




# Board of Directors Meeting


September 27, 2022


2:15pm



695 Moores Creek Lane | Charlottesville, Virginia 22902-9016

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

## BOARD OF DIRECTORS

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

**DATE:** September 27, 2022

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

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

### AGENDA

- 1. CALL TO ORDER**
- 2. AGENDA APPROVAL**
- 3. MINUTES OF PREVIOUS BOARD MEETING ON AUGUST 23, 2022**
- 4. RECOGNITION**
- 5. EXECUTIVE DIRECTOR'S REPORT**
- 6. ITEMS FROM THE PUBLIC**  
*Matters Not Listed for Public Hearing on the Agenda*
- 7. RESPONSES TO PUBLIC COMMENTS**
- 8. CONSENT AGENDA**
  - a. Staff Report on Finance*
  - b. Staff Report on Operations*
  - c. Staff Report on Ongoing Projects*
  - d. Staff Report on Wholesale Metering*
  - e. Staff Report on Drought Monitoring*
  - f. Authorization to Increase Term Engineering Services Contract Contingency, South Fork Rivanna River Crossing Project – Michael Baker International*

## **9. OTHER BUSINESS**

- a. Presentation, Public Hearing and Vote on Approval; Resolution to Amend FY 2022 - 2023 Water Rates and Charges; Bill Mawyer, P.E., Executive Director*
- b. Presentation: Water Treatment Facilities Overview  
Dave Tungate, Director of Operations*

*(Joint Session with the RSWA)*

- c. Presentation and Work Session: 2023-2028 Strategic Plan Update  
Darin Thomas, Vice-President, Raftelis Financial Consultants, Inc.  
Catherine Carter, Senior Manager, Raftelis Financial Consultants, Inc.*

*(Complete and close the RWSA meeting, then complete and close the RSWA meeting)*

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

## **11. CLOSED MEETING**

## **12. ADJOURNMENT**

## GUIDELINES FOR PUBLIC COMMENT AT RIVANNA BOARD OF DIRECTORS MEETINGS

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

Members of the public requesting to speak will be recognized during the specific time designated on the meeting agenda for “Items From The Public, Matters Not Listed for Public Hearing on the Agenda.” Each person will be allowed to speak for up to three minutes. When two or more individuals are present from the same group, it is recommended that the group designate a spokesperson to present its comments to the Board and the designated speaker can ask other members of the group to be recognized by raising their hand or standing. Each spokesperson for a group will be allowed to speak for up to five minutes.

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

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

- Wait at your seat until recognized by the Chairman.
- Come forward and state your full name and address and your organizational affiliation if speaking for a group;
- Address your comments to the Board as a whole;
- State your position clearly and succinctly and give facts and data to support your position;
- Summarize your key points and provide the Board with a written statement, or supporting rationale, when possible;
- If you represent a group, you may ask others at the meeting to be recognized by raising their hand or standing;
- Be respectful and civil in all interactions at Board meetings;
- The Board may ask speakers questions or seek clarification, but recognize that Board meetings are not a forum for public debate; Board Members will not recognize comments made from the audience and ask that members of the audience not interrupt the comments of speakers and remain silent while others are speaking so that other members in the audience can hear the speaker;
- The Board will have the opportunity to address public comments after the public comment session has been closed;
- At the request of the Chairman, the Executive Director may address public comments after the session has been closed as well; and
- As appropriate, staff will research questions by the public and respond through a report back to the Board at the next regular meeting of the full Board. It is suggested that citizens who have questions for the Board or staff submit those questions in advance of the meeting to permit the opportunity for some research before the meeting.



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

Rev. September 7, 2022



**RWSA BOARD OF DIRECTORS**  
**Minutes of Regular Meeting**  
**August 23, 2022**

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, August 23, 2022 at 2:15 p.m. via Zoom.

**Board Members Present:** Mike Gaffney, Lauren Hildebrand, Ann Mallek, Brian Pinkston, Michael Rogers, and Quin Lunsford, attending as alternate for Gary O'Connell.

**Board Members Absent:** Gary O'Connell, Jeff Richardson.

**Rivanna Staff Present:** Bill Mawyer, Lonnie Wood, David Tungate, John Hull, Jennifer Whitaker, Jeff Southworth, Andrea Bowles, Katie McIlwee.

**Attorney(s) Present:** Valerie Long.

**1. CALL TO ORDER**

Mr. Gaffney called the August 23, 2022, regular meeting of the Rivanna Water and Sewer Authority to order at 2:15 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 August 23, 2022 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 7, 2022, Albemarle County's Continuity of Government Ordinance adopted on April 15<sup>th</sup>, 2020, and revised effective November 4, 2020 (Ordinance No. 20-A(16)) and Chapter 1283 of the 2020 Acts of the Virginia Assembly effective April 24, 2020, we are holding this meeting by real time electronic means with no Board member physically present at a single, central location.

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

Mr. Gaffney called the roll.

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

Ms. Ann Mallek stated she was located at the County Office Building at 401 McIntire Road, Charlottesville, VA.

Mr. Quin Lunsford stated he was located at 168 Spotnap Road, Charlottesville, VA.

Mr. Brian Pinkston stated he was located at 1450 Leake Drive in Charlottesville, VA.

Mr. Rogers stated he was located at City Hall at 605 East Main Street, Charlottesville, VA.

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

Mr. Gaffney stated the following Authority staff members and consultants were joining the meeting electronically: Bill Mawyer, Lonnie Wood, David Tungate, Jennifer Whitaker, John Hull, Jeff Southworth, Andrea Bowles, and Katie McIlwee.

Mr. Gaffney stated they were also joined electronically by Ms. Valerie Long of Williams Mullen, Counsel to the Authority.

### **3. AGENDA APPROVAL**

Mr. Gaffney asked if there were any suggested changes to the agenda or a motion to approve the agenda.

**Ms. Mallek moved to approve the agenda. Mr. Rogers seconded the motion, which passed unanimously (5-0). (Mr. Richardson and Mr. O'Connell were absent)**

### **4. MINUTES OF PREVIOUS BOARD MEETING**

*Minutes of Regular Board Meeting on July 26, 2022*

Mr. Gaffney asked if there were any comments or changes to the Board minutes. Hearing none, he asked if there was a motion.

**Mr. Rogers moved to approve the minutes of the July 26, 2022 meeting. Ms. Mallek seconded the motion, which passed unanimously (5-0). (Mr. Richardson and Mr. O'Connell were absent.)**

### **5. RECOGNITIONS**

There were no recognitions.

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

Mr. Mawyer stated he would like to recognize two staff members, Chris Ward and Robbie McMullen, wastewater operators who both recently passed their Class 2 Operator licenses. He stated Mr. Ward began as a trainee and had moved through the licensing process for ten years. He

90 stated Robbie McMullen began in 2018 and in the last four years progressed from trainee to Class 2.  
91 He stated their efforts were appreciated.

92  
93 Mr. Mawyer stated that they were in discussions with the Virginia Department of Environmental  
94 Quality's Air Pollution Control Division about the fact that they did not obtain a permit for the  
95 emergency power generator, which served the Rivanna sewer pump station that was completed in  
96 2017. He stated they obtained a certificate to design, construct, and operate the pump station and  
97 generator, but there was an oversight and they did not get a permit to activate the emergency power  
98 generator.

99  
100 Mr. Mawyer stated operation of the generator did not violate any environmental standard and with  
101 assistance from Williams Mullen, they completed a consent order with VDEQ and paid a fine that  
102 was reduced significantly from the originally proposed fine. He stated all the corrective measures  
103 had been completed and they had asked VDEQ to close the consent order.

104  
105 Mr. Mawyer stated the strategic plan update recommended increasing Rivanna's leadership profile  
106 in the community for environmental services, so they put an advertisement in the UVA football  
107 program this year for the Rivanna Water and Sewer Authority and for the Rivanna Solid Waste  
108 Authority.

109  
110 Mr. Mawyer stated they understood the local emergency ordinances would require the return to in-  
111 person Board meetings next month on September 27, so both the Solid Waste and the Water and  
112 Sewer Boards would be meeting in the administration building conference room.

113  
114 Mr. Mawyer stated they had advertised the Elliot House and 2.2 acres of the Buck Mountain  
115 property for sale as discussed with the Board over the last few months. He stated that advertisement  
116 and bidding process would close on September 14. He stated next week on August 30 would be the  
117 pre-bid conference and open house at the site for interested bidders.

118  
119 Mr. Gaffney asked if there were any questions for the Executive Director. Hearing none, he moved  
120 to the next item.

## 121 122 **7. ITEMS FROM THE PUBLIC**

### 123 *Matters Not Listed for Public Hearing on the Agenda*

124  
125 Mr. Gaffney asked for confirmation that there were no public hearings scheduled for the day.

126  
127 Mr. Mawyer stated that was correct,

128  
129 Mr. Gaffney asked Mr. Hull if there were any members of the public who wished to speak at this  
130 time.

131  
132 Mr. Hull stated that Ms. Dede Smith wished to speak.

133  
134 Mr. Gaffney welcomed Ms. Smith.

Ms. Smith greeted the Board. She stated she resided at 2652 Jefferson Park Circle and was a customer of the City. She stated she wanted to follow up on a few comments she made at the last meeting and address some of the issues they would be hearing about today. She stated that Mr. Mawyer was correct in that taking the dam down at South Fork was not in the Nature Conservancy plan.

Ms. Smith stated she was commenting that decommissioning a defunct reservoir, one that was basically written out of the community water plan, and certainly written out of their operational strategy, with switching over to Ragged Mountain, was a dam doing nothing other than destroying tens of miles of a scenic river. She stated this, along with the algae problem they would be discussing today, was further polluting their primary water source, so her point was that taking the dam down was the environmentally responsible thing to do. She apologized for conflating those two issues.

Ms. Smith stated that brought her to what they would be talking about today, which was the state of their reservoirs. She requested that they discuss the future of the reservoirs that were being decommissioned in operational terms. She stated she was speaking not only of South Fork but to Sugar Hollow as well; once that pipeline that linked Ragged Mountain and South Fork was in, they would not be drawing water from that reservoir anymore, so she would like to know if there was a plan to free that river, Mormons River from a dam.

Ms. Smith stated South Fork and Mormons River were probably the only rivers worth discussing regarding plans for the future. She stated this all came back to updating the strategic plan. She stated that if they wanted to be good environmental stewards, she requested they at least discuss freeing the rivers from the dams that were no longer needed. She thanked the Board and stated she appreciated their time.

Mr. Gaffney thanked Ms. Smith. He asked Mr. Hull if there were any other members of the public who wished to speak.

Mr. Hull stated that concluded the public discussion for today.

Mr. Gaffney stated they would close items from the public and open the responses to public comments.

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

Mr. Mawyer stated he would need to talk with Ms. Smith, because in the community water supply plan, all of the reservoirs would continue to be utilized. He stated that even though they were piping water from the Rivanna Reservoir to the Ragged Mountain Reservoir, a lot of the water that came to South Rivanna was from the Sugar Hollow Reservoir, so all three of their urban reservoirs would still be essential components of the community water supply plan.

Mr. Mawyer stated removing the dam at South Rivanna could severely limit the amount of water they were able to take out of the South Rivanna River. He stated there were 70 million gallons per day overflowing the dam right now, so there was a plentiful supply, but that may not be the case all

the time if the dam was removed and they withdrew from a river-type setup. He reiterated that all three of the urban reservoirs were essential to the short- and long-term water supply plans.

Mr. Gaffney asked if there were any Board members who wished to speak at this time. Hearing none, he closed responses to public comments.

## **9. CONSENT AGENDA**

- a. Staff Report on Finance*
- b. Staff Report on Operations*
- c. Staff Report on Ongoing Projects*
- d. Staff Report on Wholesale Metering*
- e. Staff Report on Drought Monitoring*
- f. Award Construction Contract and Amend Capital Improvement Plan – South Rivanna Hydropower Plant Decommissioning Project – English Construction Company, Inc.*
- g. Award Professional Services Agreement – Moores Creek AWRFF Engineering and Administration Building Addition and Renovation Project – Short Elliot Hendrickson Inc.*
- h. Authorization of Professional Engineering Services; SCADA Standards Project – Short Elliot Hendrickson Inc.*
- i. Resolution to Amend FY 2022 – 2023 Water Rates and Charges; Authorization to Schedule a Public Hearing*

Mr. Gaffney asked if there were any items on the consent agenda that Board members would like to pull for comments or questions. Hearing none, he asked if there was a motion.

**Ms. Hildebrand moved for the Board to adopt the Consent Agenda as presented. Ms. Mallek seconded the motion, which passed unanimously (5-0). (Mr. Richardson and Mr. O’Connell were absent)**

## **10. OTHER BUSINESS**

- a. Presentation: Wastewater Program Review*

Mr. Tungate thanked the Chair. He stated that the image displayed was from a recent drone flight over the Moores Creek facility. He continued that the Rivanna Water and Sewer Authority operated four wastewater facilities in the County, the largest being the Moores Creek Advanced Water Resource Recovery Facility. He stated a small facility was located at Stone Robinson School with larger wastewater treatment plants located in Glenmore subdivision and the Town of Scottsville.

Mr. Tungate stated that at Moores Creek, the “wet side” of the facility was the portion closest to Interstate 64. He stated as the sewage processed through the facility, there were band screens and grit removal equipment, which removed insoluble materials from the sewage, and two equalization basins, which under normal operations were empty. He stated the basins were used when high rain events occurred and there was a sudden increase in sewage/water into the plant. Moores Creek has to adjust the treatment system to prepare for the high flows and in the meantime the excess sewage is temporarily stored in the equalization (EQ) basins. He stated the primary clarifiers were the covered basins with odor control facilities which eliminated odors from the primary clarifiers. He

224 stated these were covered three or four years ago to reduce odors in the community. He stated the  
225 large aeration basins were noticed by most people when coming to the facility; it was where the  
226 biological treatment took place. He stated there were four secondary clarifiers that continued the  
227 treatment process.

228  
229 Mr. Tungate showed an aerial image of the “wet side” of the plant looking east. He indicated the  
230 two holding ponds can be used to store excess sewage flows from a rain event. The bypass to the  
231 holding ponds is different from the EQ basin use, as the bypass to the holding ponds forgo the band  
232 screens and grit removal. The water is temporarily stored in the holding ponds and pumped back to  
233 the headworks when the influent water flow rates decrease.

234  
235 Mr. Tungate showed an image of the “dry side” of the plant which is closest to the facility entrance.  
236 He stated there were five anaerobic digesters, where the solids collected on the “wet side” were  
237 pumped to be digested for 15-20 days by microbes. He stated there were pumps that conveyed the  
238 solids from the digesters to the solids handling building, where a centrifuge dewatered the solids so  
239 they can be hauled to a composting facility in Waverly, Virginia for final disposal.

240  
241 Mr. Tungate pointed out a large construction area near the digesters is the location of the removed  
242 clarifiers. It was a recent project as they were no longer in use. The same project also removed a  
243 dry lime silo that was no longer in use as well. He stated there were tertiary filters that removed  
244 any small particulates that might remain in the water before the water passed through the ultra-violet  
245 (UV) light disinfection system and flowed underground to the outfall. He stated the outfall location  
246 was where the treated wastewater entered Moores Creek. He stated there was a methane sphere  
247 where methane was stored for use at the facility.

248  
249 Mr. Tungate stated there are two influent sewer pump stations: Rivanna and Moores Creek. He  
250 stated that the Crozet area and most of the sewer system south of UVA drain to the Moores Creek  
251 Pump Station. The Rivanna Pump station was relocated to the Moores Creek property in 2017 from  
252 Riverview Park. He stated that the Rivanna Pump Station was their largest influent sewer pump  
253 station. He stated the Moores Creek Pump Station was located closest to the entrance. He stated  
254 both of these stations pumped the sewage to the headworks area so the sewage passes through the  
255 band screens and grit removal processes.

256  
257 Mr. Tungate stated the map on the slide provided a visual explanation of where the sewage came  
258 from for each of the two influent sewer pump stations. He stated the Rivanna Pump Station handled  
259 all the sewage from the northern area of the City and County, estimated to be 60%-70% of the flow  
260 in the community. He stated this area encompassed everything north of UVA up to near the  
261 northern County line. He stated Moores Creek Pump Station handled the southern area of the City  
262 and County, which included the Crozet area, with a series of four pump stations that took the  
263 sewage from Crozet to the Urban area adjacent to the John Deere dealership on Route 250 West.  
264 From that location, the sewage flows by gravity to Moores Creek.

265  
266 Mr. Tungate stated that RWSA spends approximately \$390,000 per year to control the odors at the  
267 Crozet sewer pump stations because they have open-top wet wells. He continued with an image of  
268 the band screens at Moores Creek. These band screens catch the insoluble materials that came  
269 through the influent sewer pump stations. The band screens operate on a timer or on an as-needed

270 basis. He stated the solids that came off the band screens were concentrated, dried out, and the  
271 materials are dropped into a dumpster. He stated this material was hauled off every two weeks.  
272

273 Mr. Tungate stated the slide showed images of the grit removal system, which was added within the  
274 last six years. The grit system will remove sand and other dense insoluble material from the  
275 sewage. This material is dewatered and placed in a dumpster and hauled away every two weeks as  
276 well. He stated typically, when there was a higher flow event, more solids are washed into the  
277 system. He showed an image of the primary clarifiers. He stated this was the first part of the  
278 treatment process, where the heavier sludge settled into these primary clarifiers and floating greases  
279 and oils were removed. He stated in the summer, they did not see as much of the oils and greases as  
280 they did in the winter months when the water was colder.  
281

282 Mr. Tungate stated there is an odor control filter unit that handles the foul air from underneath the  
283 primary clarifier covers which has significantly reduced the odors at Moores Creek. He showed an  
284 image of the aeration basins where the enhanced nutrient removal process occurs. This is where  
285 mechanical blowers inject compressed air into the sewage to keep microbes alive and remove  
286 dissolved nutrients.  
287

288 Mr. Tungate stated from the aeration basins, the wastewater flowed to the secondary clarifiers,  
289 which provided another opportunity for solids to separate out and clearer water to continue to the  
290 sand filters. The sand filters are the final clarification step before UV disinfection. He showed an  
291 image of the UV facility, which had a series of four redundant UV channels for disinfection. He  
292 stated the sewage flows could change dramatically depending on the weather conditions in the  
293 sewer system. The UV system is meant to handle a variety of flow rates. He stated the images on  
294 the slide showed the water leaving the UV chambers and the water entering Moores Creek.  
295

296 Mr. Tungate showed an image of one of the two centrifuges, which dewater sludge from the  
297 digesters. A centrifuge will essentially spin the water out of the sludge and allow the dried solids to  
298 fall into the trailer. He stated those solids were accumulated into trailers, stored at the compost yard,  
299 and then hauled by a contract service to Waverly, Virginia. He stated 15-22 loads of solids were  
300 hauled per week. He stated this material was mixed with other biosolids and organic materials to  
301 create a commercially available compost at the Waverly, Virginia facility.  
302

303 Mr. Tungate stated that Moores Creek was an enhanced nutrient removal facility. He stated they had  
304 regulations that were based on the amount of nitrogen and phosphorous they were allowed to  
305 discharge on an annual basis into Moores Creek, which flowed into the Rivanna River, to the James  
306 River, and into the Chesapeake Bay. He stated the annual allotment of Nitrogen (N) and  
307 Phosphorous (P) was 282,994 pounds of nitrogen and 18,525 pounds of phosphorous. The monthly  
308 N and P allocation is simply the annual amount divided by 12. He stated shown on the slide was the  
309 actual monthly amount for June 2022. He stated they discharged only 25% of their allowable  
310 nitrogen and 65% of their allowable phosphorous for the month. He stated that the last column  
311 provided a year-to-date calculation of the N and P removal performance at Moores Creek. He stated  
312 that it was important to note that if the Moores Creek facility discharges less than the allotted  
313 amount of N and P, the surplus can be sold as nutrient credits and serve as a revenue stream for the  
314 Authority. He stated up to \$150,000 per year was earned by selling N and P nutrient credits in  
315 previous years.



316  
317 Mr. Tungate stated that Moores Creek is the largest RWSA wastewater facility as well as a nutrient  
318 removal facility. It has testing requirements to be reported each month to VDEQ. He stated that  
319 each day tests for dissolved oxygen and pH were done, as well as five times a week for total  
320 suspended solids and ammonia, and four times a week for Escherichia coli bacteria, twice per week  
321 for total phosphorous and total nitrogen concentration, and once a week testing was completed for  
322 chemical biological oxygen demand.

323  
324 Mr. Tungate showed an image of the septic receiving station at Moores Creek. He stated that in  
325 2020, there were 6,515 individual transactions of receiving septic trucks; in 2021 there were 7,816,  
326 and in 2022 there were 6,914. He stated the average sewage flow at Moores Creek was  
327 approximately 9 million gallons per day (MGD) and on an annual basis, Moores Creek receives  
328 about 8 MG of septage from these trucks. He continued that Moores Creek facility was a Class I  
329 facility that treated all wastewater from the City of Charlottesville and Albemarle County. He stated  
330 there was a 15 MGD capacity and the facility was staffed 24/7, 365 days per year, with two  
331 operators per shift with four shifts per week, working 12-hour shifts alternating between days and  
332 nights every two weeks.

333  
334 Mr. Tungate stated the Glenmore facility was a bit smaller and rated as a Class III facility which  
335 was staffed four hours per day, 365 days per year. He stated that Scottsville also was a Class III  
336 facility staffed four hours per day, 365 days per year. He stated the same Operator was responsible  
337 for monitoring Glenmore, Scottsville and Stone Robinson wastewater facilities. He stated there was  
338 a total of sixteen wastewater operators as well as two relief operators, who were licensed operators  
339 that filled in positions when needed. He stated there were three members of management staff, a  
340 manager, assistant manager, and supervisor.

341  
342 Mr. Tungate stated there were six Class 1 Operators and five Class 2 Operators. He stated this was  
343 the most Class 2 wastewater licenses in recent history at Moores Creek. He stated there were two  
344 Class 3 Operators and three unlicensed trainees. He stated it took at least six months of hands-on  
345 experience before being able to qualify to take an exam.

346  
347 Mr. Tungate stated that there was an industrial waste pretreatment program and the purpose of the  
348 program being to protect the sewer system and the processes in the wastewater treatment plants by  
349 having discharge limits, as required by the Environmental Protection Agency and Virginia  
350 Department of Environmental Quality.

351  
352 Mr. Tungate stated the VDEQ required that they submit an annual report for the pretreatment  
353 program by January 31 of each year. He continued that the Albemarle County Service Authority  
354 and City of Charlottesville have aggressive Fats, Oils, and Grease (FOG) programs to limit the  
355 amount in the sewer system. The pretreatment program has nutrient limits for sewer discharges, pH  
356 limits, and biological oxygen demand. He stated the RWSA, City of Charlottesville, and Albemarle  
357 County Service Authority system has three Significant Industrial Users.

