RIVANNA
WATER & SEWER AUTHORITY

Board of Directors Meeting

December 14, 2021

2:15pm

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

BOARD OF DIRECTORS

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

DATE: **December 14, 2021**

LOCATION: **Virtually via ZOOM**

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

AGENDA

1. ***CALL TO ORDER***

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

3. ***ACCEPTANCE OF RESIGNATION AND ELECTION OF SECRETARY-TREASURER***
   a. *Chip Boyles, former City Manager, resigned from the Rivanna Boards on October 19, 2021. This election will be for the term ending April 30, 2022.*

4. ***MINUTES OF PREVIOUS BOARD MEETING***
   a. *Minutes of Regular Board Meeting on November 16, 2021*

5. ***RECOGNITION***
   a. *Resolution of Appreciation for Mr. Steven Miller*
   b. *Resolution of Appreciation for Dr. Liz Palmer*

6. ***EXECUTIVE DIRECTOR'S REPORT***

7. ***ITEMS FROM THE PUBLIC***

8. ***RESPONSES TO PUBLIC COMMENTS***

9. ***CONSENT AGENDA***
   a. *Staff Report on Finance*
   b. *Staff Report on Operations*
   c. *Staff Report on Ongoing Projects*
   d. *Staff Report on Wholesale Metering*
   e. *Approval of Work Authorization for the Beaver Creek Raw Water Pump Station and Intake Project – Subsurface Investigation – Hazen and Sawyer Engineers*
   f. *Approval of Property Transfer to Albemarle County Public Schools – Albemarle-Berkeley Wastewater Pump Station Storage Basin Site*

10. OTHER BUSINESS

a. *Presentation: Plan for Urban Utilities, Northern Areas; Bill Mawyer, Executive Director and Scott Schiller, Engineering Manager*

b. *Presentation: Dam Management Program Overview; Victoria Fort, Senior Civil Engineer*

11. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

12. CLOSED MEETING

13. ADJOURNMENT

GUIDELINES FOR PUBLIC COMMENT AT VIRTUAL RIVANNA BOARD OF DIRECTORS MEETINGS

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

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

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

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

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

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

Rev. May 20, 2020

CALL TO ORDER

STATEMENT OF CHAIR TO OPEN MEETING

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

I would like to call the December 14, 2021 meeting of the Board of Directors to order.

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

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

ROLL CALL:

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

And I am Mike Gaffney, located at _____.

Joining us today electronically are the follow Authority staff members:

Bill Mawyer, Lonnie Wood, David Tungate, Victoria Fort, Scott Schiller, Betsy Nemeth, and Deborah Anama

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

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RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
November 16, 2021

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, November 16, 2021 at 2:15 p.m. via Zoom.

Board Members Present: Mike Gaffney; Jeff Richardson; Lauren Hildebrand; Gary O'Connell; Dr. Liz Palmer; Lloyd Snook; Samuel Sanders, Jr.

Board Members Absent: none.

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Jennifer Whitaker, David Tungate, John Hull, Liz Coleman, Katie McIlwee, Deborah Anama.

Attorney(s) Present: Carrie Stanton.

1. CALL TO ORDER

Mr. Gaffney called the November 16, 2021, regular meeting of the Rivanna Water and Sewer Authority to order at 2:33 p.m.

2. STATEMENT FROM THE CHAIR

Mr. Gaffney read the following statement aloud:

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

"I would like to call the November 16, 2021, meeting of the Board of Directors to order.

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

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

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

Mr. Gaffney called the roll.

Ms. Lauren Hildebrand stated she was located at 305 4th Street Northeast, Charlottesville, VA 22903.

Mr. Gary O'Connell stated he was located at the ACSA offices at 168 Spotnap Road, Charlottesville, VA.

Dr. Liz Palmer stated she was located at 2958 Mechum Banks Drive in Albemarle County.

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

Mr. Samuel Sanders stated he was located at 615 Market Street.

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

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

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

Mr. Gaffney stated they were also joined electronically by Carrie Stanton, Counsel to the Authority.

3. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on October 26, 2021

Mr. O'Connell moved that the Board approve the minutes of the October 26, 2021 meeting. Dr. Palmer seconded the motion, which passed unanimously (7-0).

4. RECOGNITIONS

Mr. Gaffney stated the resolutions from the RSWA Board meeting were addressed to both boards, and he asked Ms. Stanton if these needed to be repeated.

Mr. Mawyer stated the RWSA Board planned to congratulate Dr. Palmer in December.

5. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer stated he wanted to recognize four employees – Tom Corrice, Dave Ulan, Dawn Wood, and Cary Wingo – who all put forth extraordinary effort and passed their state water or wastewater operator exams and moved up in their classification. He stated that this increases and improves their credentials for which Rivanna benefits. He stated the employees receive a 5% salary increase as they pass from one level of their license to a higher one.

Mr. Mawyer gave a special thanks to Mr. Dave Tungate, Operations Division Director, and his management team as they put forth a lot of effort to work with operators to encourage, help and

train them to improve their chances to pass these exams. He congratulated the four new license holders and thanked them for their efforts.

Mr. Mawyer stated Mr. Corrice has been with Rivanna for four years and came there unlicensed, so they grew him into the top class, Class I, of wastewater operations. He stated Mr. Ulan has been with Rivanna since 2016 and has moved up one level. He stated Ms. Wood started in 2020 as an unlicensed operator and now, she has passed the Class IV and Class III water operator license. He stated Ms. Wingo just started in April of 2021 and has achieved a Class III water operator's license.

Mr. Mawyer stated that on the COVID front, 87% of Rivanna Water and Sewer staff are vaccinated, which gives Rivanna an overall rate between the two authorities of 89% of staff vaccinated. He stated they did implement a mandatory vaccine or testing program, and the testing will begin for people unvaccinated on December 7.

Mr. Mawyer stated there is always a lot of infrastructure and master planning going on in Water and Sewer. He stated they are pleased that they have completed the Sugar Hollow Reservoir Gate Replacement, which is the rubber bladder that sits on top of the concrete dam and helps to control the upper 5 feet of the normal pool in the reservoir. He stated they had to do a lot of testing and lower the reservoir for much of the summer, and they are pleased that this has been completed and tested, with the reservoir back at its normal pool level.

Mr. Mawyer stated that since October 29th, they have been transferring water to the Ragged Mountain Reservoir, as the sole replenisher of Ragged Mountain is Sugar Hollow Reservoir. About 3 million gallons per day is transferred from Sugar Hollow to the Ragged Mountain Reservoir. He stated they are getting ready for Summer 2022 with all the reservoirs refilled. He stated Ragged Mountain is the only one that needs additional water at this time.

Mr. Mawyer stated Rivanna is moving forward on the Beaver Creek Reservoir Dam, Pump Station, and Piping project. He stated they have substantially completed the planning study with the Natural Resources Conservation Service (NRCS), and they are putting together the final paperwork that they will submit to NRCS and hopefully have this approved by July. He stated Rivanna is working on an application to the federal agency for design and construction funding for 65% of the cost of the project. He stated the project cost is about $30 million, so 65% is close to $20 million, and Rivanna is asking NRCS to fund this amount for this project, which will enlarge the spillway and bring it into compliance with dam safety requirements.

Mr. Mawyer stated Rivanna continues to work on the Central Water Pipe project. He stated there were comments from the public last month about this project and questions of whether Rivanna was considering a number of alternative routes of where they would locate this pipe. He stated he did respond to the resident who posed those questions.

Mr. Mawyer stated there will be a webpage in November for everyone to read that will provide information about the different routes Rivanna has considered and how they are trying to coordinate with the Charlottesville Department of Utilities and the Albemarle County Service Authority (who are both funding the project) as well with UVA, as the upper end of the project

near the Observatory Water Treatment Plant would be on UVA property. He stated Rivanna is coordinating with UVA and trying to find the best location that would be the least disruptive and also reasonably affordable for the City, County, and Rivanna.

Mr. Mawyer stated the board heard in October that Rivanna obtained an easement from the Trinity Presbyterian Church. He stated now, they have obtained an easement from the Virginia Department of Forestry for the pipeline that will extend from Ragged Mountain Reservoir to the Observatory Water Treatment Plant. He stated there is one more private easement along Reservoir Road to obtain, and Rivanna continues to work with UVA Foundation on a location for the pump station. He stated Rivanna will be on UVA property as the pipeline is also located on Observatory Mountain.

Mr. Mawyer stated they are down to the last three private owners for the pipeline that will extend from the South Rivanna Reservoir all the way to Ragged Mountain Reservoir. He stated there are two private owners on Woodburn Road where Rivanna is at the threshold of completing those easements. He stated they expect this to be completed in the present calendar year, which will leave them only with the UVA Foundation and one private owner near Barracks Road to obtain easements for the 8-mile-long pipeline. He stated Rivanna is pleased they have made good progress, and they are working hard with the UVA Foundation.

Mr. Mawyer stated Rivanna is also working on a design to extend the pipe from the Birdwood Golf Course area at Route 250 (under 250, across the adjacent property, and under Old Garth Road). He stated they expect to put this into construction next summer.

Mr. Mawyer stated there was a recent article in The Daily Progress and Richmond Times Dispatch about the cleanliness of the James River and the challenges that the City of Richmond has with its combined sewer system – that when it rains in Richmond, the combined stormwater and wastewater will flow past the wastewater treatment plant and into the James River. He stated in fact, the DEQ has told the City of Richmond that they have until 2035 to eliminate these overflows, which the city estimates will cost about $900 million as it was reported.

Mr. Mawyer stated he thinks this is a positive topic for Rivanna, the City, and Service Authority, as they presented to the board in the last couple months how, together, they have invested about $165 million in sewer rehab for the very purpose of renovating their sewer systems to make sure they keep wastewater in the wastewater pipes rather than in the streams.

Mr. Mawyer stated that the prior day, the newspaper also reported on the forever chemical, PFAS, and how the EPA and state are moving forward in trying to set limits on how much of this chemical can be present in drinking water. He stated there is also a discussion of putting limits on PFAS in treated wastewater. He stated PFAS stands for perfluoroalkyl and polyfluoroalkyl substances, which are found in many places such as clothing, nonstick cookware, cosmetics, food packaging, metal plating, and firefighting foam. He stated they are blessed that the Rivanna River is the primary water source, and these types of industries do not occur upstream in the watershed.

Mr. Mawyer stated Rivanna does test several times a year to see if they have any PFAS in its raw

water and treated water as it leaves the plant, as well as wastewater coming into and going out of the plant. He stated that in most cases, they have not detected PFAS. He stated there have been a few cases where they detected a very small level of PFAS. He stated the good news is that they are monitoring and do not have a significant issue with PFAS at this time.

Mr. Mawyer stated the technology typically used to treat PFAS is GAC. He stated this is the good news about their GAC treatment system, which is a way to remove any PFAS that they may find. He stated Rivanna is monitoring this emerging contaminant through their operations and laboratory.

Dr. Palmer noted that he had mentioned a small amount of PFAS being detected, and she asked him where this was and what it was from.

Mr. Mawyer replied that a small amount of PFAS was detected in the North Rivanna River, which comes into the North Rivanna Water Treatment Plant. He stated there was a small amount leaving the Scottsville Water Treatment Plant. He stated there was also a small amount coming from the raw water at Beaver Creek Reservoir going to the Crozet Water Treatment Plant. He commented that when reading the thresholds being proposed, 70 parts per trillion, it is a hugely small number. He stated for example, at the North Rivanna River, there were 2.8 parts per trillion, so they are far below even the 70 parts per trillion proposed for drinking water standards.

Dr. Palmer stated her other question was about the easements for the South Fork to Ragged Mountain Reservoir. She asked if they are paying by the same formula for all of these properties.

Mr. Mawyer replied that they generally are. He stated they get appraisals and look at the County assessment of the property. He stated there is some negotiation with the property owners, depending on the circumstances of what sort of inconvenience or other damage that may be done to the property as part of the easement. He stated generally, they do use the same approach with all easements.

Dr. Palmer asked if it was not just by formula but takes into consideration individual impacts.

Mr. Mawyer replied yes, and that these include fences that may need to be removed, impacts to businesses, etc. He stated these come into the discussion, and Rivanna works hard to come to an agreeable negotiation as opposed to having a condemnation.

6. ITEMS FROM THE PUBLIC

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

Mr. Hull replied that there were no comments from the public.

Mr. Gaffney closed Items from the Public.

7. RESPONSES TO PUBLIC COMMENT

Mr. Gaffney stated that in Executive Report, Mr. Mawyer had responded to the public comments from the last meeting.

8. CONSENT AGENDA

a. Staff Report on Finance

b. Staff Report on Operations

c. Staff Report on Ongoing Projects

d. Staff Report on Wholesale Metering

e. *Staff Report on the Control of Firearms and Ammunition – General Administrative Procedure #2*

f. Staff Report on the Use of Credit Cards – General Administrative Procedure #3

g. Recommendation for Disposition of FY 2021 Rate Center Results

h. Series 2021 Bond Issue - Update

i. Approval of Calendar Year 2022 Meeting Schedule

Mr. Gaffney asked if there were any items Board members wanted to pull for comments or questions.

Dr. Palmer moved that the Board approve the Consent Agenda. Mr. O'Connell seconded the motion, which passed 7-0.

9. OTHER BUSINESS

a. Presentation: FY 21 CAFR and Audit Report; Matthew McLearen, Robinson, Farmer, Cox Associates

Mr. Matthew McLearen with Robinson, Farmer, Cox Associates stated his firm performed the independent audit for the Rivanna Water and Sewer Authority for the fiscal year ending June 30, 2021.

Mr. McLearen stated he would start his remarks with the Communication with Those Charged with Governance, which is a written communication that he would communicate in summary to the board.

Mr. McLearen stated the first item included in the written communication, "Responsibilities Under the Audit," describes that the auditor is required to test controls and documents and opine

on financial statements that are presented by management. He stated this financial statement report is called the Comprehensive Annual Financial Report.

Mr. McLearen stated the second item is Difficulties Encountered in Performing the Audit, and that there were no difficulties encountered during the FY 21 audit.

Mr. McLearen stated the third item communicated in the letter is regarding corrected and uncorrected misstatements. He stated there were no uncorrected misstatements for the fiscal year ending June 30, 2021.

Mr. McLearen stated the next item is Applying Accounting Principles, and there was one significant accounting principle for most governments that is GASB Reporting Standard #84, but this did not apply to the Rivanna Water and Sewer Authority's financial statements for the year ending June 30, 2021. He stated there is one significant financial reporting standard that will be implemented in FY 2022, and this is regarding lease accounting under GASB #87.

Mr. McLearen stated last, the firm reported no significant audit findings, and this is disclosed in the Communication with Those Charged with Governance.

Mr. McLearen moved on to the Comprehensive Annual Financial Report document. He stated the Independent Auditor's Report is found on page 13 of the document, or on pages 19 and 20 of the PDF file. He stated the firm issued an unmodified or clean opinion on the financial statements as of June 30, 2021, with the report dated as October 25, 2021.

Mr. McLearen stated that immediately following the Independent Auditor's Report is Management's Discussion and Analysis (MD&A). He stated this is a narrative overview of the financial report and presents increases, decreases, and some historical information about the financial figures in the report.

Mr. McLearen stated there are three financial statements for the Rivanna Water and Sewer Authority, with the first being found in Exhibit 1 (page 28 of the document, or PDF pages 34-35). He stated this is Statement of Net Position, which is similar to a balance sheet and presents the net equity of the Authority. He stated the net position or equity as of June 30, 2021 was approximately $160 million. He stated this is found on page 29 of the document or page 35 of the PDF file.

Mr. McLearen stated Exhibit 2 is the Statement of Revenues, Expenses, and Changes to Net Position and presents the increase or decrease in the net position or equity of the Authority for the fiscal year ending June 30, 2021. He stated the Authority had an increase in net position, with a change in net position to $3.47 million. He stated this is found on page 30 of the document and page 36 of the PDF.

Mr. McLearen stated lastly, the Statement of Cash Flows is the final exhibit (Exhibit 3), which is found on page 31 of the document and page 37 of the PDF file. He stated following along on the exhibit, one will see the double underline, and the ending cash position was approximately $52.1 million. He stated this reports a $17 million decrease, and one would see two numbers above that

if following along in the statement for the fiscal year ending June 30, 2021. He stated it is not uncommon to see a decrease or even an increase in cash position. He noted this is just cash, and as projects are concluded, the cash is drawn down from previously issued bond financing. He stated this number will come down, and it is natural to see swings in the cash position just like this. He stated it is just a cash position only, and it has no impact on the net position of the Authority.

Mr. McLearen presented to the board's attention the Compliance section, found at the rear of the document on pages 101-102 of the document, or pages 107-108 of the PDF file. He stated this is the Report on Internal Controls Over Financial Reporting. He stated the firm has issued no significant deficiencies or material weaknesses in the financial reporting structure of the Authority for the fiscal year ending June 30, 2021.

Mr. McLearen concluded his remarks, adding that he wanted to take a moment to acknowledge and thank Mr. Lonnie Wood and his staff (specifically, Ms. Kathy Ware) for their assistance in the audit process, as well as the complete preparation of the Comprehensive Annual Financial Report for both Authorities.

Mr. Gaffney thanked Mr. McLearen for his report and asked if there were any comments or questions from the board.

Dr. Palmer stated that every year, there is always a great report, so something must be happening correctly. She thanked Mr. Wood and his team.

(reconvene RSWA for a JOINT SESSION with the RWSA)

Mr. Gaffney called to order the joint session.

At 3:02 p.m., Mr. Gaffney called to order the joint session of the Rivanna Solid Waste Authority and the Rivanna Water and Sewer Authority.

b. Presentation: Safety Program Update; Liz Coleman, Safety Manager

Ms. Liz Coleman, Safety Manager for Rivanna Authorities, stated she would guide the boards through updates to the Safety Program.

Ms. Coleman stated safety is a continuous improvement process that protects staff and reduces the number of workplace deaths, injuries, and illnesses, as described by OSHA. She stated safety is a part of the Strategic Plan, involved in the goal of operational optimization, and there are two strategies to help meet those goals – to enhance the culture of safety, and to grow the culture of safety by protecting the workforce and the public.

Ms. Coleman listed the components that make up the Safety Program, which include the Safety Manual, employee training, safety equipment, job-specific procedures, new employee orientation, contractor safety, and emergency management.

Ms. Coleman stated the slide on the screen displayed the 24 chapters that make up the Safety Manual. She stated all chapters pertain to work activities and processes carried out by Rivanna Authorities. She stated everything from post-incident procedures to emergency action plans are necessary in this program.

Ms. Coleman stated there are seven departments that perform a variety of tasks. She stated training requirements include annual, periodic, and best practices trainings. She stated many required trainings are similar; however, different departments need different types of trainings. She stated the Administration Department, for example, does not perform the same job duties as the Maintenance Department; thus, safety training is focused on the specific job responsibilities of each department.

Ms. Coleman stated that safety training takes time and Rivanna employees spend 16-27 hours per year training. She stated the average hours spent in training per employee each year by companies of Rivanna's size were 41.7 hours. She stated this is for all training.

Ms. Coleman stated regarding the safety training update, although COVID-19 has given Rivanna a run for their money in terms of scheduling and hosting in-person trainings, they still managed to deliver virtual and in-person required trainings as are necessary to the industry. She stated these included hazard communication, hazardous chemicals, heavy equipment training, hands-on fire extinguisher training, to name a few.

Ms. Coleman stated Rivanna also purchased a few much-needed items this year and received a few safety grants from their insurance provider, Virginia Risk Sharing Association. She stated eye washes, fiberglass ladders, gas meters, and sleeves to support the masts (which are used for fall protection safety training and use).

Ms. Coleman stated this year, several programs were enhanced, including new employee safety orientation. She stated training is now provided prior to the first day on the job. She stated regarding job procedures, ARC flash labeling is getting done. She stated regarding lockout/tagout procedures, there are 700 pieces of equipment that have those completed.

Ms. Coleman stated safety showers and eye washes are all installed except for one, which is underway. She stated regarding inspections and electronic recordkeeping, recordkeeping is being stored online, which makes access easier for staff and for any type of audit. She stated they have had combustible dust inspections, gas meter calibrations, and inspections for fall protection hoists inspections, cranes, eye wash stations, showers, and AEDs.

Ms. Coleman stated regarding resources available for the Safety Program, there is one full-time Safety Manager and a staff Safety Committee made up of one representative from each department. She stated there is a budget of $109,650 for Water and Sewer and $26,000 for Solid Waste. She stated they received $6,000 worth of grants this year.

