that they would integrate maintenance history and opinions about the assets. He stated that they would have to prioritize the most important assets for repairs or replacement.

Mr. Smalls stated that the program was a good way to reduce costs.

Ms. Mallek asked whether the 20% priority for site visits was based on age or value.

Ms. McIlwee stated that it was based on a calculation using the consequence of failure scores, condition scores, and the mitigation factors.

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

Ms. Betsy Nemeth, Human Resources Manager, stated that she would provide an update on the organization's succession planning. She stated that the objective of the succession planning process was to continue organizational growth and development of the Authorities by recognizing, developing, and retaining leadership talent and strategically planning for the future. She stated that they developed a leadership development program to develop in-house leadership at all levels of the organization.

Ms. Nemeth stated that there were three groups, and Group 1 encompassed the directors and high-level managers. She stated that they included the Clifton Strengths assessment tool to identify leadership strengths. She stated that they had held the first learning session, Strengths-Based Leadership, and the next sessions would include Emotional Intelligence and Conflict Management, Managing Change, and Visionary Leadership. She stated that everyone in the group would develop and present a capstone project in pairs in December. She stated that they were using an Executive Leadership Coach with Barren Ridge Consulting named Tim Smith.

Ms. Nemeth stated that groups 2 and 3 included managers, assistant managers, supervisors, and other staff. She stated that the groups had four development learning sessions, Strengths-Based Leadership, Emotional Intelligence and Conflict Management, Effective Communication, and

Managing Change. She stated that the groups had already undergone the strengths-based leadership session. She stated that the refreshed leadership development program would support the objectives of the succession management plan. She stated that the structured leadership program had been successful for the first session, and employees seemed willing to return for future sessions.

Mr. Mawyer asked how many employees were in the program.

Ms. Nemeth responded that there were a total of 26 staff members from both Authorities.

Mr. Rogers asked who was providing the training.

Ms. Nemeth responded that the leadership coach consultant provided training to the executive group, and she provided training to the other two groups.

Mr. Rogers stated that he supported internal executive leadership programs.

Ms. Nemeth stated that the programs invested in employees and aided in retention.

Mr. Pinkston asked how many people had gone through the program and how many they anticipated.

Ms. Nemeth stated that this was the first group of sessions, and there were 26 staff members participating.

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

Mr. Santino Granato, Senior Civil Engineer, stated that Brian Bergstrom from Short Elliot Hendrickson Engineers was also present. He stated that the Moores Creek Administration Building was constructed in the 1980s and was approximately 12,850 square feet. He stated the building provided space for 26 staff positions, including the water and wastewater laboratory. He stated in 2018, a needs assessment was completed and identified the need for an addition of 15,000 square feet for a total building size of 27,850 square feet. He stated the 2018 renovation was designed to accommodate 48 staff positions, and the project cost estimate at the time was $8M.

Mr. Granato stated that they aimed to move Engineering staff into the newly renovated building and out of the trailers they currently used. He stated that the building would provide space for 49 staff positions upon completion in 2026, and there would space for 68 staff positions by 2035. He stated the building would include offices, a laboratory, a data center, and education, conference, and support spaces. He stated that it was currently estimated to be 30,400 square feet. He stated they would implement a phased staffing occupancy approach, and initial construction would accommodate 58 staff positions by 2030.

Mr. Steve Davis, Thrive Architecture, provided an overview of the site plan. He stated that

adjacent to the existing building was the proposed addition. He noted that the proposed addition would be three stories. He stated that they were designing for 120 on-site parking spaces to accommodate staff vehicles, fleet vehicles, visitors, and public meeting attendees. He stated that they were beginning to evaluate some of the other safety features, such as storm water facilities. He stated that they would preserve as many of the large oak trees along the road as possible. He stated the master plan specified the location of future facilities, and there would be a new service drive-in and loading dock to support the lab facilities.

Mr. Davis stated that they considered having the board meeting room on the first floor, but there were constraints regarding space, so they made the decision to host meetings on the top floor. He stated the first floor included a portion of administrative staff, the receptionist, and a significant portion of the IT department. He stated that the public circulation areas were secured from the staff areas with ballistic glass.

Mr. Davis stated that the ground floor of the existing building would be connected to the second floor of the new building. He stated that the labs were located in the same general location, but they would be entirely renovated. He stated the entirety of the engineering department would be located on the second floor. He stated that the new boardroom would be located on the third floor, and the room would be designed for a variety of uses. He stated the board room had an example configuration to be able to support 14 Board members at the head tables and accommodate 60 guests. He stated that the remainder of the administrative department would be located on the third floor along with the leadership suite, the future legal department, and the remainder of the IT department.

Mr. Davis stated that while the normal ceiling height would be 9', they had opportunities to increase the ceiling height for the boardroom. He stated the lowest level of the addition would be at the parking lot level. He stated that they implemented architectural strategies to reduce the width and height of the building. He stated that there was no plan to change the exterior of the existing building, so they selected building materials to match. He stated that they intended to keep the rooftop as clean as possible to accommodate future renewable energy production. He stated there would be a narrow connector between the new and the old buildings. He noted that the rooftops were intended to be similar but not matching.

Mr. Davis stated that the engineering team would evaluate low-impact development strategies. He stated they would look for ways to mitigate stormwater impacts and preserve waterways. He stated that they wanted to limit the use of glass from an energy-use and glare-reduction perspective. He stated that they wanted to emphasize the use of natural materials and materials with low energy requirements.

Mr. O'Connell asked whether solar power was included.

Mr. Davis stated that they planned to allocate space for a solar system on the rooftop of the building. He stated that solar panels were not included in the initial project budget.

Mr. Granato stated they would submit the site plan to the County in June 2023, and they anticipated to have completed design by December. He stated they planned to award a

construction contract by May 2024. He stated construction was anticipated to begin in June 2024 and be complete by June 2026. He stated that the estimated project costs were done at a conceptual level, and they would be refined at the 30% design submission. He stated that total project costs were about $17.5M, and they included one-time contingencies for inflation and design.

Mr. Granato stated that the total project estimate did not include solar panel installation or educational outreach. He stated they were working with consultants to determine costs for those installations. He explained that solar panel installation on the building would be included with the next cost estimate, and they would try to include it within the project budget.

Mr. O'Connell asked whether they were pursuing grant options for solar power.

Mr. Mawyer stated no, but they were open to opportunities and suggestions.

Mr. Granato stated that the project would renovate 12,850 square feet of the existing building, and there would be an addition of 17,200 square feet. He stated the engineering staff would be relocated into the building, and the labs would be modernized. He stated that the renovation and addition would accommodate staff growth to 68 positions by 2035. He stated that the construction schedule was June 2024 through June 2026, and the estimated budget was $17.5M.

Mr. Rogers asked for clarification about the projected number of employees.

Mr. Mawyer responded that there were currently 26 employees in the existing Administration building, and there were 16 employees in the trailers who would move into the renovated Administration building. By 2035, they anticipated 68 employees would be located in the building.

Mr. Pinkston asked whether the project was included in the CIP.

Mr. Mawyer stated yes.

Mr. Pinkston asked whether they received a value engineering (VE) review.

Mr. Mawyer responded yes. He explained that all projects over $5M received a VE review.

Ms. Hildebrand responded that the $18M would be at the earlier stages of the CIP.

Mr. Pinkston stated that the renovation seemed to be needed.

Ms. Mallek asked how they would manage energy efficiency in the summer.

Mr. Davis stated that most of the glass was facing north, and it was located on an open floor. He stated that there was not a lot of direct solar gain on the glass. He stated that some of the glass panels on the lower levels were opaque panels. He stated that they had to perform more studies on the east side to mitigate the solar gain. He stated that there were tall trees in the area to reduce

sunlight.

Mr. Smalls asked whether the construction timeline would impact the Board's ability to meet.

Mr. Mawyer stated that they may have to find other locations to meet during construction. He stated they had considered rotating the meeting to various City and County locations during the construction, but they had to consider technology logistics.

Mr. Rogers asked whether staff would be relocated.

Mr. Mawyer stated they were working on a staff relocation strategy. He stated that constructing the new building, relocating staff into the new addition, then renovating the old building would create two project cycles, lengthen the timeline, and increase costs. He stated that they were considering a trailer for the laboratory. He stated that they would look to integrate a work-from-home program, as well.

Mr. Pinkston asked whether the cost estimates included costs for staff phasing and relocation.

Mr. Granato stated that they generated a cost savings by relocating staff out of the building during construction. He stated that they were looking to finalize the plan, and the costs would be adjusted. He stated that the relocation costs were not currently incorporated into the total project estimate.

Ms. Hildebrand asked whether there was consideration for cubicle-type offices in certain areas.

Mr. Granato stated they did consider cubicles in some situations, such as in the engineering space, the inspector offices, and the interns. He stated the majority of the building was designed for individual offices.

Mr. Stewart asked if the project would receive a green building certification.

Mr. Granato stated that would be discussed within the project team.

Mr. Mawyer asked if there were different levels of certification.

Mr. Stewart responded that there were different ratings. He stated a code change required local governments to use the system.

Mr. Mawyer stated that they would have to look into it.

Mr. Stewart noted that the building had only one elevator and suggested they add an additional elevator in case one broke. He stated that it was important to have solar on the building. He stated that the proposed timelines seemed to be optimistic. He stated that the County site planning process could take multiple attempts.

Mr. Granato stated that they would do their best to maintain the proposed timeline.

Mr. Mawyer asked whether there was a preference for installing solar panels at the beginning versus installing them at a later time.

Ms. Mallek asked whether the Authority was allowed to use the contract companies which installed solar panels at no cost, such as was used with the schools. She stated that the Authority may not be eligible.

Mr. Stewart stated he believed the Authority was eligible for the programs, but the project was too small.

Mr. O'Connell asked for clarification about the top needs for the project. He noted that eliminating the Engineering trailers and renovating the lab were priorities.

Mr. Mawyer stated that the building was the original construction from the 1970s and needed renovation. Additional space would be needed to accommodate anticipated growth in staffing. He stated that there were pests in the building that they needed to address.

Mr. O'Connell asked whether there were growing staffing and space needs.

Mr. Mawyer stated that there were growing staff needs with the strategic plan. He stated that they wanted to build the space to accommodate future staffing needs until 2035.

Mr. Gaffney clarified that there would be increased lab space.

Ms. Mallek asked whether the renovated lab space would double.

Mr. Davis stated there was not significantly more space, but the internal layout was more efficient.

Mr. Gaffney noted that the manager's office and lab storage had been moved out of the lab space.

Ms. Mallek asked whether there was an enterprise opportunity to use the laboratory resources for other localities.

Mr. Mawyer stated that the more local testing they could perform, the most cost effectively they could operate. They would investigate enterprising opportunities.

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

Mr. Mawyer announced that Ms. Carrie Stanton was leaving the organization and Williams Mullen for a better opportunity. He thanked Ms. Stanton for her work for the Authority.

Ms. Mallek stated that the Authority and the County had the resources to accomplish initiatives that were not possible in other localities. She stated she appreciated the redundancy and work that went on in the Authority. She stated that the City-County-University partnership made more

possibilities possible.

5. *CLOSED MEETING*

There was no reason for a closed meeting.

6. *ADJOURNMENT*

At 4:49 p.m., Mr. Rogers moved to adjourn the meeting of the Rivanna Water and Sewer Authority. Ms. Mallek seconded the motion, which passed unanimously (6-0).

CERTIFICATE of RECOGNITION

By virtue of the authority vested by the Constitution in the Governor of the Commonwealth of Virginia, there is hereby officially recognized:

DRINKING WATER AND WASTEWATER PROFESSIONALS DAY

WHEREAS, the health, safety, and well-being of all Virginians is of utmost importance to the prosperity and livelihood of our Commonwealth's families and communities; and

WHEREAS, without reliable drinking water and wastewater treatment, the United States would suffer thousands of deaths each year due to waterborne diseases; and

WHEREAS, conscientious regulation and operation of both public and private drinking water treatment plants and distribution systems helps prevent contamination and other avoidable incidents that threaten the health and well-being of Virginia's more than 8.6 million residents; and

WHEREAS, the Commonwealth produces an average of more than 817 million gallons of wastewater each day, the proper treatment of which protects the ecological health of Virginia's surface waters, such as the James and Potomac Rivers, and the Chesapeake Bay; and

WHEREAS, thousands of water and wastewater industry professionals in the Commonwealth's public and private sectors dedicate their careers to keeping drinking water and treated wastewater clean and free of substances harmful to both humans and the environment; and

WHEREAS, the Virginia General Assembly passed House Joint Resolution 88 in 2016 designating June 30 as Drinking Water and Wastewater Professionals Day in Virginia;

NOW, THEREFORE, I, Glenn Youngkin, do hereby recognize June 30, 2023, as **DRINKING WATER AND WASTEWATER PROFESSIONALS DAY** in our COMMONWEALTH OF VIRGINIA, and I call this observance to the attention of all our citizens.

Governor

Secretary of the Commonwealth

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

MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **EXECUTIVE DIRECTOR'S REPORT**

DATE: **JUNE 27, 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 to obtain a higher Operator license from the State:

- Drew Prothero - Wastewater Operator Class 3

National Safety Month

June is National Safety Month, and focuses on eliminating the leading causes of preventable injuries and deaths. We celebrate National Safety Month with special events and prizes to encourage a safer and healthier work environment.

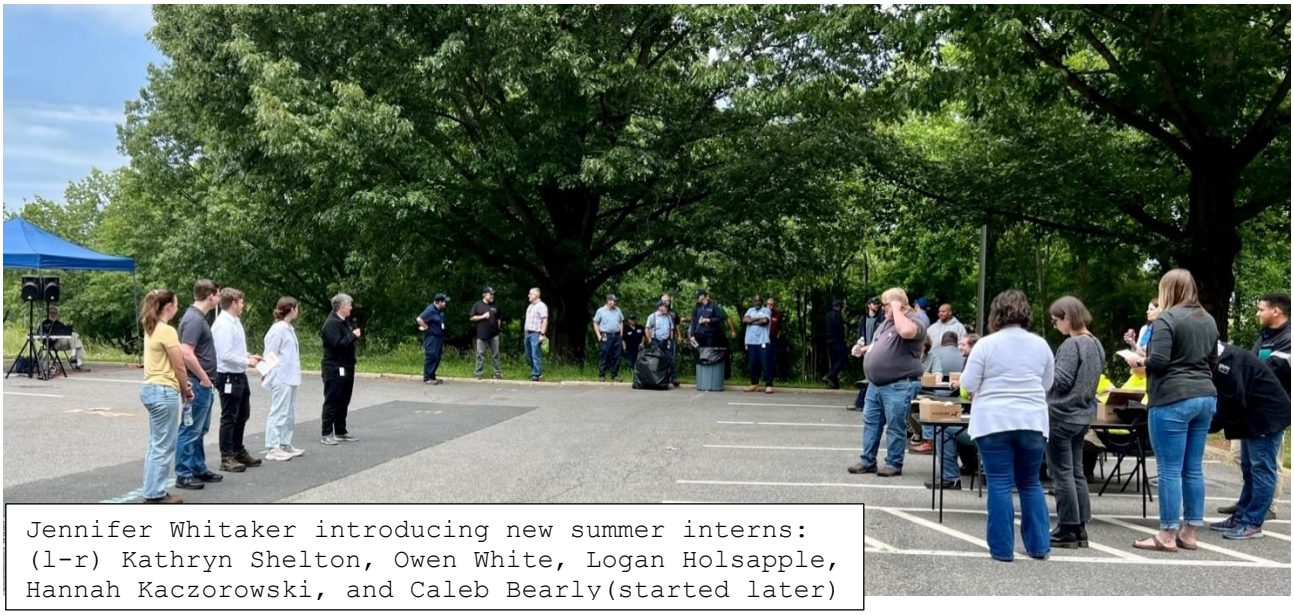
Leadership Training

Our Director of Operations, David Tungate, recently attended a Local Government Advisory Council (LGAC) PFAS "table top" exercise. Dave shared information with the group about test methods and some water treatment basics for PFAS removal. The group discussed various challenges with PFAS including the cost of removal from drinking water.

Our Director of Engineering and Maintenance, Jennifer Whitaker, will participate in the Charlottesville Chamber of Commerce's Leaders Lab program. This 9-month program focuses on building/enhancing leadership skills and participants practice collaborative community problem-solving.

Team Building Event

Rivanna Authorities held a team building event on May 25th at the Administration Building. Staff from both Authorities appreciated the opportunity to meet new staff and interact with different departments. This lunchtime event featured a barbecue boxed lunch, music, games and door prizes and a visit from Mr. Gaffney. Our student interns started with RWSA in May: Owen White, *Laboratory*, Logan Holsapple, *Engineering;* Hannah Kaczorowski, *Engineering / Sustainability;* Kathryn Shelton, *Water Resources;* and Caleb Bearly, *Wastewater Operations.*



Jennifer Whitaker introducing new summer interns: (l-r) Kathryn Shelton, Owen White, Logan Holsapple, Hannah Kaczorowski, and Caleb Bearly(started later)

STRATEGIC PLAN PRIORITY: PLANNING AND INFRASTRUCTURE

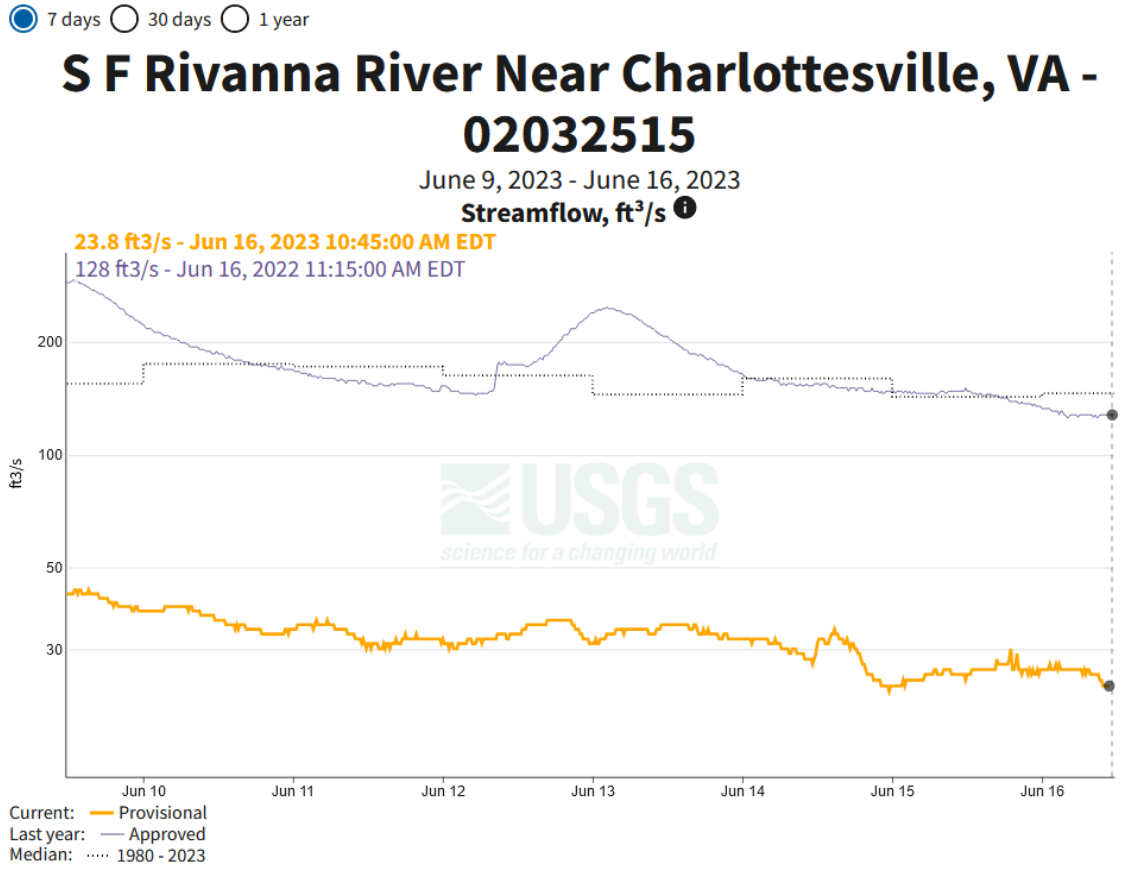
Drought Watch

Precipitation: about 14 inches low (14% low) over the last 29 months

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 - May**	**10.70**	**18.26**	**-7.56**

Source: National Weather Service, National Climatic Data Center.

Stream Flow



Day		2022 Streamflows		2023 Streamflows		% change
		cfs	mgd	cfs	mgd	
June 9		251	162.21	42.1	27.21	-83
June 10		186	120.21	36.0	23.27	-80
June 11		156	100.82	32.6	21.07	-79
June 12		181	116.98	33.2	21.46	-82
June 13		204	131.84	33.5	21.65	-84
June 14		153	98.88	29.3	18.94	-81
June 15		144	93.06	26.0	16.80	-82

Major Projects

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

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

   Status: Negotiations with UVAF have been completed, and signatures are being obtained.

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

Status: The University discovered a cemetery as 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 June 2024. An extensive communication effort will be completed with the communities adjacent to the project before construction begins. Efforts to obtain nine easements are underway.

Allen Farm Lane Bridge Repairs, Buck Mtn Property

Repairs to the concrete bridge piers, costing approx. $50k, will be completed by Faulconer Construction starting on June 26 and continuing for 1 -2 weeks, weather permitting. We do not anticipate any major disruptions to traffic during completion of the repairs.

STRATEGIC PLAN PRIORITY: COMMUNICATION AND COLLABORATION

EPA Drinking Water Contamination Drill

On June 13, 14, and 15, RWSA hosted staff from the City and ACSA for a "table top" water contamination drill sponsored by the federal Environmental Protection Agency (EPA). The goal of the event was to have participants solve a water contamination scenario using all available EPA water contamination resources. The drill was a good opportunity for our group to practice making critical decisions under emergency conditions.

Physical and Cybersecurity

Earlier this month, we had an excellent meeting and walking tour with three FBI special agents at the South Rivanna WTP. There was a cybersecurity expert, a critical infrastructure expert, and our local FBI contact present at the meeting, along with our Information Technology, Operations and Engineering staff. The critical infrastructure agents were learning about what we do at a water treatment plant. It was a good exchange because we made them more aware of water and wastewater processes and the vulnerabilities we may face.

The cybersecurity expert was impressed with the work our Information Technology staff have done to protect our SCADA and IT systems from cyberattacks. He said we were above average when compared to other facilities he has visited/inspected. Networking with these expert resources is part of our strategy to prepare for emergency situations. The review reflected very well on our IT staff.

Land Use and Environmental Planning Committee (LUEPC); Hydraulic Area Community Advisory Committee (CAC) Meeting

I recently presented updated information to both groups about our community's Water Supply Plan. We discussed acceleration of the SFRR – RMR waterline project as an important step to prepare for future drought conditions in a changing climatic environment, as well as to support economic development.

I also presented information to LUEPC about our S. Rivanna River Crossing project, and how it would provide a redundant water supply to the Rt. 29N corridor, as well as increase water supply capacity in this area to support development.

