RIVANNA
WATER & SEWER AUTHORITY

Board of Directors Meeting

December 15, 2020

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 15, 2020**

LOCATION: **Virtually via ZOOM**

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

AGENDA

1. ***CALL TO ORDER***

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

3. ***MINUTES OF PREVIOUS BOARD MEETINGS***
   a.Minutes of Regular Board Meeting on November 17, 2020

4. ***RECOGNITION***

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

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

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

8. ***CONSENT AGENDA***
   a. *Staff Report on Finance*
   b. *Staff Report on Operations*
   c. *Staff Report on Ongoing Projects*
   d. *Staff Report on Wholesale Metering*

9. ***OTHER BUSINESS***
   a. *Presentation: Rivanna's Dam Safety Program, Ms. Victoria Fort, Sr Civil Engineer*

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

11. ***CLOSED MEETING***

12. ***ADJOURNMENT***

GUIDELINES FOR PUBLIC COMMENT AT VIRTUAL RIVANNA BOARD OF DIRECTORS MEETINGS

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

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

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

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

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

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

Rev. May 20, 2020

CALL TO ORDER

STATEMENT OF CHAIR TO OPEN MEETING

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

I would like to call the December 15, 2020 meeting of the Board of Directors to order.

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

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

ROLL CALL:

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

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

Joining us today electronically are the follow Authority staff members:

Bill Mawyer, Lonnie Wood, Jennifer Whitaker, David Tungate, John Hull, Victoria Fort, Andrea Bowles, and Katie McIlwee

We are also joined electronically by Kurt Krueger, counsel to the Authority.

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RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
November 17, 2020

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, November 17, 2020 at 2:27 p.m. via Zoom.

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

Board Members Absent: none.

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

Attorney(s) Present: Kurt Krueger.

1. CALL TO ORDER
Mr. Gaffney called the November 17, 2020 regular meeting of the Rivanna Water and Sewer Authority to order at 2:27 p.m.

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

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

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

Mr. Gaffney called the roll.

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

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

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

Dr. Elizabeth Palmer stated she was located at 2958 Mechum Banks Drive, Charlottesville, VA 22901.

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

Mr. Lloyd Snook stated he was located at 2408 Hillwood Place in Charlottesville, VA.

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

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

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

3. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on October 27, 2020

Dr. Palmer moved that the board approve the minutes of the previous board meeting. The motion was seconded by Mr. O'Connell and passed unanimously (6-0). (Mr. Snook abstained, as he did not attend the October 27, 2020 meeting.)

4. RECOGNITIONS

a. Resolution of Appreciation for Guy Maupin

Mr. Gaffney read the resolution aloud:

"**WHEREAS**, Mr. Maupin has served in a number of positions, most recently as a Water Operator Class 1, for the Rivanna Water and Sewer Authority since January of 1997; and

"WHEREAS, over the same period in excess of 23 years, Mr. Maupin has demonstrated leadership in his field and has been a valuable resource to the Authority and its employees; and

"**WHEREAS,** Mr. Maupin's understanding of the Authority's operation and dedication and loyalty to the Authority have positively impacted the Authority, its customers, and its employees; and

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

"**NOW, THEREFORE, BE IT RESOLVED** that the Rivanna Water and Sewer Authority Board of Directors recognizes, thanks and commends Mr. Maupin 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."

Mr. O'Connell moved to adopt the resolution of appreciation for Mr. Maupin. The motion was seconded by Dr. Palmer and passed unanimously (7-0).

Mr. Gaffney congratulated Mr. Maupin on his retirement.

5. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer stated another recognition he wanted to make was that Mr. Thomas Barger, Water Operator, received and passed his Class I Water Operator's license. He stated the Authority is proud and pleased with Mr. Barger, who has been with the Authority for nearly three years. He stated Mr. Barger also has a bachelor's degree in landscape architecture from the University of Georgia. He stated Mr. Barger is a very talented member of our team, and his efforts are appreciated.

Mr. Mawyer stated work continues on acquiring easements for the pipeline from Rivanna Reservoir to Ragged Mountain Reservoir. He stated the Authority is in detailed discussion with one commercial company, and the discussion had progressed to the details in the Deed of Easement. He stated slowly but surely, they are making progress.

Mr. Mawyer stated there was a meeting with UVA Foundation the week prior and that the Authority is keeping the process moving with them, as the Foundation has a number of parcels on which the Authority needs an easement.

Mr. Mawyer stated the Authority is planning the Buck Mountain Property Management Plan and if it is approved that day, they will have a consultant on board to get this going.

Mr. Mawyer stated Ms. Jennifer Whitaker, Director of Engineering and Maintenance, made a presentation to a UVA civil engineering class on water resources and public sector engineering.

Mr. Mawyer stated Ms. McIlwee and her colleagues at the City and Service Authority are getting started on the "Imagine a Day Without Water" art program. He stated the theme this year is "What Water Means to Me," and applications can be made through November 23.

Mr. Mawyer stated the next meeting of the RWSA Board will be December 15, and there will be an interesting presentation on the reservoir dam program by Ms. Victoria Fort, Senior Engineer.

6. ITEMS FROM THE PUBLIC

Mr. Gaffney opened the meeting to the public.

Ms. McIlwee stated there were two letters from the public to read, with one that had just come in before the meeting. She stated the first letter was from Ms. Paige Ragsdale at 1615 Browns Gap Turnpike, and read the letter aloud:

"I am writing to you as a concerned resident of Browns Gap Turnpike and neighbor to Beaver Creek Dam. Specifically, I am concerned about the lack of commitment to keep Brown's Gap Turnpike open through old road while the spillway is under construction.

"Last month, I was able to hear Mr. Mawyer speak at the Crozet Community Advisory Committee meeting. I was very pleased to hear him say that opening the road was still under consideration. It is my sincere hope, along with the hope of over 300 concerned citizens, that this be added to the scope of the spillway project.

"While the cost of the road does seem concerning, I would ask that it be closely examined. Closing this section of Browns Gap Turnpike for a minimum of 12 months, if staging of construction is possible, will affect the daily lives of those who travel this road, the livelihoods of farmers nearby, and the safety of those who live nearby with regards to emergency response times. It is hard to put a cost on any of these factors.

"I recently came across a pamphlet that was printed for the grand opening of Beaver Creek Dam. A paragraph struck me, as it seems every bit as pertinent today as it was then. It reads: 'Albemarle County can be justly proud. Completion of the Beaver Creek Watershed Project is a significant milestone in the growth of Albemarle County. This is an outstanding example of the possibilities of cooperative effort and leadership of enlightened local citizens aided by competent technicians of many governmental agencies.'

"I hope as we move forward to the next major project at Beaver Creek, we can do so with the same consideration and respect for neighbors of the lake and keep Browns Gap Turnpike open throughout the construction. Thank you very much for your time."

Ms. McIlwee stated a second comment came from Lowry Abell at 4133 Cow Path Lane, and read the letter aloud:

"We have petitions with 338 signatures to keep Browns Gap Turnpike open during construction. There have been concerns about the old bridge abutment; however, a former VDOT engineer visually inspected the concrete abutments and found them in good shape. Two years ago, a bridge with a 60-foot span was built over the Doyle's River to VDOT standards for a cost of $150,000.

"I believe that reopening the old road will not cost the $1-2 million that is projected. The cost can be just like NASA's toilet. You can buy one for $200 or you can pay $23 million. $27 million can be spent for the spillway that would ensure the health and safety of 2 houses and 9 outbuildings. But nothing can be spent for the health and safety of 42 households on Browns Gap Turnpike as closing the road endangers their health and safety by being further away from fire and rescue resources.

"Please reconsider closing Browns Gap Turnpike during construction. If you have any questions or comments, please call me: 434-960-1334."

Mr. Gaffney closed Items from the Public.

7. RESPONSES TO PUBLIC COMMENT

Mr. Mawyer stated the Authority is still working with VDOT as well as the federal Natural Resources Conservation Service (NRCS) on the design for the dam spillway and where it will specifically be located, as well as whether this temporary detour road would be completed. He stated he will be speaking with Mr. O'Connell and his Board of Directors on Thursday, November 19 to provide them with information about the plan for that project.

Mr. Mawyer stated the bottom line was that there had been no clear decisions made at this point of whether there would be a detour road. He stated they understand there are a number of people in the community who would like to keep a Browns Gap Turnpike detour road open. He stated the Authority's engineer has projected a cost of about $1 million to not only restore the old bridge abutments (which have not been used since the dam was built 50 years ago), but to also build a temporary road. He stated it is a significant project, but it has not been ruled out.

Mr. Mawyer stated the Authority will be working with the NRCS, which will require them to have public hearings on the design in several different phases as the design moves forward, and so the public will have an opportunity to voice their opinions on all aspects of the project.

Mr. Mawyer stated additionally, the Authority plans to bring some options back to the RWSA Board in the spring about the pump station and where it might be located, as well as the issue of building a temporary detour road.

Mr. Mawyer stated this is a topic that is still under discussion, and the public will have an opportunity to weigh in.

8. CONSENT AGENDA

a. Staff Report on Operations

b. Staff Report on Ongoing Projects

c. Staff Report on Wholesale Metering

d. Approval of Merit Pool

e. Approval of Term Contract for Professional Land Management, Planning and Engineering Services – LPDA, Inc.

f. Approval of Professional Services – Implementation of Computerized Maintenance Management System – GHD, Inc.

g. Approval of Term Contract for Non-Professional Environmental Health, Safety, and Industrial Hygiene Services – ECS Mid-Atlantic

h. Approval of Calendar Year 2021 Meeting Schedule

Dr. Palmer stated she had two questions about the consent agenda. She stated under the ongoing projects, for the South Fork Rivanna to Ragged Mountain pipeline project, they are doing a pretreatment pilot study. She stated she wanted to find out some information on the timing of that and what it will entail.

Mr. Mawyer replied that about 18 months from then, which would be mid-calendar year 2022, they expect to have the study done. He stated they will be taking samples from the reservoir, evaluating the level of sediment and nutrients in the water at different seasons of the year, and assessing what type of treatment they need (if any) before they would pump that water over to Ragged Mountain.

Mr. Mawyer stated the proposed pretreatment facility is a significant cost item in the budget of that project. He stated this is raw water that the Authority has the latitude to pump when they want to. He stated they do not have to pump it every day as they do finished water, and so they are trying to think strategically with their consultants on what the requirements would be for the treatment facilities to get the water from Rivanna to Ragged.

Mr. Mawyer stated for example, that day and the day before, when they had heavy rains and a huge amount of sediment in the Rivanna Reservoir and River, would not be ideal days to pump water to Ragged Mountain. He stated hopefully, they will be able to manage the water supply at Ragged and pump water on the days when the quality is much higher. He stated thereby, they would not have to have such intensive and high-tech filters to remove nutrients and sediment at the pretreatment facility before the water goes to Ragged.

Mr. Mawyer stated the Authority is assessing this and taking a fresh look at the pretreatment requirements and operational logistics they control for this system to ensure they receive a value from the project and expenditures that would be required. He stated in mid-July of 2022, they expect to have the entire pilot study completed.

Dr. Palmer stated it was great news to hear that this was going on. She asked if the Authority was doing the study themselves or if it was being done by consultants.

Mr. Mawyer replied that a consultant is helping with this. He stated as part of this, they are also assessing the full cost of the entire project to update the costs and make sure that the $80 million they had projected is an accurate number as best they can.

Dr. Palmer stated this was wonderful to hear. She stated her second question was that she wanted to hear a few more comments from Mr. Mawyer about the merit pool increase. She stated she certainly supports this, but knows that there are new members on the board and the public listening as well. She stated those who have served on the board for a while know that they did the compensation study in January of 2018, where compression problems were identified, and there were people who had their salaries below the midline. She stated it was recommended that the study be repeated in 3-5 years.

Dr. Palmer stated she wanted to have Mr. Mawyer tell the board more about where they are in correcting some of those problems. She stated obviously, other authorities and municipalities

have also increased their salaries while Rivanna has been doing these studies for the past few years.

Mr. Mawyer stated Dr. Palmer was exactly right. He stated they had the classification and compensation study that was completed in January of 2018, which did recommend that the Authorities pay scale was below the market at the minimum, midpoint and maximum points, and that they also have potential compression issues at the higher end of the employee groups, as over 64% of employees were above the midpoint of the scale.

Mr. Mawyer stated compression comes about in two ways. He stated when tenured employees get to the top of the scale and have nowhere to advance, mid-level tenured employees catch up with them and create compression. He stated as well, if the scale does not move with time, new employees are hired at a market-based salary, and their salaries may be equal to employees who have been with the Authority for a number of years. He stated they can experience compression at the bottom of their tenured employee group as well as at the top of the tenured employees.

Mr. Mawyer stated in 2019, a scale adjustment of 4% was agreed upon to move the scale to higher salaries. He stated this did not give any money to employees, but the Boards did approve a 3% merit increase that year for employees. He stated they are trying to keep the scale advancing as well as existing employees advancing so that the new employees do not come in with salaries that compete with those who have been there much longer.

Mr. Mawyer stated similarly in 2020, with the Board's approval, there was a 5% increase to the scale. He stated no employees received any money from this, but the board also approved a 3% merit pool for 2020.

Mr. Mawyer stated in July of 2020 (FY 21), there were no merit or scale adjustments proposed to the Board in view of the Covid related circumstances, which is why he has come back to the Boards for a merit increase in January 2021, as some of the financials of the area seem to not be as dire as predicted back in the spring. He stated they have also done a market survey of other authorities in the area and found that many of them have given their employees merit increases between July and November 2020.

Mr. Mawyer stated this request is to try to keep the Authority's staff on pace with the market, with a 3% merit pool. He stated they are calling it a "pool" because they have a merit system where each employee gets a 0 to 3 grade, and this performance evaluation grade will dictate his/her exact salary increase percentage. He stated it is a merit pool of 3%, and the Authority then distributes the money to staff based on their performance score.

Mr. Mawyer stated there will be another classification and compensation study in the fall of 2021 for the following budget year (FY 23) to help with the issue of compression. He stated they may propose to the board in July 2021 to adjust the scale again, which would not add any salary to any employees. He stated they are not sure about this plan, and it will be an item for discussion in the spring.

Ms. Hildebrand stated she had a question about Item F. She asked what the schedule is for the

implementation of the Computerized Maintenance Management System.

Mr. Mawyer replied that it was 18 months. He stated they are currently working on the pilot study, which is to get the inventory and all the assets in the new Rivanna Pump Station categorized and entered into data templates. He stated they are implementing the newly acquired software, CityWorks, and piloting it within the Rivanna Pump Station. He stated in 18 months, they expect to finish the implementation of CityWorks.

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

9. OTHER BUSINESS

a. Presentation: Comprehensive Annual Financial Report Fiscal Year Ending June 30, 2020

Mr. Matthew McLearen (Principal of Robinson, Farmer, Cox Associates) stated he would present the fiscal year ending June 30 audit results and briefly review the Comprehensive Annual Financial Report.

Mr. McLearen stated before he would review the Comprehensive Annual Financial Report, he would provide a brief recap of the responsibilities and communications under the letter titled "Letter of Communication With Those Charged with Governance." He stated there are five to six main points he would briefly review.

Mr. McLearen stated the first item is difficulties encountered performing the audit. He stated he was pleased to report there were no difficulties encountered such as incomplete records or records unavailable to apply on financial statements.

Mr. McLearen stated the next item communicated in the letter is corrected and uncorrected misstatements. He stated he was pleased to report there were no uncorrected misstatements, and all proposed audit adjustments were included and applied to the financial statements.

Mr. McLearen stated the next item is applying accounting principles. He stated there were no disagreements in applying accounting principles, and there were no new accounting principles implemented for FY 2020.

Mr. McLearen stated the next item was consultation with other auditors, also known as "opinion shopping." He stated he was pleased to report his firm has no knowledge that management sought the opinion of a second CPA firm.

Mr. McLearen stated lastly, there were no significant audit findings for the FY 2020 audit.