Ms. Coleman presented a set of graphs, noting that the incident rate is the number of reportable injuries and illnesses occurring among a given number of workers over a period of time. She stated the Bureau of Labor Statistics reports annual incident rate averages according to company

size. She stated the average number of incidents reported in 2019, which is the most up-to-date year available for the industry of water and sewer is 2.8 incidents.

Ms. Coleman presented the incident rates reported for Water and Sewer over the last four years. She stated they started out at 1.98 in 2018 and were still under the industry average, but they have dropped this to 0.93 in 2019. She stated the rate was 0.93 in 2020 and 0.90 in 2021.

Ms. Coleman presented the incident rates reported for Solid Waste over the last four years. She stated the total recordable incident rate decreased from 22.7 in 2019 to 8.7 in 2020, then to 4.0 in 2021. She noted that in 2019, job-specific training began for Solid Waste, and they are now much closer to the federally reported industry average of 3.6.

Ms. Coleman summarized that Rivanna has recently completed many improvements and enhancements to the program, but with this stated, they must continue to train staff and new employees, purchase new equipment, update job procedures, monitor and ensure the safe habits of contractors, update emergency procedures to ensure a state of continual readiness, and continually update the safety manual. She stated that through these actions, they can protect their valuable human resources by providing a safe workplace, enhance safety culture through safe work practices, and maintain compliance with regulatory agencies. She stated they can do this by working together, and Rivanna Authorities make a great team.

Ms. Coleman asked the boards if there were any questions.

Dr. Palmer stated she assumed that looking at the Solid Waste record over the last few years, the policies that Mr. McKalips and his group instituted about not helping with customer unloading perhaps had a significant amount to do with the improvements. She asked if this was correct or if it was due to some other change.

Ms. Coleman replied that this was certainly part of it. She stated the other part was heavy equipment training for employees. She stated whenever there was an incident, they attended to it, and she had to credit Mr. McKalips and Mr. David Rhoades for prompt attention to those incidents.

10. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

There were no other items presented.

11. CLOSED MEETING

There was no reason for a closed meeting.

12. ADJOURNMENT

At 3:09 p.m., Mr. O'Connell moved to adjourn the meeting of the Rivanna Water and Sewer Authority. Dr. Palmer seconded the motion, which passed unanimously (7-0).

RIVANNA WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS

Resolution of Appreciation for Mr. Steven Miller

WHEREAS, Mr. Miller has served as an Information Technology Administrator for the Rivanna Water and Sewer Authority since April of 1999; and

WHEREAS, over the same period in excess of 22 years, Mr. Miller has provided significant contributions in his field and served as a valuable resource to the Authority; and

WHEREAS, Mr. Miller's dedication and loyalty to the Authority have positively impacted the Authority, its customers and its employees; and

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

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors recognizes and thanks Mr. Miller for his distinguished service, efforts and achievements as a member of the Rivanna Water and Sewer Authority, and presents this Resolution as a token of esteem, with its best wishes in his retirement.

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

Michael Gaffney, Chairman
Lauren Hildebrand
Gary O'Connell
Liz Palmer
Jeff Richardson
Samuel Sanders Jr.
Lloyd Snook

RIVANNA SOLID WASTE AUTHORITY
RIVANNA WATER & SEWER AUTHORITY
BOARDS OF DIRECTORS

Joint Resolution of Appreciation for Dr. Liz Palmer

WHEREAS, Dr. Palmer has served as a member of the Rivanna Solid Waste Authority and the Rivanna Water & Sewer Authority Boards of Directors since 2016; and

WHEREAS, since 1998 Dr. Palmer has been an active and valuable contributor and has demonstrated leadership in solid waste, recycling, drinking water and wastewater services as a member of the community and as a member of the Boards of Directors; and

WHEREAS, Dr. Palmer's understanding of solid waste and recycling as well as drinking water and sewer operations of Albemarle County and the Rivanna Authorities has supported a strategic decision-making process that provided benefits to the customers served by Albemarle County as well as the community as a whole. During Dr. Palmer's tenure and through her efforts, major projects were completed including:

- a modern refuse Transfer Station at the Ivy Material Utilization Center
- the first recycling and refuse Convenience Centers located at the Ivy MUC as well as in Keene
- a Community Water Supply Plan to ensure an adequate water supply for the next 50 years
- the regional "Wastewater Projects Cost Allocation Agreement"
- Odor Control Improvements at the Moores Creek Advanced Water Resource Recovery Facility
- Granular Activated Carbon Filters for the water treatment plants
- a Strategic Plan for both Authorities; and

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

NOW, THEREFORE, BE IT RESOLVED that the Rivanna Solid Waste Authority and Rivanna Water & Sewer Authority Boards of Directors recognize, thank, and commend Dr. Palmer for her distinguished service, efforts, and achievements and present this Resolution as a token of esteem, with their best wishes in her future endeavors.

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

Michael Gaffney, Chairman
Jeff Richardson
Gary O'Connell
Lauren Hildebrand
Samuel Sanders, Jr.
Lloyd Snook
Lance Stewart

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: **DECEMBER 14, 2021**

STRATEGIC PLAN GOAL: WORKFORCE DEVELOPMENT

Recognitions

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

Mary Rad Morris – Water Operator Class 2

COVID Vaccinations

Mandatory testing for unvaccinated employees began successfully on December 7, 2021.

In response to the Omicron variant, and out of an abundance of caution during the holiday/ travel season, we reinstituted a travel requirement for all staff to work with managers on a return-to-work plan for international travel or if visited by a person traveling from other countries.

All employees who are fully vaccinated, and helping us reduce testing and health insurance costs, were given 8 hours of annual leave.

Overall RWSA / RSWA Vaccination Rate: 89%

STRATEGIC PLAN GOAL: INFRASTRUCTURE AND MASTER PLANNING

Drinking Water Supply

Our reservoirs are 100% full with the exception of Ragged Mountain Reservoir (94%) to which we are transferring water daily from Sugar Hollow Reservoir. Statewide, precipitation and stream flows are somewhat below normal. We continue to monitor stream and reservoir conditions locally. Nationally, California's water supply is a major concern as a 2- year drought threatens to extend into the 3rd year. The state's 2nd largest reservoir, Lake Oroville (1.2 trillion gallons), is at 30% capacity compared to its historical average for this time of year of 60%. Emergency regulations are being implemented, and the vice chair of the Santa Clara Valley Water District, which supplies water to 2 million people in Silicon Valley, is quoted as saying, "We're worried about running out next year."

FY 2023 – 2027 Capital Improvement Program

We have completed an initial draft of the proposed 5-year CIP totaling $203.6 M. We will meet with the Board's Subcommittee (City and ACSA) in January to review the plan. The proposed CIP will be presented to the Board in February.

Federal Funding Opportunities

We recently submitted 6 projects totaling $7.2 M to Albemarle County for consideration in its allocation of Local Fiscal Recovery Funds from the American Rescue Plan Act of 2021. We are monitoring the requirements and preparing to submit projects for funding from the Bipartisan Infrastructure Law (BIL) of 2021 recently approved. This BIL allocated $126.3 M to Virginia in the first-year allotment for investment in programs including: Safe Drinking Water (emerging contaminants like PFAS); Clean Water for Communities; Protecting Regional Waters; and Additional Investments in Water.

Central Water Pipe

Preparation of engineering plans and specifications continue for this 24 - 30" finished water distribution pipe to be completed along a 5-mile alignment through the City generally following: Stadium Road, Piedmont Avenue, Price Avenue, Lewis Street (to railroad), Jefferson Park Avenue, Cleveland Avenue, Cherry Avenue, Elliot Avenue, 6th Street SE, Avon Street (to railroad), E Water Street, 10th Street NE and/or 11th Street NE, and E High St to Long Street. This major drinking water pipe is needed to strengthen the urban drinking water system in the City and the County. Information about this project has been added to our web page, and a review of the alternate routes considered will be included this month. The proposed route for the pipe will be presented to the Board in January.

S. Rivanna and Observatory WTP Renovations

The planned 3-month shutdown of the Observatory WTP starting in December 2021 during the UVA holiday break has been postponed until December 2022 due to delays in delivery of materials needed to complete critical upgrades at the SR WTP. This delay will have minimal impact on final completion of the project by May 2023.

S. Rivanna to Ragged Mtn Reservoir Water Pipe

Easements and agreements (VDOT) have been obtained from all parties along the route except from 1 private owner on Barracks Road and from UVA Foundation for 2 properties, as shown by the attached map. Preparation of engineering plans and specifications continue for a 0.25-mile section of this 36" raw water pipe from Birdwood to Old Garth Road to be constructed in 2022 - 2023.

STRATEGIC PLAN GOAL: ENVIRONMENTAL STEWARDSHIP, COMMUNICATION & COLLABORATION

Tour for Ashland, KY Engineering and Utilities Department

Rivanna hosted a socially distanced, 100% vaccinated tour for a group of wastewater managers from the City of Ashland, KY. Ashland is planning to upgrade its wastewater treatment facility and was interested in viewing the 5 stage Bardenpho wastewater treatment process we utilize at Moores Creek.

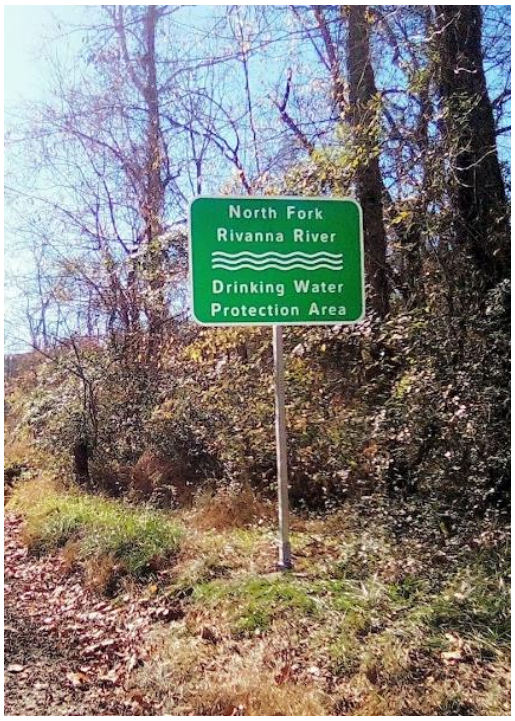
Virginia Department of Health Reservoir Protection Grant

In June 2020, RWSA was awarded a $19,200 grant from the Virginia Department of Health to establish watershed and reservoir protection signs in the following watersheds:

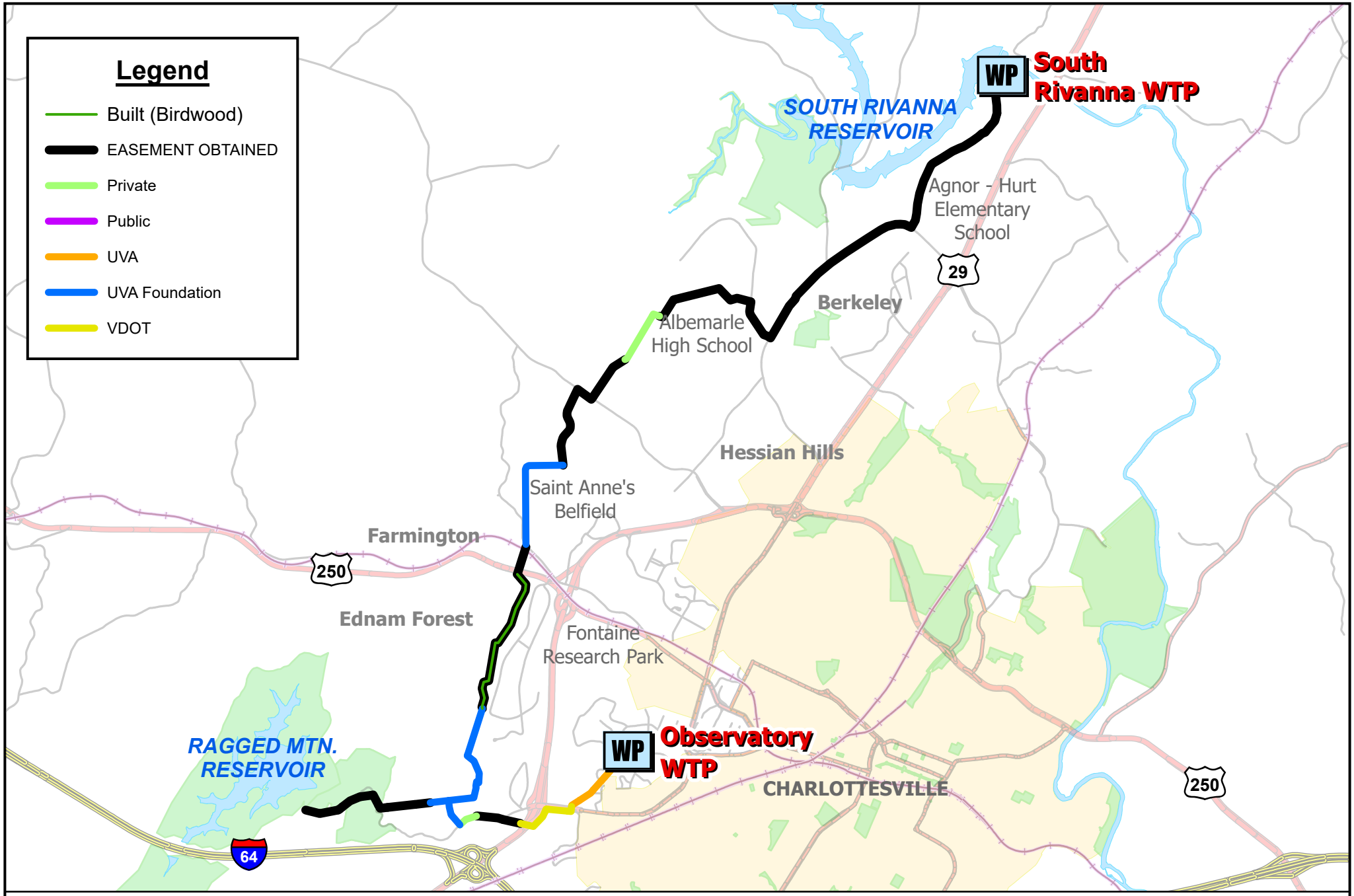
- Beaver Creek Reservoir
- Totier Creek Reservoir
- North Rivanna Intake

RWSA has coordinated with the VA Department of Transportation regarding rules about sign size and color. A VDOT representative said that this was the first time a public utility in Virginia has requested source water protection signs for their water supply watershed. Installation of signs at the Beaver Creek Reservoir was completed in August 2021, and installations at Totier Creek Reservoir and the North Rivanna River intake were completed in November 2021.


North Fork
Rivanna River
Drinking Water
Protection Area


North Fork
Rivanna River
Drinking Water
Protection Area

Attachment



Preliminary South Rivanna Reservoir to Ragged Mountain Reservoir Water Line

N

Miles
0 0.25 0.5

RIVANNA WATER & SEWER AUTHORITY

695 Moores Creek Lane
Charlottesville, VA 22902
p.434-977-2970
www.rivanna.org
www.rivannagis.org

Date: 12/8/2021

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: **OCTOBER MONTHLY FINANCIAL SUMMARY – FY 2022**

DATE: **DECEMBER 14, 2021**

Urban Water flows and rate revenues are 16% over budget estimates through October, and Urban Wastewater flows and rate revenues are 3% over budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 3,223,615	$ 3,267,339	$ 779,584	$ 7,270,538
Expenses	(2,920,000)	(2,956,361)	(851,022)	(6,727,383)
Surplus (deficit)	$ 303,615	$ 310,978	$ (71,438)	$ 543,155
Debt Service				
Revenues	$ 2,547,780	$ 2,972,270	$ 668,839	$ 6,188,889
Expenses	(2,552,152)	(2,905,234)	(669,864)	(6,127,250)
Surplus (deficit)	$ (4,372)	$ 67,036	$ (1,025)	$ 61,639
Total				
Revenues	$ 5,771,395	$ 6,239,609	$ 1,448,423	$ 13,459,427
Expenses	(5,472,152)	(5,861,595)	(1,520,886)	(12,854,633)
Surplus (deficit)	$ 299,243	$ 378,014	$ (72,463)	$ 604,794

When reviewing the Authority as a whole, operating revenues are $615,000 over budget and operating expenses are $19,000 under budget.

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 will even out as the year progresses. Septage receiving support revenue of $109,441 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 – page 2) – Urban Water's salaries were a little higher than budgeted for July and August due to some overlap of salaries for the outgoing water department manager and the interim manager.

C. Professional Services (Crozet Water, Glenmore Wastewater – pages 3, 6) – Crozet Water incurred unbudgeted engineering and technical services expenses for a water demand forecast update. Glenmore Wastewater engaged an engineering firm to perform a needs evaluation for Glenmore WRRF, which is an unbudgeted cost.

D. Information Technology (Urban Water, Scottsville Water, Urban Wastewater – pages 2, 4, and 5) – These rate centers are over budget on SCADA maintenance and support costs.

E. Operations & Maintenance (All Water, Scottsville Wastewater – pages 2, 3, 4, and 7) – Urban Water and Scottsville Water each purchased a GAC carbon exchange for $85,600 and $18,120, respectively, which pushes Chemical costs over the prorated budget. Crozet Water is over budget for Beaver Creek Watershed signs and utility easement clearing costs. We will be reimbursed by a grant from the State for the watershed sign costs. Scottsville Wastewater incurred $14,000 of unbudgeted repairs to the lagoon intake gates.

Attachments

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021
Fiscal Year 2022

Consolidated
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 18,810,555	$ 6,270,185	$ 6,781,880	$ 511,695	8.16%
Lease Revenue		105,000	35,000	24,204	(10,796)	-30.85%
Admin., Maint. & Engineering Revenue		553,000	184,333	188,576	4,242	2.30%
Other Revenues		540,589	180,196	304,746	124,550	69.12%
Use of Reserves-GAC		316,250	105,417	88,850	(16,567)	-15.72%
Rate Stabilization Reserves		200,000	66,667	66,667	-	0.00%
Interest Allocation		8,200	2,733	4,193	1,460	53.40%
Total Operating Revenues		**$ 20,533,594**	**$ 6,844,531**	**$ 7,459,114**	**$ 614,583**	**8.98%**
Expenses						
Personnel Cost	**A,B**	$ 9,649,988	$ 3,306,673	$ 3,263,221	$ 43,452	1.31%
Professional Services	**C**	712,050	237,350	175,500	61,850	26.06%
Other Services & Charges		3,111,400	1,037,133	919,556	117,577	11.34%
Communications		191,412	63,804	72,421	(8,617)	-13.50%
Information Technology	**A,D**	447,100	149,033	213,708	(64,674)	-43.40%
Supplies		42,160	14,053	12,778	1,276	9.08%
Operations & Maintenance	**A,E**	4,864,235	1,621,412	1,897,893	(276,481)	-17.05%
Equipment Purchases		615,250	205,083	60,883	144,200	70.31%
Depreciation		900,000	300,000	300,000	-	0.00%
Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 20,533,595**	**$ 6,934,542**	**$ 6,915,959**	**$ 18,583**	**0.27%**
Operating Surplus/(Deficit)		**$ (1)**	**$ (90,011)**	**$ 543,155**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 18,193,960	$ 6,064,653	$ 6,064,660	$ 7	0.00%
Use of Reserves		-	-	-	-	
Septage Receiving Support - County		109,440	36,480	109,441	72,961	200.00%
Buck Mountain Lease Revenue		1,600	533	-	(533)	-100.00%
Trust Fund Interest		33,700	11,233	441	(10,792)	-96.07%
Reserve Fund Interest		80,000	26,667	14,346	(12,320)	-46.20%
Total Debt Service Revenues		**$ 18,418,700**	**$ 6,139,567**	**$ 6,188,889**	**$ 49,322**	**0.80%**
Debt Service Costs						
Total Principal & Interest		$ 14,256,077	$ 4,752,026	$ 4,752,026	$ -	0.00%
Reserve Additions-Interest		80,000	26,667	14,346	12,320	46.20%
Debt Service Ratio Charge		725,000	241,667	241,667	-	0.00%
Reserve Additions-CIP Growth		3,357,634	1,119,211	1,119,211	-	0.00%
Total Debt Service Costs		**$ 18,418,711**	**$ 6,139,570**	**$ 6,127,250**	**$ 12,320**	**0.20%**
Debt Service Surplus/(Deficit)		**$ (11)**	**$ (4)**	**$ 61,639**		