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

MEMORANDUM

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

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

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

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

DATE: **JUNE 27, 2023**

Financial Snapshot

April ended with an overall net deficit of $865,900, or 2% above the annual budget of $41.8 M. Operating rate revenues for the first ten months of this fiscal year are above average. Operating expenses are currently $1.8 million over the prorated annual budget. Total revenues are $1.6 million over prorated budget estimates, and total expenses are $2.5 million over budget. Urban Water flows and operating rate revenues are slightly (0.85%) below budget estimates through April, and Urban Wastewater flows and operating rate revenues are 7.3% over budget.

Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 7,723,994	$ 8,679,488	$ 2,179,266	$ 18,582,748
Expenses	(8,157,366)	(9,150,010)	(2,323,199)	(19,630,575)
Surplus (deficit)	$ (433,372)	$ (470,522)	$ (143,933)	$ (1,047,827)
Debt Service				
Revenues	$ 7,365,317	$ 7,972,254	$ 1,994,930	$ 17,332,501
Expenses	(7,302,410)	(7,868,322)	(1,979,823)	(17,150,555)
Surplus (deficit)	$ 62,907	$ 103,932	$ 15,107	$ 181,946
Total				
Revenues	$ 15,089,311	$ 16,651,742	$ 4,174,196	$ 35,915,249
Expenses	(15,459,776)	(17,018,332)	(4,303,022)	(36,781,130)
Surplus (deficit)	$ (370,465)	$ (366,590)	$ (128,826)	$ (865,881)

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 April are $729,000 over the prorated annual budget estimate, and operating expenses exceed budget by $1,777,000. 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 10/12 (or 83.3%) of the annual budget on these financial statements. However, actual payroll is paid biweekly, and there have been 22 out of 26 total pay periods through April (or 84.6%). 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) – Crozet Water, Urban Wastewater, and Glenmore Wastewater have spent $17,000, $61,800, and $15,000, respectively, on unbudgeted engineering and technical services for various surveys and studies. The Administration department incurred $91,900 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 $330,600 more than its annual budget in this category for computer hardware, software, and support costs. Urban Wastewater and Scottsville Wastewater are over budget $41,000 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 (All Water departments, Urban Wastewater, Maintenance – pages 2, 3, 4, 5, 9) – All of the water departments are over the prorated budget for chemicals due to carbon exchanges. Urban Wastewater has spent $362,000 more than the prorated budget and $240,800 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 - April 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	$ 17,178,688	$ 17,664,124	$ 485,436	2.83%
Lease Revenue		85,000	70,833	101,032	30,199	42.63%
Admin., Maint. & Engineering Revenue		656,000	546,667	605,964	59,297	10.85%
Other Revenues		639,036	532,530	555,170	22,640	4.25%
Use of Reserves-GAC		150,000	125,000	150,000	25,000	20.00%
Interest Allocation		7,170	5,975	112,422	106,447	1781.54%
Total Operating Revenues		**$ 22,151,631**	**$ 18,459,693**	**$ 19,188,712**	**$ 729,019**	**3.95%**
Expenses						
Personnel Cost	**B**	$ 10,494,727	$ 8,745,606	$ 8,874,888	$ (129,283)	-1.48%
Professional Services	**C**	629,900	524,917	636,684	(111,767)	-21.29%
Other Services & Charges	**A, D**	3,427,460	2,856,217	3,227,654	(371,437)	-13.00%
Communications	**F**	200,342	166,952	209,512	(42,561)	-25.49%
Information Technology	**E**	816,626	680,522	1,142,033	(461,511)	-67.82%
Supplies		39,950	33,292	36,962	(3,670)	-11.02%
Operations & Maintenance	**A, G**	5,222,531	4,352,109	5,150,789	(798,680)	-18.35%
Equipment Purchases		420,100	350,083	208,018	142,066	40.58%
Depreciation		900,000	750,000	750,000	-	0.00%
Total Operating Expenses		**$ 22,151,636**	**$ 18,459,697**	**$ 20,236,539**	**$ (1,776,843)**	**-9.63%**
Operating Surplus/(Deficit)		**$ (5)**	**$ (4)**	**$ (1,047,828)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 19,522,929	$ 16,269,108	$ 16,269,110	$ 3	0.00%
Septage Receiving Support - County	**A**	109,440	91,200	109,440	18,240	20.00%
Buck Mountain Lease Revenue		1,600	1,333	6,101	4,767	357.55%
Trust Fund Interest		990	825	159,761	158,936	19265.02%
Reserve Fund Interest		64,230	53,525	788,090	734,565	1372.38%
Total Debt Service Revenues		**$ 19,699,189**	**$ 16,415,991**	**$ 17,332,502**	**$ 916,511**	**5.58%**
Debt Service Costs						
Total Principal & Interest		$ 16,165,241	$ 13,471,034	$ 13,471,034	$ -	0.00%
Reserve Additions-Interest		64,230	53,525	788,090	(734,565)	-1372.38%
Debt Service Ratio Charge		725,000	604,167	604,167	-	0.00%
Reserve Additions-CIP Growth		2,744,717	2,287,264	2,287,264	-	0.00%
Total Debt Service Costs		**$ 19,699,188**	**$ 16,415,990**	**$ 17,150,555**	**$ (734,565)**	**-4.47%**
Debt Service Surplus/(Deficit)		**$ 1**	**$ 1**	**$ 181,947**		

Summary

Total Revenues	$ 41,850,820	$ 34,875,683	$ 36,521,213	$ 1,645,530	4.72%
Total Expenses	41,850,824	34,875,687	37,387,094	(2,511,408)	-7.20%
Surplus/(Deficit)	**$ (4)**	**$ (3)**	**$ (865,881)**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 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	$ 7,512,386	$ 7,447,539	$ (64,847)	-0.86%
Lease Revenue		60,000	50,000	73,507	23,507	47.01%
Miscellaneous		-	-	6,405	6,405	
Use of Reserves-GAC		150,000	125,000	150,000	25,000	20.00%
Interest Allocation		3,000	2,500	46,543	44,043	1761.71%
Total Operating Revenues		**$ 9,227,863**	**$ 7,689,886**	**$ 7,723,994**	**$ 34,108**	**0.44%**
Expenses						
Personnel Cost	**B**	$ 2,234,714	$ 1,862,262	$ 1,872,056	$ (9,795)	-0.53%
Professional Services		222,000	185,000	139,517	45,483	24.59%
Other Services & Charges	**A, D**	716,300	596,917	684,651	(87,734)	-14.70%
Communications		100,920	84,100	83,691	409	0.49%
Information Technology		104,950	87,458	89,535	(2,077)	-2.37%
Supplies		5,400	4,500	6,507	(2,007)	-44.60%
Operations & Maintenance	**G**	2,511,396	2,092,830	2,385,041	(292,211)	-13.96%
Equipment Purchases		16,000	13,333	16,691	(3,358)	-25.18%
Depreciation		300,000	250,000	250,000	-	0.00%
Subtotal Before Allocations		$ 6,211,680	$ 5,176,400	$ 5,527,688	$ (351,288)	-6.79%
Allocation of Support Departments		3,016,183	2,513,486	2,629,678	(116,192)	-4.62%
Total Operating Expenses		**$ 9,227,863**	**$ 7,689,886**	**$ 8,157,366**	**$ (467,480)**	**-6.08%**
Operating Surplus/(Deficit)		**$ (0)**	**$ (0)**	**$ (433,372)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 8,302,224	$ 6,918,520	$ 6,918,520	$ -	0.00%
Trust Fund Interest		400	333	58,473	58,139	17441.80%
Reserve Fund Interest		31,000	25,833	382,223	356,390	1379.57%
Lease Revenue		1,600	1,333	6,101	4,767	357.55%
Total Debt Service Revenues		**$ 8,335,224**	**$ 6,946,020**	**$ 7,365,317**	**$ 419,297**	**6.04%**
Debt Service Costs						
Total Principal & Interest		$ 6,964,724	$ 5,803,937	$ 5,803,937	$ -	0.00%
Reserve Additions-Interest		31,000	25,833	382,223	(356,390)	-1379.57%
Debt Service Ratio Charge		400,000	333,333	333,333	-	0.00%
Reserve Additions-CIP Growth		939,500	782,917	782,917	-	0.00%
Total Debt Service Costs		**$ 8,335,224**	**$ 6,946,020**	**$ 7,302,410**	**$ (356,390)**	**-5.13%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 62,907**		
Rate Center Summary						
Total Revenues		$ 17,563,087	$ 14,635,906	$ 15,089,311	$ 453,405	3.10%
Total Expenses		17,563,087	14,635,906	15,459,776	(823,870)	-5.63%
Surplus/(Deficit)		**$ (0)**	**$ (0)**	**$ (370,465)**		
Costs per 1000 Gallons		$ 2.72		$ 2.91		
Operating and DS		$ 5.17		$ 5.51		
Thousand Gallons Treated		3,397,700	2,831,417	2,807,214	(24,203)	-0.85%
or						
Flow (MGD)		9.309		9.234		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 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	$ 997,570	$ 997,570	$ -	0.00%
Lease Revenues		25,000	20,833	27,525	6,692	32.12%
Interest Allocation		400	333	6,296	5,962	1788.68%
Total Operating Revenues		**$ 1,222,484**	**$ 1,018,737**	**$ 1,031,391**	**$ 12,654**	**1.24%**
Expenses						
Personnel Cost		$ 352,559	$ 293,799	$ 297,415	$ (3,616)	-1.23%
Professional Services	C	22,900	19,083	39,991	(20,908)	-109.56%
Other Services & Charges	D	118,700	98,917	118,240	(19,324)	-19.54%
Communications		17,600	14,667	16,293	(1,626)	-11.09%
Information Technology		4,950	4,125	8,863	(4,738)	-114.87%
Supplies		1,500	1,250	939	311	24.85%
Operations & Maintenance	G	358,500	298,750	316,000	(17,250)	-5.77%
Equipment Purchases		3,000	2,500	3,235	(735)	-29.41%
Depreciation		60,000	50,000	50,000	-	0.00%
Subtotal Before Allocations		$ 939,709	$ 783,091	$ 850,977	$ (67,886)	-8.67%
Allocation of Support Departments		282,780	235,650	245,719	(10,069)	-4.27%
Total Operating Expenses		**$ 1,222,489**	**$ 1,018,741**	**$ 1,096,696**	**$ (77,955)**	**-7.65%**
Operating Surplus/(Deficit)		**$ (5)**	**$ (4)**	**$ (65,306)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 2,161,704	$ 1,801,420	$ 1,801,420	$ -	0.00%
Trust Fund Interest		80	67	13,580	13,513	20269.55%
Reserve Fund Interest		1,200	1,000	14,974	13,974	1397.37%
Total Debt Service Revenues		**$ 2,162,984**	**$ 1,802,487**	**$ 1,829,973**	**$ 27,487**	**1.52%**
Debt Service Costs						
Total Principal & Interest		$ 1,217,280	$ 1,014,400	$ 1,014,400	$ -	0.00%
Reserve Additions-Interest		1,200	1,000	14,974	(13,974)	-1397.37%
Reserve Additions-CIP Growth		944,500	787,083	787,083	-	0.00%
Total Debt Service Costs		**$ 2,162,980**	**$ 1,802,483**	**$ 1,816,457**	**$ (13,974)**	**-0.78%**
Debt Service Surplus/(Deficit)		**$ 4**	**$ 3**	**$ 13,516**		

Rate Center Summary

Total Revenues	$ 3,385,468	$ 2,821,223	$ 2,861,364	$ 40,141	1.42%
Total Expenses	3,385,469	2,821,224	2,913,153	(91,929)	-3.26%
Surplus/(Deficit)	**$ (1)**	**$ (1)**	**$ (51,789)**		
Costs per 1000 Gallons	$ 6.03		$ 6.14		
Operating and DS	$ 16.70		$ 16.32		
Thousand Gallons Treated	202,697	168,914	178,551	9,637	5.71%
Flow (MGD)	0.555		0.587		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 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	$ 474,630	$ 474,630	$ -	0.00%
Interest Allocation		200	167	2,923	2,756	1653.79%
Total Operating Revenues		**$ 569,756**	**$ 474,797**	**$ 477,553**	**$ 2,756**	**0.58%**
Expenses						
Personnel Cost		$ 212,797	$ 177,331	$ 181,253	$ (3,922)	-2.21%
Professional Services		5,000	4,167	8,728	(4,561)	-109.47%
Other Services & Charges	D	27,100	22,583	33,590	(11,007)	-48.74%
Communications		6,400	5,333	5,846	(512)	-9.61%
Information Technology		4,400	3,667	6,994	(3,327)	-90.74%
Supplies		100	83	138	(54)	-65.02%
Operations & Maintenance	G	97,925	81,604	105,728	(24,124)	-29.56%
Equipment Purchases		1,600	1,333	2,580	(1,246)	-93.48%
Depreciation		40,000	33,333	33,333	0	0.00%
Subtotal Before Allocations		$ 395,322	$ 329,435	$ 378,189	$ (48,754)	-14.80%
Allocation of Support Departments		174,433	145,361	148,460	(3,099)	-2.13%
Total Operating Expenses		**$ 569,755**	**$ 474,796**	**$ 526,649**	**$ (51,852)**	**-10.92%**
Operating Surplus/(Deficit)		**$ 1**	**$ 1**	**$ (49,096)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 150,300	$ 125,250	$ 125,250	$ -	0.00%
Trust Fund Interest		10	8	1,438	1,430	17154.20%
Reserve Fund Interest		850	708	10,245	9,537	1346.37%
Total Debt Service Revenues		**$ 151,160**	**$ 125,967**	**$ 136,933**	**$ 10,966**	**8.71%**
Debt Service Costs						
Total Principal & Interest		$ 148,726	$ 123,938	$ 123,938	$ -	0.00%
Reserve Additions-Interest		850	708	10,245	(9,537)	
Reserve Additions-CIP Growth		1,589	1,324	1,324	-	
Total Debt Service Costs		**$ 151,165**	**$ 125,971**	**$ 135,508**	**$ (9,537)**	**-7.57%**
Debt Service Surplus/(Deficit)		**$ (5)**	**$ (4)**	**$ 1,425**		

Rate Center Summary

Total Revenues	$ 720,916	$ 600,763	$ 614,486	$ 13,723	2.28%
Total Expenses	720,920	600,767	662,156	(61,389)	-10.22%
Surplus/(Deficit)	**$ (4)**	**$ (4)**	**$ (47,670)**		
Costs per 1000 Gallons	$ 33.07		$ 32.68		
Operating and DS	$ 41.84		$ 41.09		
Thousand Gallons Treated	17,230	14,358	16,116	1,758	12.24%
or					
Flow (MGD)	0.047		0.053		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 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	$ 7,528,052	$ 8,078,335	$ 550,283	7.31%
Stone Robinson WWTP		39,036	32,530	16,035	(16,495)	-50.71%
Septage Acceptance		500,000	416,667	493,601	76,935	18.46%
Nutrient Credits		100,000	83,333	39,129	(44,205)	-53.05%
Miscellaneous Revenue		-	-	-	-	
Interest Allocation		3,300	2,750	52,389	49,639	1805.04%
Total Operating Revenues		**$ 9,675,998**	**$ 8,063,332**	**$ 8,679,488**	**$ 616,156**	**7.64%**
Expenses						
Personnel Cost	**B**	$ 1,325,384	$ 1,104,486	$ 1,236,134	$ (131,647)	-11.92%
Professional Services	**C**	75,000	62,500	137,817	(75,317)	-120.51%
Other Services & Charges	**A, D**	2,276,980	1,897,483	2,187,147	(289,664)	-15.27%
Communications		1,900	1,583	10,895	(9,312)	-588.12%
Information Technology	**E**	110,400	92,000	151,843	(59,843)	-65.05%
Supplies		1,200	1,000	762	238	23.81%
Operations & Maintenance	**A, G**	1,698,660	1,415,550	1,904,067	(488,517)	-34.51%
Equipment Purchases		143,000	119,167	41,667	77,500	65.03%
Depreciation		470,000	391,667	391,667	(0)	0.00%
Subtotal Before Allocations		$ 6,102,524	$ 5,085,436	$ 6,061,998	$ (976,562)	-19.20%
Allocation of Support Departments		3,573,476	2,977,896	3,088,013	(110,116)	-3.70%
Total Operating Expenses		**$ 9,675,999**	**$ 8,063,333**	**$ 9,150,010**	**$ (1,086,678)**	**-13.48%**
Operating Surplus/(Deficit)		**$ (1)**	**$ (1)**	**$ (470,522)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 8,878,107	$ 7,398,423	$ 7,398,420	$ (3)	0.00%
Septage Receiving Support - County	**A**	109,440	91,200	109,440	18,240	20.00%
Trust Fund Interest		500	417	86,111	85,695	20566.74%
Reserve Fund Interest		31,000	25,833	378,283	352,450	1364.32%
Total Debt Service Revenues		**$ 9,019,047**	**$ 7,515,873**	**$ 7,972,254**	**$ 456,382**	**6.07%**
Debt Service Costs						
Total Principal & Interest		$ 7,808,347	$ 6,506,956	$ 6,506,956	$ -	0.00%
Reserve Additions-Interest		31,000	25,833	378,283	(352,450)	-1364.32%
Debt Service Ratio Charge		325,000	270,833	270,833	-	0.00%
Reserve Additions-CIP Growth		854,700	712,250	712,250	-	0.00%
Total Debt Service Costs		**$ 9,019,047**	**$ 7,515,873**	**$ 7,868,322**	**$ (352,450)**	**-4.69%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 103,932**		
Rate Center Summary						
Total Revenues		$ 18,695,045	$ 15,579,204	$ 16,651,743	$ 1,072,538	6.88%
Total Expenses		18,695,046	15,579,205	17,018,333	(1,439,128)	-9.24%
Surplus/(Deficit)		**$ (1)**	**$ (1)**	**$ (366,590)**		
Costs per 1000 Gallons		$ 2.85		$ 3.02		
Operating and DS		$ 5.51		$ 5.61		
Thousand Gallons Treated		3,390,400	2,825,333	3,032,408	207,075	7.33%
or						
Flow (MGD)		9.289		9.975		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 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	$ 369,700	$ 369,700	$ -	0.00%
Interest Allocation		150	125	2,361	2,236	1788.70%
Total Operating Revenues		**$ 443,790**	**$ 369,825**	**$ 372,061**	**$ 2,236**	**0.60%**
Expenses						
Personnel Cost	**B**	$ 115,815	$ 96,513	$ 108,358	$ (11,845)	-12.27%
Professional Services	**C**	5,000	4,167	20,082	(15,915)	-381.96%
Other Services & Charges		35,750	29,792	31,926	(2,135)	-7.17%
Communications		-	-	2,936	(2,936)	
Information Technology		4,425	3,688	10,383	(6,695)	-181.57%
Supplies		-	-	-	-	
Operations & Maintenance		134,950	112,458	94,223	18,236	16.22%
Equipment Purchases		3,800	3,167	3,167	(0)	0.00%
Depreciation		10,000	8,333	8,333	0	0.00%
Subtotal Before Allocations		$ 309,740	$ 258,117	$ 279,408	$ (21,291)	-8.25%
Allocation of Support Departments		134,045	111,704	110,638	1,066	0.95%
Total Operating Expenses		**$ 443,785**	**$ 369,821**	**$ 390,046**	**$ (20,225)**	**-5.47%**
Operating Surplus/(Deficit)		**$ 5**	**$ 4**	**$ (17,985)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 20,484	$ 17,070	$ 17,070	$ -	0.00%
Trust Fund Interest		-	-	-	-	
Reserve Fund Interest		80	67	788	721	1082.06%
Total Debt Service Revenues		**$ 20,564**	**$ 17,137**	**$ 17,858**	**$ -**	**0.00%**
Debt Service Costs						
Total Principal & Interest		$ 18,717	$ 15,598	$ 15,598	$ -	0.00%
Reserve Additions-CIP Growth		1,761	1,468	1,468	-	0.00%
Reserve Additions-Interest		80	67	788	(721)	-1082.06%
Total Debt Service Costs		**$ 20,558**	**$ 17,132**	**$ 17,853**	**$ (721)**	**-4.21%**
Debt Service Surplus/(Deficit)		**$ 6**	**$ 5**	**$ 5**		

Rate Center Summary

Total Revenues	$ 464,354	$ 386,962	$ 389,919	$ 2,957	0.76%
Total Expenses	464,343	386,952	407,899	(20,947)	-5.41%
Surplus/(Deficit)	**$ 11**	**$ 9**	**$ (17,980)**		
Costs per 1000 Gallons	$ 10.72		$ 11.75		
Operating and DS	$ 11.22		$ 12.28		
Thousand Gallons Treated	41,401	34,501	33,207	(1,294)	**-3.75%**
or					
Flow (MGD)	0.113		0.109		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2023

Scottsville Wastewater 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		$ 355,620	$ 296,350	$ 296,350	$ -	0.00%
Interest Allocation		120	100	1,911	1,811	1811.19%
Total Operating Revenues		**$ 355,740**	**$ 296,450**	**$ 298,261**	**$ 1,811**	**0.61%**
Expenses						
Personnel Cost	**B**	$ 115,795	$ 96,496	$ 108,358	$ (11,862)	-12.29%
Professional Services		5,000	4,167	3,053	1,113	26.72%
Other Services & Charges		26,650	22,208	25,367	(3,159)	-14.22%
Communications		3,770	3,142	3,131	10	0.33%
Information Technology	**E**	4,125	3,438	14,073	(10,636)	-309.41%
Supplies		-	-	-	-	
Operations & Maintenance		52,000	43,333	32,668	10,665	24.61%
Equipment Purchases		3,800	3,167	3,167	(0)	0.00%
Depreciation		20,000	16,667	16,667	(0)	0.00%
Subtotal Before Allocations		$ 231,140	$ 192,617	$ 206,484	$ (13,867)	-7.20%
Allocation of Support Departments		124,604	103,836	103,324	512	0.49%
Total Operating Expenses		**$ 355,744**	**$ 296,453**	**$ 309,808**	**$ (13,355)**	**-4.50%**
Operating Surplus/(Deficit)		**$ (4)**	**$ (3)**	**$ (11,547)**		

Debt Service Budget vs. Actual

	Budget FY 2023	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 10,110	$ 8,425	$ 8,430	$ 5	0.06%
Trust Fund Interest	-	-	160	160	
Reserve Fund Interest	100	83	1,576	1,493	1791.57%
Total Debt Service Revenues	**$ 10,210**	**$ 8,508**	**$ 10,166**	**$ 1,658**	**19.48%**
Debt Service Costs					
Total Principal & Interest	$ 7,447	$ 6,206	$ 6,206	$ -	0.00%
Reserve Additions-Interest	100	83	1,576	(1,493)	-1791.57%
Estimated New Principal & Interest	2,667	2,223	2,223	-	0.00%
Total Debt Service Costs	**$ 10,214**	**$ 8,512**	**$ 10,005**	**$ (1,493)**	**-17.54%**
Debt Service Surplus/(Deficit)	**$ (4)**	**$ (3)**	**$ 161**		