Mr. McLearen stated this had been a brief review of the "Letter to Those Charged With Governance," and he would proceed with the Comprehensive Annual Financial Report. He stated there are four sections in the report, and he would start with the second section (Financial section). He stated the first document under that section is the Independent Auditor's Report, which is an opinion on the financial statements and material correctness of the numbers as

presented. He stated he was pleased to report that they have issued an unmodified or clean opinion for the fiscal year ending June 30, 2020, which can be found in pages 13 and 14 of the document.

Mr. McLearen stated immediately following the Independent Auditor's Report is Management's Discussion and Analysis. He stated he would not go into detail, but that this is a narrative overview of the financial statements that also provides a comparative analysis to the two prior years, as well as charts and graphs for key financial figures.

Mr. McLearen stated there are three central financial statements in the document, starting with the first (Exhibit 1) on page 26. He stated this is the Statement of Net Position, and the term "net position" is the equity for the Authority. He stated on June 30, 2020, the Authority had a total net position of $156 million. He stated there are three categories of that position: Net Investment and Capital Assets, Restricted, and Unrestricted. He stated the Unrestricted, which was available for operations, was approximately $32.1 million.

Mr. McLearen stated the second financial statement is Exhibit 2, which is the Statement of Revenues, Expenses, and Changes in Net Position. He stated this reports the increase or decrease in the equity or net position. He stated the third number from the bottom on this document (Exhibit 2, page 28) shows that the change in net position was an increase in equity of approximately $4.4 million in the fiscal year ending June 30, 2020.

Mr. McLearen stated the third and final financial statement in the document is the Statement of Cash Flows (found on page 29, Exhibit 3). He stated the Authority's ending cash balance can be found on the double underline, approximately two-thirds of the way down the page. He stated $69.48 million was the ending cash balance on June 30, 2020.

Mr. McLearen stated the last section he wanted to recap in the Comprehensive Annual Financial Report was the Compliance section, which contains the Independent Auditor's Report on Internal Control Over Financial Reporting and Other Compliance Matters. He stated this is found on pages 99 and 100. He stated this is a document where the auditor would present any significant deficiencies, material weaknesses, illegal acts, or other accounting matters or considerations. He stated he was pleased to report there were no significant deficiencies, material weaknesses, or accounting irregularities reported for the fiscal year ending June 30, 2020.

Mr. McLearen stated he also wanted to thank management and specifically the Executive Director (Mr. Mawyer), Mr. Wood, and Ms. Ware in the audit process, as well as commend them on their job in preparing the Comprehensive Annual Financial Report. He offered to answer any questions from the board.

Mr. O'Connell commented on the financial excellence that Mr. Wood, Mr. Mawyer, and the staff have continued for a long time.

Mr. Gaffney thanked Mr. McLearen for the report and asked him to tell Robert they missed him at this meeting.

At 2:58 p.m., Dr. Palmer moved to reconvene the meeting of the Rivanna Solid Waste Authority. The motion was seconded by Mr. Snook and passed unanimously (7-0).

Mr. Gaffney noted that both board meetings were in order.

b. Presentation: Safety Program Update

Ms. Liz Coleman, Safety Manager for Rivanna Authorities, stated she would guide the boards through the presentation to update them on the Authorities Safety Program.

Ms. Coleman stated safety is a continuous improvement process that protects staff and reduces the number of workplace deaths, injuries, and illnesses. She stated OSHA describes safety as a continuous improvement process and a part of our strategic plan, which is included in our goal of operational optimization. She stated there are three strategies to help the Authorities meet those goals: enhance our culture of safety; protect the workforce and public through continually growing a culture of safety; and complete a safety master plan to help us know where those hazards may be (which has been completed).

Ms. Coleman stated to begin, there is the Rivanna Safety Manual. She presented a slide displaying the many chapters that make up the safety manual. She stated all of these chapters pertain to work activities and processes carried out at Rivanna Authorities. She stated everything from post-incident procedures to emergency action plans are present there.

Ms. Coleman presented a slide showing one of the safety manual chapters broken down into multiple requirements. She stated all chapters consist of multiple requirements such as best practices, review of regulations, and requirements training. She stated these requirements are governed by Occupational Safety and Health Administration (OSHA) or Virginia Occupational Safety and Health (VOSH), and as all laws, they change from time to time. She stated in 2018, in fact, VOSH changed the penalty law previously only imposed on private industry to allow government employers to be fined. She stated the Authorities were audited by VOSH in 2017 that resulted in the issue of three audit reports. One audit report contained four serious violations. She stated had this audit occurred after December 1, 2018, they could have been fined for up to $51,000 per day until these violations were corrected.

Ms. Coleman stated therefore, the Authorities have updated their safety manual with new chapters to meet some of these regulatory requirements. She stated these chapters include emergency action plans, fire prevention, excavation and trenching, asbestos safety, crane safety, and COVID-19 infectious disease prevention.

Ms. Coleman stated they have also updated their emergency management plans, with action plans posted at each facility. She stated they use CODE RED as the staff notification system, and have performed fire drills, adding that she was sure everyone remembered the fire drill that occurred during the October board meeting.

Ms. Coleman stated the Authorities have updated their training options to meet compliance needs. She stated they do biweekly Toolbox Safety Talks, free online training by Virginia Risk Sharing Association, and in-person training by PVCC.

Ms. Coleman stated the Authorities have purchased equipment such as Automated External Defibrillators (AEDs), fall protection gear, and Personal Protective Equipment (PPE). She stated the slide on the screen displayed some of the fall protection equipment and AEDs. She stated they are also putting together lockout/tagout procedures for staff to use when performing maintenance on equipment.

Ms. Coleman stated they have included safety measures to meet their occupational hazards and added processes to make their program stronger. She stated Hepatitis A and B and tetanus are hazards the staff may encounter, and so opportunity has been provided to staff to be vaccinated at the Moores Creek and Ivy Materials Utilization Center locations during the workday. She stated they have assessed noise at designated facilities and implemented audiology programs as needed. She stated VOSH assessed combustible dust levels as a free service to the Authorities, and so they implemented a housekeeping plan to meet that need.

Ms. Coleman stated the Authorities have implemented a voluntary respirator program for protection from particulates and organics at specific locations, and have implemented new process programs such as new employee safety orientations, in which she meets with new employees before they begin their jobs to discuss safety hazards specific to jobs they are starting. She stated they have implemented contractor safety programs, which consist of a checklist to ensure the contractors have their own safety programs in order prior to starting projects with the Authorities.

Ms. Coleman stated they have expanded the radio safety program with safety checks to Solid Waste at McIntire Recycling Center and Meade Avenue Paper Sort, where staff work alone most of the day. She added that they have high-priority hazards noted by the safety master plan assessment, with corrections in progress.

Ms. Coleman stated with all the updates completed, the Authorities still have a ways to go. She stated they are installing safety showers and eye washes where corrosive materials are stored. She stated they are organizing their inspections and recordkeeping for easier access during audits.

Ms. Coleman stated they are updating their welding chapter to meet compliance requirements. She stated they are in need of Arc Flash labeling for equipment and are in the process of writing over 2,000 lockout/tagout process and shutdown procedures.

Ms. Coleman stated they are assessing hazards and label requirements in confined spaces and assessing chemical storage. She stated they have storage for chemicals in a variety of locations, and some chemicals are highly hazardous. She stated they need to ensure accurate inventories, update the safety data sheets, and ensure the storage guidelines are met.

Ms. Coleman stated there are multiple facilities that perform a variety of jobs at Rivanna Authorities, such as water treatment, wastewater treatment, solid waste disposal, and recycling. She stated in order to perform their jobs safely, they must use available resources to improve safety at all facilities. She stated the resources that are available include her full-time Safety

Manager position, a staff safety committee that is made up of a representative from each department, a budget of $114,000 for Water and Sewer, and $26,000 for Solid Waste. She stated they have received $6,000 in grants to support the safety program from the Virginia Risk Sharing Association (VRSA).

Ms. Coleman stated in conclusion, the Authorities have recently completed many program updates, but with this stated, they must do more to support the safety program. She stated they must protect their valuable human resources by providing a safe workplace, enhance their safety culture through safe work practices, and maintain VOSH requirements to avoid noncompliance fines.

Ms. Coleman stated safety is a continuous improvement process, and Rivanna must continue to strategically improve processes safely. She stated they can do this by working together. She thanked the boards for their attention and support, and asked if they had any questions.

Dr. Palmer asked Ms. Coleman if she could tell the boards what the sources of the grants were for the programs, as well as provide more information about the four violations, or at least a couple of them, that occurred in 2017 so the boards could get an idea of some of the things that were being corrected and dealt with.

Ms. Coleman stated the first question was about the grants, which were from the Virginia Risk Sharing Association (the Authorities' insurer). She stated the Authorities have to apply for those grants and let VRSA know what they would like to purchase, which happens around August every year. She stated so far, VRSA has approved their purchases.

Dr. Palmer asked if this was mainly for purchases and not for different initiatives to support them.

Ms. Coleman replied that it was for safety equipment or training, and that it is primarily safety oriented.

Dr. Palmer asked if could just be for training.

Ms. Coleman replied yes. She stated the other question was about the four serious violations. She stated she did not have the information with her, but recalled there being some electrical and other items that have been corrected. She stated she could get this information to Dr. Palmer.

Mr. O'Connell asked if those had all been corrected.

Ms. Coleman replied yes.

Mr. O'Connell asked if VOSH was aware they were corrected.

Ms. Coleman replied yes.

Dr. Palmer stated she did not need a lot of detail, but wanted to get an idea of some of the things

that had to be corrected.

Ms. Coleman stated that Mr. McKalips, who was the Safety Manager before her, corrected those prior to her getting there.

Dr. Palmer asked if Mr. McKalips could email those corrections to her.

Mr. Mawyer stated that many of them were electrical issues where the panels were not labeled, or there were things stored around the electrical panels. He stated he was not sure if these were the four serious ones, but this was a frequent comment. He stated there had been extension cords that were used too extensively.

Ms. Coleman stated some of it was about lockout/tagout as well.

Mr. Mawyer stated where they have equipment, they have to have a lockout/tagout procedure that tells staff how to shut the equipment down (e.g., to do maintenance), and what the procedure is. He stated this includes what electrical circuits they have to shut off, what other energy sources there might be that could be pneumatic, or other energy sources and how to shut the equipment down fully before working on it so that no one is injured when they reach in to take out a part. He stated they will want to make sure it is fully turned off first. He stated these were many of the comments the Authorities received back in 2017.

Mr. Blair asked if there are continuous assessments or tests of the employees concerning the safety procedures. He asked if there are any scheduled annual or semi-annual tests regarding safety knowledge of their specific job functions.

Ms. Coleman replied that many of the safety procedures are written about the specific job functions, and they do have periodic training and annual training requirements from OSHA and VOSH. She stated the online VRSA training offers a test along with the training. She stated there are tests when they have in-person training from PVCC.

Mr. Mawyer stated there are different requirements depending on the topic (e.g., fire extinguisher training must be done every year). He stated other technical trainings may occur every third year.

Mr. Mawyer stated there are a variety of training requirements that the regulators impose, and Ms. Coleman has done a good job in building a training matrix for every employee, identifying the type of training each employee needs depending on the job duties, and how frequently training would be needed. He stated with about 111 employees, it is a complex matrix to keep track of the of electrical, mechanical, lifting, truck safety, crane safety, etc. training requirements.

Mr. Mawyer stated the safety manual includes 24 chapters, and there is a huge amount of training, equipment, and procedures required. He stated it is not a one-time event, and the requirements must be completed virtually every year. He stated every chapter of the 24-chapter safety manual is reviewed every year to ensure it is up to date. He stated there are 2,000 pieces of

equipment that need a lockout/tagout procedure, and when they are all written, each one needs to be updated and reviewed annually.

Mr. Mawyer stated that the Safety Program is a huge process and workload for Ms. Coleman, who does a great job. He stated they want to help the boards understand all the things she is doing. He stated that day, the board approved a safety consultant to help Ms. Coleman, and this is a resource the Authorities will use to help with the many safety program requirements.

10. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

There were no other items.

11. CLOSED MEETING

There was no closed meeting.

12. ADJOURNMENT

At 3:15 p.m., Mr. O'Connell moved to adjourn the meeting of the Rivanna Water and Sewer Authority. The motion was seconded by Dr. Palmer and passed unanimously (7-0).

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

MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **EXECUTIVE DIRECTOR'S REPORT**

DATE: **DECEMBER 15, 2020**

STRATEGIC PLAN GOAL: WORKFORCE DEVELOPMENT

Recognitions

The professional qualifications of our staff continue to improve and enhance our services.

Ms. Jennifer Whitaker, Director of Engineering and Maintenance, recently completed her Master of Engineering degree in Civil Engineering from the University of Virginia.

STRATEGIC PLAN GOAL: INFRASTRUCTURE AND MASTER PLANNING

Buck Mountain Property

We have selected a consultant, and are moving forward with a property management plan for this property. Completion of the first phase of the plan is anticipated by February 2021.

Beaver Creek Dam, Pump Station and Piping Modifications Project

We continue to have monthly progress meetings with the federal Natural Resources Conservation Service (NRCS). The first public meeting was held virtually on December 10 to inform the public about the project plan, and to invite comments. A similar meeting was held with many of the State and Federal regulatory agencies involved with the project. We expect this project planning and public information process to continue until 2022, with the desired outcome of project approval and up to 65% of the project funding from NRCS.

FY 22 – 26 Capital Improvement Plan

We met with the Board's City and ACSA subcommittee on December 10 to review the draft 5-Year CIP. After incorporation of suggestions from the subcommittee, the proposed CIP will be presented to the Board in February 2021.

STRATEGIC PLAN GOAL: Communication and Collaboration

Community Outreach

The submission period for the annual Imagine a Day Without Water art contest concluded

on November 23rd. This year we received 121 submissions in all grade categories (K-12). The winners will be announced on December 18th.

ACSA Board of Directors

The Division Directors and I gave a presentation to the ACSA Board of Directors last month about many of the projects included in our FY 21 – 25 CIP, as well as our anticipated charge increases for the next five years.

Strategic Plan Goal: Environmental Stewardship

A Total Maximum Daily Load (TMDL) study of the South Fork of the Rivanna River is currently being conducted by VDEQ. The TMDL is the maximum amount of a pollutant that a water body can receive and still meet water quality standards. A public information meeting was held by VDEQ on November 18, 2020.

Several tributaries to the South Fork Rivanna River upstream of the South Rivanna Reservoir, as well as the section of the river downstream of the Reservoir to its confluence with the North Fork Rivanna, are identified as being impaired for aquatic life. This is based on the results of sampling of benthic macroinvertebrates (bugs) in the river sediments by VDEQ and Rivanna Conservation Alliance.

The reservoir is not a part of this study. Our Water Manager (Andrea Bowles) is a member of the Technical Advisory Committee for this study. The TAC had an initial virtual meeting, which was open to the public, on December 9. The next meeting of the TAC will likely be held in February.

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MEMORANDUM

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

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

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

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

DATE: **DECEMBER 15, 2020**

Urban Water flow and rate revenues are 11% over budget estimates through October, and Urban Wastewater flow and rate revenues are 9% over budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 2,909,050	$ 3,227,551	$ 762,159	$ 6,898,760
Expenses	(3,172,566)	(2,967,838)	(815,466)	(6,955,870)
Surplus (deficit)	$ (263,516)	$ 259,713	$ (53,307)	$ (57,110)
Debt Service				
Revenues	$ 2,297,915	$ 2,900,064	$ 552,337	$ 5,750,316
Expenses	(2,313,672)	(2,850,054)	(556,342)	(5,720,068)
Surplus (deficit)	$ (15,757)	$ 50,010	$ (4,005)	$ 30,248
Total				
Revenues	$ 5,206,965	$ 6,127,615	$ 1,314,496	$ 12,649,076
Expenses	(5,486,238)	(5,817,892)	(1,371,808)	(12,675,938)
Surplus (deficit)	$ (279,273)	$ 309,723	$ (57,312)	$ (26,862)

When reviewing the Authority as a whole, operating revenues are $654,000 over budget and operating expenses are $630,000 over budget.

A. Annual Transactions

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

received annually from the County. Annual payments are made for certain leases and maintenance agreements, and some insurance premiums are paid quarterly.