358  
359 He stated there is a new company that RWSA staff have been working with that is going in the  
360 former State Farm facility, that will be the fourth business in the pretreatment program and a  
361 Significant Industrial User, but they are not yet online. He asked if there were any questions.

362  
363 Mr. Mawyer asked if Mr. Tungate could explain why they had an industrial pretreatment program.

364  
365 Mr. Tungate stated that the program protected the sewer system, which includes the pipes that  
366 convey the sewage to the treatment plant, and also protected the treatment plant if there was a low  
367 or high pH or waste that could possibly damage the facility.

368  
369 Mr. Mawyer asked about the bugs.

370  
371 Mr. Tungate stated if they had some damaging material that came into the plant, it was possible it  
372 could harm the microbes in the aeration basins, which could be catastrophic. The facility would  
373 have to be re-seeded with new microbes to get the plant operational again.

374  
375 Ms. Mallek asked if where the outflow was going into the Moores Creek stream had measures in  
376 place to prevent erosion.

377  
378 Mr. Tungate stated he believed there was but he would confirm it.

379  
380 Ms. Mallek asked if the metals mentioned in a slide were removed or only measured.

381  
382 Mr. Tungate stated they wanted to know what was to be discharged by companies, so they asked for  
383 that information, then they would make the decision on whether they could handle those  
384 constituents. He stated it was primarily based on how close they were to the facility, whether they  
385 discharged continuously, if they had on-site treatment, if they discharged everything over one day or  
386 multiple days, and other factors.

387  
388 Mr. Mawyer asked if the federal standards had maximum discharge limits on those metals.

389  
390 Mr. Tungate stated yes.

391  
392 Mr. Mawyer stated regulated metals could only be discharged into the public sewer system at a  
393 limited concentration.

394  
395 Mr. Mawyer stated if an industrial facility had a higher discharge concentration, it was incumbent  
396 on the facility to install its own treatment process to reduce the levels of those contaminants before  
397 going into the sewer system.

398  
399 Ms. Mallek asked if they could require them to do that.

400  
401 Mr. Tungate stated yes.

402  
403 Ms. Mallek stated one of her concerns about biosolids from industrial sites was the heavy metals  
404 that they were not even testing for that then were dropped on farm fields around their area and then  
405 bioaccumulated. She stated she was glad they were testing for all these things and encouraged them  
406 to be even tougher. She stated she was certain they would be learning more about what Bonumose  
407 would be producing at Pantops.

408  
409 Mr. Pinkston asked if they charged for the service of individual septic trucks.  
410

411 Mr. Tungate stated they charged by the gallon and charged more if it was from outside Albemarle  
412 County and the City.  
413

414 Mr. Pinkston stated they showed an image of the outfall coming from the dry side of the facility. He  
415 asked if they had a sense of the percentage of water that was going out versus what was coming in if  
416 looking at it from a mass balance perspective.  
417

418 Mr. Tungate asked if he was referring to where they discharged to Moores Creek.  
419

420 Mr. Pinkston asked how much of it was what was coming into the plant.  
421

422 Mr. Tungate stated as a mass balance, they discharged a volume similar to what came into the plant.  
423 They had storage in the basins when a high-flow event happened, so they could store some volume  
424 in the facility, but it was essentially equal. He stated after a storm event, the flow level coming into  
425 the plant rose and fell relatively quickly.  
426

427 Mr. Pinkston thanked Mr. Tungate.  
428

429 Mr. Rogers asked Mr. Tungate to return to the discussion regarding odor management. He asked  
430 how it was handled and what the impact was on the surrounding areas. He asked what the  
431 process was for receiving and processing complaints.  
432

433 Mr. Tungate responded that there was a recent exchange with the Willow Tree Facility adjacent  
434 to Moores Creek because there was an EQ basin in service and the neighbors noticed an odor. He  
435 explained some people emailed RWSA staff and the manager directly to ask questions and  
436 submit complaints. He noted some calls came through the administration phone number. He  
437 stated the odor control filters utilized a biological process to remove odors. He stated the odor  
438 control program for the Crozet wastewater system used chemicals to minimize odors in that  
439 conveyance system.  
440

441 Mr. Mawyer stated when he started working for the Authority, they received a number of odor  
442 complaints. He stated on his first day of work, odor was an issue. He noted that the two  
443 equalization basins used to frequently be filled with wastewater. He stated now, they piped the  
444 water directly to the primary clarifiers. He stated the clarifiers used to be uncovered, so there was  
445 open and exposed wastewater which created odors.  
446

447 Mr. Mawyer stated part of the odor mitigation program was to stop routinely putting water in the  
448 equalization basins and to cover the clarifiers with aluminum covers. He stated there was a  
449 vacuum system that pulled the gases from under the covers and piped it through a biofilter to  
450 clean the odors before the air was exhausted. He noted that part of the odor control system cost  
451 about \$10M. He stated the wastewater from Crozet was chemically treated to minimize sulfide  
452 odors.  
453

454 Mr. Mawyer noted on days with heavy rain when the equalization basins may be needed to store  
455 excess water, there may be an odor. He stated they removed the water from the basins as soon as  
456 possible.

457  
458 Mr. Gaffney stated that the Board had authorized more than \$30M over the last 20 years, and the  
459 Authority had implemented odor controls over the entire plant to address the odors the  
460 community had experienced. He requested information be provided at the next meeting as to  
461 how many days per year residents communicated experiencing odors.

462  
463 Ms. Hildebrand stated in regard to pretreatment of wastewater, there were certain regulations and  
464 requirements for the Authority, and those were mirrored in the City code and the ACSA rules  
465 and regulations to pass the requirements onto the customers.

466  
467 Ms. Mallek stated she remembered a County budget item to cover the extra cost of the County's  
468 septic flow. She asked if the funding was continuous, or if it was one time.

469  
470 Mr. Mawyer responded the funding was ongoing, and the County paid the Authority about  
471 \$100K a year to reimburse the debt service for construction of one of the septage receiving  
472 stations. He stated there were two septic receiving stations, and most of the septage came from  
473 the County.

474  
475 Ms. Mallek stated they wanted to encourage pump outs to help with the water quality and to  
476 ensure septic systems were not overtaxed.

477  
478 Mr. Wood stated \$109K a year was received from the County for the septage station.

479  
480 Mr. Wood stated the payment represented the debt service on the construction of the septage  
481 receiving station.

482  
483 Mr. Gaffney stated under Moore's Creek nutrients, the performance percentage for June was  
484 exceeded for nitrogen and phosphorous. He stated he assumed it was seasonal, and he asked if it  
485 was related to farming.

486  
487 Mr. Tungate responded that the allocation was 1,500 lbs. for phosphorous, and they discharged  
488 1,000 lbs., so they were not over for the month, but they were higher than normal. He stated they  
489 had too much sludge in the gravity thickener and in the secondary clarifiers, so they had to move  
490 more sludge. He stated it was not related to farming, it was an internal practice from efforts to  
491 optimize the treatment process.

492  
493 Mr. Mawyer stated the percentage was for the month, so the Authority was at 25% of the  
494 allocation for the month for nitrogen, and at 65% of the allocation for the month for  
495 phosphorous.

496  
497 Mr. Gaffney stated they discussed credits with low allocation. He stated he saw in the budget  
498 there was a mention of additional credits that had been received that year. He asked for more  
499 information regarding the credits.

Mr. Wood explained the total credits available to the Authority was 282,994 for nitrogen, and about 18,000 for phosphorous, and those values had been the same since the plant was updated. He stated every year, the performance was different, so the excess of what they discharged compared to what they were allowed was then sold. He stated the value of the credits did not stay the same. He stated members of the Nutrient Exchange were paying more for nitrogen and phosphorous credits than a year ago.

Mr. Wood stated in FY22, the Authority received \$104K, and they had received \$60K to date in FY23.

Mr. Wood clarified that the credits were sold so that other utilities that had not made investments in enhanced nutrient removal were able to buy the credits. He stated there were downstream communities that purchased the credits because it was more economical than upgrading facilities.

*b. Presentation: Annual Reservoir Report, Results from 2021*

Ms. Andrea Bowles, Water Resources Manager, stated she would discuss the results from the 2021 Reservoir Monitoring report and provide an update on the status for the year.

Ms. Bowles stated she would begin with an overview of the watersheds and water supply sources. She stated the South Fork Rivanna Reservoir had the largest watershed, and the Ragged Mountain Reservoir had the smallest watershed.

Ms. Bowles noted that each reservoir was unique. She stated South Fork Rivanna had a watershed area of 259 square miles. She stated they estimated about 65 million gallons of water would flow over the South Fork Rivanna dam today. She stated the Ragged Mountain Reservoir was only able to receive water from Sugar Hollow Reservoir via a pipeline, and the pipeline could transfer about 3 million gallons per day. She stated the plan was to build a pipeline from South Fork Rivanna and use peak flows from that reservoir to fill Ragged Mountain when needed.

Ms. Bowles stated there was a detailed reservoir monitoring program. She stated the main program goal was to collect data to understand the biological processes in each of the reservoirs to inform and optimize the water treatment process. She stated a base-line monitoring program began in 2014, and there was an annual review of the data by an expert who helped identify trends or changes. She stated the consultant made recommendations for changes in what was sampled and if additional sampling needed to be completed.

Ms. Bowles explained that biweekly sampling was performed at the urban reservoirs—South Fork Rivanna and Ragged Mountain—and monthly sampling was performed at Sugar Hollow. She stated valuable information was collected to provide a better understanding of each reservoir. She stated they currently performed enhanced total phosphorous and total nitrogen sampling for Ragged Mountain and South Fork Rivanna reservoirs. She stated the sampling would inform treatment decision making for the South Fork Rivanna to Ragged Mountain pipeline and any pretreatment needs. She explained the data was used to make operational and

capital decisions.

Ms. Bowles stated in spring, there were nutrients flowing into the reservoirs from streams and groundwater. She continued that those nutrients provided a food source for algae in the reservoir. She stated that the algae eventually die and sink to the bottom of the reservoirs creating an anoxic zone—an area without dissolved oxygen. She stated the anoxic zone was beneath the layer of water known as the thermocline, a layer dividing the reservoir into pieces—the lower area, known as the hypolimnion, was a colder area with little to no oxygen; and the upper area, known as the epilimnion, was warmer and the only place where fish could survive. She stated when oxygen was lost from the bottom of the reservoir, nutrients were released from the bottom sediment.

Ms. Bowles stated in the fall, nutrient flows continued into the reservoir from streams and groundwater, but as the temperature decreased and the water cooled, the nutrient layers in the reservoir reversed. She explained that as the water cooled, nutrients released beneath the thermocline in the hypolimnion when the water was anoxic would move into the upper layers of the reservoir.

Ms. Bowles stated Beaver Creek Reservoir was the most active reservoir in terms of blue-green algae blooms. She stated at times, the water was sampled more frequently than biweekly, and in the summer it was sampled often more than once a week. She stated at Beaver Creek, by early May, the thermocline was already developing and the water was already anoxic about 3 meters deep and below. She stated the turnover process in the fall was late at Beaver Creek, occurring in early November. She stated blooms had been seen at the reservoir through the end of November. She stated they continued to have abundant nutrients coming into the reservoir warranting algae treatments. She stated they used copper sulfate, and they were planning to install a hypolimnetic oxygenation system at Beaver Creek. She stated the system was included in the CIP, and it was intended to oxygenate the water to keep minimize algae blooms.

Ms. Bowles stated South Fork Rivanna Reservoir was more like a river than a reservoir because so much water flowed through it. She stated the South Fork Rivanna Reservoir stratified—another term for developing a thermocline—in May and turned over in October. She stated in 2020, the largest algae concentrations to date requiring treatment had been recorded.

Ms. Bowles stated Ragged Mountain Reservoir was deep and stratified in early May and turned over in late November. She stated water quality improved compared to 2020 when the first blue-green algae bloom was recorded at the reservoir. She stated in the review by the expert consultant, they recommended additional algae samples be recorded at different depths.

Ms. Bowles provided the number of algacide applications for control of blue-green algae in each of the reservoirs. She noted the 2021 data for Ragged Mountain should contain an asterisk next to the '1' because it indicated a green algae bloom. She stated Ragged Mountain experienced a blue-green algae bloom in 2020 and had not seen one in 2021. She stated throughout 2021, there were eight treatments for blue-green algae at Beaver Creek, and in 2022, there had been five. She stated the blooms for 2022 came earlier in the season, but they had not needed to do a treatment for longer than a month at this time. She stated no treatments had to be

done at South Fork Rivanna, Sugar Hollow, or Totier Creek for the year.

Ms. Bowles stated they performed reservoir surveillance where they surveyed the shorelines from boats on the reservoir. She stated surveillance was performed twice a year for Beaver Creek, South Fork Rivanna, and Ragged Mountain and once a year for Sugar Hollow and Totier. She stated they looked for trash, dumpsites, illicit discharges, unauthorized withdrawals, and invasive plants and weeds. She stated information they collected was provided to the County for review if there was a potential violation of the Water Protection Ordinance.

Ms. Bowles noted the reservoirs received nutrient flows from a large area of land. She stated the existing County Water Protection Ordinance was one of the best tools to protect water quality in the reservoirs. She stated it protected a 200-foot buffer around each reservoir and a 100-foot buffer around the other streams in the County. She stated they coordinated with the City and the County on recreational access, law enforcement, and safety. She stated a Memorandum of Understanding (MOU) had been drafted outlining reservoir responsibilities for discussion between the City, the County, and RWSA.

Ms. Bowles stated that there is a source water protection program in place. She stated the Authority received funding from VDH at the end of 2021 to install drinking water protection area signs. She stated VDOT had never been asked to install a sign for a watershed smaller than the Chesapeake Bay, but VDOT and VDH were supportive. She stated in each of the areas where signs were installed, there were two signs leading to the reservoir crossings.

Ms. Bowles stated RWSA participated in Rivanna River Fest and in the City's Climate Action Liaison Committee, and they would participate in the upcoming Rivanna River Basin Commission Conference.

Ms. Bowles addressed the Sugar Hollow Reservoir minimum instream flow (MIF) policy. She explained the MIF was part of the permit requirements for the urban system from DEQ and Army Corps of Engineers. She stated the MIF specified that the Authority must monitor overflows and make changes to the release twice a week, and the Authority must begin flow releases the third day after the reservoir has stopped spilling.

Ms. Bowles explained the rubber bladder on the top of the Sugar Hollow dam expanded and contracted due to the sun, air temperature, and water temperature, so the water could overflow at different points in the day depending on how expanded the bladder was. She stated video cameras were installed that allowed physical monitoring of the dam, and there was a level sensor that provided data as to the water level of the dam. She stated the cameras and sensor were reviewed every day.

Ms. Bowles stated the MIF requirements were developed in 2008 in coordination with the Nature Conservancy, several state and regulatory agencies, and interested stakeholders. She stated the policy was designed to mimic natural stream flow conditions. She stated when water was not being transferred, what water came into the reservoir would be released. She stated the requirement to mimic natural stream flow conditions meant there would be times when there was water in the river and times when it was dry.

Ms. Mallek asked if larger reservoirs were too big to use aeration techniques. She stated larger lakes had fountains. She asked if there were other solutions other than algaecide. She asked what the algaecide was and what the impacts were on the ecology of the reservoirs.

Ms. Bowles stated when analysis began in 2014, DiNatale Water Consultants created the monitoring program. She stated the impetus for the program was because the Board wanted to evaluate ways to minimize the use of algaecides. She stated the study looked at several methodologies for controlling algae other than copper sulfate, and there were other options. She mentioned hypolimnetic oxygenation.

Ms. Bowles noted larger reservoirs were able to receive oxygenation treatments. She stated the Authority was working with the consultant for additional phosphorous and nitrogen sampling and monitoring South Fork Rivanna and Ragged Mountain. She stated they were investigating using a hypolimnetic oxygenation system at South Fork Rivanna. She stated the hypolimnetic oxygenation system worked by piping oxygen into the hypolimnion without breaking the thermocline.

Ms. Mallek stated there was a debate as to the strength of the water protection ordinance. She asked if tributary studies were being performed.

Ms. Bowles mentioned copper sulfate was used as the algaecide. She stated studies had been done to evaluate copper accumulation in the reservoirs, and they found the numbers to be higher at Beaver Creek than South Fork Rivanna, but they were within the normal range.

Ms. Bowles stated there were a few regular upstream sites as part of the water quality monitoring program. She stated a special study had been performed at Beaver Creek for upstream tributary evaluations. She stated they monitored and followed DEQ and stream data.

Ms. Mallek clarified gas engines were not allowed on any of the reservoirs.

Ms. Bowles stated that was correct.

Ms. Mallek asked if drinking water protection signs were installed along Moormans Creek Reservoir. She stated Millington Road and Free Union Road were heavily traveled.

Ms. Bowles stated the program that provided funding for the signs was specifically limited to water supplies that served less than 10,000. She stated because Sugar Hollow and Moormans Creek were part of the urban system, the funding was not available for those locations.

Ms. Bowles noted that Rivanna, the County, the Soil and Water Conservation District, the City, and RCA were involved in the Rivanna Regional Stormwater Educational Partnership which included several outreach activities.

Mr. Pinkston asked what the Totier Creek Reservoir water was used for.



Ms. Bowles stated the reservoir was the drinking water supply for Scottsville, and it was sourced from a tributary of Totier Creek. She stated they exercised the reservoir pumps but primarily used the creek.

Mr. Mawyer noted the reservoir had an intake if they wanted to use it to serve the Scottsville Water Treatment Plant.

Mr. Pinkston asked about the Beaver Creek Reservoir.

Ms. Bowles explained Beaver Creek was its own watershed and flowed into the Mechums River which was part of the South Fork Rivanna watershed. She stated Beaver Creek was a limited source for Crozet and had no other connection to the urban system.

Mr. Pinkston asked if instream water removal could be accomplished rather than having a large dam at South Fork Rivanna Reservoir.

Ms. Bowles stated no detailed study had been performed, but it was a shallow reservoir. She stated impounding the water kept it at a usable volume.

Mr. Mawyer noted the South Fork Rivanna watershed went from almost Greene County to Batesville. He stated removing the dam from the largest water supply area would be risky in the case of a drought. He stated the water for Ragged Mountain came from South Fork Rivanna, so if there was no dam and an extreme drought, the reservoirs would be empty.

Mr. Pinkston stated he was interested in an MOU with interested stakeholders. He noted a longstanding issue between the City and the County about activities around Ragged Mountain Reservoir.

Ms. Bowles stated it also included South Fork Rivanna.

Mr. Mawyer stated Mr. Richardson suggested the MOU be drafted to decide who would be responsible for maintenance and other tasks around the reservoirs. He stated it had been drafted, and they intended to restart the discussion on the MOU to firm up the agreement.

Mr. Pinkston noted biking was also an issue. He stated he hoped the parties could come to an agreement.

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

Ms. Mallek stated Ragged Mountain was a reservoir, not a park, and if they wanted to have future drinking water, they had to do everything possible to protect it. She stated other places in the country did not allow visitation to watershed properties. She stated they had to protect the reservoirs.

## ***12. ADJOURNMENT***

**At 3:36 p.m., Mr. Rogers moved to adjourn the meeting of the Rivanna Water and Sewer**

729 **Authority. Ms. Mallek seconded the motion, which passed unanimously (5-0). (Mr.**  
730 **O’Connell and Mr. Richardson were absent.)**  
731  
732

DRAFT



## MEMORANDUM

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

**FROM: BILL MAWYER, EXECUTIVE DIRECTOR**

**SUBJECT: EXECUTIVE DIRECTOR'S REPORT**

**DATE: SEPTEMBER 27, 2022**

### *STRATEGIC PLAN GOAL: WORKFORCE DEVELOPMENT*

#### **Water/Wastewater Joint Annual Meeting in Virginia Beach**

Our Water Department Manager, Daniel Campbell, gave an informative presentation about our successful optimization to change the pH (acidity adjustment) component of our water treatment process from a dry to a liquid lime product at the Crozet WTP. Liquid lime provides a safer, dust-free working environment for staff, and a savings of about \$37,000 per year.

#### **On-Site Vaccinations**

Augusta Health will provide flu vaccinations at the Moores Creek and IMUC locations for staff on October 4, 2022.

### *STRATEGIC PLAN GOAL: COMMUNICATION & COLLABORATION*

#### **Safety Training**

The Albemarle County Service Authority sponsored cardiopulmonary resuscitation (CPR) training at Piedmont Virginia Community College and invited Rivanna staff to attend along with ACSA staff in September. We appreciate the opportunity to partner with ACSA to attend this vital safety training.

#### **Code Red Alert System**

Along with the Regional Emergency Operations Center, we use the Code Red alert system for staff Emergency Notifications. Code Red is a mass notification system used during emergencies such as active shooters, tornados, fires, etc. We test this system at least annually by sending each staff member an email, phone text or phone call to notify him/her of impending danger.

### *STRATEGIC PLAN GOAL: OPERATIONAL OPTIMIZATION*

#### **National Preparedness Month**

September is National Preparedness Month and flooding is our country's most common natural

disaster. Hurricanes, heavy rain fall, and other natural events can create flooding without warning. Rivanna has an Emergency Operations Plan with numerous checklists to prepare our facilities and staff for these events. We encourage everyone to be prepared for disasters and emergencies. Important safety tips to remember during and after a flood include:

- Do not walk, swim, or drive through flood waters
- Stay off bridges which are over fast- moving water
- Do not go near downed or damaged electric/power lines
- Sign up for our community's Code Red warning system

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

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

We have obtained agreements with many private owners and VDOT for easements on much of the 8 mile long alignment required for the water pipe from the South Fork Rivanna Reservoir to the new raw water pump station located near the Ragged Mtn Reservoir. We continue to work with the UVA Foundation and 1 private owner for the remaining sections.

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

Discussions continue with UVA and the UVA Foundation for the last 2 sections of the easement for the 3 mile long alignment for the 36" raw water pipe and pumping station site.

#### *STRATEGIC PLAN GOAL: OPERATIONAL OPTIMIZATION*

##### **Reservoirs and Water Treatment Plants**

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

##### **Questions from the Board during the August meeting**

1. Ms. Mallek asked if we managed erosion at the location where we send treated wastewater into Moores Creek?

*Yes, we manage erosion at our outfall as shown by the photo below. The treated wastewater runs over a series of rocks to reduce its energy and protect the streambank before flowing into Moores Creek.*



Moores Creek Outfall-  
August 24, 2022

2. Mr. Pinkston asked about the percent of inflow to the Moores Creek wastewater treatment plant which was returned to Moores Creek after the treatment was completed?