Summary

Total Revenues	$ 38,952,294	$ 12,984,098	$ 13,648,003	$ 663,905	5.11%
Total Expenses	38,952,306	13,074,112	13,043,209	30,903	0.24%
Surplus/(Deficit)	**$ (12)**	**$ (90,014)**	**$ 604,794**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Urban Water Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 7,971,504	$ 2,657,168	$ 3,086,609	$ 429,441	16.16%
Lease Revenue		75,000	25,000	16,337	(8,663)	-34.65%
Miscellaneous		-	-	-	-	
Use of Reserves-GAC		300,000	100,000	85,600	(14,400)	-14.40%
Rate Stabilization Reserves		100,000	33,333	33,333	-	0.00%
Interest Allocation		3,400	1,133	1,736	603	53.16%
Total Operating Revenues		**$ 8,449,904**	**$ 2,816,635**	**$ 3,223,615**	**$ 406,980**	**14.45%**
Expenses						
Personnel Cost	**B**	$ 2,039,157	$ 697,409	$ 708,656	$ (11,247)	-1.61%
Professional Services		279,200	93,067	48,540	44,527	47.84%
Other Services & Charges		734,150	244,717	202,466	42,251	17.27%
Communications		98,670	32,890	35,635	(2,745)	-8.34%
Information Technology	**D**	80,500	26,833	36,714	(9,880)	-36.82%
Supplies		5,100	1,700	2,847	(1,147)	-67.49%
Operations & Maintenance	**A,E**	2,250,440	750,147	941,890	(191,743)	-25.56%
Equipment Purchases		15,400	5,133	3,850	1,283	25.00%
Depreciation		300,000	100,000	100,000	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 5,802,617	$ 1,951,895	$ 2,080,598	$ (128,702)	-6.59%
Allocation of Support Departments		2,647,289	904,996	839,402	65,593	7.25%
Total Operating Expenses		**$ 8,449,906**	**$ 2,856,891**	**$ 2,920,000**	**$ (63,109)**	**-2.21%**
Operating Surplus/(Deficit)		**$ (2)**	**$ (40,256)**	**$ 303,615**		

Debt Service Budget vs. Actual

	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 7,621,725	$ 2,540,575	$ 2,540,576	$ 1	0.00%
Trust Fund Interest	12,000	4,000	160	(3,840)	-96.00%
Reserve Fund Interest	39,300	13,100	7,044	(6,056)	-46.23%
Use of Reserves	-	-	-	-	
Lease Revenue	1,600	533	-	(533)	-100.00%
Total Debt Service Revenues	**$ 7,674,625**	**$ 2,558,208**	**$ 2,547,780**	**$ (10,428)**	**-0.41%**
Debt Service Costs					
Total Principal & Interest	$ 5,215,275	$ 1,738,425	$ 1,738,425	$ -	0.00%
Reserve Additions-Interest	39,300	13,100	7,044	6,056	46.23%
Debt Service Ratio Charge	400,000	133,333	133,333	-	0.00%
Reserve Additions-CIP Growth	2,020,050	673,350	673,350	-	0.00%
Total Debt Service Costs	**$ 7,674,625**	**$ 2,558,208**	**$ 2,552,152**	**$ 6,056**	**0.24%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ (4,372)**		

Rate Center Summary

	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 16,124,529	$ 5,374,843	$ 5,771,395	$ 396,552	7.38%
Total Expenses	16,124,531	5,415,099	5,472,152	(57,053)	-1.05%
Surplus/(Deficit)	**$ (2)**	**$ (40,256)**	**$ 299,242**		
Costs per 1000 Gallons	$ 2.49		$ 2.22		
Operating and DS	$ 4.75		$ 4.16		
Thousand Gallons Treated	3,397,700	1,132,567	1,315,690	183,123	16.17%
or					
Flow (MGD)	9.309		10.697		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Crozet Water Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 1,058,856	$ 352,952	$ 352,952	$ -	0.00%
Lease Revenues		30,000	10,000	7,867	(2,133)	-21.33%
Use of Reserves-GAC		13,000	4,333	-	(4,333)	-100.00%
Interest Allocation		500	167	243	77	45.91%
Total Operating Revenues		**$ 1,102,356**	**$ 367,452**	**$ 361,062**	**$ (6,390)**	**-1.74%**
Expenses						
Personnel Cost		$ 324,463	$ 110,960	$ 112,008	$ (1,048)	-0.94%
Professional Services	C	15,100	5,033	23,623	(18,589)	-369.32%
Other Services & Charges		104,450	34,817	37,091	(2,274)	-6.53%
Communications		17,530	5,843	6,056	(212)	-3.63%
Information Technology		5,250	1,750	8,277	(6,527)	-372.95%
Supplies		1,500	500	352	148	29.67%
Operations & Maintenance	E	296,900	98,967	110,632	(11,665)	-11.79%
Equipment Purchases		28,000	9,333	750	8,583	91.96%
Depreciation		60,000	20,000	20,000	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 853,193	$ 287,203	$ 318,788	$ (31,584)	-11.00%
Allocation of Support Departments		249,161	85,163	78,996	6,167	7.24%
Total Operating Expenses		**$ 1,102,354**	**$ 372,367**	**$ 397,784**	**$ (25,417)**	**-6.83%**
Operating Surplus/(Deficit)		**$ 2**	**$ (4,915)**	**$ (36,722)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 1,847,832	$ 615,944	$ 615,944	$ -	0.00%
Trust Fund Interest		2,900	967	37	(930)	-96.17%
Use of Reserves		-	-	-	-	
Reserve Fund Interest		2,500	833	445	(389)	-46.63%
Total Debt Service Revenues		**$ 1,853,232**	**$ 617,744**	**$ 616,426**	**$ (1,318)**	**-0.21%**
Debt Service Costs						
Total Principal & Interest		$ 1,216,667	$ 405,556	$ 405,556	$ -	0.00%
Reserve Additions-Interest		2,500	833	445	389	46.63%
Reserve Additions-CIP Growth		634,070	211,357	211,357	-	0.00%
Total Debt Service Costs		**$ 1,853,237**	**$ 617,746**	**$ 617,357**	**$ 389**	**0.06%**
Debt Service Surplus/(Deficit)		**$ (5)**	**$ (2)**	**$ (931)**		

Rate Center Summary

Total Revenues	$ 2,955,588	$ 985,196	$ 977,488	$ (7,708)	-0.78%
Total Expenses	2,955,591	990,112	1,015,141	(25,029)	-2.53%
Surplus/(Deficit)	**$ (3)**	**$ (4,916)**	**$ (37,653)**		
Costs per 1000 Gallons	$ 5.44		$ 4.29		
Operating and DS	$ 14.58		$ 10.95		
Thousand Gallons Treated	202,697	67,566	92,670	25,104	37.16%
Flow (MGD)	0.555		0.753		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Scottsville Water Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 514,704	$ 171,568	$ 171,568	$ -	0.00%
Use of Reserves-GAC		3,250	1,083	3,250	2,167	200.00%
Interest Allocation		200	67	117	51	76.12%
Total Operating Revenues		**$ 518,154**	**$ 172,718**	**$ 174,935**	**$ 2,217**	**1.28%**
Expenses						
Personnel Cost		$ 195,695	$ 66,955	$ 68,270	$ (1,315)	-1.96%
Professional Services		2,900	967	1,740	(773)	-79.99%
Other Services & Charges		28,100	9,367	7,580	1,787	19.08%
Communications		4,930	1,643	2,201	(558)	-33.95%
Information Technology	D	1,250	417	11,768	(11,351)	-2724.31%
Supplies		770	257	56	200	78.08%
Operations & Maintenance	E	87,200	29,067	40,857	(11,790)	-40.56%
Equipment Purchases		1,500	500	783	(283)	-56.60%
Depreciation		40,000	13,333	13,333	0	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 362,345	$ 122,505	$ 146,588	$ (24,083)	-19.66%
Allocation of Support Departments		155,813	53,222	49,217	4,006	7.53%
Total Operating Expenses		**$ 518,158**	**$ 175,728**	**$ 195,805**	**$ (20,077)**	**-11.43%**
Operating Surplus/(Deficit)		**$ (4)**	**$ (3,010)**	**$ (20,869)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 138,888	$ 46,296	$ 46,296	$ -	0.00%
Trust Fund Interest		300	100	4	(96)	-96.04%
Reserve Fund Interest		1,200	400	215	(185)	-46.21%
Total Debt Service Revenues		**$ 140,388**	**$ 46,796**	**$ 46,515**	**$ (281)**	**-0.60%**
Debt Service Costs						
Total Principal & Interest		$ 125,892	$ 41,964	$ 41,964	$ -	0.00%
Reserve Additions-Interest		1,200	400	215	185	
Reserve Additions-CIP Growth		13,299	4,433	4,433	-	
Total Debt Service Costs		**$ 140,391**	**$ 46,797**	**$ 46,612**	**$ 185**	**0.39%**
Debt Service Surplus/(Deficit)		**$ (3)**	**$ (1)**	**$ (97)**		

Rate Center Summary

Total Revenues	$ 658,542	$ 219,514	$ 221,451	$ 1,937	0.88%
Total Expenses	658,549	222,525	242,417	(19,892)	-8.94%
Surplus/(Deficit)	**$ (7)**	**$ (3,011)**	**$ (20,966)**		
Costs per 1000 Gallons	$ 30.07		$ 28.65		
Operating and DS	$ 38.22		$ 35.47		
Thousand Gallons Treated	17,230	5,743	6,835	1,092	19.01%
or					
Flow (MGD)	0.047		0.056		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Urban Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 8,535,195	$ 2,845,065	$ 2,927,319	$ 82,254	2.89%
Stone Robinson WWTP		20,589	6,863	5,648	(1,215)	-17.70%
Septage Acceptance		475,000	158,333	194,623	36,290	22.92%
Nutrient Credits		45,000	15,000	104,475	89,475	596.50%
Rate Stabilization Reserve		100,000	33,333	33,333	-	0.00%
Miscellaneous Revenue		-	-	-	-	
Interest Allocation		3,800	1,267	1,941	675	53.26%
Total Operating Revenues		**$ 9,179,584**	**$ 3,059,861**	**$ 3,267,339**	**$ 207,478**	**6.78%**
Expenses						
Personnel Cost	**A**	$ 1,289,471	$ 441,515	$ 452,396	$ (10,881)	-2.46%
Professional Services		208,500	69,500	49,097	20,404	29.36%
Other Services & Charges		2,011,700	670,567	607,615	62,952	9.39%
Communications		9,800	3,267	4,728	(1,461)	-44.73%
Information Technology	**D**	56,500	18,833	32,904	(14,070)	-74.71%
Supplies		1,200	400	479	(79)	-19.72%
Operations & Maintenance	**A**	1,672,520	557,507	636,718	(79,211)	-14.21%
Equipment Purchases		294,250	98,083	12,500	85,583	87.26%
Depreciation		470,000	156,667	156,667	(0)	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 6,013,941	$ 2,016,338	$ 1,953,102	$ 63,236	3.14%
Allocation of Support Departments		3,165,643	1,081,760	1,003,260	78,501	7.26%
Total Operating Expenses		**$ 9,179,584**	**$ 3,098,098**	**$ 2,956,362**	**$ 141,737**	**4.57%**
Operating Surplus/(Deficit)		**$ (0)**	**$ (38,237)**	**$ 310,978**		

Debt Service Budget vs. Actual

	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 8,568,221	$ 2,856,074	$ 2,856,076	$ 2	0.00%
Septage Receiving Support - County	109,440	36,480	109,441	72,961	200.00%
Trust Fund Interest	18,500	6,167	240	(5,927)	-96.11%
Use of Reserves	-	-	-	-	
Reserve Fund Interest	36,300	12,100	6,513	(5,587)	-46.17%
Total Debt Service Revenues	**$ 8,732,461**	**$ 2,910,820**	**$ 2,972,270**	**$ 61,450**	**2.11%**
Debt Service Costs					
Total Principal & Interest	$ 7,689,212	$ 2,563,071	$ 2,563,071	$ -	0.00%
Reserve Additions-Interest	36,300	12,100	6,513	5,587	46.17%
Debt Service Ratio Charge	325,000	108,333	108,333	-	0.00%
Reserve Additions-CIP Growth	681,950	227,317	227,317	-	0.00%
Total Debt Service Costs	**$ 8,732,462**	**$ 2,910,821**	**$ 2,905,234**	**$ 5,587**	**0.19%**
Debt Service Surplus/(Deficit)	**$ (1)**	**$ (0)**	**$ 67,036**		

Rate Center Summary

	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 17,912,045	$ 5,970,682	$ 6,239,609	$ 268,928	4.50%
Total Expenses	17,912,046	6,008,919	5,861,596	147,323	2.45%
Surplus/(Deficit)	**$ (1)**	**$ (38,237)**	**$ 378,014**		
Costs per 1000 Gallons	$ 2.71		$ 2.54		
Operating and DS	$ 5.28		$ 5.04		
Thousand Gallons Treated	3,390,400	1,130,133	1,163,019	32,886	2.91%
or					
Flow (MGD)	9.289		9.455		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 404,028	$ 134,676	$ 134,676	$ -	0.00%
Rate Stabilization Reserve		-	-	-	-	
Interest Allocation		200	67	88	21	32.11%
Total Operating Revenues		**$ 404,228**	**$ 134,743**	**$ 134,764**	**$ 21**	**0.02%**
Expenses						
Personnel Cost		$ 94,885	$ 32,487	$ 33,272	$ (785)	-2.42%
Professional Services	C	12,900	4,300	15,000	(10,700)	
Other Services & Charges		34,300	11,433	12,727	(1,293)	-11.31%
Communications		3,130	1,043	1,179	(135)	-12.98%
Information Technology		2,000	667	616	51	7.62%
Supplies		-	-	69	(69)	
Operations & Maintenance		121,650	40,550	27,864	12,686	31.28%
Equipment Purchases		3,800	1,267	950	317	25.00%
Depreciation		10,000	3,333	3,333	0	0.00%
Subtotal Before Allocations		$ 282,665	$ 95,080	$ 95,010	$ 70	0.07%
Allocation of Support Departments		121,563	41,492	38,114	3,378	8.14%
Total Operating Expenses		**$ 404,229**	**$ 136,573**	**$ 133,125**	**$ 3,448**	**2.52%**
Operating Surplus/(Deficit)		**$ (1)**	**$ (1,830)**	**$ 1,639**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 7,412	$ 2,471	$ 2,472	$ 1	0.05%
Trust Fund Interest		-	-	-	-	
Reserve Fund Interest		200	67	43	(24)	-35.47%
Total Debt Service Revenues		**$ 7,612**	**$ 2,537**	**$ 2,515**	**$ 1**	**0.05%**
Debt Service Costs						
Total Principal & Interest		$ 1,578	$ 526	$ 526	$ -	0.00%
Reserve Additions-CIP Growth		5,834	1,945	1,945	-	0.00%
Reserve Additions-Interest		200	67	43	24	35.47%
Total Debt Service Costs		**$ 7,612**	**$ 2,537**	**$ 2,514**	**$ 24**	**0.93%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 1**		

Rate Center Summary					
Total Revenues	$ 411,840	$ 137,280	$ 137,279	$ (1)	0.00%
Total Expenses	411,841	139,110	135,638	3,472	2.50%
Surplus/(Deficit)	**$ (1)**	**$ (1,830)**	**$ 1,641**		
Costs per 1000 Gallons	$ 9.76		$ 11.96		
Operating and DS	$ 9.95		$ 12.18		
Thousand Gallons Treated	41,401	13,800	11,133	(2,667)	**-19.33%**
or					
Flow (MGD)	0.113		0.091		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 326,268	$ 108,756	$ 108,756	$ -	0.00%
Interest Allocation		100	33	67	34	101.18%
Total Operating Revenues		**$ 326,368**	**$ 108,789**	**$ 108,823**	**$ 34**	**0.03%**
Expenses						
Personnel Cost		$ 94,875	$ 32,484	$ 33,272	$ (789)	-2.43%
Professional Services		10,250	3,417	361	3,055	89.43%
Other Services & Charges		21,800	7,267	8,877	(1,611)	-22.16%
Communications		3,400	1,133	1,421	(288)	-25.42%
Information Technology		1,500	500	1,390	(890)	-178.08%
Supplies		-	-	-	-	
Operations & Maintenance	E	58,100	19,367	36,031	(16,664)	-86.05%
Equipment Purchases		3,800	1,267	950	317	25.00%
Depreciation		20,000	6,667	6,667	(0)	0.00%
Subtotal Before Allocations		$ 213,725	$ 72,100	$ 88,970	$ (16,870)	-23.40%
Allocation of Support Departments		112,640	38,452	35,338	3,114	8.10%
Total Operating Expenses		**$ 326,365**	**$ 110,552**	**$ 124,308**	**$ (13,756)**	**-12.44%**
Operating Surplus/(Deficit)		**$ 3**	**$ (1,763)**	**$ (15,485)**		

Debt Service Budget vs. Actual

	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 9,882	$ 3,294	$ 3,296	$ 2	0.06%
Trust Fund Interest	-	-	0	0	
Reserve Fund Interest	500	167	86	(81)	-48.33%
Total Debt Service Revenues	**$ 10,382**	**$ 3,461**	**$ 3,383**	**$ (78)**	**-2.26%**
Debt Service Costs					
Total Principal & Interest	$ 7,453	$ 2,484	$ 2,484	$ -	0.00%
Reserve Additions-Interest	500	167	86	81	48.33%
Estimated New Principal & Interest	2,431	810	810	-	0.00%
Total Debt Service Costs	**$ 10,384**	**$ 3,461**	**$ 3,381**	**$ 81**	**2.33%**
Debt Service Surplus/(Deficit)	**$ (2)**	**$ (1)**	**$ 2**		

Rate Center Summary

	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 336,750	$ 112,250	$ 112,206	$ (44)	-0.04%
Total Expenses	336,749	114,014	127,689	(13,675)	-11.99%
Surplus/(Deficit)	**$ 1**	**$ (1,764)**	**$ (15,483)**		
Costs per 1000 Gallons	$ 13.80		$ 23.94		
Operating and DS	$ 14.24		$ 24.59		
Thousand Gallons Treated	23,643	7,881	5,193	(2,688)	**-34.11%**
or					
Flow (MGD)	0.065		0.042		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Administration

Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 551,000	$ 183,667	$ 184,668	$ 1,001	0.55%
Miscellaneous Revenue		2,000	667	3,335	2,669	400.28%
Total Operating Revenues		**$ 553,000**	**$ 184,333**	**$ 188,003**	**$ 3,670**	**1.99%**
Expenses						
Personnel Cost		$ 2,177,998	$ 747,427	$ 725,594	$ 21,833	2.92%
Professional Services		163,200	54,400	36,097	18,303	33.65%
Other Services & Charges		86,200	28,733	29,604	(871)	-3.03%
Communications		21,000	7,000	9,019	(2,019)	-28.84%
Information Technology	**A**	171,900	57,300	95,288	(37,988)	-66.30%
Supplies		21,500	7,167	6,317	850	11.86%
Operations & Maintenance		68,600	22,867	13,713	9,153	40.03%
Equipment Purchases		25,200	8,400	3,800	4,600	54.76%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,735,598**	**$ 933,294**	**$ 919,432**	**$ 13,861**	**1.49%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (2,182,598)**	**$ (748,960)**	**$ (731,429)**	**$ (17,531)**	**2.34%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 960,343**	**$ 329,543**	**$ 321,829**	**$ 7,714**	
Crozet Water	4.00%	**$ 87,304**	**29,958**	**29,257**	**701**	
Scottsville Water	2.00%	**$ 43,652**	**14,979**	**14,629**	**351**	
Urban Wastewater	48.00%	**$ 1,047,647**	**359,501**	**351,086**	**8,415**	
Glenmore Wastewater	1.00%	**$ 21,826**	**7,490**	**7,314**	**175**	
Scottsville Wastewater	1.00%	**$ 21,826**	**7,490**	**7,314**	**175**	
	100.00%	**$ 2,182,598**	**$ 748,960**	**$ 731,429**	**$ 17,531**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Maintenance

Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ -	$ -	
Miscellaneous Revenue		-	-	-	-	
Total Operating Revenues		**$ -**	**$ -**	**$ -**	**$ -**	
Expenses						
Personnel Cost		$ 1,398,597	$ 479,332	$ 473,994	$ 5,338	1.11%
Professional Services		-	-	-	-	
Other Services & Charges		61,200	20,400	7,000	13,400	65.68%
Communications		15,730	5,243	6,779	(1,535)	-29.28%
Information Technology		9,500	3,167	275	2,891	91.30%
Supplies		2,000	667	269	397	59.58%
Operations & Maintenance		89,600	29,867	35,515	(5,648)	-18.91%
Equipment Purchases		208,100	69,367	31,500	37,867	54.59%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,784,727**	**$ 608,042**	**$ 555,333**	**$ 52,709**	**8.67%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,784,727)**	**$ (608,042)**	**$ (555,333)**	**$ (52,709)**	**8.67%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 535,418**	**$ 182,413**	**$ 166,600**	**$ 15,813**	
Crozet Water	3.50%	**62,465**	**21,281**	**19,437**	**1,845**	
Scottsville Water	3.50%	**62,465**	**21,281**	**19,437**	**1,845**	
Urban Wastewater	56.50%	**1,008,371**	**343,544**	**313,763**	**29,781**	
Glenmore Wastewater	3.50%	**62,465**	**21,281**	**19,437**	**1,845**	
Scottsville Wastewater	3.00%	**53,542**	**18,241**	**16,660**	**1,581**	
	100.00%	**$ 1,784,727**	**$ 608,042**	**$ 555,333**	**$ 52,709**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Laboratory

Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
N/A						
Expenses						
Personnel Cost		$ 411,037	$ 140,964	$ 130,230	$ 10,734	7.61%
Professional Services		-	-	-	-	
Other Services & Charges		7,900	2,633	1,321	1,312	49.83%
Communications		1,300	433	322	112	
Information Technology		200	67	180	(113)	-170.00%
Supplies		1,300	433	733	(300)	-69.14%
Operations & Maintenance		120,590	40,197	36,188	4,009	9.97%
Equipment Purchases		1,700	567	425	142	25.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 544,027**	**$ 185,294**	**$ 169,398**	**$ 15,896**	**8.58%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (544,027)**	**$ (185,294)**	**$ (169,398)**	**$ (15,896)**	**8.58%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 239,372**	**$ 81,529**	**$ 74,535**	**$ 6,994**	
Crozet Water	4.00%	**21,761**	**7,412**	**6,776**	**636**	
Scottsville Water	2.00%	**10,881**	**3,706**	**3,388**	**318**	
Urban Wastewater	47.00%	**255,693**	**87,088**	**79,617**	**7,471**	
Glenmore Wastewater	1.50%	**8,160**	**2,779**	**2,541**	**238**	
Scottsville Wastewater	1.50%	**8,160**	**2,779**	**2,541**	**238**	
	100.00%	**$ 544,027**	**$ 185,294**	**$ 169,398**	**$ 15,896**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2021

Engineering

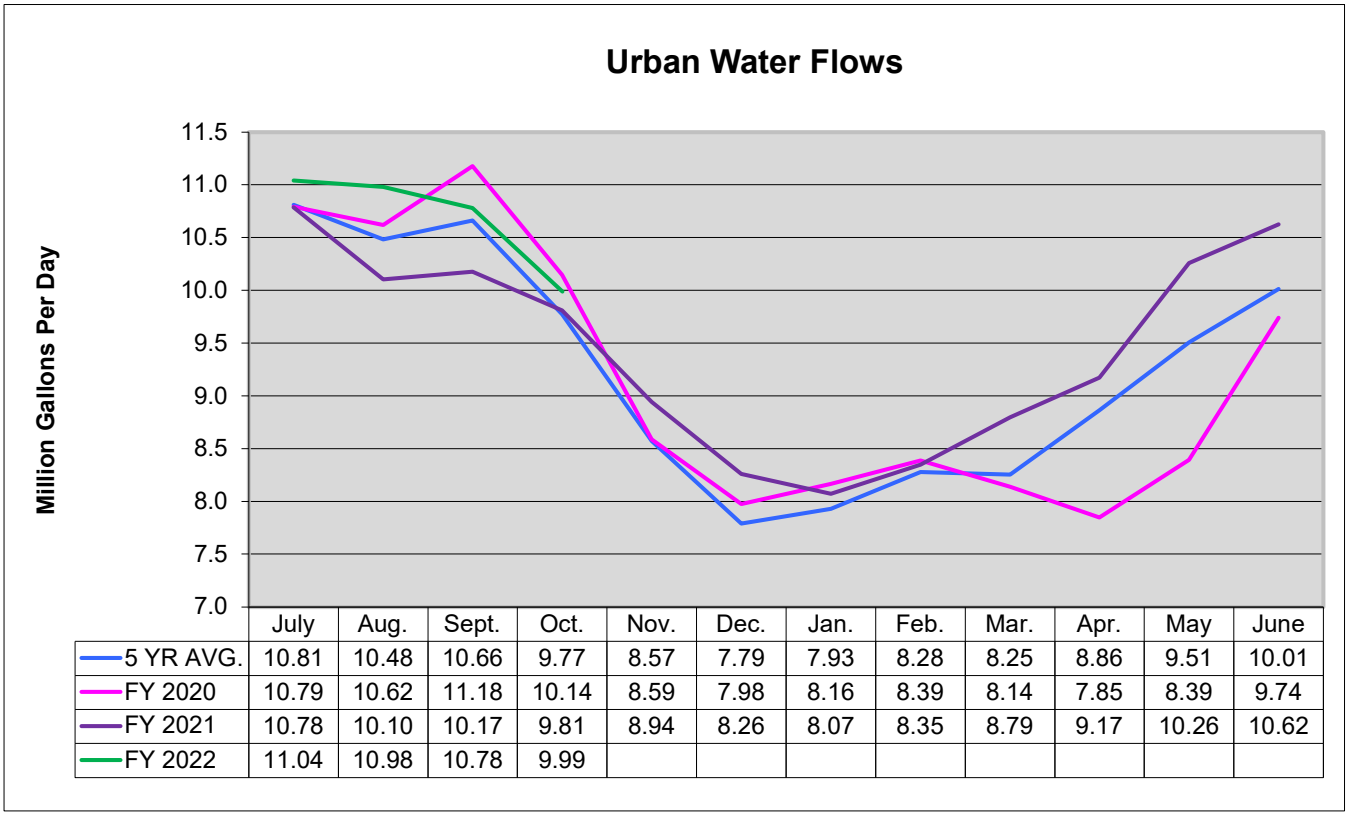
Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ 573	$ 573	
Total Operating Revenues		**$ -**	**$ -**	**$ 573**	**$ 573**	
Expenses						
Personnel Cost		$ 1,623,810	$ 557,140	$ 525,528	$ 31,612	5.67%
Professional Services		20,000	6,667	1,043	5,624	84.36%
Other Services & Charges		21,600	7,200	5,275	1,925	26.73%
Communications		15,922	5,307	5,082	225	4.24%
Information Technology		118,500	39,500	26,296	13,204	33.43%
Supplies		8,790	2,930	1,655	1,275	43.51%
Operations & Maintenance		98,635	32,878	18,485	14,394	43.78%
Equipment Purchases		33,500	11,167	5,375	5,792	51.87%
Depreciation & Capital Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 1,940,757**	**$ 662,789**	**$ 588,739**	**$ 74,050**	**11.17%**

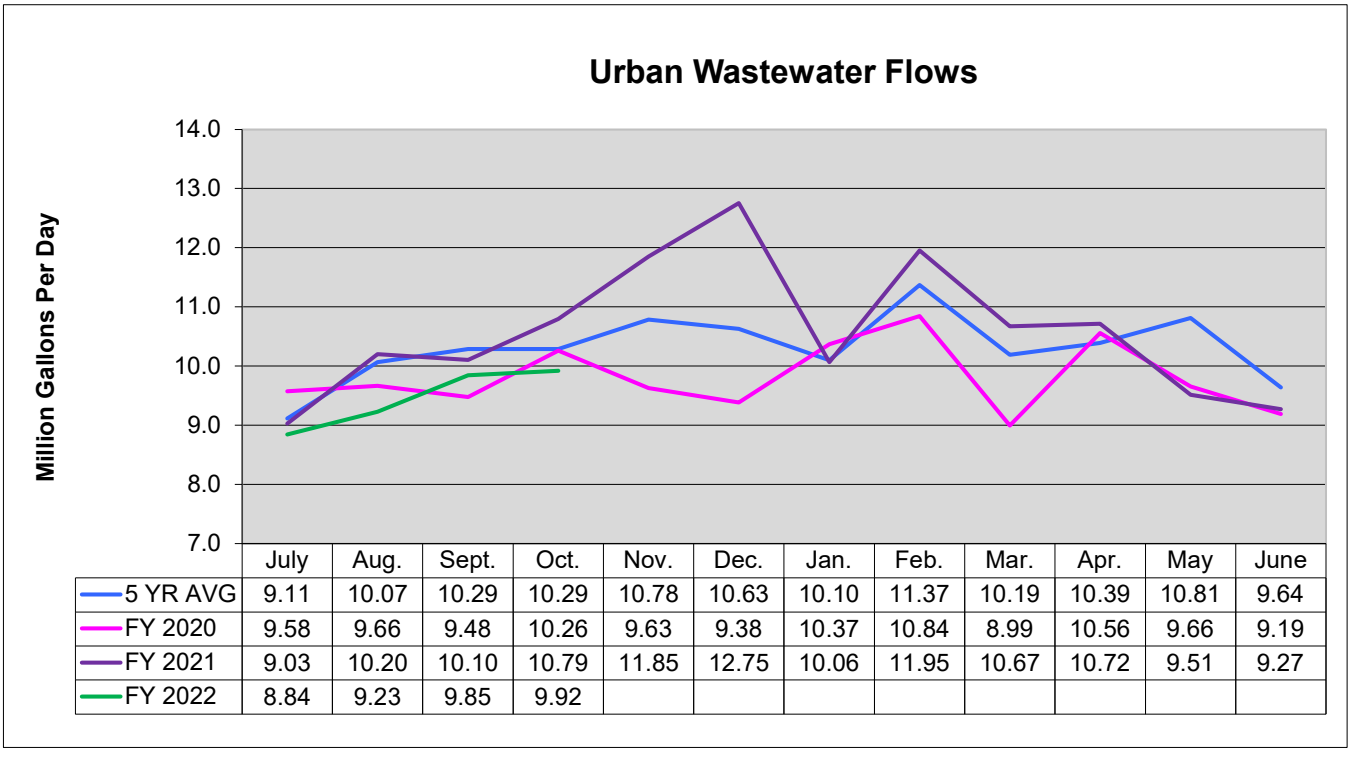
Department Summary

Net Costs Allocable to Rate Centers		**$ (1,940,757)**	**$ (662,789)**	**$ (588,166)**	**$ (73,478)**	**11.09%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 912,156**	**$ 311,511**	**$ 276,438**	**$ 35,073**	
Crozet Water	4.00%	**77,630**	**26,512**	**23,527**	**2,985**	
Scottsville Water	2.00%	**38,815**	**13,256**	**11,763**	**1,492**	
Urban Wastewater	44.00%	**853,933**	**291,627**	**258,793**	**32,834**	
Glenmore Wastewater	1.50%	**29,111**	**9,942**	**8,822**	**1,119**	
Scottsville Wastewater	1.50%	**29,111**	**9,942**	**8,822**	**1,119**	
	100.00%	**$ 1,940,757**	**$ 662,789**	**$ 588,166**	**$ 74,623**	

Rivanna Water and Sewer Authority
Flow Graphs



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG.	10.81	10.48	10.66	9.77	8.57	7.79	7.93	8.28	8.25	8.86	9.51	10.01
FY 2020	10.79	10.62	11.18	10.14	8.59	7.98	8.16	8.39	8.14	7.85	8.39	9.74
FY 2021	10.78	10.10	10.17	9.81	8.94	8.26	8.07	8.35	8.79	9.17	10.26	10.62
FY 2022	11.04	10.98	10.78	9.99								



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG	9.11	10.07	10.29	10.29	10.78	10.63	10.10	11.37	10.19	10.39	10.81	9.64
FY 2020	9.58	9.66	9.48	10.26	9.63	9.38	10.37	10.84	8.99	10.56	9.66	9.19
FY 2021	9.03	10.20	10.10	10.79	11.85	12.75	10.06	11.95	10.67	10.72	9.51	9.27
FY 2022	8.84	9.23	9.85	9.92								

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 NOVEMBER 2021**

DATE: **DECEMBER 14, 2021**

WATER OPERATIONS:

The average and maximum daily water volumes produced in November 2021 were as follows:

Water Treatment Plant	***Average Daily Production (MGD)***	***Maximum Daily Production in the Month (MGD)***
South Rivanna	7.48	8.28 (11/22/2021)
Observatory	0.96	2.33 (11/29/2021)
North Rivanna	0.40	0.48 (11/2/2021)
Urban Total	8.84	10.02 (11/2/2021)
Crozet	0.65	0.75 (11/14/2021)
Scottsville	0.05	0.08 (11/15/2021)
Red Hill	0.0013	0.002 (11/2/2021)
RWSA Total	9.54	-

- All RWSA water treatment facilities were in regulatory compliance during the month of October.
- RWSA is in the process of completing a scheduled corrosion inhibitor optimization program. We will transition from a poly-phosphate product to an ortho-phosphate product in all of our water treatment plants. Our VDH (Virginia Department of Health) approved plan required a transitional product with ortho and poly phosphate to be fed for 1 year before feeding an ortho-only phosphate product. VDH reviewed all applicable water plant records, residential lead and copper samples, and distribution system water quality data before allowing the ortho phosphate product to be used. The Crozet water system successfully completed the transition and has been feeding an ortho phosphate product since February 2021. The Scottsville water system also successfully completed the transition and started feeding an ortho phosphate product in October 2021. The Urban Water Treatment Plants began the transition in February 2021 and expect to complete the transition in January 2022. The program was made possible with close collaboration between RWSA, ACSA, and City of Charlottesville Utilities.

Status of Reservoirs (as of December 8, 2021):

- Urban Reservoirs: 97% of Total Useable Capacity
- Ragged Mountain Reservoir is not full (94%)
- Sugar Hollow Reservoir is full (100%)
- South Rivanna Reservoir is full (100%)
- Beaver Creek Reservoir is full (100%)
- Totier Creek Reservoir is full (100%)

WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during November 2021. Performance of the WRRFs in November 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	8.946	2.0	10	<QL	22	<QL	2.2
Glenmore	0.098	3.5	15	2.5	30	NR	NL
Scottsville	0.037	3.0	25	2.1	30	NR	NL
Stone Robinson	0.002	NR	30	NR	30	NR	NL

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

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

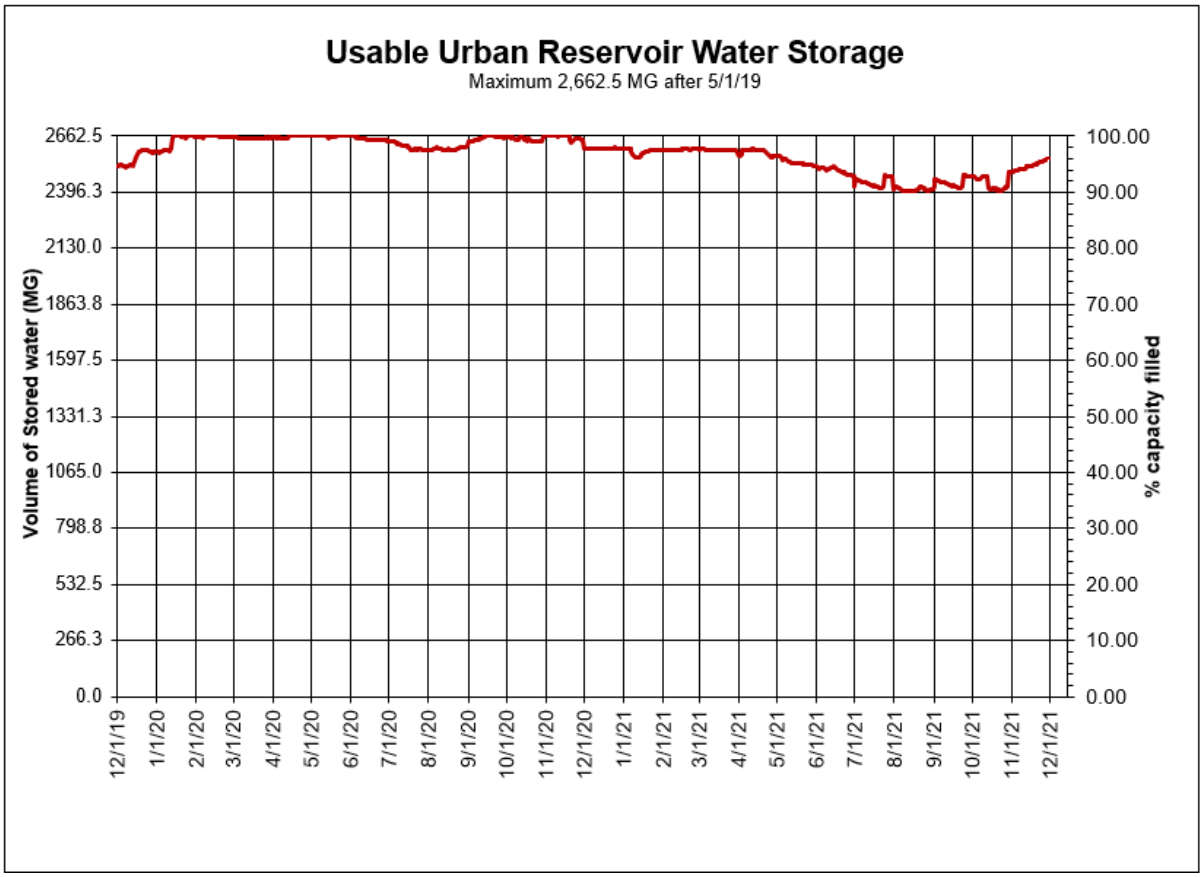
State Annual Allocation (lb./yr.) Permit		*Average Monthly Allocation (lb./mo.) **	*Moores Creek Discharge November (lb./mo.)*	*Performance as % of monthly average Allocation**	*Year to Date Performance as % of annual allocation*
Nitrogen	282,994	23,583	6,420	27%	27%
Phosphorous	18,525	1,544	234	15%	30%

*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
12/1/19
1/1/20
2/1/20
3/1/20
4/1/20
5/1/20
6/1/20
7/1/20
8/1/20
9/1/20
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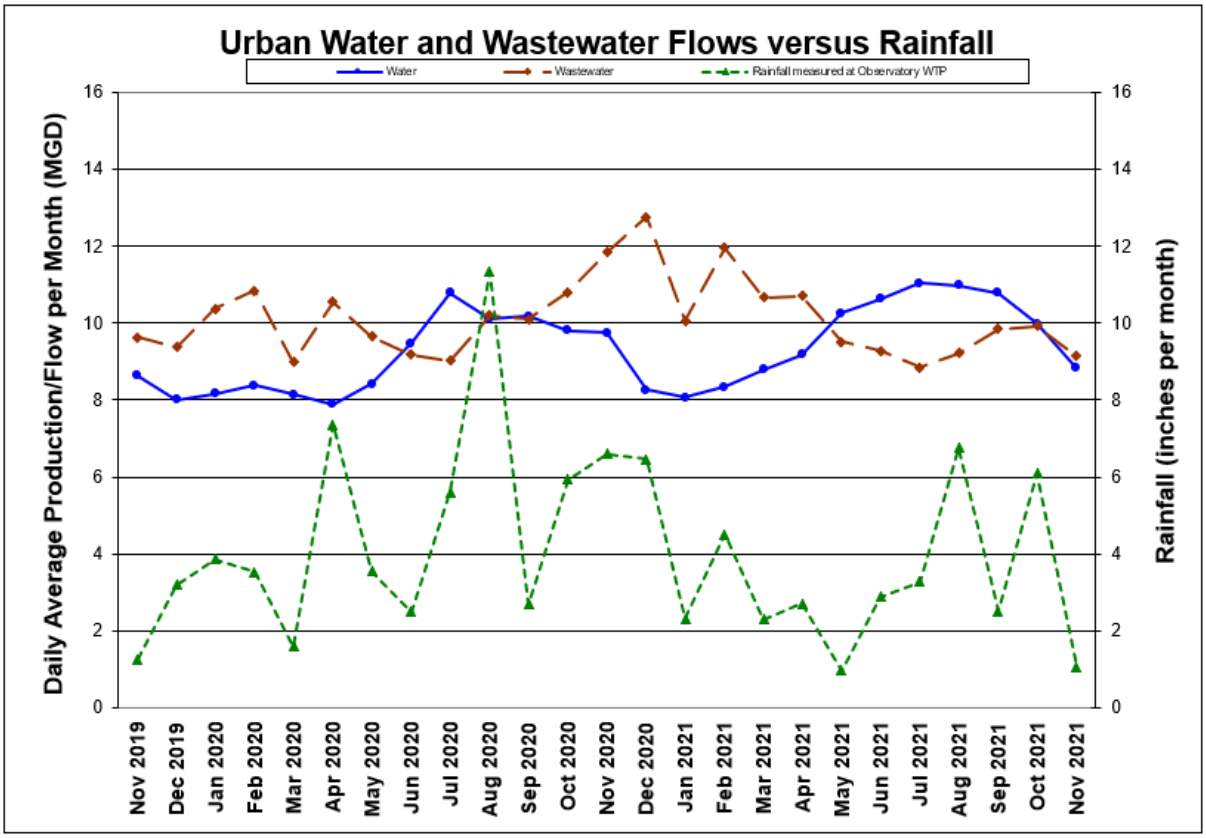

Urban Water and Wastewater Flows versus Rainfall
Water
Wastewater
Rainfall measured at Observatory WTP
Daily Average Production/Flow per Month (MGD)
Rainfall (inches per month)
16
14
12
10
8
6
4
2
0
Nov 2019
Dec 2019
Jan 2020
Feb 2020
Mar 2020
Apr 2020
May 2020
Jun 2020
Jul 2020
Aug 2020
Sep 2020
Oct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

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

MEMORANDUM

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

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

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

SUBJECT: **STATUS REPORT: ONGOING PROJECTS**

DATE: **DECEMBER 14, 2021**

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

For the current, approved CIP, please visit: https://www.rivanna.org/wp-content/uploads/2021/06/2022-2026-CIP-Final.pdf

Under Construction

1. South Rivanna and Observatory Water Treatment Plant Renovations
2. Crozet Flow Equalization Tank
3. MC Aluminum Slide Gate Replacements
4. MC Exterior Lighting Improvements
5. MC Generator Fuel Expansion
6. MC Clarifier and Silo Demolition
7. Glenmore WRRF Influent Pump & VFD Addition
8. Airport Road Water Pump Station and Piping

Design and Bidding

9. Ragged Mtn Reservoir to Observatory WTP Raw Water Line and Pump Station
10. South Rivanna to Ragged Mtn. Raw Water Line – Birdwood to Old Garth
11. Beaver Creek Dam, Pump Station and Piping Improvements
12. South Rivanna River Crossing
13. MC 5kV Electrical System Upgrades
14. Central Water Line
15. Upper Schenks Branch Interceptor, Phase II

Planning and Studies

16. South Rivanna Reservoir to Ragged Mtn Reservoir Water Line Right-of-Way
17. Urban Finished Water Infrastructure Master Plan

18. Asset Management Plan
19. MC Facilities Master Plan
20. SRR to RMR Pipeline – Pretreatment Pilot Study

Other Significant Projects

21. Urgent and Emergency Repairs
22. Interceptor Sewer & Manhole Repair
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:	50%
Base Construction Contract + Change Orders to Date = Current Value:	$36,748,500 + $474,849 = $37,223,349
Completion:	May 2023
Budget:	$43,000,000

Current Status: Work continues at the SR WTP with construction of the filter building expansion, the Alum and Fluoride Chemical Storage Building, Administration Building, and replacement of a clarifier drive. Work at the OB WTP includes foundation work associated with the new Chemical Storage Building, installation of backwash pumps, and sedimentation basin improvements. Per the Contract Documents, a three-month shutdown of the OB WTP was anticipated to start this month. However, due to delays in deliver of materials for critical upgrades, work at the SR WTP could not be completed in time to allow it. As a result, the 3-month shutdown has been postponed until Dec 2022 – Feb 2023.