B. Personnel Costs (various departments) – Unbudgeted bonuses were paid in October, and Maintenance department salaries were underbudgeted this year in error.
C. Professional Services (Urban Water – page 2) – Urban Water has incurred $4000 in legal fees and only has about $1500 of annual budget remains this year for professional services.
D. Other Services and Charges (Urban Water – page 2) – Urban Water incurred $26,800 which was the result of unexpected charges related to mitigation plan compliance.
E. Operations and Maintenance (Urban Water – page 2) – Urban Water is $326,000 over its total annual budget for Pipeline and Appurtenances repairs due to several major line breaks.

Attachments

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

Consolidated
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 17,381,293	$ 5,793,764	$ 6,298,639	$ 504,875	8.71%
Lease Revenue		105,000	35,000	40,461	5,461	15.60%
Admin., Maint. & Engineering Revenue		545,000	181,667	216,766	35,100	19.32%
Other Revenues		542,788	180,929	390,658	209,728	115.92%
Use of Reserves-GAC		535,220	178,407	85,600	(92,807)	-52.02%
Rate Stabilization Reserves		240,027	80,009	80,009	-	0.00%
Interest Allocation		35,100	11,700	3,393	(8,307)	-71.00%
Total Operating Revenues		**$ 19,384,428**	**$ 6,461,476**	**$ 7,115,526**	**$ 654,050**	**10.12%**
Expenses						
Personnel Cost	**A, B**	$ 8,913,257	$ 3,052,634	$ 3,127,041	$ (74,407)	-2.44%
Professional Services	**A, C**	602,700	200,900	227,039	(26,139)	-13.01%
Other Services & Charges	**A, D**	3,136,780	1,045,593	1,139,610	(94,016)	-8.99%
Communications	**A**	161,020	53,673	83,366	(29,692)	-55.32%
Information Technology	**A**	392,950	130,983	117,531	13,452	10.27%
Supplies		47,045	15,682	15,564	117	0.75%
Operations & Maintenance	**A, E**	4,918,416	1,639,472	2,079,212	(439,740)	-26.82%
Equipment Purchases		352,250	117,417	96,607	20,810	17.72%
Depreciation		860,000	286,667	286,667	(0)	0.00%
Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 19,384,418**	**$ 6,543,021**	**$ 7,172,637**	**$ (629,616)**	**-9.62%**
Operating Surplus/(Deficit)		**$ 10**	**$ (81,545)**	**$ (57,111)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 15,861,016	$ 5,287,005	$ 5,287,008	$ 3	0.00%
Use of Reserves		954,652	318,217	318,217	-	
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		135,900	45,300	3,120	(42,180)	-93.11%
Reserve Fund Interest		666,000	222,000	32,529	(189,471)	-85.35%
Total Debt Service Revenues		**$ 17,728,608**	**$ 5,909,536**	**$ 5,750,316**	**$ (159,220)**	**-2.69%**
Debt Service Costs						
Total Principal & Interest		$ 14,380,219	$ 4,793,406	$ 4,793,406	$ -	0.00%
Reserve Additions-Interest		666,000	222,000	32,529	189,471	85.35%
Debt Service Ratio Charge		725,000	241,667	241,667	-	0.00%
Reserve Additions-CIP Growth		1,957,394	652,465	652,465	-	0.00%
Total Debt Service Costs		**$ 17,728,613**	**$ 5,909,538**	**$ 5,720,067**	**$ 189,471**	**3.21%**
Debt Service Surplus/(Deficit)		**$ (5)**	**$ (2)**	**$ 30,249**		

Summary

Total Revenues	$ 37,113,036	$ 12,371,012	$ 12,865,842	$ 494,830	4.00%
Total Expenses	37,113,031	12,452,559	12,892,704	(440,145)	-3.53%
Surplus/(Deficit)	**$ 5**	**$ (81,547)**	**$ (26,862)**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Urban Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 7,118,541	$ 2,372,847	$ 2,633,057	$ 260,210	10.97%
Lease Revenue		75,000	25,000	29,950	4,950	19.80%
Miscellaneous		-	-	127,613	127,613	
Use of Reserves-GAC		500,000	166,667	85,600	(81,067)	-48.64%
Rate Stabilization Reserves		94,254	31,418	31,418	-	0.00%
Interest Allocation		14,600	4,867	1,412	(3,455)	-70.99%
Total Operating Revenues		**$ 7,802,395**	**$ 2,600,798**	**$ 2,909,050**	**$ 308,251**	**11.85%**
Expenses						
Personnel Cost	**B**	$ 1,918,361	$ 655,598	$ 674,579	$ (18,981)	-2.90%
Professional Services	**C**	134,000	44,667	132,474	(87,807)	-196.58%
Other Services & Charges	**A, D**	738,130	246,043	316,890	(70,847)	-28.79%
Communications	**A**	76,000	25,333	36,389	(11,056)	-43.64%
Information Technology		85,500	28,500	18,912	9,588	33.64%
Supplies		5,745	1,915	3,152	(1,237)	-64.60%
Operations & Maintenance	**E**	2,159,300	719,767	1,105,150	(385,383)	-53.54%
Equipment Purchases		28,000	9,333	7,723	1,611	17.26%
Depreciation		300,000	100,000	100,000	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 5,445,036	$ 1,831,156	$ 2,395,269	$ (564,113)	-30.81%
Allocation of Support Departments		2,357,359	805,739	777,296	28,443	3.53%
Total Operating Expenses		**$ 7,802,395**	**$ 2,636,895**	**$ 3,172,566**	**$ (535,670)**	**-20.31%**
Operating Surplus/(Deficit)		**$ 0**	**$ (36,097)**	**$ (263,516)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 6,178,645	$ 2,059,548	$ 2,059,532	$ (16)	0.00%
Trust Fund Interest		49,000	16,333	1,126	(15,207)	-93.10%
Reserve Fund Interest		339,600	113,200	16,590	(96,610)	-85.34%
Use of Reserves		662,000	220,667	220,667	-	0.00%
Lease Revenue		1,600	533	-	(533)	-100.00%
Total Debt Service Revenues		**$ 7,230,845**	**$ 2,410,282**	**$ 2,297,915**	**$ (112,367)**	**-4.66%**
Debt Service Costs						
Total Principal & Interest		$ 5,215,445	$ 1,738,482	$ 1,738,482	$ -	0.00%
Reserve Additions-Interest		339,600	113,200	16,590	96,610	85.34%
Debt Service Ratio Charge		400,000	133,333	133,333	-	0.00%
Reserve Additions-CIP Growth		1,275,800	425,267	425,267	-	0.00%
Total Debt Service Costs		**$ 7,230,845**	**$ 2,410,282**	**$ 2,313,672**	**$ 96,610**	**4.01%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ (15,757)**		
Rate Center Summary						
Total Revenues		$ 15,033,240	$ 5,011,080	$ 5,206,965	$ 195,885	3.91%
Total Expenses		15,033,240	5,047,177	5,486,237	(439,060)	-8.70%
Surplus/(Deficit)		**$ 0**	**$ (36,097)**	**$ (279,272)**		
Costs per 1000 Gallons		$ 2.30		$ 2.52		
Operating and DS		$ 4.42		$ 4.37		
Thousand Gallons Treated		3,397,700	1,132,567	1,256,828	124,261	10.97%
or						
Flow (MGD)		9.309		10.218		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Crozet Water Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 1,028,808	$ 342,936	$ 342,936	$ -	0.00%
Lease Revenues		30,000	10,000	10,511	511	5.11%
Use of Reserves-GAC		26,000	8,667	-	(8,667)	-100.00%
Interest Allocation		2,100	700	200	(500)	-71.40%
Total Operating Revenues		**$ 1,086,908**	**$ 362,303**	**$ 353,647**	**$ (8,656)**	**-2.39%**
Expenses						
Personnel Cost		$ 302,598	$ 103,423	$ 107,533	$ (4,109)	-3.97%
Professional Services	A	15,000	5,000	10,478	(5,478)	-109.56%
Other Services & Charges		142,360	47,453	28,200	19,253	40.57%
Communications		5,600	1,867	6,746	(4,879)	-261.39%
Information Technology		2,250	750	160	590	78.66%
Supplies		1,350	450	747	(297)	-66.08%
Operations & Maintenance	A	353,292	117,764	175,503	(57,739)	-49.03%
Equipment Purchases		3,000	1,000	1,000	-	0.00%
Depreciation		40,000	13,333	13,333	0	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 865,450	$ 291,041	$ 343,700	$ (52,659)	-18.09%
Allocation of Support Departments		221,456	75,680	73,518	2,161	2.86%
Total Operating Expenses		**$ 1,086,906**	**$ 366,720**	**$ 417,218**	**$ (50,498)**	**-13.77%**
Operating Surplus/(Deficit)		**$ 2**	**$ (4,418)**	**$ (63,571)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 1,311,312	$ 437,104	$ 437,104	$ -	0.00%
Trust Fund Interest		11,600	3,867	265	(3,601)	-93.14%
Use of Reserves		198,252	66,084	66,084	-	0.00%
Reserve Fund Interest		15,700	5,233	781	(4,453)	-85.08%
Total Debt Service Revenues		**$ 1,536,864**	**$ 512,288**	**$ 504,234**	**$ (8,054)**	**-1.57%**
Debt Service Costs						
Total Principal & Interest		$ 1,217,569	$ 405,856	$ 405,856	$ -	0.00%
Reserve Additions-Interest		15,700	5,233	781	4,453	85.08%
Reserve Additions-CIP Growth		303,600	101,200	101,200	-	0.00%
Total Debt Service Costs		**$ 1,536,869**	**$ 512,290**	**$ 507,837**	**$ 4,453**	**0.87%**
Debt Service Surplus/(Deficit)		**$ (5)**	**$ (2)**	**$ (3,603)**		

Rate Center Summary

Total Revenues	$ 2,623,772	$ 874,591	$ 857,881	$ (16,710)	-1.91%
Total Expenses	2,623,775	879,010	925,055	(46,046)	-5.24%
Surplus/(Deficit)	**$ (3)**	**$ (4,419)**	**$ (67,174)**		
Costs per 1000 Gallons	$ 5.47		$ 5.01		
Operating and DS	$ 13.20		$ 11.11		
Thousand Gallons Treated	198,830	66,277	83,256	16,979	25.62%
Flow (MGD)	0.545		0.677		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Scottsville Water Rate Center
Revenues and Expenses Summary

	Budget FY 2021	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*

Operating Budget vs. Actual

	Notes				
Revenues					
Operations Rate Revenue	$ 520,812	$ 173,604	$ 173,604	$ -	0.00%
Use of Reserves-GAC	9,220	3,073	-	$ (3,073)	-100.00%
Interest Allocation	1,000	333	98	(235)	-70.48%
Total Operating Revenues	**$ 531,032**	**$ 177,011**	**$ 173,702**	**$ (3,308)**	**-1.87%**
Expenses					
Personnel Cost	$ 184,031	$ 62,915	$ 65,630	$ (2,715)	-4.32%
Professional Services	71,000	23,667	1,614	22,053	93.18%
Other Services & Charges	22,780	7,593	8,609	(1,015)	-13.37%
Communications	4,600	1,533	2,170	(636)	-41.51%
Information Technology	650	217	400	(183)	-84.66%
Supplies	200	67	0	66	99.31%
Operations & Maintenance	87,662	29,221	17,252	11,969	40.96%
Equipment Purchases	2,500	833	833	(0)	0.00%
Depreciation	20,000	6,667	6,667	(0)	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	$ 393,423	$ 132,712	$ 103,174	$ 29,538	22.26%
Allocation of Support Departments	137,604	46,993	46,647	346	0.74%
Total Operating Expenses	**$ 531,027**	**$ 179,705**	**$ 149,821**	**$ 29,884**	**16.63%**
Operating Surplus/(Deficit)	**$ 5**	**$ (2,695)**	**$ 23,881**		

Debt Service Budget vs. Actual

Revenues					
Debt Service Rate Revenue	$ 128,749	$ 42,916	$ 42,916	$ (0)	0.00%
Trust Fund Interest	1,200	400	28	(372)	-92.98%
Reserve Fund Interest	8,300	2,767	390	(2,376)	-85.89%
Total Debt Service Revenues	**$ 138,249**	**$ 46,083**	**$ 43,334**	**$ (2,749)**	**-5.96%**
Debt Service Costs					
Total Principal & Interest	$ 126,032	$ 42,011	$ 42,011	$ -	0.00%
Reserve Additions-Interest	8,300	2,767	390	2,376	
Reserve Additions-CIP Growth	3,917	1,306	1,306	-	
Total Debt Service Costs	**$ 138,249**	**$ 46,083**	**$ 43,707**	**$ 2,376**	**5.16%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ (372)**		