Rate Center Summary

	Budget FY 2023	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 365,950	$ 304,958	$ 308,427	$ 3,469	1.14%
Total Expenses	365,958	304,965	319,813	(14,848)	-4.87%
Surplus/(Deficit)	**$ (8)**	**$ (7)**	**$ (11,386)**		
Costs per 1000 Gallons	$ 15.05		$ 18.69		
Operating and DS	$ 15.48		$ 19.29		
Thousand Gallons Treated	23,643	19,703	16,580	(3,123)	**-15.85%**
or					
Flow (MGD)	0.065		0.055		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 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	$ 545,000	$ 560,000	$ 15,000	2.75%
Bond Proceeeds Funding Bond Issuance Costs		-	-	-	-	
Miscellaneous Revenue		2,000	1,667	9,740	8,073	484.41%
Total Operating Revenues		**$ 656,000**	**$ 546,667**	**$ 569,740**	**$ 23,073**	**4.22%**
Expenses						
Personnel Cost		$ 2,450,092	$ 2,041,744	$ 2,023,264	$ 18,480	0.91%
Professional Services	**C**	170,000	141,667	240,090	(98,424)	-69.48%
Other Services & Charges		162,600	135,500	119,425	16,075	11.86%
Communications	**F**	24,780	20,650	65,567	(44,917)	-217.51%
Information Technology	**E**	404,876	337,397	735,463	(398,066)	-117.98%
Supplies		23,000	19,167	23,330	(4,163)	-21.72%
Operations & Maintenance		67,850	56,542	53,000	3,542	6.26%
Equipment Purchases		13,100	10,917	10,917	(0)	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 3,316,298**	**$ 2,763,582**	**$ 3,271,055**	**$ (507,473)**	**-18.36%**

Department Summary

Net Costs Allocable to Rate Centers	**$ (2,660,298)**	**$ (2,216,915)**	**$ (2,701,315)**	**$ 484,400**	**-21.85%**
Allocations to the Rate Centers					
Urban Water 44.00%	**$ 1,170,531**	**$ 975,443**	**$ 1,188,578**	**$ (213,136)**	
Crozet Water 4.00%	**$ 106,412**	**88,677**	**108,053**	**(19,376)**	
Scottsville Water 2.00%	**$ 53,206**	**44,338**	**54,026**	**(9,688)**	
Urban Wastewater 48.00%	**$ 1,276,943**	**1,064,119**	**1,296,631**	**(232,512)**	
Glenmore Wastewater 1.00%	**$ 26,603**	**22,169**	**27,013**	**(4,844)**	
Scottsville Wastewater 1.00%	**$ 26,603**	**22,169**	**27,013**	**(4,844)**	
100.00%	**$ 2,660,298**	**$ 2,216,915**	**$ 2,701,315**	**$ (484,400)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 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	$ 1,231,305	$ 1,181,858	$ 49,447	4.02%
Professional Services		-	-	4,207	(4,207)	
Other Services & Charges		33,600	28,000	13,676	14,324	51.16%
Communications		24,500	20,417	12,435	7,982	39.10%
Information Technology		32,500	27,083	19,890	7,194	26.56%
Supplies		2,500	2,083	657	1,426	68.44%
Operations & Maintenance	G	104,900	87,417	125,144	(37,727)	-43.16%
Equipment Purchases		212,600	177,167	107,167	70,000	39.51%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,888,165**	**$ 1,573,471**	**$ 1,465,034**	**$ 108,437**	**6.89%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,888,165)**	**$ (1,573,471)**	**$ (1,462,872)**	**$ (106,276)**	**6.75%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 566,450**	**$ 472,041**	**$ 438,862**	**$ 33,180**	
Crozet Water	3.50%	**66,086**	**55,071**	**51,201**	**3,871**	
Scottsville Water	3.50%	**66,086**	**55,071**	**51,201**	**3,871**	
Urban Wastewater	56.50%	**1,066,814**	**889,011**	**826,523**	**62,488**	
Glenmore Wastewater	3.50%	**66,086**	**55,071**	**51,201**	**3,871**	
Scottsville Wastewater	3.00%	**56,645**	**47,204**	**43,886**	**3,318**	
	100.00%	**$ 1,888,165**	**$ 1,573,471**	**$ 1,462,872**	**$ 110,599**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 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	$ 346,104	$ 345,449	$ 655	0.19%
Professional Services		-	-	-	-	
Other Services & Charges		11,780	9,817	6,232	3,585	36.52%
Communications		1,700	1,417	819	598	42.21%
Information Technology		1,000	833	1,165	(331)	-39.76%
Supplies		1,250	1,042	1,267	(225)	-21.60%
Operations & Maintenance		121,050	100,875	101,397	(522)	-0.52%
Equipment Purchases		1,700	1,417	1,512	(95)	-6.71%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 553,804**	**$ 461,504**	**$ 457,839**	**$ 3,664**	**0.79%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (553,804)**	**$ (461,504)**	**$ (457,839)**	**$ (3,664)**	**0.79%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 243,674**	**$ 203,062**	**$ 201,449**	**$ 1,612**	
Crozet Water	4.00%	**22,152**	**18,460**	**18,314**	**147**	
Scottsville Water	2.00%	**11,076**	**9,230**	**9,157**	**73**	
Urban Wastewater	47.00%	**260,288**	**216,907**	**215,185**	**1,722**	
Glenmore Wastewater	1.50%	**8,307**	**6,923**	**6,868**	**55**	
Scottsville Wastewater	1.50%	**8,307**	**6,923**	**6,868**	**55**	
	100.00%	**$ 553,804**	**$ 461,504**	**$ 457,839**	**$ 3,664**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2023

Engineering

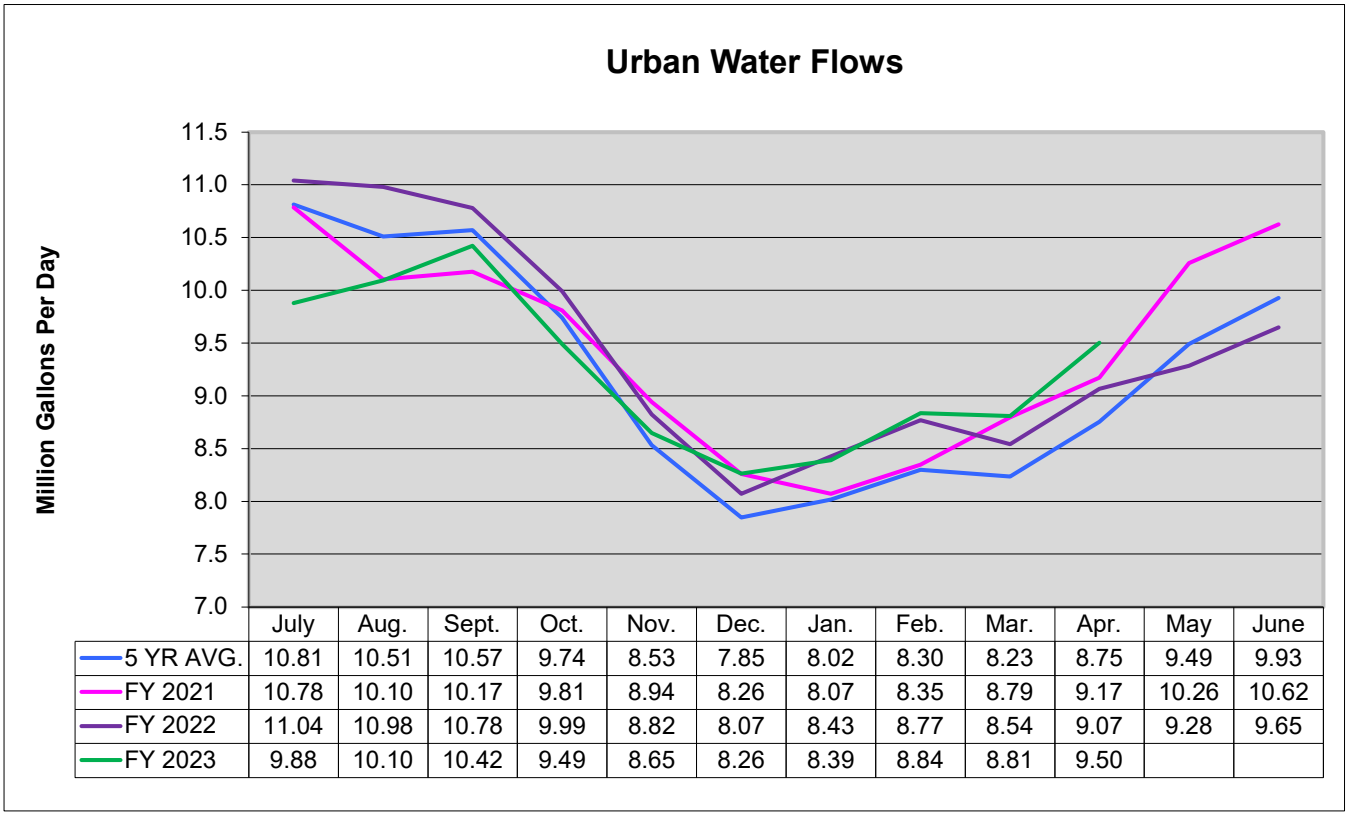
Operating Budget vs. Actual

	Notes	*Budget FY 2023*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ 34,062	$ 34,062	
Total Operating Revenues		**$ -**	**$ -**	**$ 34,062**	**$ 34,062**	
Expenses						
Personnel Cost	**B**	$ 1,794,680	$ 1,495,567	$ 1,520,744	$ (25,177)	-1.68%
Professional Services		125,000	104,167	43,199	60,968	58.53%
Other Services & Charges		18,000	15,000	7,399	7,601	50.67%
Communications		18,772	15,643	7,900	7,743	49.50%
Information Technology		145,000	120,833	103,824	17,009	14.08%
Supplies		5,000	4,167	3,362	804	19.30%
Operations & Maintenance		75,300	62,750	33,522	29,228	46.58%
Equipment Purchases		21,500	17,917	17,917	0	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,203,252**	**$ 1,836,043**	**$ 1,737,867**	**$ 98,176**	**5.35%**

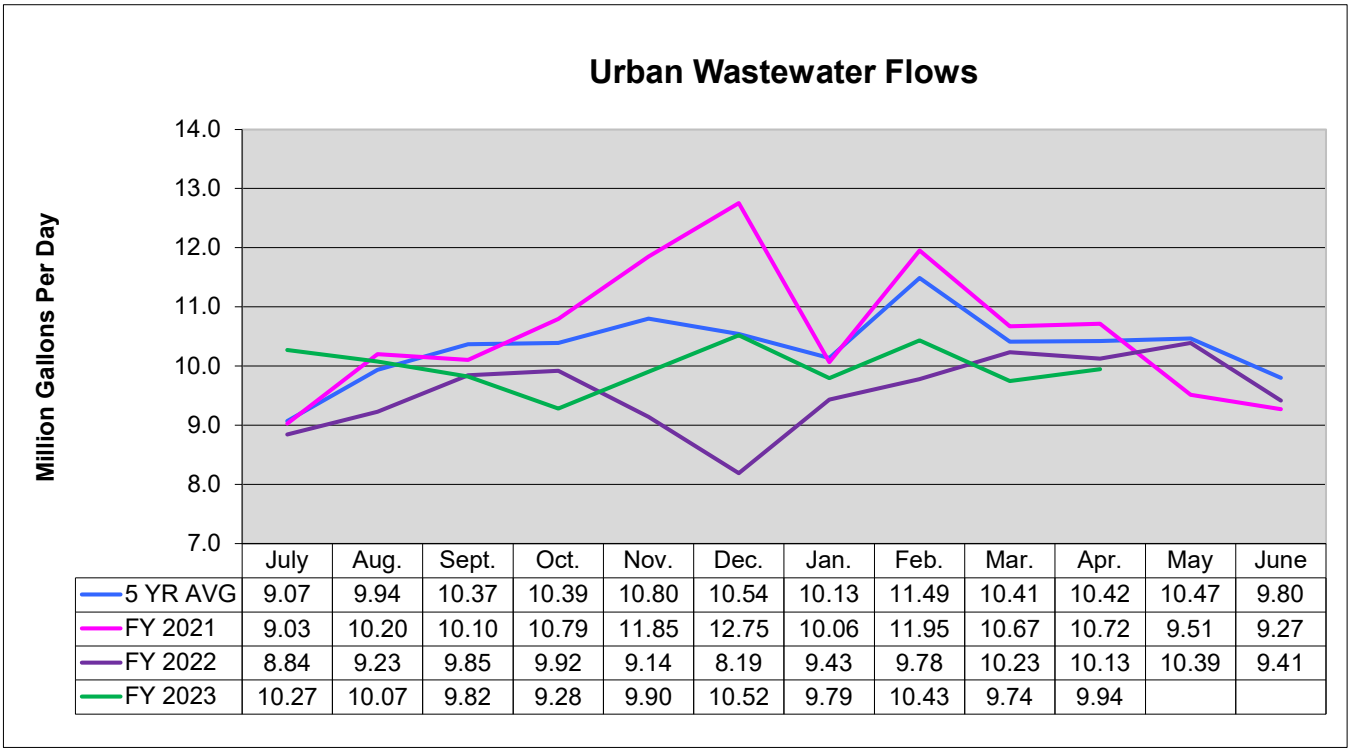
Department Summary

Net Costs Allocable to Rate Centers		**$ (2,203,252)**	**$ (1,836,043)**	**$ (1,703,805)**	**$ (64,114)**	**3.49%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 1,035,528**	**$ 862,940**	**$ 800,788**	**$ 62,152**	
Crozet Water	4.00%	**88,130**	**73,442**	**68,152**	**5,290**	
Scottsville Water	2.00%	**44,065**	**36,721**	**34,076**	**2,645**	
Urban Wastewater	44.00%	**969,431**	**807,859**	**749,674**	**58,185**	
Glenmore Wastewater	1.50%	**33,049**	**27,541**	**25,557**	**1,984**	
Scottsville Wastewater	1.50%	**33,049**	**27,541**	**25,557**	**1,984**	
	100.00%	**$ 2,203,252**	**$ 1,836,043**	**$ 1,703,805**	**$ 132,239**	

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	9.50		



	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	9.94		

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

MEMORANDUM

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

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

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

SUBJECT: **OPERATIONS REPORT FOR MAY 2023**

DATE: **JUNE 27, 2023**

WATER OPERATIONS:

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

Water Treatment Plant	*Average Daily Production (MGD)*	*Maximum Daily Production in the Month (MGD)*
South Rivanna	8.34	9.18 (5/3/2023)
Observatory	0.70	1.42 (5/23/2023)
North Rivanna	0.46	0.57 (5/15/2023)
Urban Total	9.50	10.43 (5/11/2023)
Crozet	0.63	0.73 (5/22/2023)
Scottsville	0.05	0.075 (5/7/2023)
Red Hill	0.0023	0.004 (5/24/2023)
RWSA Total	10.18	-

- All RWSA water treatment facilities were in regulatory compliance during the month of May.
- 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 June 21, 2023):

- Urban Reservoirs are 98% of Total Useable Capacity
  - Ragged Mountain Reservoir is 97% full
  - Sugar Hollow Reservoir is 100% full
  - South Rivanna Reservoir is 100% full
- Beaver Creek Reservoir (Crozet) is 99% 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 May 2023. Performance of the WRRFs in May 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	9.46	<QL	9	<QL	22	<QL	2.2
Glenmore	0.119	2.8	15	4.0	30	NR	NL
Scottsville	0.05	2.4	25	5.8	30	NR	NL
Stone Robinson	0.003	2.0	30	1.9	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 May 2023.

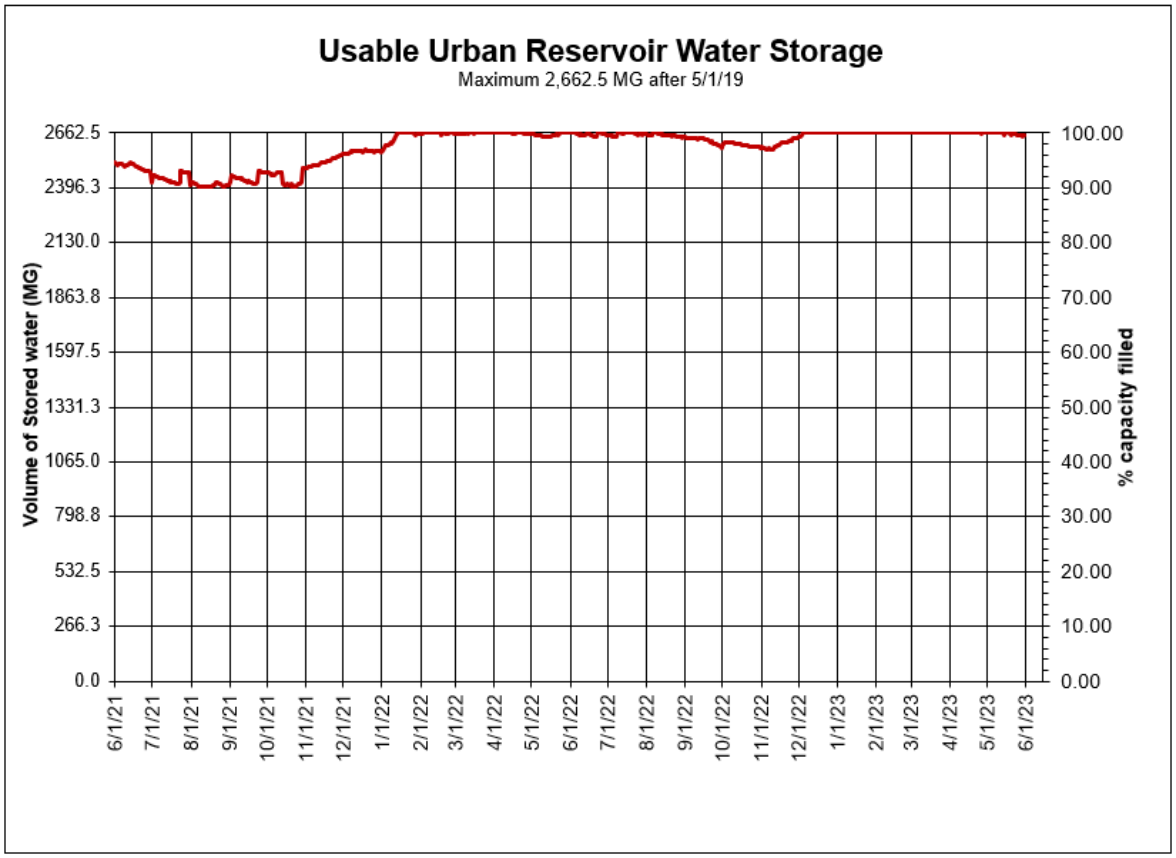
State Annual Allocation (lb./yr.) Permit		*Average Monthly Allocation (lb./mo.) **	*Moores Creek Discharge May (lb./mo.)*	*Performance as % of monthly average Allocation**	*Year to Date Performance as % of annual allocation*
Nitrogen	282,994	23,583	8,088	34%	16%
Phosphorous	18,525	1,544	502	33%	9%

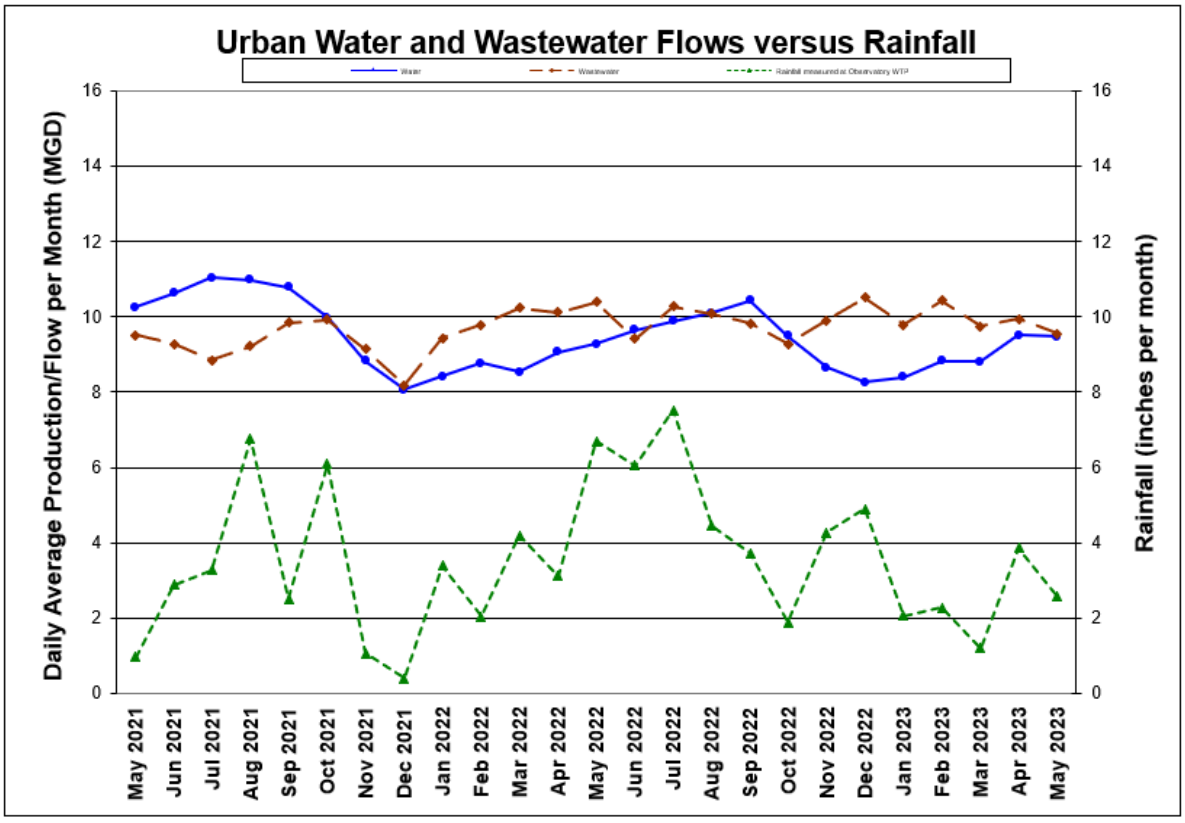
*State allocations are expressed as annual amounts. One-twelfth of that allocation is an internal monthly benchmark for comparative purposes only.

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
6/1/21
7/1/21
8/1/21
9/1/21
10/1/21
11/1/21
12/1/21
1/1/22
2/1/22
3/1/22
4/1/22
5/1/22
6/1/22
7/1/22
8/1/22
9/1/22
10/1/22
11/1/22
12/1/22
1/1/23
2/1/23
3/1/23
4/1/23
5/1/23
6/1/23


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
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
May 2023

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

MEMORANDUM

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

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

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

SUBJECT: **CIP PROJECTS REPORT**

DATE: **JUNE 27, 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/2023/06/2024-2028-CIP-FINAL-DRAFT-1.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	December 2023	December 2025
5	Red Hill Water Treatment Plant Upgrades	September 2023	November 2024
6	Central Water Line	March 2024	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:	88%
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: With the OBWTP back in normal operation, improvements continue including completion of the new Chemical Building, GAC Building Expansion, retaining wall, and lead abatement. Raw water pump improvements and sludge pump improvements continue at SRWTP.

