




# Board of Directors Meeting


August 24, 2021


2:15pm



695 Moores Creek Lane | Charlottesville, Virginia 22902-9016

434.977.2970 

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www.rivanna.org 

## BOARD OF DIRECTORS

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

**DATE:** August 24, 2021

**LOCATION:** Virtually via ZOOM

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

### AGENDA

- 1. CALL TO ORDER**
- 2. STATEMENT FROM THE CHAIR**
- 3. MINUTES OF PREVIOUS BOARD MEETINGS**
  - a. Minutes of Regular Board Meeting on July 27, 2021*
- 4. RECOGNITION**
- 5. EXECUTIVE DIRECTOR'S REPORT**
- 6. ITEMS FROM THE PUBLIC**
- 7. RESPONSES TO PUBLIC COMMENTS**
- 8. CONSENT AGENDA**
  - a. Staff Report on Finance*
  - b. Staff Report on Operations*
  - c. Staff Report on Ongoing Projects*
  - d. Staff Report on Wholesale Metering*
  - e. Staff Drought Monitoring Report*
  - f. Authorization of Water Conservation Measures*
  - g. Approval of Series 2021 Bond Issue - \$41 M*
  - h. Approval of Capital Improvement Plan Amendment– South Rivanna Reservoir to Ragged Mountain Reservoir Pipeline, Intake, & Facilities- Water Quality Analyses*

**9. OTHER BUSINESS**

- a. Presentation: Beaver Creek Reservoir Raw Water Pump Station Alternatives; Victoria Fort – Senior Civil Engineer*
- b. Wastewater Allocations Update; Jennifer Whitaker – Director of Engineering and Maintenance*
- c. Water and Wastewater Facilities and Treatment Overview; David Tungate – Director of Operations*

**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.



## 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 August 24, 2021 meeting of the Board of Directors to order.

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

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

## ROLL CALL:

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

And I am Mike Gaffney and I am located at \_\_\_\_\_.

Joining us today electronically are the follow Authority staff members:

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

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



**RWSA BOARD OF DIRECTORS**  
**Minutes of Regular Meeting**  
**July 27, 2021**

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, July 27, 2021 at 2:22 p.m. via Zoom.

**Board Members Present:** Mike Gaffney, Chip Boyles (left at 2:50 p.m.), Lauren Hildebrand, Gary O'Connell, Jeff Richardson, Lloyd Snook (left at 2:50 p.m.)

**Board Members Absent:** Dr. Liz Palmer

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

**Attorney(s) Present:** Carrie Stanton.

**1. CALL TO ORDER**

Mr. Gaffney called the July 27, 2021, regular meeting of the Rivanna Water and Sewer Authority to order at 2:22 p.m.

**2. STATEMENT FROM THE CHAIR**

Mr. Gaffney read the following statement aloud:

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

"I would like to call the July 27, 2021, meeting of the Board of Directors to order.

"Notwithstanding any provision in our Bylaws to the contrary, as permitted under the City of Charlottesville's Continuity of Government Ordinance adopted on March 25, 2020, Albemarle County's Continuity of Government Ordinance adopted on April 15<sup>th</sup>, 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. Chip Boyles, City Manager, stated he was located at 605 E. Main St in Charlottesville, VA.

Mr. David Brown, stated he was located at the 305 4<sup>th</sup> Street Northwest in Charlottesville, VA.

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

Dr. Liz Palmer was absent.

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

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

Mr. Stewart was absent.

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

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

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

### **3. MINUTES OF PREVIOUS BOARD MEETINGS**

#### ***a. Minutes of Regular Board Meeting on June 22, 2021***

**Mr. O'Connell moved that the Board approve the minutes of the previous meeting. The motion was seconded by Mr. Richardson and passed 5-0. Mr. Snook abstained from the vote. Dr. Palmer was absent.**

### **4. RECOGNITIONS**

#### ***a. Resolution and Appreciation for Darryl Cooper.***

Mr. Gaffney read the following resolution:

#### **Resolution of Appreciation for Darryl Cooper**

**WHEREAS**, Mr. Cooper has served the Rivanna Water and Sewer Authority as a Water Operator in our treatment plants for over 36 years; and

**WHEREAS**, Mr. Cooper has been a loyal and valuable resource to the Authority during this period; and

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

93  
94 **NOW, THEREFORE, BE IT RESOLVED** that the Rivanna Water and Sewer Authority  
95 Board of Directors recognizes, thanks and commends Mr. Cooper for his distinguished service,  
96 efforts and achievements as a member of the Rivanna Water and Sewer Authority, and presents  
97 this Resolution as a token of esteem, with its best wishes in his retirement.  
98

99 **BE IT FURTHER RESOLVED** that this Resolution be entered upon the permanent  
100 Minutes of the Rivanna Water and Sewer Authority.  
101

102 **Mr. Boyles made a motion to adopt the resolution as presented. Mr. O'Connell seconded**  
103 **the motion and it passed unanimously (5-0). Dr. Palmer was absent.**  
104

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

106 Mr. Mawyer stated he also wanted to recognize another employee, David Bortner, who recently  
107 passed his Water Operator License Class 2 and has just one more level to go to get to Class 1.  
108 Mr. Mawyer stated that Mr. Bortner has been with the organization for five years and has worked  
109 hard improving his status in the licensing area.  
110

111 Mr. Mawyer stated the General Assembly declared June 30<sup>th</sup> the annual "Drinking Water and  
112 Wastewater Professionals' Appreciation Day," and Rivanna thanked its water and wastewater  
113 professional staff for their efforts throughout the year. He stated that the Virginia DEQ has  
114 issued its draft State Water Resources Plan, and while RWSA was still reviewing this plan, it  
115 was noted that Rivanna was complimented for having an interconnected network of reservoirs—  
116 demonstrating that increasing water demands can be met through adequate storage while limiting  
117 impacts to stream flow. He stated that was one of the two recognitions he had seen in the plan,  
118 with the other being Henrico's Cobb Creek Reservoir.  
119

120 Mr. Mawyer stated that this emphasizes the importance of the Rivanna Reservoir to Ragged  
121 Mountain Reservoir pipeline and interconnecting the major water supply and treatment facilities.  
122 He stated that water piping continues to be a theme, and RWSA continues to work with the city  
123 and the service authority on the central water pipe. He stated this is now going into detailed  
124 design to put the pipe through the city from Stadium Road to Free Bridge. He stated that RWSA  
125 is also working with the University and the UVA Foundation. He stated that they had met the  
126 previous day and discussed obtaining easements for the Rivanna to Ragged Mountain water pipe,  
127 as well as the pump station and pipeline. He stated that this would convey water from Ragged  
128 Mountain Reservoir to the Observatory Treatment Plant.  
129

130 Mr. Mawyer stated that Ms. Terry had provided good information in the drought monitoring  
131 report, which currently continues to report as "normal," even though it is a dry period. He stated  
132 that on July 8, it was considered normal by the state. He stated strategically, when RWSA looks  
133 at the weather and droughts, the South Rivanna Reservoir is primarily what is monitored. He  
134 stated that it is currently 100% full and overflowing, there are 880M gallons stored for use, and it  
135 is the key facility in the RWSA water supply system. He noted that if water levels start to  
136 decline, there would be meetings to discuss water conservation measures.  
137

Mr. Mawyer stated that they are currently maximizing the use of the water in that reservoir at the South Rivanna Water Treatment Plant. He stated as long as the reservoir is overflowing, as much of that water as possible is treated at the plant, or about 8-10M gallons of water per day.

Mr. Mawyer stated that the Observatory Treatment Plant is the secondary plant, using water from the Ragged Mountain Reservoir. He stated that plant produces 1-2M gallons/day. He stated when South Rivanna stops overflowing and drops about six inches, the strategy is switched and more water is withdrawn from the Ragged Mountain Reservoir, which is the largest reservoir in the system and is currently 93% full with 1.3B gallons. He stated that should provide about two years' worth of storage at Ragged Mountain, and they start using more water from Ragged Mountain when South Rivanna stops overflowing.

Mr. Mawyer stated that in Crozet, Beaver Creek is 93% full and there are 485M gallons stored, with the community using about 1M gallons per day. He stated that in a static condition with no rain, they have 485 days of water storage in Crozet. Similarly, he stated, at Totier Creek and the creek and reservoir in Scottsville, the reservoir is 100% full and stores 155M gallons, using about 50 thousand gallons/day and providing over eight years of storage in the Scottsville system.

Mr. Mawyer reported that as of today, the water supply is in good condition, there is adequate water supply, and it is being monitored daily for reservoir levels and weather forecast. He stated RWSA utilizes the regional drought management plan for detailed monitoring, noting that there is also a hydrologic computer model that can forecast if drought is likely. He stated that RWSA is managing all of this for its customers, and fortunately, as of now, the water supply is in good shape.

Mr. Mawyer stated he is on a Virginia DEQ Emerging Contaminants work group for per- and polyfluoroalkyl substances (PFAS). He stated that the group has had one meeting and involves manufacturers and others in the community to look at whether there should be regulations on this PFAS chemical in Virginia.

Mr. O'Connell thanked Mr. Mawyer for going into some depth on the supply issue. He stated he's received some questions in the community and commented that this news was good to hear.

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

Mr. Gaffney opened the meeting to the public.

There were no public comments.

Mr. Gaffney closed Items from the Public.

## **7. RESPONSES TO PUBLIC COMMENT**

There were no public comments.

## **8. CONSENT AGENDA**

*a. Staff Report on Finance*

- b. *Staff Report on Operations*
- c. *Staff Report on Ongoing Projects*
- d. *Staff Report on Wholesale Metering*
- e. *Staff Drought Monitoring Report*
- f. *Approval of Engineering Services – Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pump Station – Kimley-Horn*
- g. *Approval of Engineering Services – Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pipe – Kimley-Horn*
- h. *Construction Contract Award and Capital Improvement Plan Amendment – Glenmore WRRF Influent Pump and VFD Addition – MEB General Contractors*
- i. *Construction Contract Award and Capital Improvement Plan Amendment– Moores Creek AWWRF In-Plant Clarifiers and Lime Silo Demolition – Pleasant View Developers*
- j. *Capital Improvement Plan Amendment – Emmet Street Water Pipe Project*
- k. *Reimbursement Resolution – CIP Funding*

Mr. O’Connell asked if Mr. Mawyer could speak about how items “F” and “G” are part of another phase in the pipeline project, as well as the level of investment in those two projects.

Mr. Mawyer responded that these two projects would extend the water conveyance piping from the Ragged Mountain Reservoir to the Observatory Treatment Plant, which is several miles. He stated that along the way, there would be another pump station to convey water from Ragged Mountain to Observatory. He explained that it can also pump back to the South Rivanna Treatment Plant when the pipeline is completed and is a multi-purpose project with a cost of about \$25M for the two projects combined, with engineering design fees of about \$2M collectively. He stated the design would soon be underway, with construction for both projects to follow in the next year or two.

Mr. Mawyer stated this is part of the “three-legged stool” to have water in the reservoir, conveyance in the piping, and treatment at the plants. He stated that the Observatory Treatment Plant is being upgraded from a 7.7 to 10 MGD treatment capacity, and they must be able to reliably get raw water to the plant. He stated the existing pipe is about 100 years old. The other leg of the stool is the central water pipe that would help convey treated water to the city and service authority.

Mr. O’Connell asked if the upsizing on item J, the Emmet Street Water Pipe Project, was part of a longer-term plan. He asked if because of the University work, there is now an opportunity to upsize as part of a bigger construction project.

Mr. Mawyer stated that is correct, and it is in the long-term water improvement plan. He stated they have the opportunity now to work with UVA while they are working in the same locations and upsizing pipes. He stated UVA would complete that work as part of its project, and it is a good collaboration, although RWSA will have to pay for the betterment fees.

**Mr. O’Connell moved that the Board approve the Consent Agenda. The motion was seconded by Ms. Hildebrand and passed unanimously (6-0). Dr. Palmer was absent.**

225  
226 **9. OTHER BUSINESS**

227 *a. Presentation: Water & Wastewater Funding from the “American Rescue Plan Act”; Executive*  
228 *Director, Bill Mawyer*  
229

230 Mr. Mawyer stated that he has read about the trillions of dollars coming from the federal  
231 government, with many articles indicating the money is for water and sewer projects. He pointed  
232 out that RWSA is doing its best to get that funding. Mr. Mawyer commented that the Board has  
233 probably heard of the CARES Act of 2020 that provided Coronavirus aid, relief, and economic  
234 security, totaling about \$2 trillion—and those dollars came to localities and other places, but zero  
235 dollars came to Rivanna.

236  
237 He stated the second appropriation approved by Congress is the American Rescue Plan Act 2021  
238 (ARPA), which is the primary target of discussion at this meeting. He stated that the \$1.9 trillion  
239 is to provide economic relief for localities, premium pay to central workers, recovery of reduced  
240 revenues for localities—more specific to Rivanna, investments in water, sewer, and broadband  
241 infrastructure. Mr. Mawyer stated there is proposed federal legislation called the American Jobs  
242 Plan 2021. He stated no one seems to know how that will land, but from what he reads, it will be  
243 \$1-\$3.5 trillion and will include money for utility investment. He noted that his team was  
244 watching that closely.  
245

246 Mr. Mawyer reported that there is a program through FEMA called the Building Resilient  
247 Infrastructure and Communities Program of 2020 (BRIC). He stated that this year, that program  
248 has \$1B to award to projects throughout the U.S. for shovel-ready projects. He stated there are  
249 matching funds required, and the applications are processed through the state and will be due in  
250 the fall. He stated the competition is usually pretty high and median household income plays a  
251 factor, which historically has been a detriment to Charlottesville and Albemarle, but they will  
252 still apply.  
253

254 Mr. Mawyer reported that ARPA funds were coming in two pots of money from the federal  
255 government: one going to the state called the State Fiscal Recovery Fund, and one for local  
256 governments called the Local Fiscal Recovery Fund. He stated the state would receive \$4.3B and  
257 localities would receive \$3B, and water and sewer authorities did not have any direct  
258 appropriation and were not getting any of these dollars. However, he stated, the General  
259 Assembly was meeting to decide how it was going to disperse its \$4B, and local governments  
260 also have the opportunity to partner with RWSA if they choose.  
261

262 Mr. Mawyer stated that at noon that day, Gov. Northam had announced that \$411.5M from State  
263 ARPA funds would be allocated to improve aging water and sewer infrastructure and restore  
264 waterways. He stated that Virginia counties would receive \$1.6B of the Local Fiscal Recovery

265 Fund; cities would receive \$618M; and cities, towns, and villages with less than 50,000 people  
266 would receive \$633M.

267  
268 Mr. Mawyer reported that the general uses are for capital investments in water, sewer, and  
269 broadband infrastructure. He stated the U.S. Treasury has given guidance that the funds are to  
270 improve drinking water infrastructure, consolidate drinking water systems, and support efforts to  
271 address climate change. Mr. Mawyer stated that he has read that the climate change effects are  
272 forecasting temperatures to be both hotter and colder, the rain would be more plentiful but would  
273 come in big deluges, and droughts will be extended. He stated therefore, the extremes are going  
274 to become more extreme—which emphasizes the need for reservoirs to ensure we have an  
275 adequate water supply during extended droughts.

276  
277 Mr. Mawyer stated that the funding will be available for projects that can be completed by 2026,  
278 as long as the funds are obligated by December 2024. He stated there is an emphasis for getting  
279 in line for these dollars, as it was in the newspaper that the cities of Lynchburg, Richmond, and  
280 Alexandria have put in their requests for \$1.4B to the Governor for State ARPA funds to address  
281 their combined sewer problem. He stated their sewage and rainwater go into the same pipe, and  
282 when it rains too much in Richmond, it washes past the wastewater treatment plant and directly  
283 into the James River with no treatment of wastewater.

284  
285 Mr. Mawyer reported that the Governor had announced earlier in the day that there would be  
286 \$186.5M for wastewater treatment and nutrient removal; \$125M for combined sewer overflow  
287 projects in Richmond, Alexandria, and Lynchburg; and another \$100M to small systems for their  
288 water systems. He stated that of the state's \$4.3B in ARPA funds, a significant allocation will go  
289 to improve water and sewer systems. Mr. Mawyer stated the Virginia Department of Health had  
290 called RWSA a few weeks earlier to nominate water treatment projects, and Rivanna sent 10  
291 projects and understood that they were the only utility that nominated any projects through the  
292 Lexington District of VDH. He stated they are following closely to see if an award will be made.

293  
294 Mr. Mawyer stated that aside from that, some of the potential projects for ARPA funds range  
295 from the Red Hill WTP Upgrade in the CIP at \$200K to \$25M for the central water pipe, or the  
296 raw water pipe from Ragged to Observatory that was just mentioned. He stated that these are  
297 potential projects, and they are not entirely sure if they will qualify for funding, but they continue  
298 to explore them and would be working with a consultant to determine the eligibility requirements  
299 and position Rivanna for the funds as applicable.

300  
301 Mr. O'Connell asked if there were any conditions for the projects, such as being shovel ready or  
302 fully designed.



Mr. Mawyer stated that he has seen some of those requirements in writing, but his understanding is that if the money is obligated by 2024, that is all that is needed for ARPA. He stated there are many types of projects mentioned in the literature, and he is trying to comprehend those parameters. He stated that it has been shared that Lynchburg, Alexandria, and Richmond are in line with a \$1.4B request to the Governor, and it sounds like they have gotten some of that money. Mr. Mawyer stated that RWSA has advocated through the Water and Wastewater Authorities Association, the Virginia Municipal Drinking Water Association, and at the national level with the Association of Clean Water Agencies on the American Jobs Plan, to make sure funds are available for infrastructure and hopefully to Authorities like RWSA.

Mr. Mawyer continued by saying that resilience, redundancy, and green infrastructure projects are all key in helping make projects eligible for these dollars. He stated there are wastewater projects like the methane reuse facility that need upgrading and are on the list for possible funding.

Mr. Mawyer stated that while Rivanna is getting nothing directly from the discussed funding, they are hoping they will get some funds from the state, city, or county and partner with them. He emphasized that RWSA is exploring every opportunity, such as the BRIC program and the American Jobs Plan program, to ensure they are positioned for any applicable funding.

Mr. Gaffney asked if Mr. Mawyer was aware of any localities besides Richmond, Alexandria, and Lynchburg that have received money from the state.

Mr. Mawyer responded that he was not. He commented that he was surprised by the announcement today because all previous communications had indicated that the General Assembly was going to talk in August about how the money would be allocated. He noted that he thought the Governor had to have approval from the General Assembly—and perhaps this was just a proposal that he was asking them to support.

#### **(JOINT SESSION WITH RSWA)**

At 2:50 p.m., Mr. Gaffney reconvened the Rivanna Solid Waste Authority and began the joint meeting. Mr. Snook and Mr. Boyles left the meeting.

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

Ms. McIlwee stated she would try to provide a quick overview of where things are at in the third year of the strategic plan implementation. She provided a recap of the strategic direction of the values, vision, and mission. She stated it has and would remain the same the entire five years of the strategic plan.

Ms. McIlwee stated in Year Three of implementation, there are the same six goals of Workforce Development, Operational Optimization, Communication And Collaboration, Environmental Stewardship, Solid Waste Services, and Infrastructure and Master Planning. She stated of these goals, there are 14 strategies and 26 tactics. She stated the target completion for the last six months was at 50% and the teams are slightly ahead of that with the overall completion at 56%.

Ms. McIlwee stated that Workforce Development as a goal is about 60% complete, with the two strategies: 1 - conducting a training needs assessment and enhancing the training program, and 2 - developing a comprehensive staffing and classification and compensation plan. She stated some of the accomplishment highlights over the last six months include completing individual development plans based on employee needs and completing end of year evaluations, as well as issuing an RFP for completion of a new compensation study. She stated that a contract was awarded to Evergreen Solutions, which had already held the kickoff meeting to begin the study. She stated the next step was to issue salary benefit surveys to peer groups, and they would continue to work with PVCC on development and training to relevant positions throughout the authority.

Ms. McIlwee stated that Operational Optimization is also at 60% complete. They are focusing on two strategies and they are 1 - to continually evaluate, prioritize, and improve key business and operational process, and 2 - to protect workforce and the public through continually growing Rivanna's culture of safety. She stated some highlights of these two strategies include implementing quarterly GAC backwashing schedules, installing automated systems for polymer dosing, developing oxygen-controlled polymer dosing, and continuing implementation of the corrosion inhibitor. She stated next they would complete installation of the polymer dosing and implementation of the corrosion inhibitor.

Ms. McIlwee reported that the safety manual has received a comprehensive update, in addition to receiving regular updates when policies are due for review. She stated that they have purchased articulated extension ladders and have completed several assessments, including one at Glenmore. She stated web-based cameras would continue to be added at Rivanna facilities, and construction would begin on the Glenmore Wastewater Treatment Plant safety upgrades. She noted that at some point in the future, there would be an authority-wide fire and active shooter drills.

Ms. McIlwee stated that Communication and Collaboration is about 65% complete with the three strategies being, which are 1 - create and maintain internal communication platforms, 2 - create and implement a comprehensive public outreach plan, and 3 - enhance internal and external communications. She stated that a records management policy has been created and there has been continued implementation of the document management program. Ms. McIlwee reported that a social media policy was developed, and a Facebook page was created for the Rivanna Authorities, which has been used to advertise special events, such as a dam safety campaign that brought public awareness too major Rivanna facilities. Ms. McIlwee noted that the team had participated in "Fix a Leak" activities with the city and ACSA, with this year being virtual due to COVID restrictions, and she believes it was a successful activity with good public participation. Ms. McIlwee reported that as part of Communication and Collaboration, they also continue to

390 livestream the monthly Rivanna Authorities board meetings.

391  
392 Ms. McIlwee reported that some next steps going forward include completion of the migration of  
393 the legacy documents into the new records management system, and schedule project and facility  
394 videos as the different water treatment plants complete upgrade projects. She stated that her team  
395 would continue to use social media to share information with the public, and they are currently  
396 researching how to continue to broadcast board meetings virtually once in-person meetings  
397 resume. She stated that facility tours would resume once appropriate, and the team would be  
398 participating in Day of Caring in September, and Mr. Mawyer would present to the Crozet  
399 Community Advisory Committee in August.

400  
401 Ms. McIlwee stated the Environmental Stewardship project is 50% complete and the three  
402 strategies include 1- increasing internal environmental engagement, 2 - provide regional  
403 leadership and environmental stewardship partnerships, and 3 - evaluate opportunities for  
404 additional environmental activities at RWSA facilities. She stated the team participated in the  
405 oyster shell bagging project at Ivy, and they continue stormwater partnerships with the Rivanna  
406 River Riparian Consortium and County Stream Health Working Group.

407  
408 Ms. McIlwee stated the team has begun development of the Buck Mountain property master plan  
409 and evaluated the potential silviculture and solar at Buck Mountain properties. She stated they  
410 would continue to look for opportunities such as spring cleanups and tree plantings to engage  
411 employees. She stated that along with the Communication and Collaboration group, the  
412 Environmental Stewardship team is helping to participate in Day of Caring, and would continue  
413 coordination with local groups, and continue the evaluation for potential solar installation at  
414 various Rivanna facilities.

415  
416 Ms. McIlwee stated the Solid Waste Services goal is 55% complete and the team is working on  
417 two strategies, which are 1 - determining community needs and preferred level of service, and 2 -  
418 enhance partnerships with the local governments and UVA. She stated the team is continuing the  
419 recycling ambassador program at the McIntire Recycling Center, organized the oyster shell  
420 bagging project, and published a recycling quiz for the Facebook page to engage the public and  
421 to raise awareness on various recycling topics. She stated the team continues to design and gain  
422 approval for the Keene Convenience Center, and complete repairs to the irrigation pond dam at  
423 Ivy.

424  
425 Ms. McIlwee stated the glass collection agreement with UVA has been implemented, and the  
426 used cooking oil collection program across all sites has been upgraded. She stated the next steps  
427 for enhancing partnerships is to conduct a study of regional localities' mulch prices and continue  
428 to coordinate with neighboring counties on organizing glass collection.

429  
430 Ms. McIlwee reported that the last topic is the Infrastructure Master Planning goal, which is 45%  
431 complete at this point. She stated there are two strategies for this team, which are 1- implement  
432 authority-wide asset management programs and 2 - develop and maintain a long-term master  
433 plan for all critical assets. She stated that the tactical asset management plan has been drafted and  
434 implementation of a CMMS program has begun. Phase three of an authority-wide asset registry  
435 for use in Cityworks has been completed. Ms. McIlwee stated the next steps would be to begin a

the Cityworks configuration process through multiple workshops, as well as to review and finalize the draft tactical asset management plan. She noted that there are several master plans underway, such as the Finished Water Master Plan and the Moores Creek Wastewater Treatment Plant Master Plan, and the Crozet Water Treatment Plant upgrades have been completed.

Ms. McIlwee stated the next steps are to continue the master plan and needs assessments for Glenmore and Stone Robinson WWTPs, to finalize reports associated with the Moores Creek Wastewater Treatment Plant, and the Finished Water Master Plan, and to schedule the annual master planning gap assessment.

Mr. Gaffney commented that the teams made great progress.

Mr. Mawyer thanked Ms. McIlwee for her report.

Mr. O'Connell stated it was good to see that over time, the bigger strategies coming to life and getting accomplished, and he thanked the staff.

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

Mr. Gaffney reported that the city has met at 3:00 p.m. for their last two meetings on the fourth Tuesday, and asked if this meeting should get moved to 1:30 p.m.

Mr. Mawyer stated that Mr. Snook recognized this conflict and was going to ask the Mayor to change the city meeting to 5:00 pm.

Mr. Gaffney asked if there were any conflicts if this group moved their meeting to 3:00 p.m.

Mr. Richardson stated he could accommodate that but could not speak for Dr. Palmer.

Mr. O'Connell stated 1:30 p.m. or even 1:00 p.m. works for him.

Mr. Gaffney asked Mr. Mawyer if he would take a poll once there is a response from the city.

Mr. Mawyer stated he would follow up once he heard back from Mr. Snook.

Mr. Richardson stated he appreciates the report from Mr. Mawyer on the ARPA funding and would encourage the staff to continue what they're doing specific to state funding. He stated he is impressed that the Governor just announced that at lunchtime, and Mr. Mawyer was already well informed, which speaks to how closely they are tracking this information. He stated that on August 2, he thought the General Assembly was going to reconvene to talk about the use of state money, and he would direct staff to be aggressive in looking at the state funding to see if there were things for which the Authority could position itself favorably.

478 M. Richardson stated that he would urge staff to continue to look for connections to the state  
479 funding, and he appreciates staff efforts. He added that he would also like to thank Ms. McIlwee  
480 and all staff for the work on the strategic plan. He stated that he didn't want this point to be lost  
481 on the Board in terms of how much work it takes to make such significant progress, especially in  
482 the last year with the pandemic. He applauded Mr. Mawyer and his team for keeping the laser  
483 focus on the strategic plan, adding that it was very impressive to maintain that over the last 18  
484 months.

485  
486 Mr. Gaffney suggested that Mr. Mawyer and Ms. McIlwee write and send that sentiment to the  
487 staff.

488  
489 Mr. Mawyer agreed and expressed his appreciation for the group and the recognition of the staff.

490 ***11. CLOSED MEETING – PERSONNEL REVIEW***

491 Mr. Mawyer stated that only three Board members were still present for the Solid Waste  
492 Authority.

493  
494 Ms. Stanton explained that there was no longer a quorum for the Solid Waste Authority for the  
495 joint closed session, which does require certification and vote on rejoining the public meeting.  
496 She stated she assumed the decision should be to postpone the closed meeting and hold it at the  
497 next meeting, as nothing discussed now would be eligible for a vote.

498  
499 ***12. ADJOURNMENT***

500 **At 3:05 p.m., Mr. O'Connell moved to adjourn the meeting of the Rivanna Water and**  
501 **Sewer Authority. The motion was seconded by Ms. Hildebrand and passed unanimously (4-**  
502 **0). Dr. Palmer, Mr. Snook, and Mr. Boyles were absent.**



## MEMORANDUM

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

**FROM: BILL MAWYER, EXECUTIVE DIRECTOR**

**SUBJECT: EXECUTIVE DIRECTOR'S REPORT**

**DATE: AUGUST 24, 2021**

### *STRATEGIC PLAN GOAL: WORKFORCE DEVELOPMENT*

#### **Recognitions**

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

- Jeremy Lawson - Class 3 Operator
- Will Dobson - CompTIA Security+ SY0-501

#### **New Information Technology Manager**

We are pleased to announce that Brandi Breeden has joined our team as the manager of our reorganized I. T. group. Brandi has nearly 20 years of wide-ranging experience in the I.T. field. She has a Bachelor's degree in Business Administration concentrating in Computer Information Systems and a Master's degree in Information Systems Management.

### *STRATEGIC PLAN GOAL: INFRASTRUCTURE AND MASTER PLANNING*

#### **Central Water Pipe**

Preparation of engineering plans and specifications is underway for this 24 - 30" finished water distribution pipe through the City needed to strengthen the urban drinking water system. Detailed considerations continue to be reviewed with City and ACSA staff. A funding allocation agreement is also under discussion.

#### **Ragged Mtn Reservoir to Observatory WTP Water Pipe and Pump Station**

Easement discussions continue with two private owners, UVA, the UVA Foundation, and the Virginia Department of Forestry for about 3 miles of 36" raw water pipe and a pumping station site.

#### **S. Rivanna to Ragged Mtn Reservoir Water Pipe**

Preparation of engineering plans and specifications is underway for a 0.25 mile section of this 36" raw pipe from Ivy Road to Old Garth Road. We have obtained agreements with VDOT and easements for 6 of the 8 miles required for the water pipe from the SRR to the

new raw water pump station located near RMR. Our focus is now with the UVA Foundation and 3 private owners for the remaining 2 miles.

*STRATEGIC PLAN GOAL: OPERATIONAL OPTIMIZATION*

**Reservoirs and Water Treatment Plants**

We continue to maximize the use of water from the Rivanna reservoir at our Rivanna Water Treatment Plant, while minimizing the use of water from Ragged Mtn reservoir at our Observatory WTP. If water in the Rivanna reservoir stops spilling over the dam, we will increase water production at the Observatory WTP and reduce production at the Rivanna WTP to conserve water storage in the Rivanna reservoir.

*STRATEGIC PLAN GOAL: COMMUNICATION AND COLLABORATION*

**Crozet Community Advisory Committee**

We provided our annual update to the CCAC this month to address the many infrastructure projects ongoing in the Crozet service area.



## MEMORANDUM

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

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

**REVIEWED: BILL MAWYER, EXECUTIVE DIRECTOR**

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

**DATE: AUGUST 24, 2021**

Urban Water flow and rate revenues were 1.5% greater than budgeted for the fiscal year ending in June, and Urban Wastewater flow and rate revenues were 14% greater than budgeted. Revenues and expenses are summarized in the table below:

|                     | Urban<br>Water             | Urban<br>Wastewater      | Total Other<br>Rate Centers | Total<br>Authority       |
|---------------------|----------------------------|--------------------------|-----------------------------|--------------------------|
| <b>Operations</b>   |                            |                          |                             |                          |
| Revenues            | \$ 8,190,393               | \$ 9,960,954             | \$ 2,527,786                | \$ 20,679,133            |
| Expenses            | (8,539,171)                | (8,935,367)              | (2,590,166)                 | (20,064,704)             |
| Surplus (deficit)   | <u>\$ (348,778)</u>        | <u>\$ 1,025,587</u>      | <u>\$ (62,380)</u>          | <u>\$ 614,429</u>        |
| <b>Debt Service</b> |                            |                          |                             |                          |
| Revenues            | \$ 6,878,232               | \$ 8,467,299             | \$ 1,655,439                | \$ 17,000,970            |
| Expenses            | (6,926,340)                | (8,537,414)              | (1,667,673)                 | (17,131,427)             |
| Surplus (deficit)   | <u>\$ (48,108)</u>         | <u>\$ (70,115)</u>       | <u>\$ (12,234)</u>          | <u>\$ (130,457)</u>      |
| <b>Total</b>        |                            |                          |                             |                          |
| Revenues            | \$ 15,068,625              | \$ 18,428,253            | \$ 4,183,225                | \$ 37,680,103            |
| Expenses            | (15,465,511)               | (17,472,781)             | (4,257,839)                 | (37,196,131)             |
| Surplus (deficit)   | <u><u>\$ (396,886)</u></u> | <u><u>\$ 955,472</u></u> | <u><u>\$ (74,614)</u></u>   | <u><u>\$ 483,972</u></u> |

When reviewing the Authority as a whole, operating revenues are \$1,904,500 over budget (9.8%), and operating expenses are \$1,290,000 over budget (6.7%). After our audit is complete, any surplus funds will be allocated to our reserves.

- B. Personnel Costs (all departments) – Unbudgeted Special Award bonuses were paid to staff in October, and unbudgeted merit pool salary increases went into effect in January. Maintenance department salaries were underbudgeted this year.
- C. Professional Services (Urban Water, Crozet Water, Urban Wastewater, Engineering – pages 2,3,5 and 11) – Urban Water incurred \$393,000 of unbudgeted professional fees, and \$153,000 of that amount has been reimbursed by UVA pursuant to our Supplemental Water Treatment Systems Study, Design and Construction Agreement, and recorded as miscellaneous revenue. The remaining unbudgeted costs include fees for engineering and



technical services related to Virginia Water Permit renewal and Buck Mountain land use planning. Urban Wastewater has spent \$91,000 on unbudgeted engineering and technical services related to updating the flow model. Crozet Water is \$34,000 over budget for engineering and technical services primarily related to an interim water system needs evaluation. The Engineering Department is \$15,000 over budget on professional services related to project management software selection.

- D. Other Services and Charges (Urban Water, Urban Wastewater and Scottsville Wastewater – pages 2,5 and 7) – Scottsville Wastewater is slightly over budget in this category. Urban Water incurred \$58,000 of unbudgeted watershed management costs due to unexpected charges related to mitigation plan compliance at the Moores Creek wetland site. Urban Water and Urban Wastewater utilities are running higher than anticipated.
- E. Operations and Maintenance (Urban Water, Crozet Water, all Wastewater, Administration, and Maintenance – pages 2,3 and 5-9) – Urban Water is \$398,000 over budget for Pipeline and Appurtenances repairs due to several major line breaks. Urban Wastewater exceeded its budget for line break repair costs by \$175,000. Urban Wastewater and Glenmore had some unexpected equipment repair costs totaling \$97,000 and 23,000, respectively. The Administration building underwent \$30,000 of unbudgeted remodeling costs to create more offices for staff. Crozet Water incurred \$59,000 of unbudgeted chemical costs and instrumentation and metering costs. Scottsville Wastewater is significantly over budget due to the lagoon cleaning which costs a total of \$220,000. This was unbudgeted, however, the contract for cleaning the Moores Creek AWWRF lagoon cleaning had available unused contract and this was done to take advantage of that unused contract amount for efficiency and effectiveness purposes. The ACSA has agreed to fund the resulting deficit budget in Scottsville WW for this work.
- F. Communications (Urban Water, Crozet Water – pages 2-3) – Urban Water and Crozet Water data lines were upgraded to fiber, and the annual costs will be much higher going forward.
- G. Miscellaneous Revenue (Urban Water – page 2) – Urban Water’s Miscellaneous Revenue is mostly legal settlement revenue (\$128,000) and UVA’s reimbursement of professional fees (\$153,000 as explained in Note C).

**Please note that the budget and these monthly budget vs. actual statements are prepared on a different basis than the comprehensive annual financial report (CAFR). Year-end adjustments are recorded every year in order to conform to the accounting principles required for the CAFR. These monthly statements were prepared prior to recording those year-end adjustments.**

Attachments

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - June 2021**  
**Fiscal Year 2021**

**Consolidated****Revenues and Expenses Summary****Operating Budget vs. Actual**

## Notes

**Revenues**

|                                      | <i>Budget</i><br><i>FY 2021</i> | <i>Budget</i><br><i>Year-to-Date</i> | <i>Actual</i><br><i>Year-to-Date</i> | <i>Budget</i><br><i>vs. Actual</i> | <i>Variance</i><br><i>Percentage</i> |
|--------------------------------------|---------------------------------|--------------------------------------|--------------------------------------|------------------------------------|--------------------------------------|
| Operations Rate Revenue              | \$ 17,381,293                   | \$ 17,381,293                        | \$ 18,811,847                        | \$ 1,430,554                       | 8.23%                                |
| Lease Revenue                        | 105,000                         | 105,000                              | 100,804                              | (4,196)                            | -4.00%                               |
| Admin., Maint. & Engineering Revenue | 545,000                         | 545,000                              | 609,820                              | 64,820                             | 11.89%                               |
| Other Revenues                       | 542,788                         | 542,788                              | 989,699                              | 446,911                            | 82.34%                               |
| Use of Reserves-GAC                  | 535,220                         | 535,220                              | 526,000                              | (9,220)                            | -1.72%                               |
| Rate Stabilization Reserves          | 240,027                         | 240,027                              | 240,027                              | -                                  | 0.00%                                |
| Interest Allocation                  | 35,100                          | 35,100                               | 10,757                               | (24,343)                           | -69.35%                              |
| <b>Total Operating Revenues</b>      | <b>\$ 19,384,428</b>            | <b>\$ 19,384,428</b>                 | <b>\$ 21,288,953</b>                 | <b>\$ 1,904,525</b>                | <b>9.83%</b>                         |

**Expenses**

|                                    |          |                      |                      |                      |                       |               |
|------------------------------------|----------|----------------------|----------------------|----------------------|-----------------------|---------------|
| Personnel Cost                     | <b>B</b> | \$ 8,913,257         | \$ 8,913,257         | \$ 9,010,022         | \$ (96,765)           | -1.09%        |
| Professional Services              | <b>C</b> | 602,700              | 602,700              | 1,020,374            | (417,674)             | -69.30%       |
| Other Services & Charges           | <b>D</b> | 3,136,780            | 3,136,780            | 3,199,751            | (62,971)              | -2.01%        |
| Communications                     | <b>F</b> | 161,020              | 161,020              | 207,144              | (46,124)              | -28.64%       |
| Information Technology             |          | 392,950              | 392,950              | 358,539              | 34,411                | 8.76%         |
| Supplies                           |          | 47,045               | 47,045               | 40,087               | 6,958                 | 14.79%        |
| Operations & Maintenance           | <b>E</b> | 4,918,416            | 4,918,416            | 5,717,873            | (799,457)             | -16.25%       |
| Equipment Purchases                |          | 352,250              | 352,250              | 260,735              | 91,515                | 25.98%        |
| Depreciation                       |          | 860,000              | 860,000              | 860,000              | (0)                   | 0.00%         |
| Reserve Transfers                  |          | -                    | -                    | -                    | -                     |               |
| <b>Total Operating Expenses</b>    |          | <b>\$ 19,384,418</b> | <b>\$ 19,384,418</b> | <b>\$ 20,674,524</b> | <b>\$ (1,290,107)</b> | <b>-6.66%</b> |
| <b>Operating Surplus/(Deficit)</b> |          | <b>\$ 10</b>         | <b>\$ 10</b>         | <b>\$ 614,429</b>    |                       |               |

**Debt Service Budget vs. Actual****Revenues**

|                                    |                      |                      |                      |                     |               |
|------------------------------------|----------------------|----------------------|----------------------|---------------------|---------------|
| Debt Service Rate Revenue          | \$ 15,861,016        | \$ 15,861,016        | \$ 15,861,024        | \$ 8                | 0.00%         |
| Use of Reserves                    | 954,652              | 954,652              | 954,652              | -                   |               |
| Septage Receiving Support - County | 109,440              | 109,440              | 109,441              | 1                   | 0.00%         |
| Buck Mountain Lease Revenue        | 1,600                | 1,600                | -                    | (1,600)             | -100.00%      |
| Trust Fund Interest                | 135,900              | 135,900              | 7,039                | (128,861)           | -94.82%       |
| Reserve Fund Interest              | 666,000              | 666,000              | 68,814               | (597,186)           | -89.67%       |
| <b>Total Debt Service Revenues</b> | <b>\$ 17,728,608</b> | <b>\$ 17,728,608</b> | <b>\$ 17,000,970</b> | <b>\$ (727,638)</b> | <b>-4.10%</b> |

**Debt Service Costs**

|                                       |                      |                      |                      |                   |              |
|---------------------------------------|----------------------|----------------------|----------------------|-------------------|--------------|
| Total Principal & Interest            | \$ 14,380,219        | \$ 14,380,219        | \$ 14,380,219        | \$ -              | 0.00%        |
| Reserve Additions-Interest            | 666,000              | 666,000              | 68,814               | 597,186           | 89.67%       |
| Debt Service Ratio Charge             | 725,000              | 725,000              | 725,000              | -                 | 0.00%        |
| Reserve Additions-CIP Growth          | 1,957,394            | 1,957,394            | 1,957,394            | -                 | 0.00%        |
| <b>Total Debt Service Costs</b>       | <b>\$ 17,728,613</b> | <b>\$ 17,728,613</b> | <b>\$ 17,131,427</b> | <b>\$ 597,186</b> | <b>3.37%</b> |
| <b>Debt Service Surplus/(Deficit)</b> | <b>\$ (5)</b>        | <b>\$ (5)</b>        | <b>\$ (130,457)</b>  |                   |              |

**Summary**

|                          |               |               |                   |              |        |
|--------------------------|---------------|---------------|-------------------|--------------|--------|
| <b>Total Revenues</b>    | \$ 37,113,036 | \$ 37,113,036 | \$ 38,289,923     | \$ 1,176,887 | 3.17%  |
| <b>Total Expenses</b>    | 37,113,031    | 37,113,031    | 37,805,951        | (692,920)    | -1.87% |
| <b>Surplus/(Deficit)</b> | <b>\$ 5</b>   | <b>\$ 5</b>   | <b>\$ 483,972</b> |              |        |

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - June 2021**

**Urban Water Rate Center**  
**Revenues and Expenses Summary**

| <i>Budget<br/>FY 2021</i> | <i>Budget<br/>Year-to-Date</i> | <i>Actual<br/>Year-to-Date</i> | <i>Budget<br/>vs. Actual</i> | <i>Variance<br/>Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

**Operating Budget vs. Actual**

|                                   |      | Notes |                     |    |                     |    |                     |    |                     |                |
|-----------------------------------|------|-------|---------------------|----|---------------------|----|---------------------|----|---------------------|----------------|
| Revenues                          |      |       |                     |    |                     |    |                     |    |                     |                |
| Operations Rate Revenue           |      | \$    | 7,118,541           | \$ | 7,118,541           | \$ | 7,227,059           | \$ | 108,518             | 1.52%          |
| Lease Revenue                     |      |       | 75,000              |    | 75,000              |    | 73,684              |    | (1,316)             | -1.75%         |
| Miscellaneous                     | C, G |       | -                   |    | -                   |    | 290,921             |    | 290,921             |                |
| Use of Reserves-GAC               |      |       | 500,000             |    | 500,000             |    | 500,000             |    | -                   | 0.00%          |
| Rate Stabilization Reserves       |      |       | 94,254              |    | 94,254              |    | 94,254              |    | -                   | 0.00%          |
| Interest Allocation               |      |       | 14,600              |    | 14,600              |    | 4,475               |    | (10,125)            | -69.35%        |
| Total Operating Revenues          |      |       | <u>\$ 7,802,395</u> |    | <u>\$ 7,802,395</u> |    | <u>\$ 8,190,392</u> |    | <u>\$ 387,997</u>   | <u>4.97%</u>   |
| Expenses                          |      |       |                     |    |                     |    |                     |    |                     |                |
| Personnel Cost                    | B    | \$    | 1,918,361           | \$ | 1,918,361           | \$ | 1,962,448           | \$ | (44,087)            | -2.30%         |
| Professional Services             | C    |       | 134,000             |    | 134,000             |    | 527,422             |    | (393,422)           | -293.60%       |
| Other Services & Charges          | D    |       | 738,130             |    | 738,130             |    | 800,223             |    | (62,093)            | -8.41%         |
| Communications                    | F    |       | 76,000              |    | 76,000              |    | 102,385             |    | (26,385)            | -34.72%        |
| Information Technology            |      |       | 85,500              |    | 85,500              |    | 72,813              |    | 12,687              | 14.84%         |
| Supplies                          |      |       | 5,745               |    | 5,745               |    | 7,757               |    | (2,012)             | -35.02%        |
| Operations & Maintenance          | E    |       | 2,159,300           |    | 2,159,300           |    | 2,476,328           |    | (317,028)           | -14.68%        |
| Equipment Purchases               |      |       | 28,000              |    | 28,000              |    | 22,472              |    | 5,528               | 19.74%         |
| Depreciation                      |      |       | 300,000             |    | 300,000             |    | 300,000             |    | -                   | 0.00%          |
| Reserve Transfers                 |      |       | -                   |    | -                   |    | -                   |    | -                   |                |
| Subtotal Before Allocations       |      |       | <u>\$ 5,445,036</u> |    | <u>\$ 5,445,036</u> |    | <u>\$ 6,271,847</u> |    | <u>\$ (826,812)</u> | <u>-15.18%</u> |
| Allocation of Support Departments |      |       | 2,357,359           |    | 2,357,359           |    | 2,267,324           |    | 90,035              | 3.82%          |
| Total Operating Expenses          |      |       | <u>\$ 7,802,395</u> |    | <u>\$ 7,802,395</u> |    | <u>\$ 8,539,171</u> |    | <u>\$ (736,776)</u> | <u>-9.44%</u>  |
| Operating Surplus/(Deficit)       |      |       | <u>\$ 0</u>         |    | <u>\$ 0</u>         |    | <u>\$ (348,779)</u> |    |                     |                |

**Debt Service Budget vs. Actual**

|                                       |  |                     |                     |                     |                     |               |
|---------------------------------------|--|---------------------|---------------------|---------------------|---------------------|---------------|
| <b>Revenues</b>                       |  |                     |                     |                     |                     |               |
| Debt Service Rate Revenue             |  | \$ 6,178,645        | \$ 6,178,645        | \$ 6,178,596        | \$ (49)             | 0.00%         |
| Trust Fund Interest                   |  | 49,000              | 49,000              | 2,541               | (46,459)            | -94.81%       |
| Reserve Fund Interest                 |  | 339,600             | 339,600             | 35,095              | (304,505)           | -89.67%       |
| Use of Reserves                       |  | 662,000             | 662,000             | 662,000             | -                   | 0.00%         |
| Lease Revenue                         |  | 1,600               | 1,600               | -                   | (1,600)             | -100.00%      |
| <b>Total Debt Service Revenues</b>    |  | <b>\$ 7,230,845</b> | <b>\$ 7,230,845</b> | <b>\$ 6,878,232</b> | <b>\$ (352,613)</b> | <b>-4.88%</b> |
| <b>Debt Service Costs</b>             |  |                     |                     |                     |                     |               |
| Total Principal & Interest            |  | \$ 5,215,445        | \$ 5,215,445        | \$ 5,215,445        | \$ -                | 0.00%         |
| Reserve Additions-Interest            |  | 339,600             | 339,600             | 35,095              | 304,505             | 89.67%        |
| Debt Service Ratio Charge             |  | 400,000             | 400,000             | 400,000             | -                   | 0.00%         |
| Reserve Additions-CIP Growth          |  | 1,275,800           | 1,275,800           | 1,275,800           | -                   | 0.00%         |
| <b>Total Debt Service Costs</b>       |  | <b>\$ 7,230,845</b> | <b>\$ 7,230,845</b> | <b>\$ 6,926,340</b> | <b>\$ 304,505</b>   | <b>4.21%</b>  |
| <b>Debt Service Surplus/(Deficit)</b> |  | <b>\$ -</b>         | <b>\$ -</b>         | <b>\$ (48,108)</b>  |                     |               |

**Rate Center Summary**

|                                 |               |               |                     |           |        |
|---------------------------------|---------------|---------------|---------------------|-----------|--------|
| <b>Total Revenues</b>           | \$ 15,033,240 | \$ 15,033,240 | \$ 15,068,625       | \$ 35,385 | 0.24%  |
| <b>Total Expenses</b>           | 15,033,240    | 15,033,240    | 15,465,511          | (432,271) | -2.88% |
| <b>Surplus/(Deficit)</b>        | <b>\$ 0</b>   | <b>\$ 0</b>   | <b>\$ (396,886)</b> |           |        |
| <b>Costs per 1000 Gallons</b>   | \$ 2.30       |               | \$ 2.48             |           |        |
| <b>Operating and DS</b>         | \$ 4.42       |               | \$ 4.48             |           |        |
| <b>Thousand Gallons Treated</b> | 3,397,700     | 3,397,700     | 3,449,668           | 51,968    | 1.53%  |
| <b>or</b>                       |               |               |                     |           |        |
| <b>Flow (MGD)</b>               | 9.309         |               | 9.451               |           |        |

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - June 2021**

**Crozet Water Rate Center**  
**Revenues and Expenses Summary**

| <i>Budget<br/>FY 2021</i> | <i>Budget<br/>Year-to-Date</i> | <i>Actual<br/>Year-to-Date</i> | <i>Budget<br/>vs. Actual</i> | <i>Variance<br/>Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

**Operating Budget vs. Actual**

Notes

**Revenues**

|                                 |                     |                     |                     |                   |               |
|---------------------------------|---------------------|---------------------|---------------------|-------------------|---------------|
| Operations Rate Revenue         | \$ 1,028,808        | \$ 1,028,808        | \$ 1,028,808        | \$ -              | 0.00%         |
| Lease Revenues                  | 30,000              | 30,000              | 27,120              | (2,880)           | -9.60%        |
| Use of Reserves-GAC             | 26,000              | 26,000              | 26,000              | -                 | 0.00%         |
| Interest Allocation             | 2,100               | 2,100               | 635                 | (1,465)           | -69.78%       |
| <b>Total Operating Revenues</b> | <b>\$ 1,086,908</b> | <b>\$ 1,086,908</b> | <b>\$ 1,082,562</b> | <b>\$ (4,346)</b> | <b>-0.40%</b> |