2. Crozet Flow Equalization Tank

Design Engineer:	Schnabel Engineering
Construction Contractor:	Anderson Construction (Lynchburg, VA)
Construction Start:	September 2020
Percent Complete:	65%
Based Construction Contract + Change Orders to Date = Current Value:	$4,406,300
Completion:	July 2022
Budget:	$5,400,000

Current Status: The concrete dome roof and installation of prestressed wire and gunite layers for the walls have been completed. Electrical work and installation of pumps in the pump station have begun. Leakage testing of the tank is currently underway.

3. MC Aluminum Slide Gate Replacements

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Waco Incorporated (Sandston, VA)
Construction Start:	September 2020
Percent Complete:	85%
Base Construction Contract + Change Orders to Date = Current Value:	$373,600 + $32,050.02 = $405,650.02
Completion:	April 2022
Budget:	$675,000

Current Status: One of the existing mud valves near the Headworks was broken beyond repair. Delivery of a new 30" mud valve is expected in early January. It will take approximately 2 months to complete the mud valve and actuator installation, testing, and calibration.

A quote package for temporary bypass pumping and slide gate inspection for the Moores Creek Pump Station was awarded to Waco in September. Hazen has reviewed the bypass pumping submittal and the inspection is anticipated in December. This work will define the repairs and budget needed to complete the slide gate repair in the Moores Creek Pump Station.

4. MC Exterior Lighting Improvements

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Pyramid Electrical Contractors (Richmond, VA)
Construction Start:	April 2021
Percent Complete:	75%
Base Construction Contract + Change Order to Date = Current Value:	$349,000 + $17,598.30 = $366,598.30
Completion:	February 2022
Budget:	$600,000

Current Status: Conduit has been installed for all new light poles. Installation of pole bases for new lights continues and is expected to be completed this month. All the new LED light heads have been installed for the street lighting.

5. MC Generator Fuel Storage Expansion

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Construction Contractor:	Waco Incorporated (Sandston, VA)
Construction Start:	July 2021
Percent Complete:	30%
Base Construction Contract + Change Order to Date = Current Value:	$168,860
Completion:	January 2022
Budget:	$220,000

Current Status: The 8,000 gallon, above ground, double-wall steel fuel storage tank will be installed when received. A delivery date for the tank is uncertain due to manufacturing and delivery challenges.

6. MC Clarifier and Lime Silo Demolition

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Pleasant View Developers (Staunton, VA)
Construction Start:	November 2021
Percent Complete:	3%
Base Construction Contract + Change Order to Date = Current Value:	$649,000
Completion:	August 2022
Budget:	$790,000

Current Status: Utilities have been located and installation of erosion control measures has begun. Contractor will be on site in December. Delivery of piping for new connections is uncertain and may impact completion.

7. Glenmore WRRF Influent Pump and VFD Addition

Design Engineer:	Wiley|Wilson
Construction Contractor:	MEB (Chesapeake, VA)
Construction Start:	September 2021
Percent Complete:	5%
Base Construction Contract + Change Order to Date = Current Value:	$288,000
Completion:	October 2022
Budget:	$370,000

Current Status: The contractor anticipates mobilizing to the site in January 2022.

8. Airport Road Water Pump Station and Piping

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction, Inc. (Lynchburg, VA)
Construction Start:	December 2021
Percent Complete:	0%
Base Construction Contract + Change Order to Date = Current Value:	$8,520,312.50
Completion:	December 2023
Budget:	$10,000,000

Current Status: The contract has been signed and the pre-construction conference was held on December 9, 2021. There is currently a 5-7 month lead time for ductile iron pipe, fittings, and some pump station materials, so contractor mobilization to the site may not be until Spring 2022.

Design and Bidding

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

Design Engineer:	Michael Baker International (Baker) (Right of Way)
Design Engineer:	Kimley-Horn (Design)
Project Start:	August 2018
Project Status:	Design (7%) & Easement Acquisition
Construction Start:	2025
Completion:	2028
Budget:	$29,375,000

Current Status: Preparation of engineering plans and specifications is underway. Survey work along portions of the water main alignment is underway, along with cultural resources investigations. Easement negotiations with one private owner, UVA, and the UVA Foundation continue.

10. South Rivanna Reservoir to Ragged Mtn. Reservoir Raw Water Line – Birdwood to Old Garth

Design Engineer:	Kimley-Horn
Project Start:	June 2021
Project Status:	65% Design
Construction Start:	Summer 2022
Completion:	2023
Budget:	$1,980,000

Current Status: Preparation of engineering plans and specifications continue for a 0.25-mile section of this 36" raw water pipe from Birdwood to Old Garth Road. One remaining easement is under negotiation with the UVA Foundation for this phase of the project. 60% design documents have been completed and are being reviewed by local regulatory authorities.

11. 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:	67% NRCS Planning Process
Construction Start:	2024
Completion:	2026
Budget:	$30,870,000

Current Status: Staff are moving forward with development of a Joint Permit Application and supporting documents for submission to DEQ in early 2022. Remaining NRCS requirements, including review and approval of the planning study, are scheduled for completion by September 2022. An application for design and construction funding from NRCS will be submitted in early 2022.

12. South Rivanna River Crossing

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2020
Project Status:	30% Design
Construction Start:	January 2023
Completion:	April 2024
Budget:	$5,850,000

Current Status: Baker has recommended a water line route that will cross the river parallel to the west side of the Berkmar Bridge and follow Rio Mills Road until it intersects the new 24" water line in Route 29.

13. MC 5 kV Electrical System Upgrades

Design Engineer:	Hazen and Sawyer (Hazen)
Project Start:	August 2020
Project Status:	99% Design
Construction Start:	May 2022
Completion:	June 2024
Budget:	$5,050,000

Current Status: Contract Documents will be advertised this month with the anticipation of bringing a recommendation to award to the Board of Directors at the February 2022 meeting.

14. Central Water Line

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2021
Project Status:	5% Design
Construction Start:	January 2024
Completion:	June 2026
Budget:	$31,000,000

Current Status: RWSA sent notification letters to property owners adjacent to the planned pipe alignment prior to Thanksgiving about survey work which will be conducted over the winter months. A new CWL project informational webpage was added to our website in November, and a review of the routes considered will be included with the web information by mid-December.

15. 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 revised draft alignment of the sewer line to be installed within easements and out of the roadway has been completed and provided to the City of Charlottesville and Albemarle County for review.

Planning and Studies

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

Design Engineer:	Michael Baker International (Baker)

Project Start:	October 2017
Project Status:	Easement Acquisition
Completion:	2021
Budget:	$2,295,000

Current Status: Progress continues in our efforts to acquire the 8 miles of easements and agreements (with VDOT) for this 36" water line. Discussions continue on remaining easements with the UVA Foundation and one final private property owner.

17. Urban Finished Water Infrastructure Master Plan

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2018
Project Status:	99% complete
Completion:	December 2021
Budget:	$253,000

Current Status: A workshop with the City and ACSA was held on November 2, 2021 to go over the master plan recommendations. Comments from the workshop are being incorporated into the final master plan.

18. Asset Management Plan

Design Engineer:	GHD, Inc. (GHD)
Project Start:	July 2018
Project Status:	Phase 2 – 99% Complete CMMS Implementation – 50% Complete
Completion:	Phase 2 – 2021 CMMS Implementation – June 2022
Budget:	$1,180,000

Current Status: A draft Tactical Asset Management Plan has been reviewed and comments provided to GHD for it to be finalized. For implementation of the new CMMS, GHD is completing updates to our facility geodatabase and continuing the software configuration process. Workshops have been scheduled to review integration of Cityworks with other RWSA software.

19. MC Facilities Master Plan

Design Consultant:	Hazen and Sawyer (Hazen)
Project Start:	August 2019
Project Status:	97% Complete
Completion:	December 2021
Budget:	$275,000

Current Status: A workshop with the City and ACSA was held on November 17th to go over the final master plan recommendations. The final master plan is being revised to account for comments received during the workshop.

20. SRR to RMR Pipeline – Pretreatment Pilot Study

Design Consultant:	SEH
Project Start:	August 2020
Project Status:	100% Complete (Phase 1), 50% Complete (Phase 2)
Completion:	July 2022
Budget:	$22,969 (Phase 1), $98,629 (Phase 2)

Current Status: Phase 1, analysis of existing water quality and seasonal weather data, has been completed. SEH and staff have finalized the memo for this portion of the study. Phase 2 of the study is underway and includes detailed reservoir water quality modeling performed by DiNatale Water Consultants. DiNatale is completing the final modeling runs in the preliminary desktop model. Once the technical memo for the desktop modeling work has been finalized, work on a more detailed reservoir model will likely commence, which will help better represent the future conditions at Ragged Mountain Reservoir based upon the known characteristics of the proposed transfer system.

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
2020-08	UWL-010 Leak	$40,000
2020-24	Erosion Between CZI MH-55 and 56	$25,000
2021-04	UWL-ARV-15 Settlement	$25,000
2021-08	MCAWRRF Digester Manway Sealing	$70,000
2021-09	SLW Erosion Near SLW-022	$15,000
2021-16	MCAWRRF Effluent Waterline @ Septage Receiving	$25,000

- UWL-010 Leak: In 2020, during routine line maintenance, RWSA Maintenance Staff discovered that a blowoff valve on the Urban Waterline, UWL-010, was leaking into an adjacent creek. A blind flange was installed to stop the leakage at that time. Staff is coordinating the replacement of this defective valve with its On-Call Maintenance Contractor for later this Winter.

- Erosion Between CZI MH-55 & 56: Excessive runoff from the adjacent Buckingham Branch railroad has caused moderate erosion over the Crozet Interceptor near Lynx Farm Lane. Staff is working with its On-Call Maintenance Contractor, Digs, Inc., to install erosion control measures over the easement, to better protect the existing 18" sanitary sewer. Staff has coordinated this work with Buckingham Branch, as well as adjacent property owners in the area. The work is slated to be completed during the week of November 29.

- UWL-ARV-15 Settlement: While marking a Miss Utility Ticket, the RWSA Engineering Department identified an ARV that was settling with a small section of Kenwood Lane. No immediate danger to the ARV is present, however, staff has looked at the issue with its On-Call Maintenance Contractor, and is coordinating the necessary repairs. The overall scope of work will

be to excavate around the ARV, replace the entire ARV assembly with more modern materials, install an appropriate structure/manhole around the ARV, and then perform all applicable site restoration. Work began during the week of 9/27, and staff found that the existing corp stop was seized, and the existing ARV assembly was very corroded, with a small leak/drip between the ARV and corp stop. Staff is coordinating a shutdown of the Urban Waterline for the week of 12/6. Once the Urban Waterline is shutdown, staff can safely remove and replace the existing corp stop and ARV assembly and the On-Call Maintenance Contractor can complete the installation of the surrounding manhole structure and appropriate site restoration.

- MCAWRRF Digester Manway Sealing: Staff has identified the immediate need to repair gas leaks in Digesters #1, #2 and #3 at the MCAWRRF. The gas leaks are a safety concern and are causing significant concrete degradation which has led to Digester #2 being taken out of service thereby reducing solids processing redundancy. Following external and internal inspections by our engineering consultants, it has been decided that installation of rubber seals in the manways and sample ports will mitigate gas leaks into the annular roof space and decrease further concrete degradation. Waco, Inc. was selected to perform the work under an Emergency Declaration by the Executive Director and seals were installed in Digester #2. Unfortunately, the Digester continued to leak gas once back in service so further investigative work is warranted to determine the source of the leaks and evaluate the structural integrity of the annular roof space. Waco will continue the investigative work and perform roof corings prior to proceeding with seal installations in Digesters #1 and #3. This work will proceed once the seals for Digester #1 have been delivered.

- Erosion Near SLW-022: In Spring 2021, staff identified an area of erosion over RWSA's 20" Southern Loop Waterline (SLW), located near Forest View Road in Albemarle County. During subsequent site visits, it was determined that an adjacent creek/stormwater channel has silted in, causing water to become redirected over the RWSA Easement during heavy rain events. Staff is coordinating easement restoration efforts through its On-Call Maintenance Contract for later this winter, and is also coordinating with Albemarle County Water Resources staff on potential collaborative efforts to address the issues on the RWSA easement and improve stormwater flow in the area.

- MCAWRRF Effluent Waterline at Septage Receiving: On Monday, November 8, RWSA staff discovered a leak on the 1.25" Effluent Waterline at MCAWRRF North-side Septage Receiving. The leak was isolated by RWSA Maintenance and Wastewater staff, and haulers were temporarily redirected to South-side Septage Receiving. The main was repaired on Wednesday, November 10, and most site restoration was completed by the end of that week. Staff is coordinating repaving of the area, as the leak undermined a large area of asphalt near the influent channel at Moores Creek Pump Station.

22. Interceptor Sewer and Manhole Repair

Design Engineer:	Frazier Engineering
Construction Contractor:	TBD
Construction Start:	November 2017
Percent Complete:	Evaluation – 100%, Bidding
Base Construction Contract + Change Orders to Date = Current Value:	$37,980

Expected Completion:	June 2022
Budget:	$1,088,330 (Urban) + $880,000 (Crozet) = $1,968,330

Current Status: With the completion of the Upper Morey Creek Interceptor (MRI) Point Repair/New MH Installation, all rehabilitation work on the Upper MRI has been completed. Staff continues coordination on the lower Powell Creek Interceptor and a portion of the Woodbrook Interceptor, as these are the next high-priority areas to be addressed based upon the latest CCTV footage. The scope of this rehabilitation work is likely to include several sections of Cured in Place Piping, as well as manhole rehabilitation. A Notice to Proceed was issued to Tri-State Utilities, LLC on 10/4 to perform additional cleaning and CCTV work and that was completed on October 15, 2021. Staff is reviewing the footage with Frazier Engineering, and is preparing a bid package to address the highest priority defects on the Powell Creek and Woodbrook Interceptors, as well as the Crozet Interceptor. It is anticipated that the bid package will be posted in December or January, with a Construction Start for this round of rehabilitation in Spring 2022.

23. Security Enhancements

Design Engineer:	N/A
Construction Contractor:	Security 101
Construction Start:	March 2020
Percent Complete:	95% (WA 2 & 3), 5% (WA 4)
Based Construction Contract + Change Orders to Date = Current Value:	$718,428.00 (WA1) + $91,130.32 (WA2) + $128,166.69 (WA3) + $189,698.95 (WA4) = $1,127,423.96 (total)
Completion:	December (WA 2 & 3), February 2022 (WA 4)
Budget:	$2,810,000

Current Status: Access control system installation has been completed on all exterior doors at MCAWRRF, as well as all WTP motorized gates. The Card Access System is in use at the Administration, Engineering, and Maintenance Buildings at MCAWRRF, as well as at various process buildings across the site and at the WTP gates. The only task that remains is some door and lock hardware improvements under WA #2, which will enhance the functionality of the card access system. Other miscellaneous improvements include installation of card access on 3 additional doors, and improvements to the intercom system in the Administration Building. This has mostly been completed, with only a few miscellaneous door locks and repairs left outstanding, as well as installation of access control at one door. Card access installation at the Crozet and Scottsville WTP exterior doors under WA #3 is substantially complete. Finally, WA #4 includes security conduit at the South Rivanna and Observatory WTPs that was not included in the Improvements Project. This work began on November 2, 2021.

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% design documents were provided in February. A Value Engineering Workshop took place the week of April 8, 2019, and a memo summarizing the results has being completed. Agreed upon results were incorporated into the project. The project was advertised, and bids were received. English Construction was awarded the contract and a Notice to Proceed was issued on May 18, 2020. 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. **Crozet Flow Equalization Tank**

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

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

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

A work authorization with Schnabel Engineering was finalized and a Project Kick-off Meeting was held on July 12, 2018. The construction bids were received on July 16, 2020. Anderson Construction

of Lynchburg, VA was awarded the construction contract. Notice to Proceed on this project was given on October 9, 2020 and now construction is in progress.

3. **MC Aluminum Slide Gate Replacements**

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

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

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

5. **MC Exterior Lighting Improvements**

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

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

The design has been completed by Hazen and Sawyer and the project was awarded to Pyramid Electrical Contractors, LLC. Notice to Proceed was provided on April 13, 2021.

6. **MC Generator Fuel Expansion**

The Moores Creek AWRRF south side electrical facilities have a single large system back-up power generator that was installed between 2009 – 2012 during the ENR plant upgrade. The generator has a belly tank that allows for approximately 22 hours of operation. This project will install an ancillary fuel tank that will allow for approximately three days of operation. A Notice of Award was issued to Waco, Inc. Construction of the concrete pad the new tank will rest on as well as electrical connections for the tank are in progress. Tank delivery is expected in November.

7. MC Clarifier and Lime Silo Demolition

The two in-plant clarifiers were constructed in the late 1950's and were taken out of service as a result of the Odor Control Project at the plant. Due to the age of the tanks, various components have significantly deteriorated over time and no additional uses for these tanks have been identified. In addition, due to their out-of-service status, they remain empty and a safety concern for plant staff and visitors. There is also an abandoned lime silo currently located adjacent to the Solids Handling Building. Lime was previously used with the old plat and frame presses before centrifuges were installed for sludge dewatering purposes. This project will include the complete demolition of the in-plant clarifiers by removing all existing components, backfilling the area, and returning the area to open space and removing the lime silo from the plant and properly disposing of it. The project was advertised, and bids are due on July 1, 2021. A Notice of Award was issued on August 6, 2021 and a Notice to Proceed was issues on September 28, 2021.