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:	45%
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 erected for the pump station, the generator has been set, and the roof will be installed next. 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:	17%
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 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:	88% Design
Construction Start:	May 2024
Completion:	December 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 in March 2023. 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. Water Protection Ordinance plans were submitted to the County for review 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 has been 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:	40% Design
Construction Start:	June 2024
Completion:	December 2028
Budget:	$41,000,000

Current Status: Delivery of the 60% design documents is anticipated in late June with a 60% design workshop with stakeholders to follow in July. Soil borings and utility test pits along the alignment are anticipated in July and August. RWSA will begin easement acquisition over the next few months.

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: Project is awaiting grant funding approval and processing prior to advertisement. 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 early 2024.

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: The initial site plan submission has been made to the County. The Water Protection Ordinance submission is anticipated to occur in the latter half of June. Departmental reviews will be initiated in June with concentrated efforts made for detailing IT and Laboratory spaces.

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 (70%)
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. 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. The initial site plan was submitted to Albemarle County this month.

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: Mechanical and Electrical disciplines conducted a walkthrough of all facilities on May 24th. Needs assessment work is progressing on schedule. Asbestos and lead abatement surveys will begin in June.

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: Preliminary engineering work is continuing. Subsurface utility engineering investigations will begin in June. 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:	July 2023
Project Status:	Design 5%
Construction Start:	January 2025
Completion:	December 2026
Budget:	$10,350,000

Current Status: Design is underway.

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:	100% NRCS Planning Process
Construction Start:	April 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 Plan-Environmental Assessment for the Beaver Creek Dam spillway upgrades was approved by NRCS in April of 2023. Federal funding from USDA-NRCS has been awarded for final design of the spillway upgrades in the amount of $980,250. Design of the spillway upgrades and of the new Raw Water Pump Station and Intake are anticipated to start this

summer.

15. SFRR to RMR Pipeline, Intake, and Facilities

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

Current Status: Staff continue to work with CSX railroad on the draft permit documents. Topographic survey for the pipeline alignment is underway and nearing completion. Staff will begin design efforts for both the pipeline and intake/pump station this month. Staff is also working on the final phases of the SFRR-RMR Nutrient Analysis, with the necessary equipment needed to complete study efforts scheduled to arrive in the Fall, and final report published in the Winter.

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: A regional coordination meeting to discuss the project was held on May 2, 2023. 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 – 95% Complete AMP Implementation – 42% Complete
Completion:	CMMS Implementation – April 2023 AMP Implementation – 2024
Budget:	$1,180,000

Current Status: Assistance with Cityworks training and implementation continues with the software now in place and work orders being generated. 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, preparation for condition assessments and consequence of failure determination workshops.

18. 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 met this month and discussed all available options to reuse the biogas, with further investigation and analysis forthcoming following the meeting.

19. North Rivanna Water Treatment Plant Decommissioning

Design Engineer:	SEH
Project Start:	July 2019
Project Status:	Work Authorization Development (50%)
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.

20. 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

21. 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. As of June 8th, all work on this project has been completed.
- 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 this 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 the 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 will be utilizing an insertion valve in this location.

22. Security Enhancements

Design Engineer:	Hazen & Sawyer
Construction Contractor:	Security 101 (Richmond, VA)
Construction Start:	March 2020
Percent Complete:	99% (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), August 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. Work is substantially complete, with only programming at SVWRRF remaining. WA6 will include card access installation at RWSA's remote sites, including all dams and pump stations. This work was authorized in August 2022, with completion scheduled for August 2023, due to significant lead times on equipment. 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. As these discussions are ongoing, staff is working on appropriate permitting submittals with Albemarle County.

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. <u>Emmet Street Water Line Betterment</u>

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. <u>Crozet Pump Station Rehabilitation</u>

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. Design of both the pipeline and intake/pump station will start in Summer 2023, as the applicable design work authorizations were approved at the May 2023 Board Meeting. 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.

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 nearly complete 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 better understand the potential water quality impacts at each reservoir and how those can be mitigated.

The study is anticipated to be completed in 4 phases: 1. Analysis and Correlation of Existing Water Quality and Seasonal Weather Data 2. Nutrient Modeling 3. Nutrient Analyzer Integration and Final Report. 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, and is anticipated to be completed in Winter 2023.

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. 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.

19. 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.

20. 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

21. 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.

22. 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
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

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

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

SUBJECT: **WHOLESALE METERING REPORT FOR MAY 2023**

DATE: **JUNE 27, 2023**

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

	Month	***Daily Average***	
City Usage (gal)	137,981,227	4,451,007	**47.0%**
ACSA Usage (gal)	155,793,265	5,025,589	**53.0%**
Total (gal)	**293,774,492**	**9,476,597**	

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 June 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

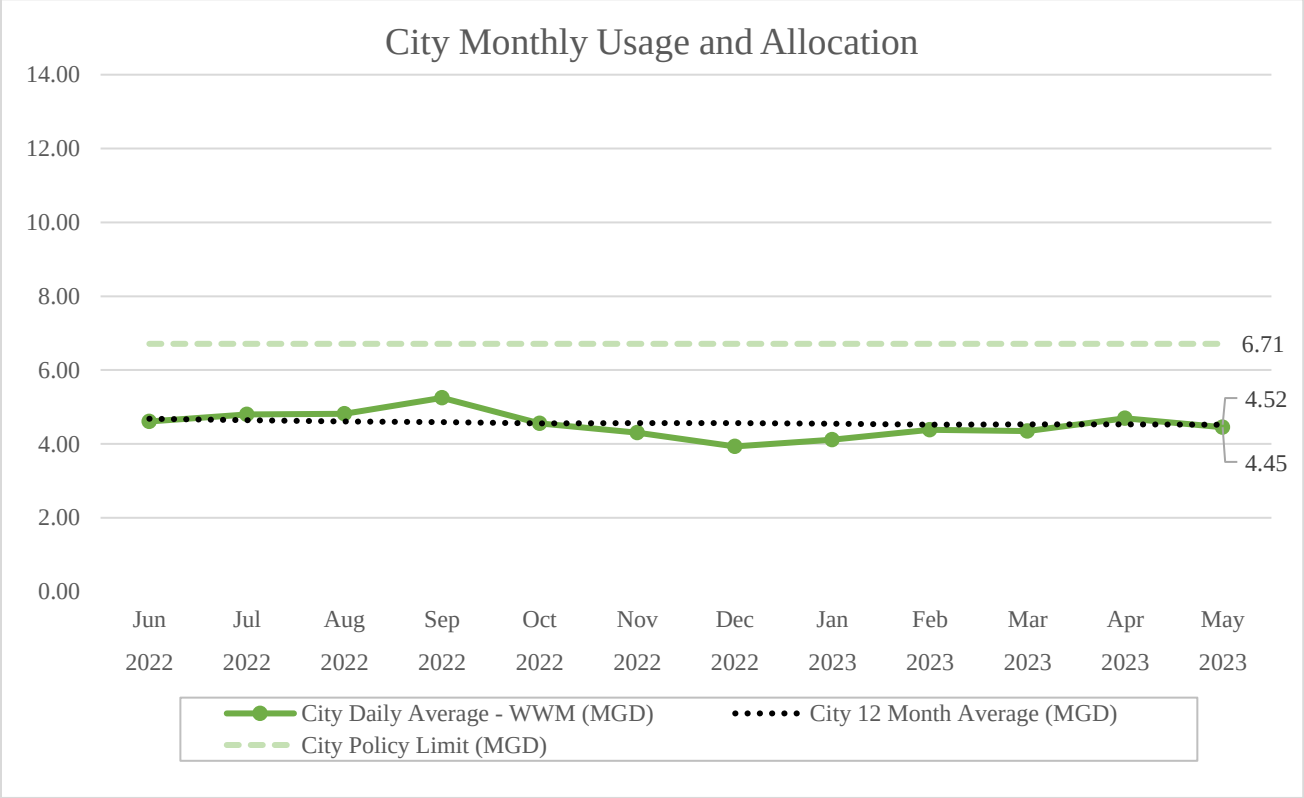
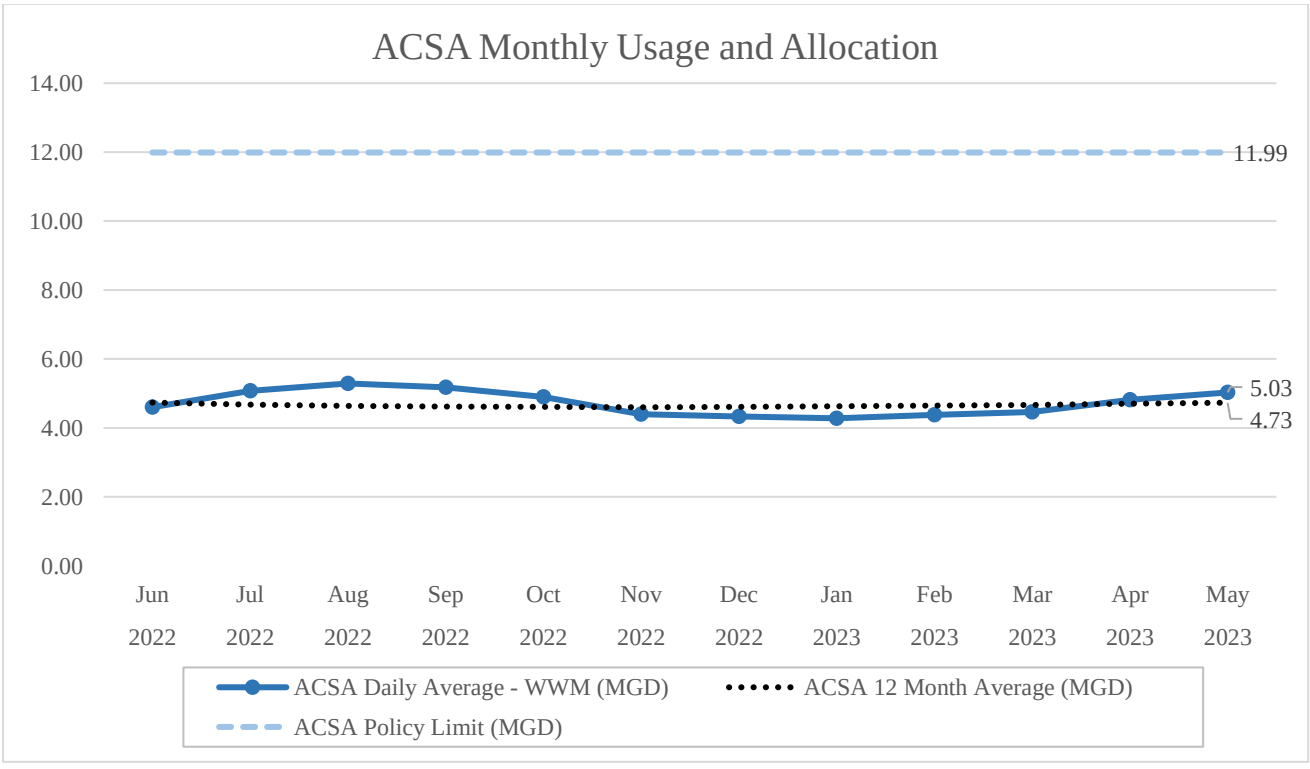


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation



Meter Locations for the Wholesale Water Metering Project

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

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: **JUNE 27, 2023**

Drinking Water Supply and Drought Monitoring, as of June 15, 2023:

A. U.S. Drought Monitoring Report:
   - Albemarle County is experiencing Abnormally Dry conditions through most of the County, with the Western portion along the mountains listed as Moderate Drought.

B. VDEQ Drought Status Report:
   - Our region is listed as being in a "Watch" level for groundwater and streamflows

Precipitation

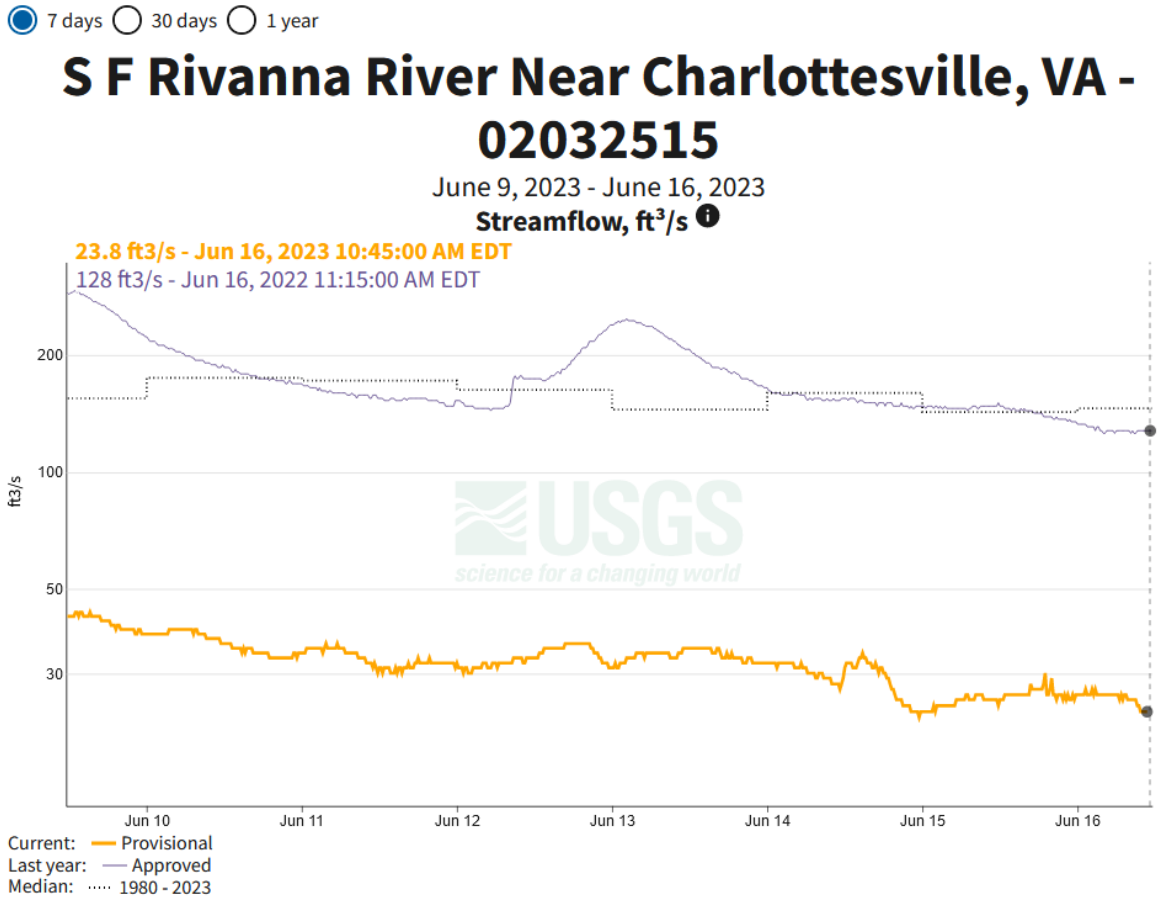
Charlottesville Precipitation				
Year	**Month**	**Observed (in.)**	**Normal (in.)**	**Departure (in.)**
2021	**Total: Jan - Dec**	**33.82**	**41.61**	**-7.79**
2022	**Total: Jan - Dec**	**43.53**	**41.61**	**+1.92**
2023	**Total: Jan - May**	**10.70**	**18.26**	**-7.56**

Source: National Weather Service, National Climatic Data Center.

USGS Gaging Stations Near Urban Area

Rolling 7-day avg: June 9 - 15 2023
Median daily flow: June 15, 2023; for the period of record (approx. 30 - 80 years)

Gage #	Streamflow: rolling 7- day avg		Streamflow: median daily flow	
	cfs	mgd	cfs	mgd
1	20.2	13.05	58	37.48
2	9.4	6.08	33	21.33
3	16.9	10.94	57	36.84
4	31.8	20.53	146	94.36



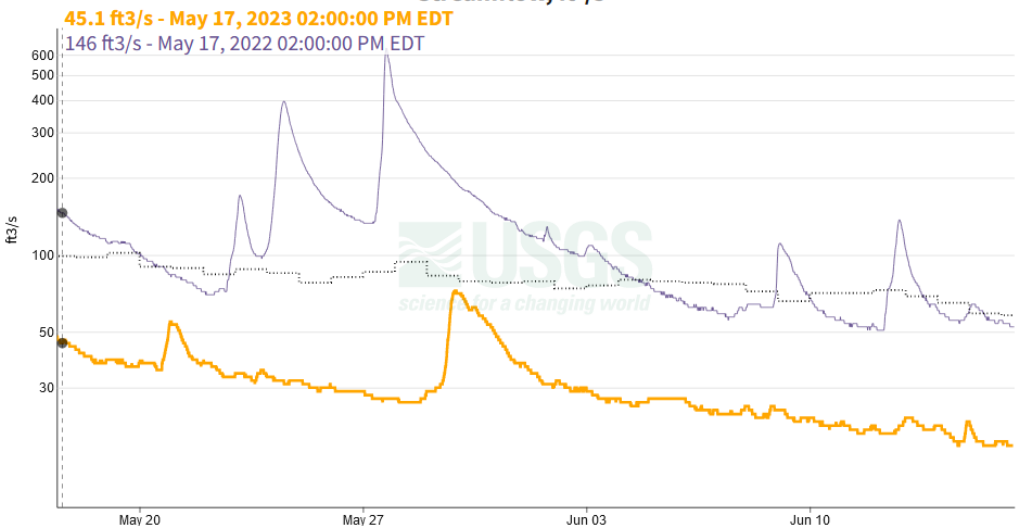
Day	2022 Streamflows		2023 Streamflows		% change
	cfs	mgd	cfs	mgd	
June 9	251	162.21	42.1	27.21	-83
June 10	186	120.21	36.0	23.27	-80
June 11	156	100.82	32.6	21.07	-79
June 12	181	116.98	33.2	21.46	-82
June 13	204	131.84	33.5	21.65	-84
June 14	153	98.88	29.3	18.94	-81
June 15	144	93.06	26.0	16.80	-82

7 days 30 days 1 year

Mechums River Near White Hall, VA - 02031000

May 17, 2023 - June 16, 2023

Streamflow, ft³/s



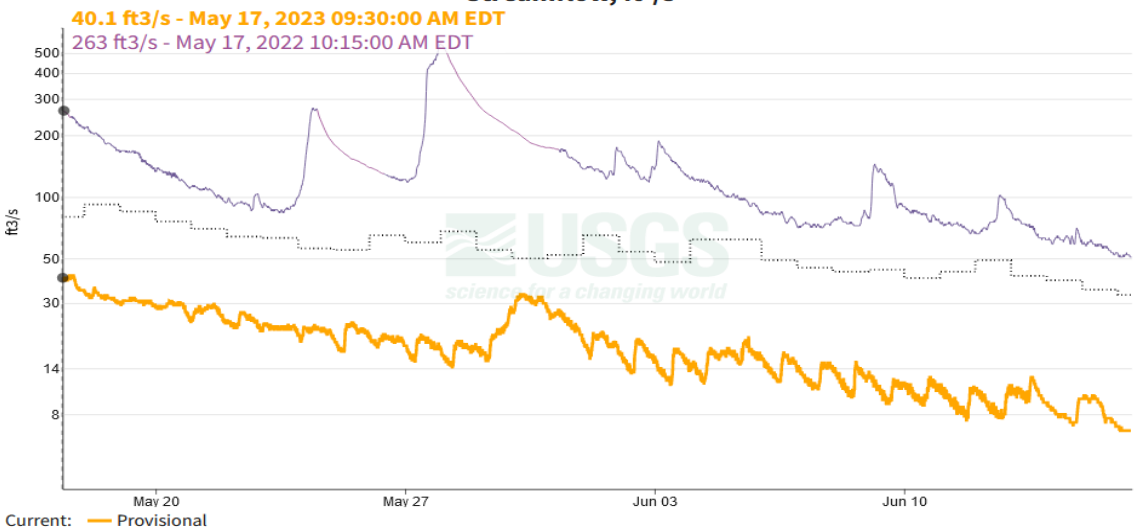
Current: Provisional
Last year: Approved
Median: 1943 - 2023

7 days 30 days 1 year

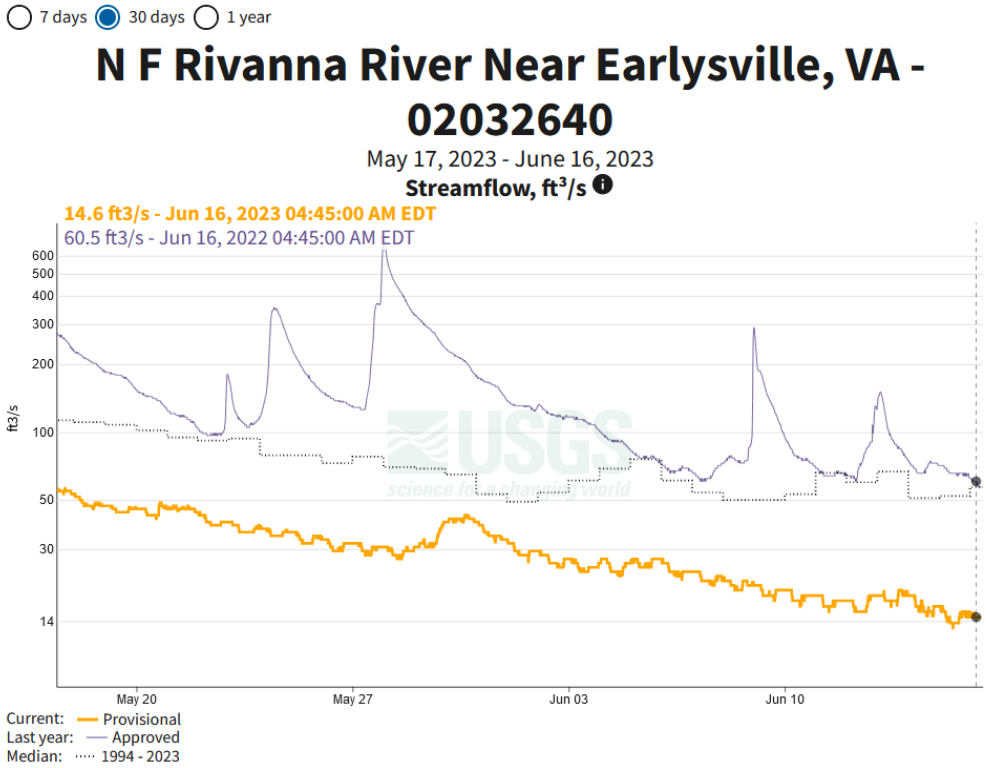
Moormans River Near Free Union, VA - 02032250

May 17, 2023 - June 16, 2023

Streamflow, ft³/s



Current: Provisional
Last year: Estimated Approved
Median: 1980 - 2023



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

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 TERM CONTRACT FOR PROFESSIONAL WATER TREATMENT PLANT ENGINEERING SERVICES (RFP 23-01)**

DATE: **JUNE 27, 2023**

This request is to authorize award of Term Engineering Services Agreements with Hazen and Sawyer (Hazen), Short Elliot Hendrickson (SEH), and Whitman Requardt & Associates (WR&A) to provide Water Treatment Plant Engineering Services and future work authorizations less than $200,000 under the conditions of the Term Agreement. Fees for each work authorization will be negotiated based on the services required and hourly rates from the consultant which have been approved by staff. The term of the contract will be for one year, with the option for three one-year renewals.