**Expenses**

|                                    |                     |                     |                     |                    |               |
|------------------------------------|---------------------|---------------------|---------------------|--------------------|---------------|
| Personnel Cost                     | <b>B</b> \$ 302,598 | \$ 302,598          | \$ 312,566          | \$ (9,968)         | -3.29%        |
| Professional Services              | <b>C</b> 15,000     | 15,000              | 48,783              | (33,783)           | -225.22%      |
| Other Services & Charges           | 142,360             | 142,360             | 106,264             | 36,096             | 25.36%        |
| Communications                     | <b>F</b> 5,600      | 5,600               | 18,085              | (12,485)           | -222.95%      |
| Information Technology             | 2,250               | 2,250               | 7,008               | (4,758)            | -211.47%      |
| Supplies                           | 1,350               | 1,350               | 2,015               | (665)              | -49.26%       |
| Operations & Maintenance           | <b>E</b> 353,292    | 353,292             | 412,682             | (59,390)           | -16.81%       |
| Equipment Purchases                | 3,000               | 3,000               | 3,525               | (525)              | -17.50%       |
| Depreciation                       | 40,000              | 40,000              | 40,000              | 0                  | 0.00%         |
| Reserve Transfers                  | -                   | -                   | -                   | -                  |               |
| <b>Subtotal Before Allocations</b> | <b>\$ 865,450</b>   | <b>\$ 865,450</b>   | <b>\$ 950,929</b>   | <b>\$ (85,479)</b> | <b>-9.88%</b> |
| Allocation of Support Departments  | 221,456             | 221,456             | 214,155             | 7,301              | 3.30%         |
| <b>Total Operating Expenses</b>    | <b>\$ 1,086,906</b> | <b>\$ 1,086,906</b> | <b>\$ 1,165,083</b> | <b>\$ (78,177)</b> | <b>-7.19%</b> |
| <b>Operating Surplus/(Deficit)</b> | <b>\$ 2</b>         | <b>\$ 2</b>         | <b>\$ (82,521)</b>  |                    |               |

**Debt Service Budget vs. Actual**

**Revenues**

|                                    |                     |                     |                     |                    |               |
|------------------------------------|---------------------|---------------------|---------------------|--------------------|---------------|
| Debt Service Rate Revenue          | \$ 1,311,312        | \$ 1,311,312        | \$ 1,311,312        | \$ -               | 0.00%         |
| Trust Fund Interest                | 11,600              | 11,600              | 598                 | (11,002)           | -94.84%       |
| Use of Reserves                    | 198,252             | 198,252             | 198,252             | -                  | 0.00%         |
| Reserve Fund Interest              | 15,700              | 15,700              | 1,652               | (14,048)           | -89.48%       |
| <b>Total Debt Service Revenues</b> | <b>\$ 1,536,864</b> | <b>\$ 1,536,864</b> | <b>\$ 1,511,814</b> | <b>\$ (25,050)</b> | <b>-1.63%</b> |

**Debt Service Costs**

|                                       |                     |                     |                     |                  |              |
|---------------------------------------|---------------------|---------------------|---------------------|------------------|--------------|
| Total Principal & Interest            | \$ 1,217,569        | \$ 1,217,569        | \$ 1,217,569        | \$ -             | 0.00%        |
| Reserve Additions-Interest            | 15,700              | 15,700              | 1,652               | 14,048           | 89.48%       |
| Reserve Additions-CIP Growth          | 303,600             | 303,600             | 303,600             | -                | 0.00%        |
| <b>Total Debt Service Costs</b>       | <b>\$ 1,536,869</b> | <b>\$ 1,536,869</b> | <b>\$ 1,522,821</b> | <b>\$ 14,048</b> | <b>0.91%</b> |
| <b>Debt Service Surplus/(Deficit)</b> | <b>\$ (5)</b>       | <b>\$ (5)</b>       | <b>\$ (11,007)</b>  |                  |              |

**Rate Center Summary**

|                                 |               |               |                    |             |        |
|---------------------------------|---------------|---------------|--------------------|-------------|--------|
| <b>Total Revenues</b>           | \$ 2,623,772  | \$ 2,623,772  | \$ 2,594,376       | \$ (29,396) | -1.12% |
| <b>Total Expenses</b>           | 2,623,775     | 2,623,775     | 2,687,904          | (64,129)    | -2.44% |
| <b>Surplus/(Deficit)</b>        | <b>\$ (3)</b> | <b>\$ (3)</b> | <b>\$ (93,528)</b> |             |        |
| <b>Costs per 1000 Gallons</b>   | \$ 5.47       |               | \$ 4.98            |             |        |
| <b>Operating and DS</b>         | \$ 13.20      |               | \$ 11.49           |             |        |
| <b>Thousand Gallons Treated</b> | 198,830       | 198,830       | 233,882            | 35,052      | 17.63% |
| <b>Flow (MGD)</b>               | 0.545         |               | 0.641              |             |        |

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - June 2021**

**Scottsville Water Rate Center**  
**Revenues and Expenses Summary**

| <i>Budget<br/>FY 2021</i> | <i>Budget<br/>Year-to-Date</i> | <i>Actual<br/>Year-to-Date</i> | <i>Budget<br/>vs. Actual</i> | <i>Variance<br/>Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

**Operating Budget vs. Actual**

Notes

**Revenues**

|                                 |                   |                   |                   |                   |               |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|---------------|
| Operations Rate Revenue         | \$ 520,812        | \$ 520,812        | \$ 520,812        | \$ -              | 0.00%         |
| Use of Reserves-GAC             | 9,220             | 9,220             | -                 | (9,220)           | -100.00%      |
| Interest Allocation             | 1,000             | 1,000             | 312               | (688)             | -68.81%       |
| <b>Total Operating Revenues</b> | <b>\$ 531,032</b> | <b>\$ 531,032</b> | <b>\$ 521,124</b> | <b>\$ (9,908)</b> | <b>-1.87%</b> |

**Expenses**

|                                    |                   |                   |                   |                  |              |
|------------------------------------|-------------------|-------------------|-------------------|------------------|--------------|
| Personnel Cost                     | B \$ 184,031      | \$ 184,031        | \$ 190,645        | \$ (6,614)       | -3.59%       |
| Professional Services              | 71,000            | 71,000            | 48,559            | 22,441           | 31.61%       |
| Other Services & Charges           | 22,780            | 22,780            | 27,155            | (4,375)          | -19.21%      |
| Communications                     | 4,600             | 4,600             | 8,309             | (3,709)          | -80.64%      |
| Information Technology             | 650               | 650               | 2,344             | (1,694)          | -260.61%     |
| Supplies                           | 200               | 200               | 42                | 158              | 78.78%       |
| Operations & Maintenance           | 87,662            | 87,662            | 63,308            | 24,354           | 27.78%       |
| Equipment Purchases                | 2,500             | 2,500             | 2,500             | (0)              | 0.00%        |
| Depreciation                       | 20,000            | 20,000            | 20,000            | (0)              | 0.00%        |
| Reserve Transfers                  | -                 | -                 | -                 | -                | -            |
| <b>Subtotal Before Allocations</b> | <b>\$ 393,423</b> | <b>\$ 393,423</b> | <b>\$ 362,863</b> | <b>\$ 30,560</b> | <b>7.77%</b> |
| Allocation of Support Departments  | 137,604           | 137,604           | 135,170           | 2,434            | 1.77%        |
| <b>Total Operating Expenses</b>    | <b>\$ 531,027</b> | <b>\$ 531,027</b> | <b>\$ 498,033</b> | <b>\$ 32,994</b> | <b>6.21%</b> |
| <b>Operating Surplus/(Deficit)</b> | <b>\$ 5</b>       | <b>\$ 5</b>       | <b>\$ 23,091</b>  |                  |              |

**Debt Service Budget vs. Actual**

**Revenues**

|                                    |                   |                   |                   |                   |               |
|------------------------------------|-------------------|-------------------|-------------------|-------------------|---------------|
| Debt Service Rate Revenue          | \$ 128,749        | \$ 128,749        | \$ 128,748        | \$ (1)            | 0.00%         |
| Trust Fund Interest                | 1,200             | 1,200             | 63                | (1,137)           | -94.72%       |
| Reserve Fund Interest              | 8,300             | 8,300             | 826               | (7,474)           | -90.05%       |
| <b>Total Debt Service Revenues</b> | <b>\$ 138,249</b> | <b>\$ 138,249</b> | <b>\$ 129,637</b> | <b>\$ (8,612)</b> | <b>-6.23%</b> |

**Debt Service Costs**

|                                       |                   |                   |                   |                 |              |
|---------------------------------------|-------------------|-------------------|-------------------|-----------------|--------------|
| Total Principal & Interest            | \$ 126,032        | \$ 126,032        | \$ 126,032        | \$ -            | 0.00%        |
| Reserve Additions-Interest            | 8,300             | 8,300             | 826               | 7,474           |              |
| Reserve Additions-CIP Growth          | 3,917             | 3,917             | 3,917             | -               |              |
| <b>Total Debt Service Costs</b>       | <b>\$ 138,249</b> | <b>\$ 138,249</b> | <b>\$ 130,775</b> | <b>\$ 7,474</b> | <b>5.41%</b> |
| <b>Debt Service Surplus/(Deficit)</b> | <b>\$ -</b>       | <b>\$ -</b>       | <b>\$ (1,138)</b> |                 |              |

**Rate Center Summary**

|                                 |             |             |                  |             |        |
|---------------------------------|-------------|-------------|------------------|-------------|--------|
| <b>Total Revenues</b>           | \$ 669,281  | \$ 669,281  | \$ 650,761       | \$ (18,520) | -2.77% |
| <b>Total Expenses</b>           | 669,276     | 669,276     | 628,808          | 40,468      | 6.05%  |
| <b>Surplus/(Deficit)</b>        | <b>\$ 5</b> | <b>\$ 5</b> | <b>\$ 21,953</b> |             |        |
| <b>Costs per 1000 Gallons</b>   | \$ 30.79    |             | \$ 24.61         |             |        |
| <b>Operating and DS</b>         | \$ 38.81    |             | \$ 31.07         |             |        |
| <b>Thousand Gallons Treated</b> | 17,245      | 17,245      | 20,239           | 2,994       | 17.36% |
| <b>or</b>                       |             |             |                  |             |        |
| <b>Flow (MGD)</b>               | 0.047       |             | 0.055            |             |        |

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - June 2021**

**Urban Wastewater Rate Center**  
**Revenues and Expenses Summary**

| <b>Budget<br/>FY 2021</b> | <b>Budget<br/>Year-to-Date</b> | <b>Actual<br/>Year-to-Date</b> | <b>Budget<br/>vs. Actual</b> | <b>Variance<br/>Percentage</b> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

**Operating Budget vs. Actual**

Notes

**Revenues**

|                                 |                     |                     |                     |                     |               |
|---------------------------------|---------------------|---------------------|---------------------|---------------------|---------------|
| Operations Rate Revenue         | \$ 8,033,620        | \$ 8,033,620        | \$ 9,136,006        | \$ 1,102,386        | 13.72%        |
| Stone Robinson WWTP             | 22,788              | 22,788              | 14,688              | (8,100)             | -35.55%       |
| Septage Acceptance              | 475,000             | 475,000             | 594,867             | 119,867             | 25.24%        |
| Nutrient Credits                | 45,000              | 45,000              | 86,999              | 41,999              | 93.33%        |
| Rate Stabilization Reserve      | 121,233             | 121,233             | 121,233             | -                   | 0.00%         |
| Miscellaneous Revenue           | -                   | -                   | 2,224               | 2,224               |               |
| Interest Allocation             | 16,100              | 16,100              | 4,937               | (11,163)            | -69.33%       |
| <b>Total Operating Revenues</b> | <b>\$ 8,713,741</b> | <b>\$ 8,713,741</b> | <b>\$ 9,960,954</b> | <b>\$ 1,247,213</b> | <b>14.31%</b> |

**Expenses**

|                                    |                     |                     |                     |                     |               |
|------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------|
| Personnel Cost                     | \$ 1,299,876        | \$ 1,299,876        | \$ 1,257,934        | \$ 41,942           | 3.23%         |
| Professional Services              | 143,400             | 143,400             | 234,871             | (91,471)            | -63.79%       |
| Other Services & Charges           | 2,020,300           | 2,020,300           | 2,086,936           | (66,636)            | -3.30%        |
| Communications                     | 10,700              | 10,700              | 12,967              | (2,267)             | -21.19%       |
| Information Technology             | 69,500              | 69,500              | 32,795              | 36,705              | 52.81%        |
| Supplies                           | 1,900               | 1,900               | 2,174               | (274)               | -14.44%       |
| Operations & Maintenance           | 1,767,000           | 1,767,000           | 2,039,327           | (272,327)           | -15.41%       |
| Equipment Purchases                | 125,250             | 125,250             | 64,738              | 60,512              | 48.31%        |
| Depreciation                       | 470,000             | 470,000             | 470,000             | (0)                 | 0.00%         |
| Reserve Transfers                  | -                   | -                   | -                   | -                   |               |
| <b>Subtotal Before Allocations</b> | <b>\$ 5,907,926</b> | <b>\$ 5,907,926</b> | <b>\$ 6,201,743</b> | <b>\$ (293,817)</b> | <b>-4.97%</b> |
| Allocation of Support Departments  | 2,805,815           | 2,805,815           | 2,733,624           | 72,192              | 2.57%         |
| <b>Total Operating Expenses</b>    | <b>\$ 8,713,741</b> | <b>\$ 8,713,741</b> | <b>\$ 8,935,367</b> | <b>\$ (221,626)</b> | <b>-2.54%</b> |
| <b>Operating Surplus/(Deficit)</b> | <b>\$ (0)</b>       | <b>\$ (0)</b>       | <b>\$ 1,025,587</b> |                     |               |

**Debt Service Budget vs. Actual**

**Revenues**

|                                    |                     |                     |                     |                     |               |
|------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------|
| Debt Service Rate Revenue          | \$ 8,229,090        | \$ 8,229,090        | \$ 8,229,144        | \$ 54               | 0.00%         |
| Septage Receiving Support - County | 109,440             | 109,440             | 109,441             | 1                   | 0.00%         |
| Trust Fund Interest                | 74,000              | 74,000              | 3,829               | (70,171)            | -94.83%       |
| Use of Reserves                    | 94,400              | 94,400              | 94,400              | -                   | 0.00%         |
| Reserve Fund Interest              | 295,200             | 295,200             | 30,484              | (264,716)           | -89.67%       |
| <b>Total Debt Service Revenues</b> | <b>\$ 8,802,130</b> | <b>\$ 8,802,130</b> | <b>\$ 8,467,299</b> | <b>\$ (334,831)</b> | <b>-3.80%</b> |

**Debt Service Costs**

|                                       |                     |                     |                     |                   |              |
|---------------------------------------|---------------------|---------------------|---------------------|-------------------|--------------|
| Total Principal & Interest            | \$ 7,812,130        | \$ 7,812,130        | \$ 7,812,130        | \$ -              | 0.00%        |
| Reserve Additions-Interest            | 295,200             | 295,200             | 30,484              | 264,716           | 89.67%       |
| Debt Service Ratio Charge             | 325,000             | 325,000             | 325,000             | -                 | 0.00%        |
| Reserve Additions-CIP Growth          | 369,800             | 369,800             | 369,800             | -                 | 0.00%        |
| <b>Total Debt Service Costs</b>       | <b>\$ 8,802,130</b> | <b>\$ 8,802,130</b> | <b>\$ 8,537,414</b> | <b>\$ 264,716</b> | <b>3.01%</b> |
| <b>Debt Service Surplus/(Deficit)</b> | <b>\$ -</b>         | <b>\$ -</b>         | <b>\$ (70,116)</b>  |                   |              |

**Rate Center Summary**

|                                 |               |               |                   |            |        |
|---------------------------------|---------------|---------------|-------------------|------------|--------|
| <b>Total Revenues</b>           | \$ 17,515,871 | \$ 17,515,871 | \$ 18,428,253     | \$ 912,382 | 5.21%  |
| <b>Total Expenses</b>           | 17,515,871    | 17,515,871    | 17,472,781        | 43,090     | 0.25%  |
| <b>Surplus/(Deficit)</b>        | <b>\$ (0)</b> | <b>\$ (0)</b> | <b>\$ 955,472</b> |            |        |
| <b>Costs per 1000 Gallons</b>   | \$ 2.57       |               | \$ 2.32           |            |        |
| <b>Operating and DS</b>         | \$ 5.17       |               | \$ 4.53           |            |        |
| <b>Thousand Gallons Treated</b> | 3,390,400     | 3,390,400     | 3,856,481         | 466,081    | 13.75% |
| <b>or</b>                       |               |               |                   |            |        |
| <b>Flow (MGD)</b>               | 9.289         |               | 10.566            |            |        |

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - June 2021**

**Glenmore Wastewater Rate Center**  
**Revenues and Expenses Summary**

| <i>Budget<br/>FY 2021</i> | <i>Budget<br/>Year-to-Date</i> | <i>Actual<br/>Year-to-Date</i> | <i>Budget<br/>vs. Actual</i> | <i>Variance<br/>Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

**Operating Budget vs. Actual**

Notes

**Revenues**

|                                 |           |                |           |                |           |                |           |              |               |
|---------------------------------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|--------------|---------------|
| Operations Rate Revenue         | \$        | 370,524        | \$        | 370,524        | \$        | 370,524        | \$        | -            | 0.00%         |
| Rate Stabilization Reserve      |           | 24,540         |           | 24,540         |           | 24,540         |           | -            | 0.00%         |
| Interest Allocation             |           | 700            |           | 700            |           | 215            |           | (485)        | -69.27%       |
| <b>Total Operating Revenues</b> | <b>\$</b> | <b>395,764</b> | <b>\$</b> | <b>395,764</b> | <b>\$</b> | <b>395,279</b> | <b>\$</b> | <b>(485)</b> | <b>-0.12%</b> |

**Expenses**

|                                    |           |                |           |                |           |                |           |                |               |
|------------------------------------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|----------------|---------------|
| Personnel Cost                     | \$        | 97,804         | \$        | 97,804         | \$        | 91,938         | \$        | 5,866          | 6.00%         |
| Professional Services              |           | 24,200         |           | 24,200         |           | 87             |           | 24,113         |               |
| Other Services & Charges           |           | 36,800         |           | 36,800         |           | 38,817         |           | (2,017)        | -5.48%        |
| Communications                     |           | 3,200          |           | 3,200          |           | 3,772          |           | (572)          | -17.88%       |
| Information Technology             |           | 4,050          |           | 4,050          |           | 9,549          |           | (5,499)        | -135.77%      |
| Supplies                           |           | -              |           | -              |           | 654            |           | (654)          |               |
| Operations & Maintenance           | E         | 109,100        |           | 109,100        |           | 132,406        |           | (23,306)       | -21.36%       |
| Equipment Purchases                |           | 3,700          |           | 3,700          |           | 3,700          |           | 0              | 0.00%         |
| Depreciation                       |           | 10,000         |           | 10,000         |           | 10,000         |           | 0              | 0.00%         |
| <b>Subtotal Before Allocations</b> | <b>\$</b> | <b>288,854</b> | <b>\$</b> | <b>288,854</b> | <b>\$</b> | <b>290,923</b> | <b>\$</b> | <b>(2,069)</b> | <b>-0.72%</b> |
| Allocation of Support Departments  |           | 106,907        |           | 106,907        |           | 106,140        |           | 767            | 0.72%         |
| <b>Total Operating Expenses</b>    | <b>\$</b> | <b>395,761</b> | <b>\$</b> | <b>395,761</b> | <b>\$</b> | <b>397,063</b> | <b>\$</b> | <b>(1,302)</b> | <b>-0.33%</b> |
| <b>Operating Surplus/(Deficit)</b> | <b>\$</b> | <b>3</b>       | <b>\$</b> | <b>3</b>       | <b>\$</b> | <b>(1,784)</b> |           |                |               |

**Debt Service Budget vs. Actual**

**Revenues**

|                                    |           |              |           |              |           |              |           |          |              |
|------------------------------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|----------|--------------|
| Debt Service Rate Revenue          | \$        | 3,778        | \$        | 3,778        | \$        | 3,780        | \$        | 2        | 0.05%        |
| Trust Fund Interest                |           | -            |           | -            |           | -            |           | -        |              |
| Reserve Fund Interest              |           | 3,000        |           | 3,000        |           | 344          |           | (2,656)  | -88.53%      |
| <b>Total Debt Service Revenues</b> | <b>\$</b> | <b>6,778</b> | <b>\$</b> | <b>6,778</b> | <b>\$</b> | <b>4,124</b> | <b>\$</b> | <b>2</b> | <b>0.03%</b> |

**Debt Service Costs**

|                                       |           |              |           |              |           |              |           |              |               |
|---------------------------------------|-----------|--------------|-----------|--------------|-----------|--------------|-----------|--------------|---------------|
| Total Principal & Interest            | \$        | 1,579        | \$        | 1,579        | \$        | 1,579        | \$        | -            | 0.00%         |
| Reserve Additions-CIP Growth          |           | 2,199        |           | 2,199        |           | 2,199        |           | -            | 0.00%         |
| Reserve Additions-Interest            |           | 3,000        |           | 3,000        |           | 344          |           | 2,656        | 88.53%        |
| <b>Total Debt Service Costs</b>       | <b>\$</b> | <b>6,778</b> | <b>\$</b> | <b>6,778</b> | <b>\$</b> | <b>4,122</b> | <b>\$</b> | <b>2,656</b> | <b>39.18%</b> |
| <b>Debt Service Surplus/(Deficit)</b> | <b>\$</b> | <b>-</b>     | <b>\$</b> | <b>-</b>     | <b>\$</b> | <b>2</b>     |           |              |               |

**Rate Center Summary**

|                                 |           |             |           |          |           |                |    |         |        |
|---------------------------------|-----------|-------------|-----------|----------|-----------|----------------|----|---------|--------|
| <b>Total Revenues</b>           | \$        | 402,542     | \$        | 402,542  | \$        | 399,403        | \$ | (3,139) | -0.78% |
| <b>Total Expenses</b>           |           | 402,539     |           | 402,539  |           | 401,185        |    | 1,354   | 0.34%  |
| <b>Surplus/(Deficit)</b>        | <b>\$</b> | <b>3</b>    | <b>\$</b> | <b>3</b> | <b>\$</b> | <b>(1,782)</b> |    |         |        |
| <b>Costs per 1000 Gallons</b>   | <b>\$</b> | <b>9.51</b> |           |          | <b>\$</b> | <b>9.33</b>    |    |         |        |
| <b>Operating and DS</b>         | <b>\$</b> | <b>9.67</b> |           |          | <b>\$</b> | <b>9.43</b>    |    |         |        |
| <b>Thousand Gallons Treated</b> |           | 41,629      |           | 41,629   |           | 42,546         |    | 917     | 2.20%  |
| <b>or</b>                       |           |             |           |          |           |                |    |         |        |
| <b>Flow (MGD)</b>               |           | 0.114       |           |          |           | 0.117          |    |         |        |

Rivanna Water & Sewer Authority  
Monthly Financial Statements - June 2021

**Scottsville Wastewater Rate Center**  
**Revenues and Expenses Summary**

| <i>Budget<br/>FY 2021</i> | <i>Budget<br/>Year-to-Date</i> | <i>Actual<br/>Year-to-Date</i> | <i>Budget<br/>vs. Actual</i> | <i>Variance<br/>Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

**Operating Budget vs. Actual**

Notes

**Revenues**

|                                 |                   |                   |                   |                   |               |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|---------------|
| Operations Rate Revenue         | \$ 308,988        | \$ 308,988        | \$ 528,638        | \$ 219,650        | 71.09%        |
| Interest Allocation             | 600               | 600               | 183               | (417)             | -69.53%       |
| <b>Total Operating Revenues</b> | <b>\$ 309,588</b> | <b>\$ 309,588</b> | <b>\$ 528,821</b> | <b>\$ 219,233</b> | <b>70.81%</b> |

**Expenses**

|                                    |                   |                   |                   |                     |                 |
|------------------------------------|-------------------|-------------------|-------------------|---------------------|-----------------|
| Personnel Cost                     | \$ 97,317         | \$ 97,317         | \$ 91,938         | \$ 5,379            | 5.53%           |
| Professional Services              | 2,100             | 2,100             | 2,391             | (291)               | -13.84%         |
| Other Services & Charges           | 23,710            | 23,710            | 30,140            | (6,430)             | -27.12%         |
| Communications                     | 3,720             | 3,720             | 3,851             | (131)               | -3.53%          |
| Information Technology             | 1,500             | 1,500             | 478               | 1,022               | 68.15%          |
| Supplies                           | 500               | 500               | 0                 | 500                 | 99.93%          |
| Operations & Maintenance           | 57,812            | 57,812            | 279,375           | (221,563)           | -383.25%        |
| Equipment Purchases                | 3,700             | 3,700             | 3,700             | 0                   | 0.00%           |
| Depreciation                       | 20,000            | 20,000            | 20,000            | (0)                 | 0.00%           |
| <b>Subtotal Before Allocations</b> | <b>\$ 210,359</b> | <b>\$ 210,359</b> | <b>\$ 431,873</b> | <b>\$ (221,514)</b> | <b>-105.30%</b> |
| Allocation of Support Departments  | 99,228            | 99,228            | 98,114            | 1,115               | 1.12%           |
| <b>Total Operating Expenses</b>    | <b>\$ 309,587</b> | <b>\$ 309,587</b> | <b>\$ 529,987</b> | <b>\$ (220,399)</b> | <b>-71.19%</b>  |
| <b>Operating Surplus/(Deficit)</b> | <b>\$ 1</b>       | <b>\$ 1</b>       | <b>\$ (1,166)</b> |                     |                 |

**Debt Service Budget vs. Actual**

**Revenues**

|                                    |                  |                  |                 |                   |                |
|------------------------------------|------------------|------------------|-----------------|-------------------|----------------|
| Debt Service Rate Revenue          | \$ 9,442         | \$ 9,442         | \$ 9,444        | \$ 2              | 0.02%          |
| Trust Fund Interest                | 100              | 100              | 7               | (93)              | -93.03%        |
| Reserve Fund Interest              | 4,200            | 4,200            | 413             | (3,787)           | -90.17%        |
| <b>Total Debt Service Revenues</b> | <b>\$ 13,742</b> | <b>\$ 13,742</b> | <b>\$ 9,864</b> | <b>\$ (3,878)</b> | <b>-28.22%</b> |

**Debt Service Costs**

|                                       |                  |                  |                 |                 |               |
|---------------------------------------|------------------|------------------|-----------------|-----------------|---------------|
| Total Principal & Interest            | \$ 7,464         | \$ 7,464         | \$ 7,464        | \$ -            | 0.00%         |
| Reserve Additions-Interest            | 4,200            | 4,200            | 413             | 3,787           | 90.17%        |
| Estimated New Principal & Interest    | 2,078            | 2,078            | 2,078           | -               | 0.00%         |
| <b>Total Debt Service Costs</b>       | <b>\$ 13,742</b> | <b>\$ 13,742</b> | <b>\$ 9,955</b> | <b>\$ 3,787</b> | <b>27.56%</b> |
| <b>Debt Service Surplus/(Deficit)</b> | <b>\$ -</b>      | <b>\$ -</b>      | <b>\$ (91)</b>  |                 |               |

**Rate Center Summary**

|                                 |             |             |                   |            |         |
|---------------------------------|-------------|-------------|-------------------|------------|---------|
| <b>Total Revenues</b>           | \$ 323,330  | \$ 323,330  | \$ 538,685        | \$ 215,355 | 66.61%  |
| <b>Total Expenses</b>           | 323,329     | 323,329     | 539,942           | (216,612)  | -66.99% |
| <b>Surplus/(Deficit)</b>        | <b>\$ 1</b> | <b>\$ 1</b> | <b>\$ (1,257)</b> |            |         |
| <b>Costs per 1000 Gallons</b>   | \$ 13.39    |             | \$ 18.15          |            |         |
| <b>Operating and DS</b>         | \$ 13.98    |             | \$ 18.49          |            |         |
| <b>Thousand Gallons Treated</b> | 23,126      | 23,126      | 29,201            | 6,075      | 26.27%  |
| <b>or</b>                       |             |             |                   |            |         |
| <b>Flow (MGD)</b>               | 0.063       |             | 0.080             |            |         |



**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - June 2021**

**Administration**

| <i>Budget<br/>FY 2021</i> | <i>Budget<br/>Year-to-Date</i> | <i>Actual<br/>Year-to-Date</i> | <i>Budget<br/>vs. Actual</i> | <i>Variance<br/>Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

**Operating Budget vs. Actual**

Notes

**Revenues**

|                                 |           |                |           |                |           |                |           |               |              |
|---------------------------------|-----------|----------------|-----------|----------------|-----------|----------------|-----------|---------------|--------------|
| Payment for Services SWA        | \$        | 543,000        | \$        | 543,000        | \$        | 543,000        | \$        | -             | 0.00%        |
| Miscellaneous Revenue           |           | 2,000          |           | 2,000          |           | 47,618         |           | 45,618        | 2280.92%     |
| <b>Total Operating Revenues</b> | <b>\$</b> | <b>545,000</b> | <b>\$</b> | <b>545,000</b> | <b>\$</b> | <b>590,618</b> | <b>\$</b> | <b>45,618</b> | <b>8.37%</b> |

**Expenses**

|                                 |          |           |                  |           |                  |           |                  |           |               |              |
|---------------------------------|----------|-----------|------------------|-----------|------------------|-----------|------------------|-----------|---------------|--------------|
| Personnel Cost                  | <b>B</b> | \$        | 1,906,136        | \$        | 1,906,136        | \$        | 1,926,974        | \$        | (20,838)      | -1.09%       |
| Professional Services           |          |           | 183,000          |           | 183,000          |           | 112,843          |           | 70,157        | 38.34%       |
| Other Services & Charges        |          |           | 80,600           |           | 80,600           |           | 76,030           |           | 4,570         | 5.67%        |
| Communications                  |          |           | 21,500           |           | 21,500           |           | 21,276           |           | 224           | 1.04%        |
| Information Technology          |          |           | 177,000          |           | 177,000          |           | 174,364          |           | 2,636         | 1.49%        |
| Supplies                        |          |           | 24,250           |           | 24,250           |           | 21,704           |           | 2,546         | 10.50%       |
| Operations & Maintenance        | <b>E</b> |           | 75,200           |           | 75,200           |           | 100,068          |           | (24,868)      | -33.07%      |
| Equipment Purchases             |          |           | 24,000           |           | 24,000           |           | 14,000           |           | 10,000        | 41.67%       |
| Depreciation                    |          |           | -                |           | -                |           | -                |           | -             |              |
| <b>Total Operating Expenses</b> |          | <b>\$</b> | <b>2,491,686</b> | <b>\$</b> | <b>2,491,686</b> | <b>\$</b> | <b>2,447,259</b> | <b>\$</b> | <b>44,427</b> | <b>1.78%</b> |

**Department Summary**

|   |         |           |                    |           |                    |           |                    |           |                 |              |
|---|---------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|-----------------|--------------|
| <b>Net Costs Allocable to Rate Centers</b>    |         | <b>\$</b> | <b>(1,946,686)</b> | <b>\$</b> | <b>(1,946,686)</b> | <b>\$</b> | <b>(1,856,641)</b> | <b>\$</b> | <b>(90,045)</b> | <b>4.63%</b> |
| <b><u>Allocations to the Rate Centers</u></b> |         |           |                    |           |                    |           |                    |           |                 |              |
| Urban Water                                   | 44.00%  | \$        | 856,542            | \$        | 856,542            | \$        | 816,922            | \$        | 39,620          |              |
| Crozet Water                                  | 4.00%   | \$        | 77,867             |           | 77,867             |           | 74,266             |           | 3,602           |              |
| Scottsville Water                             | 2.00%   | \$        | 38,934             |           | 38,934             |           | 37,133             |           | 1,801           |              |
| Urban Wastewater                              | 48.00%  | \$        | 934,409            |           | 934,409            |           | 891,188            |           | 43,222          |              |
| Glenmore Wastewater                           | 1.00%   | \$        | 19,467             |           | 19,467             |           | 18,566             |           | 900             |              |
| Scottsville Wastewater                        | 1.00%   | \$        | 19,467             |           | 19,467             |           | 18,566             |           | 900             |              |
|   | 100.00% | \$        | 1,946,686          | \$        | 1,946,686          | \$        | 1,856,641          | \$        | 90,045          |              |

Rivanna Water & Sewer Authority  
Monthly Financial Statements - June 2021

**Maintenance**

| <i>Budget<br/>FY 2021</i> | <i>Budget<br/>Year-to-Date</i> | <i>Actual<br/>Year-to-Date</i> | <i>Budget<br/>vs. Actual</i> | <i>Variance<br/>Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

**Operating Budget vs. Actual**

Notes

**Revenues**

|                                 |           |          |           |          |           |              |           |              |
|---------------------------------|-----------|----------|-----------|----------|-----------|--------------|-----------|--------------|
| Payment for Services SWA        | \$        | -        | \$        | -        | \$        | -            | \$        | -            |
| Miscellaneous Revenue           |           | -        |           | -        |           | 3,901        |           | 3,901        |
| <i>Total Operating Revenues</i> | <b>\$</b> | <b>-</b> | <b>\$</b> | <b>-</b> | <b>\$</b> | <b>3,901</b> | <b>\$</b> | <b>3,901</b> |

**Expenses**

|                                 |          |           |                  |           |                  |           |                  |           |                 |               |
|---------------------------------|----------|-----------|------------------|-----------|------------------|-----------|------------------|-----------|-----------------|---------------|
| Personnel Cost                  | <b>B</b> | \$        | 1,233,605        | \$        | 1,233,605        | \$        | 1,337,695        | \$        | (104,090)       | -8.44%        |
| Professional Services           |          |           | -                |           | -                |           | -                |           | -               |               |
| Other Services & Charges        |          |           | 50,700           |           | 50,700           |           | 19,009           |           | 31,691          | 62.51%        |
| Communications                  |          |           | 17,400           |           | 17,400           |           | 19,882           |           | (2,482)         | -14.26%       |
| Information Technology          |          |           | 8,500            |           | 8,500            |           | 11,412           |           | (2,912)         | -34.26%       |
| Supplies                        |          |           | 2,000            |           | 2,000            |           | 219              |           | 1,781           | 89.07%        |
| Operations & Maintenance        | <b>E</b> |           | 84,550           |           | 84,550           |           | 97,964           |           | (13,414)        | -15.87%       |
| Equipment Purchases             |          |           | 139,000          |           | 139,000          |           | 123,000          |           | 16,000          | 11.51%        |
| Depreciation                    |          |           | -                |           | -                |           | -                |           | -               |               |
| <i>Total Operating Expenses</i> |          | <b>\$</b> | <b>1,535,755</b> | <b>\$</b> | <b>1,535,755</b> | <b>\$</b> | <b>1,609,181</b> | <b>\$</b> | <b>(73,425)</b> | <b>-4.78%</b> |

**Department Summary**

|   |         |           |                    |           |                    |           |                    |           |                 |               |
|---|---------|-----------|--------------------|-----------|--------------------|-----------|--------------------|-----------|-----------------|---------------|
| <b>Net Costs Allocable to Rate Centers</b>    |         | <b>\$</b> | <b>(1,535,755)</b> | <b>\$</b> | <b>(1,535,755)</b> | <b>\$</b> | <b>(1,605,279)</b> | <b>\$</b> | <b>77,326</b>   | <b>-5.04%</b> |
| <b><u>Allocations to the Rate Centers</u></b> |         |           |                    |           |                    |           |                    |           |                 |               |
| Urban Water                                   | 30.00%  | \$        | 460,727            | \$        | 460,727            | \$        | 481,584            | \$        | (20,857)        |               |
| Crozet Water                                  | 3.50%   |           | 53,751             |           | 53,751             |           | 56,185             |           | (2,433)         |               |
| Scottsville Water                             | 3.50%   |           | 53,751             |           | 53,751             |           | 56,185             |           | (2,433)         |               |
| Urban Wastewater                              | 56.50%  |           | 867,702            |           | 867,702            |           | 906,983            |           | (39,281)        |               |
| Glenmore Wastewater                           | 3.50%   |           | 53,751             |           | 53,751             |           | 56,185             |           | (2,433)         |               |
| Scottsville Wastewater                        | 3.00%   |           | 46,073             |           | 46,073             |           | 48,158             |           | (2,086)         |               |
|   | 100.00% | <b>\$</b> | <b>1,535,755</b>   | <b>\$</b> | <b>1,535,755</b>   | <b>\$</b> | <b>1,605,279</b>   | <b>\$</b> | <b>(69,524)</b> |               |

Rivanna Water & Sewer Authority  
Monthly Financial Statements - June 2021

Laboratory

| Budget<br>FY 2021 | Budget<br>Year-to-Date | Actual<br>Year-to-Date | Budget<br>vs. Actual | Variance<br>Percentage |
|-------------------|------------------------|------------------------|----------------------|------------------------|
|-------------------|------------------------|------------------------|----------------------|------------------------|

**Operating Budget vs. Actual**

Notes

**Revenues**

N/A

**Expenses**

|                                 |                   |                   |                   |                  |              |
|---------------------------------|-------------------|-------------------|-------------------|------------------|--------------|
| Personnel Cost                  | \$ 404,171        | \$ 404,171        | \$ 395,632        | \$ 8,539         | 2.11%        |
| Professional Services           | -                 | -                 | -                 | -                |              |
| Other Services & Charges        | 7,600             | 7,600             | 6,267             | 1,333            | 17.53%       |
| Communications                  | 2,100             | 2,100             | 1,687             | 413              |              |
| Information Technology          | 2,500             | 2,500             | 6,588             | (4,088)          | -163.50%     |
| Supplies                        | 1,300             | 1,300             | 1,322             | (22)             | -1.67%       |
| Operations & Maintenance        | 97,250            | 97,250            | 77,125            | 20,125           | 20.69%       |
| Equipment Purchases             | 1,600             | 1,600             | 1,600             | 0                | 0.00%        |
| Depreciation                    | -                 | -                 | -                 | -                |              |
| <b>Total Operating Expenses</b> | <b>\$ 516,521</b> | <b>\$ 516,521</b> | <b>\$ 490,222</b> | <b>\$ 26,299</b> | <b>5.09%</b> |

**Department Summary**

|   |         |                     |                     |                     |                    |              |
|---|---------|---------------------|---------------------|---------------------|--------------------|--------------|
| <b>Net Costs Allocable to Rate Centers</b>    |         | <b>\$ (516,521)</b> | <b>\$ (516,521)</b> | <b>\$ (490,222)</b> | <b>\$ (26,299)</b> | <b>5.09%</b> |
| <b><u>Allocations to the Rate Centers</u></b> |         |                     |                     |                     |                    |              |
| Urban Water                                   | 44.00%  | \$ 227,269          | \$ 227,269          | \$ 215,697          | \$ 11,572          |              |
| Crozet Water                                  | 4.00%   | 20,661              | 20,661              | 19,609              | 1,052              |              |
| Scottsville Water                             | 2.00%   | 10,330              | 10,330              | 9,804               | 526                |              |
| Urban Wastewater                              | 47.00%  | 242,765             | 242,765             | 230,404             | 12,361             |              |
| Glenmore Wastewater                           | 1.50%   | 7,748               | 7,748               | 7,353               | 394                |              |
| Scottsville Wastewater                        | 1.50%   | 7,748               | 7,748               | 7,353               | 394                |              |
|   | 100.00% | \$ 516,521          | \$ 516,521          | \$ 490,222          | \$ 26,299          |              |

Rivanna Water & Sewer Authority  
Monthly Financial Statements - June 2021

**Engineering**

| <i>Budget<br/>FY 2021</i> | <i>Budget<br/>Year-to-Date</i> | <i>Actual<br/>Year-to-Date</i> | <i>Budget<br/>vs. Actual</i> | <i>Variance<br/>Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

**Operating Budget vs. Actual**

Notes

**Revenues**

Payment for Services SWA

*Total Operating Revenues*

|             |             |                  |                  |  |
|-------------|-------------|------------------|------------------|--|
| \$ -        | \$ -        | \$ 15,301        | \$ 15,301        |  |
| <b>\$ -</b> | <b>\$ -</b> | <b>\$ 15,301</b> | <b>\$ 15,301</b> |  |

**Expenses**

Personnel Cost

Professional Services

Other Services &amp; Charges

Communications

Information Technology

Supplies

Operations &amp; Maintenance

Equipment Purchases

Depreciation &amp; Capital Reserve Transfers

*Total Operating Expenses*

C

|                     |                     |                     |                   |              |
|---------------------|---------------------|---------------------|-------------------|--------------|
| \$ 1,469,358        | \$ 1,469,358        | \$ 1,442,252        | \$ 27,106         | 1.84%        |
| 30,000              | 30,000              | 45,417              | (15,417)          | -51.39%      |
| 13,800              | 13,800              | 8,911               | 4,889             | 35.43%       |
| 16,200              | 16,200              | 14,928              | 1,272             | 7.85%        |
| 41,500              | 41,500              | 41,187              | 313               | 0.75%        |
| 9,800               | 9,800               | 4,201               | 5,599             | 57.13%       |
| 127,250             | 127,250             | 39,290              | 87,960            | 69.12%       |
| 21,500              | 21,500              | 21,500              | (0)               | 0.00%        |
| -                   | -                   | -                   | -                 |              |
| <b>\$ 1,729,408</b> | <b>\$ 1,729,408</b> | <b>\$ 1,617,685</b> | <b>\$ 111,723</b> | <b>6.46%</b> |

**Department Summary**

Net Costs Allocable to Rate Centers

|                |                |                |             |       |
|----------------|----------------|----------------|-------------|-------|
| \$ (1,729,408) | \$ (1,729,408) | \$ (1,602,384) | \$ (96,422) | 5.58% |
|----------------|----------------|----------------|-------------|-------|

**Allocations to the Rate Centers**

Urban Water

Crozet Water

Scottsville Water

Urban Wastewater

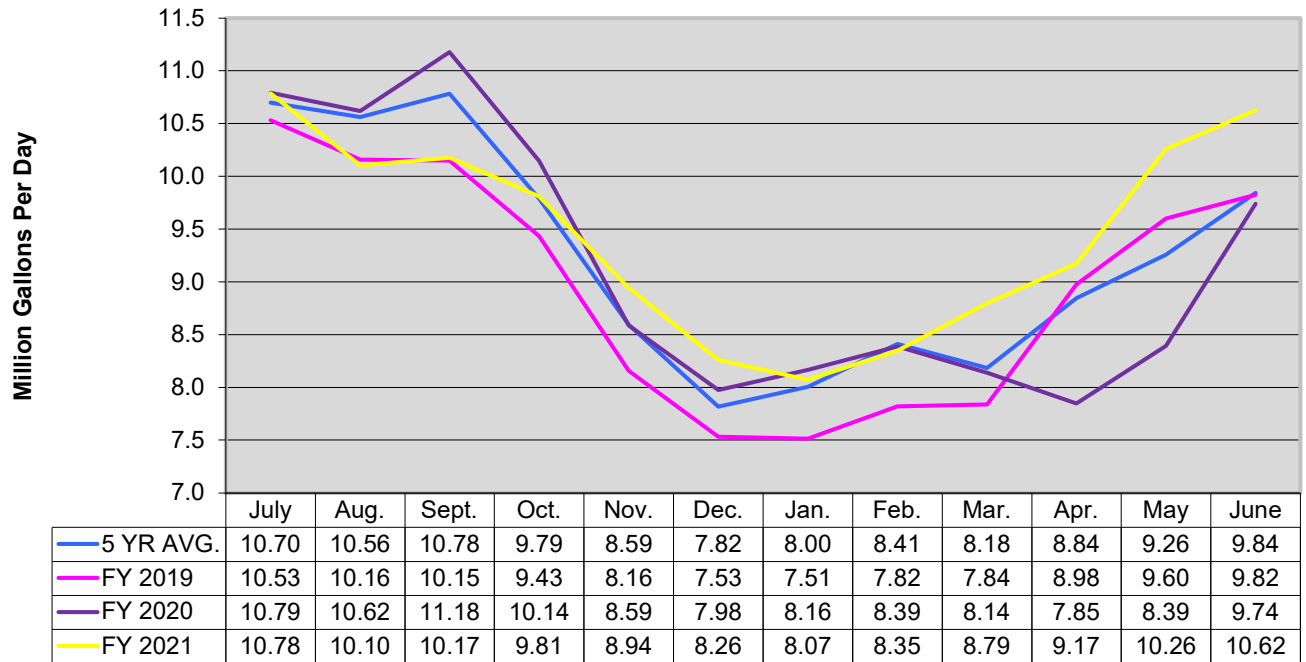
Glenmore Wastewater

Scottsville Wastewater

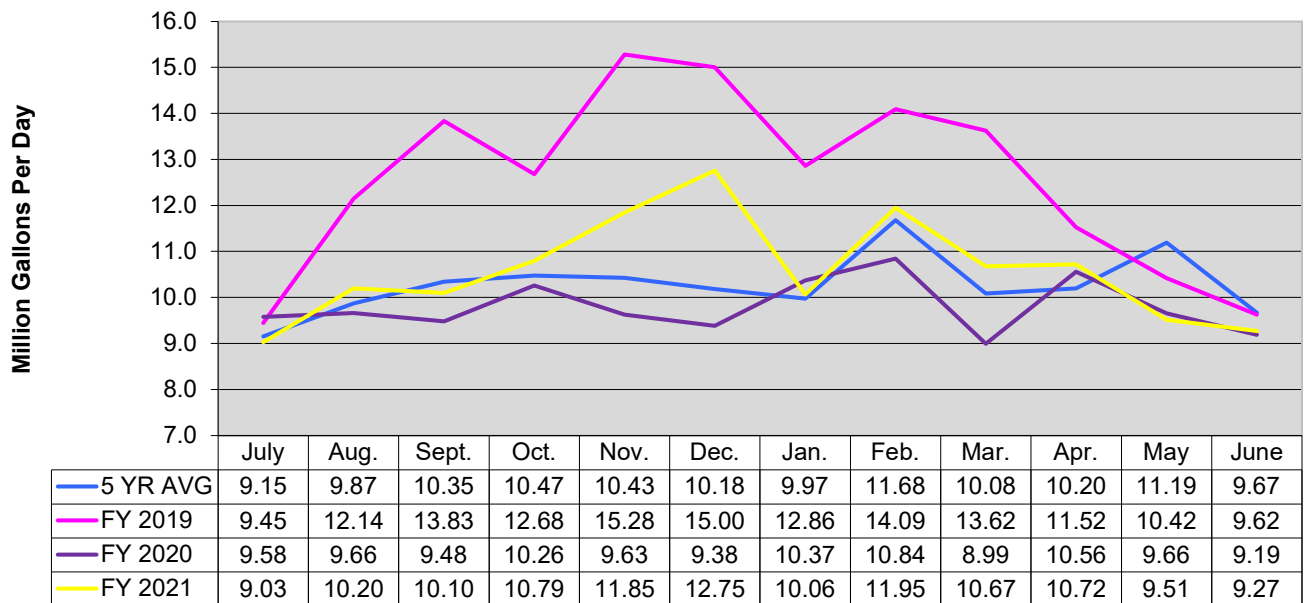
|         |                     |                     |                     |                   |
|---------|---------------------|---------------------|---------------------|-------------------|
| 47.00%  | \$ 812,822          | \$ 812,822          | \$ 753,121          | \$ 59,701         |
| 4.00%   | 69,176              | 69,176              | 64,095              | 5,081             |
| 2.00%   | 34,588              | 34,588              | 32,048              | 2,540             |
| 44.00%  | 760,939             | 760,939             | 705,049             | 55,890            |
| 1.50%   | 25,941              | 25,941              | 24,036              | 1,905             |
| 1.50%   | 25,941              | 25,941              | 24,036              | 1,905             |
| 100.00% | <b>\$ 1,729,408</b> | <b>\$ 1,729,408</b> | <b>\$ 1,602,384</b> | <b>\$ 127,023</b> |

**Rivanna Water and Sewer Authority  
Flow Graphs**

**Urban Water Flows**



**Urban Wastewater Flows**



## 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 JULY 2021**

**DATE: AUGUST 24, 2021**

### WATER OPERATIONS:

The average and maximum daily water produced in July 2021 was as follows:

| <i><b>Water Treatment Plant</b></i> | <i><b>Average Daily<br/>Production (MGD)</b></i> | <i><b>Maximum Daily<br/>Production in the<br/>Month (MGD)</b></i> |
|-------------------------------------|--|---|
| South Rivanna                       | 8.76   | 9.47 (7/6/2021)   |
| Observatory                         | 1.81   | 2.57 (7/13/2021)  |
| North Rivanna                       | <u>0.48</u>                                      | <u>0.63 (7/20/2021)</u>   |
| <i><b>Urban Total</b></i>           | 11.05  | 12.28 (7/7/2021)  |
| Crozet                              | 0.82   | 1.092 (7/14/2021)   |
| Scottsville                         | 0.05   | 0.07 (7/15/2021)  |
| Red Hill                            | <u>0.0019</u>                                    | 0.003 (7/27/2021)   |
| <i><b>RWSA Total</b></i>            | 11.92  | -   |

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

### Status of Reservoirs (as of August 18, 2021):

- Urban Reservoirs: 90.30 % of Total Useable Capacity
- Ragged Mountain Reservoir is not full (90.69%)
- Sugar Hollow Reservoir is not full (63.39%)\*
- South Rivanna Reservoir is full (100%)
- Beaver Creek Reservoir is not full (87.92%)
- Totier Creek Reservoir is full (100%)

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

project is nearing completion and stream inflows can start to refill the Sugar Hollow Reservoir.