*Our data indicates about 95% of the wastewater inflow, which averages about 9 mgd, is returned to Moores Creek after the treatment process has been completed. The decrease is related to evaporation during the treatment process as well as metering accuracy of the incoming and outgoing flows.*

3. Mr. Gaffney asked about our history of odor concerns at Moores Creek received from the surrounding community.

*The chart below provides the recent history of odor concerns at Moores Creek and for the Crozet / Rt 250 area (a sewer pipe conveys wastewater from Crozet to the Moores Creek Treatment Plant thru 4 pumping stations located along Rt. 250).*

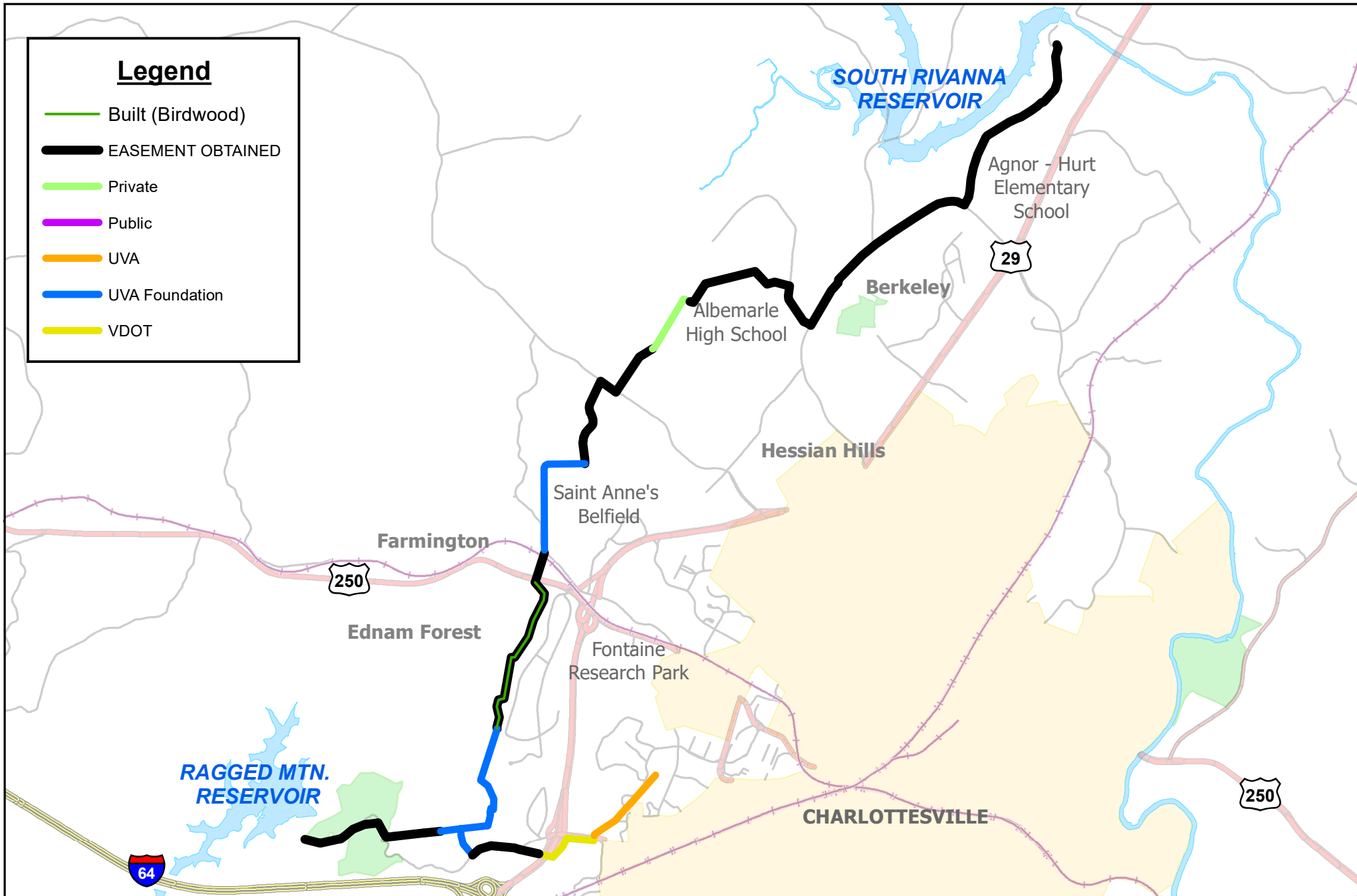
**Odor Complaints**

Annually	Moores Creek	Crozet
2022	2	2
2021	2	7
2020	3	10
2019	0	4
2018	0	unavail.
2017	1	unavail.
2016	34	unavail.

Note: All complaints at Moores Creek in 2020, 2021, 2022 were from the WillowTree development.

## Legend

- Built (Birdwood)
- EASEMENT OBTAINED
- Private
- Public
- UVA
- UVA Foundation
- VDOT



## Preliminary South Rivanna Reservoir to Ragged Mountain Reservoir Water Line



Miles  
0 0.25 0.5



695 Moores Creek Lane  
Charlottesville, VA 22902  
p.434-977-2970  
[www.rivanna.org](http://www.rivanna.org)  
[www.rivannagis.org](http://www.rivannagis.org)

Data used in this map was provided by the RWSA, City of Charlottesville, Albemarle Co. GDS, and the UVA FM Dept. Duplication of data or redistribution of this map without permission from the RWSA Engineering Dept. is prohibited.

Date: 9/21/2022



## MEMORANDUM

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

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

**REVIEWED: BILL MAWYER, EXECUTIVE DIRECTOR**

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

**DATE: SEPTEMBER 27, 2022**

### Financial Snapshot

July ended with an overall net surplus of \$240,300 due to operating rate revenue being above average and the annual payment from the County for the septage receiving support agreement. Total revenues were \$327,600 over budget estimates and expenses were \$136,600 over budget as well. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
<b>Operations</b>				
Revenues	\$ 823,341	\$ 948,838	\$ 217,261	\$ 1,989,440
Expenses	(777,135)	(865,149)	(211,424)	(1,853,708)
Surplus (deficit)	<u>\$ 46,206</u>	<u>\$ 83,689</u>	<u>\$ 5,837</u>	<u>\$ 135,732</u>
<b>Debt Service</b>				
Revenues	\$ 709,035	\$ 865,356	\$ 196,557	\$ 1,770,948
Expenses	(706,620)	(763,455)	(196,277)	(1,666,352)
Surplus (deficit)	<u>\$ 2,415</u>	<u>\$ 101,901</u>	<u>\$ 280</u>	<u>\$ 104,596</u>
<b>Total</b>				
Revenues	\$ 1,532,376	\$ 1,814,194	\$ 413,818	\$ 3,760,388
Expenses	(1,483,755)	(1,628,604)	(407,701)	(3,520,060)
Surplus (deficit)	<u><u>\$ 48,621</u></u>	<u><u>\$ 185,590</u></u>	<u><u>\$ 6,117</u></u>	<u><u>\$ 240,328</u></u>

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



## **Detailed Financials**

The Authority's actual operating revenues for July were \$198,000 over the prorated annual budget estimates, and operating expenses exceeded the prorated annual budget by \$112,000. The following comments help explain most of the other budget vs. actual variances.

- A. Annual and Quarterly Transactions - Some revenues and expenses are over the prorated year-to-date budget due to one-time receipts of revenues for the year and quarterly or annual payments of expenses. These transactions appear to be significant impacts on the budget vs. actual monthly comparisons but usually even out as the year progresses. Septage receiving support revenue of \$109,440 is billed to the County annually in July. Annual payments are made for leases, health savings account contributions, and certain maintenance agreements. Insurance premiums are paid quarterly.
- B. Personnel Costs (Urban Water – page 1) – The Urban Water rate center salaries are higher than budget due to pay increases for plant operators who achieved higher licenses.
- C. Professional Services (Urban Water – page 1) – Urban Water is over the prorated budget for engineering and technical services for a topographic survey and a water model study.
- D. Other Services & Charges (Urban Wastewater – page 5) – Urban Wastewater's utility costs are higher than estimated.
- E. Information Technology (Administration – page 8) – The Administration department spent \$40,000 of its \$60,000 annual budget for computer hardware purchases in July. There are also some annual maintenance and license fees paid in July similar to those noted in A. above.

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - July 2022**  
**Fiscal Year 2023**

**Consolidated**  
**Revenues and Expenses Summary**

<i>Budget</i>	<i>Budget</i>	<i>Actual</i>	<i>Budget</i>	<i>Variance</i>
<i>FY 2023</i>	<i>Year-to-Date</i>	<i>Year-to-Date</i>	<i>vs. Actual</i>	<i>Percentage</i>

**Operating Budget vs. Actual**

Notes

**Revenues**

Operations Rate Revenue	\$	20,614,425	\$	1,717,869	\$	1,874,506	\$	156,637	9.12%
Lease Revenue		85,000		7,083		11,370		4,287	60.52%
Admin., Maint. & Engineering Revenue		656,000		54,667		54,750		83	0.15%
Other Revenues		639,036		53,253		97,828		44,575	83.70%
Use of Reserves-GAC		150,000		12,500		-		(12,500)	-100.00%
Interest Allocation		7,170		598		5,737		5,139	860.11%
<b>Total Operating Revenues</b>	<b>\$</b>	<b>22,151,631</b>	<b>\$</b>	<b>1,845,969</b>	<b>\$</b>	<b>2,044,190</b>	<b>\$</b>	<b>198,221</b>	<b>10.74%</b>

**Expenses**

Personnel Cost	<b>A, B</b>	\$	10,494,727	\$	825,171	\$	913,950	\$	(88,779)	-10.76%
Professional Services	<b>C</b>		629,900		52,492		49,271		3,221	6.14%
Other Services & Charges	<b>A, D</b>		3,427,460		285,622		248,614		37,008	12.96%
Communications			200,342		16,695		20,662		(3,966)	-23.76%
Information Technology	<b>A, E</b>		816,626		68,052		171,700		(103,648)	-152.31%
Supplies			39,950		3,329		2,407		922	27.70%
Operations & Maintenance			5,222,531		435,211		406,509		28,702	6.59%
Equipment Purchases			420,100		35,008		20,344		14,664	41.89%
Depreciation			900,000		75,000		75,000		-	0.00%
<b>Total Operating Expenses</b>		<b>\$</b>	<b>22,151,636</b>	<b>\$</b>	<b>1,796,580</b>	<b>\$</b>	<b>1,908,456</b>	<b>\$</b>	<b>(111,876)</b>	<b>-6.23%</b>
<b>Operating Surplus/(Deficit)</b>		<b>\$</b>	<b>(5)</b>	<b>\$</b>	<b>49,389</b>	<b>\$</b>	<b>135,734</b>			

**Debt Service Budget vs. Actual**

**Revenues**

Debt Service Rate Revenue	\$	19,522,929	\$	1,626,911	\$	1,626,911	\$	0	0.00%
Septage Receiving Support - County		109,440		9,120		109,440		100,320	1100.00%
Buck Mountain Lease Revenue		1,600		133		1,480		1,346	1009.67%
Trust Fund Interest		990		83		3,011		2,928	3549.20%
Reserve Fund Interest		64,230		5,353		30,106		24,753	462.47%
<b>Total Debt Service Revenues</b>	<b>\$</b>	<b>19,699,189</b>	<b>\$</b>	<b>1,641,599</b>	<b>\$</b>	<b>1,770,947</b>	<b>\$</b>	<b>129,348</b>	<b>7.88%</b>

**Debt Service Costs**

Total Principal & Interest	\$	16,165,241	\$	1,347,103	\$	1,347,103	\$	-	0.00%
Reserve Additions-Interest		64,230		5,353		30,106		(24,753)	-462.47%
Debt Service Ratio Charge		725,000		60,417		60,417		-	0.00%
Reserve Additions-CIP Growth		2,744,717		228,726		228,726		-	0.00%
<b>Total Debt Service Costs</b>	<b>\$</b>	<b>19,699,188</b>	<b>\$</b>	<b>1,641,599</b>	<b>\$</b>	<b>1,666,352</b>	<b>\$</b>	<b>(24,753)</b>	<b>-1.51%</b>
<b>Debt Service Surplus/(Deficit)</b>	<b>\$</b>	<b>1</b>	<b>\$</b>	<b>0</b>	<b>\$</b>	<b>104,595</b>			

**Summary**

<b>Total Revenues</b>	\$	41,850,820	\$	3,487,568	\$	3,815,137	\$	327,569	9.39%
<b>Total Expenses</b>		41,850,824		3,438,179		3,574,809		(136,630)	-3.97%
<b>Surplus/(Deficit)</b>	<b>\$</b>	<b>(4)</b>	<b>\$</b>	<b>49,389</b>	<b>\$</b>	<b>240,328</b>			

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - July 2022**

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

<i>Budget FY 2023</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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**Operating Budget vs. Actual**

Notes

**Revenues**

Operations Rate Revenue	\$ 9,014,863	\$ 751,239	\$ 812,343	\$ 61,105	8.13%
Lease Revenue	60,000	5,000	8,623	3,623	72.46%
Miscellaneous	-	-	-	-	
Use of Reserves-GAC	150,000	12,500		(12,500)	-100.00%
Interest Allocation	3,000	250	2,375	2,125	849.99%
<b>Total Operating Revenues</b>	<b>\$ 9,227,863</b>	<b>\$ 768,989</b>	<b>\$ 823,341</b>	<b>\$ 54,353</b>	<b>7.07%</b>

**Expenses**

Personnel Cost	A, B \$ 2,234,714	\$ 176,465	\$ 195,645	\$ (19,181)	-10.87%
Professional Services	C 222,000	18,500	31,887	(13,387)	-72.36%
Other Services & Charges	716,300	59,692	27,251	32,441	54.35%
Communications	100,920	8,410	10,821	(2,411)	-28.66%
Information Technology	104,950	8,746	12,115	(3,369)	-38.52%
Supplies	5,400	450	1,129	(679)	-150.89%
Operations & Maintenance	2,511,396	209,283	183,802	25,481	12.18%
Equipment Purchases	16,000	1,333	1,333	0	0.00%
Depreciation	300,000	25,000	25,000	-	0.00%
<b>Subtotal Before Allocations</b>	<b>\$ 6,211,680</b>	<b>\$ 507,878</b>	<b>\$ 488,983</b>	<b>\$ 18,895</b>	<b>3.72%</b>
Allocation of Support Departments	3,016,183	238,839	288,152	(49,313)	-20.65%
<b>Total Operating Expenses</b>	<b>\$ 9,227,863</b>	<b>\$ 746,717</b>	<b>\$ 777,135</b>	<b>\$ (30,418)</b>	<b>-4.07%</b>
<b>Operating Surplus/(Deficit)</b>	<b>\$ (0)</b>	<b>\$ 22,271</b>	<b>\$ 46,206</b>		

**Debt Service Budget vs. Actual**

**Revenues**

Debt Service Rate Revenue	\$ 8,302,224	\$ 691,852	\$ 691,852	\$ -	0.00%
Trust Fund Interest	400	33	1,102	1,069	3205.61%
Reserve Fund Interest	31,000	2,583	14,601	12,018	465.22%
Lease Revenue	1,600	133	1,480	1,346	1009.67%
<b>Total Debt Service Revenues</b>	<b>\$ 8,335,224</b>	<b>\$ 694,602</b>	<b>\$ 709,035</b>	<b>\$ 14,433</b>	<b>2.08%</b>

**Debt Service Costs**

Total Principal & Interest	\$ 6,964,724	\$ 580,394	\$ 580,394	\$ -	0.00%
Reserve Additions-Interest	31,000	2,583	14,601	(12,018)	-465.22%
Debt Service Ratio Charge	400,000	33,333	33,333	-	0.00%
Reserve Additions-CIP Growth	939,500	78,292	78,292	-	0.00%
<b>Total Debt Service Costs</b>	<b>\$ 8,335,224</b>	<b>\$ 694,602</b>	<b>\$ 706,620</b>	<b>\$ (12,018)</b>	<b>-1.73%</b>
<b>Debt Service Surplus/(Deficit)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 2,415</b>		

**Rate Center Summary**

<b>Total Revenues</b>	\$ 17,563,087	\$ 1,463,591	\$ 1,532,376	\$ 68,785	4.70%
<b>Total Expenses</b>	17,563,087	1,441,319	1,483,755	(42,436)	-2.94%
<b>Surplus/(Deficit)</b>	<b>\$ (0)</b>	<b>\$ 22,271</b>	<b>\$ 48,621</b>		
<b>Costs per 1000 Gallons Operating and DS</b>	\$ 2.72		\$ 2.54		
	\$ 5.17		\$ 4.85		
<b>Thousand Gallons Treated or Flow (MGD)</b>	3,397,700	283,142	306,197	23,055	8.14%
	9.309		9.877		

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - July 2022**

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

<i>Budget FY 2023</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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**Operating Budget vs. Actual**

Notes

**Revenues**

Operations Rate Revenue	\$ 1,197,084	\$ 99,757	\$ 99,757	\$ -	0.00%
Lease Revenues	25,000	2,083	2,747	664	31.87%
Interest Allocation	400	33	321	288	863.78%
<b>Total Operating Revenues</b>	<b>\$ 1,222,484</b>	<b>\$ 101,874</b>	<b>\$ 102,826</b>	<b>\$ 952</b>	<b>0.93%</b>

**Expenses**

Personnel Cost	\$ 352,559	\$ 27,832	\$ 31,031	\$ (3,199)	-11.49%
Professional Services	22,900	1,908	-	1,908	100.00%
Other Services & Charges	118,700	9,892	3,560	6,332	64.01%
Communications	17,600	1,467	1,458	9	0.59%
Information Technology	4,950	413	-	413	100.00%
Supplies	1,500	125	281	(156)	-124.66%
Operations & Maintenance	358,500	29,875	19,443	10,432	34.92%
Equipment Purchases	3,000	250	250	-	0.00%
Depreciation	60,000	5,000	5,000	-	0.00%
<b>Subtotal Before Allocations</b>	<b>\$ 939,709</b>	<b>\$ 76,761</b>	<b>\$ 61,022</b>	<b>\$ 15,739</b>	<b>20.50%</b>
Allocation of Support Departments	282,780	22,399	26,921	(4,522)	-20.19%
<b>Total Operating Expenses</b>	<b>\$ 1,222,489</b>	<b>\$ 99,160</b>	<b>\$ 87,944</b>	<b>\$ 11,216</b>	<b>11.31%</b>
<b>Operating Surplus/(Deficit)</b>	<b>\$ (5)</b>	<b>\$ 2,713</b>	<b>\$ 14,882</b>		

**Debt Service Budget vs. Actual**

**Revenues**

Debt Service Rate Revenue	\$ 2,161,704	\$ 180,142	\$ 180,142	\$ -	0.00%
Trust Fund Interest	80	7	256	249	3738.50%
Reserve Fund Interest	1,200	100	572	472	472.01%
<b>Total Debt Service Revenues</b>	<b>\$ 2,162,984</b>	<b>\$ 180,249</b>	<b>\$ 180,970</b>	<b>\$ 721</b>	<b>0.40%</b>

**Debt Service Costs**

Total Principal & Interest	\$ 1,217,280	\$ 101,440	\$ 101,440	\$ -	0.00%
Reserve Additions-Interest	1,200	100	572	(472)	-472.01%
Reserve Additions-CIP Growth	944,500	78,708	78,708	-	0.00%
<b>Total Debt Service Costs</b>	<b>\$ 2,162,980</b>	<b>\$ 180,248</b>	<b>\$ 180,720</b>	<b>\$ (472)</b>	<b>-0.26%</b>
<b>Debt Service Surplus/(Deficit)</b>	<b>\$ 4</b>	<b>\$ 0</b>	<b>\$ 250</b>		

**Rate Center Summary**

<b>Total Revenues</b>	\$ 3,385,468	\$ 282,122	\$ 283,796	\$ 1,673	0.59%
<b>Total Expenses</b>	3,385,469	279,409	268,664	10,744	3.85%
<b>Surplus/(Deficit)</b>	<b>\$ (1)</b>	<b>\$ 2,714</b>	<b>\$ 15,131</b>		
<b>Costs per 1000 Gallons</b>	\$ 6.03		\$ 4.44		
<b>Operating and DS</b>	\$ 16.70		\$ 13.57		
<b>Thousand Gallons Treated</b>	202,697	16,891	19,792	2,901	17.17%
<b>Flow (MGD)</b>	0.555		0.638		

Rivanna Water & Sewer Authority  
Monthly Financial Statements - July 2022

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

<i>Budget FY 2023</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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**Operating Budget vs. Actual**

Notes

**Revenues**

Operations Rate Revenue	\$ 569,556	\$ 47,463	\$ 47,463	\$ -	0.00%
Interest Allocation	200	17	149	132	794.96%
<b>Total Operating Revenues</b>	<b>\$ 569,756</b>	<b>\$ 47,480</b>	<b>\$ 47,612</b>	<b>\$ 132</b>	<b>0.28%</b>

**Expenses**

Personnel Cost	\$ 212,797	\$ 16,782	\$ 18,900	\$ (2,118)	-12.62%
Professional Services	5,000	417	-	417	100.00%
Other Services & Charges	27,100	2,258	2,540	(282)	-12.47%
Communications	6,400	533	511	23	4.25%
Information Technology	4,400	367	-	367	100.00%
Supplies	100	8	-	8	100.00%
Operations & Maintenance	97,925	8,160	9,141	(981)	-12.02%
Equipment Purchases	1,600	133	219	(86)	-64.35%
Depreciation	40,000	3,333	3,333	0	0.00%
<b>Subtotal Before Allocations</b>	<b>\$ 395,322</b>	<b>\$ 31,993</b>	<b>\$ 34,645</b>	<b>\$ (2,652)</b>	<b>-8.29%</b>
Allocation of Support Departments	174,433	13,833	16,229	(2,396)	-17.32%
<b>Total Operating Expenses</b>	<b>\$ 569,755</b>	<b>\$ 45,825</b>	<b>\$ 50,874</b>	<b>\$ (5,048)</b>	<b>-11.02%</b>
<b>Operating Surplus/(Deficit)</b>	<b>\$ 1</b>	<b>\$ 1,654</b>	<b>\$ (3,262)</b>		

**Debt Service Budget vs. Actual**

**Revenues**

Debt Service Rate Revenue	\$ 150,300	\$ 12,525	\$ 12,525	\$ -	0.00%
Trust Fund Interest	10	1	27	26	3152.00%
Reserve Fund Interest	850	71	391	321	452.52%
<b>Total Debt Service Revenues</b>	<b>\$ 151,160</b>	<b>\$ 12,597</b>	<b>\$ 12,943</b>	<b>\$ 347</b>	<b>2.75%</b>