Background

RWSA has maintained a water treatment plant engineering services contract for the last ten years. Over the course of those contracts, access to different consulting firms with varying skills, capabilities and resources has been invaluable as treatment plant needs continue to change and advance. As the current contract has expired, RWSA needed to procure these services again to handle services related to various studies, evaluations, operation and maintenance projects, capital improvement projects, and other upgrades or improvements to any of the water treatment plants for on-going and future projects.

A Request for Proposals (RFP 23-01) for a new term contract was developed and advertised on April 13, 2023. Six proposals were received on May 15, 2023. Based on the qualifications of the firms, the RFP selection committee short-listed and scheduled interviews with three firms: Hazen, SEH, and WRA. Interviews were conducted on May 24, 2023, and the committee determined that all three firms were best qualified to provide these services. All three firms have offices in Virginia and have extensive experience working under similar municipal term contracts, with Hazen and SEH both having provided these services for RWSA under the previous contract.

Board Action Requested:
Authorize the Executive Director to execute Professional Engineering Services Term Agreements with Hazen and Sawyer, Short Elliot Hendrickson, and Whitman, Requardt & Associates for Water Treatment Plant Engineering Services and future work authorizations less than $200,000 under the conditions of the Term Agreement.

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

MEMORANDUM

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

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

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

SUBJECT: **APPROVAL OF CAPITAL IMPROVEMENT PLAN BUDGET AMENDMENT – SOUTH FORK RIVANNA RESERVOIR TO RAGGED MOUNTAIN RESERVOIR TO OBSERVATORY WTP WATER LINE RIGHT OF WAY ACQUISITIONS**

DATE: **JUNE 27, 2023**

This request is to authorize an increase in the FY 2023 Capital Budget for the SFRR-RMR-OBWTP Water Line Right of Way Project by $500,000 to a total project budget of $3,240,000.

Background:
The community's approved 50-year Water Supply Plan includes construction of a 36" raw water pipeline from the South Fork Rivanna Reservoir to the Ragged Mountain Reservoir. This new pipeline will replace the Sugar Hollow Pipeline to increase raw water transfer capacity in the Urban Water System. Items completed under this project have included a detailed alignment and location study as well as preliminary design, preparation of easement documents, and consultant support to acquire water line easements along the selected route.

Staff are currently finalizing the last of 19 easements along the alignment. We have an agreement for all acquisitions needed with UVAF, and expect to receive signed documents in July. The only unresolved easement is with UVA in the Fontaine area, and we are working with the University Architect's Office to finalize that location. Through this acquisition process which began in 2017, the value of several easements acquired along the alignment resulted in costs higher than anticipated in the initial estimates, mostly due to changing market conditions/inflation and business impacts anticipated by property owners during construction of the pipeline. Additional funds are required to acquire the final easements for the project and bring this effort to a close. It should be noted that no easement acquisitions have required condemnation proceedings.

Board Action Requested:

Approval of an amendment to the FY 2023 - 2027 Capital Improvement Plan to increase the project budget for the SFRR-RMR-OBWTP Water Line Right of Way Project by $500,000 to a total project budget of $3,240,000.

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 – MOORES CREEK PUMP STATION SLIDE GATES, VALVES, BYPASS, AND SEPTAGE RECEIVING UPGRADES – DESIGN, BIDDING AND CONSTRUCTION ADMINISTRATION – HAZEN AND SAWYER**

DATE: **JUNE 27, 2023**

This request is to authorize design, bidding, and construction administration services for the Moores Creek Pump Station Slide Gates, Valves, Bypass, and Septage Receiving Upgrades project for an amount not to exceed $239,975. The estimated total project cost is $3.6 million.

Background

The Moores Creek Pump Station is located at the entrance to the MCAWWRF and the north septage receiving station discharges at this location. The pump station was originally constructed with the 1977 plant improvements and its capacity was significantly upgraded in 2012 from 15 MGD to 32 MGD.

This project includes the repair or replacement of the existing slide gates that are leaking and the construction of additional 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 three 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.

RWSA entered into a term agreement with Hazen and Sawyer in 2019, for Professional Wastewater Treatment Plant Engineering Services. Under this contract Hazen and Sawyer will provide design, bidding, and construction administration services for this project.

Board Action Requested:

Authorize the Executive Director to execute a Work Authorization with Hazen and Sawyer for Professional Engineering services related to design, bidding and construction administration for the Moores Creek Pump Station Slide Gates, Valves, Bypass, and Septage Receiving Upgrades project, for an amount not to exceed $239,975, 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.

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: **ADOPTION OF THE THOMAS JEFFERSON PLANNING DISTRICT COMMISSION'S REGIONAL NATURAL HAZARD MITIGATION PLAN**

DATE: **JUNE 27, 2023**

This recommendation is to adopt the 2023 updated Thomas Jefferson Planning District Commission's (TJPDC) Regional Natural Hazard Mitigation Plan.

Background

Per the Disaster Mitigation Act of 2000, local governments are required to develop, implement, and routinely update a Natural Hazard Mitigation Plan which is compliant with the requirements of the Federal Emergency Management Agency. Over the past year, TJPDC staff have lead staff members from regional municipalities and authorities through the update and public feedback process. Our Director of Engineering and Maintenance, Jennifer Whitaker, is our representative on this committee. In order to be eligible for FEMA and VDEM emergency response and planning funding, RWSA must officially adopt the updated 2023 Natural Hazard Mitigation Plan.

Board Action Requested:

Approve the attached Resolution to adopt the 2023 TJPDC Regional Natural Hazard Mitigation Plan.

Attachments:

- Resolution for the Adoption of the TJPDC 2023 Regional Natural Hazard Mitigation Plan by the Rivanna Water and Sewer Authority
- Cover and Executive Summary of TJPDC 2023 Regional Natural Hazard Mitigation Plan

Regional Natural Hazard Mitigation Plan

2023 UPDATE

Prepared By:
Thomas Jefferson Planning District Commission

Thomas Jefferson Planning District Commission

401 East Water Street
Charlottesville, VA 22902
tjpdc.org | info@tjpdc.org

Table of Contents

Executive Summary

BACKGROUND

The purpose of the Regional Natural Hazard Mitigation Plan is to prepare for natural disasters before they occur, thus reducing loss of life, property damage, and disruption of commerce. The Federal Emergency Management Agency (FEMA) requires such a plan as a condition for eligibility in certain mitigation grant programs. The plan applies to all jurisdictions in the Thomas Jefferson Planning District – Albemarle County, the City of Charlottesville, Greene County, Louisa County, Fluvanna County, Nelson County, and the Towns of Stanardsville, Louisa, Mineral, Scottsville, and Columbia. The original plan was adopted by all jurisdictions in 2006; the plan was updated in 2012, with FEMA approval on March 14, 2018 and formal adoption by all localities completed in June 2018. This plan was approved by FEMA on January 17, 2023, and its official adoption date is February 1, 2023, after it was adopted by Fluvanna County.

SECTIONS OF PLAN

The following sections are included in the plan:

1. **Introduction – overview of hazard mitigation generally.**
2. **Planning Process – the process through which the plan was developed, including public input.**
3. **Community Profile – general information about communities in the planning district.**
4. **Hazard Identification and Analysis – general information about potential hazards in the planning district, the historic record of hazard events, and the probability of future events.**
5. **Vulnerability Assessment – analysis of the impact hazards could cause, with estimated potential losses for various hazard scenarios.**
6. **Capabilities Assessment – survey of current local capacity to prepare for natural hazards.**
7. **Mitigation Strategies – goals, objectives, and action items selected to mitigate hazards identified.**

PLANNING PROCESS

The lead agency in the preparation of this plan is the Thomas Jefferson Planning District Commission. A Hazard Mitigation Working Group guided the preparation of this plan and will assume responsibility for monitoring the progress of implementation on an annual basis. The Working Group consisted of at least one representative from each locality, as well as state representatives. Working Group members represented the planning department, emergency management department, and/or Administration from each locality.

TJPDC staff organized monthly meetings of the Working Group to refine multiple components of the plan. First, a review of the data needs was conducted in order to determine how TJPDC staff would update information that would be used to update the Hazard Identification and Risk Assessment (HIRA) section and to ask members to promote a public survey that would collect information about community needs. Next, TJPDC staff compiled and presented updated data about the natural hazards that would be ranked according to relative risk in the HIRA. This information was presented, refined, and then sent out to each locality's Working Group member in order to formulate a risk assessment for their respective localities. These assessments were compiled and presented to the working group as the regional HIRA matrix. The Working Group then examined, edited, and finalized the Goals and Objectives used to guide the long and short-term goals for risk mitigation in the region. A public workshop was also held to examine these Goals and Objectives, as well as the regionwide HIRA. Finally, meetings with all locality staff and presentations to Local Emergency Planning Committees (LEPC) were conducted in order to present the 2018 plan's mitigation actions for each locality, the HIRA data, and best practices and example action items for them to formulate new action items and catalogue or update old ones. Staff compiled these into the Mitigation Strategies section of the plan. Staff also presented

to all nine governing bodies that are expected to adopt the approved plan in May, June, and July 2022 to inform these bodies of the planning process, plan contents, and expectations around adoption and grant opportunities available through adoption. During these series of meetings, a public comment period that was advertised in local media and local government communication channels occurred during June 2022. After compiling feedback from elected officials and the public, the draft plan was sent to VDEM in July 2022. Full meeting agendas, sign-in sheets, meeting materials, and recordings are available in Appendix A of all Working Group meetings, public meetings, and survey.

The following sources of stakeholder input were used:

- **Regular meetings of the Hazard Mitigation Working Group.**
- **One public workshop**
- **An online survey**
- **Presentations to Local Emergency Planning Committees an work with local staff**
- **Recommendations from existing plans and documents.**
- **Public comment period of entire draft plan**

HAZARD IDENTIFICATION AND ANALYSIS/VULNERABILITY ASSESSMENT

All hazards in the region are ranked by this plan according to overall relative threat, which combines the probability of occurrence with the impact of an event. The matrix The Working Group reviewed the HIRA data and assigned values for each hazard over December 2021. The HIRA matrix, created by Kaiser Permanente, creates a template for hazards can be ranked by relative risk according to probability, human impact, property impact, and business impact. TJPDC staff created a set of data for each hazard and asked each locality to fill out an individual matrix for their locality. Localities used this data, as well as staff input, to assign values for each hazard. TJPDC staff combined these matrices into the below matrix for the region. This matrix can be viewed as the final product of staff deliberation using best available weather data, staff input, and local emergency management information.

The HIRA uses two components to determine relative risk. First, probability is represented as a numeric value (1-3) that represents the likelihood of that the associated hazard will occur in the region in the next 5 years.

Probability Definition:

0- 0% probability of occurring in the next 5 years
1- 0-33% probability of occurring in the next 5 years
2- 34-66% probability of occurring in the next 5 years
3- 67-100% probability of occurring in the next 5 years

Severity is defined as the human, economic, and property impact that a hazard will have on the region if it occurs. Severity is separated into 3 distinct types of impact: Human, Property, and Business. For each of these categories, severity is represented as a numeric value (1-3) that represents the impact that an associated hazard would have on each category in the region.

Severity Definition:

0- no loss of life, business impact, or property damage
1- No loss of life, but non-life threatening injuries, minor property damage, and slightly reduced economic activity
2- Some moderate and life-threatening injuries and potential loss of life, moderate to major property damage, moderate to significant disruption of commerce
3- Moderate to major injuries and loss of life, major and sustained property damage, major disruption to commerce

EVENT	PROBABILITY	HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	RISK
	Likelihood this will occur	Possibility of death or injury	Physical losses and damages	Interruption of services	Relative threat*
SCORE	0 = no possibility 1 = some possibility 2 = very high possibility 3 = certain possibility	0 = no possibility 1 = some possibility 2 = very high possibility 3 = certain possibility	0 = no possibility 1 = some possibility 2 = very high possibility 3 = certain possibility	0 = no possibility 1 = some possibility 2 = very high possibility 3 = certain possibility	0 - 100%
Hurricane/high wind/windstorms	3	2	2	2	74%
Flooding	3	1	2	2	65%
Winter storms/ weather	3	1	1	2	56%
Communicable Disease/Pandemic	2	2	1	2	30%
Lightning	2	1	1	1	22%
Wildfire	2	1	1	1	22%
Drought / Extreme Heat	2	1	1	1	22%
Dam Failure	1	2	2	2	22%
Tornado	2	1	1	1	22%
Earthquake	1	1	2	2	19%
Landslide	1	1	1	1	11%
AVERAGE SCORE	**1.88**	**1.37**	**1.5**	**1.58**	**33%**

RISK = PROBABILITY * SEVERITY		
0.32	0.43	0.17

**Threat increases with percentage.*

Most data on hazards are derived from federal and state government sources, and data on development and critical facilities are derived primarily from local government sources. Results are presented in a series of maps and charts.

MITIGATION STRATEGY

The following goals and objectives, grouped into five broad categories, are recommended by the plan: Education and Outreach, Infrastructure and Buildings, Whole Community, Mitigation Capacity, Information Data and Development: The five major goals of the plan have been components of all of the Regional Natural Hazard Mitigation Plans prior to this update. The Hazard Mitigation Working Group adjusted language regarding the goals and objectives under each category, in order to better guide the development of new mitigation action items, in early 2022. More information regarding these mitigation categories and their relation to mitigation activities can be found on page MS-1.

Education and Outreach (E)

- **GOAL: Increase awareness of hazards and encourage action to mitigate the impacts**
  - **OBJECTIVE: Educate families and individuals on disaster mitigation and preparedness options and promote self-sufficient buildings with multiple energy options**
  - **OBJECTIVE: Train key agency staff and volunteer groups in disaster mitigation and preparedness**
  - **OBJECTIVE: Train staff at schools and residential facilities in disaster mitigation and preparedness**
  - **OBJECTIVE: Encourage and equip employers to develop emergency action plans**

Infrastructure and Buildings (I)

- **GOAL: Reduce the short and long-term impact of hazard events on buildings and infrastructure**
  - **OBJECTIVE: Diversify the energy system to provide multiple power source and fuel supply**
  - **options and promote self-sufficient buildings with multiple energy options**
  - **OBJECTIVE: Diversity the communications system to provide alternative lines for use during loss of capacity**
  - **OBJECTIVE: Diversify the transportation system by increasing connectivity and providing modal options**
  - **OBJECTIVE: Elevate, retrofit and relocate existing structures and facilities in vulnerable locations**
  - **OBJECTIVE: Construct or upgrade drainage, retention, and diversion elements to lessen the impact of a hazard on an area**
  - **OBJECTIVE: Protect sensitive areas through conservation practices**
  - **OBJECTIVE: Ensure that each critical facility has a disaster plan in place**
  - **OBJECTIVE: Identify high hazard potential dams in the region and consider options to reduce vulnerabilities**

Whole Community (C)

- **GOAL: Prepare to meet the immediate functional and access needs of the population during natural hazards**
  - **OBJECTIVE: Effectively communicate with and transport people regardless of their language proficiency and physical needs.**
  - **OBJECTIVE: Make information available, accessible, and accurate to ensure the entire population can access emergency shelters in a timely manner and have functional needs met, in the event of a natural hazard**
  - **OBJECTIVE: Updating necessary information consistently and through multiple different outlets through the development an emergency information communication plan**

Mitigation Capacity (M)

- **GOAL: Increase mitigation and adaptation capacity through planning and project implementation**
  - **OBJECTIVE: Reduce property risks through planning, zoning, ordinances and regulations**
  - **OBJECTIVE: Incorporate mitigation planning concepts, climate resilience, and vulnerability planning into local plans and ordinances**
  - **OBJECTIVE: Pursue funding to implement identified mitigation and resilience strategies**
  - **OBJECTIVE: Encourage proactive management of hazard prone areas, environmental features, or infrastructure**

Information and Data Development (D)

- **GOAL: Build capacity with information and data development to refine hazard identification and assessment, mitigation targeting and funding identification**
  - **OBJECTIVE: Identify data and information needs and develop methods to meet these needs**
  - **OBJECTIVE: Utilize data to ensure proactive targeting of mitigation efforts**

MITIGATION ACTION ITEMS

A set of mitigation action items are designated for each locality to substantively further the objectives of the plan. The detailed list of action items includes the supporting goal, hazard to be mitigated, party responsible for implementation, timeframe of implementation, estimated cost, and potential funding sources. Furthermore, all action items are prioritized and listed in order from high, moderate, to low priority.

The following is an abridged list of action items for each jurisdiction and the Thomas Jefferson region

Activity Code / Activity Description

Thomas Jefferson Region	
RHE1	Provide a copy of the Regional Hazard Mitigation Plan to each library in the Jefferson-Madison Regional Library system
RME1	Conduct a public education program on disaster preparedness, leveraging existing materials and sharing resources regionally

RME2	Engage Working Group and leverage connections to continue mitigation preparedness throughout plan's duration, before next update
RMD1	Identify locations for deposit of debris after a hazard
RME3	Continue to research grant and funding opportunities for regionwide hazard mitigation efforts
RHI1	Promote and educate localities on high hazard dam vulnerability reduction including rehabilitating/removing dams, elevating structures in inundation zones, adding flood protection, such as berms, floodwalls or floodproofing, in inundation zones

Albemarle County	
AHE1	Increase the number of trained emergency responders, both staff and volunteers. Establish a minimum ICS/emergency management training/certification requirement for essential County staff. Train/educate 70% of identified staff to minimum qualifications. Conduct disaster tabletop and/or full-scale scenarios on an annual basis to exercise skills/processes
AHI1	Implement recommendations from the urban Community Water Supply Plan and those for all other public water supplies within the County, including drought monitoring and management
AHI2	Develop an integrated regional security and monitoring system, including access control and intrusion detection
AHI3	Establish a backup Emergency Operations Center (EOC)
AHI4	Establish an Albemarle County specific basic Emergency Operations Plan and annexes for the 3 highest risk natural disasters as defined in the HIRA.
AHM1	Incorporate this Regional Hazard Mitigation Plan into local comprehensive plans and Emergency Operations Plans
AHM2	Install fire mitigation measures, including dry hydrants, fire breaks, and fire rings.
AHM3	Develop continuity-of-operations plan to ensure critical operations are maintained during power failure.
AHD1	Continue to assess resilience of existing critical facilities to natural hazards
AHD2	Mitigate Water and Wastewater System Failure or Contamination through community coordination and information/equipment sharing. Provide planning support for operational and integrated security management (including communications plan and continuity plan, emergency exercises, coordinated committee)
AHC1	Develop a debris management plan (including emergency response access and cleanup) for removal of fallen trees, etc. following a storm, such as hurricane or tornado.
AHC2	Engage in climate resilience and adaptation planning and implement initiatives to prepare for the anticipated hazards and impacts driven by climate change.
AHC3	Implement initiatives to reduce community greenhouse gas emissions as prescribed by the Climate Action Plan adopted in 2020 in order to mitigate climate change.
AME1	Ensure that all schools have regular disaster response drills
AME2	Continue to pursue conservation practices in sensitive areas, including riparian buffers and flood-prone areas.
AME3	Conduct comprehensive residential and business disaster preparedness programs focusing on the ability of residents and businesses to sustain themselves for 72 hours post emergency.
AME4	Define Neighborhoods/communities within the County and identify (using a contact management system) key residents and Non-Governmental organizations (NGOs) within each neighborhood who may connect the County and disaster services to the neighborhood during a crisis.
AMI1	Build or repair bridges so as not to minimize impacts to floodways
AMI2	Upgrade existing bridges to support emergency vehicles
AMI3	Carry out physical security improvements to water and wastewater systems, which may include fencing, door hardening, window hardening, locks, bollards, cameras, signage, lighting, access control and intrusion detection.
AMI4	Procure technology equipment for Water/Wastewater system component inspections.
AMI5	Improve the maintenance and repair of stormwater conveyance systems – in part through better coordination and cooperation with local partners
AMC1	Improve the preparedness of public and private dams within the county to withstand extreme flood events
AMC2	Maintain and update, as needed, the regional and local sheltering plans.

AMC3	Continue to assess designated community shelters for compliance with minimum specifications and best practices.
AMC4	During Comp Plan update, consider loosening restrictions on the types of County improvements in Rural Areas to accommodate community support facilities.
AMM1	Through the development process, discourage or prohibit development in flood-prone
areas	
AMD1	Expand GIS data and other technologies for the purposes of mitigation planning, preparedness planning, and response activities
ALE1	Encourage property owners and residents to clear storm drain inlets, channels, creek beds, and other conveyances of fallen trees and debris to minimize the potential for flow restrictions and flooding.
ALE2	Ensure all houses and businesses have clear address signs that are visible during snowstorms and other emergencies
ALE3	Continue educational campaign about the benefits of open space and sensitive area protection.
ALE4	Outdoor warning sirens for public use facilities
ALC1	Increase the capacity to shelter in place in public buildings.
ALC2	Promote biodiversity and native plant communities and control invasive species to improve the resilience of native ecosystems
ALC3	Develop communications strategy and protocols (both preparedness and response) using traditional and emerging outlets (local media, social media, etc.); consider languages besides English
ALC4	Improve ability to notify public in the event of extreme storms and/or dam failure, possibly through utilizing river level sensors and a downstream notification system
ALC5	Continue and expand the use of citizen alert systems. Explore use of Social Media platform emergency alert systems. Establish backup procedures/plans for emergency notification/alert when methods relying on power & technology are inoperable
ALI1	Implement Stormwater Management programs and initiatives to reduce flood risk throughout the community
ALI2	Improve the maintenance, repair, and upgrades to public and private stormwater management facilities and impound-ments to withstand extreme storms and enhance flood control.
ALI3	Partner with utility companies to keep power lines and other utilities free of vegetation
ALI4	Implement programs and initiatives to reduce pollution discharge via stormwater systems
ALI5	Continue to upgrade security systems
ALI6	Promote increased tree canopy in urban areas to reduce heat island effect.

Town of Scottsville	
ASMM1	Update the Town's Floodplain Maps to inform decision-making.
ASMM2	Improve Riparian Buffers along parts of Mink Creek and the James River.
ASLM1	Improve Regional Transit for emergency evacuations, prevention, and resiliency.

City of Charlottesville	
CHE1	Provide training for building inspectors and code officials on mitigation techniques and hazard-resistant buildings.
CHE2	Ensure that all city schools have an emergency and disaster plan and regularly conduct disaster response drills.
CHM1	Complete Flood Resilience Plan
CHM2	Complete Climate Adaptation Plan
CHM3	Update floodplain regulations
CHM4	Incorporate hazard mitigation plan into community plans. Identify senior living/special needs residences in areas vulnerable for flooding.
CHM5	Conduct Community Emergency Response Team (CERT) classes to equip individuals and groups to assist in the event of a disaster.
CHM6	Provide incentives to institutions and homeowners for use of low-flow appliances.