### **WASTEWATER OPERATIONS:**

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during July 2021. Performance of the WRRFs in June was as follows compared to the respective VDEQ permit limits:

| <b>WRRF</b>           | <b>Average Daily Effluent Flow (MGD)</b> | <b>Average CBOD<sub>5</sub> (ppm)</b> |              | <b>Average Total Suspended Solids (ppm)</b> |              | <b>Average Ammonia (ppm)</b> |              |
|-----------------------|--|---------------------------------------|--------------|---|--------------|------------------------------|--------------|
|                       |  | <b>RESULT</b>                         | <b>LIMIT</b> | <b>RESULT</b>                               | <b>LIMIT</b> | <b>RESULT</b>                | <b>LIMIT</b> |
| <b>Moore's Creek</b>  | 8.84                                     | 2.0                                   | 10           | <QL   | 22           | <QL                          | 2.2          |
| <b>Glenmore</b>       | 0.091                                    | 3.8                                   | 15           | 4.1   | 30           | NR                           | NL           |
| <b>Scottsville</b>    | 0.043                                    | 3.8                                   | 25           | 1.8   | 30           | NR                           | NL           |
| <b>Stone Robinson</b> | 0.0006                                   | 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 Moore's Creek AWRRF were as follows for July 2021.

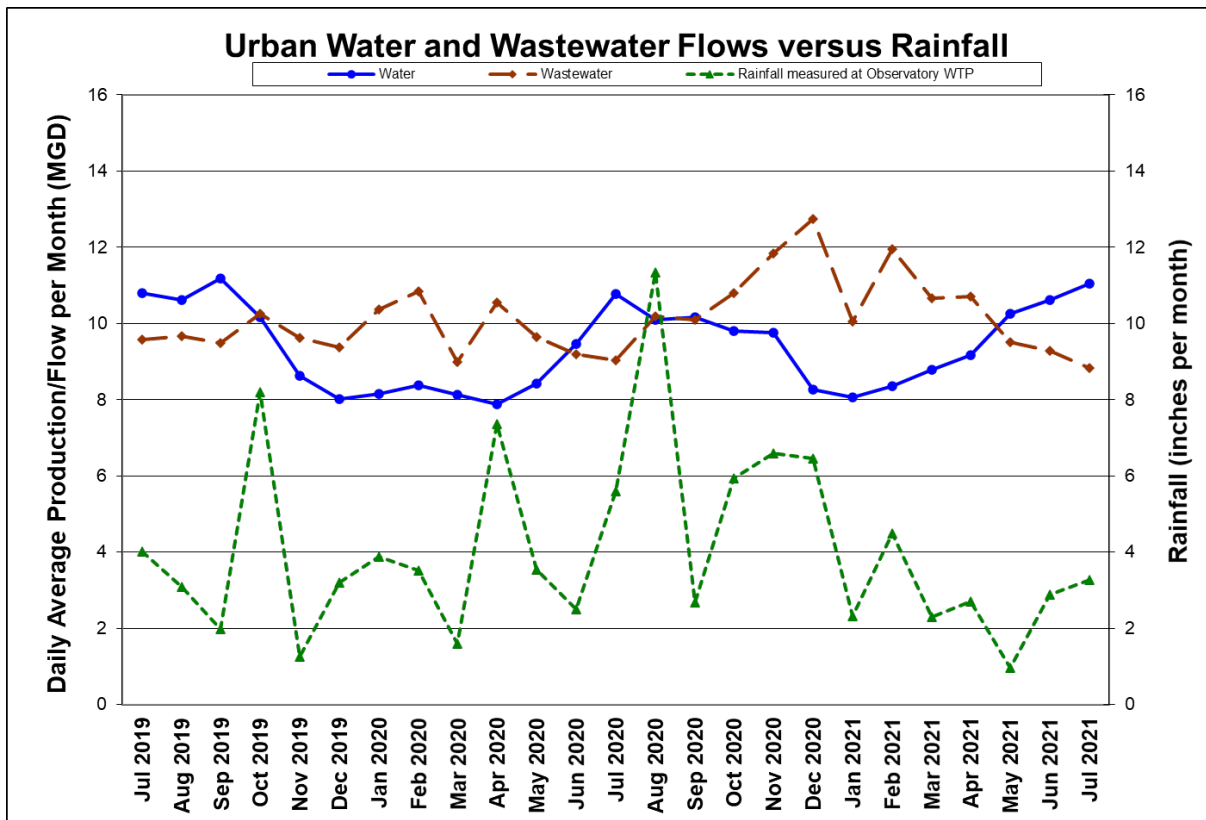
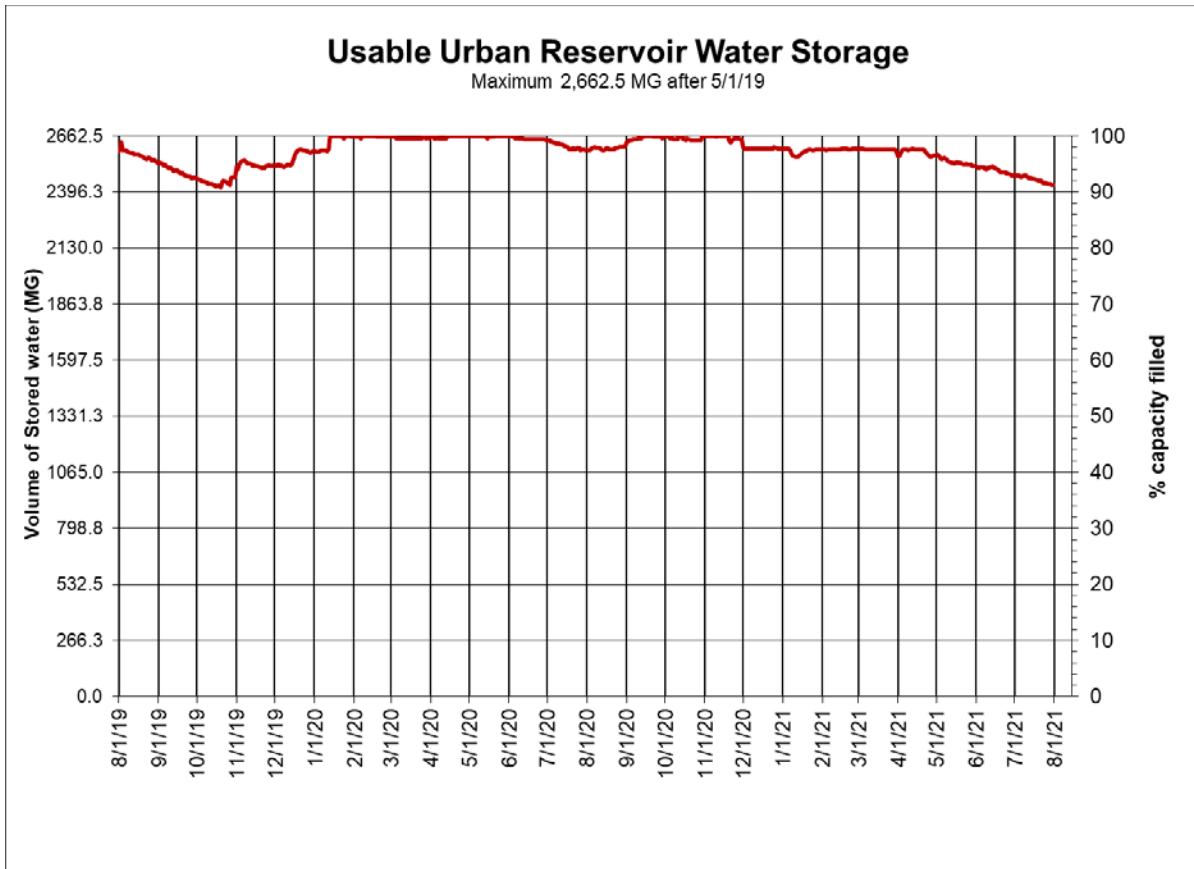
| <b>State Annual Allocation (lb./yr.) Permit</b> |         | <b>Average Monthly Allocation (lb./mo.) *</b> | <b>Moore's Creek Discharge July (lb./mo.)</b> | <b>Performance as % of monthly average Allocation*</b> | <b>Year to Date Performance as % of annual allocation</b> |
|---|---------|---|---|--|---|
| <b>Nitrogen</b>                                 | 282,994 | 23,583  | 4,455   | 19%  | 17%   |
| <b>Phosphorous</b>                              | 18,525  | 1,544   | 469   | 30%  | 20%   |

\*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







## 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: AUGUST 24, 2021**

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

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

### Under Construction

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

### Design and Bidding

8. Ragged Mtn Reservoir to Observatory WTP Raw Water Line and Pump Station
9. South Rivanna to Ragged Mtn. Raw Water Line – Birdwood to Old Garth
10. Beaver Creek Dam, Pump Station and Piping Improvements
11. Airport Road Water Pump Station and Piping
12. South Fork Rivanna River Crossing
13. MC 5kV Electrical System Upgrades

### Planning and Studies

14. South Rivanna Reservoir to Ragged Mtn Reservoir Water Line Right-of-Way
15. Urban Finished Water Infrastructure Master Plan
16. Upper Schenks Branch Interceptor, Phase II
17. Asset Management Plan
18. MC Facilities Master Plan

- 19. SRR to RMR Pipeline – Pretreatment Pilot Study
- 20. Central Water Line

#### Other Significant Projects

- 21. Urgent and Emergency Repairs
- 22. Interceptor Sewer & Manhole Repair
- 23. Security Enhancements

### **Under Construction**

#### **1. South Rivanna and Observatory Water Treatment Plant Renovations**

|  |   |
|--|---|
| Design Engineer:   | Short Elliot Hendrickson, Inc. (SEH)          |
| Construction Contractor:   | English Construction Company (Lynchburg, VA)  |
| Construction Start:  | May 2020                                      |
| Percent Complete:  | 40%   |
| Base Construction Contract +<br>Change Orders to Date = Current Value: | \$36,748,500 + \$474,849.89 = \$37,223,349.89 |
| Completion:  | March 2023                                    |
| Budget:  | \$43,000,000                                  |

Current Status: Work continues at the SRWTP with construction of the filter building expansion, the Alum and Fluoride Chemical Storage Building, Administration Building, sedimentation basin improvements and the replacement of high service pumps and VFDs. Work at the OBWTP includes excavation work associated with the new Chemical Storage Building and coordination with Dominion Power and UVA on a new electrical service.

#### **2. Crozet Flow Equalization Tank**

|   |                                       |
|---|---------------------------------------|
| Design Engineer:  | Schnabel Engineering                  |
| Construction Contractor:  | Anderson Construction (Lynchburg, VA) |
| Construction Start:   | September 2020                        |
| Percent Complete:   | 55%                                   |
| Based Construction Contract +<br>Change Orders to Date = Current Value: | \$4,406,300                           |
| Completion:   | November 2022                         |
| Budget:   | \$5,400,000                           |

Current Status: Tank concrete wall panels have been assembled and placed on the base slab and lining the tank is underway. Installation of the concrete dome roof, prestressed wiring and gunite spray application is to follow, with a water test of the tank anticipated for late October. Electrical work and installation of new pumps in the pump station have begun.

#### **3. MC Aluminum Slide Gate Replacements**

|                  |                  |
|------------------|------------------|
| Design Engineer: | Hazen and Sawyer |
|------------------|------------------|

|  |                                  |
|--|----------------------------------|
| Construction Contractor:               | Waco Incorporated (Sandston, VA) |
| Construction Start:                    | September 2020                   |
| Percent Complete:                      | 75%                              |
| Base Construction Contract +           |                                  |
| Change Orders to Date = Current Value: | \$373,600 - \$30,400 = \$343,200 |
| Completion:                            | October 2021                     |
| Budget:                                | \$675,000                        |

Current Status: The contractor is awaiting delivery of materials and design of a bulkhead to repair four corroded mud valves at the headworks. Work is anticipated to resume in late August.

#### 4. MC Exterior Lighting Improvements

|                                       |   |
|---------------------------------------|---|
| Design Engineer:                      | Hazen and Sawyer                              |
| Construction Contractor:              | Pyramid Electrical Contractors (Richmond, VA) |
| Construction Start:                   | April 2021                                    |
| Percent Complete:                     | 35%   |
| Base Construction Contract +          |   |
| Change Order to Date = Current Value: | \$349,000                                     |
| Completion:                           | February 2022                                 |
| Budget:                               | \$600,000                                     |

Current Status: Installation of erosion and sediment control measures, conduit, and excavations required for light pole bases is underway.

#### 5. MC Generator Fuel Storage Expansion

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| Design Engineer:                      | Short Elliot Hendrickson, Inc. (SEH). |
| Construction Contractor:              | Waco Incorporated (Sandston, VA) .    |
| Construction Start:                   | July 2021                             |
| Percent Complete:                     | 15%                                   |
| Base Construction Contract +          |                                       |
| Change Order to Date = Current Value: | \$168,860                             |
| Completion:                           | January 2022                          |
| Budget:                               | \$220,000                             |

Current Status: The 8,000 gallon, above ground fuel storage tank has been ordered and delivery is expected in November 2021. Contractor will complete the concrete pad for the tank during the tank lead time.

#### 6. MC Clarifier and Lime Silo Demolition

|                              |   |
|------------------------------|---|
| Design Engineer:             | Hazen and Sawyer                        |
| Construction Contractor:     | Pleasant View Developers (Staunton, VA) |
| Construction Start:          | September 2021                          |
| Percent Complete:            | 0%                                      |
| Base Construction Contract + |   |

|                                       |             |
|---------------------------------------|-------------|
| Change Order to Date = Current Value: | \$649,000   |
| Completion:                           | August 2022 |
| Budget:                               | \$790,000   |

Current Status: A Notice of Award was provided to the contractor on August 6<sup>th</sup> and contracts are being executed.

## 7. Glenmore WRRF Influent Pump and VFD Addition

|                                       |                      |
|---------------------------------------|----------------------|
| Design Engineer:                      | Wiley Wilson         |
| Construction Contractor:              | MEB (Chesapeake, VA) |
| Construction Start:                   | September 2021       |
| Percent Complete:                     | 0%                   |
| Base Construction Contract +          |                      |
| Change Order to Date = Current Value: | \$288,000            |
| Completion:                           | October 2022         |
| Budget:                               | \$370,000            |

Current Status: A Notice of Award was provided to the contractor on August 6<sup>th</sup> and contracts are being executed.

## Design and Bidding

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

|                     |  |
|---------------------|--|
| Design Engineer:    | Michael Baker International (Baker) (Right of Way) |
| Design Engineer:    | Kimley-Horn (Design)                               |
| Project Start:      | August 2018  |
| Project Status:     | Design & Easement Acquisition                      |
| Construction Start: | 2023   |
| Completion:         | 2027   |
| Budget:             | \$24,000,000                                       |

#### Current Status:

Preparation of engineering plans and specifications is underway. Easement negotiations with two private owners, UVA, the UVA Foundation, and the Virginia Department of Forestry continue.

### 9. South Rivanna Reservoir to Ragged Mtn. Reservoir Raw Water Line – Ivy Road to Old Garth

|                     |             |
|---------------------|-------------|
| Design Engineer:    | Kimley-Horn |
| Project Start:      | June 2021   |
| Project Status:     | 5% Design   |
| Construction Start: | 2022        |
| Completion:         | 2023        |
| Budget:             | \$1,980,000 |

#### Current Status:

One remaining easement is under negotiation with the UVA Foundation. Design is underway. Construction is scheduled to begin during the summer of 2022.

#### **10. 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:     | 50% NRCS Planning Process     |
| Construction Start: | 2024                          |
| Completion:         | 2026                          |
| Budget:             | \$27,000,000                  |

Current Status: The NRCS planning study is moving into a review of spillway upgrade alternatives. A second public meeting is anticipated in October of 2021. Staff will make a presentation to the Board this month regarding a site for a future new Raw Water Pump Station and Intake at Beaver Creek.

#### **11. Airport Road Water Pump Station and Piping**

|                     |                                |
|---------------------|--------------------------------|
| Design Engineer:    | Short Elliot Hendrickson (SEH) |
| Project Start:      | July 2019                      |
| Project Status:     | 90% Design                     |
| Construction Start: | January 2022                   |
| Completion:         | June 2023                      |
| Budget:             | \$7,600,000                    |

Current Status: The Engineer and RWSA are addressing County comments and preparing the bid set documents for advertisement in late August.

#### **12. South Fork Rivanna River Crossing**

|                     |                                     |
|---------------------|-------------------------------------|
| Design Engineer:    | Michael Baker International (Baker) |
| Project Start:      | November 2020                       |
| Project Status:     | 25% Design                          |
| Construction Start: | Spring 2022                         |
| Completion:         | Fall 2023                           |
| Budget:             | \$3,655,000                         |

Current Status: Baker and its subconsultants are completing survey work.

#### **13. MC 5 kV Electrical System Upgrades**

|                     |                  |
|---------------------|------------------|
| Design Engineer:    | Hazen and Sawyer |
| Project Start:      | August 2020      |
| Project Status:     | 70% Design       |
| Construction Start: | March 2022       |
| Completion:         | June 2024        |
| Budget:             | \$4,600,000      |

Current Status: An electrical contractor is completing condition assessments of existing spare conduits intended to be used.

## **Planning and Studies**

### **14. South Rivanna Reservoir to Ragged Mtn. Reservoir Water Line Right-of-Way**

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

Current Status: Progress continues in our efforts to acquire the 8 miles of easements and agreements (with VDOT) for this 36" water line. Discussions continue on remaining easements with 3 private owners and the UVA Foundation.

### **15. Urban Finished Water Infrastructure Master Plan**

|                  |                                     |
|------------------|-------------------------------------|
| Design Engineer: | Michael Baker International (Baker) |
| Project Start:   | November 2018                       |
| Project Status:  | 95% complete                        |
| Completion:      | September 2021                      |
| Budget:          | \$253,000                           |

Current Status: Baker is addressing comments on the draft report. Once the draft report is finalized, it will be circulated to stakeholders for review and comment.

### **16. 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: Design efforts to refine the pipe alignment based on recent discussions are underway.

### **17. Asset Management Plan**

|                  |  |
|------------------|--|
| Design Engineer: | GHD, Inc.  |
| Project Start:   | July 2018  |
| Project Status:  | Phase 2 – 95% Complete<br>CMMS Implementation – 35% Complete |
| Completion:      | 2021   |
| Budget:          | \$1,115,000  |

Current Status: A draft Tactical Asset Management Plan has been submitted for review. For implementation of the new CMMS, workshops continue in August to begin the software configuration process. GHD completed a draft of an asset register based on an export of assets from the current

work order system that is being replaced. Workshops have been held to review the draft register and RWSA Operations is updating the register as necessary for use in the software configuration process.

#### **18. MC Facilities Master Plan**

|                    |                  |
|--------------------|------------------|
| Design Consultant: | Hazen and Sawyer |
| Project Start:     | August 2019      |
| Project Status:    | 90% Complete     |
| Completion:        | September 2021   |
| Budget:            | \$275,000        |

Current Status: Hazen will address staff comments and then the Master Plan will be circulated to stakeholders for comment.

#### **19. SRR to RMR Pipeline – Pretreatment Pilot Study**

|                    |  |
|--------------------|--|
| Design Consultant: | SEH  |
| Project Start:     | August 2020                                    |
| Project Status:    | 99% Complete (Phase 1), 20% Complete (Phase 2) |
| Completion:        | July 2022                                      |
| Budget:            | \$22,969 (Phase 1), \$98,629 (Phase 2)         |

Current Status: Phase 1 analysis of existing water quality and seasonal weather data is substantially complete. SEH and staff are finalizing the memo for this portion of the study. Phase 2 of the study has begun, and includes detailed reservoir water quality modeling performed by DiNatale Water Consultants. The initial focus will be on desktop-based models, as RWSA Operations staff collects more data from the two reservoirs to better understand background nutrient levels and how these fluctuate day-to-day throughout the seasons.

#### **20. Central Water Line**

|                    |                                     |
|--------------------|-------------------------------------|
| Design Consultant: | Michael Baker International (Baker) |
| Project Start:     | February 2021                       |
| Project Status:    | 5% Design                           |
| Completion:        | July 2022                           |
| Budget:            | \$25 M                              |

Current Status: A kickoff meeting with stakeholders will be held in August.

### **Other Significant Projects**

#### **21. Urgent and Emergency Repairs**

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

| Project No. | Project Description                                | Approx. Cost |
|-------------|--|--------------|
| 2020-14     | MCWWPS Gate Valve 205 Replacement                  | TBD          |
| 2020-20     | Finished Water Sampling Stations                   | \$150,000    |
| 2020-23     | MCI Erosion @ Moores Creek Crossing (Near Avon Ct) | \$40,000     |
| 2021-02     | CZI-MH-96 Slope Failure                            | \$40,000     |
| 2021-04     | UWL-ARV-15 Settlement                              | \$25,000     |
| 2021-05     | Erosion Near SRW-059                               | \$40,000     |
| 2021-08     | MCAWRRF Digester Manway Sealing                    | \$70,000     |
| 2021-09     | SLW Erosion Near SLW-022                           | \$15,000     |
| 2021-13     | UWL-ARV-12 Abandonment and Replacement             | \$75,000     |

- Moores Creek WWPS Gate Valve 205 Replacement: In July 2020, RWSA Operations staff identified a valve had become stuck in nearly the fully closed position, causing a reduction in the discharge capacity of the pumping station (PS), especially during wet weather events where both of the 24” force mains leaving the PS are required. Waco, Inc. was selected to perform the work under an Emergency Declaration by the Executive Director, and staff worked with Waco to plan for the associated force main shutdown and valve replacement. Due to excessive lead times and impending weather, a spool piece of pipe was procured for temporary installation while the replacement valve is procured. The existing gate valve was ultimately replaced with the spool piece of pipe during a planned pumping station shutdown during the early morning hours of August 2, 2020, restoring full pumping capabilities to the PS. In the preliminary attempts to shut down one of the two discharge force mains and replace the No. 205 valve, it was discovered that additional valves inside the PS are not fully holding when placed in a closed position. Staff is currently evaluating the needs associated with bypass pumping around MCWWPS, which would allow for the permanent installation of the No. 205 Gate Valve Replacement, as well as replacement of the adjacent valves mentioned above and inspections of equipment inside of the PS that normally cannot be inspected due to the incoming flows.
- Finished Water Sampling Stations: As a part of its ongoing Water Quality Monitoring Program, members of the Water & Laboratory Departments collect water samples from throughout the distribution system to track parameters such as Chlorine Residuals and Disinfection Byproducts. Historically, this has meant that staff must enter local businesses to collect the samples, which takes several minutes and further exposes staff to members of the public. In order to minimize staff exposure to the public and overall impact to local businesses/offices, seven (7) prefabricated sampling stations will be installed along ACSA finished water lines throughout the distribution system, which will allow staff to quickly and safely retrieve water samples. Faulconer Construction is performing this work for RWSA, with ACSA providing the associated wet taps. These 7 sites were completed by the week of December 7<sup>th</sup>. In addition, RWSA staff is coordinating with ACSA, the City, and UVA on a new set of five (5) additional sites. Work on these additional sites has begun and is slated to be completed by the end of August.
- MCI Erosion @ Moores Creek Crossing (Near Avon Ct): While performing routine line maintenance activities, the RWSA Maintenance Department identified erosion along the Moores Creek Interceptor (MCI), at its creek crossing between MH-39 and MH-40. This is just downstream of the previous bank repair made in this area using imbricated stone in early 2019,



which remains standing in good condition. Staff visited the site on May 21 and confirmed that no infrastructure is exposed at this time. However, the placement of large riprap will be required to protect the sewer line from future high flow/erosion events. Staff has coordinated the work with the surrounding property owners and applicable regulatory agencies. RWSA's On-Call Maintenance Contractor, Faulconer Construction, has begun performing the repairs as of the week of 8/16.

- CZI-MH-96 Slope Failure: Following recent heavy rains, the RWSA Engineering Department performed a 1-year inspection of the previous bank repair at CZI-MH-96. While the vast majority of the repair was found to be in good condition, a short stretch of the imbricated stone wall was undercut from behind, which caused a short stretch of the wall to become dislodged and fall over. Staff will coordinate the repairs with its On-Call Contractor (Faulconer Construction), which will include repairs to the wall and additional erosion control measures behind the wall. RWSA coordinated the work with all appropriate property owners and regulatory agencies, and Faulconer completed the work during the week of 8/9.
- UWL-ARV-15 Settlement: While marking a Miss Utility Ticket, the RWSA Engineering Department identified an ARV that was settling with a small section of Kenwood Lane. No immediate danger to the ARV is present, however, staff has looked at the issue with its On-Call Maintenance Contractor, Faulconer Construction, and is coordinating the necessary repairs for completion following the various bank repair work and sampling station installations, likely in early September.
- SRW-059 Erosion: During routine line inspections, the RWSA Maintenance Department identified that blowoff valve SRW-059 was experiencing continued erosion from the adjacent Meadow Creek, near the intersection of Melbourne and Rio Road. In addition, stormwater flows from Rio Road were found to be causing significant erosion elsewhere along the easement in the same general vicinity as well. RWSA is coordinating with its On-Call Maintenance Contractor, Digs, Inc., for completion of the associated repairs, and is also coordinating with VDOT and other applicable regulatory agencies having jurisdiction over the work.
- MCAWRRF Digester Manway Sealing: Staff has identified the immediate need to repair gas leaks in Digesters #1, #2 and #3 at the MCAWRRF. The gas leaks are a safety concern and are causing significant concrete degradation which has led to Digester #2 being taken out of service thereby reducing solids processing redundancy. Following external and internal inspections by our engineering consultants, it has been decided that installation of rubber seals in the manways and sample ports will mitigate gas leaks into the annular roof space and decrease further concrete degradation. Waco, Inc. was selected to perform the work under an Emergency Declaration by the Executive Director and seals were installed in Digester #2. Unfortunately, the Digester continued to leak gas once back in service so further investigative work is warranted to determine the source of the leaks and evaluate the structural integrity of the annular roof space. Waco will continue the investigative work and perform roof corings prior to proceeding with seal installations in Digesters #1 and #3.
- Erosion Near SLW-022: In Spring 2021, staff identified an area of erosion over RWSA's 20" Southern Loop Waterline (SLW), located near Forest View Road in Albemarle County. During subsequent site visits, it was determined that an adjacent creek/stormwater channel has silted in,

causing water to become redirected over the RWSA Easement during heavy rain events. Staff is coordinating easement restoration efforts through its On-Call Maintenance Contract and is also coordinating with Albemarle County Water Resources staff on potential collaborative efforts to address the issues on the RWSA easement and improve stormwater flow in the area.

- UWL-ARV-12 Abandonment and Replacement: As mentioned under the Urban Waterline Valve and Blow-off repair project previously, UWL-ARV-12, which is located in the entrance to the Exxon Gas Station along Rio Road, is slated to be abandoned in place due to its condition and difficult to access location. The Air Release Valve will be relocated into an adjacent grassy area, improving performance with all-new materials, and facilitating better staff access. This work will be performed through the On-Call Maintenance Contract as availability allows, likely after the UWL-ARV-15 work described above.

## 22. Interceptor Sewer and Manhole Repair

|  |   |
|--|---|
| Design Engineer:                       | Frazier Engineering                                       |
| Construction Contractor:               | Tri-State Utilities, LLC                                  |
| Construction Start:                    | November 2017   |
| Percent Complete:                      | Procurement   |
| Base Construction Contract +           |   |
| Change Orders to Date = Current Value: | \$37,980  |
| Expected Completion:                   | June 2022   |
| Total Capital Project Budget:          | \$1,088,330 (Urban) + \$880,000 (Crozet) =<br>\$1,968,330 |

Current Status: With the completion of the Upper Morey Creek Interceptor (MRI) Point Repair/New MH Installation, all rehabilitation work on the Upper MRI has been completed. Staff continues coordination on the lower Powell Creek Interceptor and a portion of the Woodbrook Interceptor, as these are the next high-priority areas to be addressed based upon the latest CCTV footage. The scope of this rehabilitation work is likely to include several sections of Cured in Place Piping, as well as manhole rehabilitation. After discussions with RWSA's current Sanitary Sewer Rehabilitation Contractor, IPR Northeast, it was determined that they were going to be unable to complete the necessary sewer cleaning and televising prior to the Substantial Completion date for the Contract. Staff issued a quote package to procure a contractor for the necessary sewer cleaning and televising along the Powell Creek and Woodbrook Interceptors, and Tri-State Utilities, LLC is the low quoter. Staff is working with the Contractor to procure the necessary administrative documentation, prior to the Notice to Proceed being provided.

## 23. Security Enhancements

|  |   |
|--|---|
| Design Engineer:                       | N/A   |
| Construction Contractor:               | Security 101  |
| Construction Start:                    | March 2020  |
| Percent Complete:                      | 100% (WA 1); 40% (WA 2 & 3)   |
| Based Construction Contract +          |   |
| Change Orders to Date = Current Value: | \$718,428.00 (WA1) + \$91,130.32 (WA2) +<br>\$128,166.69 (WA3) = \$937,725.01 (total) |

Completion:  
Approved Capital Budget:

September 2021 (WA 2 & 3)  
\$2,730,000

**Current Status:** Access control system installation is underway for all exterior doors at MCAWRRF, as well as all WTP motorized gates. Device installation at all sites has been completed. The Card Access System is in use at the Administration, Engineering, and Maintenance Buildings at MCAWRRF, as well as at the WTP gates. Programming has been completed by Security 101, and the only task that remains is some door/lock improvements at MCAWRRF, which will help enhance the functionality of the access control system and allow it to be placed fully online. This work will be completed under Work Authorization No. 2, along with installation of card access on 3 additional doors, and improvements to the intercom system in the Administration Building. Work Authorization No. 3 is also underway, which will include card access installation at the Crozet and Scottsville WTPs. Equipment. Lock/Door hardware has arrived for the improvements at MCAWRRF, and Security 101's subcontractor is working through installation across the site. Improvements to the intercom system in the Administration Building have been completed, and conduit installation at Crozet and Scottsville WTP has been completed, with device installation underway.

## **History**

### **Under Construction**

#### **1. South Rivanna and Observatory Water Treatment Plant Renovations**

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

**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 contractors will be included in the design.

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

#### **2. Crozet Flow Equalization Tank**

A 2016 update to the 2006 model was completed which evaluated the I&I reduction goals previously established and future capital project needs. Based on the results of that study, it was determined that

the Crozet Interceptor system and the existing Crozet Pump Stations (1 through 4) have adequate capacity to handle the 2015 peak wet weather flow from the Crozet Service Area during a two-year storm. However, as projected growth in the service area occurs, peak wet weather flows in the area under the storm conditions established in the updated model will begin to exceed the firm capacities of the pump stations by 2025. Additional I&I reductions in order to reduce flows enough to not exceed the pump station firm capacities are not feasible and as a result, the construction of a flow equalization tank was identified as the best method to alleviate wet weather capacity issues.

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

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

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

### **3. MC Aluminum Slide Gate Replacements**

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

### **4. MC Exterior Lighting Improvements**

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

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

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

**5. MC Generator Fuel Expansion**

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

**6. MC Clarifier and Lime Silo Demolition**

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

**7. Glenmore WRRF Influent Pump and VFD Addition**

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

**Design and Bidding**

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

A Work Authorization was executed in December 2018 with Michael Baker International for the raw water line routing study, preliminary design, plat creation and the easement acquisition process for this portion of the project. Raw water is transferred from the Ragged Mountain Reservoir (RMR) to the Observatory Water Treatment Plant (WTP) by way of two 18-inch cast iron pipelines, which have been in service for more than 110 and 70 years, respectively. The increased frequency of emergency repairs and expanded maintenance requirements are one impetus for replacing these pipelines. The proposed water line will be able to reliably transfer water to the expanded Observatory plant. The new pipeline will be constructed of 36-inch ductile iron and will be approximately 2.6 miles feet in length. The segment of the project immediately east of the RMR will constitute a portion of the proposed South Rivanna Reservoir to RMR raw water main project as part of the approved 50-year Community Water Supply Plan.

The RMR to Observatory WTP raw water pump station is planned to replace the existing Stadium Road and Royal pump stations, which have exceeded their design lives or will require significant

upgrades with the Observatory WTP expansion. The pump station will pump up to 10 million gallons per day (MGD) of raw water to the Observatory WTP. The new pump station site selection and design are being conducted in coordination with the South Rivanna Reservoir to RMR pipeline in the interest of improved operational and cost efficiencies. An integrated pump station would also include the capacity to transfer up to 16 MGD of raw water from RMR back to the SR WTP.

Both Design Work Authorizations received Board of Directors approval on July 27, 2021.

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

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

**10. 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.

### **11. 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.

### **12. 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.

### **13. MC 5 kV Electrical System Upgrades**

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

A Design Kickoff Meeting was held virtually on October 20, 2020. A site visit was attended on November 5, 2020 by Hazen & Sawyer staff, as well as RWSA Maintenance and Engineering Department staff. 50% Design Documents were provided in Spring 2021, with staff feedback provided soon thereafter. A follow-up site visit by Hazen was performed in July 2021, in order to confirm the availability of spare conduits across the site and plan for the associated cable replacements.

## **Planning and Studies**

### **14. 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.

### **15. 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.

### **16. Upper Schenks Branch Interceptor, Phase II**

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

### **17. Asset Management Plan**

Asset management is the practice of managing our infrastructure to minimize the total cost of owning and operating these assets while providing desired service levels. In doing so, it is used to make sure planned maintenance activities take place and that capital assets are replaced, repaired, or upgraded at the right time, while ensuring that the money necessary to perform those activities is available. RWSA has some components of an asset management program in place (i.e. GIS, work order system), but has



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

#### **18. 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.

#### **19. SRR to RMR Pipeline – Pretreatment Pilot Study**

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

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

#### **20. Central Water Line**

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

Recent efforts and modeling for the Urban Finished Water Infrastructure Master Plan have determined that a central water line corridor through the City is the best option to hydraulically connect the Observatory Water Treatment Plant to the Pantops area.

## **Other Significant Projects**

### **21. 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.

### **22. Interceptor Sewer and Manhole Repair**

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

Lining work and manhole rehabilitation on the Upper Morey Creek Interceptor began in Fall 2019 and was completed in Fall 2020. A critical section of upper Morey Creek Interceptor under Rt. 250 was lined on August 28, 2020. 65' of new ductile iron sewer to replace a sagging section of vitrified clay piping was installed in May 2021.

### **23. Security Enhancements**

As required by the Federal Bioterrorism Act of 2002 and the American Water Infrastructure Act of 2018, water utilities must conduct Vulnerability Assessments and have Emergency Response Plans. RWSA recently completed an updated Risk Assessment of its water system in collaboration with the Albemarle County Service Authority (ACSA), City of Charlottesville (City), and University of

Virginia (UVA). A number of security improvements that could be applied to both the water and wastewater systems were identified. The purpose of this project will be to install security improvements at RWSA facilities including additional security gate and fencing components, vehicle bollards, facility signage, camera system enhancements, additional security lighting, intrusion detection systems, door and window hardening, installation of industrial strength locks, communication technology and cable hardening, and an enhanced access control program.

RWSA Engineering staff held a meeting with Operations staff to discuss overall project needs and priorities in October 2018. Meetings with ACSA and City staff were held in Fall/Winter 2018-2019 to discuss how access control and intrusion detection systems have been implemented into the day-to-day operations of the two utilities. A Request for Proposal (RFP) for an Implementer to facilitate selection of an access control system, confirmation of design requirements based upon RWSA's facilities and project goals, and installation of the selected system was issued on June 6, 2019. RWSA conducted a Pre-Proposal Meeting on June 14, 2019, and proposals were opened on June 27, 2019. Interviews were conducted on July 15-16, 2019, and a Contract Award Recommendation was approved by the Board on July 23, 2019. Access Control System Installation at MCAWRRF began in March 2020. Access Control System Installation was completed in the Administration and Engineering Buildings by the week of November 30, 2020, completing installation of the physical access control system across the MCAWRRF site. Training for staff was completed on November 10, 2020. RWSA authorized improvements to locks and doors across the MCAWRRF site on May 4, 2021, in order to improve the condition of the hardware and subsequently, operations of the access control system. In addition, installation of the card access system on all exterior doors at the Scottsville and Crozet Water Treatment Plants (SVWTP and CZWTP, respectively) was authorized shortly thereafter.

## 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 JULY 2021**

**DATE: AUGUST 24, 2021**

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

|                    | <i>Month</i>       | <i>Daily Average</i> |       |
|--------------------|--------------------|----------------------|-------|
| City Usage (gal)   | 162,399,239        | 5,238,685            | 47.4% |
| ACSA Usage (gal)   | 179,900,809        | 5,803,252            | 52.6% |
| <b>Total (gal)</b> | <b>342,300,048</b> | <b>11,041,937</b>    |       |

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

NOTE: Annual calibration testing of wholesale and finished water meters was completed in June, 2021. Meter Site 25, located on Colonnade Drive, was not able to be calibrated due to a malfunctioning valve. RWSA is assessing options for repairing the valve and will calibrate this meter in the next cycle.

Figure 1: City of Charlottesville Monthly Water Usage and Allocation

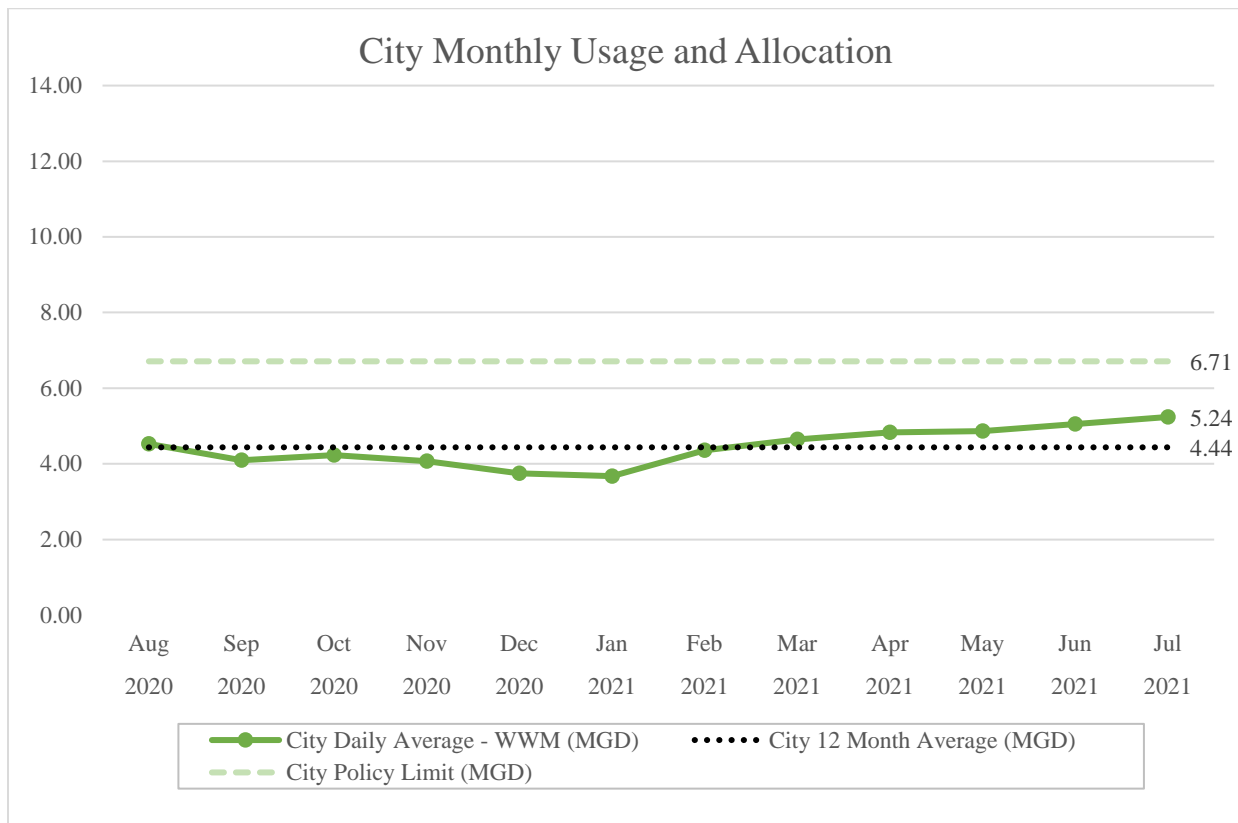
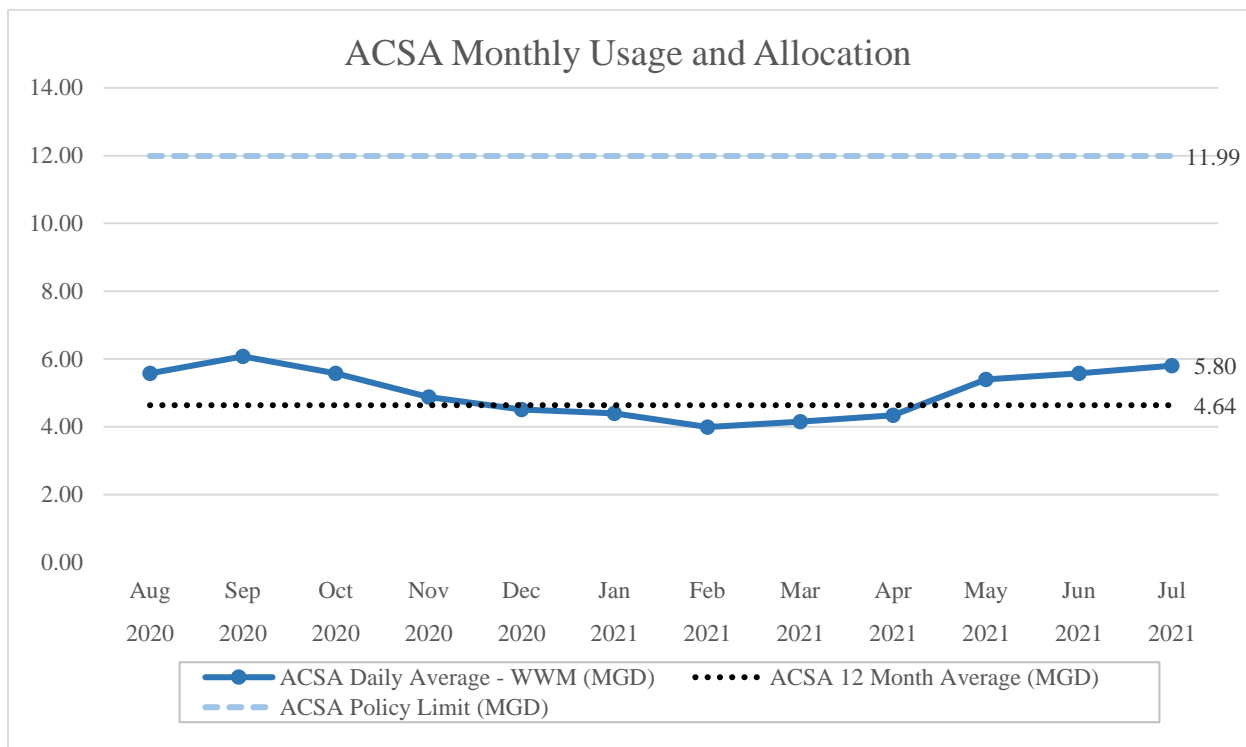




Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation






695 Moores Creek Lane | Charlottesville, Virginia 22902-9016

434.977.2970 

434.293.8858 

[www.rivanna.org](http://www.rivanna.org) 

## MEMORANDUM

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

**FROM: ANDREA BOWLES, WATER RESOURCES MANAGER**

**REVIEWED BY: JENNIFER WHITAKER, DIRECTOR OF ENGINEERING AND  
MAINTENANCE**

**BILL MAWYER, EXECUTIVE DIRECTOR**

**SUBJECT: DROUGHT MONITORING REPORT**

**DATE: AUGUST 24, 2021**

Staff continues to carefully monitor for indications of drought. Attached is a Drought Monitoring Report which looks at VDEQ drought status, local precipitation statistics, reservoir storage, and regional streamflows. Recent precipitation has been beneficial for many streams and reservoirs.

Despite the hot temperatures and generally dry weather in our area, the current VDEQ drought status is Normal.

### **Board Action Requested:**

Provided for informational purposes only.



## Memorandum

Date: 8/17/21

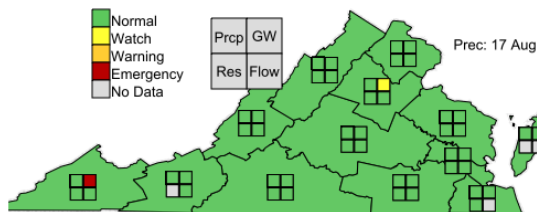
To: Bill Mawyer

From: Andrea Bowles

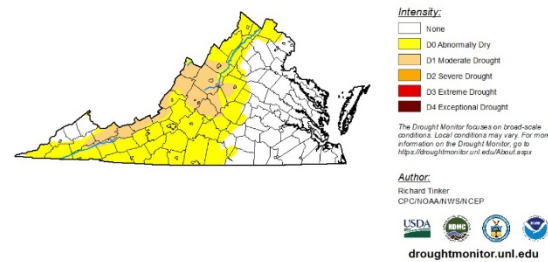
Cc: Dave Tungate; Daniel Campbell; Jennifer Whitaker; Wayne Barnes

Re: Drought Monitoring Report

## Current Status DEQ and USDA



VA DEQ Drought Status 8-17-2021



U.S. Drought Monitor 8-10-2021

The Virginia Drought Monitoring Task Force met on August 5, 2021 and August 12, 2021. The August 12, 2021 report has not been posted, to date. The August 5 report states that rainfall since the beginning of May has been below normal for most of the western half of the Commonwealth. No drought phases have been initiated from that meeting. However, since the beginning of the current water tracking year (October – September) area-averaged rainfall across the Commonwealth remains greater than 85% of normal. The U.S. Drought Monitor has identified an area south and west of Charlottesville, and including parts of Albemarle County, as being in “Moderate Drought”.

DEQ Current Drought status is: Normal

## Precipitation

| Charlottesville Precipitation (in.) |       |
|-------------------------------------|-------|
| August to-date                      | 1.71  |
| August normal -to-date              | 2.06  |
| Year-to-date                        | 20.35 |
| Normal for Year-to-date             | 26.00 |
| Departure from normal               | -5.65 |

Source: National Weather Service, National Climatic Data Center (NCDC). Daily Climatological Report for Charlottesville, VA, August 17, 2021

Rain is expected this week.

### Current Reservoir Status

| Reservoir       | Level (ft) | % Full | Useable Storage Volume (MG) | Rainfall (in) | Flow Release to River# |
|-----------------|------------|--------|-----------------------------|---------------|------------------------|
| Sugar Hollow *  | -9.66      | 63.05  | 213.98                      | 0.46          | 0.02 MGD               |
| Ragged Mountain | -2.31'     | 90.69  | 1,319.27                    | 0.36          | 0.05 MGD               |
| South Rivanna   | Full       | 100.00 | 884.9                       | 0.32          | Spillway Overflow      |
| Totier Creek    | Full       | 100.00 | 155                         | 0.04          | Spillway overflow      |
| Beaver Creek    | -2.07      | 87.32  | 432.42                      | 2.26          | N/A                    |

\*Sugar Hollow Reservoir drawn down for construction. Not currently transferring to RMR

Urban Reservoirs useable capacity of 90.26 percent.

### USGS Gaging Stations Near Urban Area

**Rolling 7-day avg: Aug 10 – Aug 17 2021**

**Median daily flow: Aug 17, 2021; for the periodic of record (approx. 30 - 80 years)**

| Gage # | Streamflow: rolling 7- day avg |       | Streamflow: median daily flow |       |
|--------|--------------------------------|-------|-------------------------------|-------|
|        | cfs                            | mgd   | cfs                           | mgd   |
| 1      | 33.9                           | 21.93 | 26                            | 16.80 |
| 2      | 6.0                            | 3.89  | 10                            | 6.46  |
| 3      | 12.5                           | 8.07  | 25                            | 16.16 |
| 4      | 56.3                           | 36.38 | 51                            | 32.96 |

- 02031000 Mechums River near White Hall, VA  
<https://waterdata.usgs.gov/usa/nwis/uv?02031000>
- 02032250 Moormans River near Free Union, VA  
[https://nwis.waterdata.usgs.gov/va/nwis/uv?site\\_no=02032250](https://nwis.waterdata.usgs.gov/va/nwis/uv?site_no=02032250)
- 02032640 N F Rivanna River near Earlysville, VA  
[https://waterdata.usgs.gov/va/nwis/uv/?site\\_no=02032640&PARAMeter\\_cd=00065,00060,00062](https://waterdata.usgs.gov/va/nwis/uv/?site_no=02032640&PARAMeter_cd=00065,00060,00062)
- 02032515 S F Rivanna River near Charlottesville, VA  
[https://waterdata.usgs.gov/va/nwis/uv/?site\\_no=02032515&PARAMeter\\_cd=00065,00060,62620,62614](https://waterdata.usgs.gov/va/nwis/uv/?site_no=02032515&PARAMeter_cd=00065,00060,62620,62614)

### Oasis Modeling

- RWSA has run the drought model and conditions do not indicate the need to trigger a Drought Watch at this time. Staff will continue to carefully monitor for drought.