**Debt Service Costs**

Total Principal & Interest	\$ 148,726	\$ 12,394	\$ 12,394	\$ -	0.00%
Reserve Additions-Interest	850	71	391	(321)	
Reserve Additions-CIP Growth	1,589	132	132	-	
<b>Total Debt Service Costs</b>	<b>\$ 151,165</b>	<b>\$ 12,597</b>	<b>\$ 12,918</b>	<b>\$ (321)</b>	<b>-2.54%</b>
<b>Debt Service Surplus/(Deficit)</b>	<b>\$ (5)</b>	<b>\$ (0)</b>	<b>\$ 26</b>		

**Rate Center Summary**

<b>Total Revenues</b>	\$ 720,916	\$ 60,076	\$ 60,556	\$ 479	0.80%
<b>Total Expenses</b>	720,920	58,423	63,791	(5,369)	-9.19%
<b>Surplus/(Deficit)</b>	<b>\$ (4)</b>	<b>\$ 1,654</b>	<b>\$ (3,236)</b>		
<b>Costs per 1000 Gallons</b>	\$ 33.07		\$ 27.41		
<b>Operating and DS</b>	\$ 41.84		\$ 34.37		
<b>Thousand Gallons Treated</b>	17,230	1,436	1,856	420	29.26%
<b>or</b>					
<b>Flow (MGD)</b>	0.047		0.060		

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - July 2022**

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

<b>Budget FY 2023</b>	<b>Budget Year-to-Date</b>	<b>Actual Year-to-Date</b>	<b>Budget vs. Actual</b>	<b>Variance Percentage</b>
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**Operating Budget vs. Actual**

Notes

**Revenues**

Operations Rate Revenue	\$ 9,033,662	\$ 752,805	\$ 848,337	\$ 95,532	12.69%
Stone Robinson WWTP	39,036	3,253	1,533	(1,720)	-52.89%
Septage Acceptance	500,000	41,667	57,167	15,500	37.20%
Nutrient Credits	100,000	8,333	39,129	30,795	369.54%
Miscellaneous Revenue	-	-	-	-	-
Interest Allocation	3,300	275	2,673	2,398	872.10%
<b>Total Operating Revenues</b>	<b>\$ 9,675,998</b>	<b>\$ 806,333</b>	<b>\$ 948,838</b>	<b>\$ 142,505</b>	<b>17.67%</b>

**Expenses**

Personnel Cost	<b>A</b>	\$ 1,325,384	\$ 104,394	\$ 121,181	\$ (16,787)	-16.08%
Professional Services		75,000	6,250	13,776	(7,526)	-120.42%
Other Services & Charges	<b>A, D</b>	2,276,980	189,748	200,580	(10,832)	-5.71%
Communications		1,900	158	1,210	(1,052)	-664.13%
Information Technology		110,400	9,200	28	9,172	99.70%
Supplies		1,200	100	55	45	44.58%
Operations & Maintenance		1,698,660	141,555	146,695	(5,140)	-3.63%
Equipment Purchases		143,000	11,917	4,167	7,750	65.03%
Depreciation		470,000	39,167	39,167	(0)	0.00%
<b>Subtotal Before Allocations</b>		<b>\$ 6,102,524</b>	<b>\$ 502,489</b>	<b>\$ 526,859</b>	<b>\$ (24,370)</b>	<b>-4.85%</b>
Allocation of Support Departments		3,573,476	283,176	338,290	(55,113)	-19.46%
<b>Total Operating Expenses</b>		<b>\$ 9,675,999</b>	<b>\$ 785,665</b>	<b>\$ 865,149</b>	<b>\$ (79,484)</b>	<b>-10.12%</b>
<b>Operating Surplus/(Deficit)</b>		<b>\$ (1)</b>	<b>\$ 20,668</b>	<b>\$ 83,690</b>		

**Debt Service Budget vs. Actual**

**Revenues**

Debt Service Rate Revenue	\$ 8,878,107	\$ 739,842	\$ 739,842	\$ (0)	0.00%
Septage Receiving Support - County	109,440	9,120	109,440	100,320	1100.00%
Trust Fund Interest	500	42	1,623	1,581	3794.50%
Reserve Fund Interest	31,000	2,583	14,451	11,868	459.39%
<b>Total Debt Service Revenues</b>	<b>\$ 9,019,047</b>	<b>\$ 751,587</b>	<b>\$ 865,356</b>	<b>\$ 113,768</b>	<b>15.14%</b>

**Debt Service Costs**

Total Principal & Interest	\$ 7,808,347	\$ 650,696	\$ 650,696	\$ -	0.00%
Reserve Additions-Interest	31,000	2,583	14,451	(11,868)	-459.39%
Debt Service Ratio Charge	325,000	27,083	27,083	-	0.00%
Reserve Additions-CIP Growth	854,700	71,225	71,225	-	0.00%
<b>Total Debt Service Costs</b>	<b>\$ 9,019,047</b>	<b>\$ 751,587</b>	<b>\$ 763,455</b>	<b>\$ (11,868)</b>	<b>-1.58%</b>
<b>Debt Service Surplus/(Deficit)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 101,901</b>		

**Rate Center Summary**

<b>Total Revenues</b>	\$ 18,695,045	\$ 1,557,920	\$ 1,814,194	\$ 256,274	16.45%
<b>Total Expenses</b>	18,695,046	1,537,253	1,628,604	(91,351)	-5.94%
<b>Surplus/(Deficit)</b>	<b>\$ (1)</b>	<b>\$ 20,668</b>	<b>\$ 185,590</b>		
<b>Costs per 1000 Gallons</b>	\$ 2.85		\$ 2.72		
<b>Operating and DS</b>	\$ 5.51		\$ 5.11		
<b>Thousand Gallons Treated or Flow (MGD)</b>	3,390,400	282,533	318,445	35,912	12.71%
	9.289		10.272		

**Rivanna Water & Sewer Authority**  
**Monthly Financial Statements - July 2022**

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

<i>Budget FY 2023</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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**Operating Budget vs. Actual**

Notes

**Revenues**

Operations Rate Revenue	\$ 443,640	\$ 36,970	\$ 36,970	\$ -	0.00%
Interest Allocation	150	13	120	108	863.76%
<i>Total Operating Revenues</i>	<b>\$ 443,790</b>	<b>\$ 36,983</b>	<b>\$ 37,090</b>	<b>\$ 108</b>	<b>0.29%</b>

**Expenses**

Personnel Cost	\$ 115,815	\$ 9,119	\$ 10,603	\$ (1,483)	-16.27%
Professional Services	5,000	417	-	417	100.00%
Other Services & Charges	35,750	2,979	2,616	363	12.19%
Communications	-	-	304	(304)	
Information Technology	4,425	369	-	369	100.00%
Supplies	-	-	-	-	
Operations & Maintenance	134,950	11,246	10,581	664	5.91%
Equipment Purchases	3,800	317	317	(0)	0.00%
Depreciation	10,000	833	833	0	0.00%
<i>Subtotal Before Allocations</i>	<b>\$ 309,740</b>	<b>\$ 25,280</b>	<b>\$ 25,254</b>	<b>\$ 26</b>	<b>0.10%</b>
Allocation of Support Departments	134,045	10,644	12,003	(1,359)	-12.77%
<i>Total Operating Expenses</i>	<b>\$ 443,785</b>	<b>\$ 35,924</b>	<b>\$ 37,257</b>	<b>\$ (1,333)</b>	<b>-3.71%</b>
<i>Operating Surplus/(Deficit)</i>	<b>\$ 5</b>	<b>\$ 1,059</b>	<b>\$ (166)</b>		

**Debt Service Budget vs. Actual**

**Revenues**

Debt Service Rate Revenue	\$ 20,484	\$ 1,707	\$ 1,707	\$ -	0.00%
Trust Fund Interest	-	-	-	-	
Reserve Fund Interest	80	7	30	23	351.50%
<i>Total Debt Service Revenues</i>	<b>\$ 20,564</b>	<b>\$ 1,714</b>	<b>\$ 1,737</b>	<b>\$ -</b>	<b>0.00%</b>

**Debt Service Costs**

Total Principal & Interest	\$ 18,717	\$ 1,560	\$ 1,560	\$ -	0.00%
Reserve Additions-CIP Growth	1,761	147	147	-	0.00%
Reserve Additions-Interest	80	7	30	(23)	-351.50%
<i>Total Debt Service Costs</i>	<b>\$ 20,558</b>	<b>\$ 1,713</b>	<b>\$ 1,737</b>	<b>\$ (23)</b>	<b>-1.37%</b>
<i>Debt Service Surplus/(Deficit)</i>	<b>\$ 6</b>	<b>\$ 1</b>	<b>\$ 1</b>		

**Rate Center Summary**

<b>Total Revenues</b>	\$ 464,354	\$ 38,696	\$ 38,828	\$ 131	0.34%
<b>Total Expenses</b>	464,343	37,637	38,993	(1,356)	-3.60%
<b>Surplus/(Deficit)</b>	<b>\$ 11</b>	<b>\$ 1,059</b>	<b>\$ (166)</b>		
<b>Costs per 1000 Gallons</b>	\$ 10.72		\$ 12.12		
<b>Operating and DS</b>	\$ 11.22		\$ 12.68		
<b>Thousand Gallons Treated or Flow (MGD)</b>	41,401	3,450	3,074	(376)	-10.90%
	0.113		0.099		

Rivanna Water & Sewer Authority  
Monthly Financial Statements - July 2022

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

<i>Budget FY 2023</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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**Operating Budget vs. Actual**

Notes

**Revenues**

Operations Rate Revenue	\$ 355,620	\$ 29,635	\$ 29,635	\$ -	0.00%
Interest Allocation	120	10	98	88	875.10%
<b>Total Operating Revenues</b>	<b>\$ 355,740</b>	<b>\$ 29,645</b>	<b>\$ 29,733</b>	<b>\$ 88</b>	<b>0.30%</b>

**Expenses**

Personnel Cost	\$ 115,795	\$ 9,118	\$ 10,603	\$ (1,485)	-16.29%
Professional Services	5,000	417	-	417	100.00%
Other Services & Charges	26,650	2,221	1,439	782	35.21%
Communications	3,770	314	381	(67)	-21.37%
Information Technology	4,125	344	-	344	100.00%
Supplies	-	-	-	-	
Operations & Maintenance	52,000	4,333	9,730	(5,397)	-124.55%
Equipment Purchases	3,800	317	317	(0)	0.00%
Depreciation	20,000	1,667	1,667	(0)	0.00%
<b>Subtotal Before Allocations</b>	<b>\$ 231,140</b>	<b>\$ 18,730</b>	<b>\$ 24,137</b>	<b>\$ (5,407)</b>	<b>-28.87%</b>
Allocation of Support Departments	124,604	9,892	11,212	(1,320)	-13.35%
<b>Total Operating Expenses</b>	<b>\$ 355,744</b>	<b>\$ 28,621</b>	<b>\$ 35,349</b>	<b>\$ (6,727)</b>	<b>-23.50%</b>
<b>Operating Surplus/(Deficit)</b>	<b>\$ (4)</b>	<b>\$ 1,024</b>	<b>\$ (5,616)</b>		

**Debt Service Budget vs. Actual**

**Revenues**

Debt Service Rate Revenue	\$ 10,110	\$ 843	\$ 843	\$ 1	0.06%
Trust Fund Interest	-	-	3	3	
Reserve Fund Interest	100	8	60	52	622.76%
<b>Total Debt Service Revenues</b>	<b>\$ 10,210</b>	<b>\$ 851</b>	<b>\$ 906</b>	<b>\$ 55</b>	<b>6.51%</b>

**Debt Service Costs**

Total Principal & Interest	\$ 7,447	\$ 621	\$ 621	\$ -	0.00%
Reserve Additions-Interest	100	8	60	(52)	-622.76%
Estimated New Principal & Interest	2,667	222	222	-	0.00%
<b>Total Debt Service Costs</b>	<b>\$ 10,214</b>	<b>\$ 851</b>	<b>\$ 903</b>	<b>\$ (52)</b>	<b>-6.10%</b>
<b>Debt Service Surplus/(Deficit)</b>	<b>\$ (4)</b>	<b>\$ (0)</b>	<b>\$ 3</b>		

**Rate Center Summary**

<b>Total Revenues</b>	\$ 365,950	\$ 30,496	\$ 30,639	\$ 143	0.47%
<b>Total Expenses</b>	365,958	29,473	36,252	(6,779)	-23.00%
<b>Surplus/(Deficit)</b>	<b>\$ (8)</b>	<b>\$ 1,023</b>	<b>\$ (5,613)</b>		
<b>Costs per 1000 Gallons</b>	\$ 15.05		\$ 26.48		
<b>Operating and DS</b>	\$ 15.48		\$ 27.15		
<b>Thousand Gallons Treated</b>	23,643	1,970	1,335	(635)	-32.24%
<b>or</b>					
<b>Flow (MGD)</b>	0.065		0.043		



Rivanna Water & Sewer Authority  
Monthly Financial Statements - July 2022

**Administration**

<i>Budget FY 2023</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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**Operating Budget vs. Actual**

Notes

**Revenues**

Payment for Services SWA	\$ 654,000	\$ 54,500	\$ 54,500	\$ -	0.00%
Bond Proceeds Funding Bond Issuance Costs	-	-	-	-	
Miscellaneous Revenue	2,000	167	250	83	49.84%
<b>Total Operating Revenues</b>	<b>\$ 656,000</b>	<b>\$ 54,667</b>	<b>\$ 54,750</b>	<b>\$ 83</b>	<b>0.15%</b>

**Expenses**

Personnel Cost	<b>A</b>	\$ 2,450,092	\$ 191,917	\$ 209,592	\$ (17,675)	-9.21%
Professional Services		170,000	14,167	1,461	12,706	89.69%
Other Services & Charges		162,600	13,550	7,113	6,437	47.51%
Communications		24,780	2,065	3,020	(955)	-46.24%
Information Technology	<b>A, E</b>	404,876	33,740	138,757	(105,018)	-311.26%
Supplies		23,000	1,917	741	1,176	61.35%
Operations & Maintenance		67,850	5,654	3,472	2,182	38.60%
Equipment Purchases		13,100	1,092	1,092	(0)	0.00%
Depreciation		-	-	-	-	
<b>Total Operating Expenses</b>		<b>\$ 3,316,298</b>	<b>\$ 264,101</b>	<b>\$ 365,247</b>	<b>\$ (101,146)</b>	<b>-38.30%</b>

**Department Summary**

<b>Net Costs Allocable to Rate Centers</b>		<b>\$ (2,660,298)</b>	<b>\$ (209,435)</b>	<b>\$ (310,497)</b>	<b>\$ 101,063</b>	<b>-48.25%</b>
<b><u>Allocations to the Rate Centers</u></b>						
Urban Water	44.00%	\$ 1,170,531	\$ 92,151	\$ 136,619	\$ (44,468)	
Crozet Water	4.00%	\$ 106,412	\$ 8,377	\$ 12,420	\$ (4,043)	
Scottsville Water	2.00%	\$ 53,206	\$ 4,189	\$ 6,210	\$ (2,021)	
Urban Wastewater	48.00%	\$ 1,276,943	\$ 100,529	\$ 149,039	\$ (48,510)	
Glenmore Wastewater	1.00%	\$ 26,603	\$ 2,094	\$ 3,105	\$ (1,011)	
Scottsville Wastewater	1.00%	\$ 26,603	\$ 2,094	\$ 3,105	\$ (1,011)	
	100.00%	<b>\$ 2,660,298</b>	<b>\$ 209,435</b>	<b>\$ 310,497</b>	<b>\$ (101,063)</b>	

Rivanna Water & Sewer Authority  
Monthly Financial Statements - July 2022

**Maintenance**

<i>Budget FY 2023</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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**Operating Budget vs. Actual**

Notes

**Revenues**

Payment for Services SWA  
Miscellaneous Revenue

*Total Operating Revenues*

\$ -	\$ -	\$ -	\$ -	-
\$ -	\$ -	\$ -	\$ -	-
<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>-</b>

**Expenses**

Personnel Cost  
Professional Services  
Other Services & Charges  
Communications  
Information Technology  
Supplies  
Operations & Maintenance  
Equipment Purchases  
Depreciation

*Total Operating Expenses*

<b>A</b>	\$ 1,477,565	\$ 116,260	\$ 126,900	\$ (10,640)	-9.15%
	-	-	-	-	
	33,600	2,800	2,106	694	24.79%
	24,500	2,042	1,708	334	16.34%
	32,500	2,708	-	2,708	100.00%
	2,500	208	201	7	3.52%
	104,900	8,742	16,541	(7,800)	-89.22%
	212,600	17,717	10,717	7,000	39.51%
	-	-	-	-	
	<b>\$ 1,888,165</b>	<b>\$ 150,477</b>	<b>\$ 158,172</b>	<b>\$ (7,696)</b>	<b>-5.11%</b>

**Department Summary**

**Net Costs Allocable to Rate Centers**

<b>\$ (1,888,165)</b>	<b>\$ (150,477)</b>	<b>\$ (158,172)</b>	<b>\$ 7,696</b>	<b>-5.11%</b>
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**Allocations to the Rate Centers**

Urban Water	30.00%	\$ 566,450	\$ 45,143	\$ 47,452	\$ (2,309)
Crozet Water	3.50%	66,086	5,267	5,536	(269)
Scottsville Water	3.50%	66,086	5,267	5,536	(269)
Urban Wastewater	56.50%	1,066,814	85,019	89,367	(4,348)
Glenmore Wastewater	3.50%	66,086	5,267	5,536	(269)
Scottsville Wastewater	3.00%	56,645	4,514	4,745	(231)
	100.00%	<b>\$ 1,888,165</b>	<b>\$ 150,477</b>	<b>\$ 158,172</b>	<b>\$ (7,696)</b>

Rivanna Water & Sewer Authority  
Monthly Financial Statements - July 2022

Laboratory

<i>Budget FY 2023</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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**Operating Budget vs. Actual**

Notes

**Revenues**

N/A

**Expenses**

Personnel Cost	\$ 415,324	\$ 32,623	\$ 36,482	\$ (3,859)	-11.83%
Professional Services	-	-	-	-	
Other Services & Charges	11,780	982	146	835	85.10%
Communications	1,700	142	-	142	
Information Technology	1,000	83	-	83	100.00%
Supplies	1,250	104	-	104	100.00%
Operations & Maintenance	121,050	10,088	5,332	4,755	47.14%
Equipment Purchases	1,700	142	142	(0)	0.00%
Depreciation	-	-	-	-	
<b>Total Operating Expenses</b>	<b>\$ 553,804</b>	<b>\$ 44,163</b>	<b>\$ 42,102</b>	<b>\$ 2,061</b>	<b>4.67%</b>

**Department Summary**

<b>Net Costs Allocable to Rate Centers</b>		<b>\$ (553,804)</b>	<b>\$ (44,163)</b>	<b>\$ (42,102)</b>	<b>\$ (2,061)</b>	<b>4.67%</b>
<b><u>Allocations to the Rate Centers</u></b>						
Urban Water	44.00%	\$ 243,674	\$ 19,432	\$ 18,525	\$ 907	
Crozet Water	4.00%	22,152	1,767	1,684	82	
Scottsville Water	2.00%	11,076	883	842	41	
Urban Wastewater	47.00%	260,288	20,757	19,788	969	
Glenmore Wastewater	1.50%	8,307	662	632	31	
Scottsville Wastewater	1.50%	8,307	662	632	31	
	100.00%	\$ 553,804	\$ 44,163	\$ 42,102	\$ 2,061	

Rivanna Water & Sewer Authority  
Monthly Financial Statements - July 2022

**Engineering**

<i>Budget FY 2023</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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**Operating Budget vs. Actual**

Notes

**Revenues**

Payment for Services SWA

*Total Operating Revenues*

\$	-	\$	-	\$	-	\$	-
\$	-	\$	-	\$	-	\$	-

**Expenses**

Personnel Cost

Professional Services

Other Services &amp; Charges

Communications

Information Technology

Supplies

Operations &amp; Maintenance

Equipment Purchases

Depreciation

*Total Operating Expenses*

<b>B</b>	\$	1,794,680	\$	140,661	\$	153,014	\$	(12,352)	-8.78%
		125,000		10,417		2,147		8,270	79.39%
		18,000		1,500		1,263		237	15.77%
		18,772		1,564		1,250		315	20.11%
<b>A</b>		145,000		12,083		20,799		(8,716)	-72.13%
		5,000		417		-		417	100.00%
		75,300		6,275		1,771		4,504	71.78%
		21,500		1,792		1,792		0	0.00%
		-		-		-		-	
	\$	2,203,252	\$	174,709	\$	182,036	\$	(7,327)	-4.19%

**Department Summary**

Net Costs Allocable to Rate Centers

\$	(2,203,252)	\$	(174,709)	\$	(182,036)	\$	7,327	-4.19%
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Allocations to the Rate Centers

Urban Water

47.00%

Crozet Water

4.00%

Scottsville Water

2.00%

Urban Wastewater

44.00%

Glenmore Wastewater

1.50%

Scottsville Wastewater

1.50%

100.00%

\$	1,035,528	\$	82,113	\$	85,557	\$	(3,444)
	88,130		6,988		7,281		(293)
	44,065		3,494		3,641		(147)
	969,431		76,872		80,096		(3,224)
	33,049		2,621		2,731		(110)
	33,049		2,621		2,731		(110)
\$	2,203,252	\$	174,709	\$	182,036	\$	(7,327)

## 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 AUGUST 2022**

**DATE: SEPTEMBER 27, 2022**

### WATER OPERATIONS:

The average and maximum daily water volumes produced in August 2022 were as follows:

<i>Water Treatment Plant</i>	<i>Average Daily Production (MGD)</i>	<i>Maximum Daily Production in the Month (MGD)</i>
South Rivanna	8.89	10.14 (8/29/2022)
Observatory	0.76	1.24 (8/26/2022)
North Rivanna	<u>0.49</u>	<u>0.60 (8/30/2022)</u>
<b><i>Urban Total</i></b>	10.14	11.85 (8/29/2022)
Crozet	0.65	0.78 (8/29/2022)
Scottsville	0.07	0.089 (8/5/2022)
Red Hill	<u>0.0019</u>	0.003 (8/13/2022)
<b><i>RWSA Total</i></b>	10.86	-

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

### Status of Reservoirs (as of September 20, 2022):

- Urban Reservoirs are 98% of Total Useable Capacity
  - Ragged Mountain Reservoir is 97% full
  - Sugar Hollow Reservoir is 100% full
  - South Rivanna Reservoir is 100% full
- Beaver Creek Reservoir (Crozet) is 100% full
- Totier Creek Reservoir (Scottsville) is 100% full

## **WASTEWATER OPERATIONS:**

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during August 2022. Performance of the WRRFs in August was as follows compared to the respective VDEQ permit limits:

<i>WRRF</i>	<i>Average Daily Effluent Flow (MGD)</i>	<i>Average CBOD<sub>5</sub> (ppm)</i>		<i>Average Total Suspended Solids (ppm)</i>		<i>Average Ammonia (ppm)</i>	
		<i>RESULT</i>	<i>LIMIT</i>	<i>RESULT</i>	<i>LIMIT</i>	<i>RESULT</i>	<i>LIMIT</i>
<b>Moores Creek</b>	9.78	<QL	9	<QL	22	<QL	2.2
<b>Glenmore</b>	0.103	4.2	15	3.3	30	NR	NL
<b>Scottsville</b>	0.047	2.6	25	4.3	30	NR	NL
<b>Stone Robinson</b>	0.003	NR	30	NR	30	NR	NL

NR = Not Required

NL = No Limit

<QL: Less than analytical method quantitative level (2.0 ppm for CBOD, 1.0 ppm for TSS, and 0.1 ppm for Ammonia).