CHM7	Continue to expand use of citizen alert system. (Code RED) Develop community promotion plan for Code RED.
CHM8	Inventory all shelters and public buildings to ensure emergency preparedness supplies and equipment are onsite.
CMD1	Identify vulnerable structures and apply for funding to implement acquisition and demolition, relocation, floodproofing, or structural retrofit projects
CMD2	Conduct a needs survey that identifies special needs population and residences and/or facilities needing attention in the event of emergencies or evacuations
CMI1	Ensure culverts, streams, channels, storm drains, and gutters remain clear of debris
CMI2	Build or repair roadway and pedestrian crossings so as not to impede floodwaters
CMI3	Retrofit emergency service buildings for hazard preparedness and resistance.
CMM1	Support volunteer groups and encourage collaboration on public outreach and education programs on hazard mitigation.
CMM2	Pursue conservation practices in sensitive areas (stream corridor restoration, forest management)
CMM3	Create a strategy for using existing media outlets for communications during a hazard event.
CMM4	Ensure that all critical facilities have updated shelter-in-place plans
CLE1	Provide citizens with literature about flood and drought-smart landscaping and GI. Promote VCAP.
CLE2	Create educational campaign about floodplain locations, the benefits of open space and riparian corridors.
CLI1	Improve the maintenance of stormwater infrastructure.
CLI2	Reduce pollution discharge to and erosive conditions in receiving waters.
CLI3	Increase infiltration capacity and volumetric reductions in runoff via stormwater control measures (SCMs).
CLI4	Improve capture and conveyance capacity of stormwater infrastructure.

Fluvanna County	
FHE1	Increase the number of trained emergency responders, both staff and volunteers
FHI1	Install new fire hydrants along new JRWA water line
FHC1	Conduct regular disaster response drills in schools, and with staff at Assisted Living Facilities and Nursing Homes
FHC2	Continue and expand the use of citizen alert systems
FHC3	Implement community notification protocols before, during, and after a disaster event
FHM1	Develop Continuity of Operations Plans (COOP) for locality departments and update the plans annually
FME1	Carry out a targeted educational campaign in subdivisions at high risk for fire impacts
FME2	Conduct tabletop exercises for damage assessments
FME3	Bring in experts to conduct in-house staff training in best management practices in hazard mitigation and preparedness
FME4	Offer training on post-event inspection and develop a protocol to serve as a mechanism for prioritization
FMI1	Identify vulnerable structures and apply for funding to implement acquisition and demolition, relocation, floodproofing, or structural retrofit projects
FMI2	Install warning signs and develop alternate routes for roads that flood briefly during heavy rains (e.g. Slaters Fork Road, Carysbrook, farm pond dam locations)
FMM1	Identify areas to receive debris from post-event clean-up efforts
FMD1	Expand GIS data for us in mitigation planning, preparedness planning, and response activities
FLE1	Carry out an educational campaign for businesses to develop emergency procedures and shelter-in-place plans
FLI1	Identify repetitive loss properties, develop appropriate mitigation action, and apply for funding
FLI2	Demolish and remove remains of old surface water treatment plant located on TM 58 A 26 & 27(County-owned property)
FLI3	Remove +/-20,000 gallon water storage tank from James River.
FLC1	Develop County agreements (possibly with women's prison) for food services for county-supported shelters (including high school)

FLM1	Develop evacuation plans for dam breaches from Charlottesville-area dams
FLM2	Develop a comprehensive fire safety communication strategy, addressing open space, burn permit, FireWise, and dry hydrants
FLM3	Adopt fire code
FLM4	Incorporate this Regional Hazard Mitigation Plan into local comprehensive plans and Emergency Operations Plans
FLD1	Develop a disaster plan for the Fork Union Sanitary District (FUSD)

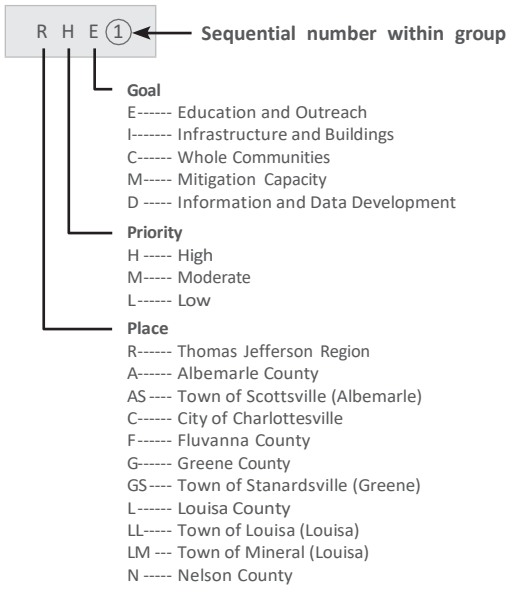
Greene County	
GHE1	Conduct Firewise workshops
GHI1	Partner with utility companies to keep power lines free of vegetation
GHI2	Conduct structural evaluations of current and proposed shelters
GHI3	Implement recommendations from Greene County Water Supply plan
GHI4	Enhance dam safety; table tops/exercises
GHI5	Install backup generators in shelters and critical facilities
GHI6	Enhance public safety emergency communications to provides reliable, dependable coverage
GHI7	Enhance access to broadband countywide
GHC1	Assist the schools with regular disaster response drills and disaster planning
GHM1	Conduct CERT classes to equip individuals and groups to assist in the event of a disaster
GHM2	Routinely inspect public and private fire hydrants
GHM3	Ensure all critical facilities have updated shelter-in-place plans
GHM4	Increase number of trained emergency responders and establish recruitment and retention program
GME1	Develop cooperative agreements between all agencies involved in emergency management, provide methods of communication between agencies responsible for being present at the Emergency Operations Center following a disaster, and conduct joint exercises
GME2	Create a community toolbox with tools and information for local homeowners
GMI1	Add signage to roads in locations that frequently flood
GMM1	Develop and implement a drought management plan
GMM2	Create a strategy for using existing media outlets for communications during a hazard event
GMM3	Provide career fire staff
GMI2	Upgrade all area bridges to support emergency vehicles
GMD1	Conduct channel improvement study
GMD2	Create a needs survey that identifies special needs population and residences and/or facilities needing attention in the event of emergencies or evacuations
GLE1	Provide citizens with literature about flood and drought-smart landscaping
GLI1	Build and repair bridges so as not to impede floodwaters
GLI2	Ensure culverts, streams, channels, storm drains, and gutters remain clear of debris
GLI3	Install more dry hydrants in high wildfire risk areas
GLI4	Repair, replace, or relocate septic and drainage fields that leak sewage into bodies of water during flooding events
GLI5	Bury utilities in the county
GLM1	Ensure all structures have clear address signs that are visible

Town of Stanardsville	
GSHM1	Increase water capacity and pressure for the Town of Stanardsville to enable optimal emergency response

GSMM1	Ensure all houses have clear address signs that are visible
Louisa County	
LHI1	Enhance access to broadband internet in rural areas
LHI2	Install backup generators in shelters and critical facilities
LHI3	Implement recommendations from Water Supply Plan
LHC1	Ensure that all schools have regular disaster response drills
LHM1	Provide training for building inspectors and code officials on mitigation techniques and hazard-resistant building
LHM2	Continue and expand use of citizen alert systems countywide, including within Towns
LHM3	Increase number of trained emergency responders
LHM4	Develop driveway codes to allow emergency vehicle access
LHM5	Work to prevent stormwater and wastewater flooding in water bodies across the County
LMI1	Put high water marks on bridges
LMI2	Investigate, plan, and implement repairs and/or upgrades to Bowlers Mill dam to preserve flood control benefits for the historic Green Springs area.
LMM1	Investigate safety and maintenance of roads in private communities
LMM2	Conduct Community Emergency Response Team (CERT) classes to equip individuals and groups to assist in the event of a disaster
LMM3	Ensure all houses have clear address signs that are visible during storms events
LMM4	Incorporate hazard mitigation plans into community plans
LMM5	Incorporate special needs populations into Hazard Mitigation and Emergency Operations Plans
LLE1	Provide educational outreach about the burn permit process
LLE2	Create an educational program to help residents understand the benefits and costs of earthquake insurance
LLI2	Add signage to roads in locations that frequently flood
LLD1	Track and map space available for pets at local SPCA and other animal shelters. Install generator and place shelter on snow removal priority list.
Town of Louisa	
LLHI1	Install backup generators in shelters and critical facilities – the Town Hall generator will be upgraded to serve as a shelter during emergencies
LLHM1	Incorporate hazard mitigation plans into community plans
LLMM1	Ensure all houses have clear address signs that are visible during snowstorms
Town of Mineral	
LMHM1	Incorporate hazard mitigation plans into community plans
LMMM1	Ensure all houses have clear address signs that are visible during snowstorms
LMMM2	Work with the Louisa County to designate a representative for the County's Emergency Operations Committee
LMMM3	Develop a system for alerts and other communication with citizens
LMMI1	Mark the fire hydrants with reflective markers for large snow storms
LMMI2	Install emergency generator for wells
LMLI1	Bury utilities underground in town of Mineral
Nelson County	

NHM1	Continue and expand use of citizen alert systems
NHM2	Provide training for building inspectors and code officials on mitigation techniques and hazard-resistant building
NME1	Conduct Firewise Workshops
NME2	Provide educational instruction and materials to school age youth and their teachers on proper procedures for responding to natural disasters
NMI1	Investigate safety and maintenance of roads in private communities
NMM1	Ensure all houses have clear address signs that are visible during snowstorms
NLE1	Ensure that all homeowners and businesses located in areas prone to landslides are aware of the risks and appropriate responses to an event
NLI2	Maintain and add more fire rings in camping areas for controlled fires

ACTIVITY CODE KEY



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

RESOLUTION

ADOPTION OF THE REGIONAL NATURAL HAZARD MITIGATION PLAN BY THE RIVANNA WATER AND SEWER AUTHORITY

WHEREAS, the Federal Disaster Mitigation Act of 2000, as amended, requires that local governments develop, adopt and update natural hazard mitigation plans in order to receive certain federal assistance; and,

WHEREAS, the Thomas Jefferson Planning District's Regional Natural Hazard Mitigation Plan has been prepared in accordance with FEMA requirements at 44C.F.R. 201.6; and,

WHEREAS, Rivanna Water and Sewer Authority (RWSA) has been involved in the preparation of the Regional Natural Hazard Mitigation Plan, with RWSA staff representing the Authority on the Working Group and working with TJPDC staff to identify mitigation actions for inclusion in the plan, and,

WHEREAS, the Virginia Department of Emergency Management (VDEM) and the Federal Emergency Management Agency (FEMA) have approved the plan with no changes recommended; and,

WHEREAS, hazard mitigation is essential to protect life and property by reducing the potential for future damages and economic losses resulting from natural disasters;

NOW THEREFORE BE IT RESOLVED, the Rivanna Water and Sewer Authority Board of Directors does hereby adopt the Regional Natural Hazard Mitigation Plan.

Michael Gaffney, Chairman
Lauren Hildebrand
Ann Mallek
Gary O'Connell
Brian Pinkston
Jeff Richardson
Michael Rogers

ADOPTED by the Rivanna Water and Sewer Board of Directors on this 27th day of June 2023.

SIGNATURE:

_____

RWSA Executive Director

ATTEST:

_____

Executive Assistant

Water Treatment Facilities Overview

PRESENTED BY:

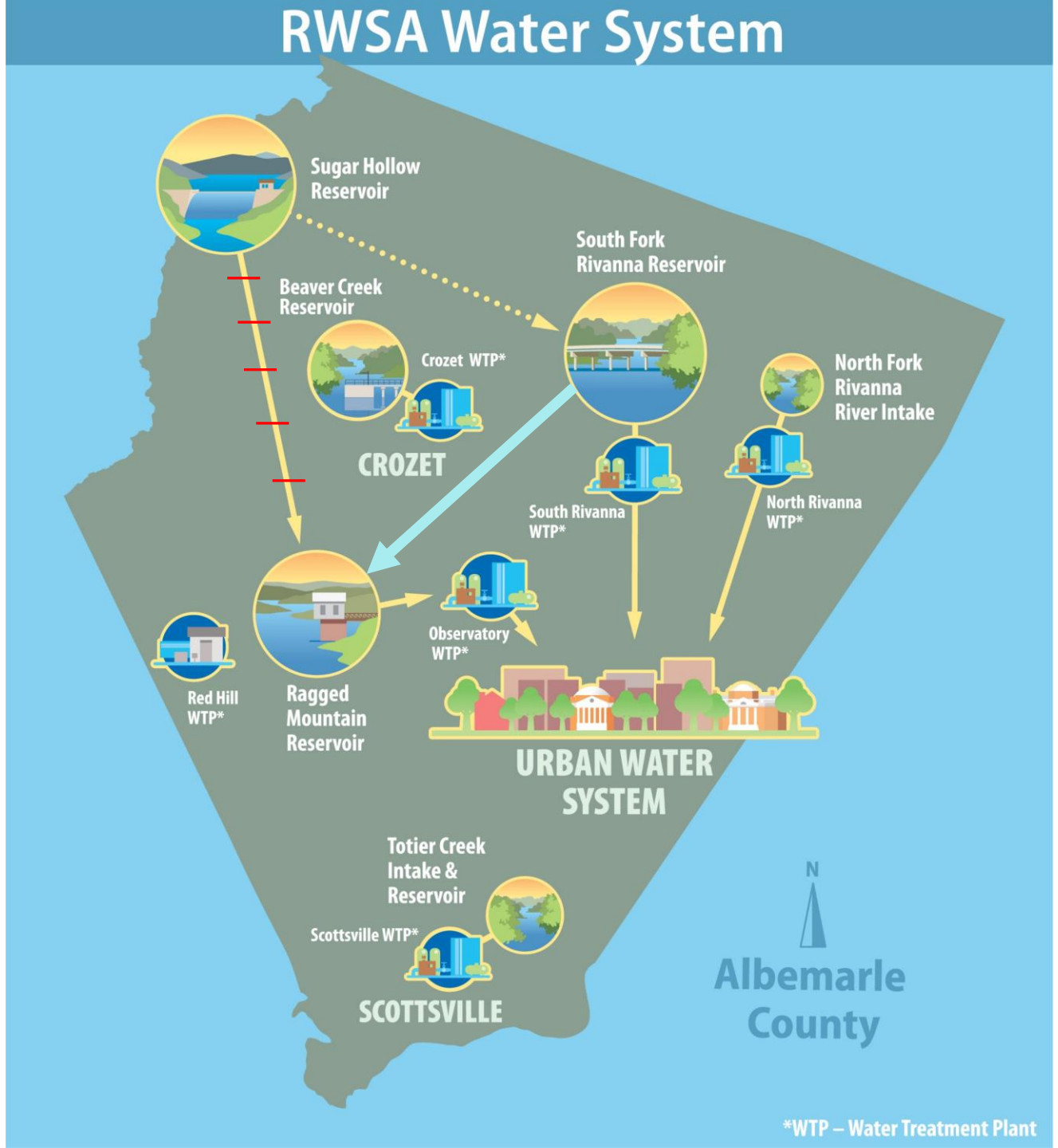
DAVE TUNGATE, DIRECTOR OF OPERATIONS

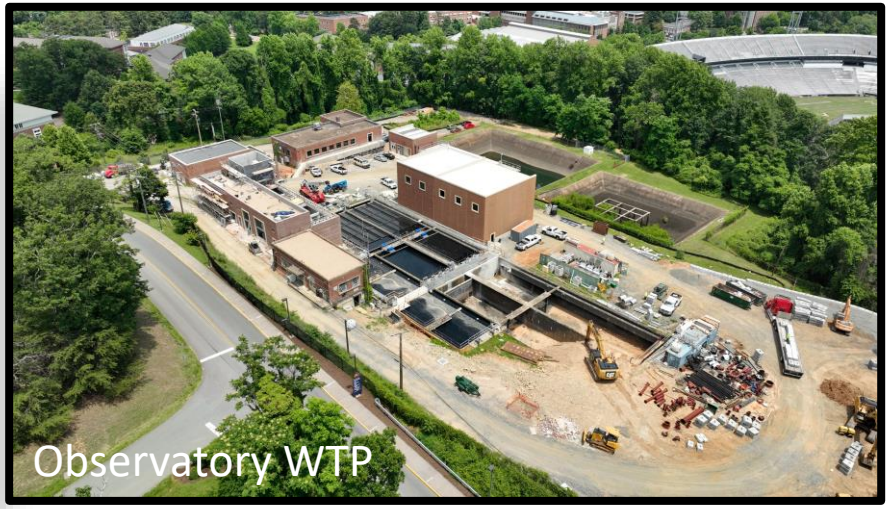
BOARD OF DIRECTORS MEETING

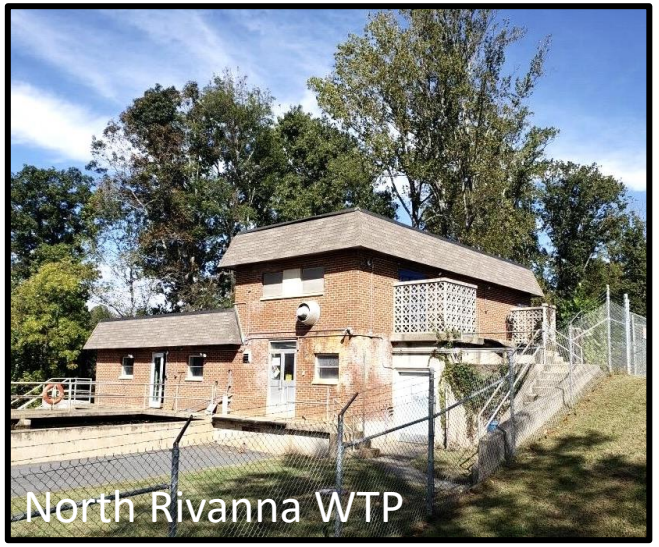
JUNE 27, 2023

RIVANNA

WATER & SEWER AUTHORITY


RWSA Water System
Sugar Hollow Reservoir
Beaver Creek Reservoir
Crozet WTP*
CROZET
South Fork Rivanna Reservoir
North Fork Rivanna River Intake
South Rivanna WTP*
North Rivanna WTP*
Observatory WTP*
Red Hill WTP*
Ragged Mountain Reservoir
URBAN WATER SYSTEM
Totier Creek Intake & Reservoir
Scottsville WTP*
SCOTTSVILLE
N
Albemarle County
*WTP – Water Treatment Plant



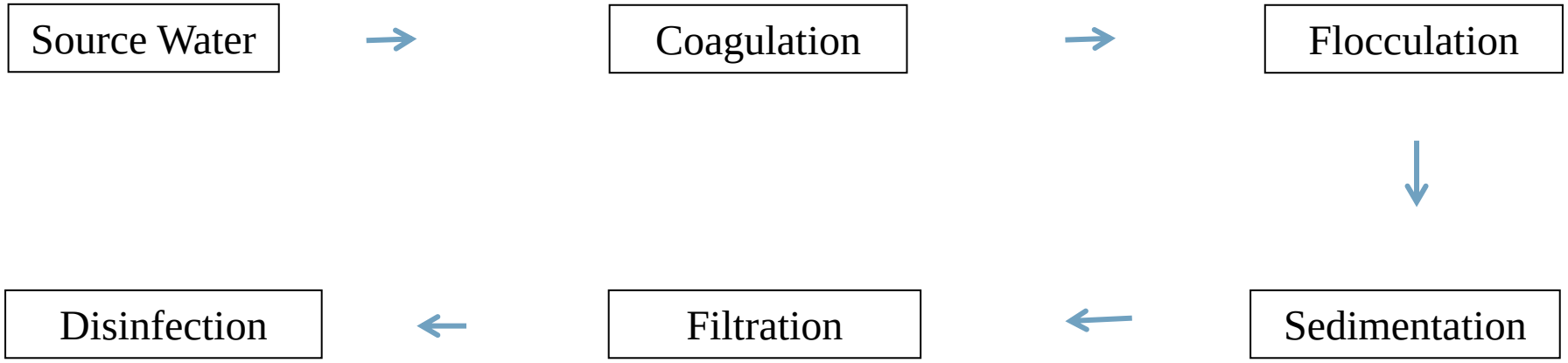


6 Water Treatment Plants

Water Production Capacity

Treatment Plant	Permitted Capacity (MGD)	2022 Average Production (MGD)
South Rivanna	12.0	7.98
Observatory	7.7	0.912
North Rivanna	2.0	0.43
Urban Total	21.7	9.32
Crozet	1.6	0.619
Scottsville	0.25	0.059
Red Hill	0.0068	0.002
Total	23.61	10.0

Conventional Surface Water Treatment



South Fork Rivanna Dam and Reservoir

South Fork Rivanna Dam and Reservoir


Alum and Fluoride building
Filter Press building
GAC building
Sodium Hypochlorite building
Water admin building
Main Filtration Plant
6 sedimentation basins

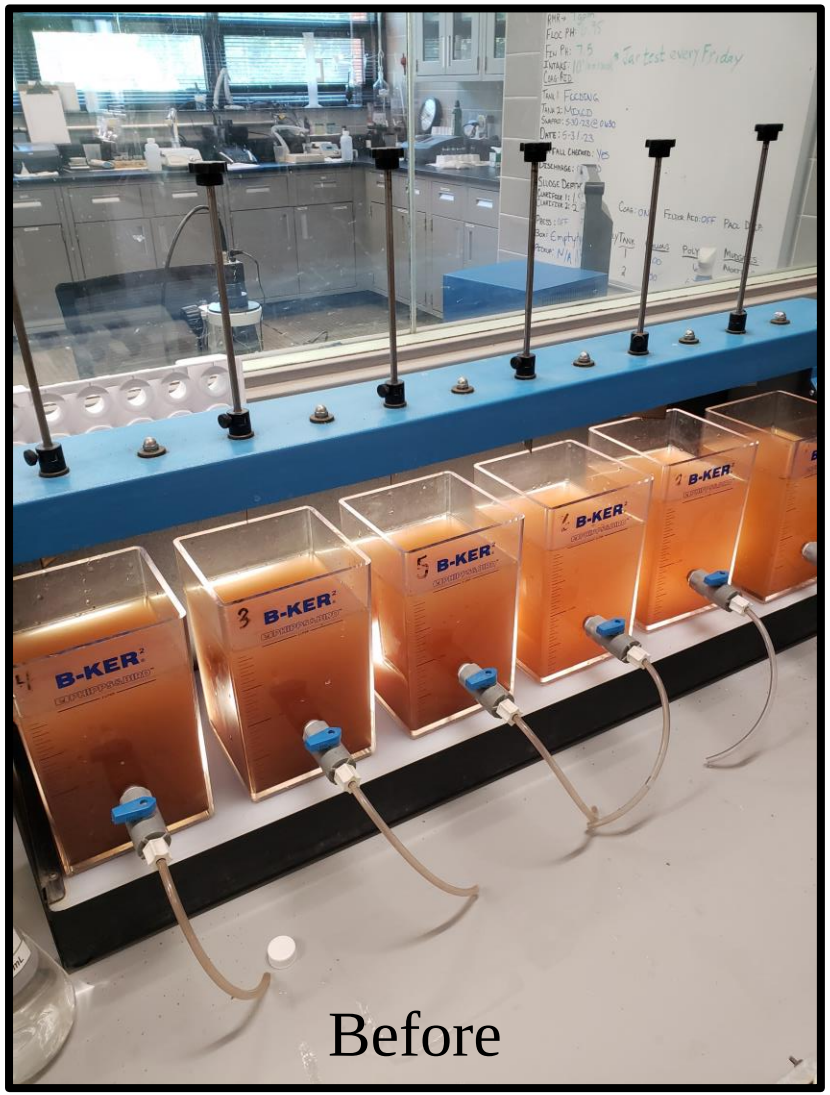
Typical water treatment additives

- Aluminum Sulfate – Coagulant to improve particle settling
- Liquid Lime – pH adjustment
- Sodium Hypochlorite – Disinfection and oxidation
- Orthophosphate – Corrosion control in the piping system
- Hydrofluorosilicic Acid (fluoride) – Dental health