## MEMORANDUM

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

**FROM: BILL MAWYER, EXECUTIVE DIRECTOR**

**SUBJECT: AUTHORIZATION OF WATER CONSERVATION MEASURES**

**DATE: AUGUST 24, 2021**

This memo is to request authorization to declare an official “Drought Watch”, requesting Voluntary Water Conservation Measures, and a “Drought Warning”, requiring Mandatory Water Conservation Measures for the City, County and ACSA, if warranted by reservoir and stream conditions for the local water supply, and with concurrence from the Chair, before the Board meets again on September 28, 2021. Based on the current reservoir and stream conditions, we do not plan to issue a declaration for Water Conservation Measures, but want to be authorized to move forward with that process if reservoir and stream conditions decline significantly. These water conservation measures were developed as part of the “Regional Drought Response and Contingency Plan” prepared in 2004 and updated in 2015.

### Background:

The South Rivanna Reservoir (SRR) is the primary supplier of untreated drinking water for the Urban Water System, which includes the City of Charlottesville and the adjacent developed areas of Albemarle County. We have been closely monitoring the water level in the SRR and streamflows in the Mechums and Moormans Rivers which supply the SRR, due to the lack of local precipitation (6 inches below our normal of 25 inches at this month of the year), and hot temperatures. Conditions in the SRR and the incoming streams are approaching the low levels last seen in the fall of 2017. While recent evening rain showers have been beneficial, and Tropical Depression “Fred” may bring sustained precipitation to our area, if the current dry weather pattern continues, we want to be prepared to request the City, County and Albemarle County Service Authority (ACSA) to initiate Voluntary Water Conservation Measures, as well as Mandatory Water Conservation Measures.

In addition to these conservation measures, we have updated the Rivanna Regional Drought Response Committee which includes City, County, ACSA and RWSA representatives. We will also initiate operational optimizations to withdraw more water from the Ragged Mountain Reservoir, processed at the Observatory Water Treatment Plant, and thereby withdraw less water from the SRR, processed at the South Rivanna Water Treatment Plant. The current Urban Water System demand is about 11 million gallons per day.

Further, we are also closely monitoring the Beaver Creek and Totier Creek Reservoir levels and streamflows, which serve the Crozet area and the Town of Scottsville, respectively. Any declaration of Voluntary or Mandatory Water Conservation Measures will apply to all areas of the City and Albemarle County served by public water systems.

**Board Action Requested:**

Authorize the Executive Director to declare Voluntary and Mandatory Water Conservation Measures, with concurrence from the Chair, if conditions warrant before the next meeting of the RWSA Board of Directors on September 28, 2021.



## MEMORANDUM

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

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

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

**SUBJECT:** SERIES 2021 BOND ISSUE

**DATE:** AUGUST 24, 2021

The Authority has reached a point on several projects that support the need for debt financing through a Series 2021 Bond to fund projects that are both currently underway or about to begin. Most of these projects are in design or close to being bid. Several are in the construction phase as work-in-progress. Below are the costs and funding needs for such projects:

| <u>Projects</u>   | <b>Budget<br/>2022</b> | <b>Total Expenses<br/>Posted 6/2021</b> | <b>2018 Bond<br/>Proceeds<br/>Remaining</b> | <b>2021<br/>Bond -<br/>Preliminary</b> |
|---|------------------------|---|---|--|
| <b><i>Projects with Construction Funds Available:</i></b> |                        |   |   |  |
| Observatory WTP Improvements                              | 23,000,000             | \$ 2,980,356                            | \$ 2,077,847                                | \$ 17,941,800                          |
| South Rivanna WTP Improvements                            | 20,000,000             | 9,298,931                               | 3,790,265                                   | 6,910,800                              |
|   |                        |   |   |  |
| <b><i>New Project Funding Needs:</i></b>                  |                        |   |   |  |
| Sugar Hollow Rubber Gate Replacement                      | 1,770,000              | 1,116,128                               | -   | 1,770,000                              |
| Airport Rd. PS & Trans. Main                              | 7,600,000              | 235,010                                 | -   | 7,600,000                              |
| Scottsville WTP Lagoon Liner Replacement                  | 315,000                | -                                       | -   | 315,000                                |
| Red Hill WTP Upgrade                                      | 150,000                | -                                       | -   | 150,000                                |
| Crozet PS Rehab   | 590,000                | 42,267                                  | -   | 590,000                                |
| Moores Creek Slide Gate Replacement                       | 1,350,000              | 284,337                                 | -   | 1,350,000                              |
| Moores Creek Lighting Upgrade                             | 570,000                | 77,141                                  | -   | 570,000                                |
| Glenmore Pump and VFD                                     | 370,000                | 27,469                                  | -   | 370,000                                |
|   |                        |   |   |  |
| <b>TOTALS</b>   | <b>\$ 55,715,000</b>   | <b>\$ 14,061,639</b>                    | <b>\$ 5,868,112.00</b>                      | <b>\$ 37,567,600</b>                   |

Some of these projects will be fully funded with this bond issue and others will be partially funded. A description of the projects is attached to this Memorandum.

The timing of the projects and how it affects the bond is a factor. As a rule, we try to have all bond fund proceeds used or spent within two years. This is primarily due to spend down and yield restriction requirements for the arbitrage rebate rules per IRS regulations. As the chart

shows, the funding source for these projects is a mixture of previous bond issuances (the Series 2018 Bond) and the new Series 2021 Bond, which is being recommended now for issuance.

In July, the Authority applied for participation in the Virginia Resources Authority (VRA) 2021 Fall Pooled Loan/Bond Program to fund these projects. This program allows the Authority to participate with many other governmental applicants in a single bond that is issued by the VRA on a more statewide basis. Effectively, the VRA buys Rivanna's bond within that program. The program allows for normal VRA issuance costs (underwriting, VRA legal and financial advisor fees) to be spread among all issuers and is administratively more efficient from a staffing standpoint. VRA has a strong credit rating and its bonds are backed by the moral obligation of the Commonwealth, which means the rates are favorable even with a 12.5 basis point of par added for VRA's annual administrative fees. The Authority has used this program in the past with the Series 2018 Bond, the 2012A Bond and the 2015B Bond.

The needed net bond proceeds shown previously is \$37,567,600. To determine the size of the bond, several costs associated with the bond (issuance costs) are added to the Series 2021 Bond for funding with the resulting proceeds. A summary of the total bond size is as follows:

| Total Proceeds/Par Needed      |    |            |
|--------------------------------|----|------------|
| Construction funds needed      | \$ | 37,567,600 |
| Capitalized Interest           |    | -          |
| Local Costs of Issuance (COI)  |    | 250,000    |
| VRA COI and underwriting fees  |    | 350,000    |
| Subtotal Proceeds needed       | \$ | 38,167,600 |
| Allowance for Discount Pricing |    | 2,832,400  |
| Total Par (not to exceed)      | \$ | 41,000,000 |

I want to stress the preliminary estimate reflected in this summary. The bond issue and closing will not take place for over three months. Nearly all of these numbers will change some during that time as interest rates and bond pricing change on a daily basis. Staff will need the flexibility to work within financing parameters, including a not to exceed bond size, which are provided in the attached bond resolution.

Included with this memo are the following:

- Resolution authorizing the Series 2021 Bond issue;
- Thirty-Second Supplemental Trust Agreement; and
- Financing Agreement between VRA and Rivanna Water & Sewer Authority.

The two financing documents are being presented as to form and will be modified in the amounts and other details as they are known at the time of closing after the bond pricing information is finalized and available. The Resolution allows for the Executive Director to accept the details of the bond sale within the parameters of such Bond Resolution. The not-to-exceed amount of \$41 million was recommended by the financial advisors for purposes of flexibility in structuring the eventual bond sale and includes a not-to-exceed \$250,000 for local costs of issuance. In

addition, the resolution includes a not-to-exceed True Interest Cost (“TIC”) interest rate of 4.0% (VRA Staff recommendation) and a not-to-exceed final maturity of 30 years.

On the day of pricing, the Authority will only issue the amount of debt necessary to fund the projects as disclosed in this Memorandum plus the related financing costs. Flexibility in the not-to-exceed parameters is necessary so that the Authority can secure the required funding under the most favorable terms possible within the interest rate environment at the time of sale. This flexibility is needed to effectively manage the bond pricing process with regards to original issue premium and discount bond pricing, callable and non-callable bond options, and other investor preferences/requirements that will impact the Authority's bond pricing structure.

We expect to close on the Series 2021 Bond around November 17<sup>th</sup>, and during the week prior, the Chair, Secretary Treasurer, Executive Director, General Counsel and the Finance Director get together to execute the documents required in connection to the issuance of the Series 2021 Bond.

### **Board Action Requested:**

Adopt the resolution authorizing the issuance of the Series 2021 Bond in an amount not to exceed \$41,000,000 and an interest rate not to exceed 4% and authorize the Director of Finance & Administration and the Executive Director to take other necessary steps as described in the Resolution to fulfill the RWSA requirements of the attached Financing Agreement to close the transaction on or about November 17, 2021. Further, it is requested that the Board authorize the Finance Director to accept minor and non-substantial changes to the attached drafts of the bond documents, should they be necessary prior to closing, in consultation with the Authority’s General Counsel.

Attachments:

#### ***Project Descriptions***

##### ***Resolution authorizing the issuance of the bonds***

***Thirty-Second Supplemental Agreement of Trust between Rivanna Water and Sewer Authority and the Bank of New York Mellon Trust Company, N.A.***

***Financing Agreement between the Virginia Resources Authority and the Rivanna Water and Sewer Authority***

## **Project Descriptions:**

**Observatory Water Treatment Plant Improvements 9-800-1106:** The Observatory Water Treatment Plant was originally constructed in the mid-1950s, and since very little has been replaced or upgraded at the facility, much of the original equipment remains. As a result, that equipment is inefficient, prone to unexpected failure, and does not have readily accessible replacement parts. Based on a Needs Assessment Study, the plant will undergo a wholesale upgrade including improvements to the flocculators, sedimentation basins, filters, and chemical feed facilities to enhance future reliability. In addition, the existing reinforced concrete flume, which conveys treated water from the sedimentation basins to the filters, is in need of replacement, filter control valves and piping will be replaced, and electrical and SCADA control systems upgraded. A portion of this project was completed during the Granular Activated Carbon (GAC) project, where the flocculator systems were upgraded with new mechanical and electrical equipment, including variable speed drives for optimal efficiency.

In addition to providing needed equipment upgrades, these improvements will increase the plant's capacity from 7.7 million gallons per day to 10 million gallons per day based on a feasibility analysis performed during the Preliminary Engineering phase of the project. It was determined that the capacity upgrades could be performed economically and would provide needed reliability and redundancy in the Urban System. As part of this capacity increase, it was also determined that the plant's GAC treatment capacity should increase as well. As a result, this project also includes efforts required for the addition of four GAC contactors.

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

**South Rivanna Water Treatment Plant Improvements 9-800-1307:** The South Rivanna Water Treatment Plant recently completed limited upgrades as part of the Urban Granular Activated Carbon project. Over the course of that project, several other significant needs were identified and assembled into a single project within this Capital Plan. The project components include, but are not limited to, the following: a new alum and fluoride storage facility; installation of two additional filters to meet firm capacity needs and new filter control panels; building around the lime storage facilities; the addition of a second variable frequency drive at the Raw Water Pump Station as well as other general pump station improvements; the relocation for the electrical gear from a sub terrain location at the Sludge Pumping Station to a new aboveground enclosure; a new administration building on site for additional office, meeting, and storage space; high service pump improvements and the addition of variable frequency drives to three of the pumps; sedimentation basin improvements; replacement of filter inlet valves and actuators; remodeling of the existing filter building for better lab and control space and painting throughout; new clarifier drives; and incoming electrical system improvements for the facility. Currently this facility operates at 80-90% of capacity and the identified upgrades will improve reliability and resiliency, particularly at higher flow rates.

**Sugar Hollow Dam Rubber Crest Gate Replacement 9-800-1110:** In 1998 the Sugar Hollow Dam underwent a significant upgrade to improve structural stability and spillway capacity following the 1995 flood and landslide. The original metal spillway gates were replaced with a manufactured five-foot-high inflatable rubber dam that is bolted to the existing concrete structure. This rubber dam allows for the normal storage of water in the reservoir with the ability to be lowered during extreme storm events for a controlled release of water from the reservoir. The rubber dam has an approximate service life of twenty years and is therefore now due for

replacement. In addition to replacement of the rubber crest gate, the project includes funding for minor repairs to the concrete surfaces of the dam and replacement of the intake trash racks.

**Airport Rd. Pump Station and North Rivanna Transmission Main 9-800-1222:** The Rt. 29 Pipeline and Pump Station master plan was developed in 2007 and originally envisioned a multi-faceted project that reliably connected the North and South Rivanna pressure bands, reduced excessive operating pressures, and developed a new Airport pressure zone to serve the highest elevations near the Airport and Hollymead Town Center. The master plan was updated in 2018 to reflect the changes in the system and demands since 2007. This project, along with project above will provide a reliable and redundant finished water supply to the North Rivanna area. The proposed pump station will be able to serve system demands at both the current high pressure and a future low-pressure condition. These facilities will also lead to a future phase implementation which will include a storage tank and the creation of the Airport pressure zone.

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

**Scottsville Water Treatment Plant Lagoon Liner Replacement 9-800-2505:** The Scottsville Water Treatment Plant has two waste lagoons that receive filter backwash water, filter-to-waste water and flow from the sedimentation basin sludge collectors. These basins also receive drainage flows from the flocculator and sedimentation basins. The lagoons were initially lined in 2007, but that liner has now reached the end of its useful life and is showing sections of wear and degradation. In order to maintain the integrity of the lagoons, new HDPE liners need to be installed.

**Red Hill Water Treatment Plant – Upgrades 9-800-2509:** The Red Hill WTP was constructed in a joint effort of ACSA and RWSA in 2009 and consists of a well, pneumatic tank and pump house that provides treated water to the Red Hill Elementary School and adjoining neighborhood. The project was constructed in response to groundwater contamination as a result of a nearby leak of underground fuel storage tanks. Originally the facility was operated primarily as a well head and pump house. More recently the facility has operated more as a water treatment facility with a well as source water. As such, there have been several chemical process additions, automation, online monitoring and an increase in operator wet chemistry testing. The current building is well beyond its physical capacity and this project will serve to expand the building and improve the configuration of the process and laboratory needs of the WTP.

**Crozet Pump Station 1, 2, 3 Rehabilitation 9-800-3025:** The Crozet Interceptor Pump Stations were constructed in the 1980’s and many of the components are original. This project includes the replacement of pumps and valves at Pump Station 2 in order to improve pumping capabilities at this location and provide spare parts for the pumps at Pump Station 1. It also includes roof replacements at all four pump stations, siding replacement for the wet well enclosure at Pump Station 3, and installation of new wells at Pump Stations 3 and 4.

**Moore’s Creek AWWRF Aluminum Slide Gate Replacement 9-800-3221:** Several large aluminum slide gates are located at the influent side of the Moore’s Creek Pump Station. These gates allow staff to stop or divert flow to perform maintenance activities. After repeated attempts to access and repair the gates, it is now necessary to replace and modify the gate arrangement. The replacement includes new gates for greater flexibility and resiliency as well as significant

flow bypass pumping. Likewise, there are several gates at the Ultraviolet disinfection facility that leak water, causing a reduced capacity of the facility. Replacement of these gates will restore the process to full capacity. Two additional gates in the holding pond pump station from the original 1977 Moores Creek facility construction are broken and non-operational and will be replaced as part of this work. In addition, motor operated valves at the headworks will improve wet weather operations related to the new grit facility.

**Moores Creek AWRRF Lighting Upgrade 9-800-3228:** The lighting at the 80-acre MCAWRRF consists of over 300 fixtures installed at various times over the entire life of the facility's presence. In 2019, Albemarle County investigated the existing and historic lighting at the facility and determined that upgrades were required to bring Moores Creek AWRRF in to compliance. RWSA and Albemarle County staff have been working together to best address the issue. A Minor Site plan amendment was submitted to the county and the Architectural Review Board for review. RWSA is currently working on a design, bid, build package that will include a large scale replacement of non-compliant fixtures as well as address industrial lighting standards for the entire facility.

**Glenmore WRRF Influent Pump & VFD Addition 9-800-4501:** The Glenmore WRRF is predicted to see additional dry and wet weather flows as residential and commercial construction within the service area continues. Future wet weather flows will require higher influent pumping capacity and an additional pump and electrical variable frequency drive will be required to maintain firm capacity.



### **COVERING CERTIFICATE FOR RESOLUTION**

The undersigned Executive Director of the Rivanna Water and Sewer Authority (the “Authority”), certifies as follows:

1. Attached hereto is a true, correct and complete copy of a resolution entitled “RESOLUTION AUTHORIZING THE ISSUANCE, SALE AND AWARD BY THE RIVANNA WATER AND SEWER AUTHORITY OF ITS TAXABLE REGIONAL WATER AND SEWER SYSTEM REVENUE BOND IN A PRINCIPAL AMOUNT NOT TO EXCEED \$41,000,000 AND PROVIDING FOR THE FORM, DETAILS AND PAYMENT THEREOF” (the “Resolution”), as adopted at a regular meeting of the members of the Authority held on August 24, 2021, by the affirmative roll-call vote of a majority of all members of the Authority.

2. Such meeting of the Authority was held at the time and place established by the Authority for its regular meetings.

3. The minutes of such meeting reflect the attendance of the members and their votes on the Resolution as follows:

| <b>Member</b>      | <b>Attendance</b><br>(Present/Absent) | <b>Vote</b><br>(Aye/Nay/Abstain) |
|--------------------|---------------------------------------|----------------------------------|
| Chip Boyles        |                                       |                                  |
| Michael A. Gaffney |                                       |                                  |
| Lauren Hildebrand  |                                       |                                  |
| Gary B. O’Connell  |                                       |                                  |
| Lizbeth A. Palmer  |                                       |                                  |
| Jeff Richardson    |                                       |                                  |
| Lloyd Snook        |                                       |                                  |

4. The Resolution has not been repealed, revoked, rescinded or amended and is in full force and effect on the date hereof.

WITNESS my signature and the seal of the Rivanna Water and Sewer Authority, this \_\_\_\_ day of August, 2021.

(SEAL)

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William I. Mawyer, Jr. Executive Director,  
Rivanna Water and Sewer Authority

**RESOLUTION AUTHORIZING THE ISSUANCE, SALE AND AWARD  
BY THE RIVANNA WATER AND SEWER AUTHORITY OF ITS  
TAXABLE REGIONAL WATER AND SEWER SYSTEM REVENUE  
BOND IN A PRINCIPAL AMOUNT NOT TO EXCEED \$41,000,000 AND  
PROVIDING FOR THE FORM, DETAILS AND PAYMENT THEREOF**

**WHEREAS**, the Rivanna Water and Sewer Authority (the “Authority”) has entered into a Service Agreement dated June 12, 1973, as amended (the “Service Agreement”), by and between the Authority, the Albemarle County Service Authority (the “Service Authority”), the City of Charlottesville, Virginia (the “City”), and the County of Albemarle, Virginia (the “County”), providing for the acquisition by the Authority of certain existing water and wastewater facilities from the City and the Service Authority, the construction by the Authority of new facilities requested by the City and/or the Service Authority, and the financing, operation and maintenance by the Authority of all such facilities (collectively, the “System”);

**WHEREAS**, pursuant to the provisions of the Service Agreement and an Agreement of Trust dated as of October 1, 1979 (the “Master Trust Agreement”), between the Authority and The Bank of New York Mellon Trust Company, N.A. (the “Trustee”), the Authority desires to issue its Taxable Regional Water and Sewer System Revenue Bond, Series 2021, in a principal amount not to exceed \$41,000,000 (the “2021 Bond”), and use the proceeds to finance the acquisition, construction and equipping of capital improvements to the System, including, without limitation, (a) treatment plant improvements, (b) pump stations improvements, (c) dam improvements, (c) transmission main improvements, (d) water resource recovery facility improvements and (e) pump improvements (collectively, the “Project”), together with related issuance expenses;

**WHEREAS**, the Authority has applied to the Virginia Resources Authority (“VRA”) for the purchase of the 2021 Bond, and VRA has indicated its willingness to purchase the 2021 Bond from the proceeds of one or more series of its Infrastructure and State Moral Obligation Revenue Bonds (Virginia Pooled Financing Program) (collectively, the “VRA Bonds”), in accordance with the terms of (a) a Local Bond Sale and Financing Agreement (the “Financing Agreement”), between VRA and the Authority, and (b) a Thirty-Second Supplemental Agreement of Trust (the “Thirty-Second Supplemental Agreement” and, together with the Master Trust Agreement, as previously supplemented and amended, the “Trust Agreement”), between the Authority and the Trustee, the forms of which have been made available to the Authority prior to this meeting;

**WHEREAS**, the Financing Agreement shall indicate that the sum of \$37,568,000 (plus an amount sufficient to pay related costs of issuance) is the amount of proceeds requested for the Project from VRA, which amount may be revised at the written request of the Authority prior to VRA’s bond pricing if approved by VRA (such final amount, the “Proceeds Requested”);

**WHEREAS**, VRA has advised the Authority that VRA’s objective is to pay the Authority a purchase price for the 2021 Bond that in VRA’s judgment reflects its market value (the “Purchase Price Objective”) taking into consideration the Proceeds Requested and such factors as the purchase price received by VRA for the VRA Bonds, the issuance costs of the VRA Bonds (consisting of the underwriters’ discount and other costs incurred by VRA)

(collectively, the “VRA Costs”) and other market conditions relating to the sale of the VRA Bonds;

**WHEREAS**, VRA’s determination of the Purchase Price Objective may result in the 2021 Bond having a purchase price other than par and consequently (a) the Authority may have to issue the 2021 Bond in a principal amount that is greater than or less than the Proceeds Requested in order to receive an amount of proceeds substantially equal to the Proceeds Requested or (b) if the maximum authorized principal amount of the 2021 Bond set forth in Section 5 below does not exceed the Proceeds Requested by at least the amount of any VRA Costs and any original issue discount, the purchase price to be paid to the Authority, given the Purchase Price Objective and market conditions, will be less than the Proceeds Requested; and

**WHEREAS**, the Financing Agreement shall provide that the terms of the 2021 Bond may not exceed the parameters set forth below in Section 5;

**BE IT RESOLVED BY RIVANNA WATER AND SEWER AUTHORITY:**

1. It is found and determined that it is in the best interests of the Authority and its customers for the Authority (a) to promote the increased quality of drinking water and meet regulatory responsibilities and requirements, (b) to promote efficient water quality management for the upper Rivanna River Basin, (c) to ensure a reliable supply of potable water for the City and the County and their citizens and (d) otherwise to further the purposes of the Virginia Water and Waste Authorities Act (Chapter 51, Title 15.2 of the Code of Virginia 1950, as amended), all by undertaking the issuance of the 2021 Bond and using the proceeds thereof to finance the Project and to pay the related issuance costs. Accordingly, the Authority authorizes the issuance and sale of the 2021 Bond to VRA in accordance with the terms of this resolution and the Financing Agreement and as an “Additional Bond” in accordance with the terms of the Trust Agreement. It is further determined that the Project will be part of the System as contemplated by the Service Agreement and the Trust Agreement.

2. The Chair and Vice-Chair of the Authority, either of whom may act, are authorized to execute and deliver the Thirty-Second Supplemental Agreement. The Thirty-Second Supplemental Agreement shall be in substantially the form made available prior to this meeting, which is approved, with such completions, omissions, insertions and changes not inconsistent with this resolution as may be approved by the Chair or Vice-Chair, whose approval shall be evidenced conclusively by the execution and delivery thereof.

3. The Chair and the Vice-Chair of the Authority, either of whom may act, are authorized to execute and deliver the Financing Agreement. The Financing Agreement shall be in substantially the form made available prior to this meeting, which is approved, with such completions, omissions, insertions and changes not inconsistent with this resolution as may be approved by the Chair or Vice-Chair, whose approval shall be evidenced conclusively by the execution and delivery thereof. For purposes of this resolution, all capitalized terms used but not otherwise defined herein shall have the same meanings as set forth in the Financing Agreement.

4. The 2021 Bond shall be payable solely from Revenues, certain reserves or proceeds of insurance and secured on a parity as to such pledge with the Authority’s outstanding

bonds and any Additional Bonds issued pursuant to the Trust Agreement. The 2021 Bond shall be a limited obligation of the Authority, and nothing in the 2021 Bond, the Trust Agreement or the Financing Agreement shall be deemed to create or constitute a pledge of the faith and credit of the Commonwealth of Virginia or any political subdivision thereof, including the Authority, the Service Authority, the City and the County.

5. The 2021 Bond shall be issued as a single, registered bond, designated “Taxable Regional Water and Sewer System Revenue Bond, Series 2021,” or such other designation as the Chair or Vice-Chair shall determine, shall be dated the date that is 30 days prior to the closing date of the VRA Bonds and shall be numbered R-1. The Authority authorizes the issuance and sale of the 2021 Bond on such terms as shall be determined by VRA subject to the Purchase Price Objective and market conditions described in the recitals hereof; provided, however, that the 2021 Bond (a) shall be in a principal amount not to exceed \$41,000,000, (b) shall mature no later than December 31, 2051, (c) shall have a “true” interest cost not to exceed 4.00% (exclusive of “Supplemental Interest” as provided in the Financing Agreement), (d) shall be sold to VRA at a price that is substantially equal to the Proceeds Requested and (e) shall be subject to prepayment upon the terms set forth in the Financing Agreement. Subject to the preceding terms, the Authority further authorizes the Executive Director to accept the final terms presented by VRA, including (x) the final principal amount of the 2021 Bond and (y) the amortization schedule (including the principal installment dates and amounts) for the 2021 Bond.

If the limitation on the maximum principal amount of the 2021 Bond set forth in this Section 5 restricts VRA’s ability to generate the Proceeds Requested, taking into account the VRA Costs, the Purchase Price Objective and market conditions, the Executive Director is authorized to accept a purchase price for the 2021 Bond at an amount less than the Proceeds Requested. The actions of the Executive Director in determining the final terms of the 2021 Bond shall be conclusive, and no further action shall be necessary on the part of the Authority.

As set forth in the Financing Agreement, the Authority agrees to pay such “Supplemental Interest” and other charges as provided therein, including such amounts as may be necessary to maintain or replenish the VRA Reserve. The principal of and premium, if any, and interest on the 2021 Bond shall be payable in lawful money of the United States of America.

The 2021 Bond shall be substantially in the form attached as an exhibit to the Thirty-Second Supplemental Agreement.

6. The Chair, the Vice-Chair and the Secretary-Treasurer of the Authority are hereby authorized and directed to have the 2021 Bond prepared and executed pursuant to the Trust Agreement, to deliver it to the Trustee for authentication and to cause the 2021 Bond so executed and authenticated to be delivered to, or at the direction of, VRA upon payment therefor.

7. In accordance with Section 503(b) of the Trust Agreement, the following matters are stated:

(a) The amounts required to be on deposit at all times in the Bond Fund are as determined pursuant to Section 707 of the Trust Agreement.

(b) The estimated cost of each expected purpose for which the 2021 Bond is to be issued are as follows:

| <b>Purpose</b>  | <b>Cost</b>  |
|---|--------------|
| Observatory Water Treatment Plant Improvements  | \$17,941,797 |
| South Rivanna Water Treatment Plant Improvements  | 6,910,804    |
| Red Hill Water Treatment Plant Improvements   | 150,000      |
| Crozet Pump Station Improvements  | 590,000      |
| Sugar Hollow Dam Improvements   | 1,770,000    |
| New Airport Road Pump Station and Transmission Main   | 7,600,000    |
| Scottsville Water Treatment Plant Liner Replacement   | 315,000      |
| Moores Creek Advanced Water Resource Recovery Facility Lighting Upgrades and Gate Replacement | 1,920,000    |
| Glenmore Pump Improvements  | 370,000      |
| Total   | \$37,567,601 |

(c) The expenses incidental to the issuance of the 2021 Bond are estimated not to exceed \$250,000 (excluding VRA's costs of issuance and underwriters' discount).

(d) No deposit to the Debt Service Reserve Fund will be made with respect to the 2021 Bond.

(e) No capitalized interest is expected to be financed from proceeds of the 2021 Bond.

8. The officers of the Authority are authorized and directed to execute and deliver all certificates, instruments and documents, including a nonarbitrage certificate and tax compliance agreement (the "Tax Compliance Agreement"), and to take such further action as they may consider necessary or desirable in connection with the issuance and sale of the 2021 Bond pursuant to this resolution, the Financing Agreement, the Trust Agreement and the Thirty-Second Supplemental Agreement.

9. The Authority covenants that it shall not take or omit to take any action the taking or omission of which will cause the VRA Bonds to be "arbitrage bonds" within the meaning of Section 148 of the Internal Revenue Code of 1986, as amended, and regulations issued pursuant thereto (the "Code"), or otherwise cause interest on the VRA Bonds to be includable in the gross income for federal income tax purposes of the registered owners thereof under existing law. Without limiting the generality of the foregoing, the Authority shall comply with any provision of the Tax Compliance Agreement that may require the Authority at any time to rebate to the United States any part of the earnings derived from the investment of the gross proceeds of the 2021 Bond, unless the Authority receives an opinion of nationally recognized bond counsel that such compliance is not required or is no longer required to prevent interest on the VRA Bonds from being included in the gross income for federal income tax purposes of the registered owners thereof under existing law. The Authority shall pay any such required rebate from legally available funds.

10. The Authority covenants that it shall not permit the proceeds of the 2021 Bond or the facilities financed therewith to be used in any manner that would result in (a) 5% or more of such proceeds or facilities being used in a trade or business carried on by any person other than a governmental unit, as provided in Section 141(b) of the Code, (b) 5% or more of such proceeds or facilities being used with respect to any output facility (other than a facility for the furnishing of water), within the meaning of Section 141(b)(4) of the Code, or (c) 5% or more of such proceeds being used directly or indirectly to make or finance loans to any persons other than a governmental unit, as provided in Section 141(c) of the Code; provided, however, that if the Authority receives an opinion of nationally recognized bond counsel that any such covenants need not be complied with to prevent the interest on the VRA Bonds from being includable in the gross income for federal income tax purposes of the registered owners thereof under existing law, the Authority need not comply with such covenants.

11. The Authority authorizes and consents to the inclusion of information with respect to the Authority contained in VRA's Preliminary Official Statement and VRA's Official Statement in final form, both prepared in connection with the sale of the VRA Bonds. If appropriate, such disclosure documents shall be distributed in such manner and at such times as VRA shall determine. The Executive Director is authorized and directed to take such actions as may be necessary or appropriate to aid VRA in ensuring compliance with Securities and Exchange Commission Rule 15c2-12.

12. The Authority has heretofore received and reviewed the Information Statement (the "Information Statement") describing the State Non-Arbitrage Program of the Commonwealth of Virginia ("SNAP") and the Contract Creating the State Non-Arbitrage Program Pool (the "Contract"), and the Authority has determined to authorize the Chair or Vice-Chair, if and as necessary, to utilize SNAP in connection with the investment of the proceeds of the 2021 Bond. The Authority acknowledges the Treasury Board of the Commonwealth of Virginia is not, and shall not be, in any way liable to the Authority in connection with SNAP, except as otherwise provided in the Contract.

13. The officers of the Authority are authorized and directed to execute and deliver all certificates and other instruments considered necessary or desirable in connection with the issuance, sale and delivery of the 2021 Bond pursuant to this resolution, the Financing Agreement and the Trust Agreement. All other actions of the officers of the Authority in conformity with the purposes and intent of this resolution and in furtherance of the issuance and sale of the 2021 Bond are ratified, approved and confirmed.

14. The Secretary-Treasurer of the Authority is authorized and directed to arrange for a certified copy of this resolution to be filed with reasonable dispatch in the office of the Clerk of the Circuit Court of Albemarle County, Virginia.

15. This resolution shall take effect immediately.

**THIRTY-SECOND SUPPLEMENTAL AGREEMENT OF TRUST**

**between**

**RIVANNA WATER AND SEWER AUTHORITY**

**and**

**THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A.,  
as Trustee**

**Dated as of October 1, 2021**

**Authorizing the Issuance of  
Taxable Regional Water and Sewer System Revenue Bond  
Series 2021**

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**THIS THIRTY-SECOND SUPPLEMENTAL AGREEMENT OF TRUST** dated as of October 1, 2021 (this “Supplemental Agreement”), by and between **RIVANNA WATER AND SEWER AUTHORITY**, a public body politic and corporate and political subdivision of the Commonwealth of Virginia (the “Authority”), and **THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A.**, a national banking association, as successor trustee to NationsBank of Virginia, N.A., as successor to Sovran Bank, N.A., as successor to Virginia National Bank, as trustee (in such capacity, together with any successor in such capacity, herein called the “Trustee”);

W I T N E S S E T H:

**WHEREAS**, the Authority and the Trustee have entered into an Agreement of Trust dated as of October 1, 1979 (the “Master Trust Agreement”), as previously supplemented and amended from time to time (the Master Trust Agreement and the supplemental agreements collectively referred to herein as the “Trust Agreement”), pursuant to which the Authority has issued its revenue bonds from time to time, including its currently outstanding Taxable Regional Water and Sewer System Revenue Bond, Series 2005A; Taxable Regional Water and Sewer System Revenue Bond, Series 2009A; Taxable Regional Water and Sewer System Revenue Bond, Series 2010A; Taxable Regional Water and Sewer System Revenue Bond, Series 2011A; Taxable Regional Water and Sewer System Revenue Bond, Series 2011B; Taxable Regional Water and Sewer System Revenue Bond, Series 2011D; Taxable Regional Water and Sewer System Revenue Bond, Series 2011E; Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2012A; Regional Water and Sewer System Revenue Bonds, Series 2012B; Taxable Regional Water and Sewer System Revenue Bond, Series 2014A; Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2015A; Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2015B; Regional Water and Sewer System Revenue Bond, Series 2016; Taxable Regional Water and Sewer System Revenue Bond, Series 2018; and Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2019 (the outstanding principal amounts of such bonds collectively referred to herein as the “Outstanding Bonds”), to finance and refinance certain facilities for a regional water and sewer system (the “System”) to serve on a wholesale basis the City of Charlottesville, Virginia, and the Albemarle County Service Authority; **[UPDATE TO REFLECT ANY RETIRED DEBT]**

**WHEREAS**, the Authority is not in default under the Trust Agreement or in payment of the principal of or interest on the Outstanding Bonds;

**WHEREAS**, within the limitations of and in compliance with the Trust Agreement, the Authority is authorized to issue Additional Bonds (as defined in the Master Trust Agreement), secured on a parity with the Outstanding Bonds to the extent provided in the Trust Agreement, to finance or refinance the cost of improvements, extensions and additions to the System;

**WHEREAS**, the Authority has determined to issue its Taxable Regional Water and Sewer System Revenue Bond, Series 2021, in the principal amount of \$[\_\_\_\_\_] (the “Series 2021 Bond”), and to use the proceeds thereof to finance the acquisition, construction and equipping of capital improvements to the System, including, without limitation, (a) treatment plant improvements, (b) pump stations improvements, (c) dam improvements, (c) transmission main improvements, (d) water resource recovery facility improvements and (e) pump

improvements (collectively, the “Supplemental Project”), together with related issuance expenses;

**WHEREAS**, the Authority has entered into a Local Bond Sale and Financing Agreement dated as of September 17, 2021, with the Virginia Resources Authority (“VRA”) for the sale of the Series 2021 Bond to, and the purchase of the same by, VRA;

**WHEREAS**, the Authority has taken all necessary action to make the Series 2021 Bond, when authenticated by the Trustee and issued by the Authority, a valid and binding limited obligation of the Authority and to constitute this Supplemental Agreement a valid and binding agreement authorizing and providing for the details of the Series 2021 Bond; and

**WHEREAS**, the Authority has determined that it is desirable to make certain amendments to the Master Trust Agreement to provide for the payment of the principal of, premium, if any, and interest on the Series 2021 Bond;

**NOW, THEREFORE, THIS THIRTY-SECOND SUPPLEMENTAL AGREEMENT OF TRUST WITNESSETH** that the Authority does covenant and agree with the Trustee and with the respective holders, from time to time, of the Outstanding Bonds and the Series 2021 Bond, as follows:

## **ARTICLE I SUPPLEMENTAL AGREEMENT**

### **Section 32-101. Authorization of Supplemental Agreement.**

This Supplemental Agreement is authorized and executed by the Authority and delivered to the Trustee pursuant to and in accordance with Articles V and XIII of the Master Trust Agreement. All covenants, conditions and agreements of the Trust Agreement shall apply with full force and effect to the Series 2021 Bond and to the holder thereof, except as otherwise provided herein.

### **Section 32-102. Definitions.**

Except as otherwise defined herein, terms defined in the Master Trust Agreement are used in this Supplemental Agreement with the same meanings assigned to them in the Master Trust Agreement. In addition, the following terms shall have the following meanings:

**“2021 Financing Agreement”** shall mean the Local Bond Sale and Financing Agreement dated as of September 17, 2021, between the Authority and VRA, as supplemented and amended.

**“Bond Counsel”** shall mean counsel nationally recognized on the subject of municipal bonds.

**“Cost of the Supplemental Project”** shall have the same meaning assigned to the term “Cost of the Project” in Section 603 of the Master Trust Agreement, as applied to the Supplemental Project.

**“Local Account”** shall have the meaning assigned to such term in the 2021 Financing Agreement.

**“Series 2021 Bond”** shall mean the \$[\_\_\_\_\_] Taxable Regional Water and Sewer System Revenue Bond, Series 2021, to be issued pursuant to the terms of this Supplemental Agreement.

**“Supplemental Agreement”** shall mean this Thirty-Second Supplemental Agreement of Trust between the Authority and the Trustee, which supplements and amends the Trust Agreement.

**“Supplemental Project”** shall have the meaning set forth in the recitals hereto.

**“VRA”** shall mean the Virginia Resources Authority.

**“VRA Trustee”** shall have the meaning assigned to such term in the 2021 Financing Agreement.

### **Section 32-103. Reference to Articles and Sections.**

Unless otherwise indicated, all references herein to particular articles or sections are references to articles or sections of this Supplemental Agreement.

## **ARTICLE II**

### **AUTHORIZATION, DETAILS AND FORM OF SERIES 2021 BOND**

#### **Section 32-201. Authorization of Series 2021 Bond.**

There is authorized to be issued as an Additional Bond pursuant to Article V of the Master Trust Agreement a revenue bond of the Authority in the principal amount of \$[\_\_\_\_\_] , which shall be designated “Taxable Regional Water and Sewer System Revenue Bond, Series 2021,” to provide funds to finance the Cost of the Supplemental Project (including related costs of issuance).

#### **Section 32-202. Details of Series 2021 Bond.**

The Series 2021 Bond shall be dated October 17, 2021, shall be issued as a single, registered bond, shall be numbered R-1 and shall be in the principal amount of \$[\_\_\_\_\_]. The Series 2021 Bond shall bear interest at rates per year calculated on the basis of a 360-day year of twelve 30-day months, payable semiannually on April 1 and October 1, beginning April 1, 2022, and shall mature in installments on October 1 in years and amounts at such rates, as follows:

| <b>Installment Date<br/>(October 1)</b> | <b>Installment<br/>Amount</b> | <b>Interest<br/>Rate</b> |
|---|-------------------------------|--------------------------|
| 2022                                    |                               |                          |
| 2023                                    |                               |                          |

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**Section 32-203. Payment Provisions of Series 2021 Bond.**

(a) The Series 2021 Bond shall be payable solely from revenues, and nothing in the 2021 Financing Agreement, the Series 2021 Bond or this Supplemental Agreement shall be deemed to create or constitute an indebtedness or pledge of the faith and credit of the Commonwealth of Virginia (the “Commonwealth”) or of any county, city, town or other political subdivision of the Commonwealth, including the Authority, the City of Charlottesville, Virginia, Albemarle County, Virginia, and the Albemarle County Service Authority. All payments due on the Series 2021 Bond shall be payable as provided in the 2021 Financing Agreement in lawful money of the United States of America. As set forth in the 2021 Financing Agreement, the Authority agrees to pay “Supplemental Interest” and other charges as provided therein. Payments shall be made, at the option of the registered owner, (i) by check or draft mailed to the registered owner at its address as it appears on the registration books kept for that purpose by the Trustee on the 15<sup>th</sup> day of the month preceding the payment date or (ii) by wire transfer pursuant to the most recent wire instructions received by the Trustee from such registered owner. The Authority intends that amounts constituting interest on the Series 2021 Bond will be included in the gross income of the holder thereof for federal income tax purposes.

(b) Except as otherwise provided herein, the Series 2021 Bond shall be payable, executed, authenticated, registrable, exchangeable and secured, all as set forth in the Master Trust Agreement.

**Section 32-204. Form of Series 2021 Bond.**

The Series 2021 Bond shall be in substantially the form set forth in Exhibit A, with such appropriate variations, omissions and insertions as are permitted or required by the Master Trust Agreement and this Supplemental Agreement. The terms and provisions of the Series 2021 Bond that are set forth in Exhibit A shall be deemed to be incorporated into this Supplemental Agreement as though fully set forth herein.

**Section 32-205. Delivery of Series 2021 Bond.**

The Trustee shall authenticate and deliver the Series 2021 Bond when there have been filed with or delivered to it all items required by Section 503 of the Master Trust Agreement.

**ARTICLE III**

**PREPAYMENT OF SERIES 2021 BOND**

**Section 32-301. Prepayment of Series 2021 Bond.**

The Series 2021 Bond shall be subject to prepayment as set forth in Section 6.2 of the 2021 Financing Agreement. The optional redemption and notice provisions set forth in Sections 401 and 402 of the Master Trust Agreement shall not apply to the Series 2021 Bond.

**ARTICLE IV**

**PROCEEDS OF SERIES 2021 BOND**

**Section 32-401. Use of Proceeds of Series 2021 Bond.**

The net proceeds of the Series 2021 Bond (\$[\_\_\_\_]) shall be held in the Local Account to be disbursed in accordance with Section 4.3 of the 2021 Financing Agreement to be used in the manner prescribed by Section 504 of the Master Trust Agreement to pay the Cost of the Supplemental Project (\$[\_\_\_\_]) (including costs related to the issuance of the Series 2021 Bond of approximately \$[\_\_\_\_]). The Trustee hereunder shall be provided copies of any monthly reports and other statements provided to the Authority by VRA or the VRA Trustee with respect to the disbursements made from the Local Account. Any balance remaining in the Local Account upon completion of the Supplemental Project shall be transferred in accordance with the provisions of the 2021 Financing Agreement and in a manner consistent with the provisions of Section 605 of the Master Trust Agreement.

## ARTICLE V

### SECURITY FOR SERIES 2021 BOND

#### Section 32-501. Security for Series 2021 Bond.

(a) The Series 2021 Bond shall be issued pursuant to the Master Trust Agreement and this Supplemental Agreement and shall be equally and ratably secured under the Trust Agreement with the Outstanding Bonds and any Additional Bonds issued pursuant to Article V of the Master Trust Agreement, without preference, priority or distinction of any Bonds over any other Bonds, as provided in the Master Trust Agreement.

(b) The existing Debt Service Reserve Fund shall not secure the Series 2021 Bond. No debt service reserve fund or account is currently established or funded in connection with the issuance of the Series 2021 Bond.

## ARTICLE VI

### AMENDMENTS TO MASTER TRUST AGREEMENT EFFECTIVE IMMEDIATELY

#### Section 32-601. Effective Date of Amendments.

Pursuant to Section 1301(e)(2) of the Master Trust Agreement, the amendments provided in this article shall be effective upon the execution of this Supplemental Agreement.

#### Section 32-602. Amendment to Section 705 of the Master Trust Agreement.

Section 705 of the Master Trust Agreement is hereby amended and restated to read as follows (changes being reflected in bold):

**Section 705. Establishment of Funds.** The following funds are hereby established:

(a) Operating Fund, to be held by the Authority;

(b) Bond Fund, in which there are established a Series 2005A Debt Service Account, a Series 2009A Debt Service Account, a Series 2010A Debt Service Account, a Series 2011A Debt Service Account, a Series 2011B Debt Service Account, a Series 2011D Debt Service Account, a Series 2011E Debt Service Account, a Series 2014A Debt Service Account, a Series 2015A Debt Service Account, a Series 2015B Debt Service Account, a Series 2018 Debt Service Account, a Series 2019 Debt Service Account, **a Series 2021 Debt Service Account**, an Interest Account, a Principal Account and a Sinking Fund Account, all to be held by the Trustee;

(c) Debt Service Reserve Fund, to be held by the Trustee;

(d) Facilities Lease Fund, to be held by the Authority;

(e) Improvement Fund, to be held by the Authority; and

(f) Rate Stabilization Fund (Urban Area Wastewater Facilities), to be held by the Authority.

**Section 32-603. Amendment to Section 707 of the Master Trust Agreement.**

Section 707 of the Master Trust Agreement is hereby amended and restated to read as follows (changes being reflected in bold):

**Section 707. Bond Fund.** The Authority shall transfer from available moneys in the Operating Fund to the Trustee for deposit in the Bond Fund such amounts as shall be necessary to make the following deposits in the following order:

(a) first, in the Series 2005A Debt Service Account the next finance payment, if any, as required by Section 6.1 of the 2005 Financing Agreement between the Authority and VRA dated as of November 1, 2005, due on the Series 2005A Bond, within the next six succeeding months;

(b) second, in the Series 2009A Debt Service Account the next finance payment, if any, as required by Section 6.1 of the 2009 Financing Agreement due on the Series 2009A Bond, within the next six succeeding months;

(c) third, in the Series 2010A Debt Service Account the next finance payment, if any, as required by Section 6.1 of the 2010 Financing Agreement due on the Series 2010A Bond, within the next six succeeding months;

(d) fourth, in the Series 2011A Debt Service Account the next finance payment, if any, as required by Section 6.1 of the 2011 Financing Agreement due on the Series 2011A Bond, within the next six succeeding months;

(e) fifth, in the Series 2011B Debt Service Account the next finance payment, if any, as required by Section 6.1 of the 2011 Financing Agreement due on the Series 2011B Bond, within the next six succeeding months;

(f) sixth, in the Series 2011D Debt Service Account, the next finance payment, if any, as required by Section 6.1 of the 2011 Financing Agreement due on the Series 2011D Bond, within the next six succeeding months;

(g) seventh, in the Series 2011E Debt Service Account, the next finance payment, if any, as required by Section 6.1 of the 2011 Financing Agreement due on the Series 2011E Bond, within the next six succeeding months;

(h) eighth, in the Series 2014A Debt Service Account, the next finance payment, if any, as required by Section 6.1 of the 2014A Financing Agreement due on the Series 2014A Bond, within the next six succeeding months;

(i) ninth, in the Series 2015A Debt Service Account, the next finance payment, if any, as required by Section 6.1 of the 2015 Financing Agreement due on the Series 2015A Bond, within the next six succeeding months;



(j) tenth, in the Series 2015B Debt Service Account, the next finance payment, if any, as required by Section 6.1 of the 2015B Financing Agreement due on the Series 2015B Bond, within the next six succeeding months;

(k) eleventh, in the Series 2018 Debt Service Account, the next finance payment, if any, as required by Section 6.1 of the 2018 Financing Agreement due on the Series 2018 Bond, within the next six succeeding months;

(l) twelfth, in the Series 2019 Debt Service Account, the next finance payment, if any, as required by Section 6.1 of the 2019 Financing Agreement due on the Series 2019 Bond, within the next six succeeding months;

**(m) thirteenth, in the Series 2021 Debt Service Account, the next finance payment, if any, as required by Section 6.1 of the 2021 Financing Agreement due on the Series 2021 Bond, within the next six succeeding months;**

**(n) fourteenth**, in the Interest Account, such amount, if any, as may be required to make the total amount on deposit therein equal to the amount of interest which will become due on the Bonds, *other than* the Series 2005A Bond, the Series 2009A Bond, the Series 2010A Bond, the Series 2011A Bond, the Series 2011B Bond, the Series 2011D Bond, the Series 2011E Bond, the Series 2014A Bond, the Series 2015A, the Series 2015B Bond, the Series 2018 Bond, the Series 2019 Bond **or the Series 2021 Bond**, within the next succeeding six months;

**(o) fifteenth**, in the Principal Account, such amount, if any, as may be required to make the total amount on deposit therein equal to the amount of principal of the Bonds, *other than* the Series 2005A Bond, the Series 2009A Bond, the Series 2010A Bond, the Series 2011A Bond, the Series 2011B Bond, the Series 2011D Bond, the Series 2011E Bond, the Series 2014A Bond, the Series 2015A Bond, the Series 2015B Bond, the Series 2018 Bond, the Series 2019 Bond **or the Series 2021 Bond**, maturing within the next succeeding 12 months; and

**(p) Sixteenth**, in the Sinking Fund Account, such amount, if any, as may be required to make the total amount on deposit therein equal to the amount of any sinking fund installment due within the next succeeding 12 months with respect to any Additional Bonds which are issued as term bonds.

Notwithstanding the foregoing, if an Event of Default occurs as described in Sections 1101(a) or 1101(b) and so long as such Event of Default shall continue, the transfers set forth in Section 707(a) through **(p)** shall not be made. The Trustee shall determine what moneys are on deposit in all the accounts in the Bond Fund. The Trustee shall then allocate among the accounts any moneys on deposit in the Operating Fund available for transfer into the Bond Fund, any moneys drawn out of the Debt Service Reserve Fund and any other available moneys so that all bondholders are paid ratably, taking into account such available moneys and moneys on deposit in all the accounts in the Bond Fund.