8. Glenmore WRRF Influent Pump and VFD Addition

The 0.381-mgd water resource recovery facility, located within the Glenmore subdivision, is operated by RWSA. The facility includes an influent pumping station located immediately adjacent to the treatment facility. The Glenmore WRRF is predicted to see additional dry and wet weather flows as construction within the service area continues. Future wet weather flows will require higher influent pumping capacity and an additional pump and electrical variable frequency drive will be required to maintain firm capacity. After discussions with the Operations and Maintenance departments, installation of a new exhaust fan in the influent pump station will also be included. A work authorization for this project has been finalized and design is underway. The project was advertised, and bids are due on July 8, 2021. A Notice of Award was issued on August 6, 2021.

Design and Bidding

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.

10. South Rivanna Reservoir to Ragged Mtn. Reservoir Raw Water Line -Birdwood to Old Garth

This project is the continuation of the SRR to RMR 36" raw water pipeline built on the Birdwood Golf Course. Design effort were authorized in June 2021 with construction anticipated in Summer 2022.

11. Beaver Creek Dam and Pump Station 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 July 2022. Following completion of the study and acceptance of the Plan-Environmental document by NRCS, staff will pursue additional grant funding through NRCS that, if available, could cover up to 65% of final design and construction costs.

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.

12. 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 contractor is working to submit their bonds and insurance and it is anticipated that contracts will be executed and a Notice to Proceed issued in December.

13. 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.

14. MC 5 kV Electrical System Upgrades

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

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

15. 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 has been negotiated and was approved by the Board of Directors in July 2017. Recent efforts and modeling for the Urban Finished Water Infrastructure Master Plan have determined that a central water line corridor through the City is the best option to hydraulically connect the Observatory Water Treatment Plant to the Pantops area.

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 to be located on County property (baseball field and County Office Building) adjacent to McIntire Road.

Planning and Studies

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

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

routing study for the future water line. This project includes a routing study, preliminary design, and preparation of easement documents, as well as acquisition of water line easements along the approved route.

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

18. Urban Finished Water Infrastructure Master Plan

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

19. 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.

20. MC Facilities Master Plan

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

21. SRR to RMR Pipeline – Pretreatment Pilot Study

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

timing of this overall project based on water demand projections, the intent of this project is to update the pretreatment needs anticipated.

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

Other Significant Projects

22. Urgent and Emergency Repairs

- South Rivanna Dam Apron and River Bank Repairs

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

- Urban Water Line Valve and Blow-off Repair

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

23. Interceptor Sewer and Manhole Repair

Results from sewer flow monitoring and modeling under the Comprehensive Sanitary Sewer Study provided awareness to specific inflow and infiltration (I&I) concerns in the collection system and resulted in strengthened commitments from the City, ACSA and RWSA to continue professional engineering services to aid in the rehabilitation and repair of the sewer collection system. Engineering services will be used for sewer infrastructure condition assessments and the development of a sewer rehabilitation bid package for the procurement of a contractor to perform the recommended rehabilitation work.

Lining work and manhole rehabilitation on the Upper Morey Creek Interceptor began in Fall 2019 and was completed in Fall 2020. A critical section of upper Morey Creek Interceptor under Rt. 250 was lined on August 28, 2020. 65' of new ductile iron sewer to replace a sagging section of vitrified clay piping was installed in May 2021. Tri-State Utilities completed over 3,000 LF of Sewer Cleaning and CCTV under RFQ No. 1105 in October 2021 on high-priority portions of the Powell Creek and Woodbrook Interceptors.

24. Security Enhancements

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

RWSA Engineering staff held a meeting with Operations staff to discuss overall project needs and priorities in October 2018. Meetings with ACSA and City staff were held in Fall/Winter 2018-2019 to discuss how access control and intrusion detection systems have been implemented into to the day-to-day operations of the two utilities. A Request for Proposal (RFP) for an Implementer to facilitate selection of an access control system, confirmation of design requirements based upon RWSA's facilities and project goals, and installation of the selected system was issued on June 6, 2019. RWSA conducted a Pre-Proposal Meeting on June 14, 2019, and proposals were opened on June 27, 2019. Interviews were conducted on July 15-16, 2019, and a Contract Award Recommendation was approved by the Board on July 23, 2019. Access Control System Installation at MCAWRRF began in March 2020. Access Control System Installation was completed in the Administration and Engineering Buildings by the week of November 30, 2020, completing installation of the physical access control system across the MCAWRRF site. Training for staff was completed on November 10, 2020. 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 OBSWTP under the Improvements Project in August 2021.

Access Control on exterior doors at the CZWTP and SVWTP was substantially completed in November 2021.

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 NOVEMBER 2021**

DATE: **DECEMBER 14, 2021**

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

	Month	***Daily Average***	
City Usage (gal)	127,878,893	4,262,630	**48.3%**
ACSA Usage (gal)	136,811,220	4,560,374	**51.7%**
Total (gal)	**264,690,113**	**8,823,004**	

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 December 2020), and that usage relative to the maximum allocation for each party (6.71 MGD for the City and 11.99 MGD for ACSA).

Figure 1: City of Charlottesville Monthly Water Usage and Allocation

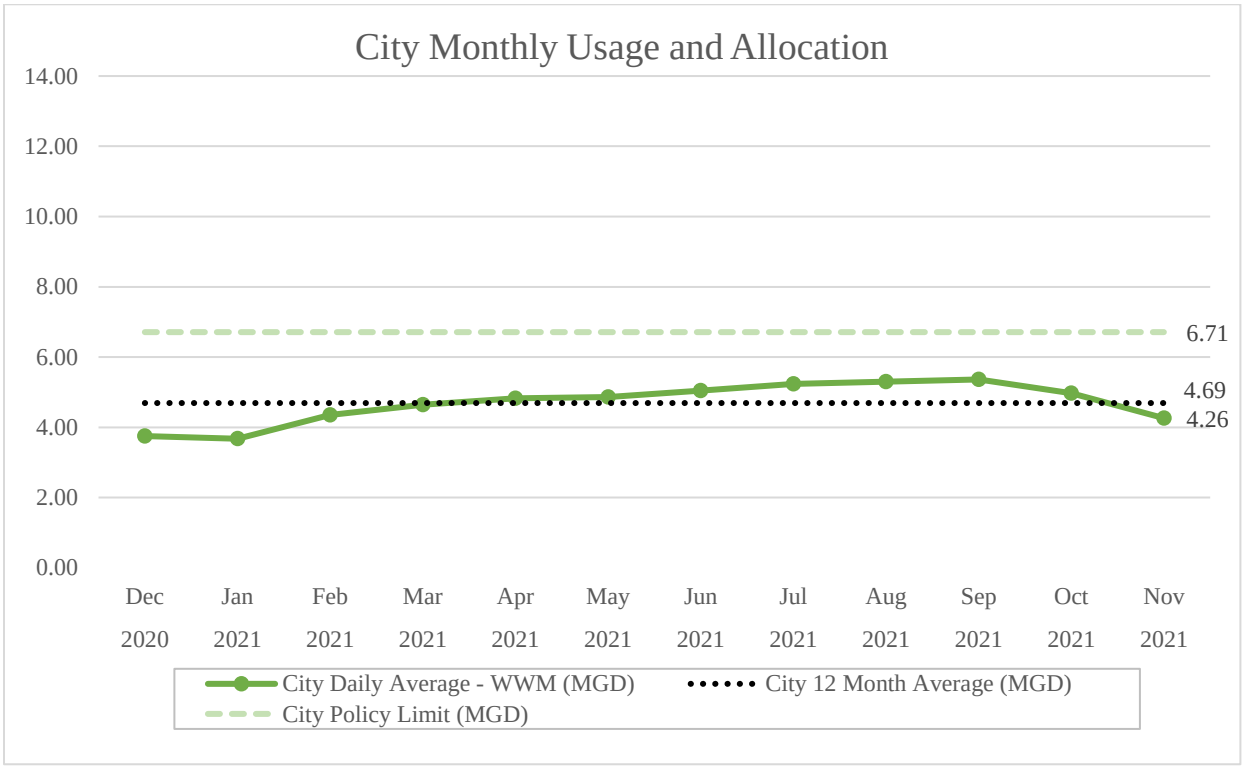
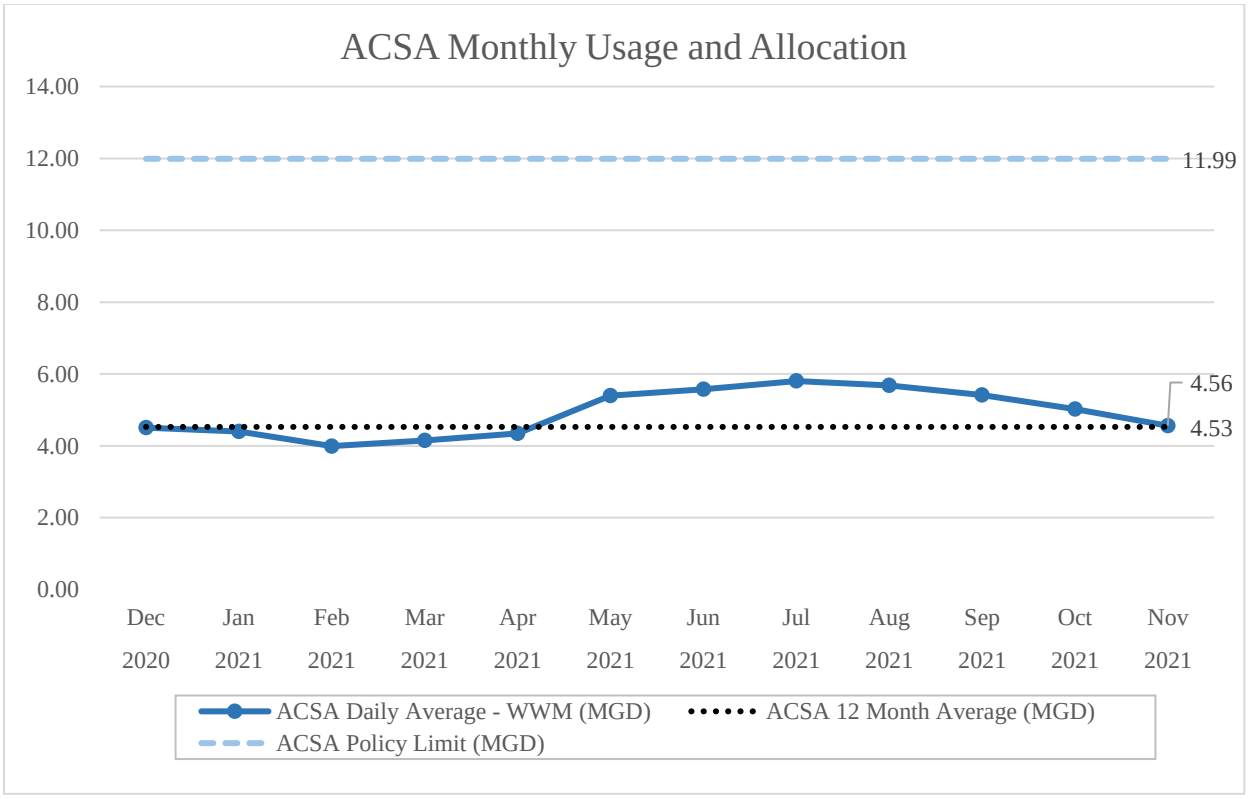


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation



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MEMORANDUM

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

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

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

SUBJECT: **BEAVER CREEK RAW WATER PUMP STATION AND INTAKE – SUBSURFACE INVESTIGATION – HAZEN AND SAWYER**

DATE: **DECEMBER 14, 2021**

Staff have worked with our Term Contract consultant engineer, Hazen and Sawyer, to develop a scope and fee for subsurface geotechnical and geophysical investigations of the planned raw water pump station and intake site, and the proposed raw water transmission main route to the Crozet Water Treatment Plant. Fair and reasonable compensation for these services was negotiated for a total fee not to exceed $277,177.

Background

The existing Raw Water Pump Station and Intake facility at the Beaver Creek Reservoir was constructed in 1964 and is located at the foot of the Beaver Creek Dam. Obligatory dam safety spillway upgrades necessitate moving the pump station away from its current location downstream of the dam. Additionally, the Drinking Water Infrastructure Plan for the Crozet water service area recommends installation of a new Raw Water Pump Station and Intake to provide adequate raw water pumping capacity to serve the growing Crozet community for the next 50 years. The new pump station will be constructed adjacent to the dam on property owned by Albemarle County on the south side of the Beaver Creek Reservoir. The reservoir has historically had "excluded" status in the Virginia Department of Environmental Quality (DEQ) Virginia Water Protection (VWP) permit classification system. With increasing demands requiring a larger water withdrawal, and with planning for spillway improvements to the Beaver Creek Dam underway, RWSA will need to obtain a DEQ VWP permit for this reservoir. Geotechnical and geophysical work at the new pump station and intake site will assist Hazen in developing the necessary supporting documentation for the VWP Joint Permit Application (JPA).

Board Action Requested:

Authorize the Executive Director to execute a work authorization with Hazen and Sawyer for subsurface geotechnical and geophysical investigations for the Beaver Creek Dam Raw Water Pump Station and Intake Project for an amount not to exceed $277,177, and any amendments needed to complete the tasks identified above, not to exceed 25% of the original Work Authorization amount, provided the resulting total value is within the Board approved total CIP project budget.

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MEMORANDUM

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

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

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

SUBJECT: **PROPERTY TRANSFER TO ALBEMARLE COUNTY PUBLIC SCHOOLS – ALBEMARLE-BERKELEY WASTEWATER PUMP STATION STORAGE BASIN SITE**

DATE: **DECEMBER 14, 2021**

In 2020, RWSA demolished a concrete wastewater overflow basin no longer in use. This basin was located off Lambs Lane adjacent to Albemarle County school facilities. Since we no longer need all of the property, we are recommending granting 0.185 acres of the 0.37 acre site to the Albemarle School Board, as shown by the attached location map.

Background

The Albemarle-Berkeley Wastewater Pump Station (A-B WWPS) is located on Albemarle County Public Schools' (ACPS) Hydraulic Road campus. A-B WWPS has a firm pumping capacity of 0.43 MGD and conveys wastewater from several schools on the campus, as well as from an adjacent neighborhood, to RWSA's sanitary sewer interceptor system.

Prior to the construction of A-B WWPS in 1975, a small wastewater treatment plant including a sand filter basin, was operated at the site. Once the A-B WWPS was constructed, the sand filters were encased in concrete and converted to an emergency storage basin that occasionally collected sewage during power outages. With the addition of a back-up power generator to A-B WWPS in 2006, the basin no longer served a purpose. Given the proximity of the deteriorating basin structure to several schools, RWSA demolished and filled the area of the existing basin to allow for a more beneficial use of the property. The demolition project was completed in September 2020.

With the former storage basin area having been restored to its pre-existing conditions and grades, this property is now available for other uses. While RWSA does have a project in its CIP to replace the existing A-B WWPS, the entire former storage basin area will not be needed. RWSA desires to grant back the unneeded portion (0.185 acres) of this property to ACPS, while keeping the portion of the property (0.185 acres) necessary for the replacement of A-B WWPS as well as operation and maintenance of the existing station and associated utilities.

Board Action Requested:

Authorize the Executive Director to execute a deed with the Albemarle County Public School Board that will grant a portion of the former storage basin property to ACPS, as well as allow RWSA to retain the necessary portion of the property for current pump station operations and maintenance and future pump station improvements.

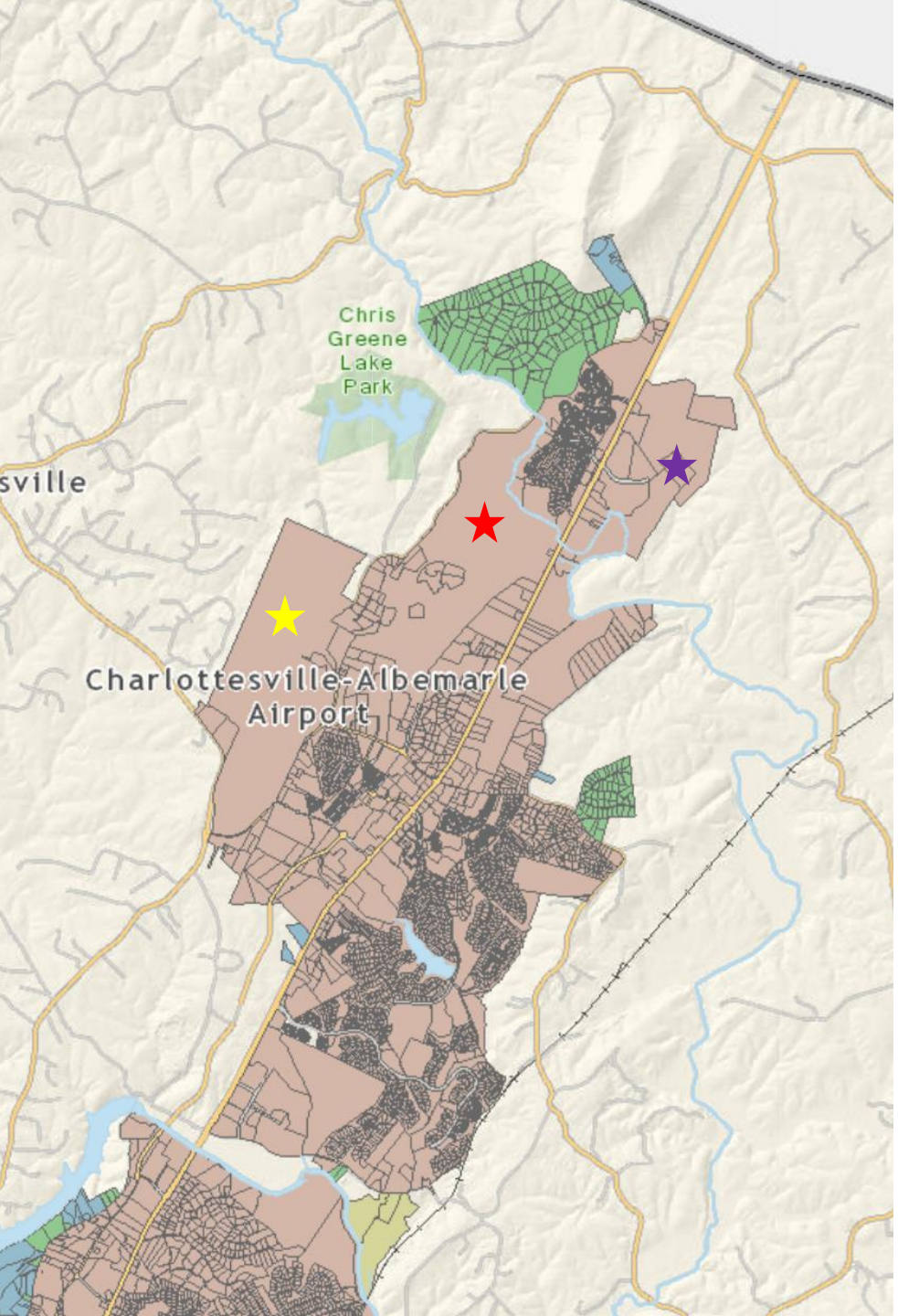

WW
Pump
Station
Albemarle County
Vehicle Maintenance
Lambs Lane
Albemarle High School
Lambs Road
Hydraulic Road