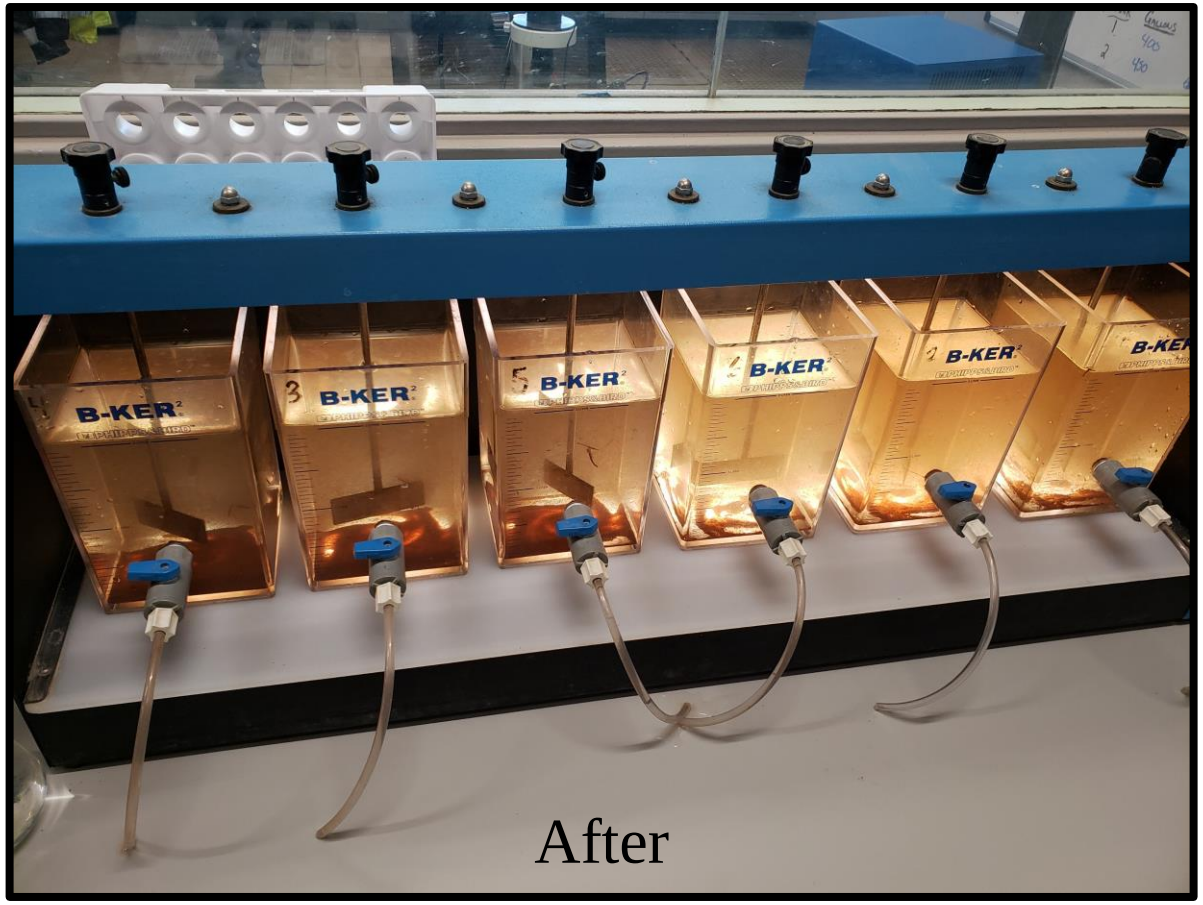
South Rivanna Raw Water Pump Station

Flocculated particles entering sedimentation basins

Water treatment jar test

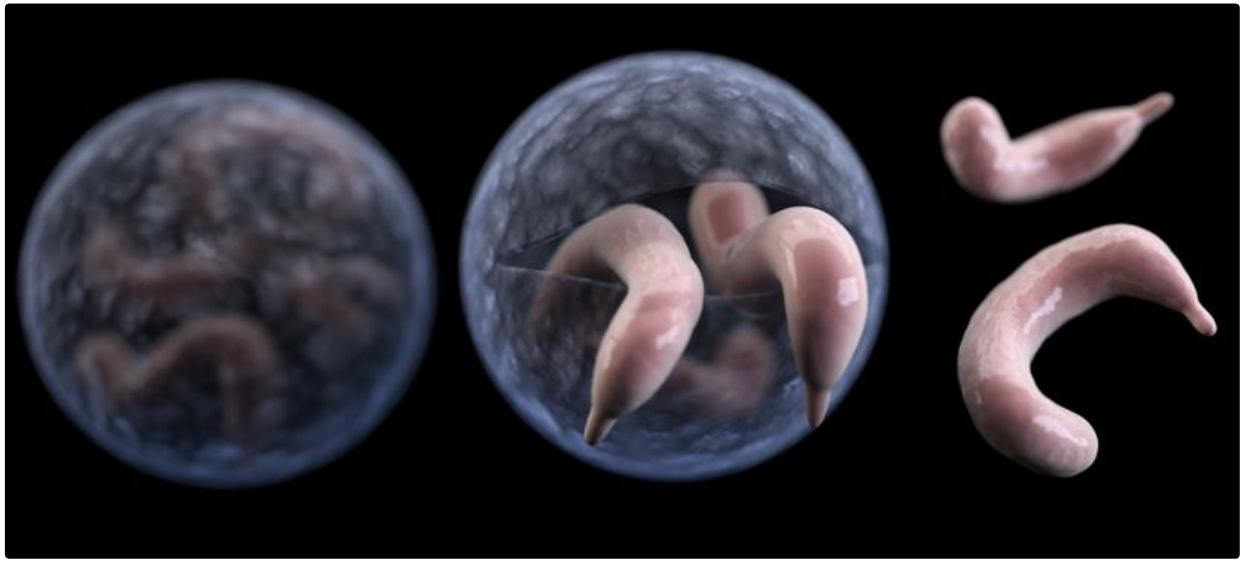


Before



After

Gravity Filters at South Rivanna Water Treatment Plant

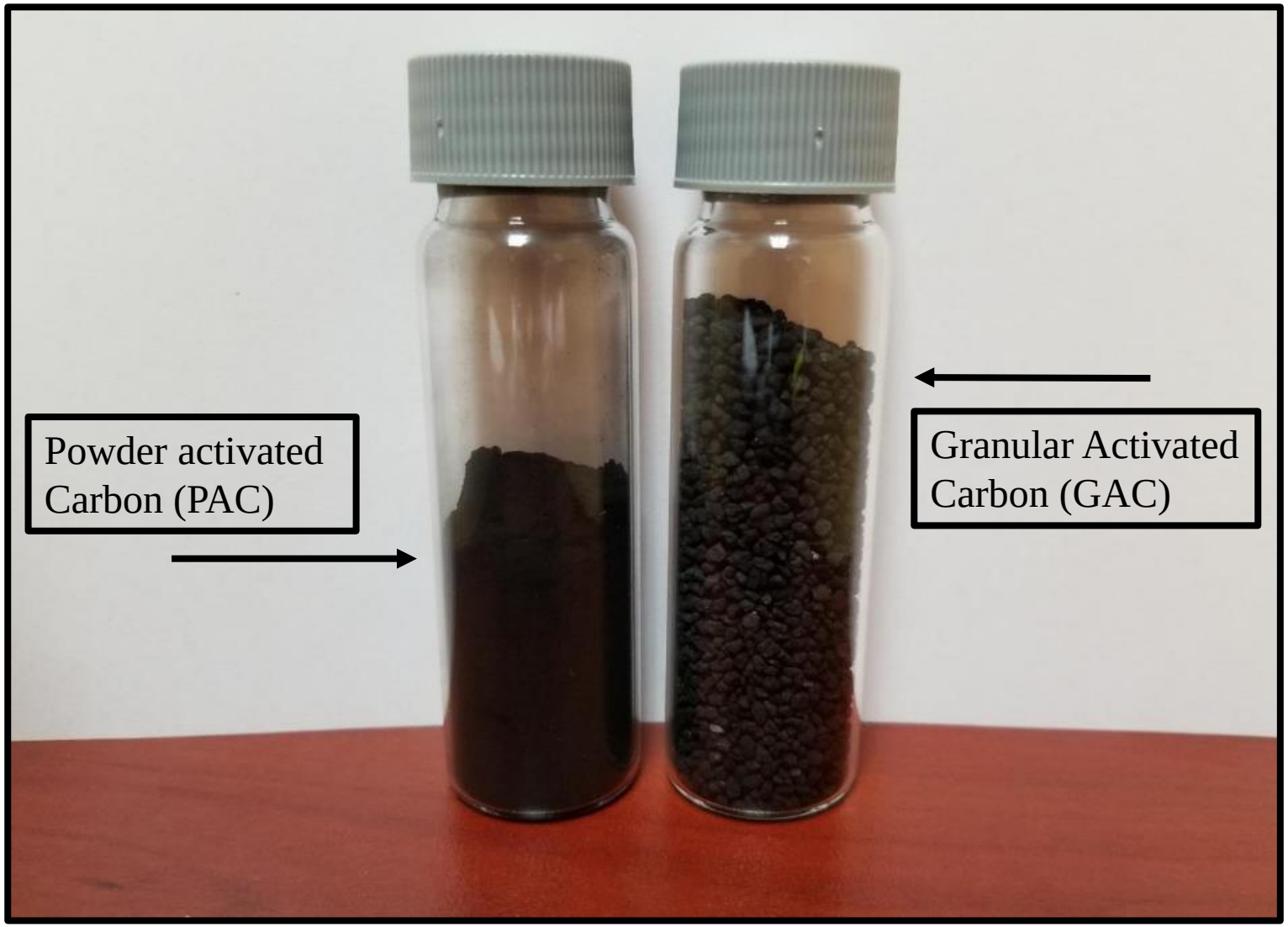


Giardia & Cryptosporidium

Filter Turbidimeter

Benchtop Turbidimeter

Finished Water Pumps



Activated Carbon

PAC application point

Granular Activated Carbon Contactors

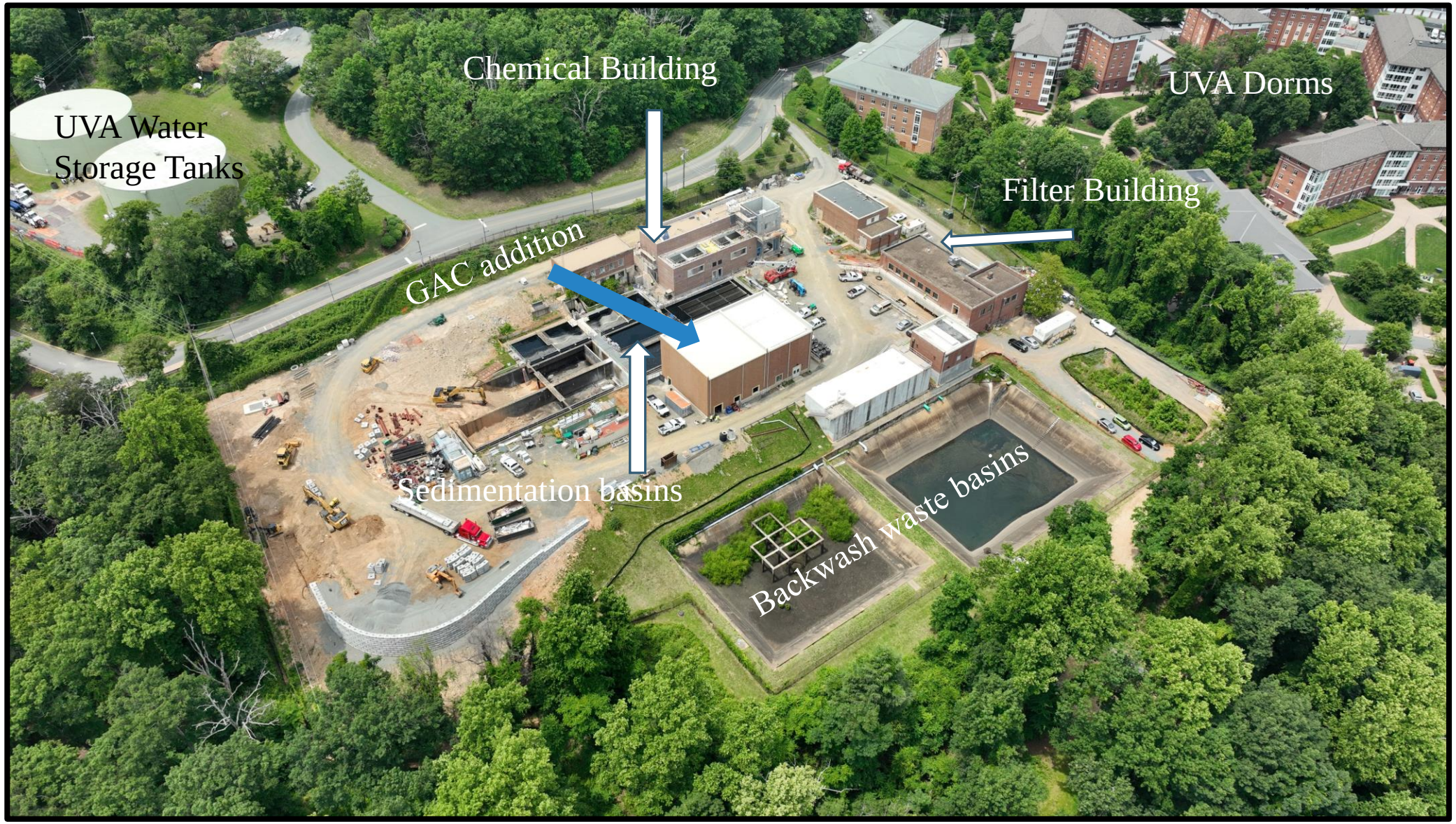
South Rivanna WTP
8 Contactors
320,000 pounds of GAC
8 MGD Capacity

Observatory WTP
6 Contactors
240,000 pounds of GAC
6 MGD Capacity

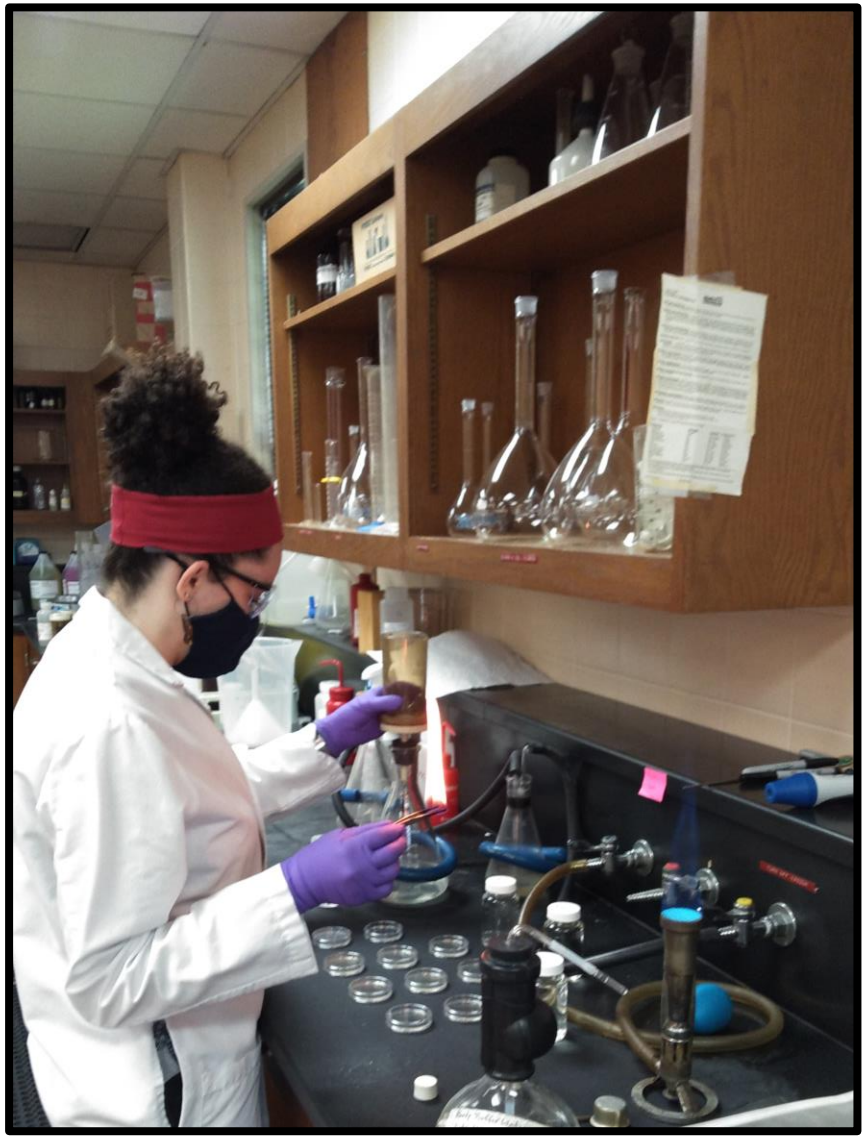
North Rivanna WTP
1 Contactor
40,000 pounds of GAC
1 MGD Capacity

Crozet WTP
2 Contactors
40,000 pounds of GAC
1 MGD Capacity

Scottsville WTP
2 Contactors
12,000 pounds of GAC
0.25 MGD Capacity



Observatory Water Treatment Plant



Drinking Water Testing Requirements

Monthly reports submitted to Virginia Department of Health include the following:

- Daily volume of water pumped in and out of each water plant
- Daily chemical dosage at each water plant (coagulant, lime, powder activated carbon, polymer, corrosion inhibitor, chlorine, and fluoride)
- Filter turbidity, water temperatures (raw and finished), and pH reports
- Finished water chlorine residuals and disinfection calculations
- Total Coliform sample results for all 4 water systems
- Safe Drinking Water Act posted to EPA central data exchange website

GAC delivery at South Rivanna WTP

Water Department Budget ~FY 2024~

- $25 million
  - $13 million for debt service
  - $3 million for central support (Finance, IT, HR, Engineering, Maintenance, Lab)
  - $2.5 million for employee salaries
  - $2 million for water treatment chemicals ($0.9 million GAC)
  - $1 million for operations and maintenance
  - $0.7 million – utility costs (electricity, natural gas, LP)
- Produces 3.8 billion gallons of drinking water
- At the cost of 1 cent for 1.5 gallons of drinking water

Water Department Staffing

South Rivanna
Class I Facility
Serves Urban System
12 MGD Capacity
Staffed 24 hours/365
2 Operators per shift
4 shifts per week

- Class 1 Operator
- Class 1 Operator
- Class 1 Operator
- Class 1 Operator
- Class 1 or Less Operator
- Class 1 or Less Operator
- Class 1 or Less Operator
- Class 1 or Less Operator
- Class 1 or Less Operator
- WQ Specialist

9 Total Operators

1 WQ Specialist

Observatory
Class I Facility
Serves Urban System
10 MGD Capacity
Staffed 12 hours/365
2 Operators per shift
2 shifts per week

- Class 1 Operator
- Class 1 Operator
- Class 1 or Less Operator
- Class 1 or Less Operator

4 Total Operators

North Rivanna
Class II Facility
Serves Urban System
2 MGD Capacity
Staffed 8 hours/365
1 Operator per shift
2 shifts per week

- Class 2 Operator
- Class 2 Operator

2 Total Operators

Crozet
Class II Facility
Serves Crozet System
2 MGD Capacity
Staffed 12 hours/365
1 Operator per shift
2 shifts per week

- Class 1 Operator
- Class 2 Operator

2 Total Operators

Scottsville
Class III Facility
Serves Scottsville System
0.25 MGD Capacity
Staffed 8 hours/365
1 Operator per shift
2 shifts per week

- Class 2 Operator
- Class 2 Operator

2 Total Operators

Red Hill
Class IV Facility
Serves Red Hill System
0.006 MGD Capacity
Visited Daily/365
Monitored 24/7
Operates as needed

- Visited Daily

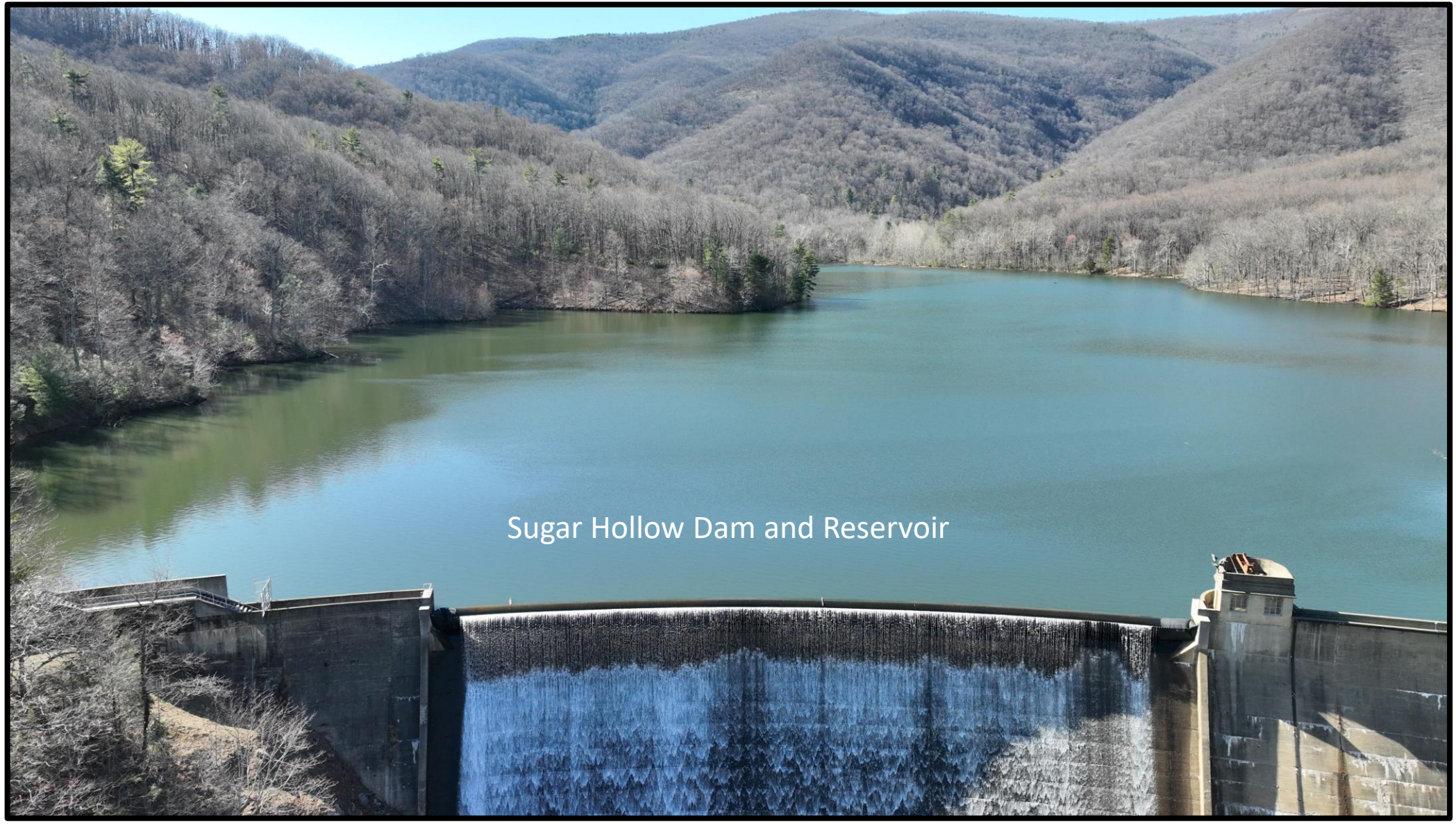
Relief Operators
- Class 1 Operator
- Class 1 Operator
- Class 1 Operator

3 Total Operators

Management Staff
- Water Manager
- Assist. Manager
- Supervisor
- Supervisor

4 Total

Total Water Operators: 22
Total Staff: 27



Questions?