The Trustee shall provide for the redemption of any Additional Bonds which may be issued as term bonds in accordance with the schedule in the supplement to this agreement authorizing their issuance; provided, however, that on or before the sixtieth day next preceding any such sinking fund payment date, the Authority may:

(i) pay to the Trustee for deposit in the Sinking Fund Account on or before such sixtieth day such amount as the Authority may determine, accompanied by a certificate signed by an Authorized Representative of the Authority directing the Trustee to apply such amount to the purchase of Bonds required to be redeemed on such sinking fund payment date, and the Trustee shall thereupon use all reasonable efforts to expend such funds as nearly as may be practicable in the purchase of such Bonds, with all unmatured coupons, if any, attached, at a price not exceeding the principal amount thereof plus accrued interest to such sinking fund redemption date; or

(ii) deliver to the Trustee for cancellation such Bonds required to be redeemed on such sinking fund payment date, in any aggregate principal amount desired with all unmatured coupons, if any, attached; or

(iii) instruct the Trustee to apply a credit against the Authority's sinking fund redemption obligation for any Bonds which have been issued as term bonds which previously have been redeemed (other than through the operation of the sinking fund) and canceled by the Trustee but not theretofore applied as a credit against any sinking fund redemption obligation.

Each Bond so purchased, delivered or previously redeemed shall be credited by the Trustee at 100% of the principal amount thereof against the obligation of the Authority on such sinking fund redemption date and shall reduce accordingly the amount to be on deposit in the Sinking Fund Account. Any excess over such obligation shall be credited against future sinking fund redemption obligations in chronological order, and the principal amount of such Bonds to be redeemed by operation of the sinking fund and the amount to be on deposit in the Sinking Fund Account shall be accordingly reduced. Any funds received by the Trustee pursuant to subsection (i) of the previous paragraph but not expended as provided therein for the purchase of Bonds within seven days after said sixtieth day shall be retained in the Sinking Fund Account and shall thereafter be used only for a credit against future deposits to the Sinking Fund Account or, upon the direction of an Authorized Representative of the Authority, for transfer to the Interest Account to be used as a credit against transfers to be made thereto.

The Trustee shall pay the principal of and interest on the Bonds (*other than* the Series 2005A Bond, the Series 2009A Bond, the Series 2010A Bond, the Series 2011A Bond, the Series 2011B Bond, the Series 2011D Bond, the Series 2011E Bond, the Series 2014A Bond, the Series 2015A Bond, the Series 2015B Bond, the Series 2018 Bond, the Series 2019 Bond **and the Series 2021 Bond**) from the Principal Account and the Interest Account, respectively, as the same become due. The Trustee shall pay the finance payment on the Series 2005A Bond from the Series 2005A Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2009A Bond from the Series 2009A Debt Service Account as the same becomes due.

The Trustee shall pay the finance payment on the Series 2010A Bond from the Series 2010A Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2011A Bond from the Series 2011A Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2011B Bond from the Series 2011B Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2011D Bond from the Series 2011D Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2011E Bond from the Series 2011E Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2014A Bond from the Series 2014A Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2015A Bond from the Series 2015A Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2015B Bond from the Series 2015B Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2018 Bond from the Series 2018 Debt Service Account as the same becomes due. The Trustee shall pay the finance payment on the Series 2019 Bond from the Series 2019 Debt Service Account as the same becomes due. **The Trustee shall pay the finance payment on the Series 2021 Bond from the Series 2021 Debt Service Account as the same becomes due.** In the event the balances in the accounts in the Bond Fund on any interest, principal or finance payment date (whether at maturity or by mandatory sinking fund redemption) are insufficient for the purposes thereof, the Trustee shall transfer to such Accounts such amounts as may be necessary therefor (1) first from any rate stabilization fund created with respect to such series of Bonds, then (2) in the case of the Series 2005A Bond, the Series 2009A Bond, the Series 2010A Bond, the Series 2011A Bond, the Series 2011B Bond, the Series 2011D Bond and the Series 2011E Bond, from the Debt Service Reserve Fund, then (3) from the Improvement Fund and then (4) from the Facilities Lease Fund. In the event the balance in any account in the Bond Fund on any interest, principal or finance payment date (whether at maturity or by mandatory sinking fund redemption) exceeds the amounts required by this section, such excess shall be transferred to any other account in the Bond Fund the balance in which is insufficient for the purposes thereof in the following order of priority: Series 2005A Debt Service Account, Series 2009A Debt Service Account, Series 2010A Debt Service Account, Series 2011A Debt Service Account, Series 2011B Debt Service Account, Series 2011D Debt Service Account, Series 2011E Debt Service Account, Series 2014A Debt Service Account, Series 2015A Debt Service Account, Series 2015B Debt Service Account, Series 2018 Debt Service Account, Series 2019 Debt Service Account, **Series 2021 Debt Service Account**, Interest Account, Principal Account and Sinking Fund Account. If there is no insufficiency in any account in the Bond Fund, such excess shall be transferred, if the Debt Service Reserve Fund does not then hold the Required Reserve, to the Debt Service Reserve Fund and otherwise shall be held in the account containing such excess to be credited against future deposits to such account.

## **ARTICLE VII**

### **MISCELLANEOUS**

#### **Section 32-701. Limitation of Rights.**

With the exception of the rights herein expressly conferred, nothing expressed or mentioned in or to be implied from this Supplemental Agreement is intended or shall be construed to give any person other than the parties hereto and the holder of the Series 2021 Bond any legal or equitable right, remedy or claim under or in respect to this Supplemental Agreement or any covenant, condition and agreement herein contained; this Supplemental Agreement and all of the covenants, conditions and agreements hereof being intended to be and being for the sole and exclusive benefit of the parties hereto and the holder of the Series 2021 Bond as herein provided.

#### **Section 32-702. Successors and Assigns.**

This Supplemental Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties hereto and their respective successors and assigns.

#### **Section 32-703. Severability.**

If any provision of this Supplemental Agreement shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision hereof.

#### **Section 32-704. Applicable Law.**

This Supplemental Agreement shall be governed by the applicable laws of the Commonwealth.

#### **Section 32-705. Counterparts.**

This Supplemental Agreement may be executed in several counterparts, each of which shall be an original and all of which together shall constitute one and the same instrument.

[Remainder of this page intentionally left blank.]

**IN WITNESS WHEREOF**, the Authority and the Trustee have caused this Thirty-Second Supplemental Agreement of Trust to be executed in their respective corporate names by their duly authorized officers, all as of the date first above written.

**RIVANNA WATER AND SEWER AUTHORITY**

By \_\_\_\_\_  
[\_\_\_\_\_, Chair]

**THE BANK OF NEW YORK MELLON TRUST  
COMPANY, N.A., as Trustee**

By \_\_\_\_\_  
[\_\_\_\_\_, Vice President]

**FORM OF SERIES 2021 BOND**

*Interest on this bond is not excludable from the gross income of the registered owner hereof for federal income tax purposes.*

R-1

October 17, 2021

**UNITED STATES OF AMERICA**

**COMMONWEALTH OF VIRGINIA**

**Rivanna Water and Sewer Authority**

**Taxable Regional Water and Sewer System Revenue Bond**

**Series 2021**

**Rivanna Water and Sewer Authority** (the “Authority”), a public body politic and corporate and political subdivision of the Commonwealth of Virginia (the “Commonwealth”) duly created pursuant to the Virginia Water and Waste Authorities Act, Chapter 51, Title 15.2, Code of Virginia of 1950, as amended (the “Act”), for value received, acknowledges itself indebted and promises to pay to the Virginia Resources Authority, or its registered assigns or legal representative (“VRA”), the principal sum of [\_\_\_\_\_] AND XX/100 DOLLARS (\$[\_\_\_\_\_]). Principal of this bond shall be payable in annual installments in the amounts and on the dates set forth in Schedule I attached hereto. Interest on this bond shall be payable on each April 1 and October 1, commencing April 1, 2022, computed on the basis of a 360-day year of twelve 30-day months at the rates set forth in Schedule I.

If any installment of principal of and interest on this bond is not paid to the registered owner of this bond within five days after its due date, the Authority shall pay to VRA a late payment charge in an amount equal to five percent (5%) of the overdue installment.

Subject to the provisions of the Local Bond Sale and Financing Agreement dated as of September 17, 2021 (the “Financing Agreement”), between VRA and the Authority, so long as this bond is held by or for the account of VRA or its registered assigns or legal representative, interest is payable by (i) check or draft mailed to the registered owner of this bond at the address that appears on the 15<sup>th</sup> day of the month preceding each interest payment date on the registration books kept by The Bank of New York Mellon Trust Company, N.A., as successor trustee (the “Trustee”), or (ii) wire transfer pursuant to the most recent wire instructions received by the Trustee from such registered owner. Principal of and premium, if any, and interest on this bond shall be payable in lawful money of the United States of America. In case the payment date on this bond shall not be a Business Day (as defined below), then payment of principal, premium, if any, and interest need not be made on such date, but may be made on the next succeeding Business Day, and, if made on such next succeeding Business Day, no additional interest shall accrue for the period after such payment date. “Business Day” means any day on which

commercial banking institutions generally are open for business in New York, New York, and Richmond, Virginia.

This bond is issued under an Agreement of Trust dated as of October 1, 1979 (the “Master Trust Agreement”), between the Authority and the Trustee, as supplemented and amended from time to time, and as further supplemented and amended by a Thirty-Second Supplemental Agreement of Trust dated as of October 1, 2021 (collectively, the “Trust Agreement”), and is secured equally and ratably on a parity with the outstanding balance of the Authority’s Taxable Regional Water and Sewer System Revenue Bond, Series 2005A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2009A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2010A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2011A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2011B; its Taxable Regional Water and Sewer System Revenue Bond, Series 2011D; its Taxable Regional Water and Sewer System Revenue Bond, Series 2011E; its Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2012A; its Regional Water and Sewer System Revenue Bonds, Series 2012B; its Taxable Regional Water and Sewer System Revenue Bond, Series 2014A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2015A; its Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2015B; its Regional Water and Sewer System Revenue Bond, Series 2016; its Taxable Regional Water and Sewer System Revenue Bond, Series 2018; and its Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2019 (collectively, the “Prior Bonds”), to the extent provided in the Trust Agreement and the Financing Agreement. Reference is made to the Trust Agreement for a description of the provisions, among others, with respect to the nature and extent of the security, the rights, duties and obligations of the Authority and the Trustee, the rights of the registered owner of this bond and the terms upon which this bond is issued and secured.

Additional bonds secured on a parity with this bond and the Prior Bonds may be issued on the terms provided in the Trust Agreement. This bond is authorized and issued pursuant to the Act and the Trust Agreement to finance the acquisition, construction and equipping of capital improvements to the System and to pay related costs of issuance. The Authority’s obligations under this bond shall terminate when all amounts due and to become due pursuant to this bond, the Financing Agreement and the Trust Agreement have been paid in full.

This bond is a limited obligation of the Authority and (except to the extent payment with respect to this bond shall be made from the proceeds from the sale of this bond or the income, if any, derived from the investment thereof) are payable solely from certain revenues to be derived from the ownership or operation of the System (as defined in the Trust Agreement), which serves, on a wholesale basis, the City of Charlottesville, Virginia, and the Albemarle County Service Authority, as the same may from time to time exist, certain pledged reserves, income from investments pursuant to the Trust Agreement and proceeds of insurance, which revenues and other moneys have been pledged pursuant to the Trust Agreement to secure payment thereof. This bond shall not be deemed to constitute a pledge of the faith and credit of the Commonwealth or any political subdivision thereof, including the Authority, the City of Charlottesville, Virginia, Albemarle County, Virginia, and the Albemarle County Service Authority (collectively, the “Political Subdivisions”).

Neither the Commonwealth nor any political subdivision thereof, including the Political Subdivisions, shall be obligated to pay the principal of this bond or other costs incident thereto except from the revenues pledged therefor, and neither the faith and credit nor the taxing power of the Commonwealth or any political subdivision thereof, including the Political Subdivisions, is pledged to the payment of the principal of or interest on this bond or other costs incident thereto. The Authority has no taxing power.

If any failure of the Authority to pay all or any portion of any required payment of the principal of or premium, if any, or interest on this bond results in a withdrawal from or a drawing on any VRA Reserve (as defined in the Financing Agreement), the interest rates applicable to this bond shall be increased to interest rates sufficient to reimburse the VRA Reserve for any foregone investment earnings on the funds withdrawn therefrom and pay any interest, fees or penalties assessed as a result of the withdrawal from or drawing on the VRA Reserve. The increment of interest payable pursuant to the increase in rates shall be referred to as "Supplemental Interest." The term "interest" as used in this bond shall include Supplemental Interest, when and if payable. The Authority's obligation to pay Supplemental Interest shall commence on the date of the withdrawal or drawing of funds from the VRA Reserve occasioned by the Authority's failure to pay a required payment or portion thereof as described above (the "Supplemental Interest Commencement Date"). The Authority's obligation to pay Supplemental Interest shall terminate on the date on which the Authority makes all payments required but outstanding since the date of the initial failure to pay (the "Supplemental Interest Termination Date"). From the Supplemental Interest Commencement Date to the Supplemental Interest Termination Date, Supplemental Interest shall be due and payable on the regularly scheduled interest payment dates provided for in this bond. As soon as reasonably possible after the Supplemental Interest Commencement Date and before the next regularly scheduled interest payment date provided for in this bond, VRA shall deliver to the Authority a certificate as to the increase in interest rates and the amount of Supplemental Interest. The certificate shall set forth in reasonable detail the basis for the increase in interest rates and the manner of calculation of the increase and the amount of Supplemental Interest. Such certificate shall be conclusive (absent manifest error) as to the interest rate increase and amount of Supplemental Interest set forth therein. In determining the interest rate increase and the amount of Supplemental Interest, VRA may use any reasonable averaging and attribution methods.

This bond is subject to prepayment to the extent and under the terms set forth in the Trust Agreement and the Financing Agreement. The optional redemption and notice provisions set forth in Sections 401 and 402 of the Master Trust Agreement shall not apply to this bond.

This bond is issued as a registered bond and may be transferred only in accordance with the provisions with respect thereto as provided in the Trust Agreement and the Financing Agreement.

The registered owner of this bond shall have no right to enforce the provisions of the Trust Agreement, to institute action to enforce the covenants therein, to take any action with respect to any Event of Default under the Trust Agreement or to institute, appear in or defend any suit or other proceeding with respect thereto, except as provided in the Trust Agreement. Modifications or alterations of the Trust Agreement, or of any supplement thereto, may be made only to the extent and in the circumstances permitted by the Trust Agreement.



Upon surrender of this bond at the corporate trust office of the Trustee in Pittsburgh, Pennsylvania, together with an assignment duly executed by the registered owner or his duly authorized attorney or legal representative in such form as shall be satisfactory to the Trustee, the Authority shall execute, and the Trustee shall authenticate and deliver in exchange, a new bond or bonds in the manner and subject to the limitations and conditions provided in the Trust Agreement, having an equal aggregate principal amount, in authorized denominations, of the same series, form and maturity, bearing interest at the same rate, and registered in names as requested by the then registered owner hereof or his duly authorized attorney or legal representative. Any such exchange shall be at the expense of the Authority, except that the Trustee may charge the person requesting such exchange the amount of any tax or other governmental charge required to be paid with respect thereto.

All acts, conditions and things required to happen, exist or be performed precedent to and in connection with the issuance of this bond have happened, exist and have been performed.

This bond shall not be valid until the Trustee shall have executed the Certificate of Authentication appearing hereon and inserted the date of authentication hereon.

[Remainder of Page Intentionally Left Blank]

**IN WITNESS WHEREOF**, the Rivanna Water and Sewer Authority has caused this bond to be signed by its [Vice-]Chair, its seal to be affixed hereto and attested by its Secretary-Treasurer, and this bond to be dated the date first above written.

**RIVANNA WATER AND SEWER AUTHORITY**

(SEAL)

By \_\_\_\_\_  
[Vice-]Chair

ATTEST:

\_\_\_\_\_  
Secretary-Treasurer

## **CERTIFICATE OF AUTHENTICATION**

Date Authenticated: November \_\_, 2021

This bond is the Series 2021 Bond described in the within-mentioned Trust Agreement.

**THE BANK OF NEW YORK  
MELLON TRUST COMPANY, N.A.**

By \_\_\_\_\_  
Authorized Signature

**ASSIGNMENT**

**FOR VALUE RECEIVED** the undersigned sell(s), assign(s) and transfer(s) unto

\_\_\_\_\_  
\_(please print or typewrite name and address including postal zip code of Transferee)

PLEASE INSERT SOCIAL SECURITY OR OTHER  
IDENTIFYING NUMBER OF TRANSFEREE

\_\_\_\_\_  
: :  
: :  
: :  
\_\_\_\_\_

the within bond and all rights thereunder, irrevocably constituting and appointing

\_\_\_\_\_,  
Attorney, to transfer said bond on the books kept for the registration thereof, with full power of  
substitution in the premises.

Dated: \_\_\_\_\_

Signature Guaranteed

\_\_\_\_\_  
NOTICE: Signature(s) must be  
guaranteed by an Eligible Guarantor  
Institution such as a Commercial  
Bank, Trust Company, Securities  
Broker/Dealer, Credit Union, or  
Savings Association who is a member  
of a medallion program approved by  
The Securities Transfer Association, Inc.  
Inc.

\_\_\_\_\_  
(Signature of Registered Owner)

NOTICE: The signature above must  
correspond with the name of the  
registered owner as it appears on the  
front of this bond in every particular,  
without alteration or enlargement  
or any change whatsoever.

## TRANSFER OF BOND

The transfer of this bond may be registered by the registered owner or its duly authorized attorney or legal representative upon presentation hereof to the Registrar who shall make note of such transfer in books kept by the Registrar for that purpose and in the registration blank below.

| <u>Date of Registration</u> | <u>Name of Registered Owner</u> | <u>Signature of Registrar</u> |
|-----------------------------|---------------------------------|-------------------------------|
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |

## SCHEDULE I

| <b>Installment Date<br/>(October 1)</b> | <b>Installment<br/>Amount</b> | <b>Interest<br/>Rate</b> |
|---|-------------------------------|--------------------------|
| 2022                                    |                               |                          |
| 2023                                    |                               |                          |
| 2024                                    |                               |                          |
| 2025                                    |                               |                          |
| 2026                                    |                               |                          |
| 2027                                    |                               |                          |
| 2028                                    |                               |                          |
| 2029                                    |                               |                          |
| 2030                                    |                               |                          |
| 2031                                    |                               |                          |
| 2032                                    |                               |                          |
| 2033                                    |                               |                          |
| 2034                                    |                               |                          |
| 2035                                    |                               |                          |
| 2036                                    |                               |                          |
| 2037                                    |                               |                          |
| 2038                                    |                               |                          |
| 2039                                    |                               |                          |
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| 2041                                    |                               |                          |
| 2042                                    |                               |                          |
| 2043                                    |                               |                          |
| 2044                                    |                               |                          |
| 2045                                    |                               |                          |
| 2046                                    |                               |                          |
| 2047                                    |                               |                          |
| 2048                                    |                               |                          |
| 2049                                    |                               |                          |
| 2050                                    |                               |                          |
| 2051                                    |                               |                          |

**LOCAL BOND SALE AND FINANCING AGREEMENT**

**between**

**VIRGINIA RESOURCES AUTHORITY**

**and**

**RIVANNA WATER AND SEWER AUTHORITY**

**Dated as of September 17, 2021**

**Virginia Resources Authority  
Infrastructure and State Moral Obligation Revenue Bonds  
(Virginia Pooled Financing Program)  
Series 2021C**

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## **LOCAL BOND SALE AND FINANCING AGREEMENT**

This **LOCAL BOND SALE AND FINANCING AGREEMENT** is dated as of September 17, 2021, and is between the **VIRGINIA RESOURCES AUTHORITY**, a public body corporate and a political subdivision of the Commonwealth of Virginia ("VRA"), and the **RIVANNA WATER AND SEWER AUTHORITY**, a public body corporate and political subdivision of the Commonwealth of Virginia (the "Local Government").

A. VRA intends to issue its Related Series of VRA Bonds, as hereinafter defined, and to use a portion of the proceeds thereof to acquire from the Local Government the Local Bond, as hereinafter defined.

B. VRA and the Local Government wish to set forth herein certain terms, conditions and provisions related to the purchase of the Local Bond, the application of the proceeds thereof, the payment of the debt service thereon and the security therefor, and the use and maintenance of the Related Financed Property, as hereinafter defined.

**NOW, THEREFORE**, VRA and the Local Government agree as follows:

### **ARTICLE I DEFINITIONS**

**Section 1.1 Definitions.** Each capitalized term contained in this Agreement has the meaning set forth below:

**"2021C Acquisition Fund"** has the meaning set forth in the Related Supplemental Series Indenture.

**"Act"** means the Virginia Resources Authority Act, Chapter 21, Title 62.1 of the Code of Virginia of 1950, as amended.

**"Agreement"** means this Local Bond Sale and Financing Agreement dated the date first written above, between VRA and the Local Government, as modified, altered, amended or supplemented in accordance with the terms hereof.

**"Annual Budget"** means the budget of the System for each Fiscal Year.

**"Business Day"** means any day on which commercial banking institutions are generally open for business in New York, New York and Richmond, Virginia.

**"Closing Date"** means November 17, 2021 or such other date as may be determined by VRA.

**"Consulting Engineer"** has the meaning set forth in the Local Master Indenture, and for the purposes of this Agreement, such term shall include, at the discretion of the Local Government, the Local Engineer.

**"Customers"** means the Local Government's two customers under the Service Agreement, the City of Charlottesville, Virginia, and the Albemarle County Service Authority.

**"Effective Date"** means September 17, 2021, which is the deadline for the Local Government to provide an executed copy of this Agreement to VRA.

**"Event of Default"** has the meaning set forth in Section 10.1.

**"Existing Parity Bonds"** has the meaning set forth in Section 2.2(n).

**"Financing Parameters"** means the parameters established by the governing body of the Local Government regarding the terms and conditions of the Local Bond, which may include a maximum par amount, maximum "true" interest cost or targeted savings.

**"Fiscal Year"** has the meaning set forth in the Local Master Indenture.

**"Government Obligations"** means direct obligations of, or obligations the payment of the principal of and interest on which is unconditionally guaranteed by, the United States of America.

**"Local Account"** means the local account established for the Local Bond within the 2021C Acquisition Fund.

**"Local Authorization"** means the resolution adopted on August 24, 2021 by a majority of the members of the governing body of the Local Government approving (i) the transactions contemplated by and authorizing the execution and delivery of the Local Bond Documents and (ii) the execution, issuance and sale of the Local Bond subject to the Financing Parameters.

**"Local Bond"** means the Local Government's Taxable Regional Water and Sewer System Revenue Bond, Series 2021, issued in the original principal amount set forth in Schedule 1.1, as such bond may be amended or modified.

**"Local Bond Documents"** means this Agreement and the Local Tax Document.

**"Local Engineer"** means an officer or employee of the Local Government so designated in writing by a Local Representative, which officer or employee (i) is licensed as a professional engineer in Virginia, (ii) has recognized standing in the field of water and sewer engineering and licensed as professional engineers in Virginia that the Local Government designates in writing, subject to VRA's reasonable approval and (iii) is subject to VRA's reasonable approval.

**"Local Government"** means the Rivanna Water and Sewer Authority.

**"Local Master Indenture"** means the Agreement of Trust dated as of October 1, 1979, between the Local Government and the Local Trustee, as previously amended and supplemented, and as further amended and supplemented by the Thirty-Second Supplemental Agreement of Trust to be dated the date of the Local Bond, between the Local Government and the Local Trustee, as amended and supplemented in accordance with its terms.

**"Local Representative"** means (i) the chair or vice chair of the governing body, (ii) the chief executive officer of the Local Government and (iii) any other official or employee of the Local Government authorized by resolution of the governing body of the Local Government to perform the act or sign the document in question.

**"Local Tax Document"** means the Nonarbitrage Certificate and Tax Compliance Agreement dated the Closing Date, between the Local Government and VRA, as modified, altered, amended and supplemented.

**"Local Trustee"** means The Bank of New York Mellon Trust Company, N.A. (as successor to NationsBank, National Association, as successor to Sovran Bank, N.A., as successor to Virginia National Bank), and its successors serving in such capacity, as trustee under the Local Master Indenture.

**"Master Indenture"** means the Master Indenture of Trust dated as of December 1, 2003, between VRA and the Trustee, as modified, altered, amended and supplemented in accordance with its terms.

**"Net Revenues Available for Debt Service"** means the Revenues less amounts necessary to pay Operation and Maintenance Expenses.

**"Operation and Maintenance Expenses"** has the same meaning as the term "Operating Expenses" in the Local Master Indenture.

**"Parity Bonds"** means any of the Local Government's "Bonds" issued under the Local Master Indenture.

**"Parity Debt"** means any of the Local Government's Parity Bonds, including the Local Bond.

**"Proceeds Requested"** means the greater of \$37,568,000 or such other maximum amount of proceeds generated by the maximum par amount indicated in the Financing Parameters, together with an amount to pay related costs of issuance and capitalized interest for up to October 1, 2022, or such other amount requested in writing by the Local Government and approved by VRA prior to the Sale Date.

**"Project"** means the project described in Exhibit B.

**"Project Budget"** means the budget for the Project set forth in Schedule 1.1.

**"Project Costs"** means the costs of the Project to the extent such costs are included in the definition of "cost" set forth in Section 62.1-199 of the Act, and includes the refunding of obligations of VRA or the Local Government issued to finance or refinance "costs" set forth in Section 62.1-199 of the Act.

**"Purchase Price"** has the meaning set forth in Schedule 1.1 and represents the amount received by the Local Government from the sale of the Local Bond to VRA. The Purchase Price of the Local Bond will be determined by adding to or subtracting from the par amount of the Local Bond the Local Government's share of the net original issue premium or discount on the Related Series of VRA Bonds and by subtracting from the par amount of the Local Bond the Local Government's share of VRA's expenses as set forth in Section 3.2 and the Local Government's share of the deposit on the Closing Date to any applicable VRA Reserve. It is acknowledged that the Purchase Price does not include any accrued interest on the Local Bond from its dated date to the Closing Date.

**"Qualified Independent Consultant"** means an independent professional consultant having the skill and experience necessary to provide the particular certificate, report or approval required by the provision of this Agreement in which such requirement appears, including without limitation a Consulting Engineer and an independent certified public accountant or firm of independent certified public accountants; provided, however, all Qualified Independent Consultants are subject to the reasonable approval of VRA.

**"Registrar"** means the Local Trustee.

**"Related Financed Property"** means the land, building, equipment and other property, the acquisition, construction, renovation, or equipping of which was financed by the Local Bond as part of the Project.

**"Related Portion of VRA Bonds"** means the portion of the Related Series of VRA Bonds allocable to the Local Bond (as determined by VRA), including any bonds issued by VRA to refund such Related Series of VRA Bonds in whole or in part.

**"Related Series of VRA Bonds"** means the Virginia Resources Authority Infrastructure and State Moral Obligation Revenue Bonds (Virginia Pooled Financing Program), Series 2021C (or such other series of Infrastructure and State Moral Obligation Revenue Bonds (Virginia Pooled Financing Program that is specified in Schedule 1.1), in the original aggregate principal amount set forth in Schedule 1.1, and, unless the Local Government receives notice to the contrary from VRA, any bonds issued by VRA to refund the Related Series of VRA Bonds in whole or in part.

**"Related Supplemental Series Indenture"** means the Fifty-Second Supplemental Series Indenture of Trust dated as of November 1, 2021, between VRA and the Trustee, as modified, altered, amended and supplemented in accordance with its terms and those of the Master Indenture.

**"Revenue Fund"** has the meaning set forth in the Master Indenture.

**"Revenues"** means (i) all rates, fees, rentals, charges and other income properly allocable to the System under generally accepted accounting principles or resulting from the Local Government's ownership or operation of the System and all rights to receive the same, whether now existing or hereafter coming into existence, exclusive of user and other deposits subject to refund until such deposits have become the Local Government's property, (ii) the proceeds of any insurance covering business interruption loss relating to the System, (iii) interest

on any money or securities related to the System held by or on behalf of the Local Government, except as otherwise provided by the Local Master Indenture, and (iv) any other income from other sources now or hereafter pledged or specifically made available by or on behalf of the Local Government to or for the payment of Operation and Maintenance Expenses or debt service on Parity Debt.

**"Sale Date"** means October 27, 2021, or such other date specified in Schedule 1.1.

**"Service Agreement"** means the Service Agreement dated June 12, 1973, among the Local Government, the City of Charlottesville, Virginia, the Albemarle County Service Authority and the Board of County Supervisors acting for and on behalf of Albemarle County, as supplemented and amended from time to time.

**"Subordinate Debt"** means obligations of the Local Government secured by a pledge of Revenues expressly made subordinate to the pledge securing the Local Bond and any other Parity Bonds, and any obligations to make deposits related to reserve funds, rebate funds and similar funds or accounts established for the benefit of the Local Bond or any other Parity Bonds.

**"Supplemental Interest"** has the meaning set forth in Section 6.1.

**"System"** has the meaning set forth in the Local Master Indenture.

**"Trustee"** means U.S. Bank National Association, Richmond, Virginia, as trustee under the Master Indenture and the Related Supplemental Series Indenture, or its successors serving in such capacity.

**"UVA"** means the Rector and Visitors of the University of Virginia, a public corporation and educational institution of the Commonwealth of Virginia.

**"Virginia SNAP"** means the Commonwealth of Virginia State Non-Arbitrage Program.

**"VRA"** means the Virginia Resources Authority, a public body corporate and a political subdivision of the Commonwealth of Virginia.

**"VRA Bonds"** means the Related Series of VRA Bonds and any additional bonds issued under the Master Indenture.

**"VRA Reserve"** means any one or more of the Capital Reserve Fund, the Infrastructure Debt Service Reserve Fund, the Operating Reserve Fund, a CRF Credit Facility or an Infrastructure Revenue DSRF Facility, each as defined in the Master Indenture.

**Section 1.2 Rules of Construction.** The following rules apply to the construction of this Agreement unless the context requires otherwise:

(a) Singular words connote the plural number as well as the singular and vice versa.

(b) Words importing the redemption or calling for redemption of the Local Bond do not refer to or connote the payment of the Local Bond at its stated maturity.

(c) All references in this Agreement to particular Articles, Sections or Exhibits are references to Articles, Sections or Exhibits of this Agreement unless otherwise indicated.

(d) The headings and table of contents as used in this Agreement are solely for convenience of reference and do not constitute a part of this Agreement and do not affect its meaning, construction or effect.

## **ARTICLE II REPRESENTATIONS**

**Section 2.1 Representations by VRA.** VRA represents to the Local Government as follows:

(a) VRA is a duly created and validly existing public body corporate and political subdivision of the Commonwealth of Virginia vested with the rights and powers conferred upon it under the Act.

(b) VRA has full right, power and authority to (i) issue, sell and deliver the Related Series of VRA Bonds, (ii) direct the Trustee to use a portion of the proceeds of the Related Series of VRA Bonds to purchase the Local Bond from the Local Government as contemplated under the Related Supplemental Series Indenture and this Agreement and (iii) carry out and consummate all other transactions contemplated by this Agreement.

(c) VRA has duly authorized, executed and delivered this Agreement, and this Agreement constitutes a legal, valid and binding obligation of VRA enforceable against VRA in accordance with its terms.

**Section 2.2 Representations by Local Government.** The Local Government represents to VRA as follows:

(a) The Local Government is a duly created and validly existing Virginia "local government" (as defined in Section 62.1-199 of the Act) and is vested with the rights and powers conferred upon it by Virginia law.

(b) The Local Government has full right, power and authority to (i) adopt the Local Authorization and execute and deliver the Local Bond Documents and all related documents, (ii) issue, sell and deliver its Local Bond to the Trustee, (iii) own and operate the System, (iv) undertake the Project and (v) carry out and consummate all of the transactions contemplated by the Local Authorization, the Local Bond, the Local Bond Documents, and the Service Agreement.

(c) The Local Authorization authorized the execution and delivery of this Agreement, and this Agreement is in substantially the same form as presented to the Local Government's governing body at its meeting at which the Local Authorization was adopted. The



Local Authorization was filed in the Circuit Court of the County of Albemarle, Virginia, on August [\_\_\_], 2021.

(d) The Local Government has obtained all governmental permits, licenses, registrations, certificates, authorizations and approvals required to have been obtained as of the Effective Date for the Local Government's (i) adoption of the Local Authorization, (ii) execution and delivery of the Local Bond Documents and the Local Bond, (iii) performance of its obligations under the Local Bond Documents, the Local Bond, and the Service Agreement, (iv) the undertaking of the Project and (v) the operation and use of the System. The Local Government knows of no reason why any such required governmental permits, licenses, registrations, certificates, authorizations or approvals not required to be obtained by the Effective Date cannot be obtained as required in the future.

(e) The Local Government has executed and delivered this Agreement, and this Agreement constitutes a legal, valid and binding obligation of the Local Government enforceable against the Local Government in accordance with its terms.

(f) When executed and delivered in accordance with the Local Authorization and this Agreement, the Local Bond will have been executed and delivered by duly authorized officials of the Local Government and will constitute a legal, valid and binding limited obligation of the Local Government enforceable against the Local Government in accordance with its terms.

(g) The issuance of the Local Bond and the execution and delivery of the Local Bond Documents and the performance by the Local Government of its obligations thereunder and under the Service Agreement are within the powers of the Local Government and will not conflict with, or constitute a breach or result in a violation of, (i) to the best of the Local Government's knowledge, any federal or Virginia constitutional or statutory provision, including the Local Government's charter or articles of incorporation, if any, (ii) any agreement or other instrument to which the Local Government is a party or by which it is bound or (iii) any order, rule, regulation, decree or ordinance of any court, government or governmental authority having jurisdiction over the Local Government or its property.

(h) The Local Government is not in default in the payment of the principal of or interest on any of its indebtedness for borrowed money and is not in default under any instrument under and subject to which any indebtedness for borrowed money has been incurred. No event or condition has happened or existed, or is happening or existing, under the provisions of any such instrument, including but not limited to this Agreement, which constitutes, or which, with notice or lapse of time, or both, would constitute an event of default thereunder.

(i) The Local Government (i) to the best of the Local Government's knowledge, is not in violation of any existing law, rule or regulation applicable to it in any way that would have a material adverse effect on its financial condition or its ability to perform its obligations under the Local Bond, the Local Bond Documents, or the Service Agreement and (ii) is not in default under any indenture, mortgage, deed of trust, lien, lease, contract, note, order, judgment, decree or other agreement, instrument or restriction of any kind to which the Local Government is a party or by which it is bound or to which any of its assets is subject that

would have a material adverse effect on its financial condition or its ability to perform its obligations under the Local Bond and the Local Bond Documents. The Local Government's execution and delivery of the Local Bond and the Local Bond Documents and its compliance with the terms and conditions thereof will not conflict with or result in a breach of or constitute a default under any of the foregoing.

(j) The Local Government reasonably expects that, unless otherwise permitted by the terms of the Local Bond Documents or approved by VRA, the Local Government will own, operate and control the System at all times during the term of the Local Bond.

(k) Except as set forth in Exhibit C, there are not pending nor, to the best of the Local Government's knowledge, threatened against the Local Government, any actions, suits, proceedings or investigations of a legal, equitable, regulatory, administrative or legislative nature (i) affecting the creation, organization or existence of the Local Government or the title of its officers to their respective offices, (ii) seeking to prohibit, restrain or enjoin the approval, execution, delivery or performance of the Local Authorization, the Local Bond Documents, the Service Agreement or the issuance or delivery of the Local Bond, (iii) in any way contesting or affecting the validity or enforceability of the Local Bond, the Local Authorization, the Local Bond Documents, the Service Agreement or any agreement or instrument relating to any of the foregoing, (iv) in which a judgment, order or resolution may have a material adverse effect on the Local Government or its business, assets, condition (financial or otherwise), operations or prospects or on its ability to perform its obligations under the Local Authorization, the Local Bond Documents, the Local Bond, or the Service Agreement or (v) affecting the Project.

(l) The financial statements, applications and other information that the Local Government furnished to VRA in connection with this Agreement fairly and accurately portray the Local Government's financial condition, as of their dates, and there has been no material adverse change in the financial condition of the Local Government since the date of the financial statements provided to VRA in connection with this Agreement.

(m) Nothing that would constitute an Event of Default hereunder has occurred and is continuing, and no event or condition exists that with the passage of time or the giving of notice, or both, would constitute an Event of Default hereunder.

(n) A list of all Parity Debt that is outstanding on the date of this Agreement is attached as Exhibit J (the "Existing Parity Bonds").

(o) Except for the Existing Parity Bonds, there is no indebtedness of the Local Government secured by a pledge of Revenues prior to or on a parity with the lien of the pledge of Revenues that secures the Local Bond.

**Section 2.3 Representations Remade as of the Sale Date.** (a) It shall be a condition precedent of VRA's obligation to sell the Related Series of VRA Bonds that the Local Government's representations and warranties set forth in Section 2.2 be true and accurate in all respects on the Sale Date.

(b) If prior to the Sale Date, any representation or warranty set forth in Section 2.2 becomes untrue or inaccurate, then the Local Government shall notify VRA within one Business Day of becoming aware of such facts, and VRA, in its sole and absolute discretion, shall determine whether to sell VRA Bonds on behalf of the Local Government, which series of VRA Bonds (if any) to sell on behalf of the Local Government and any additional conditions precedent to the sale of such VRA Bonds or the purchase of the Local Bond.

### **ARTICLE III PURCHASE OF THE LOCAL BOND**

**Section 3.1 Purchase of the Local Bond.** (a) Subject to the terms and conditions and in reliance upon the representations, warranties and agreements set forth or incorporated herein, VRA shall purchase, solely from the proceeds of the Related Series of VRA Bonds, all, but not less than all, of the Local Bond from the Local Government, and the Local Government shall, subject to the Financing Parameters, sell and deliver to VRA the Local Bond for the Purchase Price. The Local Government acknowledges that the Purchase Price is determined by VRA, is subject to VRA's Purchase Price Objective (as defined below) and market conditions as described below, and is expected to be substantially equal to the Proceeds Requested. The Local Government shall issue the Local Bond pursuant to the Local Authorization and in substantially the form of Exhibit A to this Agreement. As a condition of VRA entering into this Agreement, the Local Government shall deliver to VRA a copy of the Local Authorization as adopted prior to the date hereof.

(b) The Local Government acknowledges that VRA has advised the Local Government that its objective is to pay the Local Government the Purchase Price for its Local Bond which in VRA's judgment reflects the market value of the Local Bond ("Purchase Price Objective"), taking into consideration the Financing Parameters, the purchase price received by VRA for the Related Series of VRA Bonds, the underwriters' discount and other issuance costs of the Related Series of VRA Bonds and other market conditions relating to the sale of the Related Series of VRA Bonds. The Local Government further acknowledges that VRA has advised it that such factors may result in the Local Bond having a value other than par and that in order to receive an amount of proceeds that is substantially equal to the Proceeds Requested, the Local Government may need to issue the Local Bond with a par amount that is greater or less than the Proceeds Requested. The Local Government shall not issue the Local Bond if doing so would violate any Financing Parameter. Subject to the preceding sentence, the Local Government shall issue the Local Bond at a par amount that provides, to the fullest extent practicable given VRA's Purchase Price Objective, a Purchase Price at least equal to the Proceeds Requested, all in accordance with the Local Authorization. The Local Government acknowledges that the Purchase Price will be less than the Proceeds Requested if any Financing Parameter prevents VRA from generating a Purchase Price substantially equal to the Proceeds Requested, based upon VRA's Purchase Price Objective.

**Section 3.2 Issuance Expenses.** VRA shall pay, or cause to be paid, from the proceeds of the Related Series of VRA Bonds all expenses incident to the performance of VRA's obligations under and the fulfillment of the conditions imposed by this Agreement in connection with the issuance, sale and delivery of the Related Series of VRA Bonds and the purchase of the Local Bond on the Closing Date, including, but not limited to: (i) the cost, if any, of preparing

and delivering the Related Series of VRA Bonds; (ii) the cost of preparing, printing and delivering the Preliminary Official Statement and the Official Statement for the Related Series of VRA Bonds and any amendment or supplement thereto; (iii) the fees and expenses of the financial advisor(s) and bond counsel to VRA; and (iv) all other costs and expenses incurred by VRA. The Local Government shall pay all expenses of the Local Government incident to the issuance, sale and delivery of the Local Bond, including, but not limited to the fees and disbursements of the financial advisor, counsel and bond counsel to the Local Government from the Purchase Price or other funds of the Local Government.

**Section 3.3    Schedule 1.1.** VRA shall complete Schedule 1.1, which shall set forth, among other things, the principal amount, interest rates, payment schedule and Purchase Price with respect to the Local Bond and the principal amount of the Related Series of VRA Bonds on or after the Sale Date. VRA shall deliver the completed Schedule 1.1 to the Local Government and shall attach Schedule 1.1 to this Agreement. Upon delivery to the Local Government, the completed Schedule 1.1 shall become a part of this Agreement the same as if it were a part hereof on the Effective Date.

**Section 3.4    Conditions Precedent to Purchase of the Local Bond.** VRA shall not be required to cause the Trustee to purchase the Local Bond unless:

(a) VRA has received the following, all in form and substance satisfactory to VRA:

(1) Certified copies of the Local Authorization and all other ordinances and resolutions of the Local Government relating to the Local Bond Documents and the Local Bond, if any.

(2) A certificate of the appropriate officials of the Local Government dated the Closing Date as to the matters set forth in Section 2.2 and Section 2.3 (to the extent applicable), including appropriate certifications regarding the Local Bond Documents, and such other matters as VRA may reasonably require.

(3) Evidence that the Local Government has performed and satisfied all of the terms and conditions contained in this Agreement to be performed and satisfied by it as of such date.

(4) An opinion of counsel to the Local Government in substantially the form attached as Exhibit F.

(5) An opinion of bond counsel to the Local Government in form and substance reasonably satisfactory to VRA.

(6) Evidence that the Local Government has complied with the insurance provisions set forth in Section 910 of the Local Master Indenture as of the Closing Date.

(7) The executed Local Bond and original executed counterparts of the Local Tax Document.

(8) A certificate of the Consulting Engineer giving the Consulting Engineer's estimate of the construction portion of the total Project Costs to be financed with the proceeds of the Local Bond, which estimate must be in an amount and otherwise compatible with the financing plan described in the Project Budget.

(9) A certificate of the Consulting Engineer (i) to the effect that the Purchase Price and funds available from the other sources specified in the Project Budget will be sufficient to pay all of the estimated Project Costs and (ii) specifying the date the Local Government is expected to complete the Project.

(10) A certificate of a Consulting Engineer or a Qualified Independent Consultant, including supporting documentation, to the effect that during the first two complete Fiscal Years following the estimated completion date of the Project, the projected Net Revenues Available for Debt Service will satisfy the Local Government's rate covenant under Section 5.2(a). In providing this certificate, the Consulting Engineer or Qualified Independent Consultant may take into consideration future System rate increases, provided that such rate increases have been duly approved by the Local Government's governing body and any other person or entity required to give approval for the rate increase to become effective. In addition, the Consulting Engineer or Qualified Independent Consultant may take into consideration additional future revenues to be derived under existing contractual arrangements entered into by the Local Government and from reasonable estimates of growth in the Local Government's consumer base.

(11) A certificate of the Consulting Engineer to the effect that (i) all governmental permits, licenses, registrations, certificates, authorizations and approvals for the undertaking of the Project and the operation and use of the System required to have been obtained as of the Closing Date have been obtained and (ii) the Consulting Engineer knows of no reason why any such required governmental permits, licenses, registrations, certificates, authorizations and approvals for the undertaking of the Project and the operation and use of the System cannot be obtained as required in the future.

(12) Evidence that the Local Government is in compliance with the construction contract provisions set forth in Section 7.13 with respect to any existing contracts as of the Closing Date.

(13) Evidence that the Local Government has satisfied all conditions precedent to the issuance of the Local Bond as a "Parity Bond" under the financing documents for the Existing Parity Bonds.

(14) Such other documentation, certificates and opinions as VRA may reasonably require as set forth in Schedule 1.1.

(b) The initial purchasers of the Related Series of VRA Bonds have paid in full and VRA has accepted the purchase price for the Related Series of VRA Bonds on the Closing Date. It is understood that the sole source of funds to pay the Purchase Price is a portion of the proceeds of the Related Series of VRA Bonds.

## **ARTICLE IV USE OF PURCHASE PRICE**

### **Section 4.1    Deposit of Purchase Price; Investment of Amounts in Local Account.**

(a) On the Closing Date, VRA shall cause the Trustee to deposit the Purchase Price into the Local Account and to apply the Purchase Price and the earnings thereon as set forth in the Related Supplemental Series Indenture, this Agreement, the Local Master Indenture, and the Local Tax Document.

(b) The Local Government acknowledges and consents to the investment of the Purchase Price and the earnings thereon allocable to pay the Local Government's related costs of issuance, if any, in Virginia SNAP.

**Section 4.2    Agreement to Accomplish Project.** (a) The Local Government shall cause the Project to be acquired, constructed, expanded, renovated, equipped or financed as described in Exhibit B and in accordance with the Project Budget, this Agreement, the Local Tax Document and the plans, specifications and designs prepared by the Consulting Engineer and approved by the Local Government. The Local Government shall use its best efforts to complete, or cause to be completed, the Project by the date set forth in the certificate delivered under Section 3.4(a)(9). The Local Government shall obtain the approval of all applicable regulatory agencies of all plans, specifications and designs for the Project. The Local Government shall maintain complete and accurate books and records of the Project Costs and permit VRA or the Trustee through their representatives to inspect such books and records at any reasonable time.

(b) Upon completion of the Project, the Local Government shall promptly deliver to VRA and the Trustee a certificate signed by a Local Representative and by the Consulting Engineer stating (i) that the Project has been completed substantially in accordance with this Article and in substantial compliance with all material applicable laws, ordinances, rules and regulations, (ii) the date of such completion and (iii) that all certificates of occupancy or other material permits then necessary for the use, occupancy and operation of the Related Financed Property have been issued or obtained. Such certificate shall be accompanied by a copy of the final requisition submitted to the Trustee pursuant to Section 4.3, including Schedule 1 thereto.

(c) If upon completion of the Project and payment of all related costs of issuance, there is a balance remaining in the Local Account, the Trustee, at the written direction of the Local Government, shall apply any remaining balance to pay or reimburse the Local Government for previously-paid interest on the Local Bond or in such other manner that is permitted under the Act and will not, in the opinion of a nationally-recognized bond counsel delivered to VRA and the Trustee, have an adverse effect on the tax status of the Related Series of VRA Bonds. To the extent the Project has been completed concurrently with the final requisition, a completion certificate will be provided.

**Section 4.3    Disbursement of Purchase Price and Earnings.** Except as provided in Section 4.2(c), the Local Government shall apply the amounts in the Local Account solely and exclusively to the payment or reimbursement of the Local Government for the Project Costs.

Not more frequently than once per calendar month, the Trustee shall disburse amounts from the Local Account to the Local Government or as directed by the Local Government upon the Trustee's receipt of the following:

(a) A requisition (upon which the Trustee and VRA shall be entitled to rely) signed by a Local Representative and containing all information called for by, and otherwise being in the form of, Exhibit D (including the Schedules thereto).

(b) Receipts, vouchers, statements, bills of sale or other evidence of payment of the related Project Costs.

(c) If any requisition includes an item for payment for labor or to contractors, builders or materialmen:

(1) a certificate, signed by a Local Engineer, stating that such work was actually performed or such materials, supplies or equipment were actually furnished or installed in or about the construction of the Project; and

(2) a certificate, signed by a Local Representative (that may rely on representations of counsel or a title insurance agency reasonably acceptable to VRA), stating that no notice of any lien, right to lien or attachment upon, or claim affecting the right to receive payment of, any of the money payable under the requisition to any of the persons, firms or corporations named in it has been received, or if any notice of any such lien, attachment or claim has been received, such lien, attachment or claim has been released or discharged or will be released or discharged upon payment of the requisition.

(d) If any requisition includes an item for payment of the cost of acquisition of any lands or easements, rights or interests in or relating to lands, there shall also be attached to such requisition:

(1) a certificate, signed by a Local Engineer, stating that such lands, easements, rights or interests are being acquired and are necessary or convenient for the construction of the Project; and

(2) a certificate, signed by a Local Representative (that may rely on representations of counsel or a title insurance agency reasonably acceptable to VRA), stating that upon payment therefor the Local Government will have title in fee simple to, or easements, rights or interests sufficient for the purposes of, the Project over and through the subject lands.

Following VRA's approval of each such requisition and accompanying invoice(s) and certificate(s), which approval will not unreasonably be withheld, the Trustee shall pay the requisition from the Local Account in accordance with the instructions in such requisition.

**The Local Government agrees that any amounts disbursed to it or for its account from the Local Account will be (i) immediately applied to reimburse the Local Government for Project Costs it has already paid or (ii) actually spent to pay Project Costs not later than five banking days after receipt.**

**Section 4.4 No Sufficiency Warranty by VRA; Local Government Required to Complete Project.** VRA makes no warranty, either express or implied, that the Purchase Price will be sufficient to pay all or any particular portion of the Project Costs. If the Purchase Price is not sufficient to pay in full the cost of the Project, the Local Government shall complete the Project at its own expense and shall not be entitled to any reimbursement therefor from VRA or any abatement, diminution or postponement of its payments under the Local Bond or this Agreement.

## **ARTICLE V PLEDGE AND SECURITY**

**Section 5.1 Pledge.** As set forth in Section 712 of the Local Master Indenture, all Revenues derived from the ownership or operation of the System and all moneys in the funds established by the Local Master Indenture and enumerated in Section 712 are trust funds and are pledged to the payment of the Bonds issued under and as defined in the Local Master Indenture, including the principal of and interest on the Local Bond and the payment and performance of the Local Government's obligations under this Agreement.