Rate Center Summary

Total Revenues	$ 669,281	$ 223,094	$ 217,037	$ (6,057)	-2.71%
Total Expenses	669,276	225,788	193,528	32,261	14.29%
Surplus/(Deficit)	**$ 5**	**$ (2,695)**	**$ 23,509**		
Costs per 1000 Gallons	$ 30.79		$ 19.82		
Operating and DS	$ 38.81		$ 25.61		
Thousand Gallons Treated	17,245	5,748	7,558	1,810	31.48%
or					
Flow (MGD)	0.047		0.061		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Urban Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 8,033,620	$ 2,677,873	$ 2,922,538	$ 244,665	9.14%
Stone Robinson WWTP		22,788	7,596	4,896	(2,700)	-35.55%
Septage Acceptance		475,000	158,333	170,562	12,229	7.72%
Nutrient Credits		45,000	15,000	86,999	71,999	479.99%
Rate Stabilization Reserve		121,233	40,411	40,411	-	0.00%
Miscellaneous Revenue		-	-	587	587	
Interest Allocation		16,100	5,367	1,558	(3,809)	-70.98%
Total Operating Revenues		**$ 8,713,741**	**$ 2,904,580**	**$ 3,227,551**	**$ 322,971**	**11.12%**
Expenses						
Personnel Cost		$ 1,299,876	$ 444,942	$ 432,273	$ 12,669	2.85%
Professional Services		143,400	47,800	43,103	4,697	9.83%
Other Services & Charges	A	2,020,300	673,433	720,869	(47,436)	-7.04%
Communications		10,700	3,567	6,519	(2,953)	-82.78%
Information Technology		69,500	23,167	10,337	12,830	55.38%
Supplies		1,900	633	1,055	(422)	-66.60%
Operations & Maintenance	A	1,767,000	589,000	625,430	(36,430)	-6.18%
Equipment Purchases		125,250	41,750	31,218	10,532	25.23%
Depreciation		470,000	156,667	156,667	(0)	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 5,907,926	$ 1,980,958	$ 2,027,470	$ (46,511)	-2.35%
Allocation of Support Departments		2,805,815	958,605	940,368	18,236	1.90%
Total Operating Expenses		**$ 8,713,741**	**$ 2,939,563**	**$ 2,967,838**	**$ (28,275)**	**-0.96%**
Operating Surplus/(Deficit)		**$ (0)**	**$ (34,983)**	**$ 259,713**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 8,229,090	$ 2,743,030	$ 2,743,048	$ 18	0.00%
Septage Receiving Support - County		109,440	36,480	109,441	72,961	200.00%
Trust Fund Interest		74,000	24,667	1,698	(22,969)	-93.12%
Use of Reserves		94,400	31,467	31,467	-	0.00%
Reserve Fund Interest		295,200	98,400	14,410	(83,990)	-85.36%
Total Debt Service Revenues		**$ 8,802,130**	**$ 2,934,043**	**$ 2,900,064**	**$ (33,980)**	**-1.16%**
Debt Service Costs						
Total Principal & Interest		$ 7,812,130	$ 2,604,043	$ 2,604,043	$ -	0.00%
Reserve Additions-Interest		295,200	98,400	14,410	83,990	85.36%
Debt Service Ratio Charge		325,000	108,333	108,333	-	0.00%
Reserve Additions-CIP Growth		369,800	123,267	123,267	-	0.00%
Total Debt Service Costs		**$ 8,802,130**	**$ 2,934,043**	**$ 2,850,054**	**$ 83,990**	**2.86%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 50,010**		
Rate Center Summary						
Total Revenues		$ 17,515,871	$ 5,838,624	$ 6,127,615	$ 288,991	4.95%
Total Expenses		17,515,871	5,873,606	5,817,892	55,714	0.95%
Surplus/(Deficit)		**$ (0)**	**$ (34,983)**	**$ 309,723**		
Costs per 1000 Gallons		$ 2.57		$ 2.41		
Operating and DS		$ 5.17		$ 4.72		
Thousand Gallons Treated		3,390,400	1,130,133	1,233,658	103,525	9.16%
or						
Flow (MGD)		9.289		10.030		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 370,524	$ 123,508	$ 123,508	$ -	0.00%
Rate Stabilization Reserve		24,540	8,180	8,180	-	0.00%
Interest Allocation		700	233	68	(165)	-70.91%
Total Operating Revenues		**$ 395,764**	**$ 131,921**	**$ 131,756**	**$ (165)**	**-0.13%**
Expenses						
Personnel Cost		$ 97,804	$ 33,458	$ 31,600	$ 1,859	5.56%
Professional Services		24,200	8,067	87	7,979	
Other Services & Charges		36,800	12,267	13,174	(907)	-7.39%
Communications		3,200	1,067	1,460	(393)	-36.84%
Information Technology		4,050	1,350	915	435	32.24%
Supplies		-	-	0	(0)	
Operations & Maintenance	**A**	109,100	36,367	59,418	(23,052)	-63.39%
Equipment Purchases		3,700	1,233	1,233	0	0.00%
Depreciation		10,000	3,333	3,333	0	0.00%
Subtotal Before Allocations		$ 288,854	$ 97,142	$ 111,220	$ (14,079)	-14.49%
Allocation of Support Departments		106,907	36,484	36,788	(304)	-0.83%
Total Operating Expenses		**$ 395,761**	**$ 133,626**	**$ 148,008**	**$ (14,383)**	**-10.76%**
Operating Surplus/(Deficit)		**$ 3**	**$ (1,704)**	**$ (16,252)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 3,778	$ 1,259	$ 1,260	$ 1	0.05%
Trust Fund Interest		-	-	-	-	
Reserve Fund Interest		3,000	1,000	163	(837)	-83.74%
Total Debt Service Revenues		**$ 6,778**	**$ 2,259**	**$ 1,423**	**$ 1**	**0.03%**
Debt Service Costs						
Total Principal & Interest		$ 1,579	$ 526	$ 526	$ -	0.00%
Reserve Additions-CIP Growth		2,199	733	733	-	0.00%
Reserve Additions-Interest		3,000	1,000	163	837	83.74%
Total Debt Service Costs		**$ 6,778**	**$ 2,259**	**$ 1,422**	**$ 837**	**37.06%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 1**		
Rate Center Summary						
Total Revenues		$ 402,542	$ 134,181	$ 133,179	$ (1,002)	-0.75%
Total Expenses		402,539	135,885	149,430	(13,545)	-9.97%
Surplus/(Deficit)		**$ 3**	**$ (1,704)**	**$ (16,252)**		
Costs per 1000 Gallons		$ 9.51		$ 10.87		
Operating and DS		$ 9.67		$ 10.98		
Thousand Gallons Treated		41,629	13,876	13,612	(264)	**-1.90%**
or						
Flow (MGD)		0.114		0.111		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 308,988	$ 102,996	$ 102,996	$ -	0.00%
Interest Allocation		600	200	58	(142)	-71.16%
Total Operating Revenues		**$ 309,588**	**$ 103,196**	**$ 103,054**	**$ (142)**	**-0.14%**
Expenses						
Personnel Cost		$ 97,317	$ 33,296	$ 31,600	$ 1,696	5.09%
Professional Services		2,100	700	87	613	87.52%
Other Services & Charges		23,710	7,903	10,455	(2,552)	-32.29%
Communications		3,720	1,240	1,482	(242)	-19.56%
Information Technology		1,500	500	478	22	4.44%
Supplies		500	167	0	166	99.79%
Operations & Maintenance		57,812	19,271	14,453	4,817	25.00%
Equipment Purchases		3,700	1,233	1,233	0	0.00%
Depreciation		20,000	6,667	6,667	(0)	0.00%
Subtotal Before Allocations		$ 210,359	$ 70,977	$ 66,456	$ 4,520	6.37%
Allocation of Support Departments		99,228	33,869	33,963	(94)	-0.28%
Total Operating Expenses		**$ 309,587**	**$ 104,845**	**$ 100,419**	**$ 4,426**	**4.22%**
Operating Surplus/(Deficit)		**$ 1**	**$ (1,649)**	**$ 2,634**		

Debt Service Budget vs. Actual

	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 9,442	$ 3,147	$ 3,148	$ 1	0.02%
Trust Fund Interest	100	33	3	(30)	-90.73%
Reserve Fund Interest	4,200	1,400	195	(1,205)	-86.06%
Total Debt Service Revenues	**$ 13,742**	**$ 4,581**	**$ 3,346**	**$ (1,234)**	**-26.95%**
Debt Service Costs					
Total Principal & Interest	$ 7,464	$ 2,488	$ 2,488	$ -	0.00%
Reserve Additions-Interest	4,200	1,400	195	1,205	86.06%
Estimated New Principal & Interest	2,078	693	693	-	0.00%
Total Debt Service Costs	**$ 13,742**	**$ 4,581**	**$ 3,376**	**$ 1,205**	**26.30%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ (30)**		

Rate Center Summary

	Budget FY 2021	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 323,330	$ 107,777	$ 106,400	$ (1,377)	-1.28%
Total Expenses	323,329	109,426	103,795	5,631	5.15%
Surplus/(Deficit)	**$ 1**	**$ (1,649)**	**$ 2,605**		
Costs per 1000 Gallons	$ 13.39		$ 11.60		
Operating and DS	$ 13.98		$ 11.99		
Thousand Gallons Treated	23,126	7,709	8,656	947	**12.29%**
or					
Flow (MGD)	0.063		0.070		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Administration

Operating Budget vs. Actual

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 543,000	$ 181,000	$ 181,000	$ -	0.00%
Miscellaneous Revenue		2,000	667	24,802	24,136	3620.36%
Total Operating Revenues		**$ 545,000**	**$ 181,667**	**$ 205,802**	**$ 24,136**	**13.29%**
Expenses						
Personnel Cost	**B**	$ 1,906,136	$ 653,999	$ 672,948	$ (18,948)	-2.90%
Professional Services		183,000	61,000	33,753	27,247	44.67%
Other Services & Charges		80,600	26,867	23,676	3,191	11.88%
Communications		21,500	7,167	7,426	(260)	-3.62%
Information Technology	**A**	177,000	59,000	64,176	(5,176)	-8.77%
Supplies		24,250	8,083	7,570	513	6.35%
Operations & Maintenance		75,200	25,067	19,783	5,284	21.08%
Equipment Purchases		24,000	8,000	4,667	3,333	41.67%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,491,686**	**$ 849,183**	**$ 833,998**	**$ 15,184**	**1.79%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,946,686)**	**$ (667,516)**	**$ (628,196)**	**$ (39,320)**	**5.89%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 856,542**	**$ 293,707**	**$ 276,406**	**$ 17,301**	
Crozet Water	4.00%	**$ 77,867**	**26,701**	**25,128**	**1,573**	
Scottsville Water	2.00%	**$ 38,934**	**13,350**	**12,564**	**786**	
Urban Wastewater	48.00%	**$ 934,409**	**320,408**	**301,534**	**18,874**	
Glenmore Wastewater	1.00%	**$ 19,467**	**6,675**	**6,282**	**393**	
Scottsville Wastewater	1.00%	**$ 19,467**	**6,675**	**6,282**	**393**	
	100.00%	**$ 1,946,686**	**$ 667,516**	**$ 628,196**	**$ 39,320**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Maintenance

Operating Budget vs. Actual

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ -	$ -	
Miscellaneous Revenue		-	-	1,454	1,454	
Total Operating Revenues		**$ -**	**$ -**	**$ 1,454**	**$ 1,454**	
Expenses						
Personnel Cost	**B**	$ 1,233,605	$ 422,324	$ 464,769	$ (42,444)	-10.05%
Professional Services		-	-	-	-	
Other Services & Charges		50,700	16,900	10,834	6,066	35.89%
Communications	**A**	17,400	5,800	12,152	(6,352)	-109.51%
Information Technology		8,500	2,833	5,868	(3,035)	-107.10%
Supplies		2,000	667	123	543	81.52%
Operations & Maintenance		84,550	28,183	31,721	(3,538)	-12.55%
Equipment Purchases		139,000	46,333	41,000	5,333	11.51%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,535,755**	**$ 523,041**	**$ 566,467**	**$ (43,426)**	**-8.30%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,535,755)**	**$ (523,041)**	**$ (565,013)**	**$ 44,880**	**-8.58%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 460,727**	**$ 156,912**	**$ 169,504**	**$ (12,591)**	
Crozet Water	3.50%	**53,751**	**18,306**	**19,775**	**(1,469)**	
Scottsville Water	3.50%	**53,751**	**18,306**	**19,775**	**(1,469)**	
Urban Wastewater	56.50%	**867,702**	**295,518**	**319,232**	**(23,714)**	
Glenmore Wastewater	3.50%	**53,751**	**18,306**	**19,775**	**(1,469)**	
Scottsville Wastewater	3.00%	**46,073**	**15,691**	**16,950**	**(1,259)**	
	100.00%	**$ 1,535,755**	**$ 523,041**	**$ 565,013**	**$ (41,972)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Laboratory

Operating Budget vs. Actual

	Notes	*Budget FY 2021*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
	N/A					
Expenses						
Personnel Cost		$ 404,171	$ 138,602	$ 139,176	$ (575)	-0.41%
Professional Services		-	-	-	-	
Other Services & Charges		7,600	2,533	772	1,761	69.51%
Communications		2,100	700	549	151	
Information Technology		2,500	833	102	732	87.82%
Supplies		1,300	433	517	(84)	-19.31%
Operations & Maintenance		97,250	32,417	19,633	12,784	39.44%
Equipment Purchases		1,600	533	533	0	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 516,521**	**$ 176,052**	**$ 161,283**	**$ 14,769**	**8.39%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (516,521)**	**$ (176,052)**	**$ (161,283)**	**$ (14,769)**	**8.39%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 227,269**	**$ 77,463**	**$ 70,965**	**$ 6,498**	
Crozet Water	4.00%	**20,661**	**7,042**	**6,451**	**591**	
Scottsville Water	2.00%	**10,330**	**3,521**	**3,226**	**295**	
Urban Wastewater	47.00%	**242,765**	**82,744**	**75,803**	**6,941**	
Glenmore Wastewater	1.50%	**7,748**	**2,641**	**2,419**	**222**	
Scottsville Wastewater	1.50%	**7,748**	**2,641**	**2,419**	**222**	
	100.00%	**$ 516,521**	**$ 176,052**	**$ 161,283**	**$ 14,769**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2020

Engineering

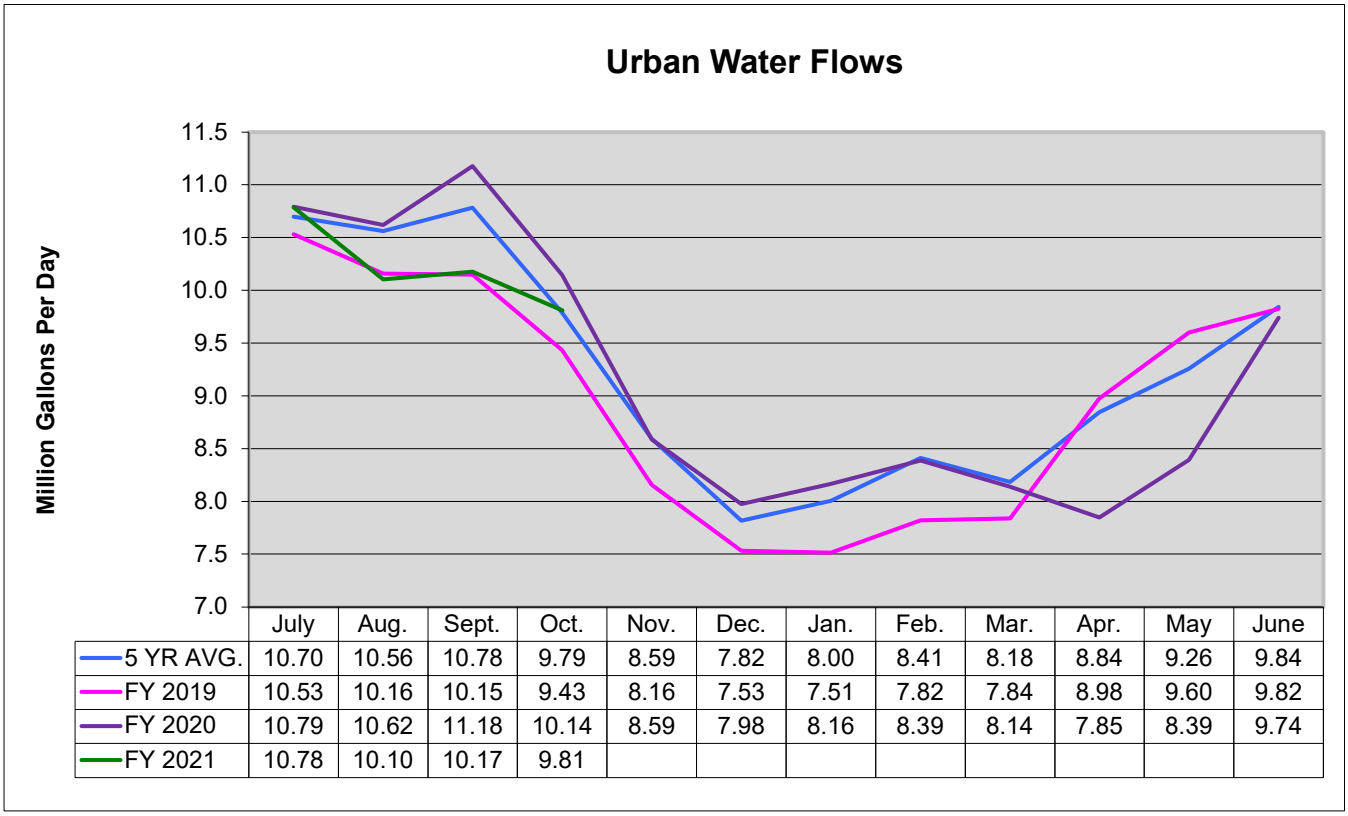
Operating Budget vs. Actual

	Budget FY 2021	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues					
Payment for Services SWA	$ -	$ -	$ 9,510	$ 9,510	
Total Operating Revenues	**$ -**	**$ -**	**$ 9,510**	**$ 9,510**	
Expenses					
Personnel Cost	$ 1,469,358	$ 504,077	$ 506,935	$ (2,858)	-0.57%
Professional Services	30,000	10,000	5,443	4,557	45.57%
Other Services & Charges	13,800	4,600	6,130	(1,530)	-33.26%
Communications	16,200	5,400	8,472	(3,072)	-56.89%
Information Technology	41,500	13,833	16,185	(2,351)	-17.00%
Supplies	9,800	3,267	2,398	868	26.58%
Operations & Maintenance	127,250	42,417	10,869	31,547	74.38%
Equipment Purchases	21,500	7,167	7,167	(0)	0.00%
Depreciation & Capital Reserve Transfers	-	-	-	-	
Total Operating Expenses	**$ 1,729,408**	**$ 590,760**	**$ 563,599**	**$ 27,161**	**4.60%**