Long-Range Utility Concepts for the Rivanna Water & Sewer Authority

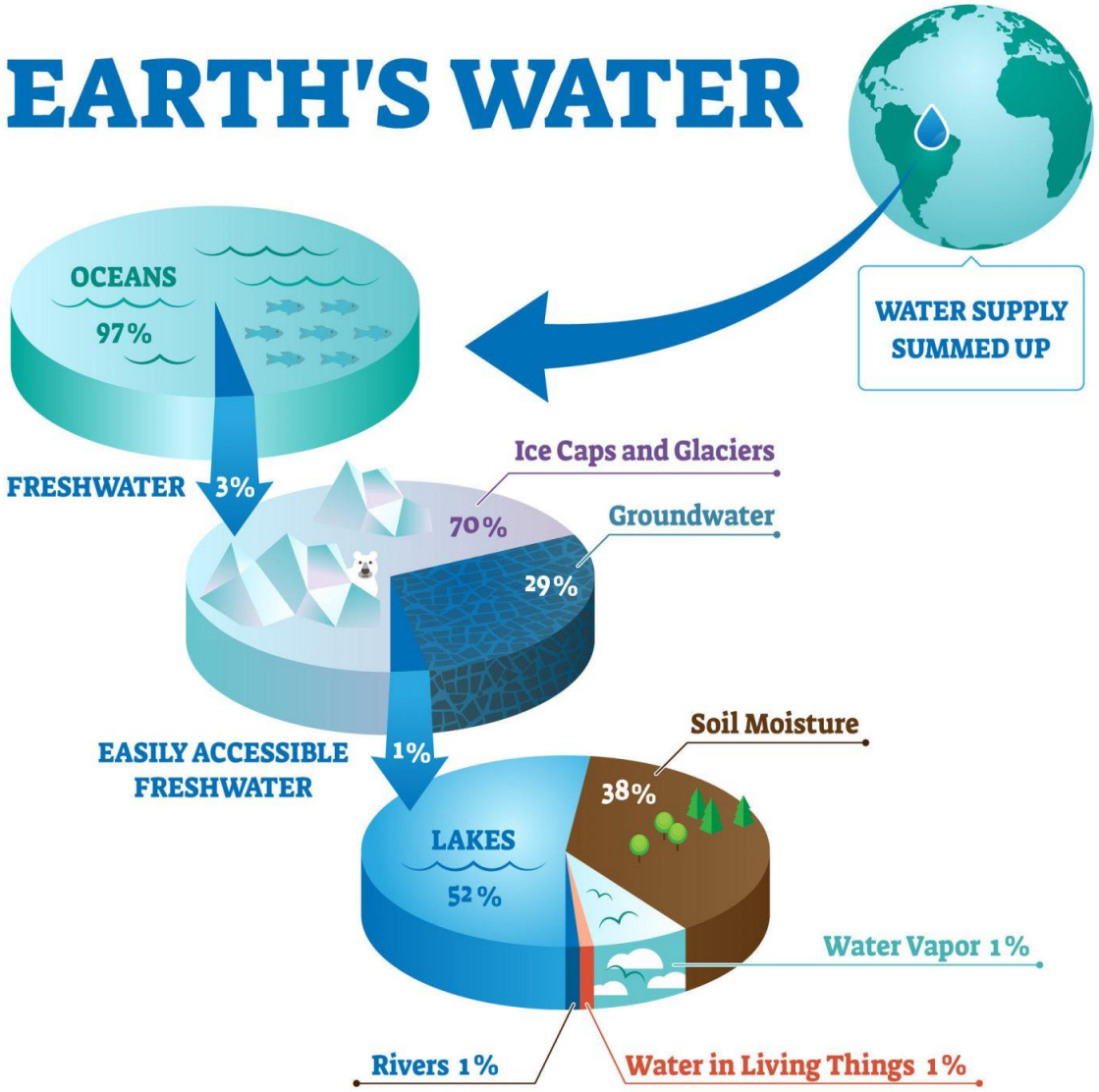
Presented to the Board of Directors

By Bill Mawyer, Executive Director

June 27, 2023

RIVANNA
WATER & SEWER AUTHORITY

Will We Have Enough Drinking Water in the Future?



- About 70% of the Earth's surface is water-covered. The oceans hold about 97% of all of Earth's water.

- Only 3% of Earth's water is freshwater, with only 1% accessible in lakes and rivers.

- The US has 4.3% of the world's population yet contains 7% of global renewable freshwater resources. It is home to the largest freshwater lake system in the world, the Great Lakes, which holds 6 quadrillion gallons of water (that's a 6 followed by 15 zeros).

- According to Colorado State University, nearly half of the 204 freshwater basins studied in the United States may not be able to meet the monthly water demand by 2071.

- Five billion people, two-thirds of the world's population, will face at least one month of water shortages by 2050, according to the United Nations report on how climate change is affecting the world's water resources.

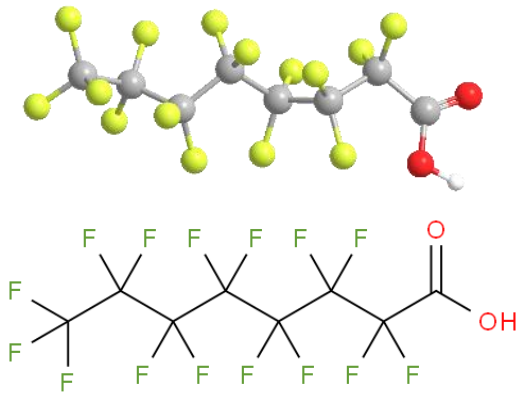
Considerations for the Next 100 Years:

Emerging Contaminants
Regulations
Technology
Capacity
Sustainability
Affordability

Emerging Contaminants and Regulations

- Industrial Products
  - PFAS
  - Dioxane
  - Perchlorate
- Nanoparticles
  - Microplastics
- Endocrine Interrupters
  - Pharmaceuticals
  - Personal Care Products
- Cyanotoxins

PFAS



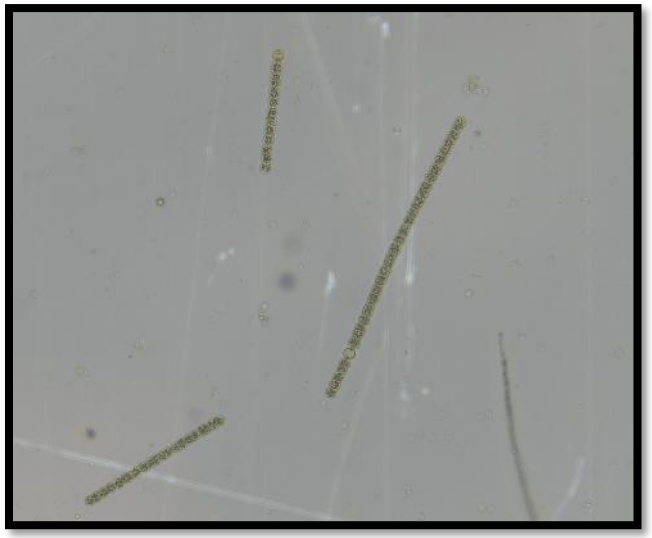
- PFAS: Per-and Polyfluoroalkyl substances
- Synthetic chemicals that included several different classes (e.g. PFOA, PFOS, GenX)
- Impart desirable properties to consumer products such as water repellency (clothing), stain resistance (Scotchgard™), grease-proofing and friction reduction (“non-stick”; Teflon)
- Primary ingredients in many fire-fighting foams
- PFAS compounds have long half-lives in humans (3—5 years)

Microplastics

- Used in many industries including agriculture, cosmetics, personal care, recreational and commercial fishing, and clothing
- Can enter water sources via runoff from land or mechanical, oxidative, and/or biological degradation of larger plastic materials
- 2018 study at Penn State revealed an average of 325 particles/liter in most brands of bottled drinking water
- Some brands contained as much 10,000 particles/liter

Cyanotoxins

- Cyanobacteria, more commonly called blue-green algae, are often found in freshwater
- Like green algae, they can bloom and produce dense mats that cause odor problems and oxygen depletion, which is harmful to humans and aquatic life
- Unlike green algae, cyanobacteria can produce harmful toxins that can be released into the environment

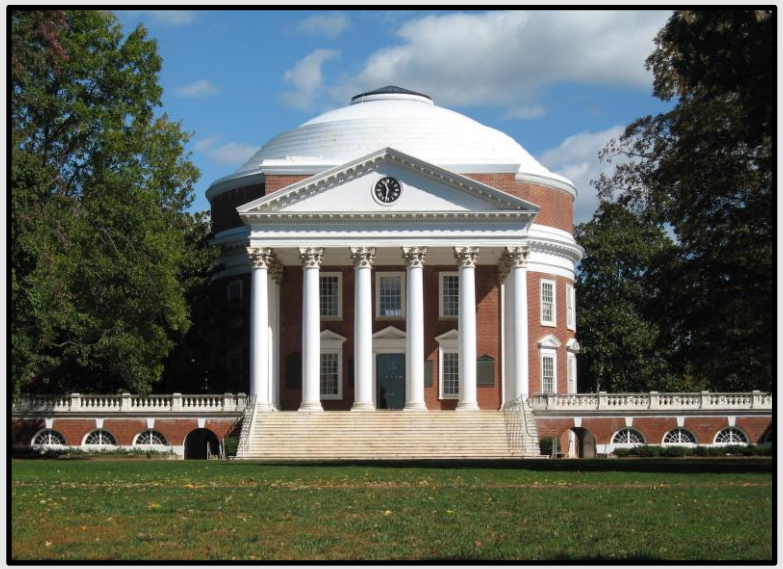


Technology

- Cyber Security
- Real-time Chemical Applications
- Artificial Intelligence

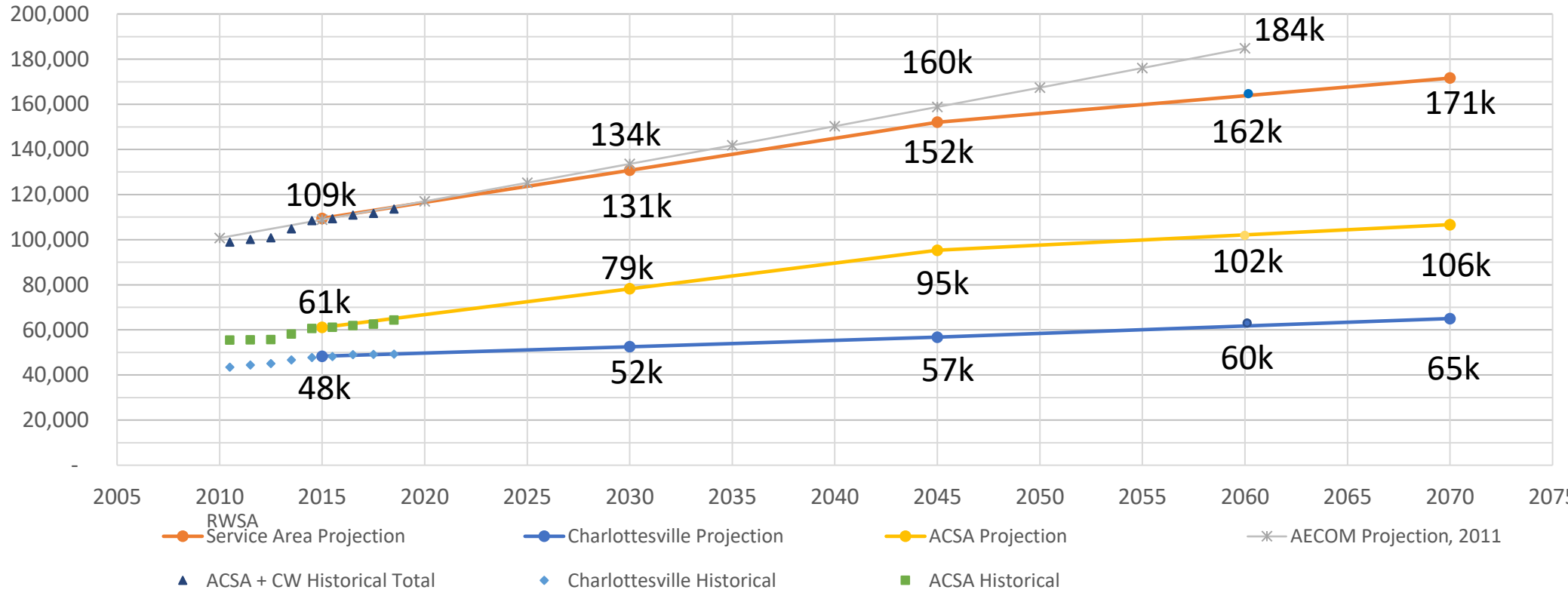
Capacity

- UVA - stable driver of local economy
- Changing Climate
- Coastal Migration



Urban Water Demand Analysis | Population Forecast

- City, ACSA and RWSA Service Area Populations



Sustainability


Methane Storage Sphere

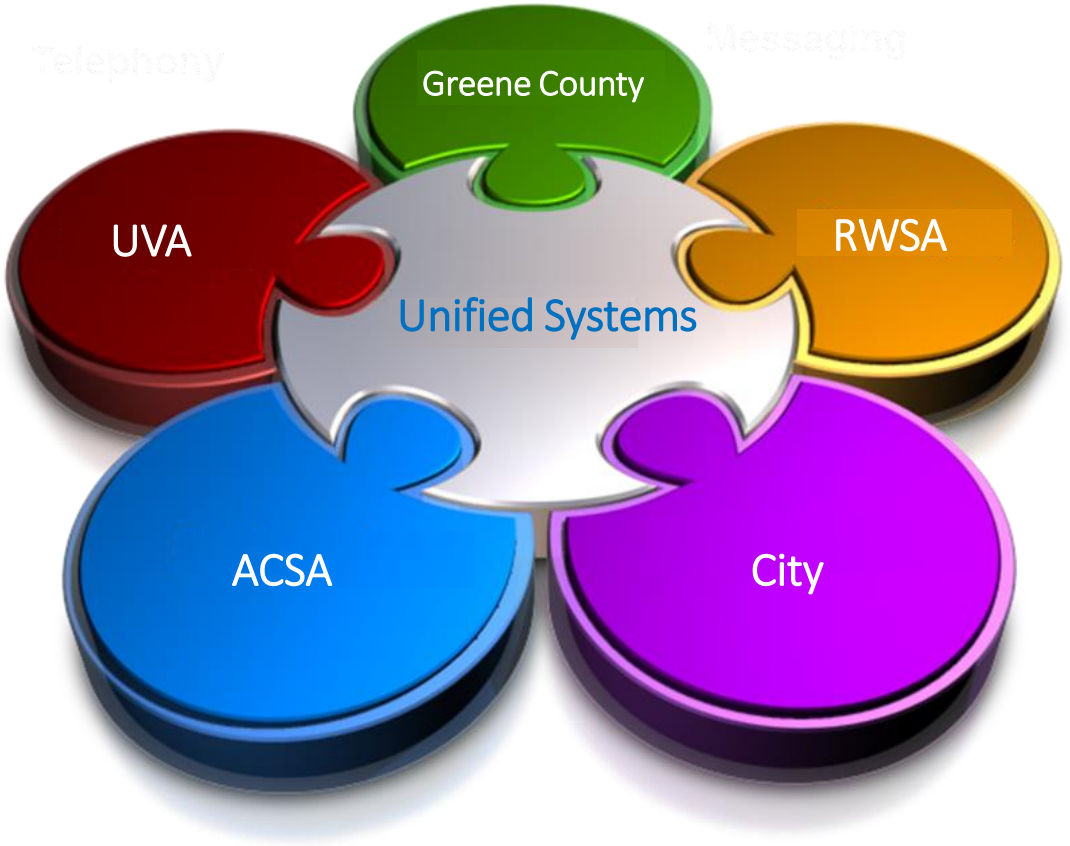
- Energy management and reduction:
  - renewable energy from wastewater biogas and solar facilities
  - high efficiency equipment to reduce energy demand
- Carbon emission inventory and reduction
- Water Reuse; potable and non-potable
- eVehicles and equipment

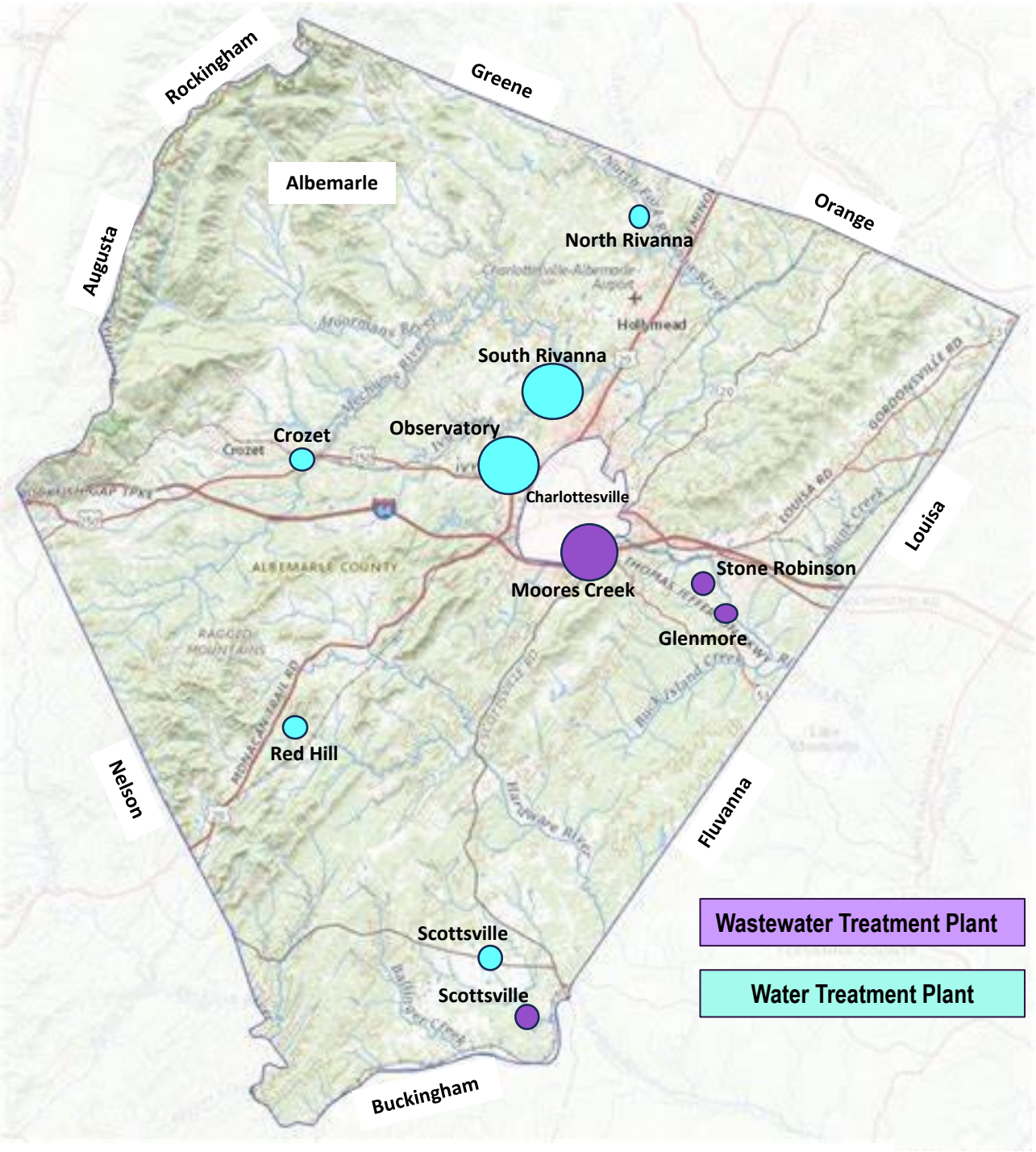

Solar Panels

eVehicles

ALTERNATIVES

More Reservoirs
Unified Local Systems
Regional Partnerships





Unified & Regional Water & Wastewater Systems 2025 – 2070

- North Rivanna WTP decommissioning
- SRR to RMR Water Piping Connection
- Glenmore and Stone Robinson Wastewater Piping Connection to Moores Creek; odor issues in Glenmore
- Systemic alternatives to optimize resources and reduce unit costs ($/gallon)
  - "Big Box" approach to unify and centralize facilities to achieve volume/cost efficiencies and improve affordability
  - Regional partnerships with adjacent Utilities

2070 and Beyond

- Additional reservoir at Buck Mtn
  ~1300 acres are available
- Observatory WTP Lease expires in 2069, with 50-year renewal option until 2119
- Expansion of South Rivanna and Observatory WTPs
- Expansion of Beaver Creek Reservoir

Summary

- Population growth driven by a stable local economy and climate change may require our community to add reservoirs to increase its supply of drinking water.
- Regulatory requirements to address emerging contaminants will increase the cost of water and wastewater treatment.
- Local and regional unification of systems may provide options to optimize resources and minimize costs.
- A long-term Strategic Plan will be essential to guide the changes.

Questions?