Plan for Urban Utilities, Northern Areas

For: Board of Directors

By: Bill Mawyer, Executive Director and Scott Schiller, Engineering Manager

December 14, 2021

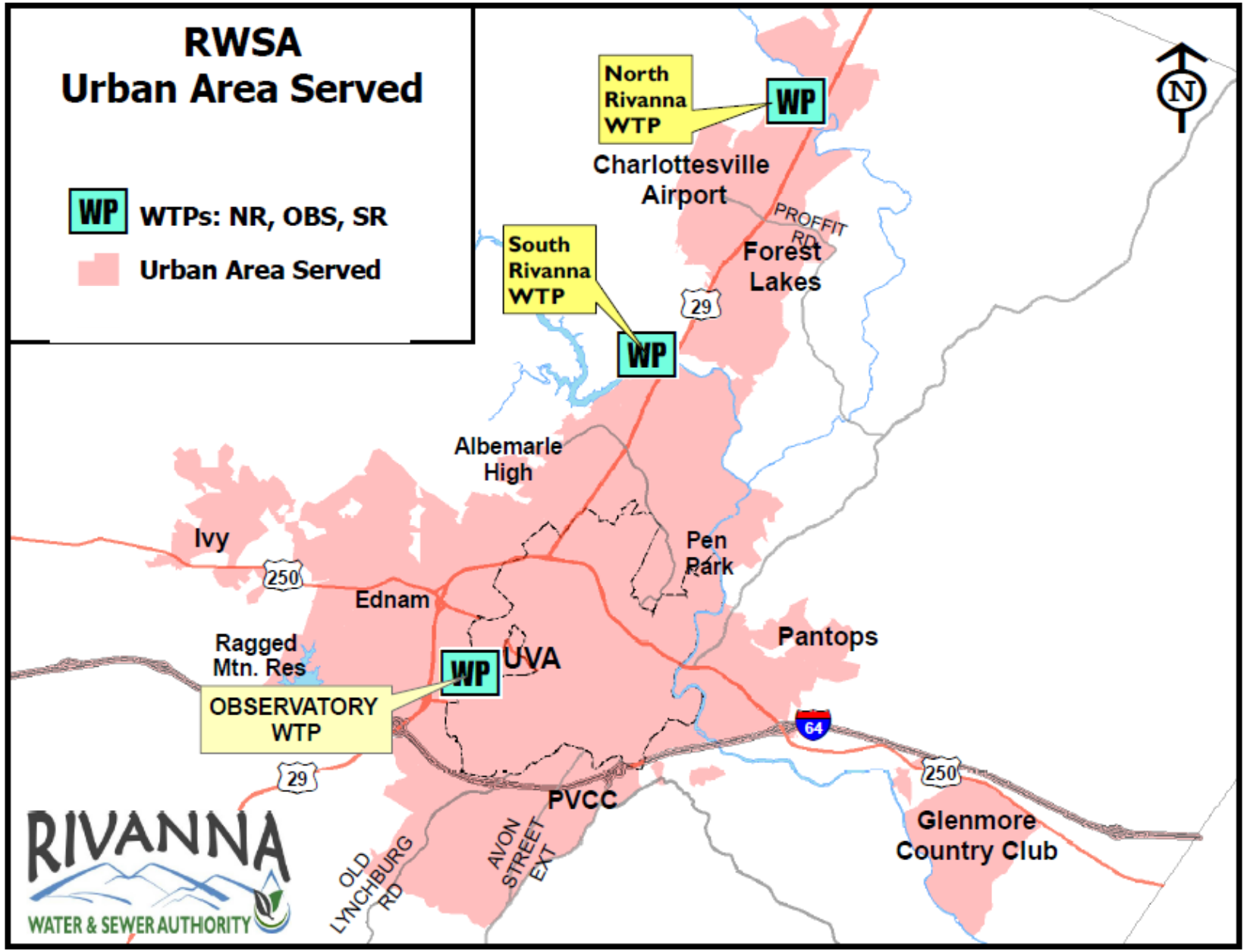


Planning and Coordination

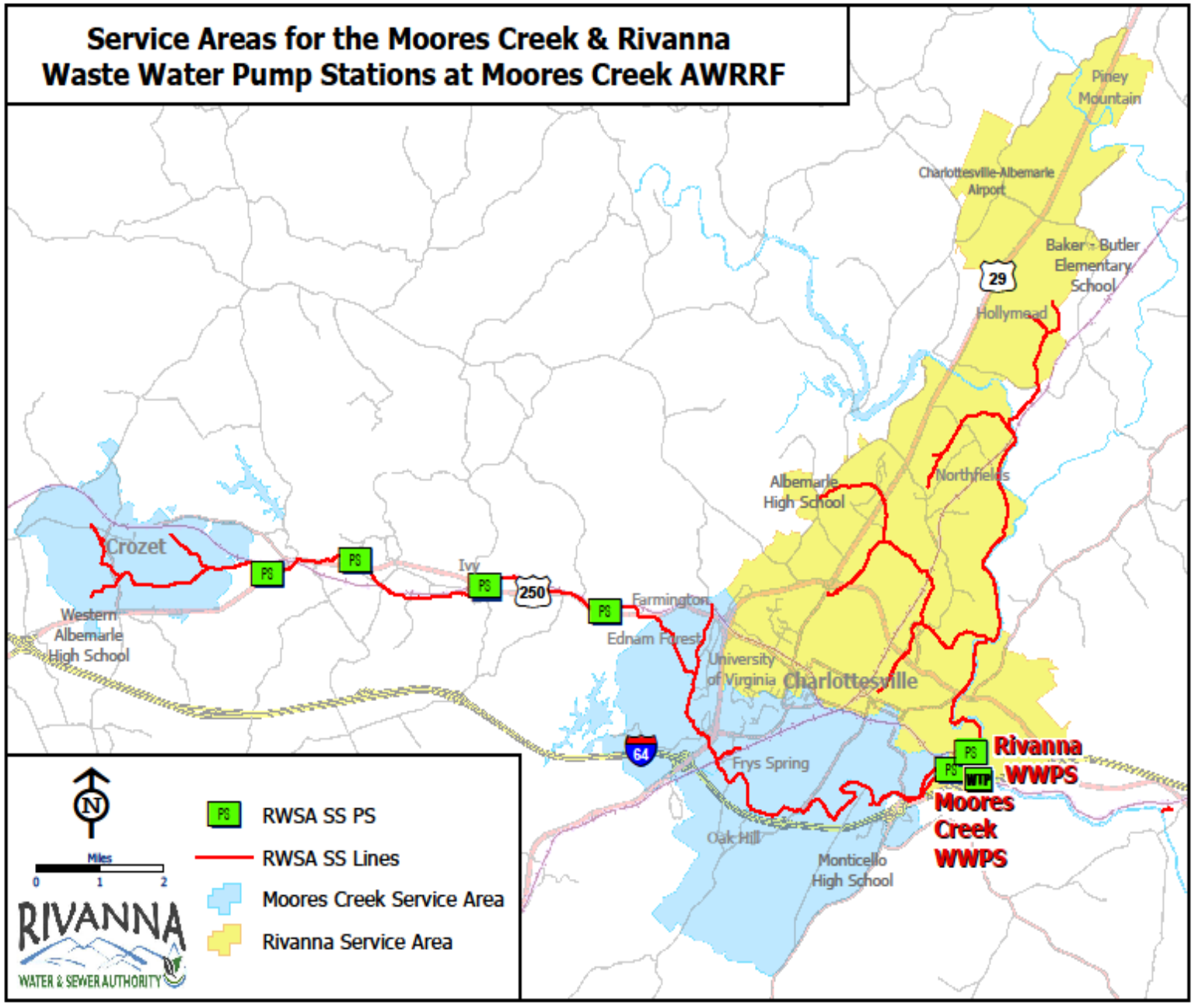
- RWSA and ACSA have recently been approached about water and sewer availability for major projects envisioned in the northern Urban utility systems along Rt.29.
- This includes growth areas such as the UVAF North Fork Research Park★, National Ground Intelligence Center★, and the Airport★, as well as other residential and commercial districts envisioned within Albemarle's "Places29" Master Plan.
- RWSA, ACSA and the City have a plan to systematically improve drinking water infrastructure to serve these areas, as well as areas of the City including UVA, in a strategic and affordable manner over the next 10 - 15 years. Sewer infrastructure improvements are also planned for the 2050-2060 timeframe.
- Future projects with significant utility demands in these areas will need to coordinate with our infrastructure plans and schedules.

Urban Water Treatment System

S. Rivanna WTP	12 MGD
Observatory WTP	7.7 MGD
N. Rivanna WTP	2 MGD
	21.7 MGD

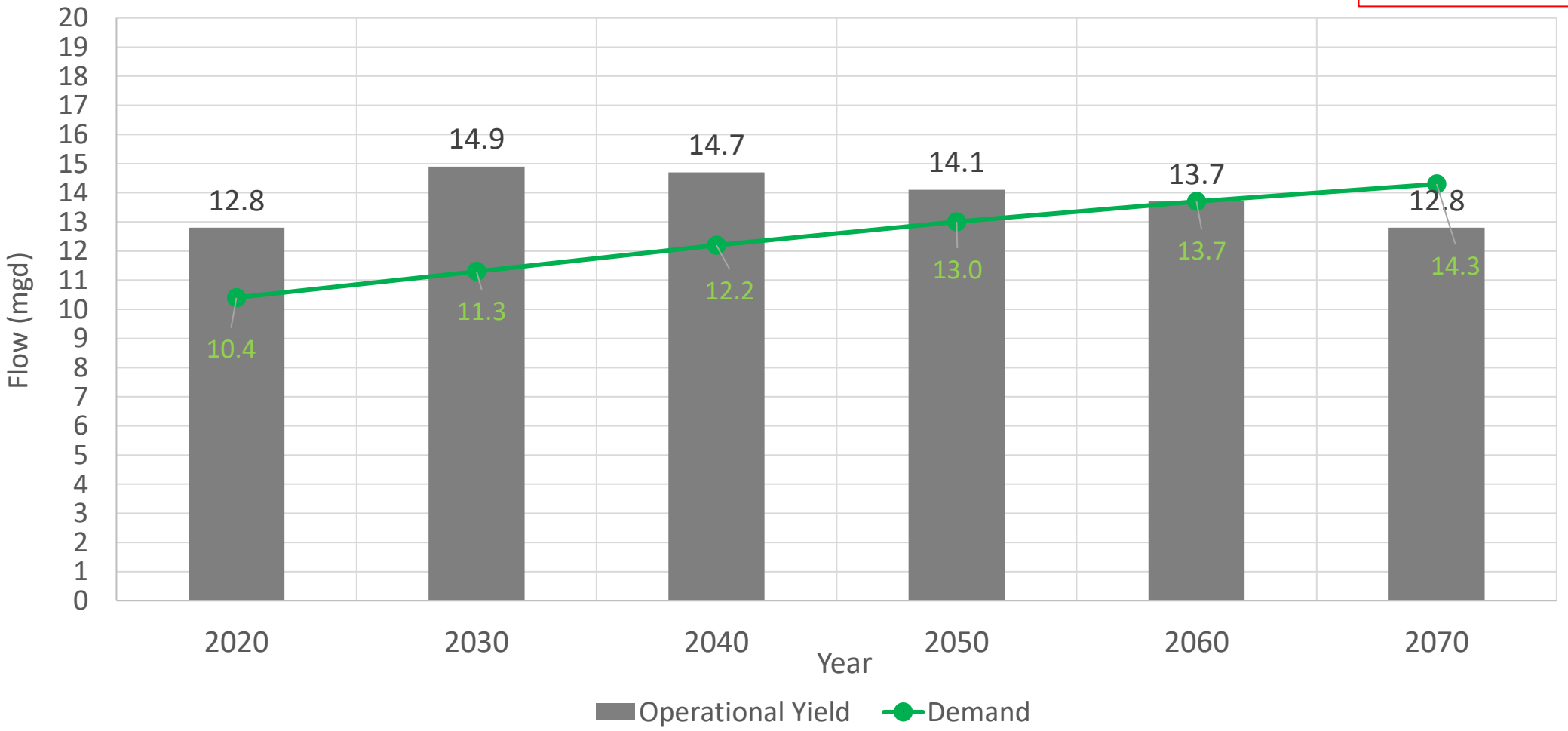


Urban Wastewater System



Available Water Supply vs Demand | 2020 - 2070

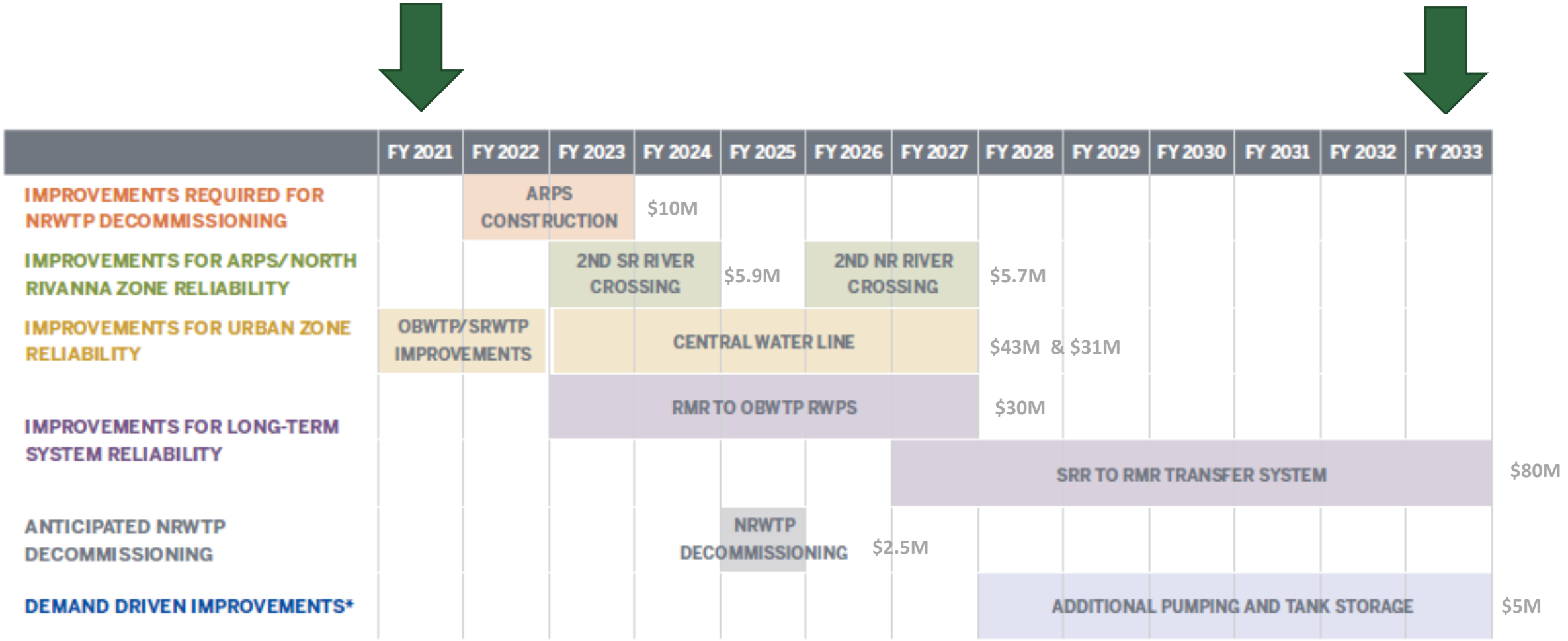
Available Supply = Demand in 2060



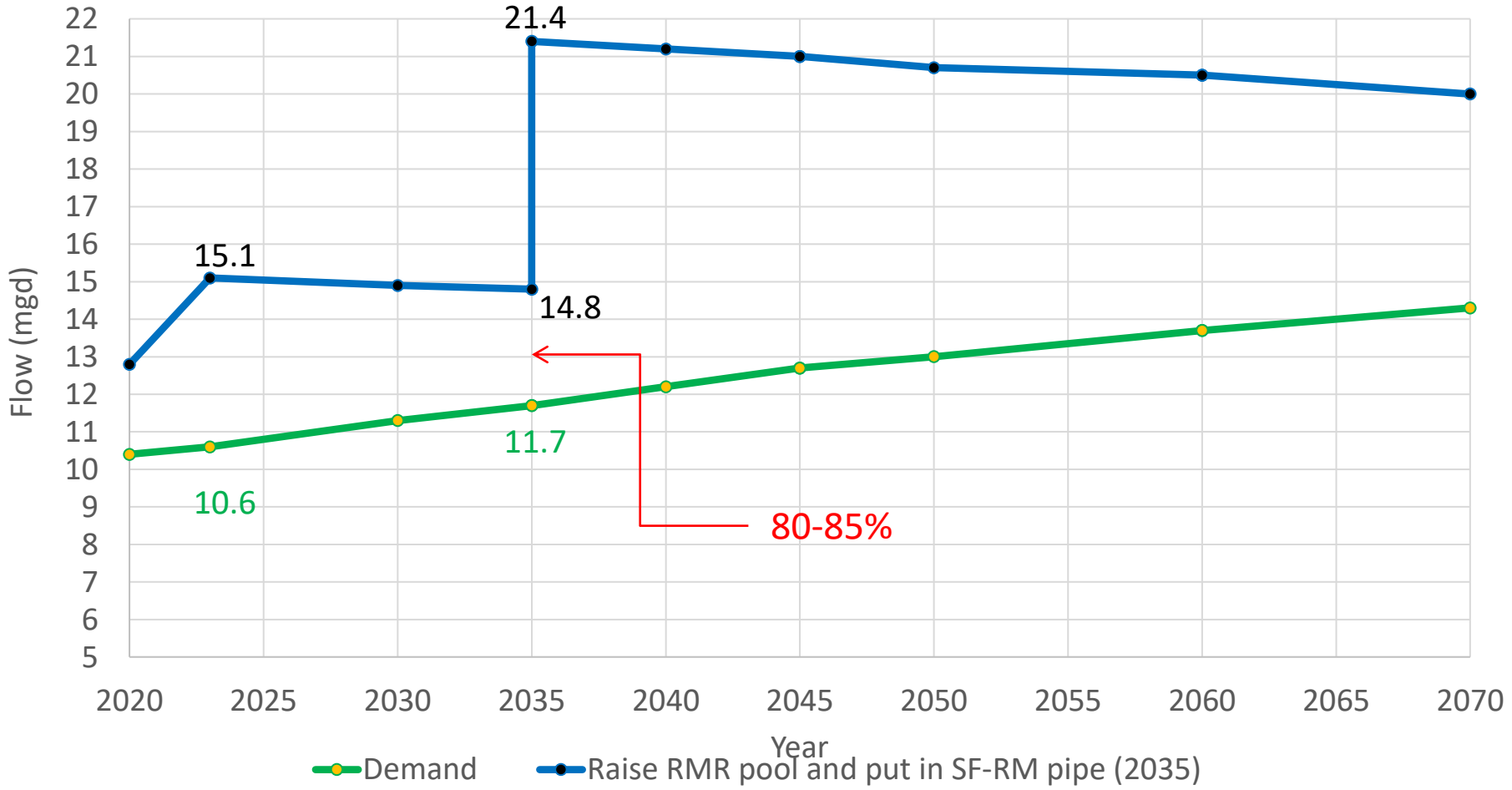
Data Sources:
Demand projections developed with significant input and data from ACSA, Albemarle County, Charlottesville, UVA, UVAF, VDOT, and Weldon Cooper.

Projections:
Steady Incremental increase in demand of about 86,000 gallons per year.

Northern Area Finished Water Supply Improvements Plan



Safe Yield| Build Pipeline and Raise RMR Pool by 2035



- Build pipeline 2027-2035
- Raise RMR Pool by 2035, adding 700 MG
- Available Water Supply will be adequate until 2120
- Can be completed within the term of new permits (2038)
- Adds redundancy, resiliency, operational and environmental benefits

Year	Base Demand (mgd)	*Add 0.5 (mgd)	Safe Yield (mgd)	Demand/ Safe Yield
2023	10.6	11.1	15.1	73.5%
2025	10.8	11.3	15.0	75.3%
2030	11.3	11.8	14.9	79.2%
2035	11.7	12.2	14.8	82.4%

Year	Base Demand (mgd)	*Add 1.5 (mgd)	Safe Yield (mgd)	Demand/ Safe Yield
2023	10.6	12.1	15.1	80.1%
2025	10.8	12.3	15.0	82.0%
2030	11.3	12.8	14.9	85.9%
2035	11.7	13.2	14.8	89.2%

Year	Base Demand (mgd)	*Add 1.0 (mgd)	Safe Yield (mgd)	Demand/ Safe Yield
2023	10.6	11.6	15.1	76.8%
2025	10.8	11.8	15.0	78.7%
2030	11.3	12.3	14.9	82.6%
2035	11.7	12.7	14.8	85.8%

Year	Base Demand (mgd)	*Add 2.0 (mgd)	Safe Yield (mgd)	Demand/ Safe Yield
2023	10.6	12.6	15.1	83.4%
2025	10.8	12.8	15.0	85.3%
2030	11.3	13.3	14.9	89.3%
2035	11.7	13.7	14.8	92.6%

** Adding a large demand to the system will accelerate the needed improvements schedule

Summary

- RWSA, ACSA and the City have a plan to systematically improve drinking water infrastructure to serve the northern Urban Water system, as well as areas of the City including UVA, in an affordable manner over the next 10 - 15 years. Sewer infrastructure improvements are also planned for the 2050-2060 timeframe.

- Future projects with significant utility demands will need to coordinate with our infrastructure plans and schedules.

Questions?

Dam Safety Program Overview

RIVANNA WATER & SEWER AUTHORITY

Presented by:

Victoria Fort, Senior Civil Engineer

December 14, 2021

Dam Safety Regulations & Terminology

- A “dam” or “impounding structure” is defined as a man-made structure and its appurtenant works used to retain or store waters or other materials.
- Dams enable storage of water for drinking, hydroelectric generation, flood control and recreation.
- Dams can improve wildlife habitat and provide food for migratory birds.