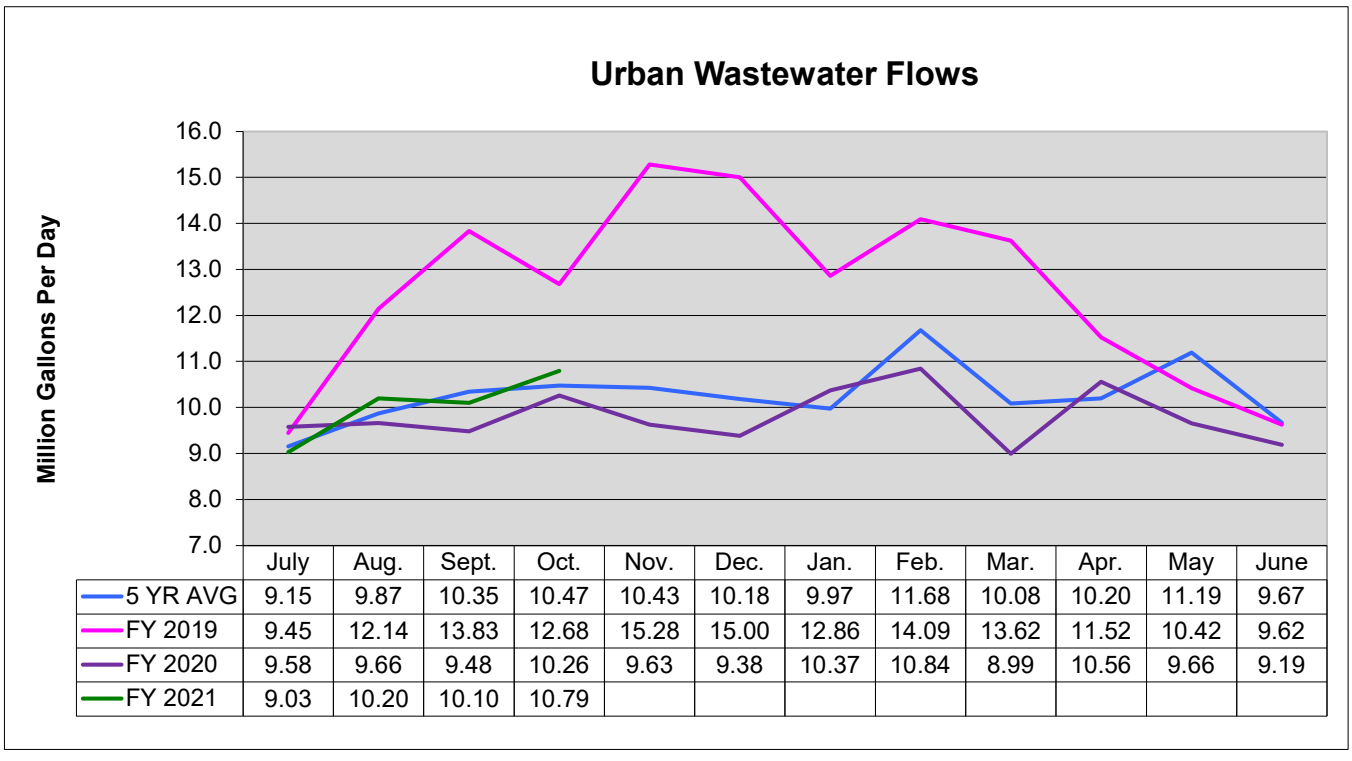
Department Summary

Net Costs Allocable to Rate Centers		**$ (1,729,408)**	**$ (590,760)**	**$ (554,089)**	**$ (17,652)**	**2.99%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 812,822**	**$ 277,657**	**$ 260,422**	**$ 17,235**	
Crozet Water	4.00%	**69,176**	**23,630**	**22,164**	**1,467**	
Scottsville Water	2.00%	**34,588**	**11,815**	**11,082**	**733**	
Urban Wastewater	44.00%	**760,939**	**259,935**	**243,799**	**16,135**	
Glenmore Wastewater	1.50%	**25,941**	**8,861**	**8,311**	**550**	
Scottsville Wastewater	1.50%	**25,941**	**8,861**	**8,311**	**550**	
	100.00%	**$ 1,729,408**	**$ 590,760**	**$ 554,089**	**$ 36,671**	

Rivanna Water and Sewer Authority
Flow Graphs



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



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

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 OCTOBER 2020**

DATE: **DECEMBER 15, 2020**

WATER OPERATIONS:

The average daily/monthly total water distributed for November 2020 was as follows:

Water Treatment Plant	***Average Daily Production (MGD)***	***Total Monthly Production (MG)***	***Maximum Daily Production in the Month (MGD)***
Observatory	1.91	57.40	3.10 (11/16/20)
South Rivanna	6.69	200.81	8.24 (11/08/20)
North Rivanna	0.33	10.02	0.49 (11/06/20)
Urban Total	8.93	268.23	10.11 (11/02/20)
Crozet	0.58	17.46	0.77 (11/12/20)
Scottsville	0.058	1.73	0.08 (11/17/20)
Red Hill	0.0016	0.49	0.03 (11/22/20)
RWSA Total	9.57	287.91	---

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

Status of Reservoirs (as of December 9, 2020):

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

*The Sugar Hollow bladder has been deflated for a replacement project. The reservoir is full now at -5.0 feet.

WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during November 2020. Stone-Robinson School had zero discharge for November. 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	11.85	2.0	10	<QL	22	0.20	2.2
Glenmore	0.154	3.0	15	3.0	30	NR	NL
Scottsville	0.104	4.0	25	6.0	30	NR	NL
Stone Robinson	0.000	NR	30	NR	30	NR	NL

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

Nutrient discharges at the Moores Creek AWRRF were as follows for November 2020.

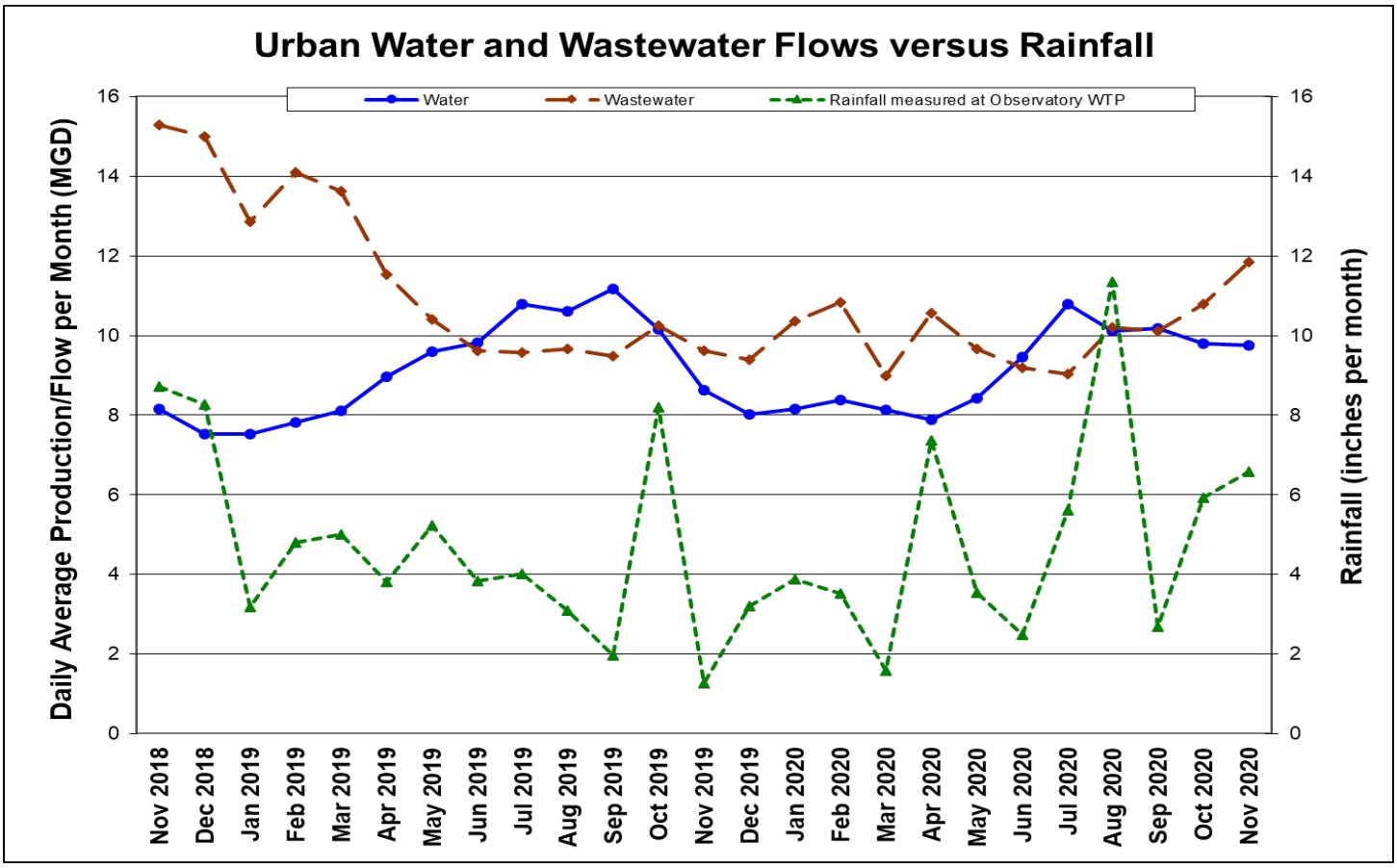
State Annual Allocation (lb./yr.) Permit		*Average Monthly Allocation (lb./mo.) **	*Moores Creek Discharge November (lb./mo.)*	*Performance as % of monthly average Allocation**	*Year to Date Performance as % of annual allocation*
Nitrogen	282,994	23,583	5953	25%	23%
Phosphorous	18,525	1,544	257	17%	24%

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

WATER AND WASTEWATER DATA:

The following graphs are provided for review:

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


Urban Water and Wastewater Flows versus Rainfall
Water
Wastewater
Rainfall measured at Observatory WTP
Daily Average Production/Flow per Month (MGD)
Rainfall (inches per month)
0
2
4
6
8
10
12
14
16
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 2019
Apr 2019
May 2019
Jun 2019
Jul 2019
Aug 2019
Sep 2019
Oct 2019
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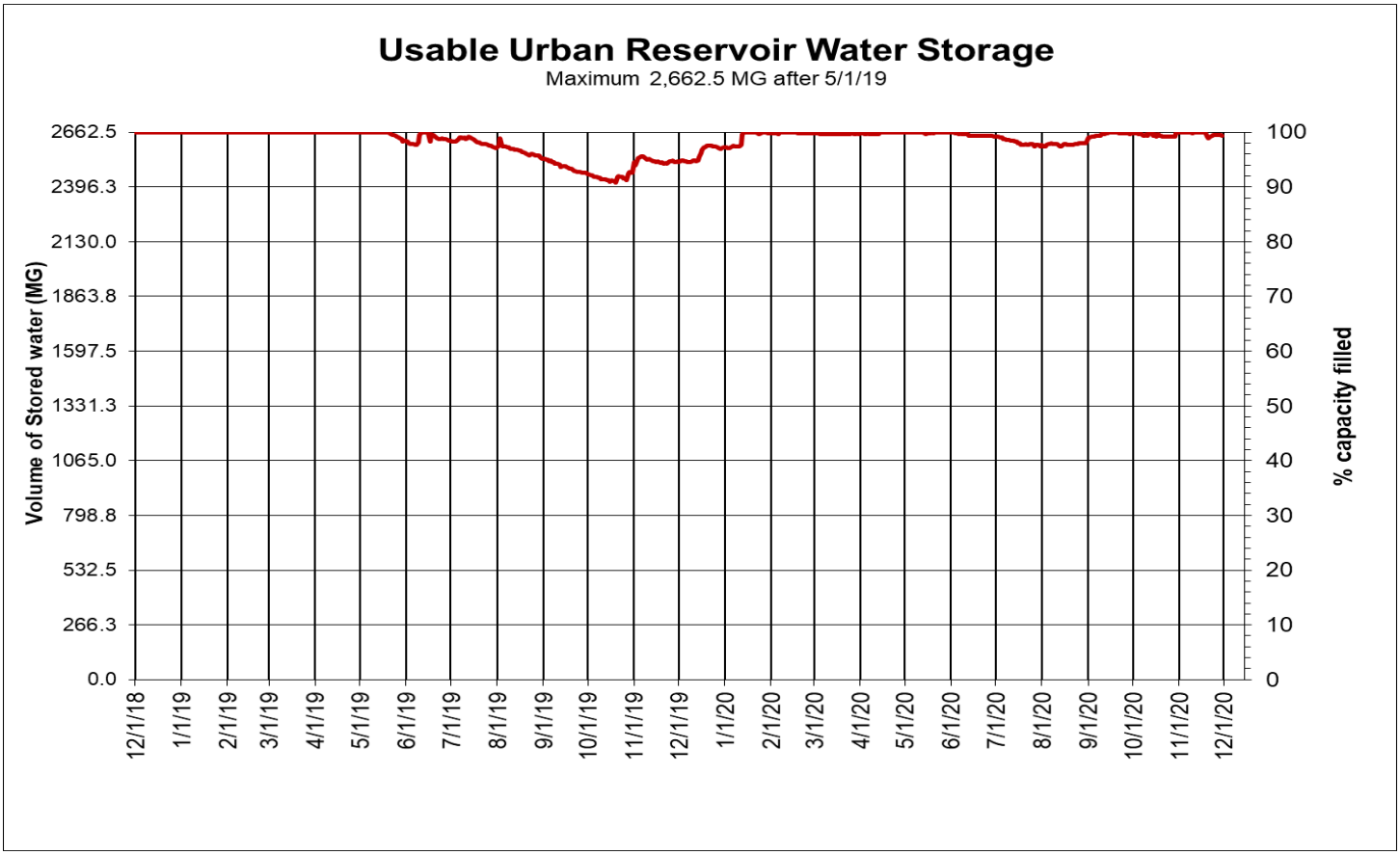
Apr 2020
May 2020
Jun 2020
Jul 2020
Aug 2020
Sep 2020
Oct 2020
Nov 2020