**Section 5.2 Rate Covenant.** (a) The Local Government shall fix and collect rates, fees and other charges for the use of and for services furnished or to be furnished by the System, and will from time to time revise such rates, fees and other charges to the extent required to satisfy the revenue covenant in Section 702 of the Local Master Indenture.

(b) If, for any reason, the Net Revenues Available for Debt Service are insufficient to satisfy the covenant set forth in subsection (a), the Local Government shall within 90 days adjust and increase its rates, fees and other charges or reduce its Operating Expenses so as to provide sufficient Net Revenues Available for Debt Service to satisfy such requirement.

(c) On or before the last day of each Fiscal Year, the Local Government shall review the adequacy of its rates, fees and other charges for the next Fiscal Year, and, if such review indicates the Local Government's rates, fees and other charges will be insufficient to satisfy the rate covenant in subsection (a), the Local Government shall promptly take appropriate action to increase its rates, fees and other charges or reduce its Operating Expenses to cure any deficiency.

**Section 5.3 Annual Budget of the System.** Not less than 15 days before the first day of each Fiscal Year, the Local Government shall submit to its governing body and to VRA a copy of a preliminary annual budget, containing all information called for by, and otherwise being in the form of, Exhibit I to this Agreement, for such Fiscal Year setting forth a schedule of the rates, fees and other charges to be imposed by the Local Government, the Revenues estimated to be generated thereby and the expenditures anticipated by the Local Government for operations, maintenance, repairs, replacements, improvements, debt service and other purposes. The Local Government shall adopt, prior to the first day of each Fiscal Year, a budget for such Fiscal Year. The Local Government shall ensure that the adopted budget contains the information required to be included in the preliminary budget. Such budget as approved by the Local Government's governing body is referred to in this Agreement as the Annual Budget. The Local Government may at any time during any Fiscal Year amend the Annual Budget for such



Fiscal Year so long as such amendment does not result in an Event of Default. The Local Government shall promptly submit to VRA, in an electronic format, a copy of the Annual Budget and any amendments thereto.

**Section 5.4 Qualified Independent Consultant's Report.** (a) If at the end of any Fiscal Year, the Local Government is not in compliance with the rate covenant made by the Local Government in Section 5.2(a), within 210 days after the end of such Fiscal Year, the Local Government shall obtain a report from the Qualified Independent Consultant. The Local Government shall ensure that the report gives advice and makes recommendations as to the proper maintenance, repair, replacement and operation of the System for the next ensuing Fiscal Year and estimating the costs thereof as to the rates, fees, and other charges which should be established by the Local Government to satisfy the rate covenant in Section 5.2(a). The Local Government shall promptly furnish a copy of such report to VRA and, subject to Section 5.4(b), take measures to implement the recommendations of the Qualified Independent Consultant within 90 days of obtaining such report.

(b) If the Local Government determines that the Qualified Independent Consultant's recommendations are impractical or inappropriate, the Local Government may in lieu thereof adopt other procedures which the Local Government believes will bring it into compliance with the rate covenant made by the Local Government in Section 5.2(a) when such measures have been implemented and become fully effective. Such alternative plan shall be filed with VRA not later than 30 days after receipt of the Qualified Independent Consultant's report along with a detailed explanation of the Local Government's reason for rejecting the Qualified Independent Consultant's recommendations. Notwithstanding anything herein to the contrary, VRA reserves the right, in its sole discretion, to reject such alternate procedures and, to the extent permitted by law, require the Local Government to comply with the Qualified Independent Consultant's recommendations.

**Section 5.5 Limitation on Amendments to Certain Documents.** After the Sale Date, the Service Agreement shall not be terminated, permitted to lapse or amended in whole or in part without the prior written consent of the Local Trustee, Local Government, the City of Charlottesville, Virginia, the Albemarle County Service Authority and the Board of County Supervisors acting for and on behalf of Albemarle County. Any such consent shall be given in accordance with the Local Authorization and Local Master Indenture.

## **ARTICLE VI PAYMENT AND REDEMPTION OF LOCAL BOND**

**Section 6.1 Payment of Local Bond and Related Amounts.** (a) Until the principal of and premium, if any, and interest on the Local Bond and all other amounts payable under this Agreement have been paid in full, the Local Government shall pay from the Revenues to the Trustee or VRA, as applicable, the following amounts:

(1) to the Trustee, the amounts required by the Local Bond on such dates and in such manner as provided for in the Local Bond – the term "interest," as used in the Local Bond and this Agreement, includes Supplemental Interest, when and if payable;

(2) to the Trustee or to VRA, no later than 15 days after VRA's demand, any amounts payable under the Local Tax Document, including without limitation the costs of any rebate calculation agent;

(3) to VRA, on its demand, a late payment penalty in an amount equal to 5.0% of the payment on the Local Bond not paid within five days after its due date;

(4) to the Trustee, the Local Government's share (as determined by VRA) of the annual fees and expenses of the Trustee, less the Local Government's share of the net earnings on the Revenue Fund, Infrastructure Revenue Debt Service Fund and Moral Obligation Debt Service Fund established under the Master Indenture (as determined by VRA), and the Local Government shall pay such amounts no later than 15 days after VRA or the Trustee sends to the Local Government a written bill for them; and

(5) to VRA, to the extent permitted by law, the reasonable costs and expenses, including reasonable attorneys' fees, if any, incurred by VRA in connection with (i) an Event of Default or default by the Local Government under this Agreement (ii) any amendment to or discretionary action that VRA undertakes at the request of the Local Government under this Agreement, any other document related to the Related Series of VRA Bonds or the Local Bond or (iii) any claim, lawsuit or other challenge to the Local Bond, the VRA Bonds or this Agreement that arises, at least in part, out of the Local Government's authorization of its issuance of the Local Bond, and the Local Government shall pay such amounts no later than 15 days after VRA or the Trustee sends to the Local Government a written bill for them.

(b) If any failure of the Local Government to pay all or any portion of any required payment of the principal of or premium, if any, or interest on the Local Bond results in a withdrawal from or a drawing on any VRA Reserve, the interest rates applicable to the Local Bond shall be increased to interest rates sufficient to reimburse the VRA Reserve for any foregone investment earnings on the funds withdrawn therefrom and pay any interest, fees or penalties assessed as a result of the withdrawal from or drawing on the VRA Reserve. The increment of interest payable pursuant to the increase in rates shall be referred to as "Supplemental Interest." The Local Government's obligation to pay Supplemental Interest shall commence on the date of the withdrawal or drawing of funds from the VRA Reserve occasioned by the Local Government's failure to pay a required payment or portion thereof as described above (the "Supplemental Interest Commencement Date"). The Local Government's obligation to pay Supplemental Interest shall terminate on the date on which the Local Government makes all payments required but outstanding since the date of the initial failure to pay (the "Supplemental Interest Termination Date"). From the Supplemental Interest Commencement Date to the Supplemental Interest Termination Date, Supplemental Interest shall be due and payable on the regularly scheduled interest payment dates provided for in the Local Bond. As soon as reasonably possible after the Supplemental Interest Commencement Date and before the next regularly scheduled interest payment date provided for in the Local Bond, VRA shall deliver to the Local Government a certificate as to the increase in interest rates and the amount of Supplemental Interest. The certificate shall set forth in reasonable detail the basis for the increase in interest rates and the manner of calculation of the increase and the amount of Supplemental Interest. Such certificate shall be conclusive (absent manifest error) as to the

interest rate increase and amount of Supplemental Interest set forth therein. In determining the interest rate increase and the amount of Supplemental Interest, VRA may use any reasonable averaging and attribution methods.

(c) The Local Government shall pay the amounts described above and make payments as scheduled under the Local Bond despite any amount being withdrawn from or drawn on a VRA Reserve pursuant to the Master Indenture.

**Section 6.2 Defeasance and Redemption of Local Bond.** (a) The Local Government shall not defease or redeem the Local Bond (in whole or in part), except as provided in this Section 6.2.

(b) The Local Government shall satisfy the following conditions prior to the defeasance and redemption of the Local Bond:

(1) The Local Government shall provide to VRA not less than 60 days' prior written notice of the deposit of the funds described in (2), (3) and (4) below.

(2) The Local Government shall deposit with the Trustee an amount sufficient for VRA to establish an escrow of cash and non-callable, non-prepayable Government Obligations the principal of and interest on which will be sufficient (without reinvestment) to cause the defeasance under Article XII of the Master Indenture of the portion of the Related Portion of VRA Bonds corresponding to the portion of the Local Bond to be defeased or prepaid (the "Allocated Portion"). The defeasance of the Allocated Portion may be either to maturity or an earlier redemption date as determined by the Local Government.

(3) The Local Government shall deposit with VRA cash in an amount sufficient, as determined by VRA, to pay for a verification report required for the defeasance of the Allocated Portion under Article XII of the Master Indenture, any costs incurred by VRA in connection with the redemption, refunding and defeasance of the Allocated Portion, all amounts overdue or then due on the Local Bond (including, without limitation, any Supplemental Interest) and all amounts overdue, due or to become due under Section 6.1(a) of this Agreement.

(4) The Local Government shall deposit with VRA cash in an amount equal to the present value of interest that would be paid on the principal of the Allocated Portion at a rate equal to 0.125%, payable semiannually, to the maturity dates of the Allocated Portion or, if earlier, the redemption date or dates of the Allocated Portion. Present value shall be determined by using a discount rate equal to the true interest cost of the Related Portion of VRA Bonds.

(c) VRA will determine which Related Portion of VRA Bonds will be designated as the Allocated Portion and the amounts to be deposited under subsection (b)(2) and (3) above using such reasonable allocation and estimation methods as may be selected by VRA, and VRA's determinations shall be conclusive (absent manifest error).

(d) The Local Government acknowledges that no funds in any VRA Reserve will be available to the Local Government for the defeasance or redemption of the Local Bond.

**Section 6.3 Payments and Rights Assigned.** The Local Government hereby consents to VRA's assignment to the Trustee of VRA's rights under this Agreement and the Local Bond. The Local Government also hereby acknowledges and consents to the reservation by VRA of the right and license to enjoy and enforce VRA's rights under the Local Bond and this Agreement so long as no Event of Default (as defined in the Master Indenture) with respect to the Related Series of VRA Bonds has occurred and is continuing. Even though VRA will be the registered owner of the Local Bond, the Local Government shall pay directly to the Trustee all amounts payable by the Local Government under the Local Bond and this Agreement (except for those amounts specifically indicated as payable to VRA under Section 6.1 or Section 11.8, which the Local Government shall pay directly to VRA).

**Section 6.4 Obligations Absolute and Unconditional.** The obligation of the Local Government to make the payments required by the Local Bond and this Agreement from the sources pledged therefor shall be absolute and unconditional. The Local Government shall pay all such amounts without abatement, diminution or deduction (whether for taxes or otherwise) regardless of any cause or circumstance whatsoever including, without limitation, any defense, set-off, recoupment or counterclaim that the Local Government may have or assert against VRA, the Trustee or any other person.

## **ARTICLE VII OPERATION AND USE COVENANTS**

**Section 7.1 Maintenance.** At its own cost and expense the Local Government shall operate the System in a proper, sound and economical manner in compliance with all legal requirements and shall maintain the System in good repair and operating condition and from time to time shall make all necessary repairs, renewals and replacements.

**Section 7.2 Additions and Modifications.** At its own expense the Local Government from time to time may make any renewals, replacements, additions, modifications or improvements to the System that the Local Government deems desirable, provided that any such renewal, replacement, addition, modification or improvement does not (i) materially reduce the value of the System or (ii) negatively affect the structural or operational integrity of any part of the System. The Local Government shall ensure that all such renewals, replacements, additions, modifications or improvements comply with all applicable federal, state and local laws, rules, regulations, orders, permits, authorizations and requirements. All such renewals, replacements, additions, modifications and improvements shall become part of the System.

**Section 7.3 Permits.** The Local Government shall comply with Section 904 of the Local Master Indenture and shall, upon request, promptly furnish to VRA and the Trustee copies of all permits, consents and approvals referred to in Section 904 of the Local Master Indenture.

**Section 7.4 Use.** The Local Government shall comply with all lawful requirements of any governmental authority regarding the System, whether now existing or subsequently enacted, whether foreseen or unforeseen or whether involving any change in governmental

policy or requiring structural, operational or other changes to the System, irrespective of the cost of making the same.

**Section 7.5 Inspection and Local Government's Books and Records.** The Local Government shall permit VRA, the Trustee and their duly authorized representatives and agents such reasonable rights of access to the System as may be necessary to determine whether the Local Government is in compliance with the requirements of this Agreement, and the Local Government shall permit such parties, at all reasonable times and upon reasonable prior notice to the Local Government, to examine and copy the Local Government's books and records that relate to the System.

**Section 7.6 Ownership.** The Local Government shall not construct, reconstruct or install any part of the System on (i) lands other than those which the Local Government (a) owns, (b) can acquire title to or a perpetual easement over, (c) has a leasehold interest or similar contractual right from either one of its two Customers or the County of Albemarle, Virginia, or (d) has a ground leasehold interest, lease or license from UVA, in any case sufficient for the Local Government's purposes, or (ii) any other lands in which the Local Government has acquired a right or interest less than a fee simple or perpetual easement, unless (1) such part of the System is lawfully located in a public street or highway or (2) the Local Government provides a written opinion of counsel or a report of a Qualified Independent Consultant, either of which in a form reasonably acceptable to VRA, that indicates that the lands and the Local Government's right or interest therein is sufficient for the Local Government's purposes.

**Section 7.7 Sale or Encumbrance.** No part of the System shall be sold, exchanged, leased, mortgaged, encumbered or otherwise disposed of except as provided in Section 907 of the Local Master Indenture.

**Section 7.8 Collection of Revenues.** The Local Government shall use its best efforts to collect all rates, fees and other charges due to it, including, without limitation, the perfection of liens on premises served by the System for the amount of all delinquent rates, fees and other charges where such action is permitted by law, the Local Master Indenture and the Service Agreement. The Local Government shall, to the full extent permitted by law, discontinue and shut off, or cause to be discontinued and shut off, services and facilities of the System, and use its best efforts to cause to be shut off water service furnished otherwise than through the System, to customers of the System who are delinquent beyond any customary grace periods in the payment of rates, fees and other charges due to the Local Government.

**Section 7.9 Intentionally Omitted.**

**Section 7.10 Intentionally Omitted.**

**Section 7.11 Intentionally Omitted.**

**Section 7.12 Lawful Charges.** The Local Government shall pay when due all taxes, fees, assessments, levies and other governmental charges of any kind whatsoever (collectively, the "Governmental Charges") which are (i) assessed, levied or imposed against the System or the Local Government's interest in it, or (ii) incurred in the operation, maintenance, use and occupancy of the System. The Local Government shall pay or cause to be discharged, or shall

make adequate provision to pay or discharge, all lawful claims and demands for labor, materials, supplies or other objects which, if unpaid, might by law become a lien upon all or any part of the System or the Revenues (collectively, the "Mechanics' Charges"). The Local Government, however, after giving VRA 10 days' notice of its intention to do so, at its own expense and in its own name, may contest in good faith any Governmental Charges or Mechanics' Charges. If such a contest occurs, the Local Government may permit the same to remain unpaid during the period of the contest and any subsequent appeal unless, in VRA's reasonable opinion, such action may impair the lien on Revenues granted by this Agreement, in which event, such Governmental Charges or Mechanics' Charges promptly shall be satisfied or secured by posting with the Trustee or an appropriate court a bond in form and amount satisfactory to VRA. Upon request, the Local Government shall furnish to VRA proof of payment of all Governmental Charges and Mechanics' Charges the Local Government is required to pay under this Agreement.

**Section 7.13 Construction Contractors.** (a) Except as provided in (b) below, the Local Government shall cause each general construction contractor who is employed in the accomplishment of the Project (or a portion thereof), to furnish a performance bond and a payment bond each in an amount equal to 100% of the particular contract price. Such bonds must list the Local Government, VRA and the Trustee as beneficiaries. Neither VRA nor the Trustee shall make any claims or exercise any rights under such bonds unless and until an Event of Default occurs. The Local Government shall maintain or cause each contractor to maintain during the construction period covered by the particular construction contract builder's risk insurance, workmen's compensation insurance, public liability insurance, property damage insurance and vehicle liability insurance in amounts and on terms satisfactory to the Consulting Engineer.

(b) For any general construction contractor who is employed in the accomplishment of the Project (or a portion thereof), and who is responding to bids issued prior to the date of this Agreement or who has otherwise entered into a contract or other agreement with the Local Government prior to the date of this Agreement, the provisions of (a) above shall not be required. However, to the extent payment and performance bonds are obtained, the Local Government shall apply proceeds thereof in accordance with Section 4.2.

**Section 7.14 Engineering Services.** The Local Government shall retain or employ a Consulting Engineer as provided in Section 906 of the Local Master Indenture.

## **ARTICLE VIII INSURANCE, DAMAGE AND DESTRUCTION**

**Section 8.1 Insurance.** The Local Government shall maintain or cause to be maintained the insurance coverages required by Section 910 of the Local Master Indenture.

Neither VRA nor the Trustee shall have any responsibility or obligation with respect to (i) the procurement or maintenance of insurance or the amounts or the provisions with respect to policies of insurance or (ii) the application of the proceeds of insurance.

The Local Government shall provide annually to VRA a certificate or certificates of the respective insurers evidencing the fact that the insurance required by this Section is in force and effect.

**Section 8.2 Requirements of Policies.** The Local Government shall maintain all insurance required by Section 8.1 with generally recognized responsible insurance companies selected by the Local Government and reasonably acceptable to VRA. Such insurance may be written with deductible amounts comparable to those on similar policies carried by other utility systems of like size and character to the System. If the Local Government does not maintain such insurance with an insurer licensed to do business in Virginia or placed under the requirements of the Virginia Surplus Lines Insurance Law, Chapter 48, Title 38.2, Code of Virginia of 1950, as amended, or any successor statute, the Local Government shall provide evidence reasonably satisfactory to VRA that such insurance is enforceable under Virginia law.

**Section 8.3 Notice of Damage, Destruction or Condemnation.** In case of (i) any damage to or destruction of any material part of the System, (ii) a taking of all or any part of the System or any right in it under the exercise of the power of eminent domain, (iii) any loss of the System because of failure of title or (iv) the commencement of any proceedings or negotiations which might result in such a taking or loss, the Local Government shall notify VRA in writing within ten Business Days of the occurrence describing generally the nature and extent of such damage, destruction, taking, loss, proceedings or negotiations.

**Section 8.4 Damage and Destruction.** If all or any part of the System is destroyed or damaged by fire or other casualty, and the Local Government shall not have exercised its option, if such option is available, to redeem the outstanding Local Bond pursuant to Section 6.2, the Local Government shall restore promptly the property damaged or destroyed to substantially the same condition as before such damage or destruction, with such alterations and additions as the Local Government may determine and which will not impair the capacity or character of the System for the purposes for which it then is being used or is intended to be used. The Local Government may apply so much as may be necessary of the net proceeds of insurance received on account of any such damage or destruction to payment of the cost of such restoration, either on completion or as the work progresses. If such net proceeds are not sufficient to pay in full the cost of such restoration, the Local Government shall pay so much of the cost as may be in excess of such net proceeds.

**Section 8.5 Condemnation and Loss of Title.** If title to or the temporary use of all or any part of the System shall be taken under the exercise of the power of eminent domain or lost because of failure of title, and the Local Government shall not have exercised its option, if such option is available, to redeem the outstanding Local Bond pursuant to Section 6.2, the Local Government shall cause the net proceeds from any such condemnation award or from any title insurance to be applied to the restoration of the System to substantially its condition before the exercise of such power of eminent domain or failure of title. If such net proceeds are not sufficient to pay in full the cost of such restoration, the Local Government shall pay so much of the cost as may be in excess of such net proceeds.

## **ARTICLE IX SPECIAL COVENANTS**

**Section 9.1 Tax Covenants.** The Local Government shall not directly or indirectly use or permit the use of any of the proceeds of the Local Bond or any other of its funds, in such manner as would, or enter into, or allow any other person or entity to enter into, any arrangement, formal or informal, that would, or take or omit to take any other action that would, cause interest on any of the Related Series of VRA Bonds to be includable in gross income for federal income tax purposes or to become a specific item of tax preference for purposes of the federal alternative minimum tax imposed on individuals and corporations. Insofar as the Local Tax Document imposes duties and responsibilities on the Local Government, including the payment of any arbitrage rebate in respect of the Related Series of VRA Bonds, as of the Closing Date they are specifically incorporated by reference into this Agreement. The Local Government also consents to the calculation of any "rebate amount" to be paid with respect to the Related Portion of VRA Bonds by a rebate calculation service selected by VRA.

**Section 9.2 Maintenance of Existence.** The Local Government shall maintain its existence as a public body corporate and politic and political subdivision of the Commonwealth of Virginia under Virginia law, and shall not dissolve or otherwise dispose of all or substantially all of its assets or consolidate or merge with or into another entity without VRA's prior written consent, which consent will not be unreasonably withheld.

**Section 9.3 Financial Records and Statements.** The Local Government shall maintain proper books of record and account in which proper entries shall be made in accordance with generally accepted government accounting standards, consistently applied, of all its business and affairs. The Local Government shall have an annual audit of the financial condition of the Local Government (and at the reasonable request of VRA, of the System) made in accordance with Section 911 of the Local Master Indenture; provided, however, that such annual audit shall be prepared within one hundred and eighty (180) days after the end of each Fiscal Year. The annual audit shall include a supplemental schedule demonstrating whether the Local Government satisfied the rate covenant set forth in Section 5.2 for such fiscal year. The Local Government shall furnish to VRA, in an electronic format, a copy of such report immediately after it is accepted by the Local Government. Such report shall include statements in reasonable detail, certified by such accountant, reflecting the Local Government's financial position as of the end of such Fiscal Year and the results of the Local Government's operations and changes in the financial position thereof for the Fiscal Year. The Local Government agrees to file, or to cause the Trustee to file, with VRA each of the documents required to be filed with the Local Trustee pursuant to the Local Master Indenture at the time each such document is required to be filed with the Local Trustee.

**Section 9.4 Certification as to No Default and Tax Compliance.** The Local Government shall deliver to VRA, within 180 days after the close of each Fiscal Year, a certification in substantially the form attached as Exhibit G and signed by a Local Representative.

**Section 9.5 Notice of Issuance of Additional Bonds of Local Government.** The Local Government agrees to notify VRA before the issuance of any Additional Bonds as defined in the Local Master Indenture. Notwithstanding anything else in this Agreement to the contrary,



the Local Government may not issue Additional Bonds or any other obligations or indebtedness to refund or refinance some or all of the Local Bond without VRA's prior written consent.

**Section 9.6 Further Assurances.** The Local Government shall to the fullest extent permitted by law pass, make, do, execute, acknowledge and deliver such further resolutions, acts, deeds, conveyances, assignments, transfers and assurances as may be necessary or desirable for the better assuring, conveying, granting, assigning and confirming the rights and collateral, if any, assigned or pledged by this Agreement, or as may be required to carry out the purposes of this Agreement. The Local Government shall at all times, to the fullest extent permitted by law, defend, preserve and protect the pledges made under this Agreement and all rights of VRA under this Agreement against all claims and demands of all persons, including without limitation the payment of certain costs of VRA as described in Section 6.1(a)(5).

**Section 9.7 Assignment by Local Government.** The Local Government shall not assign its rights and obligations under the Local Bond or this Agreement, or both, without the prior written consent of VRA.

**Section 9.8 Continuing Disclosure.** (a) For purposes of this Section 9.7, the following terms and phrases have the following meanings:

**"Annual Financial Information"** with respect to any Fiscal Year for the Local Government means the following:

(i) the financial statements (consisting of at least a balance sheet and a statement of revenues and expenses) of the System ,which financial statements must be (A) prepared annually in accordance with generally accepted accounting principles in effect from time to time consistently applied (provided that nothing in this clause (A) will prohibit the Local Government after the date of this Agreement from changing such other principles so as to comply with generally accepted accounting principles as then in effect or to comply with a change in applicable law) and (B) audited by an independent certified public accountant or firm of such accountants in accordance with generally accepted auditing standards as in effect from time to time (provided that if audited financial statements are not available for filing when required by this Section or the Rule (as defined herein), unaudited financial statements will be filed and audited financial statements will be filed as soon as possible thereafter); and

(ii) operating data of the type set forth in Exhibit E.

**"Dissemination Agent"** means any person, reasonably acceptable to VRA, whom the Local Government contracts in writing to perform its obligations as provided in subsection (i) of this Section.

**"Financial Obligation"** means a (i) debt obligation; (ii) derivative instrument entered into in connection with, or pledged as security or a source of a payment for, an existing or planned debt obligation; or (iii) a guarantee of (i) or (ii). The term Financial Obligation does not include municipal securities as to which a final official statement has been otherwise provided to the MSRB under the Rule.

**"Make Public"** or **"Made Public"** has the meaning set forth in subsection (c) of this Section.

**"Material Local Government"** means the Local Government if the aggregate outstanding principal amount of the Local Bond and any other of the Local Government's local bonds purchased with proceeds of the VRA Bonds represent 15% or more of the outstanding aggregate principal amount of the local bonds purchased with proceeds of the VRA Bonds.

**"Rule"** means Rule 15c2-12, as it may be amended from time to time, under the Securities Exchange Act of 1934 and any similar rules of the SEC relating to disclosure requirements in the offering and sale of municipal securities, all as in effect from time to time.

**"SEC"** means the U.S. Securities and Exchange Commission.

(b) The Local Government shall Make Public or cause to be Made Public:

(1) Within seven months after the end of the Local Government's Fiscal Year (commencing with the Fiscal Year in which the Closing Date occurs), Annual Financial Information for such Fiscal Year as of the end of which the Local Government constitutes a Material Local Government. Annual Financial Information may be set forth in the documents Made Public or may be included in a document Made Public by specific reference to any document available to the public on the internet website of the Municipal Securities Rulemaking Board ("MSRB") or filed with the SEC. If the document referred to is a final official statement, then it must be available from the MSRB.

(2) In a timely manner, notice of any failure by the Local Government to Make Public or cause to be Made Public Annual Financial Information pursuant to the terms of part (1) of this subsection.

(c) For purposes of this Section, information and notices shall be deemed to have been "Made Public" if transmitted to VRA, to the Trustee and to the MSRB in an electronic format as prescribed by the MSRB.

(d) The Local Government shall also notify VRA of the occurrence of any of the following events that may from time to time occur with respect to the Local Bond, such notice to be given in a timely manner not in excess of five Business Days after the occurrence of the event:

- (1) principal and interest payment delinquencies;
- (2) non-payment related defaults;
- (3) unscheduled draws on debt service reserves reflecting financial difficulties;
- (4) unscheduled draws on any credit enhancement maintained with respect to the Local Bond reflecting financial difficulties;

(5) substitution of credit or liquidity providers, or their failure to perform;

(6) adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701 – TEB) or other notices or determinations with respect to the Local Bond that could affect the tax status of the Related Series of VRA Bonds, or other events with respect to the Local Bond that could affect the tax status of the Related Series of VRA Bonds;

(7) modifications to rights of holders;

(8) bond calls and tender offers;

(9) defeasances;

(10) release, substitution, or sale of property securing repayment of the Local Bond;

(11) rating changes;

(12) bankruptcy, insolvency, receivership or similar event of the Local Government;

(13) the consummation of a merger, consolidation, or acquisition involving the Local Government or the sale of all or substantially all of the assets of the Local Government, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such action, other than pursuant to its terms;

(14) appointment of a successor or additional trustee for the Local Bond, if any, or the change of name of a trustee;

(15) the failure of the Local Government on or before the date required by this Agreement to provide Annual Financial Information to the persons and in the manner required by this Agreement;

(16) incurrence of a Financial Obligation of the Local Government, if material, or agreement to covenants, events of default, remedies, priority rights, or other similar terms of a Financial Obligation of the Local Government, any of which affect security holders, if material; and

(17) default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a Financial Obligation of the Local Government, any of which reflect financial difficulties.

(e) Additionally, upon request of VRA, the Local Government shall certify in writing that it has made all filings and disclosures required under this Section or any similar undertaking pursuant to the Rule.

(f) Notwithstanding anything in this Agreement to the contrary, the Local Government need not comply with the provisions of subsections (a) through (d) above unless and until VRA has notified the Local Government that it satisfied the objective criteria for a Material Local Government as of the end of VRA's immediately preceding fiscal year.

(g) (1) If the Local Government fails to comply with any covenant or obligation set forth in this Section, any holder (within the meaning of the Rule) of VRA Bonds then Outstanding may, by notice to the Local Government, proceed to protect and enforce its rights and the rights of the other holders by an action for specific performance of the Local Government's covenants or obligations set forth in this Section.

(2) Notwithstanding anything herein to the contrary, any failure of the Local Government to comply with any disclosure obligation specified in this Agreement (i) shall not be deemed to constitute an Event of Default under this Agreement and (ii) shall not give rise to any right or remedy other than that described in part (1) of this subsection.

(h) The Local Government may from time to time disclose certain information and data in addition to that required under this Section. Notwithstanding anything in this Agreement to the contrary, the Local Government shall not incur any obligation to continue to provide, or to update, such additional information or data.

(i) The Local Government may, from time to time, appoint or engage a Dissemination Agent to assist it in carrying out its obligation to cause to be Made Public the information described in this Section and may discharge any such Dissemination Agent, with or without appointing a successor Dissemination Agent. It is not necessary for purposes of this Article that the Dissemination Agent have any agency relationship with the Local Government for purposes of state law.

(j) All documents Made Public under this Section shall be accompanied by identifying information as prescribed by the MSRB.

**Section 9.9 Other Indebtedness.** The Local Government shall pay when due all amounts required by any other indebtedness of the Local Government and perform all of its obligations in connection with all other indebtedness of the Local Government.

**Section 9.10 Additional Indebtedness.** The Local Government shall not incur any indebtedness or issue any bonds, notes or other evidences of indebtedness secured by a pledge of Revenues, except Parity Debt or Subordinate Debt issued in accordance with the terms and conditions of the Local Master Indenture.

**Section 9.11 Litigation; Material Change.** The Local Government shall promptly notify VRA of (i) the existence and status of any litigation that general counsel to the Local Government determines is not reasonably certain to have a favorable outcome and which individually or in the aggregate could have a material adverse effect on the financial condition or operations of the System or its ability to perform its payment and other obligations under this Agreement or the Local Bond or (ii) any change in any material fact or circumstance represented or warranted in this Agreement.

## **ARTICLE X DEFAULTS AND REMEDIES**

**Section 10.1 Events of Default.** Each of the following events is an "Event of Default":

(a) The failure to pay any installment of principal of or premium, if any, on the Local Bond when due (whether at maturity, by mandatory or optional redemption, by acceleration or otherwise).

(b) The failure to pay any installment of interest (including Supplemental Interest) on the Local Bond when due.

(c) The failure to make any other payment or deposit required by this Agreement within 15 days after its due date.

(d) The Local Government's failure to perform or observe any of the other covenants, agreements or conditions of the Local Bond or this Agreement and the continuation of such failure for a period of 60 days after written notice specifying such failure and requesting that it be cured is given to the Local Government by VRA, or, in the case of any such failure which cannot with diligence be cured within such 60-day period, the Local Government's failure to proceed promptly to commence to cure the failure and thereafter to prosecute the curing of the failure with diligence.

(e) Any warranty, representation or other statement by or on behalf of the Local Government contained in this Agreement or in any instrument furnished in compliance with or in reference to this Agreement or in connection with the issuance and sale of the Local Bond is false and misleading in any material respect.

(f) Any bankruptcy, insolvency or other similar proceeding shall be instituted by or against the Local Government under any federal or state bankruptcy or insolvency law and, if instituted against the Local Government, is not dismissed within 60 days after filing.

(g) Any proceeding shall be instituted, with the Local Government's consent or acquiescence, for the purpose of effecting a composition between the Local Government and its creditors or for the purpose of adjusting such creditors' claims under any federal or state statute now or hereafter enacted, if such claims are under any circumstances payable from the Revenues.

(h) An order or decree shall be entered, with the Local Government's consent or acquiescence, appointing a receiver or receivers of the System or any part of it or of the Revenues, or if such order or decree, having been entered without the Local Government's consent or acquiescence, shall not be vacated or discharged or stayed on appeal within 60 days after its entry.

(i) The occurrence of an Event of Default under and as defined by the Local Master Indenture or under the terms of any Subordinate Debt, the Prior Bonds, Existing Parity Bonds or Parity Bonds and the failure to cure such default or obtain a waiver thereof within any period of time permitted thereunder.

**Section 10.2 Intentionally Omitted.**

**Section 10.3 Other Remedies.** Upon the occurrence and continuation of an Event of Default, and subject to Article XI of the Local Master Indenture, VRA may proceed to protect and enforce its rights by mandamus or other action, suit or proceeding at law or in equity for specific performance of any agreement contained in the Local Bond, this Agreement or the Local Master Indenture. No remedy conferred by this Agreement upon or reserved to the registered owners of the Local Bond is intended to be exclusive of any other remedy, but each such remedy shall be cumulative and shall be in addition to any other remedy given to VRA under this Agreement or the Local Master Indenture or now or hereafter existing at law or in equity or by statute.

**Section 10.4 Delay and Waiver.** No delay or omission to exercise any right or power accruing upon any default or Event of Default shall impair any such right or power or shall be construed to be a waiver of any such default or Event of Default or acquiescence in it, and every such right and power may be exercised from time to time and as often as may be deemed expedient. No waiver of any default or Event of Default under this Agreement shall extend to or shall affect any subsequent default or Event of Default or shall impair any rights or remedies consequent to it.

**ARTICLE XI  
MISCELLANEOUS**

**Section 11.1 Intentionally Omitted.**

**Section 11.2 Successors and Assigns.** This Agreement shall be binding upon, inure to the benefit of and be enforceable by the parties and their respective successors and assigns.

**Section 11.3 Amendments.** VRA and the Local Government shall have the right to amend from time to time any of this Agreement's terms and conditions, provided that all amendments shall be in writing and shall be signed by or on behalf of VRA and the Local Government.

**Section 11.4 Limitation of Local Government's Liability.** Notwithstanding anything in the Local Bond or this Agreement to the contrary, the Local Government's obligations hereunder and under the Local Bond are not its general obligations, but are limited obligations payable solely from the Revenues which are specifically pledged for such purpose. Neither the Local Bond nor this Agreement shall be deemed to create or constitute a debt or a pledge of the faith and credit of the Local Government and the Local Government shall not be obligated to pay the principal of or premium, if any, or interest on the Local Bond or other costs incident to them except from the Revenues and other funds pledged for such purpose. In the absence of fraud or intentional misconduct, no present or future director, official, officer, employee or agent of the Local Government shall be liable personally to VRA in respect of this Agreement or the Local Bond or for any other action taken by such individual pursuant to or in connection with the financing provided for in this Agreement or the Local Bond.

**Section 11.5 Applicable Law.** This Agreement shall be governed by Virginia law.

**Section 11.6 Severability.** If any clause, provision or section of this Agreement shall be held illegal or invalid by any court, the illegality or invalidity of such clause, provision or section shall not affect the remainder of this Agreement which shall be construed and enforced as if such illegal or invalid clause, provision or section had not been contained in this Agreement. If any agreement or obligation contained in this Agreement is held to be in violation of law, then such agreement or obligation shall be deemed to be the agreement or obligation of VRA and the Local Government, as the case may be, only to the extent permitted by law.

**Section 11.7 Notices.** Unless otherwise provided for herein, all demands, notices, approvals, consents, requests, opinions and other communications under the Local Bond or this Agreement shall be in writing and shall be deemed to have been given when delivered in person or mailed by first class registered or certified mail, postage prepaid, addressed (a) if to the Local Government, at the address specified for notices on the signature page; (b) if to VRA, at 1111 East Main Street, Suite 1920, Richmond, Virginia 23219, Attention: Executive Director; or (c) if to the Trustee, at Two James Center, 1051 E. Cary Street, Suite 600, Richmond, Virginia 23219, Attention: Corporate Trust Department. A duplicate copy of each demand, notice, approval, consent, request, opinion or other communication given by any party named in this Section shall also be given to each of the other parties named. VRA, the Local Government and the Trustee may designate, by notice given hereunder, any further or different addresses to which subsequent demands, notices, approvals, consents, requests, opinions or other communications shall be sent or persons to whose attention the same shall be directed.

**Section 11.8 Right to Cure Default.** If the Local Government fails to make any payment or to perform any act required by it under the Local Bond or this Agreement, VRA or the Trustee, without prior notice to or demand upon the Local Government and without waiving or releasing any obligation or default, may (but shall be under no obligation to) make such payment or perform such act. All amounts so paid by VRA or the Trustee and all costs, fees and expenses so incurred shall be payable by the Local Government as an additional obligation under this Agreement, together with interest thereon at the rate of 15% per year until paid. The Local Government's obligation under this Section shall survive the payment of the Local Bond.

**Section 11.9 Term of Agreement.** This Agreement is effective as of the Effective Date. Except as otherwise specified, the Local Government's obligations under the Local Bond and this Agreement shall expire upon payment in full of the Local Bond and all other amounts payable by the Local Government under this Agreement.

**Section 11.10 Counterparts.** This Agreement may be executed in any number of counterparts, each of which shall be an original and all of which together shall constitute but one and the same instrument.

[Signature Pages Follow]

**WITNESS** the following signatures, all duly authorized.

**VIRGINIA RESOURCES AUTHORITY**

By: \_\_\_\_\_  
Stephanie L. Hamlett, Executive Director



**RIVANNA WATER AND SEWER  
AUTHORITY**

By: \_\_\_\_\_

Name: Michael Gaffney

Title: Chair

Address for Notices:

695 Moores Creek Lane  
Charlottesville, Virginia 22902  
Attention: Executive Director

[Signature Page of Local Bond Sale and Financing Agreement –  
Rivanna Water and Sewer Authority]

The Trustee, by the execution hereof, accepts the duties imposed on it by this Agreement.

**U.S. BANK NATIONAL ASSOCIATION**, as  
Trustee

By: \_\_\_\_\_  
Monique L. Green, Vice President

**EXHIBIT A**

**FORM OF LOCAL BOND**

*Interest on this bond is not excludable from the gross income of the registered owner hereof for federal income tax purposes.*

**R-1**

**October [\_\_], 2021**

**UNITED STATES OF AMERICA**

**COMMONWEALTH OF VIRGINIA**

**Rivanna Water and Sewer Authority**

**Taxable Regional Water and Sewer System Revenue Bond**

**Series 2021**

**Rivanna Water and Sewer Authority** (the "Authority"), a public body politic and corporate and political subdivision of the Commonwealth of Virginia (the "Commonwealth") duly created pursuant to the Virginia Water and Waste Authorities Act, Chapter 51, Title 15.2, Code of Virginia of 1950, as amended (the "Act"), for value received, acknowledges itself indebted and promises to pay to the Virginia Resources Authority, or its registered assigns or legal representative ("VRA"), the principal sum of [\_\_\_\_\_] AND XX/100 DOLLARS (\$[\_\_\_\_\_]). Principal of this bond shall be payable in annual installments in the amounts and on the dates set forth in Schedule I attached hereto. Interest on this bond shall be payable on each April 1 and October 1, commencing April 1, 2022, computed on the basis of a 360-day year of twelve 30-day months at the rates set forth in Schedule I.

If any installment of principal of and interest on this bond is not paid to the registered owner of this bond within five days after its due date, the Authority shall pay to VRA a late payment charge in an amount equal to five percent (5%) of the overdue installment.

Subject to the provisions of the Local Bond Sale and Financing Agreement dated as of September [\_\_], 2021 (the "Financing Agreement"), between VRA and the Authority, so long as this bond is held by or for the account of VRA or its registered assigns or legal representative, interest is payable by (i) check or draft mailed to the registered owner of this bond at the address that appears on the 15<sup>th</sup> day of the month preceding each interest payment date on the registration books kept by The Bank of New York Mellon Trust Company, N.A., as successor trustee (the "Trustee"), or (ii) wire transfer pursuant to the most recent wire instructions received by the Trustee from such registered owner. Principal of and premium, if any, and interest on this bond shall be payable in lawful money of the United States of America. In case the payment date on this bond shall not be a Business Day (as defined below), then payment of principal, premium, if any, and interest need not be made on such date, but may be made on the next succeeding Business Day, and, if made on such next succeeding Business Day, no additional interest shall accrue for the period after such payment date. "Business Day" means any day on which

commercial banking institutions generally are open for business in New York, New York, and Richmond, Virginia.

This bond is issued under an Agreement of Trust dated as of October 1, 1979 (the "Master Trust Agreement"), between the Authority and the Trustee, as supplemented and amended from time to time, and as further supplemented and amended by a Thirty-Second Supplemental Agreement of Trust dated as of October 1, 2021 (collectively, the "Trust Agreement"), and is secured equally and ratably on a parity with the outstanding balance of the Authority's Taxable Regional Water and Sewer System Revenue Bond, Series 2005A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2009A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2010A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2011A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2011B; its Taxable Regional Water and Sewer System Revenue Bond, Series 2011D; its Taxable Regional Water and Sewer System Revenue Bond, Series 2011E; its Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2012A; its Regional Water and Sewer System Revenue Bonds, Series 2012B; its Taxable Regional Water and Sewer System Revenue Bond, Series 2014A; its Taxable Regional Water and Sewer System Revenue Bond, Series 2015A; its Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2015B; its Regional Water and Sewer System Revenue Bond, Series 2016; its Taxable Regional Water and Sewer System Revenue Bond, Series 2018; and its Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2019 (collectively, the "Prior Bonds"), to the extent provided in the Trust Agreement and the Financing Agreement. Reference is made to the Trust Agreement for a description of the provisions, among others, with respect to the nature and extent of the security, the rights, duties and obligations of the Authority and the Trustee, the rights of the registered owner of this bond and the terms upon which this bond is issued and secured.

Additional bonds secured on a parity with this bond and the Prior Bonds may be issued on the terms provided in the Trust Agreement. This bond is authorized and issued pursuant to the Act and the Trust Agreement to finance the acquisition, construction and equipping of capital improvements to the System and to pay related costs of issuance. The Authority's obligations under this bond shall terminate when all amounts due and to become due pursuant to this bond, the Financing Agreement and the Trust Agreement have been paid in full.

This bond is a limited obligation of the Authority and (except to the extent payment with respect to this bond shall be made from the proceeds from the sale of this bond or the income, if any, derived from the investment thereof) are payable solely from certain revenues to be derived from the ownership or operation of the System (as defined in the Trust Agreement), which serves, on a wholesale basis, the City of Charlottesville, Virginia, and the Albemarle County Service Authority, as the same may from time to time exist, certain pledged reserves, income from investments pursuant to the Trust Agreement and proceeds of insurance, which revenues and other moneys have been pledged pursuant to the Trust Agreement to secure payment thereof. This bond shall not be deemed to constitute a pledge of the faith and credit of the Commonwealth or any political subdivision thereof, including the Authority, the City of Charlottesville, Virginia, Albemarle County, Virginia, and the Albemarle County Service Authority (collectively, the "Political Subdivisions").

Neither the Commonwealth nor any political subdivision thereof, including the Political Subdivisions, shall be obligated to pay the principal of this bond or other costs incident thereto except from the revenues pledged therefor, and neither the faith and credit nor the taxing power of the Commonwealth or any political subdivision thereof, including the Political Subdivisions, is pledged to the payment of the principal of or interest on this bond or other costs incident thereto. The Authority has no taxing power.

If any failure of the Authority to pay all or any portion of any required payment of the principal of or premium, if any, or interest on this bond results in a withdrawal from or a drawing on any VRA Reserve (as defined in the Financing Agreement), the interest rates applicable to this bond shall be increased to interest rates sufficient to reimburse the VRA Reserve for any foregone investment earnings on the funds withdrawn therefrom and pay any interest, fees or penalties assessed as a result of the withdrawal from or drawing on the VRA Reserve. The increment of interest payable pursuant to the increase in rates shall be referred to as "Supplemental Interest." The term "interest" as used in this bond shall include Supplemental Interest, when and if payable. The Authority's obligation to pay Supplemental Interest shall commence on the date of the withdrawal or drawing of funds from the VRA Reserve occasioned by the Authority's failure to pay a required payment or portion thereof as described above (the "Supplemental Interest Commencement Date"). The Authority's obligation to pay Supplemental Interest shall terminate on the date on which the Authority makes all payments required but outstanding since the date of the initial failure to pay (the "Supplemental Interest Termination Date"). From the Supplemental Interest Commencement Date to the Supplemental Interest Termination Date, Supplemental Interest shall be due and payable on the regularly scheduled interest payment dates provided for in this bond. As soon as reasonably possible after the Supplemental Interest Commencement Date and before the next regularly scheduled interest payment date provided for in this bond, VRA shall deliver to the Authority a certificate as to the increase in interest rates and the amount of Supplemental Interest. The certificate shall set forth in reasonable detail the basis for the increase in interest rates and the manner of calculation of the increase and the amount of Supplemental Interest. Such certificate shall be conclusive (absent manifest error) as to the interest rate increase and amount of Supplemental Interest set forth therein. In determining the interest rate increase and the amount of Supplemental Interest, VRA may use any reasonable averaging and attribution methods.

This bond is subject to prepayment to the extent and under the terms set forth in the Trust Agreement and the Financing Agreement. The optional redemption and notice provisions set forth in Sections 401 and 402 of the Master Trust Agreement shall not apply to this bond.

This bond is issued as a registered bond and may be transferred only in accordance with the provisions with respect thereto as provided in the Trust Agreement and the Financing Agreement.

The registered owner of this bond shall have no right to enforce the provisions of the Trust Agreement, to institute action to enforce the covenants therein, to take any action with respect to any Event of Default under the Trust Agreement or to institute, appear in or defend any suit or other proceeding with respect thereto, except as provided in the Trust Agreement. Modifications or alterations of the Trust Agreement, or of any supplement thereto, may be made only to the extent and in the circumstances permitted by the Trust Agreement.

Upon surrender of this bond at the corporate trust office of the Trustee in Pittsburgh, Pennsylvania, together with an assignment duly executed by the registered owner or his duly authorized attorney or legal representative in such form as shall be satisfactory to the Trustee, the Authority shall execute, and the Trustee shall authenticate and deliver in exchange, a new bond or bonds in the manner and subject to the limitations and conditions provided in the Trust Agreement, having an equal aggregate principal amount, in authorized denominations, of the same series, form and maturity, bearing interest at the same rate, and registered in names as requested by the then registered owner hereof or his duly authorized attorney or legal representative. Any such exchange shall be at the expense of the Authority, except that the Trustee may charge the person requesting such exchange the amount of any tax or other governmental charge required to be paid with respect thereto.

All acts, conditions and things required to happen, exist or be performed precedent to and in connection with the issuance of this bond have happened, exist and have been performed.

This bond shall not be valid until the Trustee shall have executed the Certificate of Authentication appearing hereon and inserted the date of authentication hereon.

[Remainder of Page Intentionally Left Blank]

**IN WITNESS WHEREOF**, the Rivanna Water and Sewer Authority has caused this bond to be signed by its [Vice-]Chair, its seal to be affixed hereto and attested by its Secretary-Treasurer, and this bond to be dated the date first above written.

**RIVANNA WATER AND SEWER AUTHORITY**

(SEAL)

By \_\_\_\_\_  
[Vice-]Chair

ATTEST:

\_\_\_\_\_  
Secretary-Treasurer

**CERTIFICATE OF AUTHENTICATION**

Date Authenticated: November \_\_, 2021

This bond is the Series 2021 Bond described in the within-mentioned Trust Agreement.

**THE BANK OF NEW YORK  
MELLON TRUST COMPANY, N.A.**

By \_\_\_\_\_  
Authorized Signature



## ASSIGNMENT

**FOR VALUE RECEIVED** the undersigned sell(s), assign(s) and transfer(s) unto

\_\_\_\_\_  
\_(please print or typewrite name and address including postal zip code of Transferee)

PLEASE INSERT SOCIAL SECURITY OR OTHER  
IDENTIFYING NUMBER OF TRANSFeree

\_\_\_\_\_  
: :  
: :  
: :  
: :  
\_\_\_\_\_

the within bond and all rights thereunder, irrevocably constituting and appointing

\_\_\_\_\_,  
Attorney, to transfer said bond on the books kept for the registration thereof, with full power of  
substitution in the premises.

Dated: \_\_\_\_\_

Signature Guaranteed

\_\_\_\_\_  
NOTICE: Signature(s) must be  
guaranteed by an Eligible Guarantor  
Institution such as a Commercial  
Bank, Trust Company, Securities  
Broker/Dealer, Credit Union, or  
Savings Association who is a member  
of a medallion program approved by  
The Securities Transfer Association, Inc.  
Inc.

\_\_\_\_\_  
(Signature of Registered Owner)

NOTICE: The signature above must  
correspond with the name of the  
registered owner as it appears on the  
front of this bond in every particular,  
without alteration or enlargement  
or any change whatsoever.