Nutrient discharges at the Moores Creek AWRRF were as follows for August 2022.

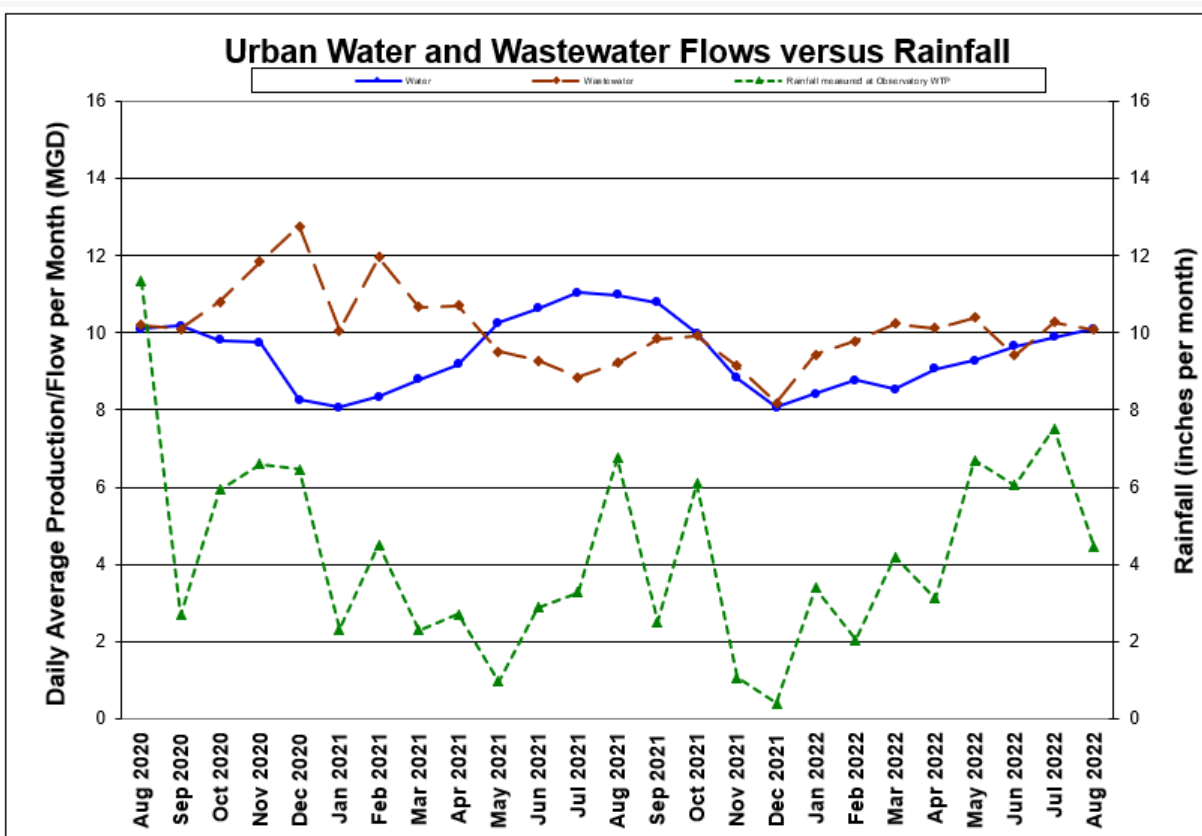
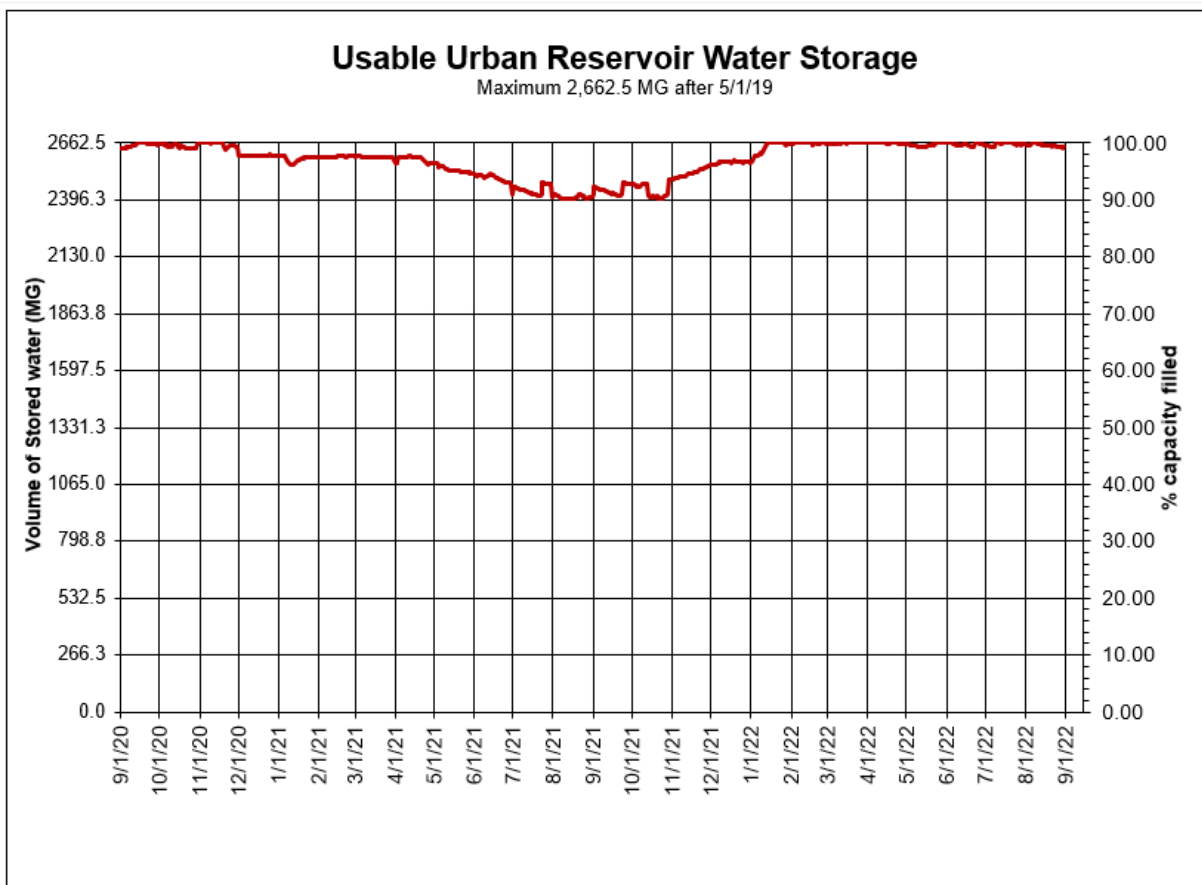
<i>State Annual Allocation (lb./yr.) Permit</i>		<i>Average Monthly Allocation (lb./mo.) *</i>	<i>Moores Creek Discharge August (lb./mo.)</i>	<i>Performance as % of monthly average Allocation*</i>	<i>Year to Date Performance as % of annual allocation</i>
<b>Nitrogen</b>	282,994	23,583	8,197	35%	22%
<b>Phosphorous</b>	18,525	1,544	872	56%	34%

\*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: SEPTEMBER 27, 2022**

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

For the current, approved CIP, please visit: <https://www.rivanna.org/wp-content/uploads/2022/06/Final-2023-2027-CIP.pdf>

### Under Construction

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

### Design and Bidding

4. Ragged Mtn Reservoir to Observatory WTP Raw Water Line and Pump Station
5. South Rivanna to Ragged Mtn. Raw Water Line – Birdwood to Old Garth
6. Beaver Creek Dam, Pump Station and Piping Improvements
7. South Rivanna River Crossing
8. Central Water Line
9. Upper Schenks Branch Interceptor, Phase II
10. Red Hill Water Treatment Plant Upgrades
11. Emmet Street Water Line Betterment
12. Scottsville WRRF Whole Plant Generator and ATS
13. Crozet Pump Station Rehabilitation
14. Moores Creek Concrete Repairs
15. Moores Creek Compost Shed Roof Rehabilitation

### Planning and Studies

16. South Rivanna Reservoir to Ragged Mtn Reservoir Water Line Right-of-Way
17. Asset Management Plan
18. SRR to RMR Pipeline – Pretreatment Pilot Study



## 19. Moores Creek Cogeneration Upgrades

### Other Significant Projects

## 20. Urgent and Emergency Repairs

## 21. 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:	70%
Base Construction Contract + Change Orders to Date = Current Value:	\$36,748,500 + \$718,669 = \$37,467,169
Completion:	May 2023
Budget:	\$43,000,000

Current Status: Improvements to the new Lab/Control Room in the Filter Building at SRWTP continue and lead abatement activities in the Filter Building will begin next month. Work at the OBWTP includes the new Chemical Storage Building, sedimentation basin improvements, foundation work for the GAC expansion and a large retaining wall. Shutdown of the OBWTP is planned for December – February 2023.

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

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction, Inc. (ACI) (Lynchburg, VA)
Construction Start:	December 2021
Percent Complete:	17%
Base Construction Contract + Change Order to Date = Current Value:	\$8,520,312
Completion:	December 2023
Budget:	\$10,000,000

Current Status: Most of the pipe has been installed at the Kohl's site. The contractor will begin site restoration and demobilization at Kohl's since our easement does not allow work during their corporate "holiday blackout period" from October 15<sup>th</sup> - January 15<sup>th</sup>. Grading at the pump station site began this month.

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

Design Engineer:	Hazen and Sawyer (Hazen)
Construction Contractor:	Pyramid Electrical Contractors (Richmond, VA)
Construction Start:	May 2022
Percent Complete:	6%

Base Construction Contract +	
Change Order to Date = Current Value:	\$5,180,000 - \$970,000 = \$4,210,000
Completion:	June 2024
Budget:	\$5,050,000

Current Status: Work on site was delayed until October 2022 due to long lead times to receive the electrical equipment. The initial work will generally include duct bank and equipment pad installation.

## **Design and Bidding**

### **4. 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:	Easement Acquisition & Design (25%)
Construction Start:	2025
Completion:	2028
Budget:	\$29,375,000

Current Status: Preparation of engineering plans and specifications continues. Topographic survey work to the East of the proposed pump station site has been completed, with efforts at the proposed PS site underway as well. The Design Engineer has completed a preliminary evaluation of the proposed pump station site in order to confirm necessary parcel size. Easement negotiations with UVA, and the UVA Foundation continue.

### **5. South Rivanna Reservoir to Ragged Mtn. Reservoir Raw Water Line – Birdwood to Old Garth**

Design Engineer:	Kimley-Horn
Project Start:	June 2021
Project Status:	90% Design
Construction Start:	January 2023
Completion:	December 2023
Budget:	\$1,980,000

Current Status: Preparation of engineering plans and specifications is substantially complete for a 0.25-mile section of this 36” raw water pipe from Birdwood to Old Garth Road. One remaining easement is under negotiation with the UVA Foundation for this phase of the project. A railroad permit has been submitted and County permitting can begin once all easements are finalized.

### **6. 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:	85% NRCS Planning Process
Construction Start:	2024
Completion:	2027
Budget:	\$30,870,000

Current Status: A Joint Permit Application and supporting documents were submitted to VDEQ this month. Remaining NRCS requirements, including review and approval of the planning study, are scheduled for completion this winter. The revised Plan Environmental Assessment was submitted to the NRCS on August 15, 2022. An application for design funding from NRCS will be submitted in 2022.

## 7. South Rivanna River Crossing

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2020
Project Status:	50% Design
Construction Start:	Spring 2023
Completion:	April 2024
Budget:	\$5,850,000

Current Status: Geotechnical work is scheduled over the next month to determine rock depths for the trenchless crossing of the river. Easement work will begin soon and will include a water line easement on County of Albemarle property for Brook Hill River Park along Rio Mills Road. VDOT is negotiating the release of remnant parcels from the Berkmar Bridge project on the south side of the river which may impact our timeline for easement acquisition.

## 8. Central Water Line

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2021
Project Status:	8% Design
Construction Start:	2024
Completion:	2028
Budget:	\$41,000,000

Current Status: Detailed field investigation and design are underway.

## 9. Upper Schenks Branch Interceptor, Phase II

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

Current Status: After a recent meeting with City and County staff, RWSA is preparing project summary information and an easement with a valuation estimate for the County's review.

#### **10. Red Hill Water Treatment Plant Upgrades**

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	July 2022
Project Status:	15% Design
Construction Start:	April 2023
Completion:	December 2023
Budget:	\$410,000

Current Status: Design work continues following completion of the geotechnical evaluation. This project was selected by Albemarle County to received ARPA grant funding.

#### **11. Emmet Street Water Line Betterment**

Design Engineer:	Whitman, Requardt & Associates (WRA)
Project Start:	September 2021
Project Status:	Ivy Corridor Public Realm – Complete Contemplative Commons – In Construction Emmet Streetscape – Preliminary Design Hydraulic/29 – Preliminary Scoping
Completion:	2030
Budget:	\$2,900,000

Current Status: Upgrading a section of 16” water main in Emmet Street to 30” as part of the UVA Ivy Corridor Public Realm project is complete. Upgrading a section of 16” water main adjacent to the Dell Pond to 30” as part of the UVA Contemplative Commons project started on September 6, 2022 and is expected to be completed within 6 weeks. WRA and RWSA are developing a scope of work for design of a 24-30” water main in Emmet Street as part of the City’s Emmet Streetscape Phase I project. RWSA has initiated discussion with VDOT on potential pipe routing in the upcoming design-build Hydraulic/29 project.

#### **12. Scottsville WRRF Whole Plant Generator and ATS**

Design Engineer:	Wiley Wilson
Project Start:	December 2021
Project Status:	35% Design
Completion:	Summer 2023
Budget:	\$200,000

Current Status: The current back-up power generator at the Scottsville WRRF has reached the end of its service life, does not power the entire plant, and needs to be replaced. A recent evaluation determined that the generator at the treatment plant site will also be sized to provide backup power for the nearby wastewater influent pump station. Design is progressing.

#### **13. Crozet Pump Station Rehabilitation**

Design Engineer:	Wiley   Wilson
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Project Start:	Fall 2022
Project Status:	Pre-Design Investigation
Completion:	2025
Budget:	\$590,000

Current Status: New wells have been installed at pump stations 3 and 4. Consultant is developing a scope of work to fully rehabilitate and replace components that have reached or passed their useful life. This design effort will be initiated following an assessment of the existing pumps at Crozet Pump Station No. 2.

#### **14. Moore's Creek Concrete Repairs**

Design Engineer:	Hazen and Sawyer (Hazen)
Project Start:	Summer 2022
Project Status:	Design
Completion:	TBD
Budget:	\$2,650,000

Current Status: Work Authorization is being developed by Hazen and will also include additional structural improvements at the aeration basins and the Rivanna Wastewater Pump Station that were included in our CIP.

#### **15. Moore's Creek Compost Shed Roof Rehabilitation**

Design Engineer:	TBD
Project Start:	Fall 2022
Project Status:	Design
Completion:	TBD
Budget:	\$1,360,000

Current Status: The shed roof rafters are deteriorated and may need to be replaced. A consultant is being selected and work authorization development will follow. This work is being initiated following completion of the MCAWRRF Master Plan.

### **Planning and Studies**

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

Design Engineer:	Michael Baker International (Baker)
Project Start:	October 2017
Project Status:	Easement Acquisition
Completion:	2022
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 for remaining easements with the UVA Foundation and one final private property owner.

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

Design Engineer: GHD, Inc.  
 Project Start: July 2018  
 Project Status: CMMS Implementation – 93% Complete  
 AMP Implementation – 0% Complete  
 Completion: CMMS Implementation – October 2022  
 AMP Implementation – 2024  
 Budget: \$1,180,000

Current Status: For implementation of the new Computerized Maintenance Management System (CMMS), GHD has completed updates to our facility geodatabase and is continuing the software configuration process. Work has begun to fully implement the program across all applicable Authority facilities.

#### 18. SRR to RMR Pipeline – Pretreatment Pilot Study

Design Consultant: SEH/DiNatale  
 Project Start: August 2020  
 Project Status: 100% Complete (Phase 1), 90% Complete (Phase 2)  
 Completion: December 2022  
 Budget: \$22,969 (Phase 1), \$116,401 (Phase 2)

Current Status: Phase 2 of the study continues with detailed reservoir water quality modeling performed by DiNatale Water Consultants. The more detailed modeling work has been completed, and staff held a meeting to discuss the findings with DiNatale. Some additional work will be performed to better reflect water quality impacts during drought conditions in the model.

#### 19. Moore's Creek Cogeneration Upgrades

Design Engineer: SEH  
 Project Start: October 2021  
 Project Status: Preliminary Engineering/Study (90%)  
 Completion: June 2024  
 Budget: \$2,145,000

Current Status: Manufacturers in the Cogeneration Industry are being interviewed and additional information is being gathered to determine acceptable providers before engineering plans and specifications are completed.

### **Other Significant Projects**

#### 20. 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
2021-01/2022-03	WBI and RVI Erosion	\$50,000

2022-09	CZI Force Main ARV Replacements	\$200,000
2022-02/05/12	Miscellaneous MCI/PCI/RVI MH Repairs	\$60,000
2022-10	MCAWRRF Primary Clarifier Building 36" Sanitary Sewer Leak	TBD

- WBI and RVI Erosion: In February 2022, RWSA Maintenance staff notified Engineering staff of some ditch lines along the Rivanna Interceptor that are in need of repair. In addition, during the previous round of manhole inspections on the Woodbrook Interceptor, there was one small ditch identified to be in need of repairs there as well. Staff visited these sites in August and will be issuing the work to its On-Call Maintenance Contractors for repairs. The scope of work is likely to include installation of erosion control at the ditch crossings over the various sewer lines.
- CZI Force Main ARV Replacements: Over the past several years, staff has been monitoring the condition of the air release valves (ARVs) up and down the force main portions of the Crozet Interceptor, as they have been continuing to degrade. These valves are 1980s-vintage, and while they have been serviced and partially rebuilt over the years by the RWSA Maintenance Department, replacement of the tapping saddle and corporation stop has not been possible, since shutdown of the force main is required. Historically, it has taken several hours to drain the force main to allow for the work to take place, and by the time that has occurred, the upstream pump stations need to turn on to prevent overflow. Now with the Flow Equalization Tank nearing completion, this work can take place with the force main offline for up to a 24-hr period. Staff is waiting for the required materials to arrive, as well as a Construction Estimate from RWSA's On-Call Maintenance Contractor, Faulconer Construction. The work is anticipated to be completed this fall, pending crew availability.
- Miscellaneous MCI/PCI/RVI MH Repairs: Over the past several months, staff have identified issues with various manholes on the Moores Creek, Powell Creek, and Rivanna Interceptors (MCI, PCI, and RVI, respectively). These include one manhole on MCI that needs to be raised, as it was historically buried but found in Summer 2021 by the RWSA Maintenance & Engineering Departments, one manhole on RVI that needs a failing HDPE liner to be removed and cementitious mortar to be installed, and one manhole each on PCI and MCI that need to be coated with cementitious mortar due to root intrusion and groundwater infiltration. This work is likely to be performed through the On-Call Maintenance contract with Digs, and staff visited the site with the Contractor on July 15<sup>th</sup>. The work will likely be completed in the fall, pending crew availability.
- MCAWRRF Primary Clarifier Building 36" Sanitary Sewer Leak: On July 7<sup>th</sup>, RWSA Engineering Staff was made aware of a small leak through the wall in the basement of the Primary Clarifier Building at MCAWRRF. An inspection was performed by Hazen & Sawyer on August 3<sup>rd</sup>, and a report with repair recommendations has been prepared. The repairs will include specialty grouting work to plug the voids discovered in the field in order to stop the leak, as well as possible installation of a coating system for further protection of the concrete. Staff is meeting internally during the week of 9/12 to discuss next steps.

## 21. Security Enhancements

Design Engineer:	N/A
Construction Contractor:	Security 101 (Richmond, VA)
Construction Start:	March 2020
Percent Complete:	50% (WA5), 0% (WA6)
Based Construction Contract +	

Change Orders to Date = Current Value:	\$718,428 (WA1) + \$91,130 (WA2) + \$128,166 (WA3) + \$189,698 (WA4) + \$76,920 (WA5) + \$120,994 (WA6) = \$1,325,339 (Total)
Completion:	October 2022 (WA5), May 2023 (WA6)
Budget:	\$2,810,000

Current Status: WA5, which authorizes card access installation at Glenmore Water Resource Recovery Facility (GWRRF), Scottsville Water Resource Recovery Facility (SVWRRF), and Red Hill Water Treatment Plant (RHWTP), began during the week of June 20<sup>th</sup>. Conduit and cable pulling is complete at all facilities covered in the WA, and the only work that remains is wiring and programming by Security 101, likely to be completed this Fall. WA6 will include card access installation at RWSA's remote sites, including all dams and pump stations. This work was authorized in early August, with completion scheduled for May 2023.

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

**Observatory:** This project will upgrade the plant from 7.7 to 10 MGD capacity. Costs to upgrade the plant to 12 MGD were determined to be too high at this time. Much of the Observatory Water Treatment Plant is original to the 1953 construction. A Condition Assessment Report was completed by SEH in October of 2013. The approved Capital Improvement Plan project was based on the findings from this report. The flocculator systems were replaced and upgraded as part of the Drinking Water Activated Carbon and WTP Improvements project (GAC). Four additional GAC contactors will be included in the design.