Usable Urban Reservoir Water Storage
Maximum 2,662.5 MG after 5/1/19
Volume of Stored water (MG)
% capacity filled
0.0
266.3
532.5
798.8
1065.0
1331.3
1597.5
1863.8
2130.0
2396.3
2662.5
0
10
20
30
40
50
60
70
80
90
100
12/1/18
1/1/19
2/1/19
3/1/19
4/1/19
5/1/19
6/1/19
7/1/19
8/1/19
9/1/19
10/1/19
11/1/19
12/1/19
1/1/20
2/1/20
3/1/20
4/1/20
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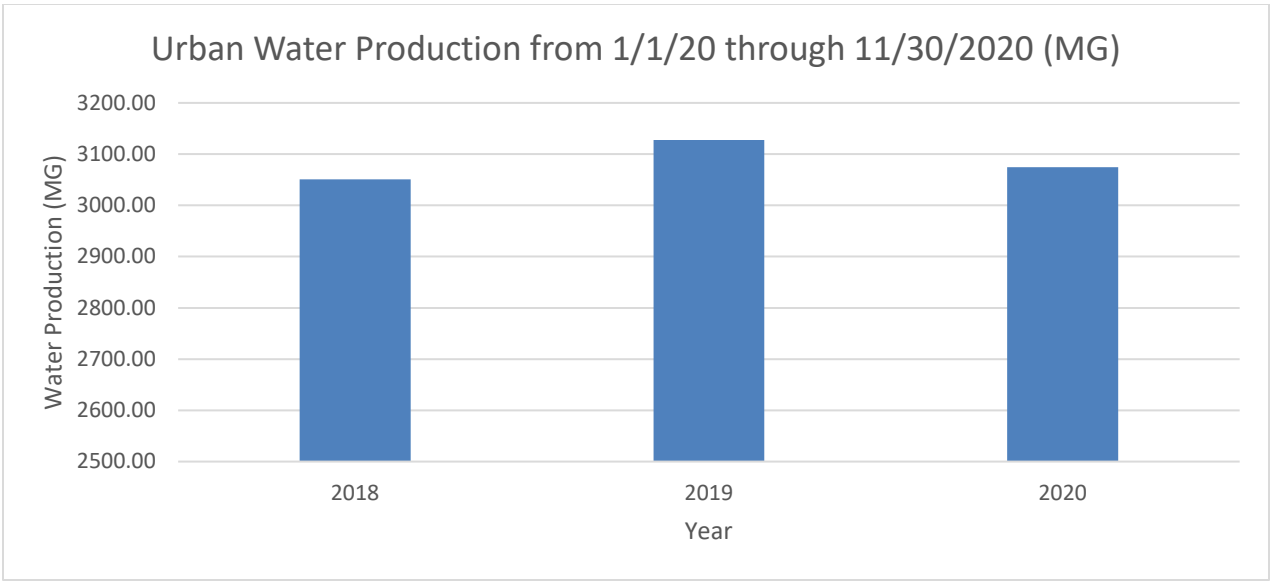
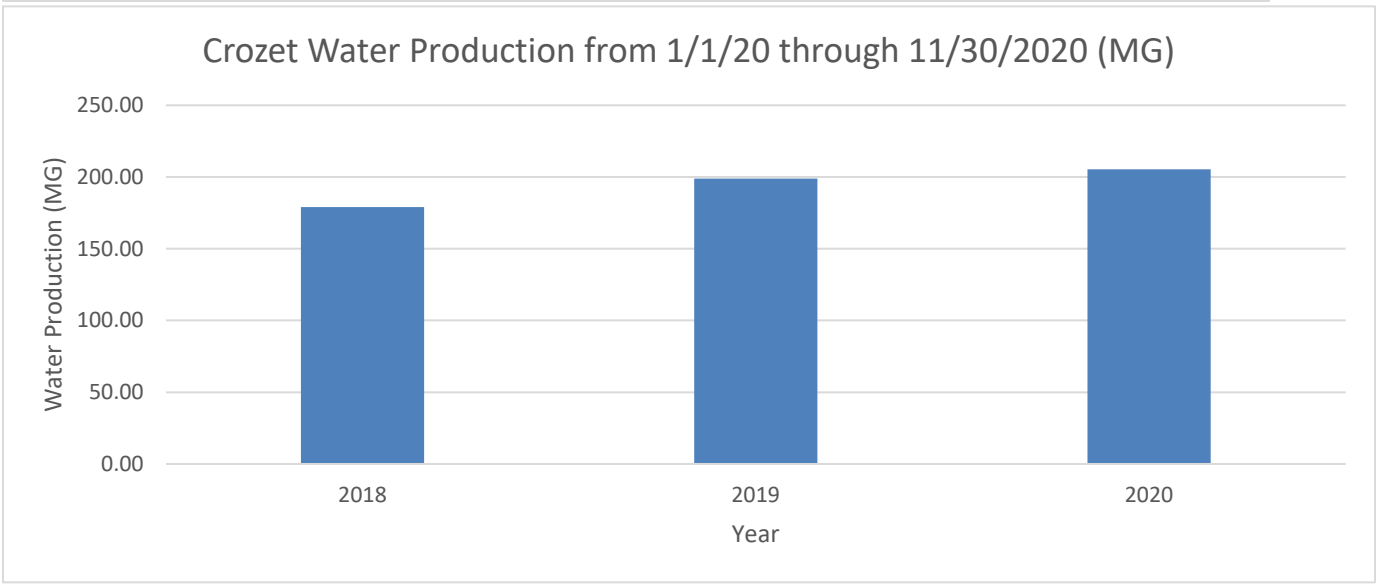
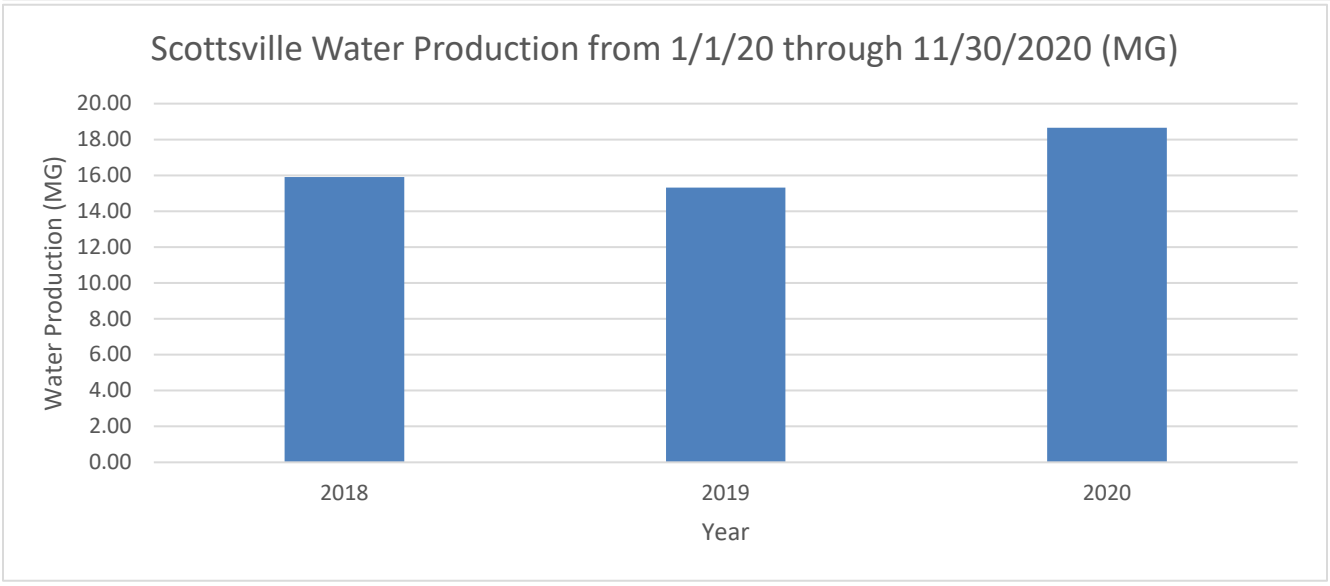
7/1/20
8/1/20
9/1/20
10/1/20
11/1/20
12/1/20


Urban Water Production from 1/1/20 through 11/30/2020 (MG)
3200.00
3100.00
3000.00
2900.00
2800.00
2700.00
2600.00
2500.00
Water Production (MG)
2018
2019
2020
Year


Crozet Water Production from 1/1/20 through 11/30/2020 (MG)
250.00
200.00
150.00
100.00
50.00
0.00
Water Production (MG)
2018
2019
2020
Year


Scottsville Water Production from 1/1/20 through 11/30/2020 (MG)
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Water Production (MG)
2018
2019
2020
Year

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
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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 15, 2020**

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

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

Under Construction

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

Design and Bidding

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

Planning and Studies

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

Other Significant Projects

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

Under Construction

1. Crozet Water Treatment Plant Expansion

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Orders Construction Co. (WVA)
Construction Start:	December 2018
Percent Complete:	88%
Base Construction Contract + Change Order to Date = Current Value:	$7,170,000- $225,600.80 = $6,944,399.20
Completion:	March 2021
Budget:	$8,500,000

Current Status: Work continues with installation of platforms and chemical feed pumps and piping in the Chemical Building expansion, refurbishment of the lab and control room, final piping connections to the backwash tank, and site improvements including grading and fencing installation.

2. South Rivanna and Observatory Water Treatment Plant Renovations

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Construction Contractor:	English Construction Company (Lynchburg, VA)
Construction Start:	May 2020
Percent Complete:	16%
Base Construction Contract + Change Orders to Date = Current Value:	$36,748,500
Completion:	March 2023
Budget:	$43,000,000

Current Status: Work continues at the SRWTP on the liquid lime building where temporary heat is being provided during the winter season as the final components are installed, filter building expansion

including pouring concrete for the building's foundation and general filter structure, yard piping modifications including chemical feed lines and relocation of the sludge drain for the eventual construction of the Alum and Fluoride Chemical Storage Building, and excavations for foundations at the Administration Building.

3. Crozet Flow Equalization Tank

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

Current Status: The contractor has mobilized to the site and begun clearing and installation of erosion and sediment control measures.

4. MC Aluminum Slide Gate Replacements

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Waco Incorporated (Sandston, VA)
Construction Start:	September 2020
Percent Complete:	3%
Base Construction Contract + Change Orders to Date = Current Value:	$373,600 - $30,400 = $343,200
Completion:	October 2021
Budget:	$675,000

Current Status: Waco has been submitting shop drawings for gates and materials and taking field measurements for their work. The gates have a long lead time so Waco does not anticipate mobilization until January 2021.

5. South Rivanna Dam – Gate Repairs

Design Engineer:	N/A
Contractor:	Bander Smith, Inc. (Richmond, VA)
Construction Start:	January 2020
Project Status:	30%
Completion:	January 2020
Budget:	$900,000

Current Status: A condition assessment of the 36" mud gates has been completed. RWSA's on-call dam maintenance contractor will proceed with replacement of missing stem guides and actuators to improve the seal of the existing gates. This work is anticipated to be completed in December 2020. If replacement of one or more of the gates is determined to be necessary, that work is expected to take place in early 2021.

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

Design Engineer:	Schnabel Engineering
Contractor:	Allegheny Construction (Roanoke, VA)
Project Status:	5%
Construction Start:	October 2021
Completion:	December 2021
Budget:	$1,900,000

Current Status: The existing rubber inflatable crest gate was fully deflated on November 30, 2020. The gate will remain deflated until it is removed, maintaining a lake level 4-5 feet below normal pool until the new bladder is installed. Periodic lowering of the reservoir below this level will be required by the contractor for construction activities. The contractor is currently mobilizing equipment to the site and expects to begin grading and other site work in December. A project specific web page has been developed to inform the public of impacts to the area as a result of construction areas activities, and a media notification was issued. Channel 29 conveyed information to the public.

Design and Bidding

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

Design Engineer:	Michael Baker International (Baker)
Project Start:	August 2018
Project Status:	Prelim Design & Easement Acquisition in Progress
Construction Start:	2023
Completion:	2026
Budget:	$18,000,000

Current Status: Easement discussions with private owners, UVAF, and UVA continue.

8. Beaver Creek Dam, Pump Station and Piping Improvements

Design Engineer:	Schnabel Engineering (Dam)
Design Engineer:	Hazen & Sawyer (Pump Station)
Project Start:	February 2018
Project Status:	15% Design and Permitting Underway
Construction Start:	2023

Completion:	2026
Budget:	$27,000,000

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

9. Airport Road Water Pump Station and Piping

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	July 2019
Project Status:	50% Design
Construction Start:	May 2021
Completion:	December 2022
Budget:	$7,600,000

Current Status: SEH has been performing water modeling to verify current and future conditions of the new pump station as they continue with the design process. The easement documents and offer have been presented to the Kohl's property owner.

10. South Fork Rivanna River Crossing

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2020
Project Status:	0% Design
Construction Start:	Fall 2021
Completion:	Summer 2023
Budget:	$3,655,000

Current Status: The project design kick-off meeting was held on December 2, 2020.

11. MC Clarifier and Lime Silo Demolition

Design Engineer:	Hazen and Sawyer
Project Start:	October 2020
Project Status:	5% Design
Construction Start:	Summer 2021
Completion:	Summer 2022
Budget:	$655,000

Current Status: Design is underway.

12. MC Generator Fuel Storage Expansion

Design Engineer:	SEH, Inc.
Project Start:	August 2020
Project Status:	0% Design
Construction Start:	Winter 2020/2021
Completion:	Summer 2021
Budget:	$100,000

Current Status: This project is required to increase the amount of diesel storage for the main plant generator from a 22 hour supply to a 72 hour supply. A work authorization for design services has been finalized and the design process has begun.

13. MC Facility Renovations

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

Current Status: Staff is developing a work authorization to evaluate the Duty Station for conversion into office space. This conversion will require extensive cleaning and the relocation of load bearing walls. As part of this analysis an updated cost estimate has been developed by SEH for this conversion and these updated costs are being evaluated through the CIP planning process to confirm the viability of the project.

14. MC Exterior Lighting Improvements

Design Engineer:	Hazen and Sawyer
Project Start:	May 2019
Project Status:	90% Design
Construction Start:	December 2020
Completion:	February 2022
Budget:	$1,900,000

Current Status: Project has received approval from County. Hazen continues working on finalizing design documents, including a quote package for maintenance and a bid package for the rest of the work. The material selection and procurement process is underway for lights to be installed by the Maintenance department and some materials have already been delivered. Advertisement of the bid package is anticipated for mid December.

15. MC 5 kV Electrical System Upgrades

Design Engineer:	Hazen and Sawyer
Project Start:	August 2020
Project Status:	5% Design
Construction Start:	March 2022
Completion:	June 2024
Budget:	$4,600,000

Current Status: Survey work was completed on November 12, 2020. The engineer is coordinating and reviewing the associated survey and electrical equipment documentation, and will be distributing this documentation to RWSA staff for review. Geotechnical borings for the new switchgear building are scheduled for this month.

16. Glenmore WRRF Influent Pump and VFD Addition

Design Consultant:	Wiley|Wilson
Project Start:	August 2020
Project Status:	0% Design
Construction Start:	Winter 2020/2021
Completion:	Summer 2021
Budget:	$65,000

Current Status: Wiley|Wilson has developed a Work Authorization for design, bid, and construction administration services. RWSA is finalizing the Work Authorization this month.

Planning and Studies

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

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

Current Status: Progress continues in our efforts to acquire the 9.5 miles of easements and agreements (with VDOT) for this 36" water line. City Council approved easements on four properties located near Ragged Mtn reservoir on September 8th. Easements have been obtained from 9 private owners, and negotiations continue with the remaining 3 private owners. We have completed our process to notify VDOT about our planned locations in the streets right-of-way. Discussions continue on remaining easements with the UVA Foundation and the County School Board.

Negotiations with two private owners, as well as with UVA, the UVA Foundation and the Virginia

Department of Forestry are also ongoing for water line easements between the planned Ragged Mtn Reservoir pump station and the Observatory Water Treatment Plant.

18. Urban Finished Water Infrastructure Master Plan

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2018
Project Status:	90% complete
Completion:	January 2020
Budget:	$253,000

Current Status: Baker is working on the draft master plan report and addressing comments from the October 2020 workshop with ACSA and the City.

19. Upper Schenks Branch Interceptor, Phase II

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

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

20. Asset Management Plan

Design Engineer:	GHD, Inc.
Project Start:	July 2018
Project Status:	Phase 2 – 80% Complete
Completion:	2020
Budget:	$1,115,000

Current Status: Development of an asset register, condition assessment protocols and a pilot study of the asset management process is underway. A workshop on Mitigation Strategies was held on November 13 and GHD performed a site Level 2 condition assessment on the Rivanna Pump Station equipment on December 1. A Work Authorization for GHD to perform CMMS implementation services is being finalized along with a licensing agreement with Cityworks.

21. Albemarle-Berkley PS Capacity Analysis

Design Consultant:	GHD, Inc.
Project Start:	September 2019
Project Status:	80% Complete

Completion:	December 2020
Budget:	$40,000

Current Status: Additional comments were provided by RWSA Engineering staff, and the Design Consultant has provided a revised version of the report. This latest version of the Capacity Analysis Report is under review by staff, including an internal workshop scheduled held on December 2. An external workshop including ACSA and ACPS staff will be held once revisions from the internal RWSA workshop are implemented.

22. MC Facilities Master Plan

Design Consultant:	Hazen and Sawyer
Project Start:	August 2019
Project Status:	75% Complete
Completion:	March 2021
Budget:	$275,000

Current Status: Multiple workshops have been held with staff. A draft report is anticipated in December.

23. SRR to RMR Pipeline – Pretreatment Pilot Study

Design Consultant:	SEH
Project Start:	August 2020
Project Status:	Project Planning
Completion:	July 2022
Budget:	TBD

Current Status: Staff is reviewing previous studies associated with pretreatment needs and project costs. Initial discussions have taken place with SEH related to updating the pretreatment approach. An initial Work Authorization has been finalized with SEH to update existing cost estimates and work on the estimates has begun. A Work Authorization related to the overall pretreatment approach is being developed.