## TRANSFER OF BOND

The transfer of this bond may be registered by the registered owner or its duly authorized attorney or legal representative upon presentation hereof to the Registrar who shall make note of such transfer in books kept by the Registrar for that purpose and in the registration blank below.

| <u>Date of Registration</u> | <u>Name of Registered Owner</u> | <u>Signature of Registrar</u> |
|-----------------------------|---------------------------------|-------------------------------|
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |
| _____                       | _____                           | _____                         |

## SCHEDULE I

| <b>Installment Date<br/>(October 1)</b> | <b>Installment<br/>Amount</b> | <b>Interest<br/>Rate</b> |
|---|-------------------------------|--------------------------|
| 2022                                    |                               |                          |
| 2023                                    |                               |                          |
| 2024                                    |                               |                          |
| 2025                                    |                               |                          |
| 2026                                    |                               |                          |
| 2027                                    |                               |                          |
| 2028                                    |                               |                          |
| 2029                                    |                               |                          |
| 2030                                    |                               |                          |
| 2031                                    |                               |                          |
| 2032                                    |                               |                          |
| 2033                                    |                               |                          |
| 2034                                    |                               |                          |
| 2035                                    |                               |                          |
| 2036                                    |                               |                          |
| 2037                                    |                               |                          |
| 2038                                    |                               |                          |
| 2039                                    |                               |                          |
| 2040                                    |                               |                          |
| 2041                                    |                               |                          |
| 2042                                    |                               |                          |
| 2043                                    |                               |                          |
| 2044                                    |                               |                          |
| 2045                                    |                               |                          |
| 2046                                    |                               |                          |
| 2047                                    |                               |                          |
| 2048                                    |                               |                          |
| 2049                                    |                               |                          |
| 2050                                    |                               |                          |
| 2051                                    |                               |                          |

## **EXHIBIT B**

### **DESCRIPTION OF THE PROJECT**

The Project consists of the acquisition, construction and equipping of capital improvements to the System, including, without limitation, (a) treatment plant improvements, (b) pump stations improvements, (c) dam improvements, (c) transmission main improvements, (d) water resource recovery facility improvements and (e) pump improvements (collectively, the "Project"), together with related issuance expenses.

**EXHIBIT C**

**PENDING OR THREATENED ACTIONS, SUITS, PROCEEDINGS, OR  
INVESTIGATIONS**

[To be provided]

**EXHIBIT D**  
**FORM OF REQUISITION**

Requisition No.

Date: \_\_\_\_\_, 2021

U.S. Bank National Association, as Trustee  
Attention: Corporate Trust Department  
1021 East Cary Street  
18<sup>th</sup> Floor  
Richmond, Virginia 23219

Virginia Resources Authority  
1111 East Main Street  
Suite 1920  
Richmond, Virginia 23219  
Attention: Executive Director

This Requisition, including Schedule 1 and Schedule 2 hereto, is submitted in connection with the Local Bond Sale and Financing Agreement dated as of September 17, 2021 (the "Financing Agreement") between the Virginia Resources Authority and the Rivanna Water and Sewer Authority (the "Local Government"). Unless otherwise defined in this Requisition, each capitalized term used herein has the meaning given it under Article I of the Financing Agreement. The undersigned Local Representative hereby requests payment of the following amounts from the Local Account established for the Local Government in the 2021C Acquisition Fund established under the Forty-Third Supplemental Series Indenture.

Payee (including wiring instructions if receiving electronic payment):

Address:

Amount to be paid:

Purpose (in reasonable detail) for which obligations(s) to be paid were incurred:

Attached on Schedule 2 are the wire instructions for this requisition, and also attached hereto is an invoice (or invoices) relating to the items for which payment is requested.

The undersigned certifies that (i) the amounts requested by this Requisition will be applied in accordance with the Local Tax Document and solely and exclusively to the payment, or the reimbursement of the Local Government for its payment, of Project Costs of the construction portion of the Project, (ii) no notice of any lien, right to lien or attachment upon, or claim affecting the right to receive payment of, any of the money payable under this Requisition to any of the persons, firms or corporations named in it has been received, or if any notice of any such lien, attachment or claim has been received, such lien, attachment or claim has been released or discharged or will be released or discharged upon payment of the Requisition, and (iii) this Requisition contains no items representing payment on account of any retained percentage entitled to be retained at this date.

If this Requisition includes payments for labor or to contractors, builders or materialmen, the attached Certificate of Consulting Engineer must be completed. If this Requisition includes payments for any lands or easements, rights or interest in or relating to lands, the attached Certificate of the Consulting Engineer must be completed and there must be attached to this Requisition a certificate signed by a Local Representative stating that upon payment therefor the Local Government will have title in fee simple to, or easements, rights or interests sufficient for the purposes of the construction portion of the Project over or through such lands..

**The Local Government has agreed in the Financing Agreement that any amounts it receives pursuant to this Requisition will be (i) immediately applied to reimburse the Local Government for Project Costs it has already paid or (ii) actually spent to pay Project Costs not later than five banking days after receipt.**

---

Local Representative

## SCHEDULE 1

### Form to Accompany Requisition

Requisition # \_\_\_\_\_  
Recipient: Rivanna Water and Sewer Authority – VRA 2021C  
Local Representative: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

| <u>Cost<br/>Category</u> | <u>Total<br/>Project Cost</u> | <u>Previous<br/>Disbursements</u> | <u>Disbursement<br/>This Period</u> | <u>Disbursements<br/>to Date</u> | <u>Remaining<br/>Balance</u> |
|--------------------------|-------------------------------|-----------------------------------|-------------------------------------|----------------------------------|------------------------------|
|                          | \$                            | \$                                | \$                                  | \$                               | \$                           |
|                          |                               |                                   |                                     |                                  |                              |
|                          |                               |                                   |                                     |                                  |                              |
|                          |                               |                                   |                                     |                                  |                              |
|                          |                               |                                   |                                     |                                  |                              |
|                          |                               |                                   |                                     |                                  |                              |
|                          |                               |                                   |                                     |                                  |                              |
|                          |                               |                                   |                                     |                                  |                              |
| TOTALS                   | \$                            | \$                                | \$                                  | \$                               | \$                           |



## SCHEDULE 2

### Wire Instructions for Requisition

[To be provided by the Local Government]

## **CERTIFICATE OF CONSULTING ENGINEER**

The undersigned Consulting Engineer for the Local Government hereby certifies that (i) insofar as the amounts covered by this Requisition include payments for labor or to contractors, builders or materialmen, such work was actually performed or such materials, supplies or equipment were actually furnished or installed in or about the Project, and (ii) insofar as the amounts covered by the Requisition include payments for land or easements, rights or interests in or relating to lands, such lands, easements, rights or interests are being acquired and are necessary or convenient for the construction portion of the Project.

Date: \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
Consulting Engineer

**EXHIBIT E**  
**OPERATING DATA**

*Description of Local Government.* A description of the Local Government including a summary description of the System.

*Debt.* A description of the terms of the Local Government's outstanding debt including a historical summary of outstanding debt and a summary of annual debt service on outstanding debt as of the end of the preceding fiscal year. The annual disclosure should also include (to the extent not shown in the latest audited financial statements) a description of contingent obligations as well as pension plans administered by the Local Government and any unfunded pension liabilities.

*Financial Information and Operating Data.* Financial information for the System as of the end of the preceding fiscal year, including a description of revenues and expenditures, largest users, a summary of rates, fees and other charges of the System, and a historical summary of debt service coverage.

## **EXHIBIT F**

### **FORM OF OPINION OF COUNSEL TO THE LOCAL GOVERNMENT**

[Print on the Letterhead of Counsel for the Local Government]

November 17, 2021

Rivanna Water and Sewer Authority  
Charlottesville, Virginia

The Bank of New York Mellon Trust  
Company, N.A., as Trustee  
Pittsburgh, Pennsylvania

Hunton Andrews Kurth LLP  
Richmond, Virginia

Virginia Resources Authority  
Richmond, Virginia

**Rivanna Water and Sewer Authority  
Regional Water and Sewer System Revenue Bond  
Series 2021**

Ladies and Gentlemen:

We have served as general counsel to Rivanna Water and Sewer Authority (the "Authority") in connection with the issuance and sale by the Authority of its \$[\_\_\_\_\_] Taxable Regional Water and Sewer System Revenue Bond, Series 2021 (the "Bond").

As counsel to the Authority, we have examined, among other things, the following:

(a) The Virginia Water and Waste Authorities Act, Chapter 51, Title 15.2, Code of Virginia of 1950, as amended (the "Act").

(b) The Authority's Articles of Incorporation and By-Laws.

(c) Resolutions adopted by the Board of Directors of the Authority authorizing the execution of a Service Agreement between the Authority, the City of Charlottesville, Albemarle County Service Authority and the Board of County Supervisors of Albemarle County, acting for and on behalf of Albemarle County, dated as of June 12, 1973, as amended by Amendment No. 1 to Service Agreement dated October 27, 2015 and supplemented by (i) Joint Resolution adopted in January, 1983 (as such resolution was clarified by Resolution of the Albemarle County Service Authority dated March 17, 1983, and by Resolution of the Charlottesville City Council dated May 2, 1983, and modified by Joint Resolution adopted in December, 1983); (ii) Working Agreement on Urban Area Wholesale Flow Allocation and Billing Methodology dated January 24, 1983; (iii) Agreement dated October 26, 1987; (iv) Agreement dated June 29, 1990; (v) Memorandum dated December 15, 1993; (vi) Agreement dated December 1, 2003; (vii) Ragged Mountain Dam Project Agreement dated as of January 1, 2012; (viii) Water Cost Allocation

Agreement dated as of January 1, 2012; and (ix) Wastewater Projects Cost Allocation Agreement dated April 22, 2014 (as so amended and supplemented, the "Service Agreement").

(d) A resolution adopted by the Board of Directors of the Authority on August 24, 2021 (the "Resolution"), authorizing, among other things, the execution and delivery of:

(i) a Thirty-Second Supplemental Agreement of Trust dated as of October 1, 2021 (the "Thirtieth Supplemental Agreement"), between the Authority and The Bank of New York Mellon Trust Company, N.A., New York, New York, as successor trustee (the "Trustee"), providing for the security and form of the Bond as an additional bond pursuant to an Agreement of Trust between the Authority and the Trustee dated as of October 1, 1979, as previously supplemented and amended (together with the Thirtieth Supplemental Agreement, the "Trust Agreement"), to provide funds to be used, together with other available funds, to finance the acquisition, construction and equipping of improvements to the Authority's regional water and sewer system (the "System"); and

(ii) a Local Bond Sale and Financing Agreement dated as of September 17, 2021 (the "Financing Agreement"), between the Authority and the Virginia Resources Authority.

(e) Executed counterparts of the Financing Agreement, the Service Agreement and the Trust Agreement.

As to questions of fact material to this opinion, we have relied upon representations of the Authority contained in the Trust Agreement and the Financing Agreement, certifications of public officials furnished to us, and certifications and representations contained in certificates of the Authority and others delivered at the closing. We have assumed that all signatures on documents, certificates, and instruments examined by us are genuine, all documents, certificates, and instruments submitted to us as originals are authentic, and all documents, certificates, and instruments submitted to us as copies conform to the originals. In addition, we have assumed that all documents, certificates, and instruments relating to this financing have been duly authorized, executed, and delivered by all parties other than the Authority, and we have further assumed the due organization, existence, and powers of such other parties.

Whenever the phrase "to the best of our knowledge" is used herein, it refers to the actual knowledge of the attorneys of this firm involved in the representation of the Authority for the purposes of this transaction.

Based on the foregoing and such other information and documents as we consider necessary for rendering this opinion, we are of the opinion that:

1. The Authority was created pursuant to the Act, is validly existing and in good standing under the Act, and pursuant to the Act, has all necessary power and authority to (a) operate the System, (b) fix, charge and collect rates, fees and other charges for the use of the System, and (c) enter into and perform its obligations under the Financing Agreement, the Service Agreement and the Trust Agreement and to issue and sell the Bond. To the best of our

knowledge, the Authority has not instituted any dissolution proceedings pursuant to Section 15.2-5109 of the Act.

2. The Financing Agreement, the Service Agreement and the Trust Agreement have been duly authorized, executed and delivered by the Authority, and assuming their due authorization, execution and delivery by the other parties to them, are in full force and effect and constitute valid and legally binding limited obligations of the Authority, enforceable against the Authority in accordance with their terms.

3. The Bond has been duly authorized, executed and delivered by the Authority.

4. The enforceability of the obligations of the Authority with respect to the documents described above is subject to the provisions of bankruptcy, insolvency, reorganization, moratorium and similar laws, now or hereafter in effect, relating to or affecting the enforcement of creditors' rights generally. The enforceability of the obligations is also subject to usual equitable principles which may limit the specific enforcement of certain remedies.

5. The authorization, execution and delivery of the Bond, the Financing Agreement, the Service Agreement and the Trust Agreement and compliance with their provisions are within the powers of the Authority under the Act and do not and will not conflict with or constitute a violation of, breach of or default under (a) the Articles of Incorporation or By-Laws of the Authority, (b) any federal or Virginia constitutional provision or any other provision of Virginia law, including, but not limited to, the Act, or, (c) to the best of our knowledge (i) any agreement or other instrument to which the Authority is a party or by which the Authority is bound, or (ii) any order, rule or regulation of any court or governmental agency or body having jurisdiction over the Authority or any of its properties.

6. There is no litigation at law or in equity or any proceeding before any governmental agency pending or, to the best of our knowledge, threatened (a) with respect to (i) the organization or existence of the Authority, (ii) its authority to execute and deliver the Bond, the Financing Agreement, the Service Agreement or the Trust Agreement, (iii) the validity or enforceability of any of such instruments or the transactions contemplated by them, (iv) the title of the officers who executed such instruments, (v) any authority or proceedings relating to the execution and delivery of any of such instruments by the Authority, (vi) the ability of the Authority to fix, charge and collect charges under the Act and as provided in the Financing Agreement, the Service Agreement and the Trust Agreement, or (vii) the ability of the Authority to undertake the Project (as defined in the Financing Agreement) or (b), except as disclosed in Section 2.2(k) of the Financing Agreement, in which a judgment, order or resolution would reasonably be expected to have a material adverse effect on the Authority or its business, assets, condition (financial or otherwise), operations or prospects or its ability to perform its obligations under the Financing Agreement, the Trust Agreement or the Bond.

7. To the best of our knowledge, there have been obtained all consents, approvals, authorizations and orders of governmental or regulatory authorities, if any, which are required to

be obtained by the Authority as conditions precedent to the execution and delivery of the Financing Agreement, the Service Agreement and the Trust Agreement.

The foregoing opinions are being furnished only to the addressees and only in connection with the financing referred to in the first paragraph of this opinion letter and this opinion letter is not to be furnished to any other person or entity or used or relied upon by any other person or for any other purpose without our prior written consent.

Very truly yours,

## EXHIBIT G

### FORM OF CERTIFICATION AS TO NO DEFAULT AND TAX COMPLIANCE

[DATE]

[Insert Name]

Compliance & Financial Analyst  
Virginia Resources Authority  
1111 East Main Street, Suite 1920  
Richmond, VA 23219

Dear [Mr./Ms.] \_\_\_\_\_:

In accordance with Section 9.4 of the Local Bond Sale and Financing Agreement dated as of September 17, 2021 (the "Financing Agreement") between Virginia Resources Authority and the Rivanna Water and Sewer Authority (the "Local Government"), I hereby certify that, during the fiscal year that ended June 30, \_\_\_\_\_, and through the date of this letter:

1. [No event or condition has happened or existed, or is happening or existing, which constitutes, or which, with notice or lapse of time, or both, would constitute, an Event of Default as defined in Section 10.1 of the Financing Agreement.] [If an Event of Default has occurred, please specify the nature and period of such Event of Default and what action the Local Government has taken, is taking or proposes to take to rectify it].
2. [The ownership and status of all or a portion of the Related Financed Property has not changed since the Closing Date.] [If untrue, please describe.]
3. [Neither the Related Financed Property nor any portion thereof is being used by a Nongovernmental Person pursuant to a lease, an incentive payment contract or a take-or-pay or other output-type contract.] [If untrue, please describe.]
4. [Neither the Related Financed Property nor any portion or function thereof is being used pursuant to or is otherwise subject to a Service Contract that does not satisfy the requirements of Revenue Procedure 2017-13.] [If untrue, please describe.]
5. [Other than as may be described in paragraphs 2, 3 and 4 above, neither the Related Financed Property nor any portion or function thereof nor any portion of the Proceeds is being used for a Private Business Use.] [If untrue, please describe.]
6. [The Local Government has not used or permitted the use of any Proceeds of the Local Bond directly or indirectly to make a loan to an ultimate borrower other than itself within the meaning of Section 4.3 of the Local Tax Document.] [If untrue, please describe.]



7. [Other than any amounts described in the Local Tax Document (as defined in the Financing Agreement), between VRA and the Local Government and amounts that may constitute or be on deposit in a Bona Fide Debt Service Fund, there neither have been nor are now any monies, securities, obligations, annuity contracts, residential rental property, AMT Bonds, investment-type property, Sinking Funds, Pledged Funds, or other Replacement Proceeds accumulated or held or pledged as security by the Local Government or any other Substantial Beneficiary of the Local Bond as security for or the direct or indirect source of the payment of the principal of or interest on the Local Bond.] [If untrue, please describe.]
8. [The Local Government is in compliance with the recordkeeping requirements of Section 4.9 of the Local Tax Document.] [If untrue, please describe.]
9. [Other than as may be described above, the Local Government is not in default of any of its obligations under the Local Tax Document.] [If untrue, please describe.]
10. Unless otherwise defined herein, each capitalized term used herein has the meaning set forth in the Local Tax Document.

Sincerely,

[Insert Name]  
Local Representative

**EXHIBIT H**  
**DESCRIPTION OF SPECIAL USE ARRANGEMENTS**

[To be provided]

**EXHIBIT I**  
**FORM OF ANNUAL BUDGET**

[DATE]

Compliance and Financial Analyst  
Virginia Resources Authority  
1111 East Main Street, Suite 1920  
Richmond, VA 23219

Ladies and Gentlemen:

Pursuant to the Financing Agreement[s] between Virginia Resources Authority and the Rivanna Water and Sewer Authority, dated as of [add dates of all outstanding Financing Agreements], a copy of the fiscal year [20xx] annual budget is enclosed. Such annual budget provides for the satisfaction of the rate covenant as demonstrated below.

| <b>Revenues</b> | <b>Operation &amp; Maintenance<br/>Expenses</b> | <b>Net Revenues Available<br/>for Debt Service</b><br>(Revenues – O&M Expenses) | <b>Debt Service</b> | <b>*Coverage</b><br>(Net Revenues Available for<br>Debt Service/Debt Service) |
|-----------------|---|---|---------------------|---|
|-----------------|---|---|---------------------|---|

Unless otherwise defined herein, the capitalized terms used in this Certificate shall have the meanings set forth in the Financing Agreement.

Very truly yours,

By: \_\_\_\_\_

Its: \_\_\_\_\_

## **EXHIBIT J**

### **EXISTING PARITY BONDS**

1. Taxable Regional Water and Sewer System Revenue Bond, Series 2005A
2. Taxable Regional Water and Sewer System Revenue Bond, Series 2009A
3. Taxable Regional Water and Sewer System Revenue Bond, Series 2010A
4. Taxable Regional Water and Sewer System Revenue Bond, Series 2011A
5. Taxable Regional Water and Sewer System Revenue Bond, Series 2011B
6. Taxable Regional Water and Sewer System Revenue Bond, Series 2011D
7. Taxable Regional Water and Sewer System Revenue Bond, Series 2011E
8. Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2012A
9. Regional Water and Sewer System Revenue Bonds, Series 2012B
10. Taxable Regional Water and Sewer System Revenue Bond, Series 2014A
11. Taxable Regional Water and Sewer System Revenue Bond, Series 2015A
12. Taxable Regional Water and Sewer System Revenue and Refunding Bond, Series 2015B
13. Regional Water and Sewer System Revenue Bond, Series 2016
14. Taxable Regional Water and Sewer System Revenue Bond, Series 2018
15. Taxable Regional Water and Sewer System Revenue Refunding Bond, Series 2019

## **SCHEDULE 1.1**

[To be provided]

**ADDITIONAL CONDITIONS PRECEDENT TO PURCHASE OF LOCAL BOND:**

[To be provided]

**ADDITIONAL CONDITIONS PRECEDENT TO FIRST REQUISITION OF PROCEEDS  
OF LOCAL BOND:**

[To be provided]

## **PROJECT BUDGET**

[To be provided]

## **INTEREST RATES AND PAYMENT SCHEDULE FOR LOCAL BOND**

[To be provided]





## MEMORANDUM

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

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

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

**SUBJECT: CAPITAL IMPROVEMENT PLAN AMENDMENT– SOUTH  
RIVANNA RESERVOIR TO RAGGED MOUNTAIN RESERVOIR  
PIPELINE, INTAKE, & FACILITIES**

**DATE: AUGUST 24, 2021**

The approved 50-year Community Water Supply Plan includes the future construction of a new raw water pipeline from the South Rivanna Reservoir (SRR) to the Ragged Mountain Reservoir (RMR). This new pipeline will replace the Upper Sugar Hollow Pipeline along an alternative alignment and will increase raw water transfer capacity within the Urban Water System.

The plan to move raw water between SRR and RMR requires consideration of both physical conveyance and water quality. While the physical conveyance considerations have been studied in the past and are well understood, additional analyses are desired to better understand the water quality impacts. For that effort, RWSA is utilizing Short Elliot Hendrickson (SEH) to perform a multi-phase analysis that may consist of the following:

1. Analysis and Correlation of Existing Water Quality and Seasonal Weather Data
2. SRR to RMR Nutrient Modeling
3. Pretreatment Evaluation
4. Recommendations for the Final Pretreatment Solution (Final Report)

Phase 1 work began as a small Operations and Maintenance budget related task, but potential additional Phases require additional funding to cover the work. Project expenses associated with the design and construction of these facilities was included and planned for Fiscal Years 2027 to 2033. SEH reviewed the effort needed to perform the initial two phases of analysis shown above, as well as preliminary efforts on the latter two phases, should they be necessary, and identified a budgetary estimate of \$250,000. As such, staff is requesting that funds from the overall Capital Project, planned to begin in Fiscal Year 2027, be brought forward to cover these items.

### **Board Action Requested:**

Amend the Capital Improvement Plan for Fiscal Years 2022 to 2026 to bring forward \$250,000 of funding from the SRR to RMR Pipeline, Intake, & Facilities Project for use in Fiscal Years 2022 and

2023 (\$200,000 and \$50,000, respectively). The total budget for the SRR to RMR Pipeline, Intake, & Facilities Project remains unchanged.

# New Beaver Creek Raw Water Pump Station and Intake: Site Selection



Presented by:  
Victoria Fort, Senior Civil Engineer  
August 24, 2021

# Background and Purpose

- The 2019 “Crozet Drinking Water Infrastructure Plan” identified the need for a new raw water pump station (RWPS) and intake at Beaver Creek Reservoir (BCR) to increase raw water withdrawal, pumping, and piping capabilities to convey water to the Crozet Water Treatment Plant and meet future drinking water demand in the Crozet service area.
- An ongoing study of spillway upgrade alternatives for the BC Dam indicates that one or more upgrade options will require relocation of the RWPS from its current location at the toe of the dam.



Beaver Creek Reservoir



Intake



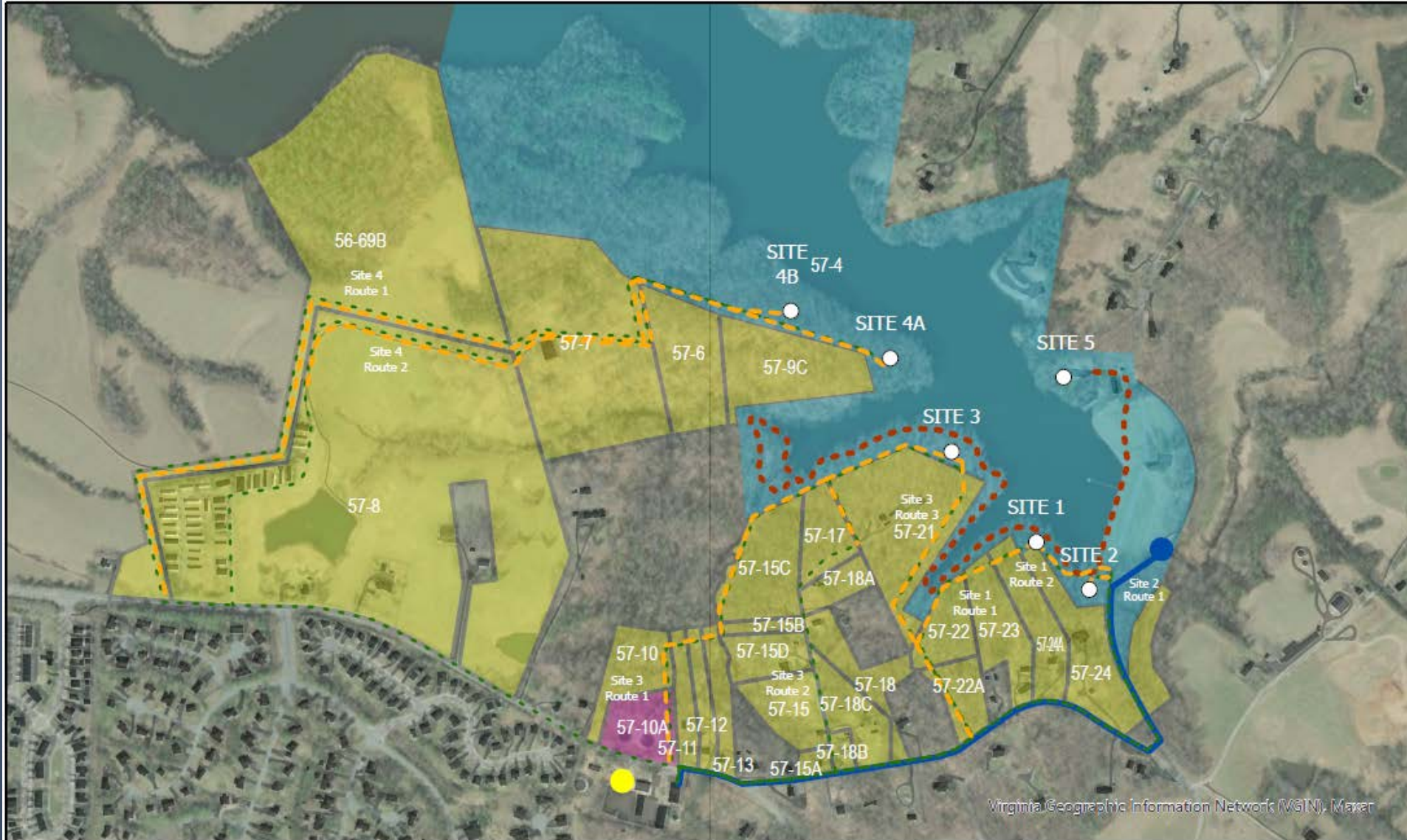
Raw Water Pump Station



# Initial Site Selection Study

(June 2019 - May 2020)

- 6 potential sites were identified around BCR. All sites are on Albemarle County property and have been approved for the RWPS.
- Evaluation included site visits, desktop analysis of environmental and private property impacts, preliminary site layouts, and construction cost estimates.
- Adjacent property owners raised concerns about Site 3 and requested additional study of all viable pump station sites.



**Figure 1: Pump Station Sites and Access Roads**

RIVANNA WATER  
AND SEWER  
AUTHORITY

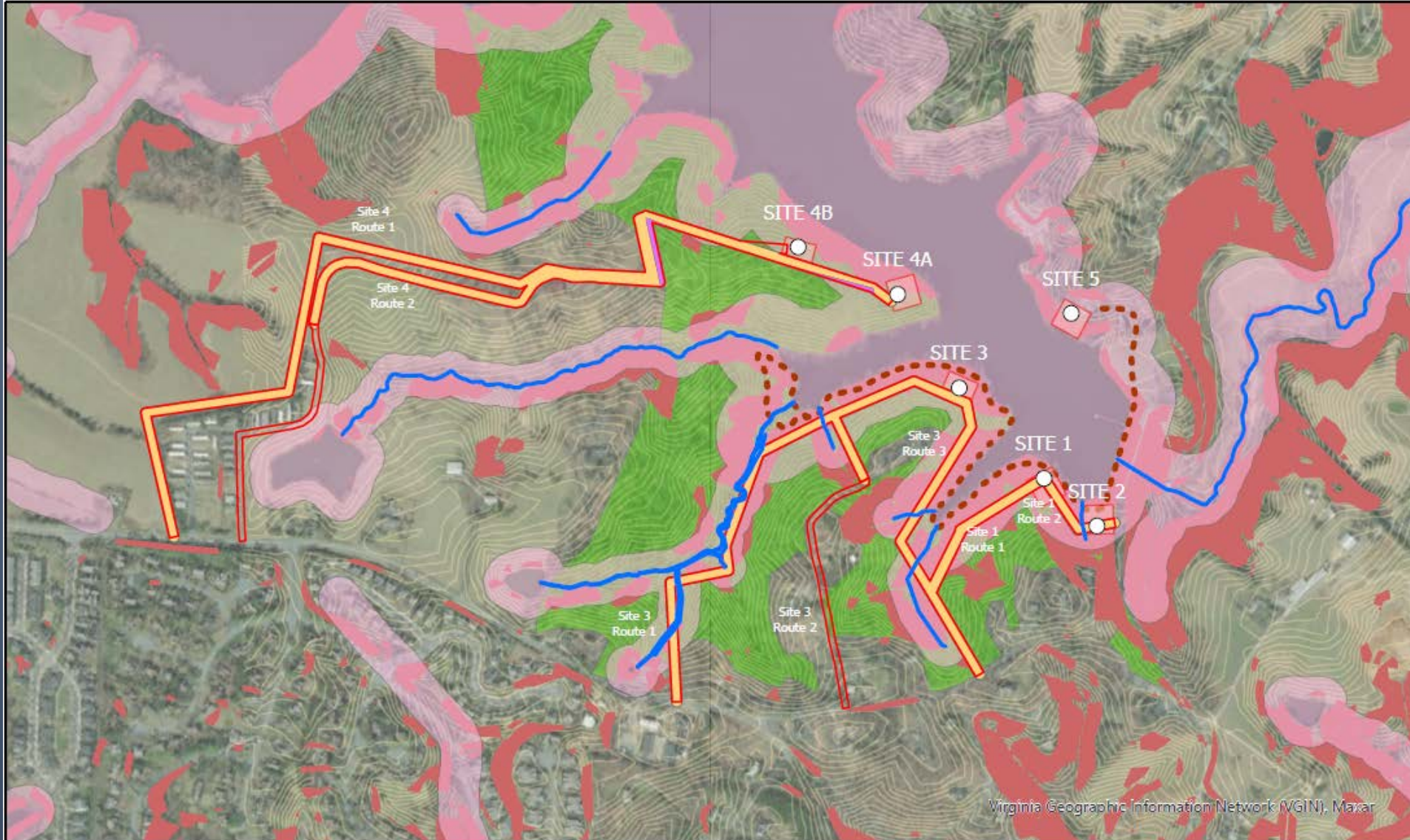
**Hazen**

# Additional Pump Station, Access, and Piping Analysis

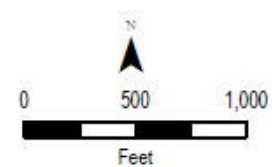
August 2020 – April 2021

- Cultural Resources Survey
- Wetland Delineation
- Desktop analysis of impacts to wooded areas, riparian buffer areas, public trails, private property, and critical slopes
- Refined Conceptual Site Layouts and Cost Estimates





- |  |  |
|--|--|
| Future Pump Station Sites                              | Cultural Resource Survey Area - No Artifacts Anticipated |
| Estimated Limits of Disturbance                        | Critical Slopes  |
| US Jurisdictional Streams                              | 2-ft Contours  |
| The Henley Hornets Trail                               | WPO Riparian Buffer                                      |
| Cultural Resource Survey Area - No Artifacts Recovered | Forested Area  |



**Figure 2: Supplemental Analyses**

RIVANNA WATER  
AND SEWER  
AUTHORITY

**Hazen**

# RWPS Site, Access and Piping Prioritization

Site 1, Route 2: access and piping from Browns Gap Turnpike

Site 2, Route 1: access and piping from Browns Gap Turnpike

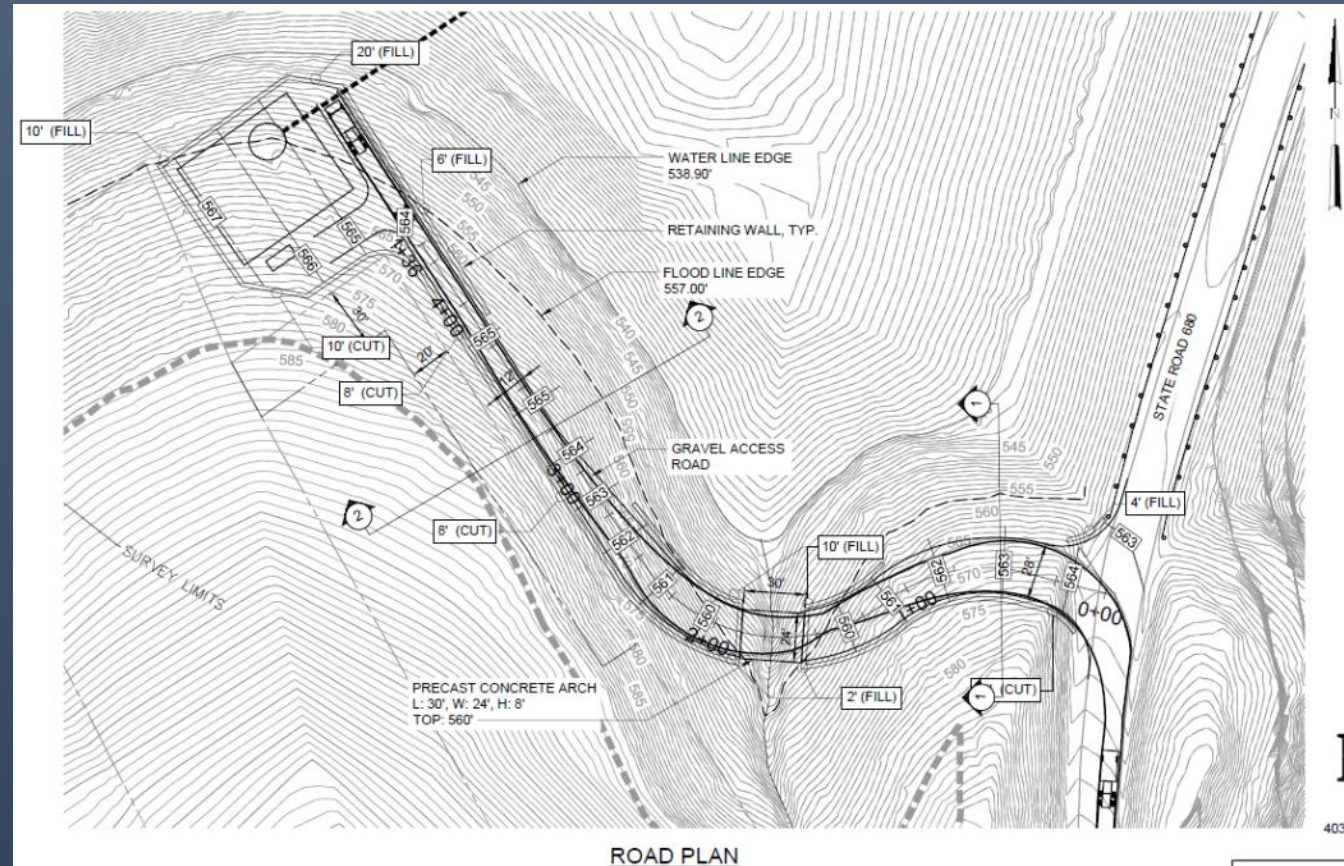
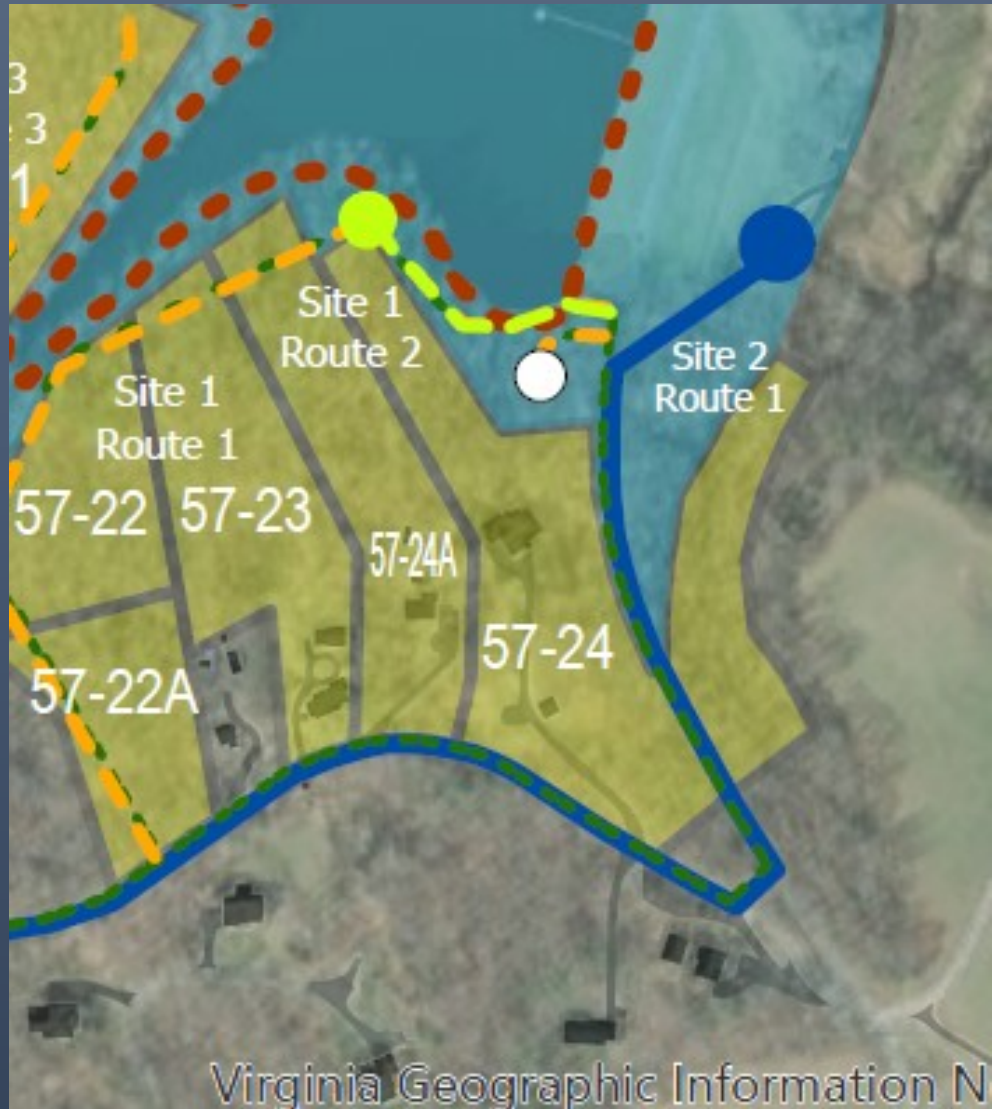
| Pump Station Location <sup>1</sup> | Route <sup>2</sup> | Length of New Raw Water Pipeline (ft) | Length of New Access Road (ft) | Area of New Access Road (acre) | Area of Pump Station Site (acre) | Impacted Critical Slope Area <sup>3</sup> (acre) | Impacted Wooded Area <sup>3</sup> (acre) | Impacted Riparian Buffer Area <sup>3</sup> (acre) | No. of U.S. Jurisdictional Stream Crossings | Length of Impacted Public Trails (ft) | Required Easements on Private Property <sup>4</sup> (acre) | No. of Impacted Private Properties <sup>4</sup> | Total Project Cost <sup>5</sup> |
|------------------------------------|--------------------|---------------------------------------|--------------------------------|--------------------------------|----------------------------------|--|--|---|---|---------------------------------------|--|---|---------------------------------|
| 1                                  | 1                  | 3,620                                 | 1,640                          | 0.9                            | 0.2                              | 0.8  | 1.1                                      | 1.1   | 0   | 0                                     | 1.2  | 5   | \$12,800,000                    |
|                                    | 2                  | 4,870                                 | 440                            | 0.3                            |                                  | 0.5  | 0.5                                      | 0.5   | 1   | 550                                   | 0.0  | 1   | \$14,200,000                    |
| 2                                  | 1                  | 4,380                                 | 0                              | 0.0                            | 0.5                              | 0.4  | 0.5                                      | 0.5   | 0   | 150                                   | 0.0  | 0   | \$14,500,000                    |
| 3                                  | 1                  | 3,380                                 | 3,240                          | 1.8                            | 0.2                              | 1.4  | 2.0                                      | 1.8   | 2   | 0                                     | 1.7  | 8   | \$12,300,000                    |
|                                    | 3                  | 3,850                                 | 1,910                          | 1.1                            |                                  | 1.0  | 1.3                                      | 1.1   | 5   | 0                                     | 1.7  | 3   | \$11,700,000                    |
| 4A                                 | 1                  | 10,350                                | 6,710                          | 3.7                            | 0.2                              | 0.1  | 1.6                                      | 0.8   | 0   | 0                                     | 4.3  | 2   | \$14,300,000                    |
|                                    | 2                  | 9,270                                 | 4,490                          | 2.5                            |                                  | 0.1  | 1.6                                      | 0.8   | 0   | 0                                     | 4.2  | 2   | \$13,100,000                    |
| 4B                                 | 1                  | 9,720                                 | 6,010                          | 3.3                            | 0.2                              | 0.1  | 1.2                                      | 0.3   | 0   | 0                                     | 4.3  | 2   | \$14,000,000                    |
|                                    | 2                  | 8,620                                 | 3,860                          | 2.1                            |                                  | 0.1  | 1.2                                      | 0.3   | 0   | 0                                     | 4.2  | 2   | \$13,000,000                    |

## Notes:

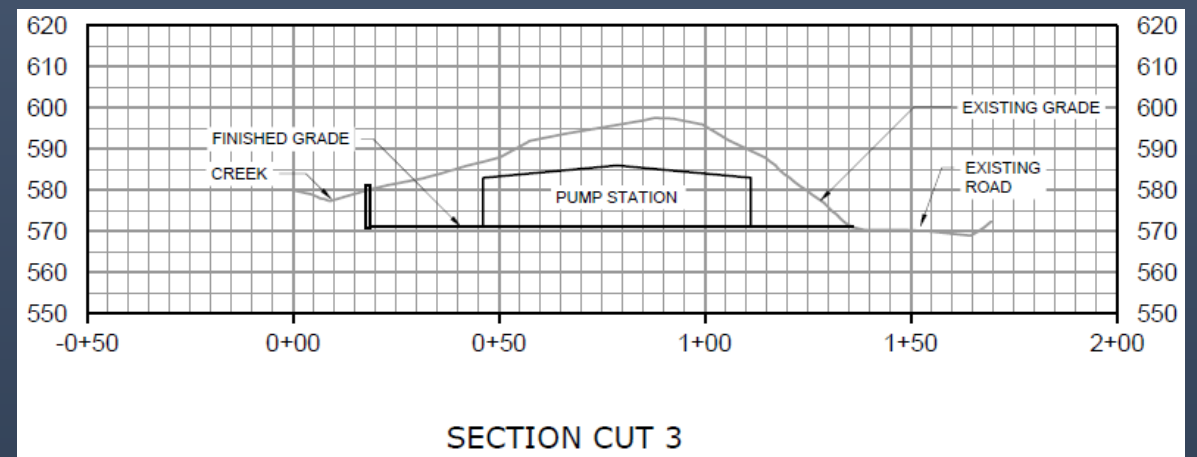
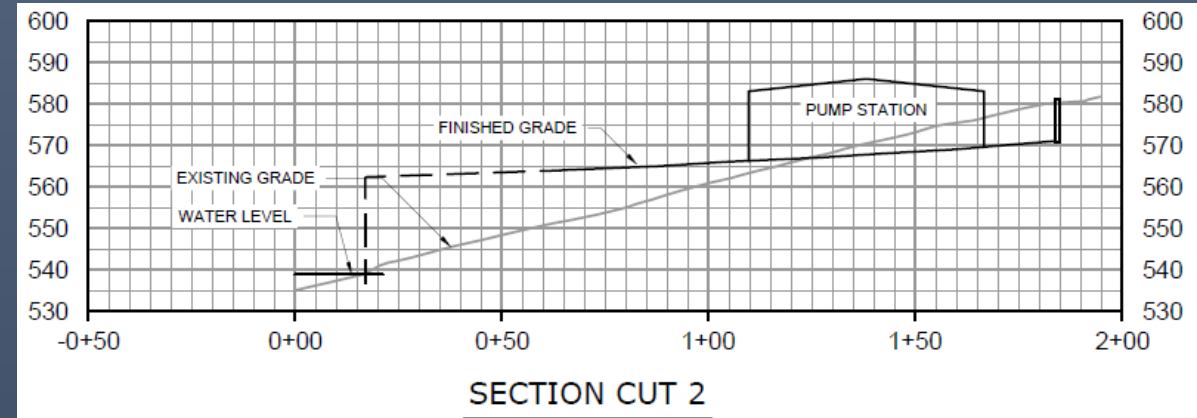
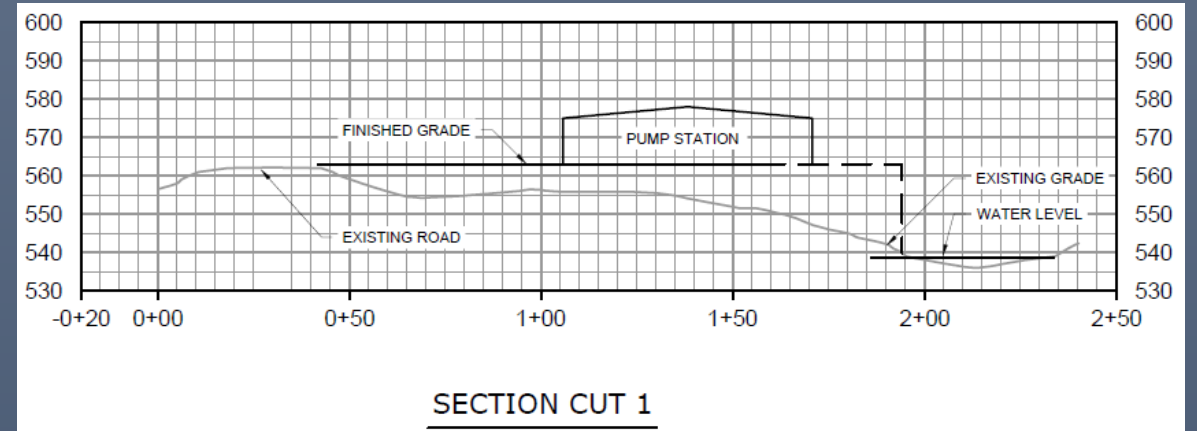
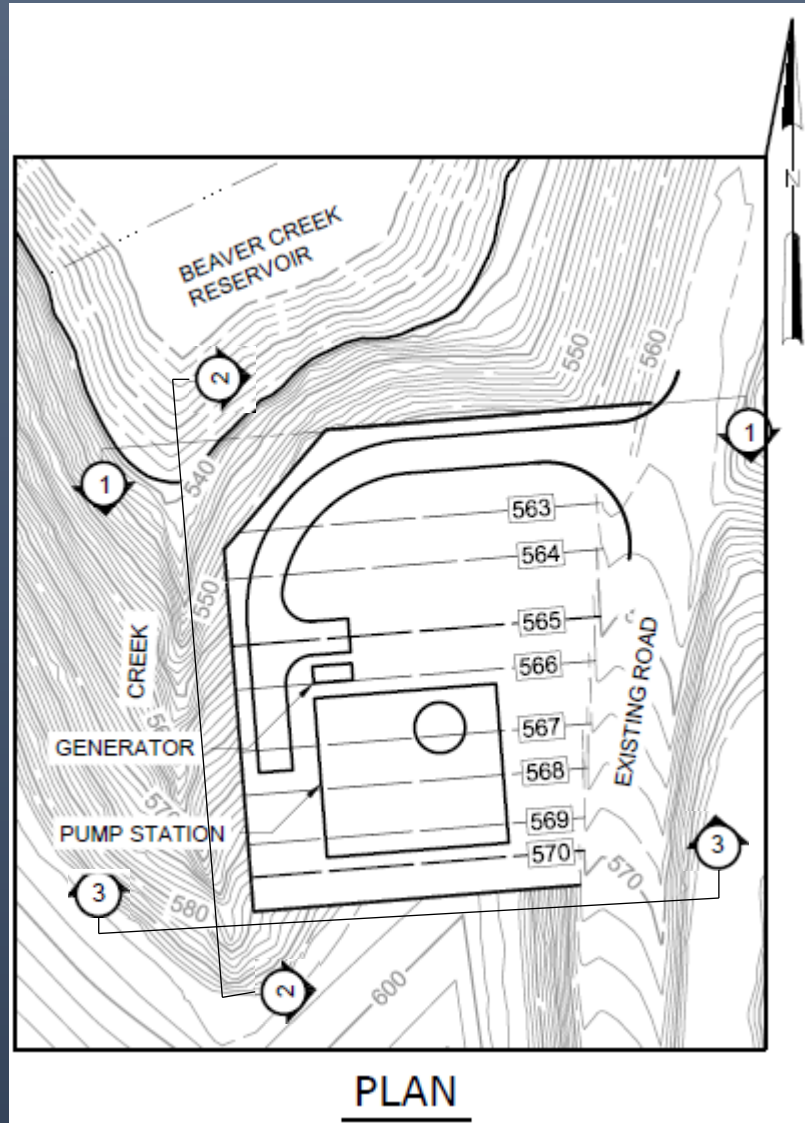
- Site 5 was eliminated since piping would be located under the reservoir
- Project costs are in 2021 \$, and are to be used for relative comparison of the sites
- Site 1 was preferred over site 2 due to the steep slopes and grading requirements of site 2, as well as its proximity to an adjacent house.