Dam Safety Regulations & Terminology

- All Dams in Virginia are subject to the Department of Conservation and Recreation (DCR) Dam Safety Regulations, EXCEPT:
  - <6 feet tall
  - <25 feet tall AND impounds <50 acre-feet (16.3 mg)
  - Impounds <15 acre-feet (4.9 mg)
  - Owned or licensed by the Federal Government (FERC)
  - Operated for Mining, Agricultural, or Canal Purposes
- The purpose of the Virginia Dam Safety Program is to provide for proper and safe design, construction, operation, and maintenance of dams to protect public safety.

Why is Dam Safety Important?

Dual Dam Failures in Central Michigan

- On May 19, 2020, the Edenville Dam in central Michigan failed following heavy rains, creating flash flood conditions and overtopping the Sanford dam downstream
- Over 2,500 properties were destroyed or damaged, causing an estimated $250 million in damage
- Over 11,000 residents from communities downstream of the dam were evacuated from their homes, preventing loss of life

Why is Dam Safety Important?

Oroville Dam Incident in California, February 2017

- At 770 feet high, tallest dam in the U.S.
- Heavy rain in early 2017 caused water levels to quickly rise on February 7, 2017
- To relieve pressure on the dam, the owner released water down the main spillway
- A large crack soon formed in the spillway, which quickly grew into a 250-ft crater
- Overtopping of the earthen emergency spillway led to erosion and threatened to breach the spillway
- Waters eventually receded without breaching the spillway, which underwent repairs from 2018-2019 at a cost of >$1.1 Billion

Why is Dam Safety Important?

College Lake Dam in Lynchburg, VA

- Heavy rain (>6”) caused water levels in the College Lake Dam to rise rapidly in August, 2018
- The emergency spillway activated but was unable to pass enough water to prevent overtopping of the dam, causing damage to the road and embankment
- A spillway through the dam was opened to rapidly dewater the lake in an effort to avoid failure
- Downstream areas were evacuated out of fear of dam failure

RWSA Dam Safety Program Elements

- Permitting & Regulatory Compliance
- Emergency Action Plan (EAP) Updates
- Training
- Exercises (internal & regional)
- Maintenance & Vegetation Control
- Repairs/Upgrades
- Public Safety
- Studies and Reports
- Inspections and Surveys
- Monitoring
- Operations

Dam Safety Emergencies and Design

- Dam Safety Emergencies are *Low Probability Events* with the Potential for High Impact.
- As a result, dams are designed with a high level of conservatism to minimize potential for failure or other emergencies
- Potential Causes of Dam Emergencies
  - Rainfall Exceeds Dam Design
  - Material Failure
  - Vandalism/Terrorism
  - Accidents / Public Safety

Hazard Potential Classification

- Dams are categorized according to the severity of consequences from their failure or misoperation. Hazard Classification does not reflect a dam's condition (safety, structural integrity, or flood routing capacity)
  - **HIGH – Dams that upon failure would cause probable loss of life or serious economic damage**
  - **SIGNIFICANT – Dams that upon failure might cause loss of life or appreciable economic damage**
  - **LOW – Dams that upon failure would lead to no expected loss of life or significant economic damage**
- Dam Hazard Potential dictates design criteria/spillway capacity requirements

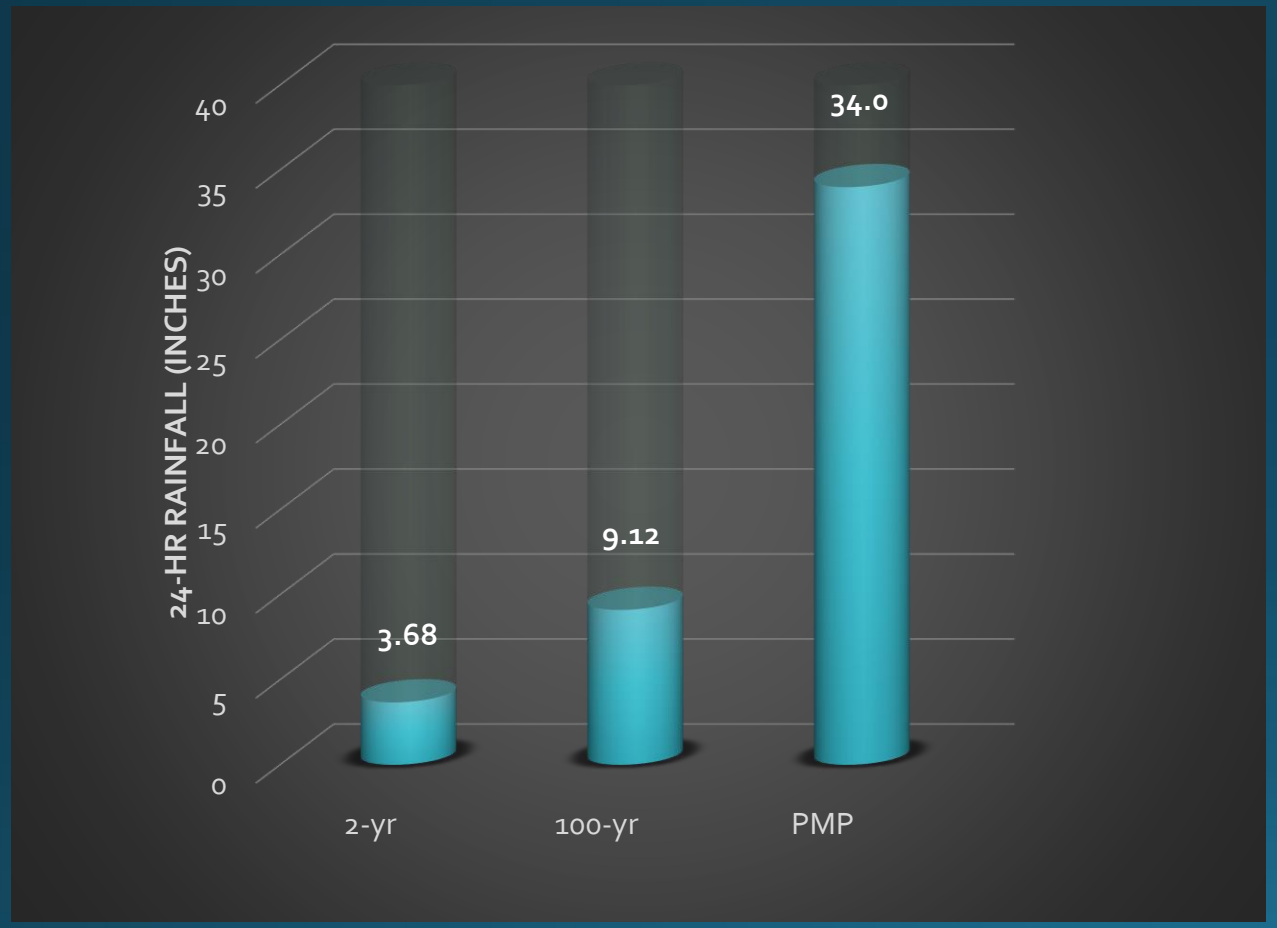
Probable Maximum Precipitation (PMP)

"The theoretically greatest depth of precipitation for a given duration that is physically possible over a particular drainage area at a certain time of the year."

- American Meteorological Society, 1959

Dams with a high hazard potential must be designed to pass the flood waters resulting from the PMP without failure or overtopping, also known as the Probable Maximum Flood, or PMF

Probable Maximum Precipitation (PMP)



Rainfall Recurrence Intervals for Charlottesville Area, from NOAA Atlas 14 (Volume 2, Version 3) & VA DCR PMP Study for Virginia, November 2015

- PMP is different for each watershed and storm duration
- PMP rainfall is calculated for a 6-hour, 12-hour, and 24-hour storm to determine the storm with the greatest impact on each dam
- The chart to the left shows the 2-year, 100-year, and PMP storm rainfall amounts for a 24-hour storm event in the Sugar Hollow watershed
- 24-hour PMP rainfall values for RWSA dams range from 23.7" – 34.0"

Probable Maximum Precipitation (PMP)

- PMP in the United States
  - Point rainfall exceeding the PMP has been recorded twice: Cherry Creek, CO (1935) and Smethport, Pennsylvania (1942)
  - Hurricane Harvey (2017): localized rainfall reached upward of 90% of the PMP over 72 hours

- PMP in Central Virginia
  - Hurricane Camille: Nelson County 1969 (>27" of rain overnight, 81% of PMP)
  - Madison County 1995 (25-30" of rain in 16 hours, 86% of the PMP)

RWSA & Regional Dam Facilities

- **High Hazard Dams**:
  - South Fork Rivanna Dam (FERC)
  - Sugar Hollow Dam
  - Beaver Creek Dam
  - Ragged Mountain Dam
- **Low Hazard Dams**:
  - Totier Creek Dam
  - Lickinghole Creek Dam
- **Other (Unregulated) RWSA Dams**:
  - North Fork Rivanna Low Head Dam (at NRWTP)
  - Mechums River Low Head Dam
  - Ivy MUC Dam
  - Unnamed Dam on Piney Creek (on Buck Mountain Property)
- **Other Dams in the Region:**
  - State – Lake Albemarle (VGIF/VDCR)
  - Private – Key West Subdivision, Clover Lake Dam (West Leigh)
  - County – Walnut Creek, Chris Green
  - Other – VDP Lake Anna

South Fork Rivanna Dam

- Federally Regulated Dam
- Small Hydropower Facility (to be decommissioned)
- Built in 1965
- Concrete Gravity Dam
- 700 feet long
- 47 feet tall

Ragged Mountain Dam

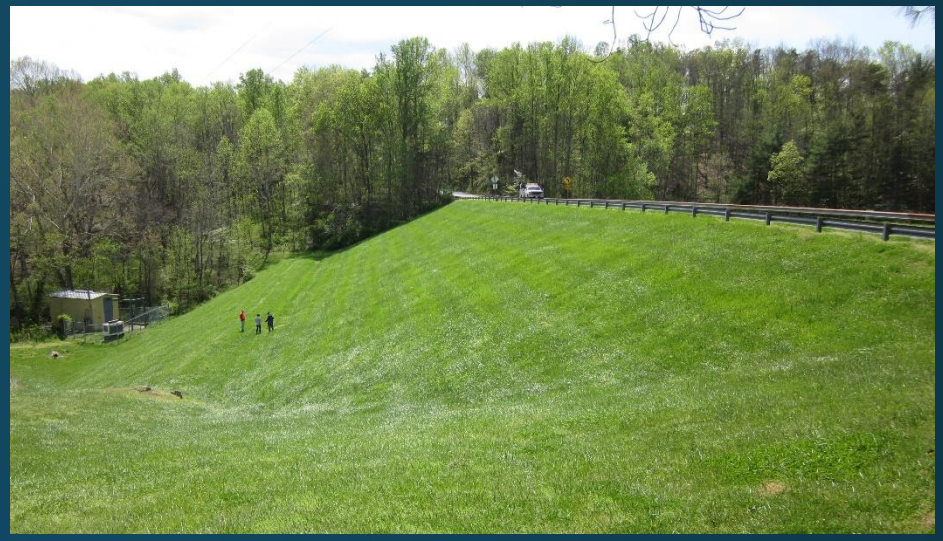
- State Regulated Dam
- Built in 2012-2014
- Historical Dams 1885 & 1908
- Earthfill Dam
- 785 feet long
- 125 feet tall

Sugar Hollow Dam

- State Regulated Dam
- Built in 1948
- Upgraded 1998
- Concrete Dam, Rubber Crest Gate
- 77 feet tall
- Rubber crest gate replaced earlier this year

Beaver Creek Dam

- State Regulated Dam
- Built in 1963
- Earthfill
- 60 feet tall
- County Park
- State Road on Crest (Browns Gap Turnpike
- Currently undergoing a plan/EA study funded by NRCS for spillway upgrades



Totier Creek & Lickinghole Creek Dams

Totier Creek

- Located in Scottsville
- State Regulated Dam
- Built in 1971
- 35 feet tall

Lickinghole Creek

- State Regulated Dam
- Built in 1995
- 32 feet tall
- Built as Sediment Basin

Emergency Response Planning for Dams

Owners Dam Safety Program

- Dam Safety Policies
- Internal Training and Procedures
- Safe Dam Design and Quality Construction
- Dam Maintenance and Monitoring

Emergency Action Plans

- Coordination with Emergency Response and Planning Agencies

EAP review, Training, and Exercising

- Drills, Functional Exercises

Public Safety Education and Notifications

- Signs, Alarms, Downstream Notifications

Emergency Action Plans for Dams

- An Emergency Action Plan is a set of preplanned actions to minimize or alleviate emergency conditions at the dam. It contains procedures and information to assist the owner in issuing early warning notifications to minimize loss of life and property damage during an emergency event at the dam.

- An EAP requires coordination among many organizations including the Virginia Department of Emergency Management and other public safety agencies such as police, fire and rescue, and transportation.

- RWSA maintains EAP's for each of its four high-hazard dams

Responsibilities under the EAP's

- **RWSA**:
  - Verify and assess emergency conditions at the dam
  - Notify participating EMA's
  - Take corrective action at facility, if possible
  - Issue condition status reports
  - Declare termination of emergency at facilities

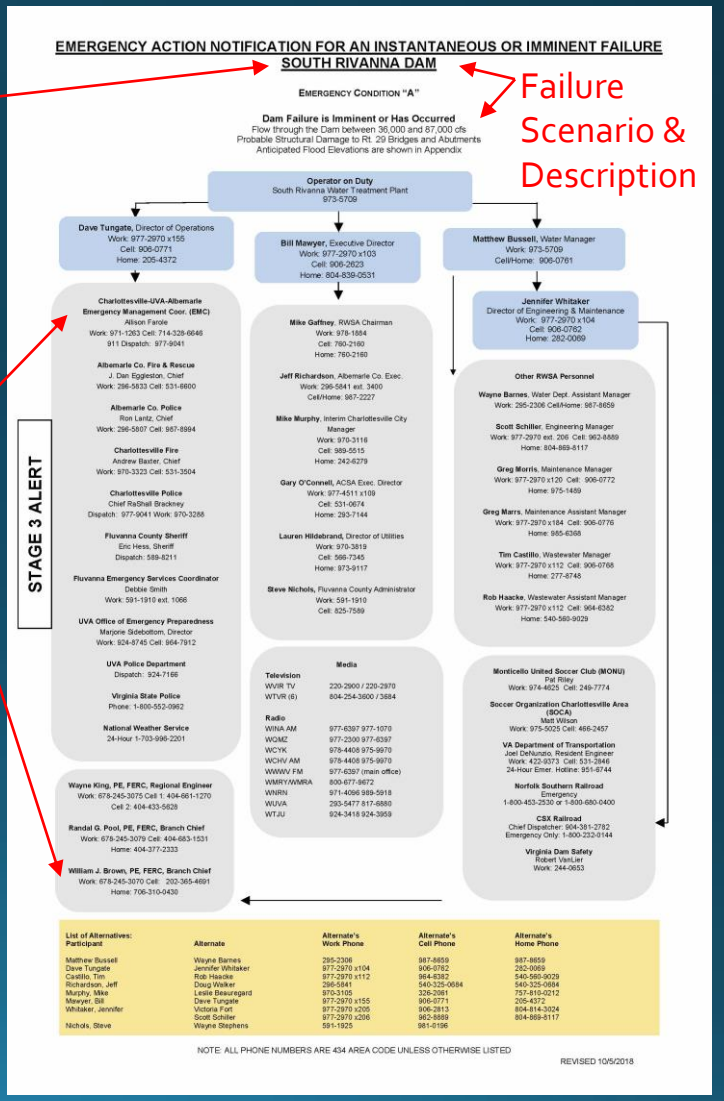
- **Charlottesville-UVA-Albemarle Emergency Communications Center**:
  - Receive condition status reports from RWSA
  - Notify public
  - Coordinate evacuation from inundation areas, if required

- **Albemarle County – Charlottesville – UVA – Fluvanna County**:
  - Receive condition status reports from RWSA
  - Notify public
  - Conduct evacuation from inundation areas, if required
  - Provide mutual aid, if requested and able

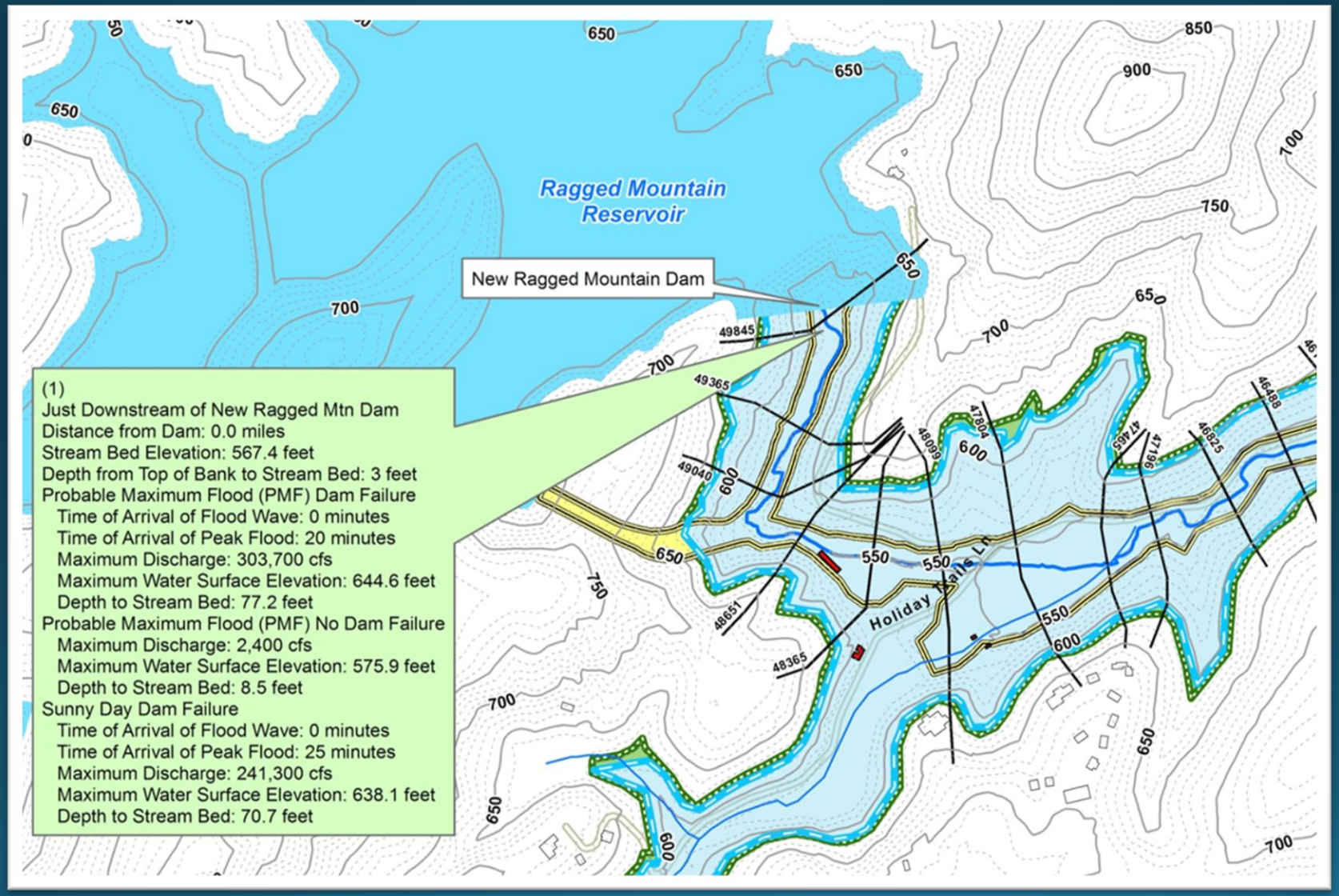
EAP Failure Scenarios & Notification Charts

- **Three Failure Scenarios**
  - Failure is Imminent or Has Occurred
  - Potential Failure Situation is Developing
  - Non-Failure Emergency

- Each Scenario has Notification Chart for each Dam



Inundation Mapping



RWSA Dam Projects

Recently Completed:

- Sugar Hollow Dam Rubber Crest Gate Replacement (Completed fall 2021)
- South Rivanna Dam Mud Gate Repairs, Grouting Repairs, and Safety Improvements (Completed summer 2021)
- Ivy MUC Irrigation Pond Dam Alterations (completed fall 2021)

Planning or Design Phase:

- Beaver Creek Dam Spillway Upgrades - Planning/EA Study (NRCS-funded)
- South Rivanna Dam Hydropower Decommissioning (2022 construction)

Regular Ongoing Maintenance Work:

- Monthly tree and brush clearing
- Drainage improvements and concrete repairs
- Installation and Maintenance and of public-safety measures (signs, buoys, booms)

Questions?