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

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

The Rt. 29 Pump Station and Pipeline master plan was developed in 2007 and originally envisioned a multi-faceted project that reliably connected the North and South Rivanna pressure bands, reduced excessive operating pressures, and developed a new Airport pressure zone to serve the highest



elevations near the Airport and Hollymead Town Center. The master plan update was completed in June of 2018 to reflect the changes in the system and demands since 2007. This project, along with the South Rivanna River Crossing and North Rivanna Transmission Main project, will provide a reliable and redundant finished water supply to the North Rivanna area. The proposed pump station will be able to serve system demands at both the current high pressure and future low-pressure conditions. These facilities will also lead to future phase implementation which will include a storage tank and the creation of the Airport water pressure zone. The North Rivanna Transmission Main improvements included under a separate CIP project have been added to this project to allow connection of the pump station to the distribution system.

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

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

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

A Design Kickoff Meeting was held virtually on October 20, 2020. A site visit was attended on November 5, 2020 by Hazen & Sawyer staff, as well as RWSA Maintenance and Engineering Department staff. 50% Design Documents were provided in Spring 2021, with staff feedback provided soon thereafter. A follow-up site visit by Hazen was performed in July 2021, in order to confirm the availability of spare conduits across the site and plan for the associated cable replacements. 95% Design Documents were provided by Hazen in September 2021, and staff returned comments in October 2021. Field work was conducted in Fall 2021 to evaluate the condition of conduits within the existing duct bank network, as well as verify pathways and connectivity within the network.

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

### **4. Scottsville WTP Lagoon Liners Replacement**

The Scottsville Water Treatment Plant (WTP) has two lined lagoons that receive filter backwash water, filter-to-waste water, and flow from the sedimentation basin sludge collectors. The lagoons are

regulated under the Virginia DEQ VPDES permit program. The earthen lagoons are original to the plant and were lined at the request of DEQ in 2007 to prevent water infiltration out of the lagoons.

Recently, the lagoon liners have shown signs of degradation from ultraviolet sunlight. As such, a liner replacement project was added to the FY 22-26 CIP to begin in FY23 and be completed in FY24. Unfortunately, in early June '21, the liner in one of the lagoons failed during a high flow event. DEQ has been notified and the lagoon taken out of service, leaving the plant with only one remaining lagoon. In order to advance replacement of the liners, bid documents were developed, a Request for Bids was issued on January 4, 2022, and bids were received on February 1, 2022. A Notice of Award was provided to Haren Construction on March 4, 2022 and a Notice to Proceed was issued on May 2, 2022.

## **Design and Bidding**

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

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

The RMR to Observatory WTP raw water pump station is planned to replace the existing Stadium Road and Royal pump stations, which have exceeded their design lives or will require significant upgrades with the Observatory WTP expansion. The pump station will pump up to 10 million gallons per day (MGD) of raw water to the Observatory WTP. The new pump station site selection and design are being conducted in coordination with the South Rivanna Reservoir to RMR pipeline in the interest of improved operational and cost efficiencies. An integrated pump station would also include the capacity to transfer up to 16 MGD of raw water from RMR back to the SR WTP.

Both Design Work Authorizations received Board of Directors approval on July 27, 2021. A kickoff meeting was held on September 17, 2021, and a meeting to begin establishing boundary conditions for the RMR Pump Station was held on October 25, 2021. An internal RMR Pump Station Operations workshop was held on February 23, 2022 to set the boundary conditions for the facility, and this information was provided promptly to the Design Consultant to allow design efforts to continue progressing.

### **6. 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 efforts were authorized in June 2021 with construction anticipated in Summer 2022.

## **7. Beaver Creek Dam and Pump Station Improvements**

Dam: A spillway upgrade alternative for the dam has been selected and was presented in a public meeting on October 6, 2021. A new raw water pump station site and pipe access route were selected and approved by the Board in August 2021. RWSA operates the Beaver Creek Dam and reservoir as the sole raw water supply for the Crozet Area. In 2011, an analysis of the Dam Breach inundation areas and changes to Virginia Department of Conservation and Recreation (DCR) *Impounding Structures Regulations* prompted a change in hazard classification of the dam from Significant to High Hazard. This change in hazard classification requires that the capacity of the spillway be increased. This CIP project includes investigation, preliminary design, public outreach, permitting, easement acquisition, final design, and construction of the anticipated modifications. Work for this project will be coordinated with the new relocated raw water pump station and intake and a reservoir oxygenation system project.

Schnabel Engineering developed three alternatives for upgrading the capacity of the Beaver Creek Dam Spillway in 2012. Following the adoption of a new Probable Maximum Precipitation (PMP) Study on December 9, 2015 and the release of DCR guidelines for implementing the PMP study in March of 2016, RWSA determined it would proceed with an updated alternatives analysis and Preliminary Engineering Report for upgrading the dam spillway. Following the completion of an updated alternatives analysis by Schnabel Engineering, staff met with members of Albemarle County and ACSA staff to discuss the preferred alternative. It was determined that staff would proceed with design of a labyrinth spillway and chute through the existing dam with a bridge to allow Browns Gap Turnpike to cross over the new spillway.

In 2020, staff received grant funding for a planning and environmental study from the Natural Resources Conservation Service (NRCS). The project kicked off in August 2020 and is expected to be completed in July 2022. Following completion of the study and acceptance of the Plan-Environmental document by NRCS, staff will pursue additional grant funding through NRCS that, if available, could cover up to 65% of final design and construction costs.

Pump Station: The Drinking Water Infrastructure Plan for the Crozet water service area, developed by Hazen and Sawyer, recommends installation of a new Raw Water Pump Station and Intake at the Beaver Creek Dam in order to meet new minimum instream flow requirements and provide adequate raw water pumping capacity to serve the growing Crozet community for the next 50 years. The pump station will be moved out of its existing location at the toe of the dam to a new location, to be determined during design. The new intake structure will include enhanced controls to allow for access to the best quality water at any given time.

## **8. South Rivanna River Crossing**

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

there is a need to construct a new river crossing at the South Fork Rivanna River. Acquisition of right-of-way will be required at the river crossing.

## **9. Central Water Line**

Route alignment determination, hydraulic modeling, and preliminary design were underway in 2017. Due to the complicated nature of our finished water systems, it was decided at the August 2018 Board meeting that a more comprehensive approach was warranted, and we should complete the Finished Water Master Plan prior to moving forward with final design and construction of the Central Water Line (formerly referred to as the Avon to Pantops Water Main). The focus of this project was on the southern half of the urban area water system which is currently served predominantly by the Avon Street and Pantops water storage tanks. The Avon Street tank is hydraulically well connected to the Observatory Water Treatment Plant, while the Pantops tank is well connected to the South Rivanna Water Treatment Plant. The hydraulic connectivity between the two tanks, however, is less than desired, creating operational challenges and reduced system flexibility. In 1987, the City and ACSA developed the Southern Loop Agreement which laid out two key phases (with the first being built at the time). The 1987 Agreement and planning efforts were a starting point for this current project. An engineering contract was approved by the Board of Directors in July 2017. Recent efforts and modeling for the Urban Finished Water Infrastructure Master Plan have determined that a central water line corridor through the City is the best option to hydraulically connect the Observatory Water Treatment Plant to the Pantops area, with connections to City water lines to support the water distribution system in the City and County. The RWSA Board approved the Southern (Cherry Ave) Route in June 2022.

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

## **12. Red Hill Water Treatment Plant – Upgrades**

The Red Hill WTP was constructed in a joint effort of ACSA and RWSA in 2009 and consists of a well, a pneumatic tank and pump house that provides treated water to the Red Hill Elementary School and adjoining neighborhood. The project was constructed in response to groundwater contamination as a result of a nearby leak of underground fuel storage tanks. Originally the facility was operated primarily as a well head and pump house. More recently the facility has operated more as a water treatment facility with a well as source water. As such, there have been several chemical process

additions, automation, online monitoring and an increase in operator wet chemistry testing. The current building is well beyond its physical capacity and this project will serve to expand the building and improve the configuration of the process and laboratory needs of the WTP.

### **13. Emmet Street Water Line Betterment**

The Urban Finished Water Master Plan identified several necessary upgrades to the urban water distribution system to improve system performance and reliability. One of the identified improvements is an upgrade and extension of the existing RWSA water main along the Emmet Street corridor from the University of Virginia to Hydraulic Road. This project will utilize planned road, streetscape, utility, and development projects along the Emmet Street corridor to complete portions of the Emmet Street water main improvements as betterment, with the goal of completing the water main improvements by 2030. The project scope includes planning and coordination between RWSA, UVA, the City of Charlottesville, and VDOT, design services for the betterment and “gap” sections of water line, construction funding, and construction management services. Current identified projects with betterment opportunities include: the UVA Ivy Corridor Redevelopment, UVA Contemplative Commons, the City of Charlottesville Emmet Streetscape Projects (multiple phases), and VDOT intersection improvements at Barracks Road, the US-250/Emmet Street Interchange, and Hydraulic Road.

### **14. Crozet Pump Station Rehabilitation**

The Crozet Pump Stations were constructed in the 1980’s and many of the components are original. This project includes the replacement of pump and valves and other components at Pump Station 2 to improve pumping capabilities at this location, as well as Pump Stations 1 and 3 as the pumps are reaching the end of their useful life. It also includes roof replacements at all four pump stations, siding replacement for the wet well enclosure at Pump Station 3, and installation of new wells at pump stations 3 and 4. This project also now intends to include new back-up generators at Pump Stations 1 through 3 as the generators have also reached the end of their useful life.

### **15. Moores Creek AWRRF Concrete Repairs**

The two Holding Ponds and the two Equalization Basins were built with the 1977 Moores Creek Upgrades and are critical to the plant infrastructure to contain wet weather flows. The 40-year-old concrete is showing signs of degradation. Following inspections in the Fall 2020, Hazen recommended we implement concrete repairs soon to extend the life of the concrete basins. Work will include crack repair, spalling repair, joint repair, and coating of miscellaneous metals and valves in the basins.

### **16. Moores Creek AWRRF Compost Shed Roof Rehabilitation**

In the early 1980’s a large metal-framed shed roof was constructed to house the biosolids composting operations. Subsequent to stopping composting at Moores Creek AWRRF, the shed serves as an equipment maintenance yard, solids handling facility and material storage lock-up. The shed roof is showing signs of rafter deterioration and ongoing drainage issues. This project will evaluate and perform remediation needs at this facility.

### **17. Scottsville WRRF Whole Plant Generator and ATS**

The current back-up power generator at the Scottsville Water Treatment Plant does not power the entire plant, serving only the facilities needed to send flow to the lagoons. This project will offer greater treatment flexibility and monitoring capability for the operations staff, particularly when the plant is unmanned and monitored remotely.

## **Planning and Studies**

### **18. 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.

### **19. Asset Management Plan**

Asset management is the practice of managing our infrastructure to minimize the total cost of owning and operating these assets while providing desired service levels. In doing so, it is used to make sure planned maintenance activities take place and that capital assets are replaced, repaired, or upgraded at the right time, while ensuring that the money necessary to perform those activities is available. RWSA has some components of an asset management program in place (i.e. GIS, work order system), but has identified the need to further develop the program as part of our Strategic Planning process. In order to continue to build the program, a consultant has been procured to assist with a three-phase process that will include facilitation and development of an asset management strategic plan, development, and management of a pilot study where the results of the strategic plan will be applied to a specific class of assets, and assistance through a full implementation process. As part of this three-phase process, the consultant also assisted RWSA with the procurement of a new CMMS software package to facilitate the overall program. Cityworks was selected and implementation has begun.

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

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

The study is anticipated to be completed in 4 phases: 1. Analysis and Correlation of Existing Water Quality and Seasonal Weather Data 2. Enhanced Water Quality Sampling 3. Pretreatment Piloting 4. Level Setting for the Final Pretreatment Solution. Phase 1 commenced in January 2021 and was completed in July 2021. Phase 2 began in June 2021. The Excel Desktop Modeling portion of the analysis was completed in February 2022.

### **21. MCAWRRF Cogeneration Upgrades**

The MCAWRRF has an existing cogeneration facility that was constructed in 2011. The purpose of the facility was to provide a beneficial use of the methane gas produced by the digester process at the plant,

and in doing so, provide both digester heating and energy to the plant's electrical distribution system. Unfortunately, the existing cogeneration facility requires expensive recurring maintenance services, has proprietary equipment which further complicates servicing needs, and has had a number of operational issues that have impeded the benefit this facility was intended to provide. As a result, a Cogeneration System Analysis was performed to determine a recommended approach for proceeding with improvements to the existing facility, installation of a new cogeneration facility without the issues of the previous facility or removing the cogeneration facility altogether and providing a backup boiler. This project includes costs for installation of a new cogeneration facility as described in the Cogeneration System Analysis.

## **Other Significant Projects**

### **22. Urgent and Emergency Repairs**

- **South Rivanna Dam Apron and Riverbank 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 riverbank 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 riverbank and removal of the rock dam were completed June 3-7, 2019 under RWSA's on-call construction contract.

- **Urban Water Line Valve and Blow-off Repair**

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

### **23. Security Enhancements**

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

RWSA Engineering staff held a meeting with Operations staff to discuss overall project needs and priorities in October 2018. Meetings with ACSA and City staff were held in Fall/Winter 2018-2019 to discuss how access control and intrusion detection systems have been implemented into the day-to-day operations of the two utilities. A Request for Proposal (RFP) for an Implementer to facilitate selection of an access control system, confirmation of design requirements based upon RWSA's facilities and project goals, and installation of the selected system was issued on June 6, 2019. RWSA conducted a Pre-Proposal Meeting on June 14, 2019, and proposals were opened on June 27, 2019. Interviews were conducted on July 15-16, 2019, and a Contract Award Recommendation was approved by the Board on July 23, 2019. Access Control System Installation at MCAWRRF began in March 2020. Access Control System Installation was completed in the Administration and Engineering Buildings by the week of November 30, 2020, completing installation of the physical access control system across the MCAWRRF site. Training for staff was completed on November 10, 2020. RWSA authorized improvements to locks and doors across the MCAWRRF site on May 4, 2021, in order to improve the condition of the hardware and subsequently, operations of the access control system. In addition, installation of the card access system on all exterior doors at the Scottsville and Crozet Water Treatment Plants (SVWTP and CZWTP, respectively) was authorized shortly thereafter. RWSA also authorized installation of security conduits not already included at SRWTP and OBWTP under the Improvements Project in August 2021.

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



## 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 AGUST 2022**

**DATE: SEPTEMBER 27, 2022**

The monthly and average daily Urban water system usages by the City and the ACSA for July 2022 were as follows:

	<i>Month</i>	<i>Daily Average</i>	
City Usage (gal)	149,048,061	4,617,640	<b>47.6%</b>
ACSA Usage (gal)	163,946,162	5,287,036	<b>52.4%</b>
<b>Total (gal)</b>	<b>312,946,162</b>	<b>10,095,037</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 July 2021), and that usage relative to the maximum allocation for each party (6.71 MGD for the City and 11.99 MGD for ACSA). Completed in 2019 for a cost of about \$3.2 M, our Wholesale Metering Program consists of 25 remote meter locations around the City boundary and 3 finished water flow meters at treatment plants.

Note: Staff detected a read issue with Meter Site 15 – Ivy Road at Colonnade Drive in March. The meter issue has been resolved as of August 15, 2022. Due to only partial data being available for this month’s report, an average of the last 3 full months’ worth of data was used to calculate the percentages above. Current data for the month of September should be available for next month’s report.

Note: Staff detected a read issue with Meter Site 9 – Moores Creek Lane in June and has resolved the issue with the meter. RWSA began using the available data for this month’s report.

Note: Staff detected a read issue with Meter Site 24 – Greenbrier Terrace in late July. The meter issue has been resolved, but due to only partial data being available for this month's report, an average of the last 3 months' worth of data was used to calculate the percentages above. The meter is now working and current data will be available for next month's report.

Note: Staff detected a read issue with Meter Site 32 – Fontaine Ave in July and has determined that the meter needs to be replaced. Staff ordered a new magnetic flow meter, but its delivery has been delayed due to supply chain issues. Staff had an ultrasonic flow meter in stock and determined that it would be a suitable interim replacement for the existing magnetic flow meter. The ultrasonic meter is being installed this month. As a result of data not being available for August, an average of the last 3 months' worth of data was used to calculate the percentages above.

Figure 1: City of Charlottesville Monthly Water Usage and Allocation

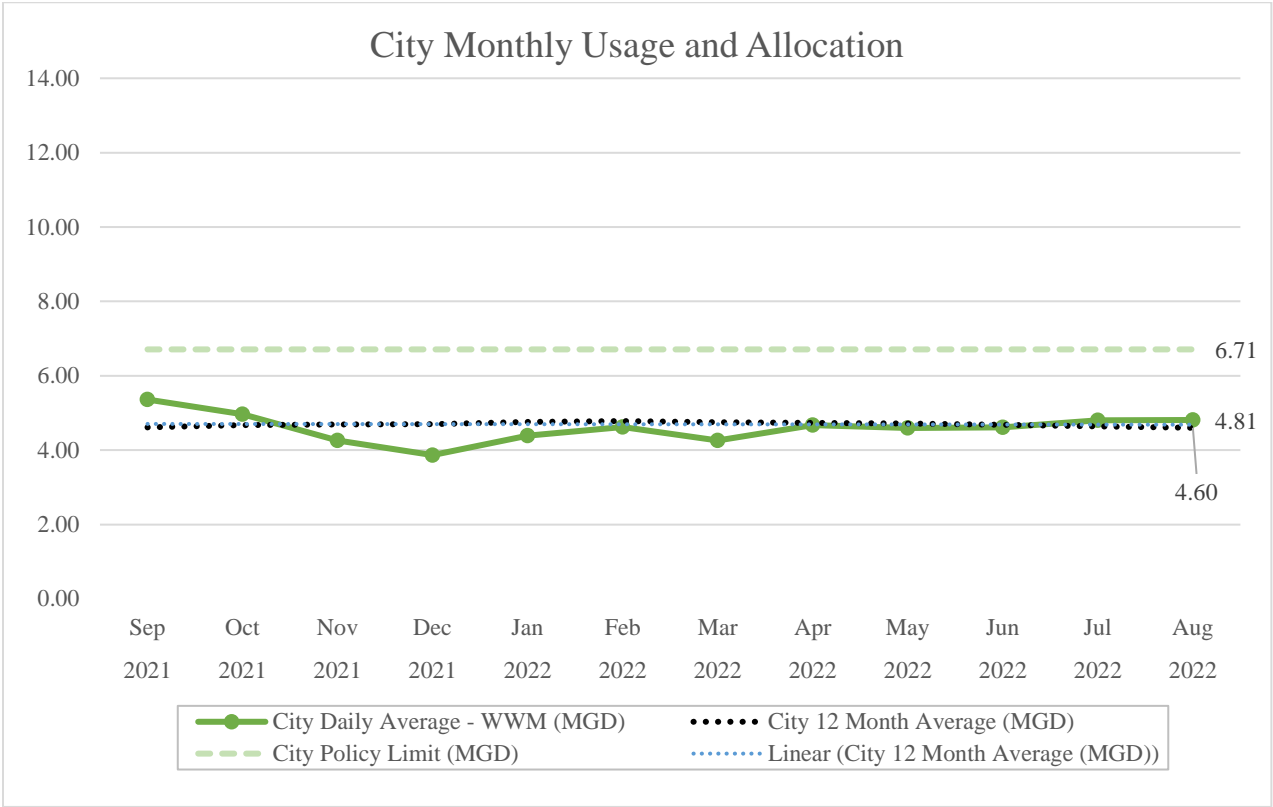
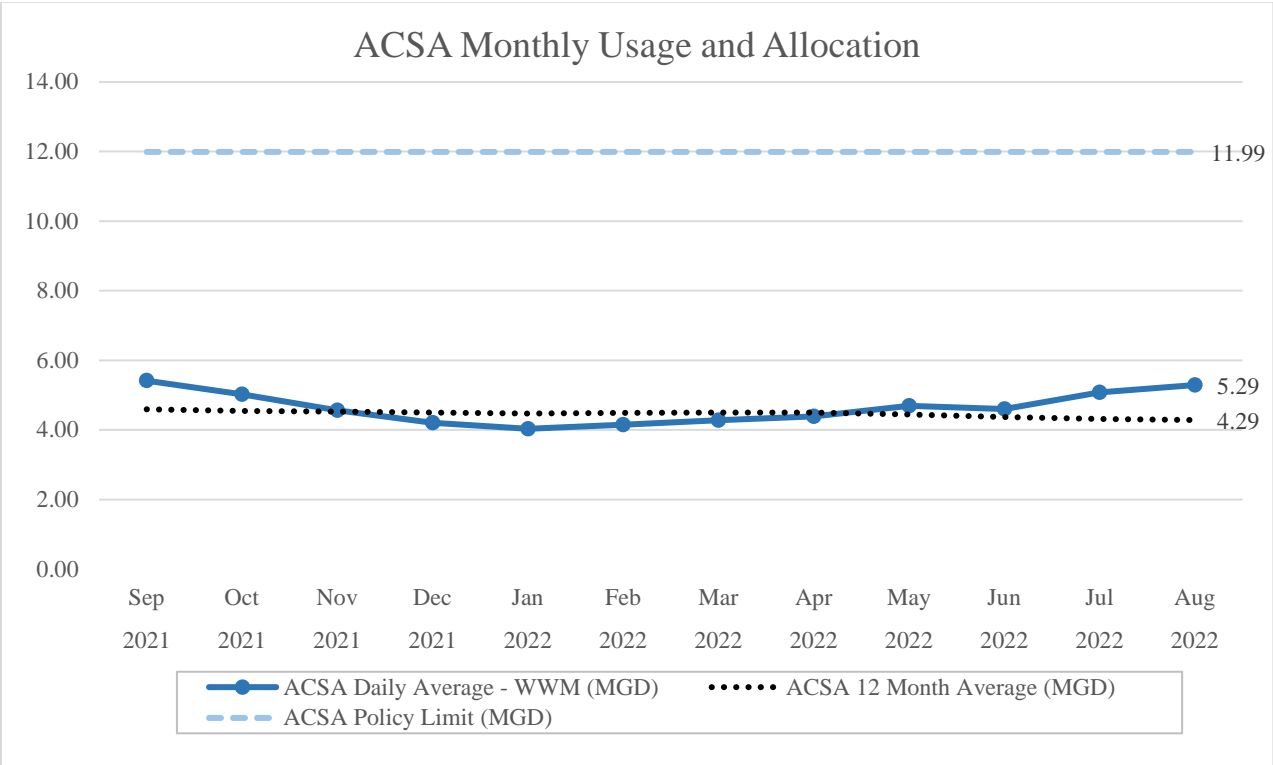
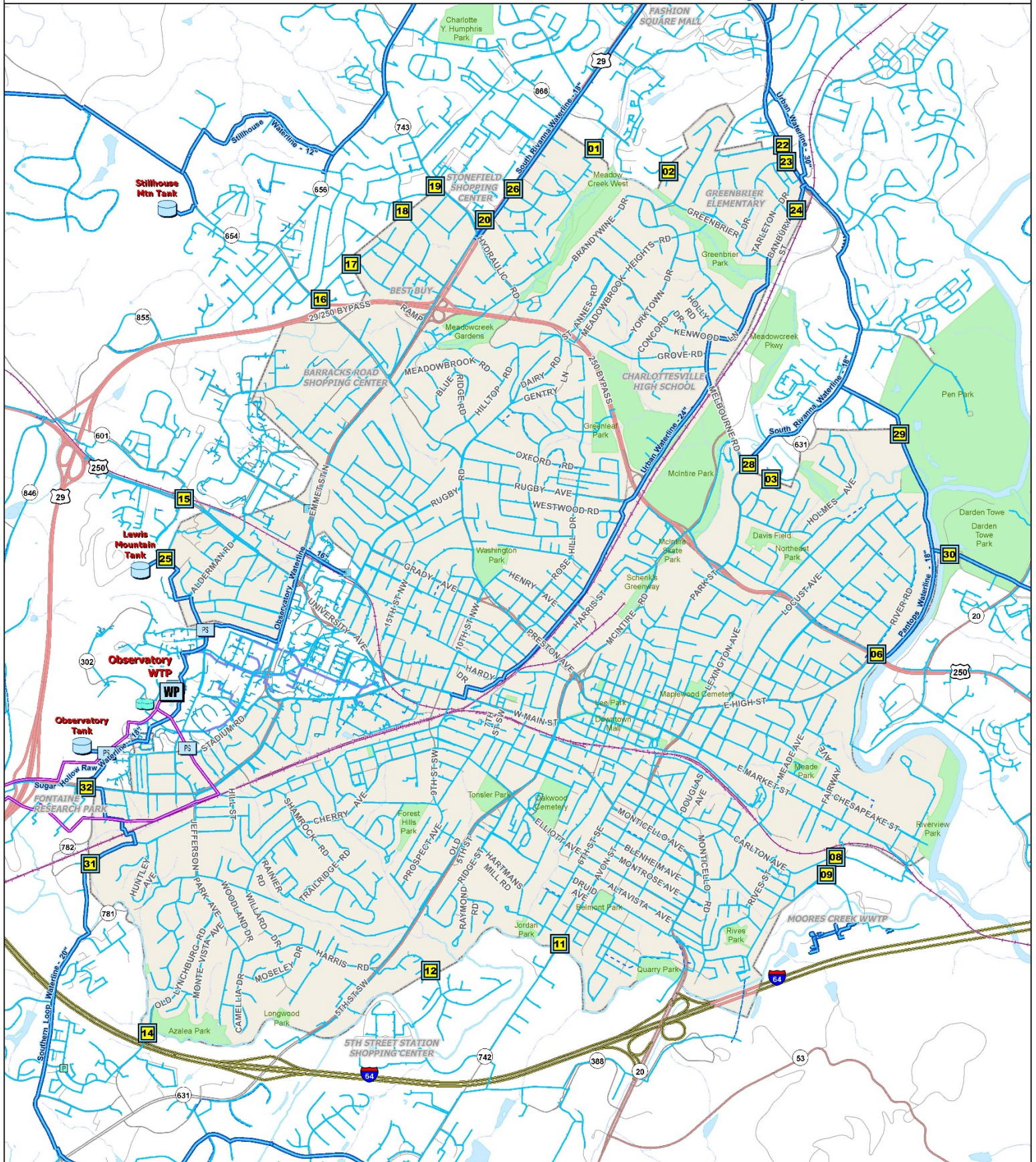