# Site 1, Route 2



# Site 2, Route 1



# Next Steps:

- Determination of Preferred Beaver Creek Spillway Alternative and RWPS with the federal NRCS: October 2021
- Submission of Joint Permit Application for Crozet Water System to VDEQ: 2021
- Construction of the dam upgrades, new RWPS and intake: 2024-2026

## Summary:

- Option #1: Site 1, Route 2
- Option #2: Site 2, Route 1
- Access and Piping for both sites will be from Browns Gap Turnpike

# Questions?





# Sanitary Sewer Improvements

{ 2020 Wastewater Flow Allocation Study

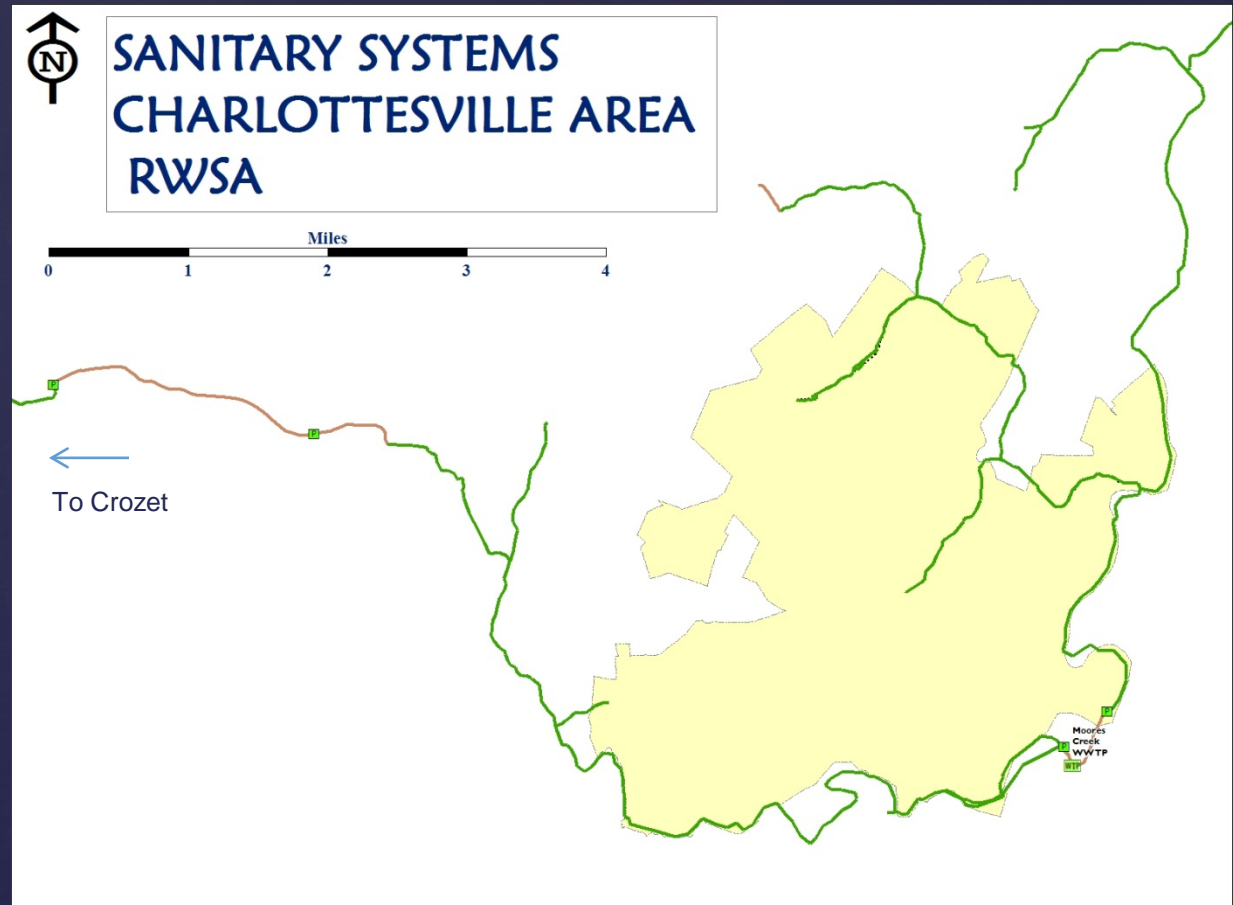
Presented to the RWSA Board of Directors

By Jennifer Whitaker, Director of Engineering & Maintenance

August 24, 2021

# One System – Three Owners

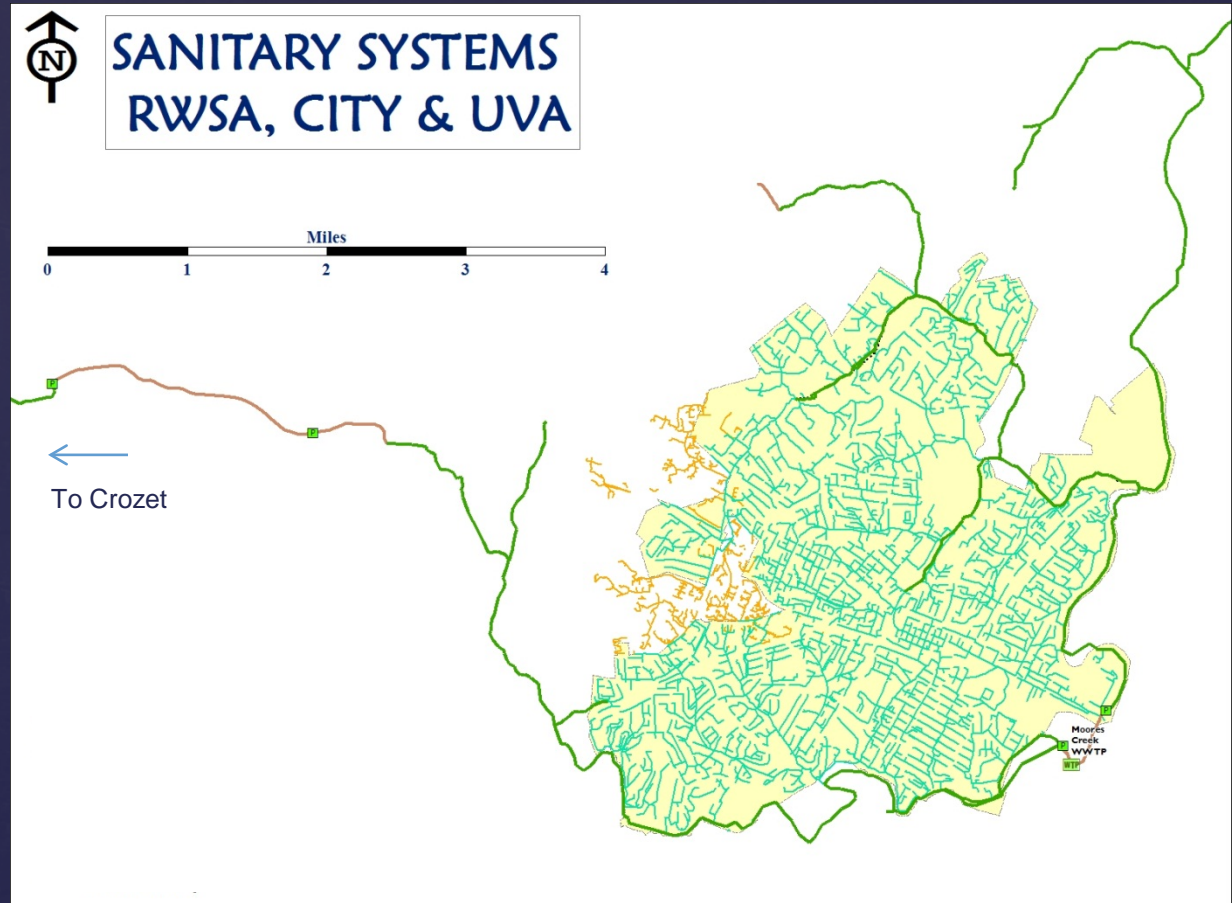
- Interconnected System Serving Entire Region
- Multi-Agency Coordination & Cooperation





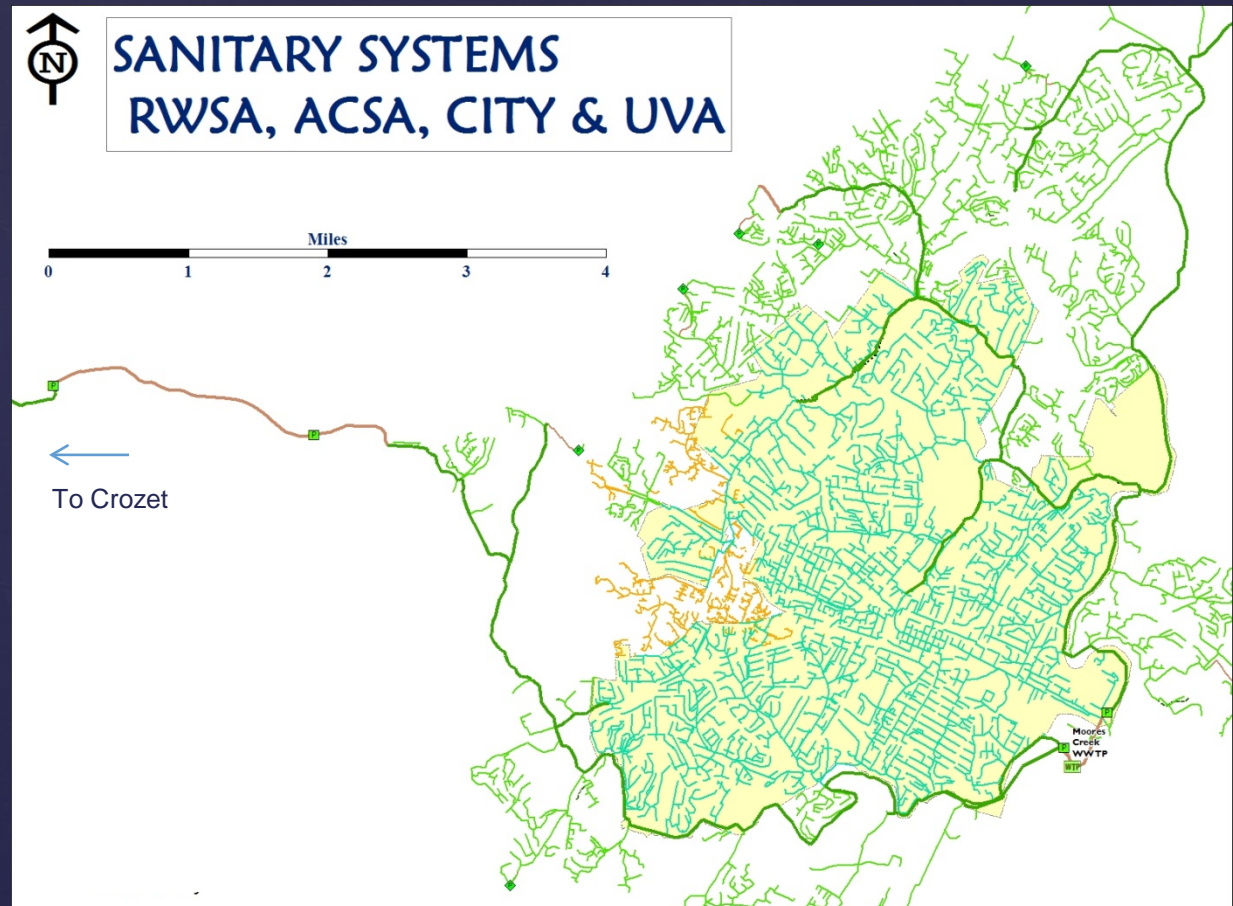
# One System – Three Owners

- Interconnected System Serving Entire Region
- Multi-Agency Coordination & Cooperation



# One System – Three Owners

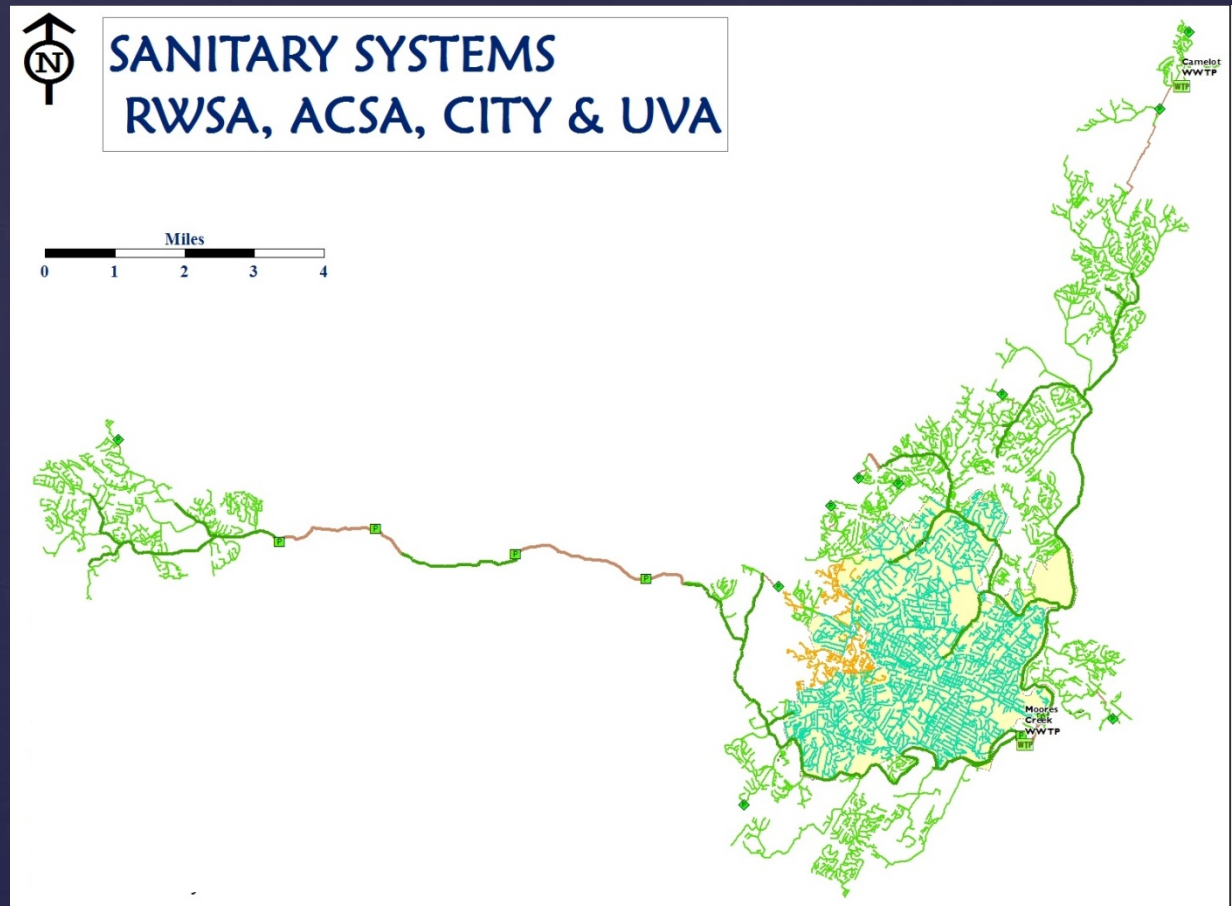
- Interconnected System Serving Entire Region
- Multi-Agency Coordination & Cooperation





# One System – Three Owners

- Interconnected System Serving Entire Region
- Multi-Agency Coordination & Cooperation



# 2006 - Identified Challenges

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- RWSA Completed Regional Sanitary Sewer Capacity Study
  - System Capacity Concerns
  - Aging Infrastructure
  - Significant Infiltration /Inflow (I/I)
  - Sanitary Sewer Overflows (SSOs)
  - Grease and Roots
  - Capital Improvements Needed
- Potential DEQ Consent Order



# History 2006-2016

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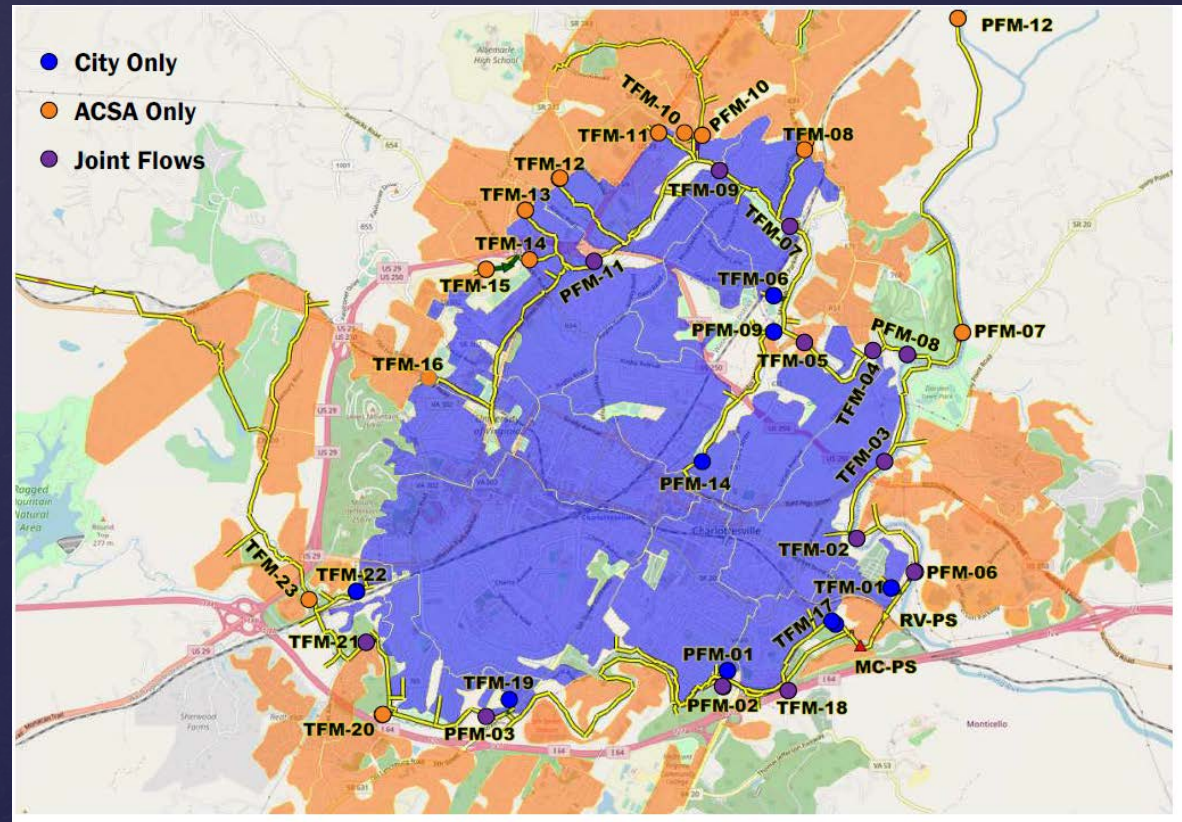
- 2006 RWSA Sanitary Sewer Capacity Study
- Three Agencies Develop Capital Improvement Plans
- 2010 City, ACSA, RWSA set Joint I/I Reduction Goals
- April 2010 DEQ Initiates Consent Agreement Process
- CIP Programs Previously Implemented are Adopted by DEQ
- August 2011 DEQ Incorporates Programs into Consent Order
- 2014 Wastewater Cost Allocation Agreement
- 2016 RWSA Sanitary Sewer Capacity Study
- 2017 DEQ Consent Order Complete



# 2020 WW Flow Analysis

- Updated Sewer Model
- Updated Population and Demand Projections
- Reviewed Permanent Flow Meter Data since 2014
- Installed Temporary Flow Meters in 2019 to Augment Information
- Calculated Current and Projected Dry and Wet Weather Flows (2020, 2045, and 2070)

| Service Area  | Permanent Meters | Temporary Meters<br>(Apr 2019 through Dec 2019) |
|---------------|------------------|---|
| Rivanna       | 8                | 16  |
| Moore's Creek | 6                | 7   |
| Total         | 14               | 23  |



# 2020 WW Flow Analysis

## 2020 Wet Weather Sewer Flows @ Moores Creek AWRRF

### 2015 Calibration

| Year | Average Day - Dry Weather Flow (mgd) |      | Wet Weather (I&I) Flow (mgd) |      | Total Peaking Flow (mgd) | Total Peaking Flow (mgd) |      | Total Peaking Flow (mgd) |
|------|--------------------------------------|------|------------------------------|------|--------------------------|--------------------------|------|--------------------------|
|      | ACSA                                 | City | ACSA                         | City |                          | ACSA                     | City |                          |
| 2015 | 5.1                                  | 5.3  | 19.0                         | 46.3 | 75.8                     | 24.1                     | 51.3 | 75.7                     |
| 2020 | 5.7                                  | 5.9  | 20.0                         | 46.4 | 78.0                     | 25.7                     | 52.3 | 78.0                     |
| 2045 | 8.0                                  | 6.6  | 22.8                         | 43.6 | 80.9                     | 30.8                     | 50.1 | 80.9                     |
| 2070 | 10.1                                 | 6.6  | 25.1                         | 39.8 | 81.7                     | 35.2                     | 46.5 | 81.7                     |

↑  
 13%  
 Reduction  
 ↓

↑  
 41%  
 Reduction  
 ↓

↑  
 30%  
 Reduction  
 ↓

### 2020 Calibration

| Year | Average Day - Dry Weather Flow (mgd) |      | Wet Weather (I&I) Flow (mgd) |       | Total Peaking Flow (mgd) | Total Peaking Flow (mgd) |       | Total Peaking Flow (mgd) |
|------|--------------------------------------|------|------------------------------|-------|--------------------------|--------------------------|-------|--------------------------|
|      | ACSA                                 | City | ACSA                         | City  |                          | ACSA                     | City  |                          |
| 2020 | 5.45                                 | 4.66 | 17.33                        | 27.27 | 54.70                    | 22.78                    | 31.93 | 54.7                     |
| 2045 | 7.66                                 | 5.53 | 22.72                        | 27.90 | 63.81                    | 30.38                    | 33.43 | 63.8                     |
| 2070 | 8.52                                 | 6.19 | 24.55                        | 27.74 | 67.01                    | 33.07                    | 33.93 | 67.0                     |

# 2020 WW Flow Analysis

## 2070 Wet Weather Sewer Flows @ Moores Creek AWRRF

### 2015 Calibration

| Year | Average Day - Dry Weather Flow (mgd) |      | Wet Weather (I&I) Flow (mgd) |      | Total Peaking Flow (mgd) | Total Peaking Flow (mgd) |      | Total Peaking Flow (mgd) |
|------|--------------------------------------|------|------------------------------|------|--------------------------|--------------------------|------|--------------------------|
|      | ACSA                                 | City | ACSA                         | City |                          | ACSA                     | City |                          |
| 2020 | 5.7                                  | 5.9  | 20.0                         | 46.4 | 78.0                     | 25.7                     | 52.3 | 78.0                     |
| 2045 | 8.0                                  | 6.6  | 22.8                         | 43.6 | 80.9                     | 30.8                     | 50.1 | 80.9                     |
| 2070 | 10.1                                 | 6.6  | 25.1                         | 39.8 | 81.7                     | 35.2                     | 46.5 | 81.7                     |

2% Reduction  
 30% Reduction

18% Reduction

### 2020 Calibration

| Year | Average Day - Dry Weather Flow (mgd) |      | Wet Weather (I&I) Flow (mgd) |       | Total Peaking Flow (mgd) | Total Peaking Flow (mgd) |       | Total Peaking Flow (mgd) |
|------|--------------------------------------|------|------------------------------|-------|--------------------------|--------------------------|-------|--------------------------|
|      | ACSA                                 | City | ACSA                         | City  |                          | ACSA                     | City  |                          |
| 2020 | 5.45                                 | 4.66 | 17.33                        | 27.27 | 54.70                    | 22.78                    | 31.93 | 54.7                     |
| 2045 | 7.66                                 | 5.53 | 22.72                        | 27.90 | 63.81                    | 30.38                    | 33.43 | 63.8                     |
| 2070 | 8.52                                 | 6.19 | 24.55                        | 27.74 | 67.01                    | 33.07                    | 33.93 | 67.0                     |



# Findings

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- Reduction in Current and Projected Wet Weather Flow
  - ACSA 13% / City 41% = Total System 30% Reduction
- Routine Rainfalls No Longer Induce Sanitary Sewer Overflows
- Future Predicted Flows May Delay Costly Upgrades Within the Collection System and at the Wastewater Treatment Plant

## Why Such Dramatic Results?

- Since 2009 the City, ACSA and RWSA Have Invested Heavily in Sewer Infrastructure Improvements

### City

- ✓ \$21.3 M Spent on Sewer Rehab.
- ✓ 46.6 miles of Sewer Pipe Relined or Replaced
- ✓ 197 Manholes have been Replaced
- ✓ 5,400 vertical feet of Manhole Rehab.
- ✓ 27% of Total System Renewed

### ACSA

- ✓ \$12.62 M Spent on Sewer Rehab.
- ✓ 24.1 miles of Sewer Pipe Relined
- ✓ 1,835 Manholes have been Rehabilitated



# Questions

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# Water and Wastewater Facilities and Treatment Processes

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PRESENTED BY:

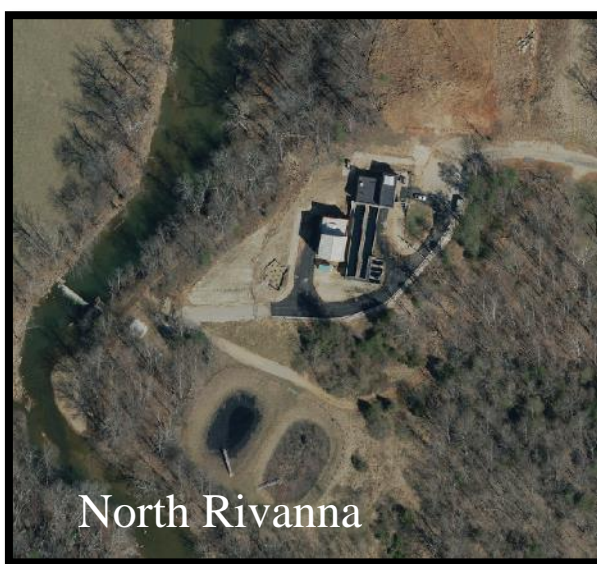
DAVE TUNGATE, DIRECTOR OF OPERATIONS

BOARD OF DIRECTORS MEETING

AUGUST 24, 2021







North Rivanna



South Rivanna



Observatory



Scottsville



Red Hill

# Water Treatment Plants





South Rivanna Water Treatment Plant  
12 MGD treatment capacity





Observatory Water Treatment Plant  
7.7 to 10 MGD treatment capacity





Crozet Water Treatment Plant  
1.0 to 2.0 MGD treatment capacity



# North Rivanna Water Treatment Plant

2.0 MGD  
treatment  
capacity







Scottsville Water Treatment Plant  
0.25 MGD treatment capacity



# Red Hill Ground Water Treatment Plant

0.006 MGD  
treatment  
capacity







South Rivanna WTP

8 Contactors  
320,000 pounds of  
GAC  
8 MGD Capacity



Observatory WTP

2 Contactors  
80,000 pounds of  
GAC  
2 MGD Capacity



North Rivanna WTP

1 Contactor  
40,000 pounds of  
GAC  
1 MGD Capacity



Crozet WTP

2 Contactors  
40,000 pounds of  
GAC  
1 MGD Capacity

Scottsville WTP

2 Contactors  
12,000 pounds of  
GAC  
0.25 MGD  
Capacity



# Capacities and Staffing

---

| Water Treatment Facility | Capacity in Million Gallons per Day | Water Plant Operators |
|--------------------------|-------------------------------------|-----------------------|
| South Rivanna            | 12                                  | 8                     |
| Observatory              | 7.7                                 | 4                     |
| North Rivanna            | 2                                   | 1.4                   |
| Crozet                   | 2                                   | 2.4                   |
| Scottsville              | 0.25                                | 1.4                   |
| Red Hill Well            | 0.006                               | 1                     |
|                          | 23.73                               | 18.2                  |

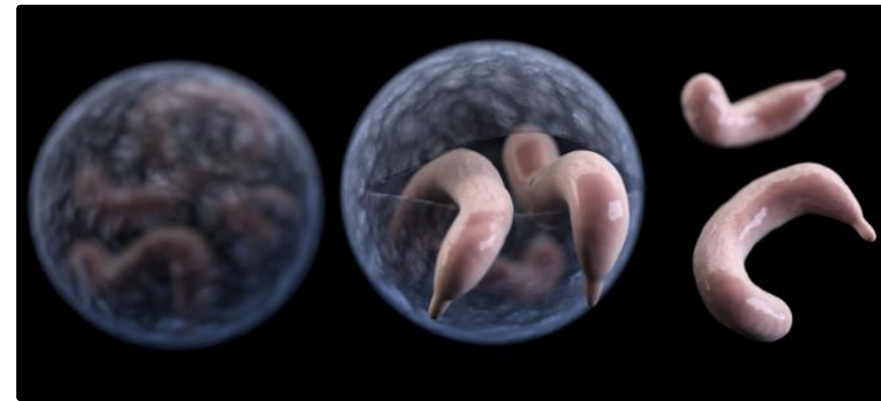
- Protect raw water quality in the water source
- Pump raw water to water treatment plants
- Treat the water to exceed Safe Drinking Water Act standards
- Pump drinking water into the distribution system to meet daily water demands
- Maintain distribution system water quality



In house  
Laboratory  
Staff

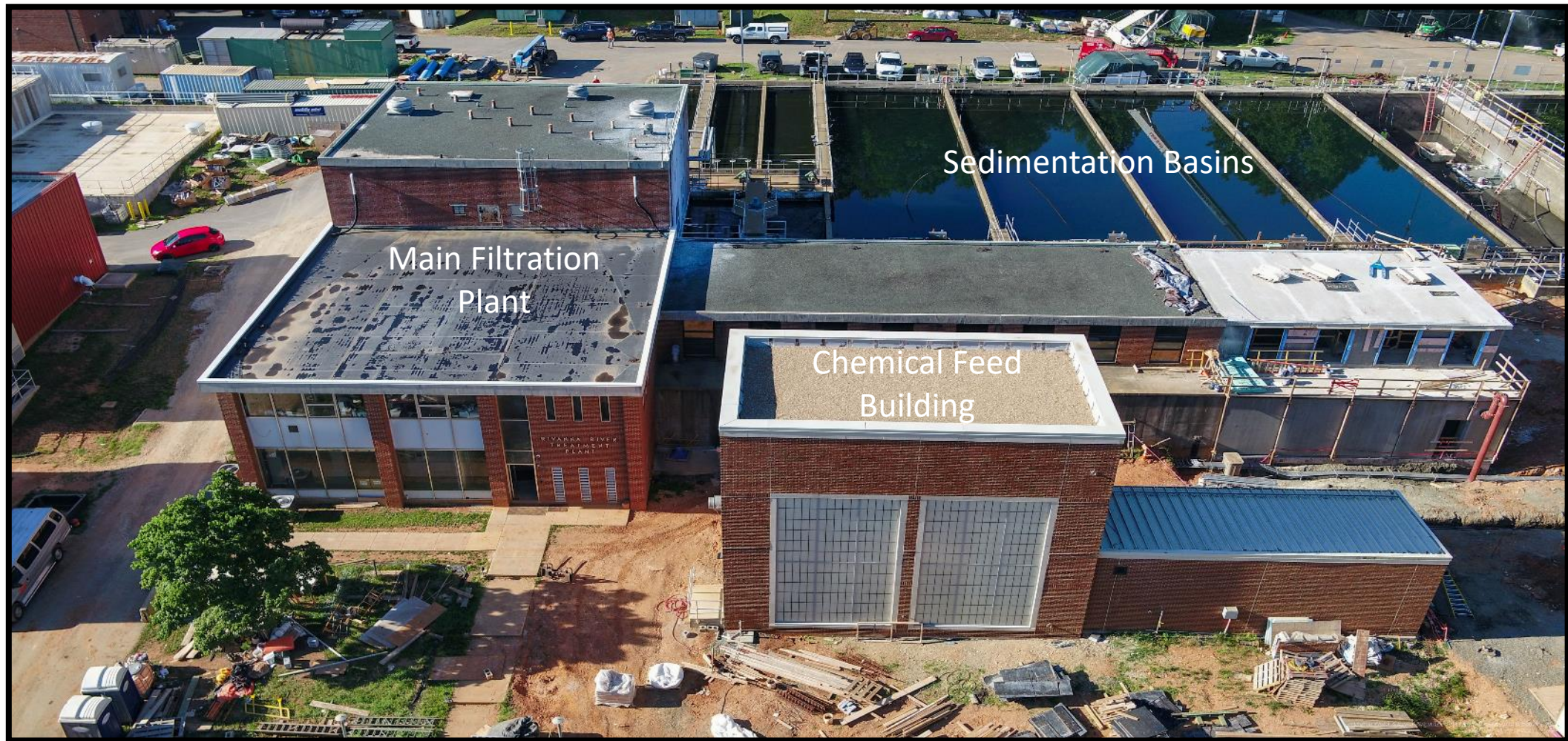
# Drinking Water Treatment





# Surface Water Treatment Challenges





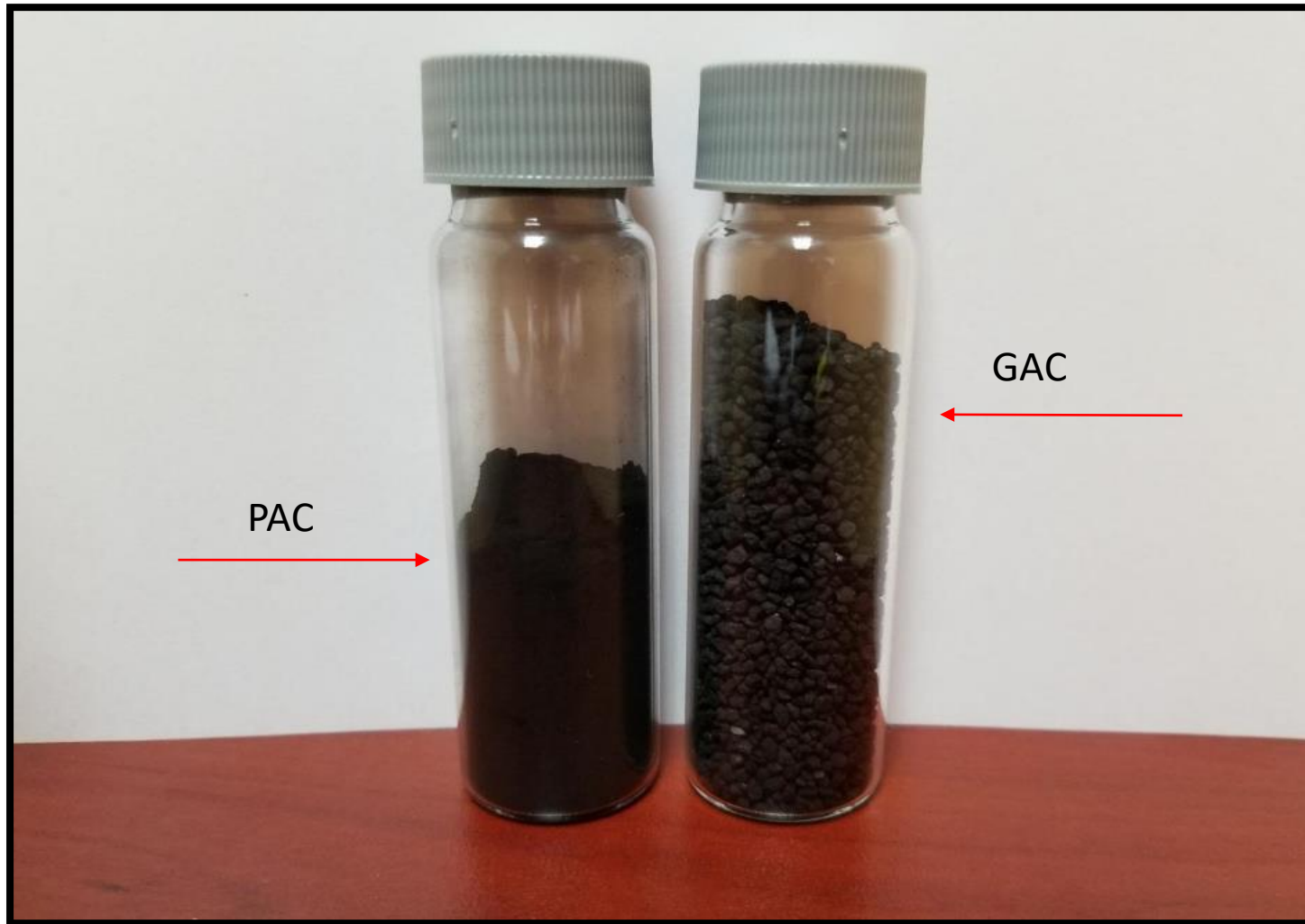
# South Rivanna WTP





# South Rivanna WTP





# Activated Carbon



# Powdered Activated Carbon





# Granular Activated Carbon Contactors

# Drinking Water Reporting Requirements

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

- Daily volume of water pumped in and out of each water plant
- Amount of chemicals and dosage used daily at each water plant (coagulant, lime, powder activated carbon, polymer, corrosion inhibitor, chlorine, and fluoride)
- Filter turbidity and backwash, water temperatures (raw and finished), and pH reports
- Finished water chlorine residuals and disinfection calculations
- Total Coliform sample results for Urban, Crozet, Scottsville, and Red Hill Systems

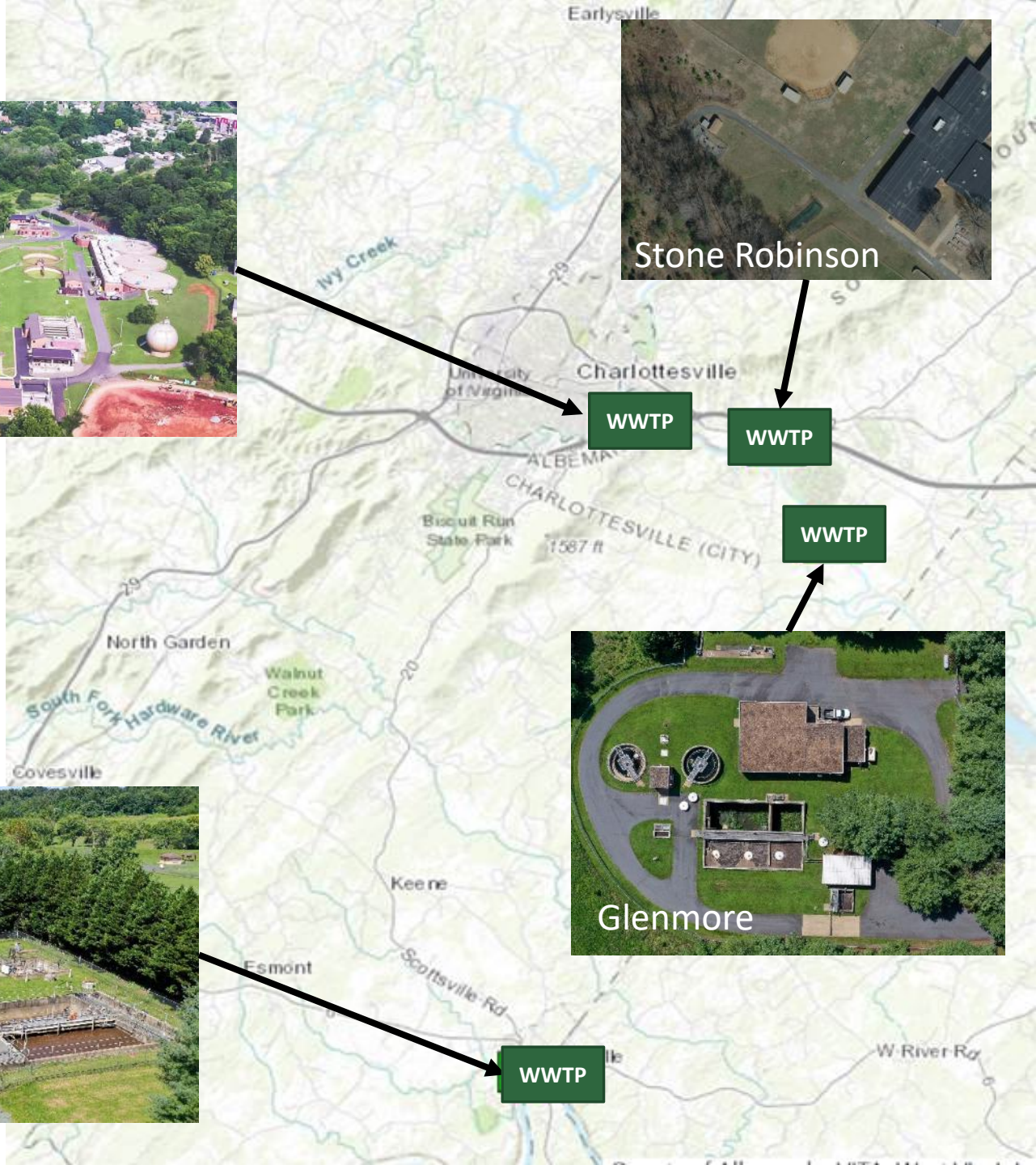




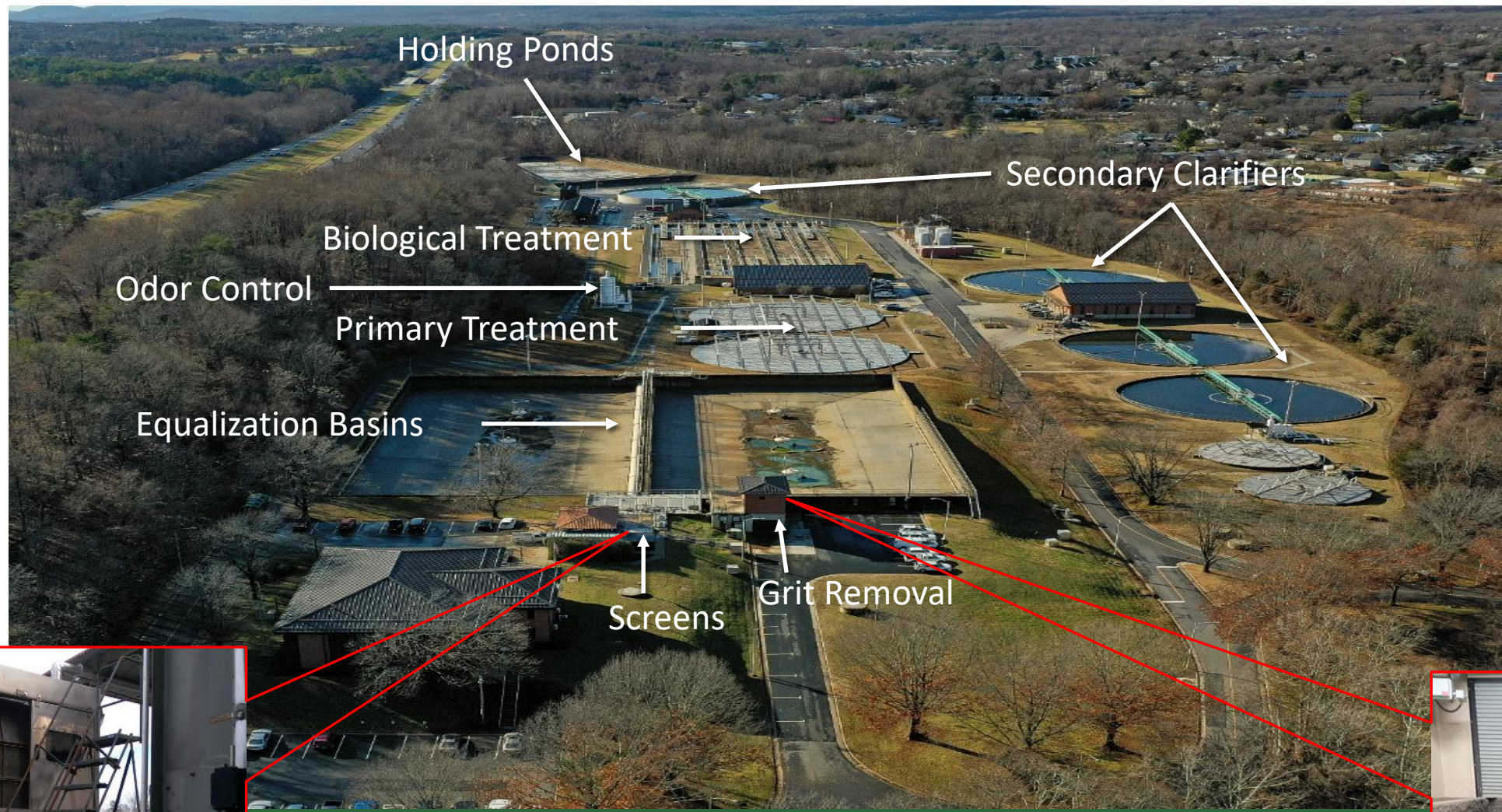
# Questions?



# Wastewater Facilities







# Moores Creek AWWRF

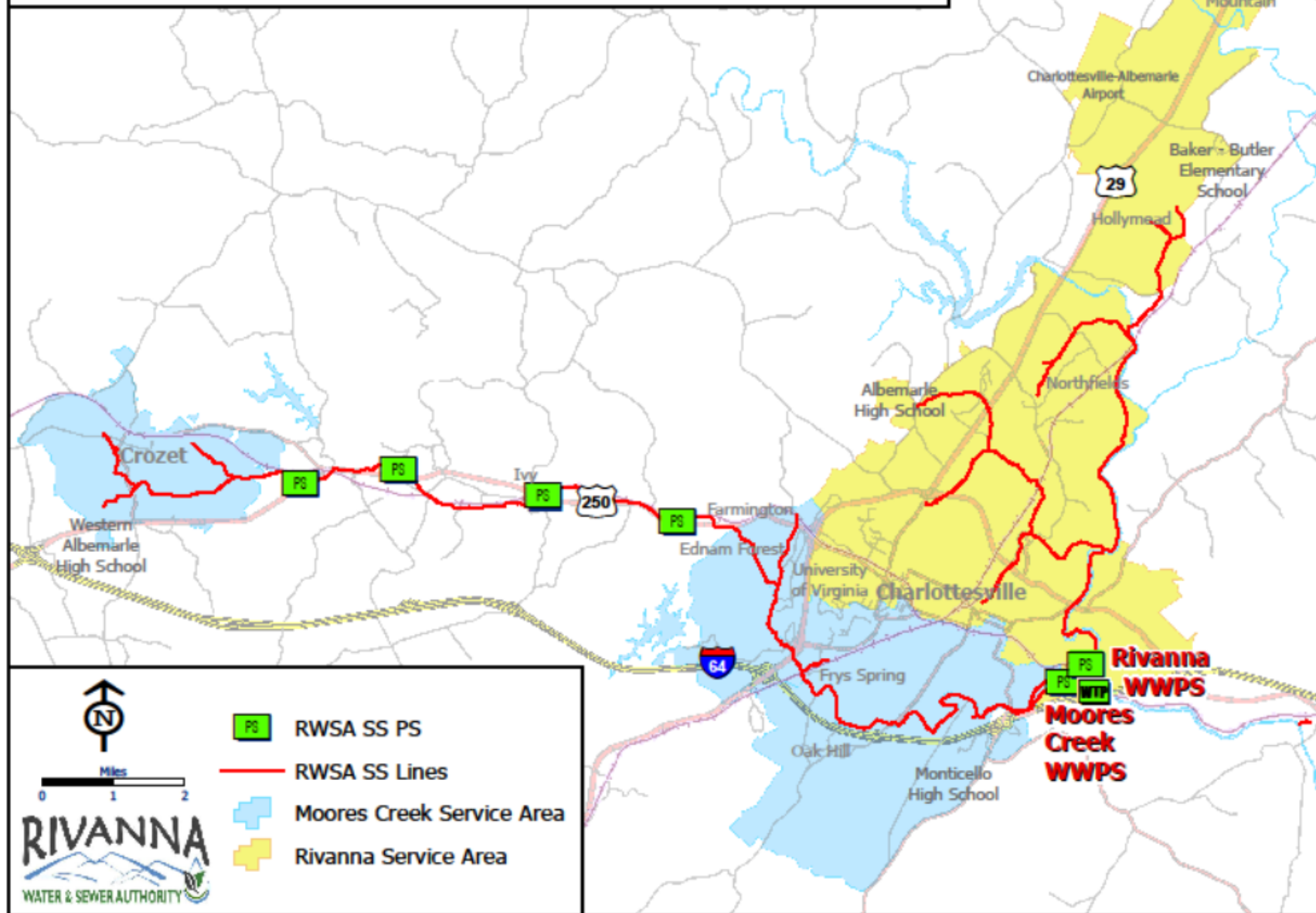




# Moores Creek “Dry Side”



# **Service Areas for the Moores Creek & Rivanna Waste Water Pump Stations at Moores Creek AWRRF**



# Flushable Wipes at Crozet Sewage Pump Station 4







# Primary Clarifier Treatment

# Odor Control for Primary Clarifiers





# Biological Treatment







# Secondary Clarifiers





# Sand Filters





Ultraviolet light channels  
for disinfection



# Discharge to Moores Creek



# Centrifuge





# Dewatered Sludge (biosolids)







Biosolids Shipped to Waverly, VA

# Wastewater Plant Reporting Requirements

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Monthly compliance reports are sent to Virginia Department of Environmental Quality

- Moores Creek

- Dissolved oxygen (DO) daily
- pH daily
- Total Suspended Solids (TSS) 5 times a week
- Ammonia 5 times a week
- Escherichia coli (E.Coli) bacteria 4 times a week
- Total Phosphorus 2 times a week
- Total Nitrogen 2 times a week
- Chemical Biological Oxygen Demand 1 time a week





# Questions?