Other Significant Projects

24. Urgent and Emergency Repairs

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

Project No.	Project Description	Approx. Cost

2018-06	South Rivanna Dam Apron and River Bank Repairs	$200,000
2019-07	Urban Water Line Valve and Blow-off Repair	$125,000
2020-06	Erosion between WBI MH-22 and MH-23	$150,000
2020-14	MCWWPS Gate Valve 205 Replacement	TBD
2020-09	RVI-MH-64 Erosion	$5,000
2020-18	NRW Erosion Near Airport Road	$5,000
2020-19	RMRW Erosion Near RMRW-015	$5,000
2020-20	Finished Water Sampling Stations	TBD
2020-21	PCI Erosion	$25,000

- South Rivanna Dam Apron and River Bank Repairs: Repairs to the north and south concrete aprons are being designed by Schnabel Engineering and a manufacturer's representative was recently on site to review repair procedures. As this approach is finalized, repair services will be procured from the on-call dam maintenance contractor.
- Urban Water Line Valve and Blow-off Repair: Faulconer Construction has completed the installation of a new drain valve at UWL-017, as well as the associated modifications to the drain line outlet and creek bank. With the installation of the new drain valve on March 18th, any leakage in this location has ceased. Staff continues to coordinate the logistics of the UWL-025 replacement near Gasoline Alley, including the appropriate location of the discharge. CCTV inspections of adjacent stormwater infrastructure are scheduled for this month, which will better inform the overall scope of the repairs. Staff has also been notified of a similar (slight leakage) issue at UWL-010 near Route 29. Staff will continue coordinating and planning these repairs with Faulconer Construction, with the repairs tentatively scheduled for completion following the sampling station installations.
- Erosion over WBI Between MH-22 and MH-23: While performing routine line inspections in March, the RWSA Maintenance Department discovered that an adjacent creek had eroded its way over the top of RWSA's 12" Woodbrook Interceptor (WBI). While no infrastructure was exposed at the time, the sewer was not designed to run under the creek (no encasement present), and future high flow events were certain to erode cover from the top of the pipe (estimated at 2-4' at the time of discovery). Staff received regulatory approval from the U.S. Army Corps of Engineers, as well as sent notifications to surrounding property owners in late August/early September 2020. Bank repair efforts began during the week of September 14, 2020. A smaller, but necessary bank repair was completed downstream of the main project site on September 29, 2020. The main bank repair, which required a significant shift in the existing stream channel, was completed on October 16, 2020. Two additional, smaller bank repairs upstream of the main bank repair were completed by October 21, 2020. Site Restoration was completed by October 28, 2020, and the Faulconer crew mobilized to the Powell Creek Interceptor (PCI repairs) discussed below. Staff has performed follow-up inspections following the rain events on November 12 and 30, and found that the repair seems to be holding well with no discernable signs of damage.
- Moores Creek WWPS Gate Valve 205 Replacement: In July 2020, RWSA Operations staff identified that MCWWPS Gate Valve 205 had become stuck in nearly the fully closed position,

causing a reduction in the discharge capacity of the pumping station (PS), especially during wet weather events where both of the 24" force mains leaving the PS are required. Waco, Inc. was selected to perform the work under an Emergency Declaration by the Executive Director, and staff worked with Waco to plan for the associated force main shutdown and valve replacement. Due to excessive lead times and impending weather, a spool piece of pipe was procured for temporary installation while the replacement valve is procured. The existing gate valve was ultimately replaced with the spool piece of pipe during a planned pumping station shutdown during the early morning hours of August 2, 2020, restoring full pumping capabilities to the PS. In the preliminary attempts to shut down one of the two discharge force mains and replace the No. 205 valve, it was discovered that additional valves inside of the PS are not fully holding when placed in a closed position. Staff is currently evaluating the needs associated with bypass pumping around MCWWPS, which would allow for the permanent installation of the No. 205 Gate Valve Replacement, as well as replacement of the adjacent valves mentioned above and inspections of equipment inside of the PS that normally can't be inspected due to the incoming flows.

- RVI-MH-64 Erosion: During routine line maintenance activities, the RWSA Maintenance Department identified an area of minor erosion adjacent to RVI-MH-64. The manhole is located adjacent to a small creek in the Still Meadow/Westmoreland Subdivision. Staff will coordinate with the RWSA Maintenance Department or Faulconer Construction to install additional rip-rap adjacent to the manhole as schedule permits.
- NRW Erosion Near Airport Road: During routine line maintenance activities, the RWSA Maintenance Department identified an area of minor erosion along the North Rivanna Waterline (NRW) near Airport Road. Staff visited this area in October and will begin coordinating the repairs with the RWSA Maintenance Department and/or Faulconer Construction as schedule permits.
- RMRW Erosion Near RMRW-015: While marking for a Miss Utility Locate, the RWSA Engineering Department identified an area of minor erosion along the Ragged Mountain Raw Waterline (RMRW) near RMRW-015, which is located along Stribling Avenue. RMRW crosses a small stream, which appears to have caused minor erosion along a pipe joint. Staff is coordinating/planning a repair with the RWSA Maintenance Department and/or Faulconer Construction, which will likely include placement of small rip-rap along the creek bank/pipe joint.
- Finished Water Sampling Stations: As a part of its ongoing Water Quality Monitoring Program, members of the RWSA Water & Laboratory Departments collect water samples from throughout the distribution system to track parameters such as Chlorine Residuals and Disinfection Byproducts. Historically, this has meant that staff must enter local businesses to collect the samples, which takes several minutes and further exposes RWSA staff to members of the public. In order to minimize staff exposure to the public and overall impact to local businesses/offices, seven (7) pre-fabricated sampling stations will be installed along ACSA finished water lines throughout the distribution system, which will allow RWSA staff to quickly and safely retrieve water samples. Faulconer Construction is performing this work for RWSA, with ACSA providing the associated wet taps. Three (3) sampling stations were completed in November 2020, with the remaining four (4) stations slated to be installed by mid-December. In addition, RWSA staff is

coordinating with ACSA, the City, and UVA on the potential for up to five (5) additional sites. Staff will continue to work with Faulconer Construction on these additional sites as details are finalized with the respective utility owners.

- PCI Erosion: RWSA Maintenance Department staff recently finished its annual inspection of the Powell Creek Interceptor in early October, and a number of erosion concerns were identified throughout the interceptor alignment. RWSA Engineering and Maintenance Department staff visited the eroded areas on October 14, 2020, and it was determined that two of the repairs were more urgent, and should be performed by Faulconer Construction as soon as possible. Both of the areas in question are large drainage ditches that have caused large wash-outs over the sewer line. RWSA coordinated access through Sutherland Middle School property with ACPS, and Faulconer began these repairs during the week of October 26. The scope of these two repairs will be to backfill the ditches and install a large HDPE culvert pipe to safely and effectively move the storm water across the sewer line while minimizing erosion. The two ditch lines were completed by Faulconer Construction during the week of November 2, with the site fully restored by the week of November 9. Four creek crossings along the interceptor were also identified as needing light rip-rap armament, as well as minor bank modifications to allow for enhanced access for RWSA staff. This work will also be coordinated with Faulconer Construction. A site visit was conducted on November 24, 2020, with the work being scheduled as time permits following the sampling station installations.

25. Interceptor Sewer and Manhole Repair

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

Current Status: Repairs to the Upper Morey Creek Interceptor remain underway. Staff and the Design Consultant conducted a virtual meeting to review the plans for the new manhole installation and associated point repair work to be completed north of Rt. 250. Staff continues to coordinate with all groups involved to get the repairs completed as soon as possible on this portion of MRI. Staff is also coordinating with the Contractor on the bypass requirements for the lower Powell Creek Interceptor, as this is the next high-priority interceptor area 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 Lining, as well as manhole rehabilitation. Staff is expecting a bypass plan to be submitted by the Contractor in early December, and pending review and approval of the associated documentation, the rehabilitation work could start as early as January or February 2021.

26. Security Enhancements

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

Current Status: Access control system installation is underway for all exterior doors at MCAWRRF, as well as all WTP motorized gates. Device installation was completed at the Administration and Engineering Buildings during the week of November 16th, with the exception of a single door in the Administration Building which is to be completed during the week of November 30th. All other installations across the MC site have been completed, with the WTP gates to be scheduled for installation later this month. Staff has finalized the appropriate access rights for RWSA/RSWA staff, and training for RWSA staff was completed on November 10th, 2020. RWSA Administration staff has been handing out the new badges to staff from all departments, since the access control system is now active in the Administration and Engineering Buildings. As Security 101 builds out the access rights specified by RWSA, additional buildings can be locked and the system can begin being utilized across the site.

History

Under Construction

1. Crozet Water Treatment Plant Expansion

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

2. South Rivanna and Observatory Water Treatment Plant Renovations

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

Observatory: This project will upgrade the plant from 7.7 to 10 MGD capacity. Costs to upgrade the plant to 12 MGD were determined to be too high at this time. Much of the Observatory Water Treatment Plant is original to the 1953 construction. A Condition Assessment Report was completed

by SEH in October of 2013. The approved Capital Improvement Plan project was based on the findings from this report. The flocculator systems were replaced and upgraded as part of the Drinking Water Activated Carbon and WTP Improvements project (GAC). Four additional GAC contactors will be included in the design.

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

3. Crozet Flow Equalization Tank

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

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

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

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

4. MC Aluminum Slide Gate Replacements

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

provided on October 6, 2020. The work specific to the Moores Creek Pump Station will be bid under a separate project due to the extensive bypass pumping.

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

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

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

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

Design and Bidding

7. **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.

8. Beaver Creek Dam and Pump Station Improvements

Dam: 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.

9. 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.

10. South Fork Rivanna River Crossing

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

11. 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.

12. 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.

13. MC Facility Renovations

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

The Duty Pump Station was construction in 1958 and no longer functions as an actual pump station. It currently houses electrical equipment that serves the plant, but otherwise has available space that could be beneficially used for other purposes. RWSA has a need for additional office space and has evaluated repurposing portions of the Duty Pump Station for office and work space in order to make use of all available space at the plant before proceeding with more significant administrative

expansions. This project includes demolition of a select portion of the interior of the station, cleaning and sanitizing of the areas to be repurposed, and an interior upfit of the space to provide additional office and work space. Costs related to this effort have been updated and the budget is being evaluated through the CIP process.

14. 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.

15. MC 5 kV Electrical System Upgrades

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

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

16. Glenmore WRRF Influent Pump and VFD Addition

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

Planning and Studies

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

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

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

18. Urban Finished Water Infrastructure Master Plan

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

19. Upper Schenks Branch Interceptor, Phase II

The Schenks Branch Sanitary Sewer interceptor is a pipeline operated by RWSA that serves the City of Charlottesville. The 21-inch sewer line was originally constructed by the City in the 1950s. Evaluations from the flow metering and modeling from the Comprehensive Sanitary Sewer Interceptor Study, and negotiations with the ACSA and City, resulted in an inflow and infiltration reduction plan from which it was concluded that increased capacity of the Schenks Branch Interceptor was needed for wet weather peak flow. Due to several road construction projects and the construction of the Meadow Creek Interceptor project along the sewer alignment, Schenks Branch was to be constructed in multiple phases. The completed sections, collectively known as the Lower Schenks Branch Interceptor, include the Tie-in to Meadow Creek, the section along McIntire Road Ext, and the section though the Route 250 Interchange.

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

20. Asset Management Plan

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

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

21. Albemarle-Berkeley PS Capacity Analysis

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

The Capacity Analysis Study began in Spring 2020, and the first report draft was reviewed by staff in September 2020.

22. MC Facilities Master Plan

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

23. SRR to RMR Pipeline – Pretreatment Pilot Study

As part of the SRR to RMR Pipeline project, the impact of sending raw water from the SRR to RMR has been previously study 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.

Other Significant Projects

24. 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.

25. Interceptor Sewer and Manhole Repair

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

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

26. 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.

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MEMORANDUM

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

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

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

SUBJECT: **WHOLESALE METERING REPORT FOR NOVEMBER 2020**

DATE: **DECEMBER 15, 2020**

The monthly and average daily Urban water system usages by the City and the ACSA for November 2020 were as follows:

	Month	***Daily Average***	
City Usage (gal)	122,056,824	4,068,561	**45.5%**
ACSA Usage (gal)	146,187,248	4,872,908	**54.5%**
Total (gal)	**268,244,072**	**8,941,469**	

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 October 2019), 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

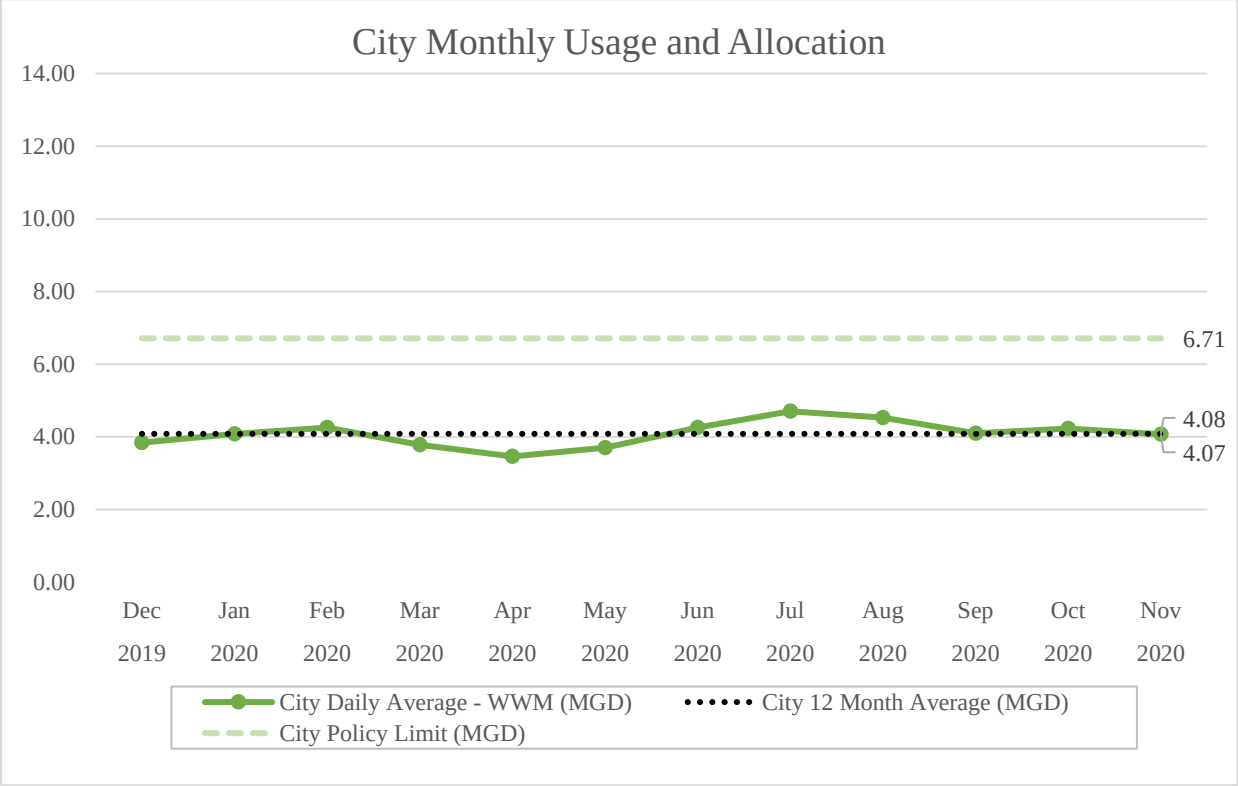
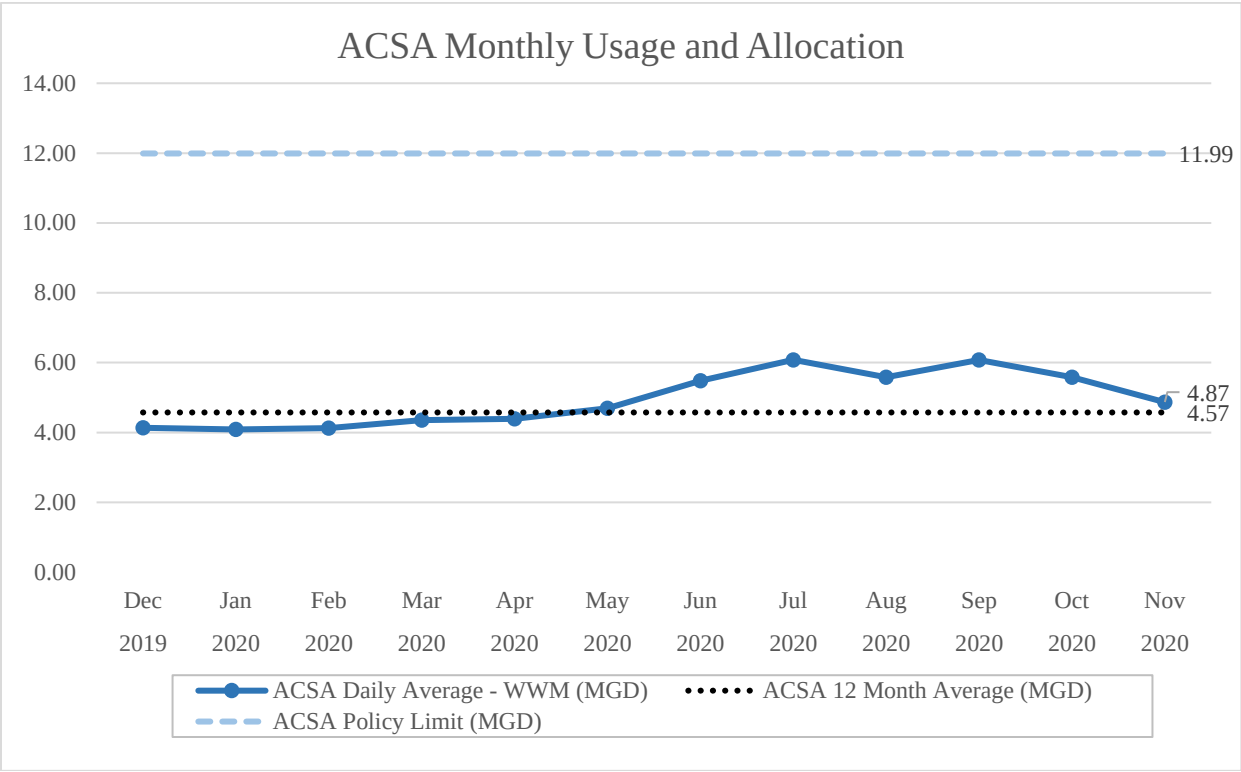


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation



Dam Safety Program Overview

RIVANNA WATER & SEWER AUTHORITY

Presented by:
Victoria Fort, Senior Civil Engineer

December 15, 2020

Dam Safety Regulations & Terminology

- A “dam” or “impounding structure” is defined as a man-made structure and its appurtenant works, whether across a watercourse or structure outside a watercourse, 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)
  - Agricultural use and impounds <100 acre-feet (32.6 mg)
  - Federal dams (FERC)
  - Operated for Mining 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
- A forensic investigation into the causes of the dam failures is underway

Why is Dam Safety Important?