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation





# Meter Locations for the Wholesale Water Metering Project



Miles  
0 0.25 0.5

Date: 4/21/2017



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

**Meter Site Locations - WWMP**

- 01, Pepsi Place
- 02, Michael Pl / Wilson Ct
- 03, Wilder Dr
- 06, Long St / River Rd

- 08, Franklin St / Carlton Ave / Broadway St
- 09, Moores Creek Ln
- 11, Avon St
- 12, Loma Ln / Harris Rd
- 14, Old Lynchburg Rd
- 15, Ivy Rd / Colonnade Dr

- 16, Ricky Rd / Barracks Rd
- 17, Ricky Rd (near Wayne Ave)
- 18, North Berkshire Rd
- 19, Hydraulic Rd / Inglewood Dr
- 20, Trader Joes
- 22, Rio Rd @ Church of Our Savior

- 23, Greenbrier Dr / Rio Rd
- 24, Greenbrier Ter
- 25, University Heights Apts
- 26, Seminole Trl
- 28, Rio Rd / Melbourne Rd
- 29, Pen Park Ln

- 30, Darden Towle Park
- 31, Stribling Ave
- 32, Fontaine Ave





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

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

**REVIEWED: BILL MAWYER, EXECUTIVE DIRECTOR**

**SUBJECT: DROUGHT MONITORING REPORT**

**DATE: SEPTEMBER 27, 2022**

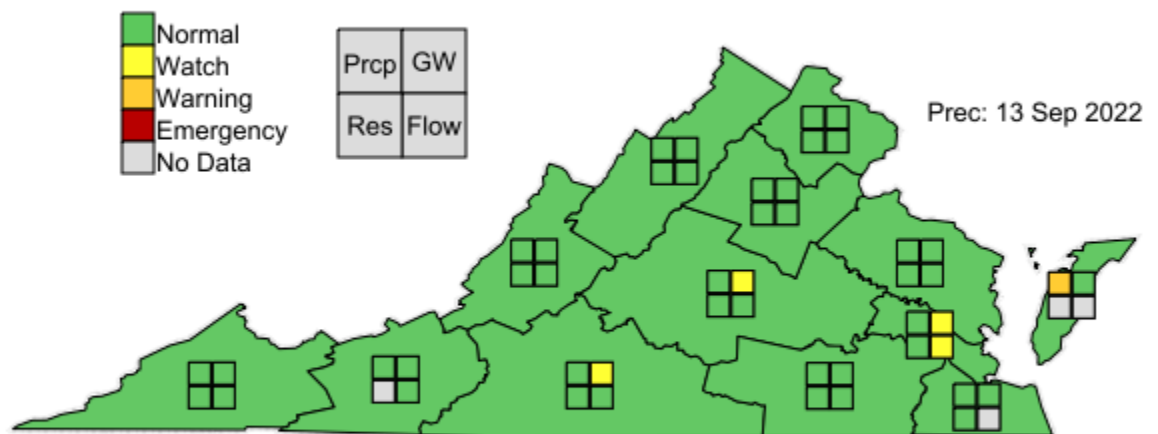
Drinking Water Supply and Drought Monitoring, as of September 14, 2022:

A. U.S. Drought Monitoring Report:

- No drought phases have been initiated. Albemarle County is noted to be normal.

B. VDEQ Drought Status Report:

- Our region is in a “watch” status for Groundwater levels.



C. Urban Reservoirs Status (Sugar Hollow, South Rivanna, Ragged Mountain):

- 99 % full.

## Precipitation

Charlottesville Precipitation				
Year	Month	Observed (in.)	Normal (in.)	Departure (in.)
2021	Total: Jan - Dec	33.82	41.61	-7.79
2022	January	3.79	2.96	0.83
	February	1.48	2.35	-0.87
	March	3.19	3.54	-0.35
	April	3.05	3.17	-0.12
	May	6.17	4.17	2.00
	June	3.66	4.38	-0.72
	July	6.35	3.37	2.98
	August	3.40	3.87	-0.47
	Total: Jan - August	31.09	27.81	+3.28

Source: National Weather Service, National Climatic Data Center.



## 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:** TERM ENGINEERING SERVICES WORK AUTHORIZATION  
INCREASE – SOUTH FORK RIVANNA RIVER CROSSING  
PROJECT – MICHAEL BAKER INTERNATIONAL

**DATE:** SEPTEMBER 27, 2022

This request is to authorize an increase in the engineering services contingency from 10% to 25% of the original contract amount for the South Fork Rivanna River Crossing project.

### **Background**

On August 25, 2020, the Board of Directors approved the authorization of \$425,000 with Michael Baker International (Baker) for a design and construction contract for the South Fork Rivanna River Crossing project (second pipe for this crossing) and any amendments needed to complete the work not to exceed 10% of the original contract amount. Following preliminary design of the selected trenchless horizontal directional drill (HDD) alternative for the river crossing, Baker has determined that additional geotechnical work is needed to determine the rock profile for the deep HDD, and additional survey work is needed for the staging areas and temporary pipe laydown easement associated with the construction work.

### **Board Action Requested:**

Authorize an increase in engineering services contingency funding for the South Fork Rivanna River Crossing project from 10% to 25% of the original contract amount for a total contingency of \$112,500. The total project costs, including the 25% contingency, remain within the existing CIP Budget of \$5,850,000.



## MEMORANDUM

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

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

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

**SUBJECT: RESOLUTION TO AMEND FY 2022 - 2023 WATER RATES AND CHARGES**

**DATE: SEPTEMBER 27, 2022**

This recommendation is to conduct a Public Hearing to consider the adjusted Urban Water Charges for FY 2022 - 2023. The adjusted charges will be retroactively applied to July 1, 2022. Debt service charges will increase \$22,030 per month for the Albemarle County Service Authority (ACSA) and decrease by the same amount for the City.

### Background

The City, ACSA and the Authority entered into a “Northern Area Drinking Water Projects Agreement” in June 2022 to allocate the debt service costs for four new drinking water infrastructure projects and all future capacity and non-capacity water facilities located north of the South Fork Rivanna River. As part of this Agreement, debt service costs for these projects were shifted from the City to the ACSA, resulting in a change in the charges for FY 2022 – 2023.

The Authority is required to hold a Public Hearing to adjust these debt service charges. The adjusted charges were published in the Daily Progress on August 30, 2022 and September 6, 2022. The attached Rate Schedule includes the proposed charges, with only the Urban Water debt service charges being different than the charges adopted in May 2022. If approved by the Board after conducting a Public Hearing, the charges will be retroactively effective on July 1, 2022. Additionally, since the monthly invoices for July, August and September 2022 will have already been posted and paid, there will be a retroactive adjustment occurring in the October invoice to the ACSA and to the City.

### Board Action Requested:

Consider the adjusted Rate Schedule after conducting a Public Hearing. If approved, the adjusted Urban Water rates and charges for FY 2022 - 2023 will be retroactively effective on July 1, 2022.

Attached: Preliminary Rate Schedule  
Public Notice





695 Moores Creek Lane | Charlottesville, Virginia 22902-9016

434.977.2970  
434.293.8858  
www.rivanna.org

**RESOLUTION  
TO ADOPT THE RATE SCHEDULE  
FOR FISCAL YEAR 2022-2023, EFFECTIVE JULY 1, 2022  
BY THE RIVANNA WATER AND SEWER AUTHORITY**

**WHEREAS**, the Rivanna Water and Sewer Authority (the “Authority”) Board of Directors has reviewed the proposed Rate Schedule for Fiscal Year 2022-2023; and

**WHEREAS**, the Authority conducted a public hearing for the proposed Rate Schedule on September 27, 2022 after advertising the actual date fixed for the public hearing in the Daily Progress on August 30, 2022 and September 6, 2022, and

**NOW, THEREFORE, BE IT RESOLVED** that the Rivanna Water and Sewer Authority hereby adopts the Rate Schedule for Fiscal Year 2022-2023 with Adjusted Debt Service charges, to be retroactively effective on July 1, 2022.

**RATE SCHEDULE  
Water Rates and Charges**

		Adjusted*	As Adopted			
Urban Area		FY 2023	FY 2023	\$ Change	% Change	
ACSA & City	Operating	\$ 2.653	\$ 2.653	No Change	No change	Per 1,000 gallons
City	Debt Service	\$ 249,497	\$ 271,527	\$ (22,030)	-8.1%	Per month
ACSA	Debt Service	\$ 442,355	\$ 420,325	\$ 22,030	5.2%	Per month

\*- adjusted for Northern Area Drinking Water Projects Agreement

**Crozet**

ACSA	Operating	\$ 99,757	Per month
ACSA	Debt Service	\$ 180,142	Per month

**Scottsville**

ACSA	Operating	\$ 47,463	Per month
ACSA	Debt Service	\$ 12,525	Per month

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

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

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

# Amend FY 2022-2023 Urban Water Rates and Charges

Presented to the Board of Directors

By Bill Mawyer, Executive Director

September 27, 2022



# Overview

- The Board approved the FY 2022-2023 urban water rates and charges in May 2022.
- As the result of the “Northern Area Drinking Water Projects Agreement”, completed in June 2022, debt service charges will be reallocated from the City to the ACSA for the following projects:

## Projects included

- Airport Road Water Pump Station and Piping:
  - 100 % ACSA
- South Rivanna River Crossing:
  - 100 % ACSA
- North Rivanna River Crossing:
  - 100 % ACSA
- Airport Road Water Storage Tank:
  - 10 % City
  - 90 % ACSA
- All future capacity and non-capacity water facilities located north of the South Fork Rivanna River:
  - 100 % ACSA

# Debt Service Reallocation

- Based on this Agreement, debt service charges totaling \$22,030 per month will be reallocated from the City to the ACSA in FY 2022-2023



# Resolution

**RESOLUTION  
TO ADOPT THE RATE SCHEDULE  
FOR FISCAL YEAR 2022-2023, EFFECTIVE JULY 1, 2022  
BY THE RIVANNA WATER AND SEWER AUTHORITY**

**WHEREAS**, the Rivanna Water and Sewer Authority (the “Authority”) Board of Directors has reviewed the proposed Rate Schedule for Fiscal Year 2022-2023; and

**WHEREAS**, the Authority conducted a public hearing for the proposed Rate Schedule on September 27, 2022, after advertising the actual date fixed for the public hearing in the Daily Progress on August 30, 2022 and September 6, 2022, and

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Water Rates and Charges**

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# Questions?

## Board Action Requested:

Conduct a Public Hearing, followed by a vote on approval of the Resolution to Adopt the Rate Schedule to be retroactively effective on July 1, 2022.

# Water Treatment Facilities Overview

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PRESENTED BY:

DAVE TUNGATE, DIRECTOR OF OPERATIONS

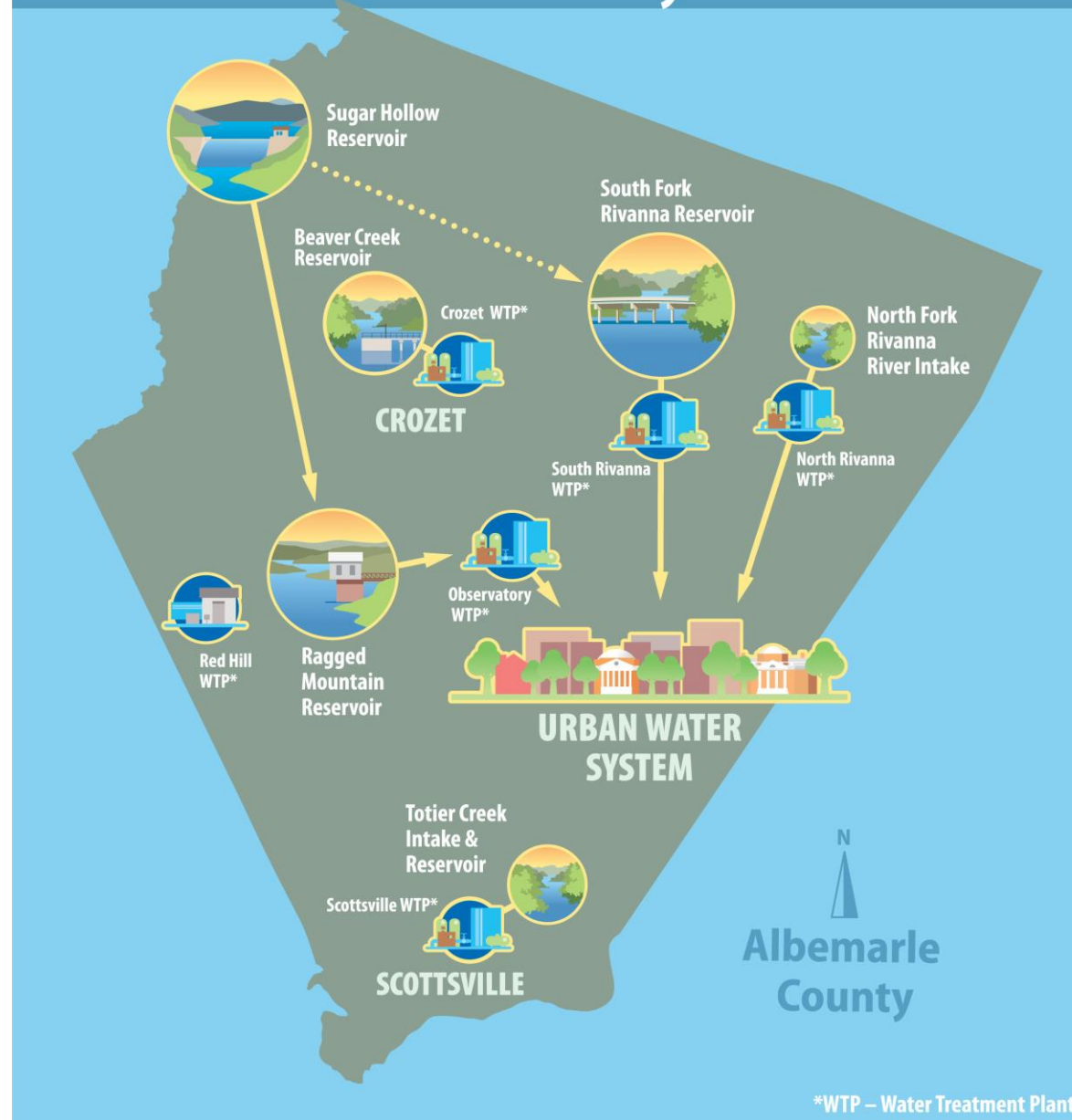
BOARD OF DIRECTORS MEETING

SEPTEMBER 27, 2022





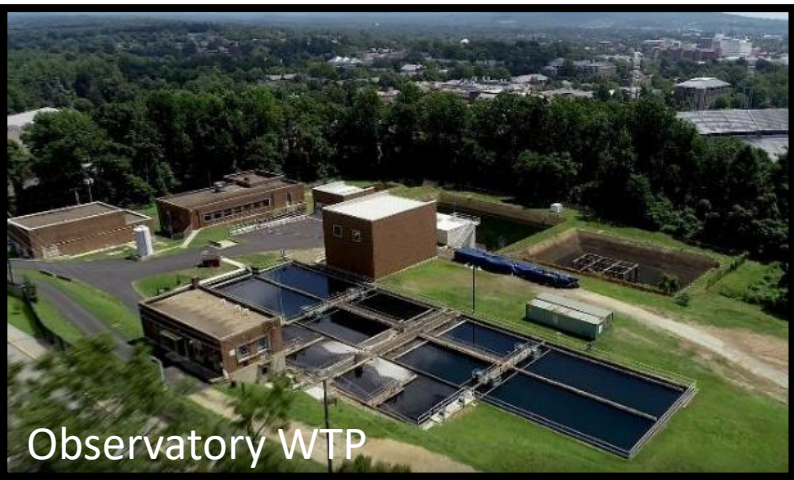
# RWSA Water System



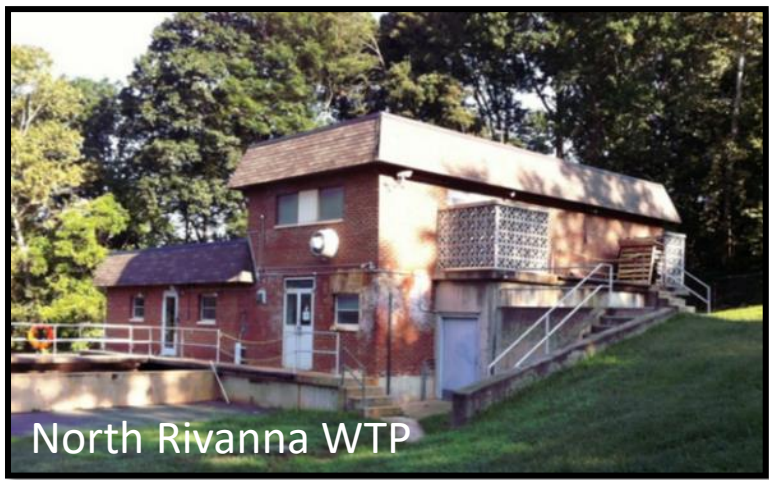




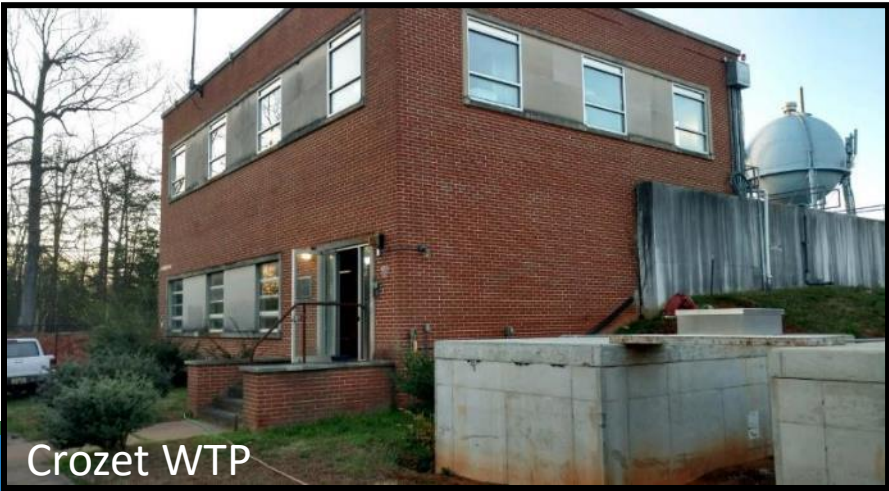
South Rivanna WTP



Observatory WTP



North Rivanna WTP



Crozet WTP



Red Hill WTP



Scottsville WTP

# 6 Water Treatment Plants

# Water Production Capacity

Treatment Plant	Permitted Capacity (MGD)	2021 Average Production (MGD)
South Rivanna	12.0	7.6
Observatory	7.7	1.6
North Rivanna	2.0	0.41
Urban Total	21.7	9.61
Crozet	1.6	0.678
Scottsville	0.25	0.053
Red Hill	0.068	0.002
Total	23.61	10.343