Oroville Dam Incident in California, February 2017

- At 770 feet high, tallest dam in the U.S.
- Heavy rain early in the year 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

- A system that categorizes dams according to the degree of adverse consequences from their failure or misoperation. Hazard Classification does not reflect on the current condition (their safety, structural integrity, or flood routing capacity) and includes the following categories:
  - **High Hazard Potential – Dams that upon failure would cause probable loss of life or serious economic damage**
  - **Significant Hazard Potential – Dams that upon failure might cause loss of life or appreciable economic damage**
  - **Low Hazard Potential – 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

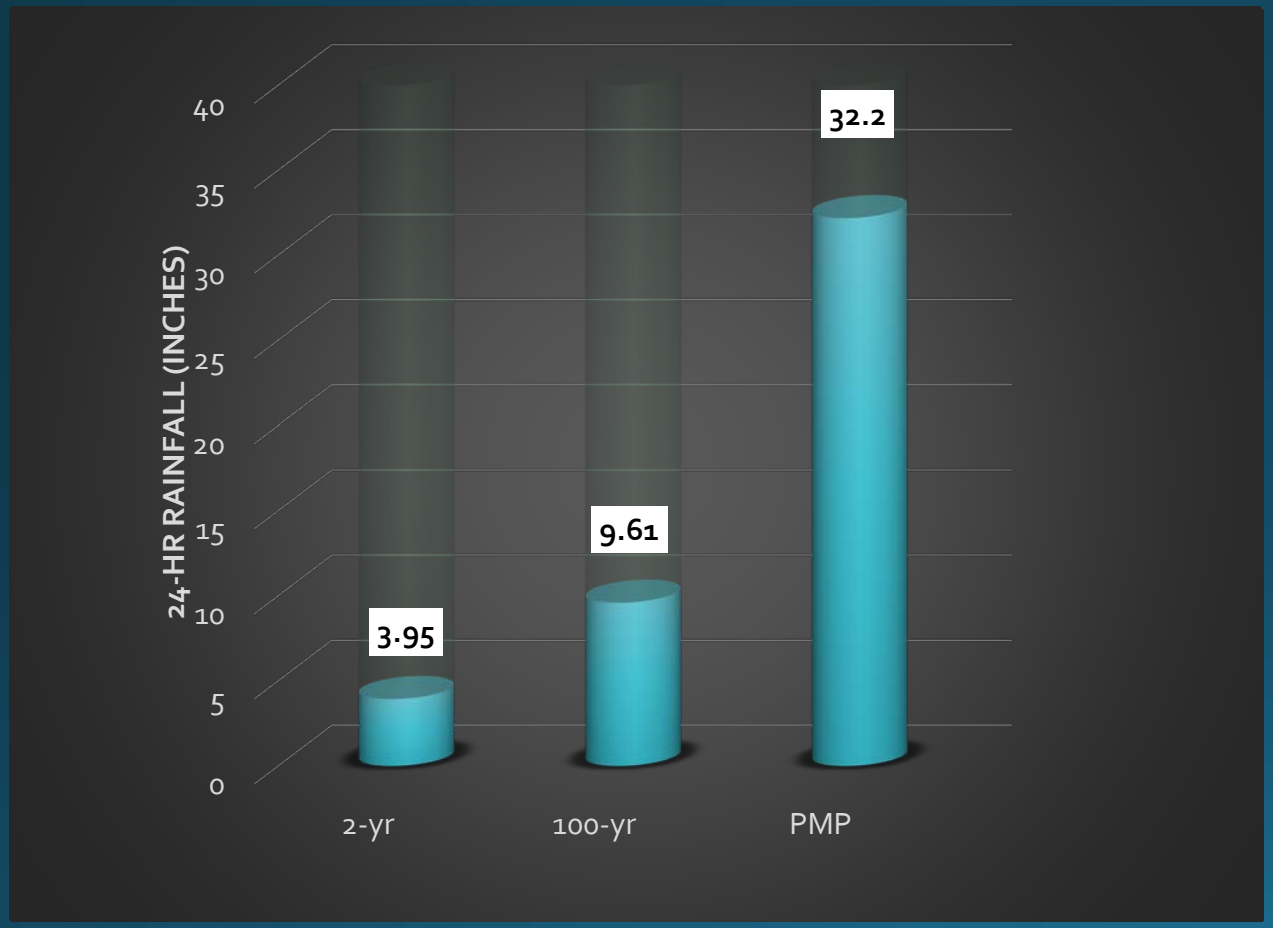
Probable Maximum Precipitation (PMP)

"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 Sugar Hollow Dam Watershed, 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
- For comparison purposes, 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" – 33.3"

Probable Maximum Precipitation (PMP)

- PMP in the United States
  - Point rainfall exceeding the PMP has only occurred 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 (81% of the PMP)
  - Madison County 1995 (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

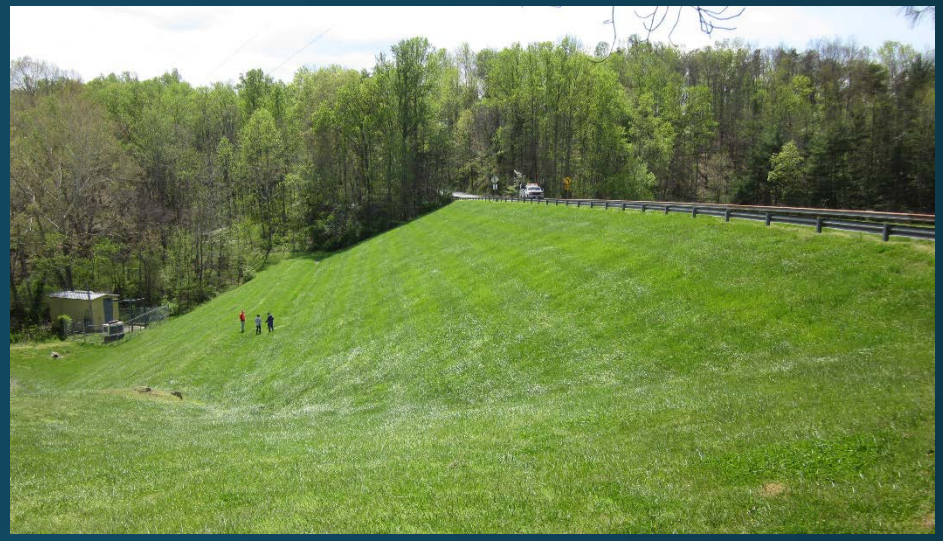
- State Regulated Dam
- Built in 2012-2014
- Historical Dams 1885 & 1908
- Earthfill Dam
- 785 feet long
- 125 feet tall

Sugar Hollow Dam

- State Regulated Dam
- Built in 1948
- Upgraded 1998
- Concrete Dam, Rubber Bladder
- 77 feet tall
- Currently undergoing rubber bladder replacement

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 be followed 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 unusual or 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 has created and routinely updates 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

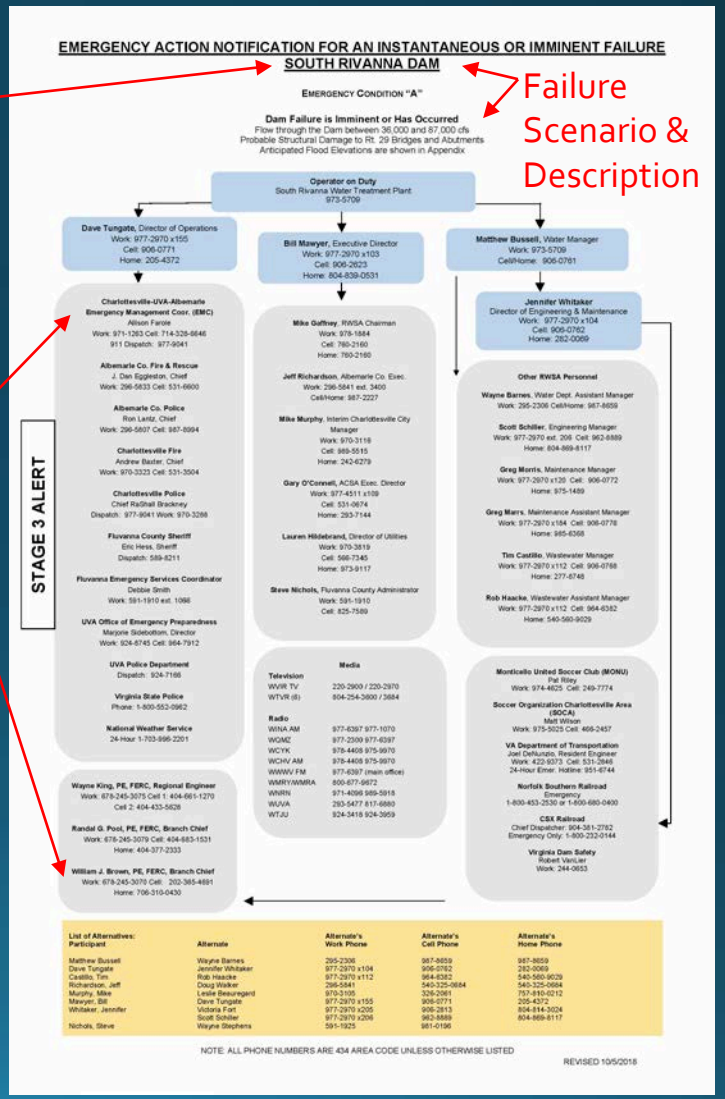
- **Charlottesville-UVA-Albemarle Emergency Communications Center**:
  - Receive condition status reports from RWSA
  - Notify public
  - Coordinate evacuation from inundation areas, if required

- **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

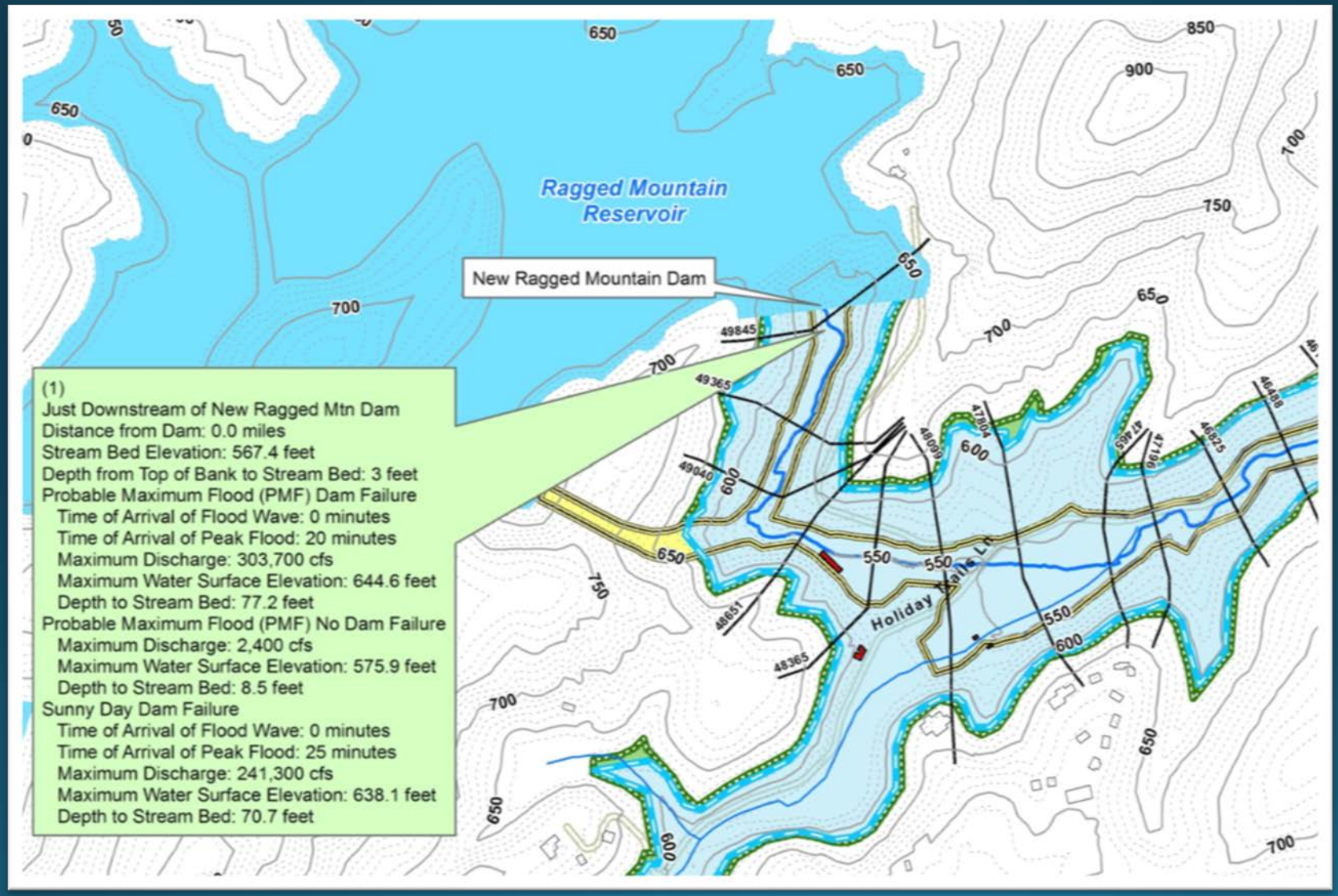


Dam Facility Name

Failure Scenario & Description

Notification Calldown List

Inundation Mapping



RWSA Dam Projects – Ongoing and Planned

Under Construction:

- Sugar Hollow Dam Rubber Crest Gate Replacement (Fall 2020-Fall 2021)
- South Rivanna Dam Mud Gate Repairs & Grouting Repairs (Winter 2020-Spring 2021)

Planning or Design Phase:

- Beaver Creek Dam Spillway Upgrades - Planning/EA Study (NRCS-funded)
- Ivy MUC Irrigation Pond Dam Alterations (2021 construction)
- South Rivanna Dam Hydropower Decommissioning (2021 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?