# South Fork Rivanna Reservoir

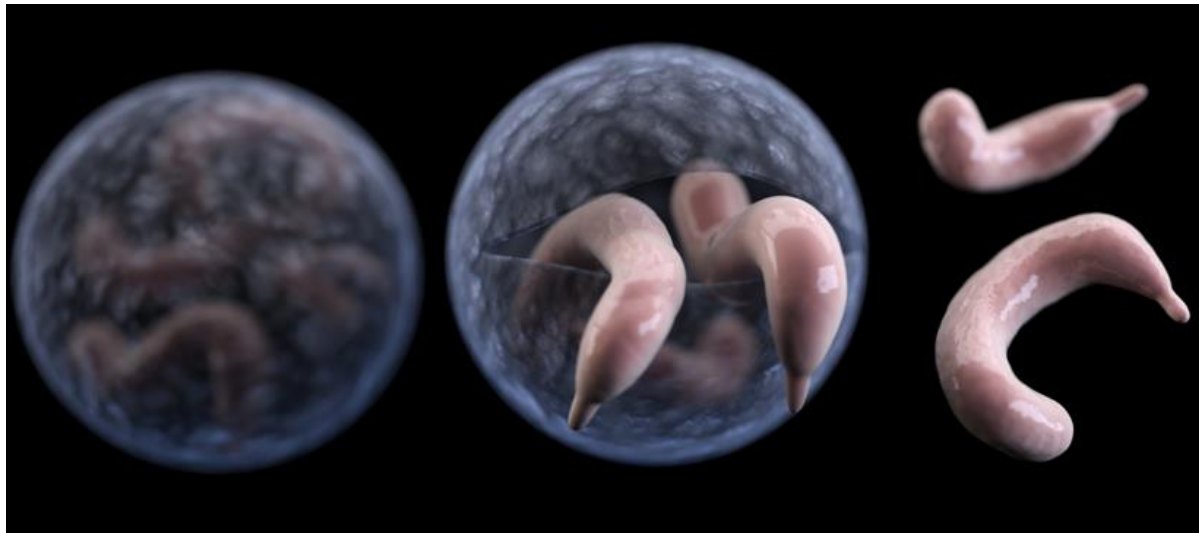




# South Fork Rivanna Reservoir

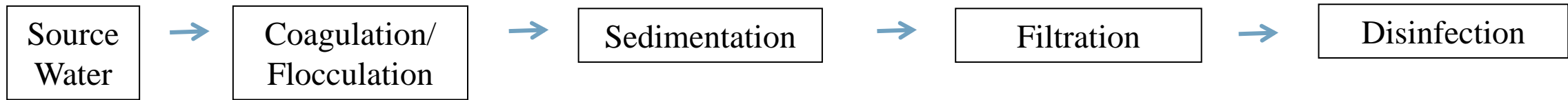


# Giardia & Cryptosporidium



# Conventional Surface Water Treatment

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# Typical water treatment additives

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- Aluminum Sulfate – coagulant to improve particle settling
- Liquid Lime – pH adjustment
- Sodium Hypochlorite – disinfection and oxidation
- Orthophosphate – corrosion control in the piping system
- Hydrofluorosilicic Acid (fluoride) – dental health





South Rivanna Raw Water Pump Station





South Rivanna Water Treatment Plant



Flocculated  
particles  
passing into  
sedimentation  
basins for  
settling







Filters at South Rivanna  
Water Treatment Plant





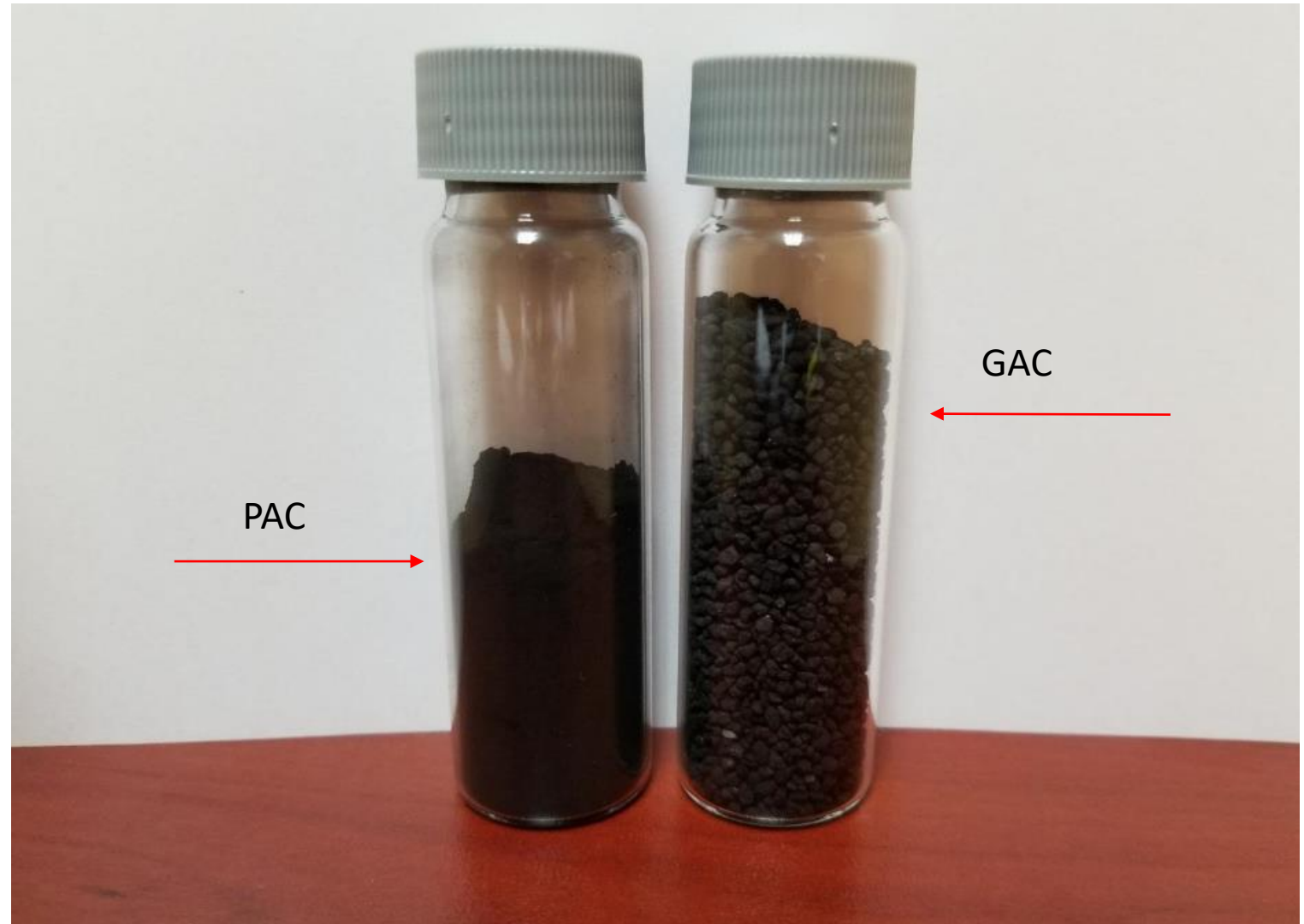
# South Rivanna Water Treatment Plant



# Finished Water Pumps



# Activated Carbon







# Powdered Activated Carbon





# Granular Activated Carbon Contactors



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



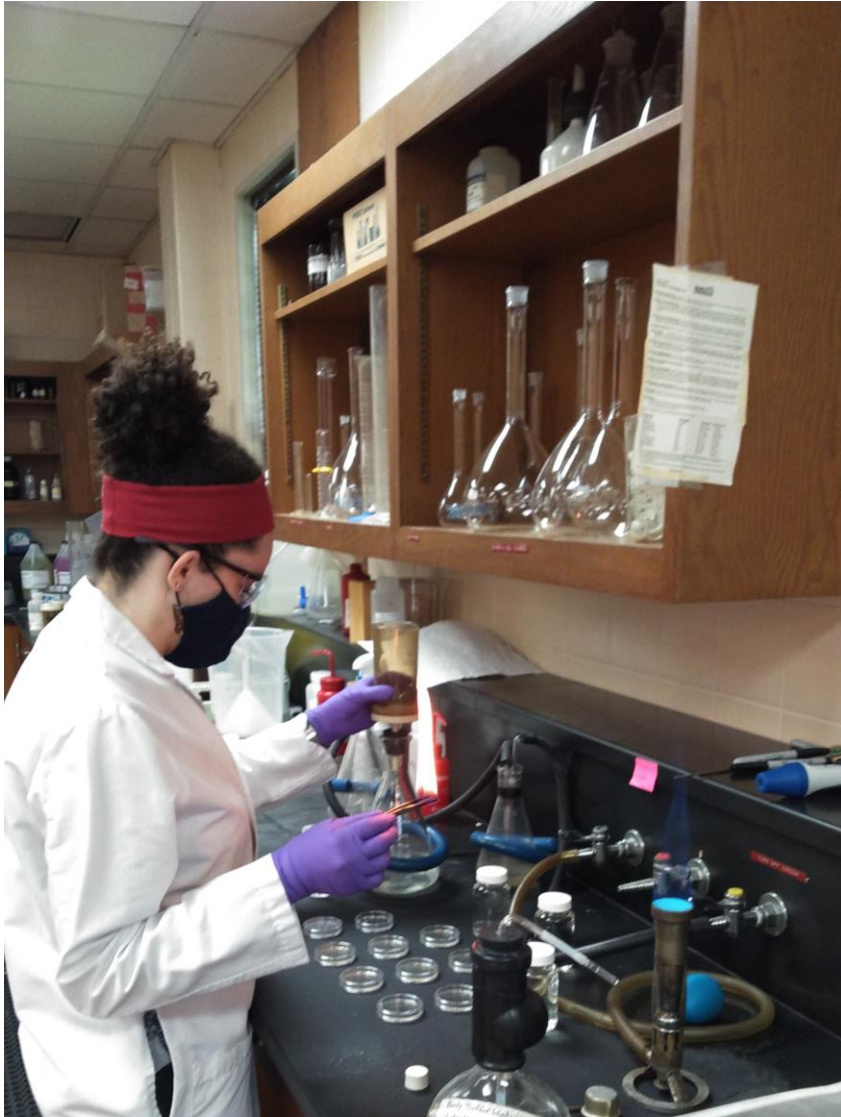
Crozet WTP

2 Contactors  
40,000 pounds of  
GAC  
1 MGD Capacity

Scottsville WTP

2 Contactors  
12,000 pounds of  
GAC  
0.25 MGD  
Capacity





# Drinking Water Testing Requirements

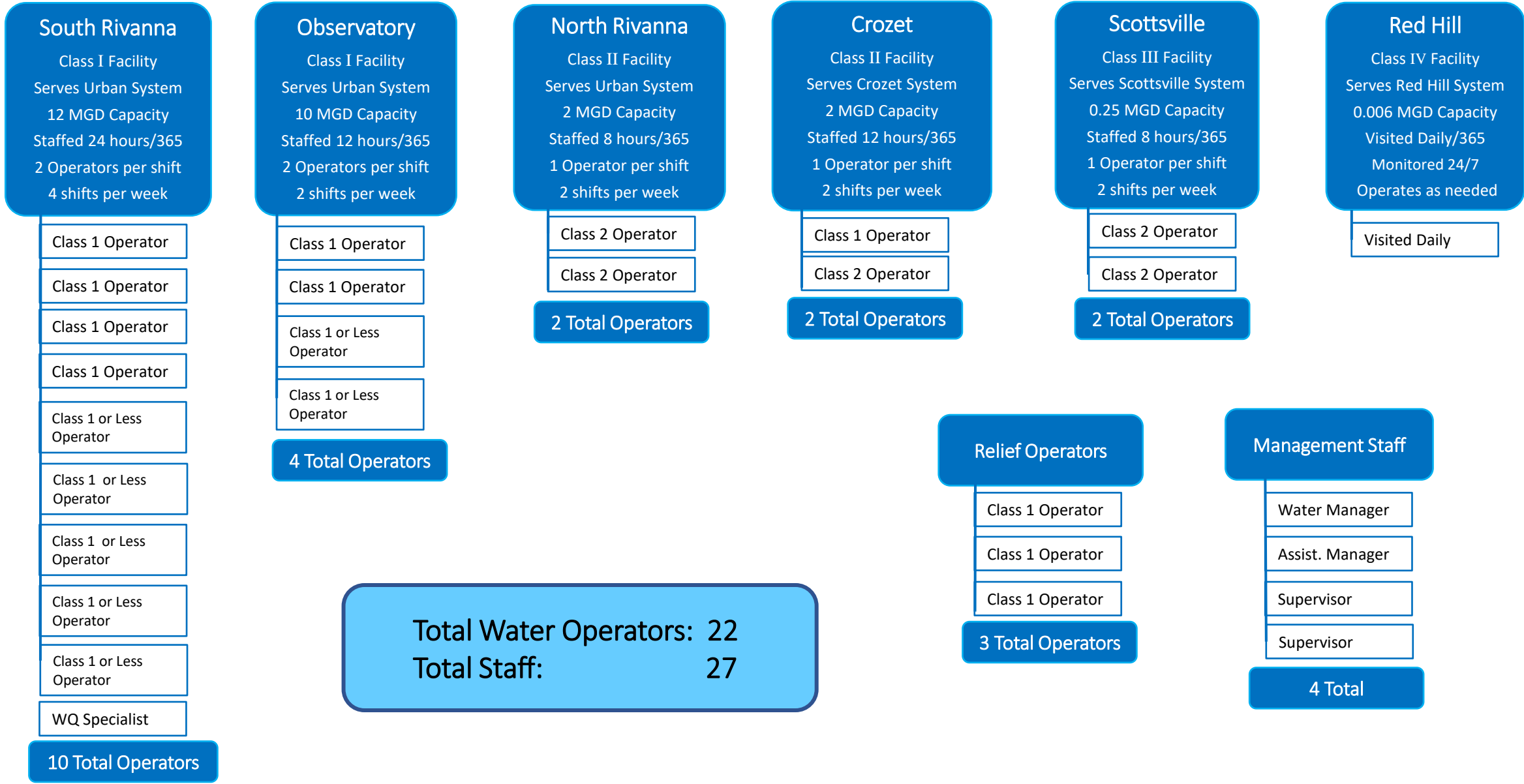
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**Monthly reports submitted to Virginia Department of Health include the following:**

- 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 all 4 water systems
- Safe Drinking Water Act compliance as needed



# Water Treatment Plants





Questions?





# RIVANNA

WATER AND SEWER AUTHORITY  
**SOLID WASTE AUTHORITY**

Board of Directors Briefing, September 27, 2022





# AGENDA

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Project Timeline Update

---

Vision, Mission, Values

---

Priorities – “Goals”

---

Measures & Strategies

---

Draft Strategic Plan

---

Next Steps/Wrap-Up

# STRATEGIC PLANNING PROCESS & TIMELINE

## Rivanna Authorities

### STRATEGIC PLANNING FLOW CHART & TIMELINE





# PROPOSED - VISION, MISSION, VALUES

## VISION

To serve the community as a recognized leader in environmental stewardship by providing exceptional water and solid waste services.

## MISSION

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

## VALUES

**INTEGRITY:** We are open and transparent, led by example, and are committed to ethical behavior

**TEAMWORK:** We work collaboratively to help each other succeed and serve the community

**RESPECT:** We treat our fellow employees, customers, business partners, and stakeholders with dignity and respect by embracing their diverse backgrounds and experiences

**QUALITY:** We deliver exceptional services and products, serve our community responsibly, and safeguard natural resources

# PROPOSED PRIORITIES – “GOALS”



## COMMUNICATION AND COLLABORATION

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



## ENVIRONMENTAL STEWARDSHIP

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



## WORKFORCE DEVELOPMENT

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



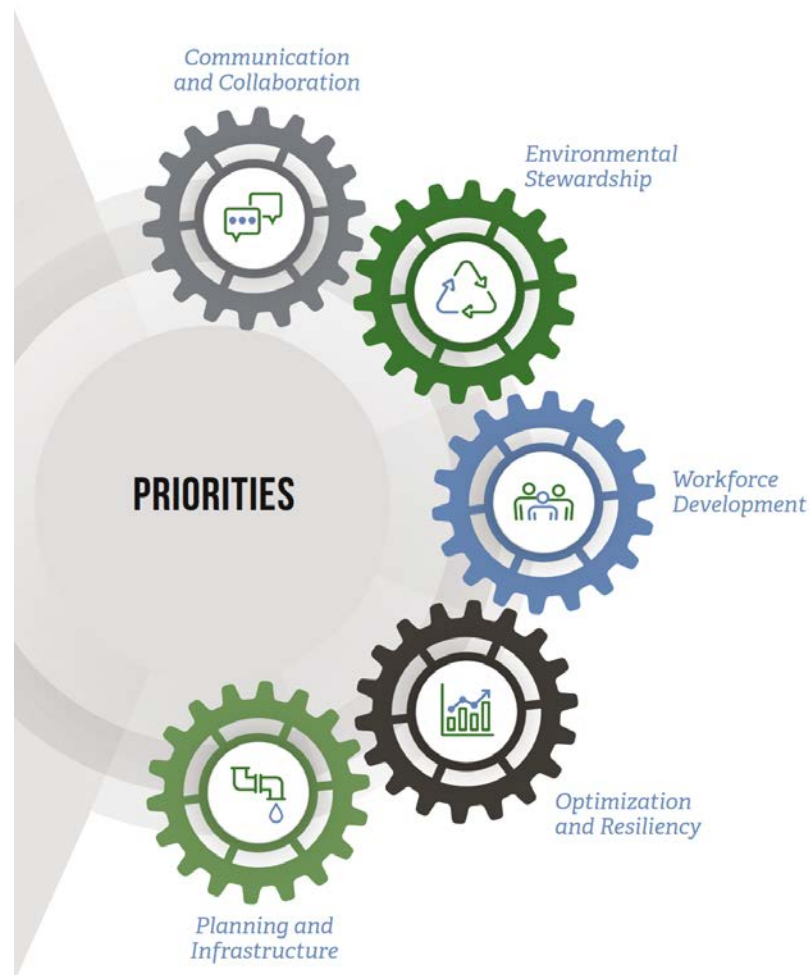
## OPTIMIZATION AND RESILIENCY

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



## PLANNING AND INFRASTRUCTURE

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



# MEASURES & STRATEGIES

## MEASURES



### COMMUNICATION AND COLLABORATION

- Number of hours of community service completed by employees
- Number of educational outreach events and total staff hours
- Website engagement metrics



### ENVIRONMENTAL STEWARDSHIP

- Participation with regional environmental groups (number of events and total staff hours)
- Reduction in Rivanna's total carbon footprint
- Number of facilities reviewed and plans developed to address climate and flood resiliency

## STRATEGIES

1. Develop and share the Authorities' public-facing brand identity
2. Promote our team to the community for educational outreach and partnerships
3. Provide resources to foster community involvement by our employees
4. Enhance the Rivanna.org website to provide interactive and accessible information
5. Develop and implement a social media strategy for the Authorities to increase on-line presence
6. Strengthen and broaden involvement with regional environmental groups, task forces, and committees
7. Strengthen internal sustainability focus and participation
8. Identify and implement internal sustainability initiatives to address climate action goals; protect the environment and public health, and optimize resource use
9. Enhance and maintain business practices to ensure equitable service provision, including the same tipping fees, for all solid waste customers.

# MEASURES & STRATEGIES

## MEASURES



### WORKFORCE DEVELOPMENT

- Number of job descriptions updated with minimum requirements
- Number of candidate sourcing resources for recruitment of diverse candidates
- Turnover rate, with a target of less than 10%
- Hours of training, higher educations, etc. taken annually by employees



### OPTIMIZATION AND RESILIENCY

- Number of specific/discrete optimizations undertaken and associated process, volumetric or cost changes
- Hours of safety training per employee; number of reportable incidents and near misses
- Annual cost savings based on resource reduction (e.g., chemicals, electricity)

## STRATEGIES

10. Develop a formal employee engagement and retention plan
11. Expand Rivanna's use of diverse candidate sourcing avenues
12. Formalize strategic workforce planning for the Authorities, including expectations for performance, leadership, advancement, and succession management
13. Develop avenues for employees to enable sharing of ideas and opportunities to increase efficiency
14. Expand the SOP inventory, conduct gap analysis, and enhance SOPs through the use of templates and interactive media
15. Develop a cross-departmental awareness program to celebrate and share improvements and efficiency gains
16. Develop and train staff on a disaster recovery center for all business systems
17. Expand resources for employee safety education

# MEASURES & STRATEGIES

## MEASURES



### PLANNING AND INFRASTRUCTURE

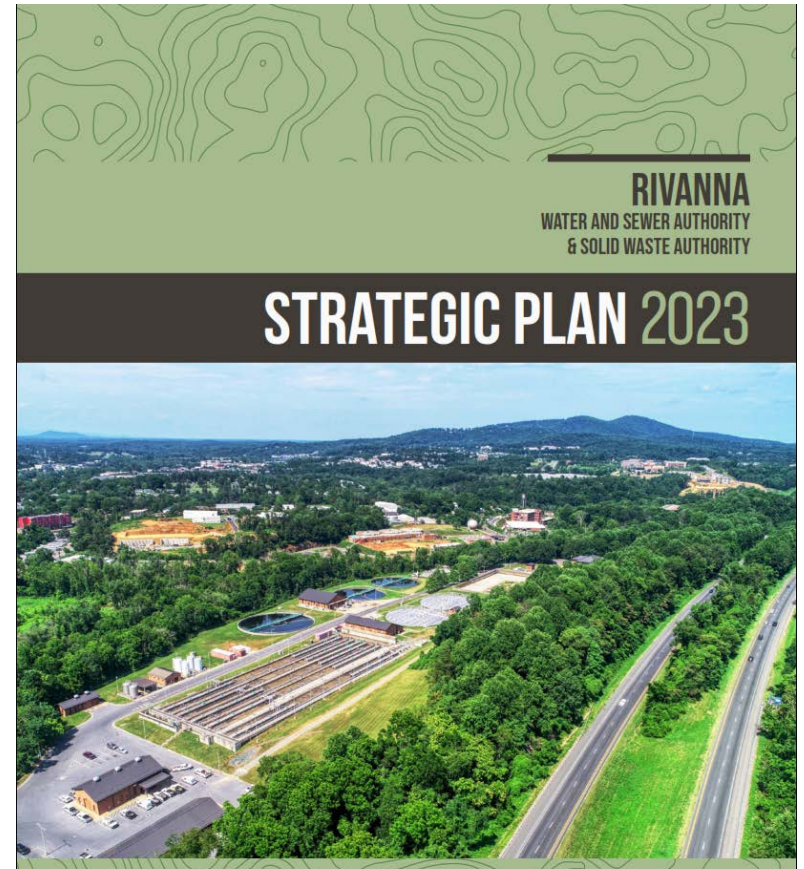
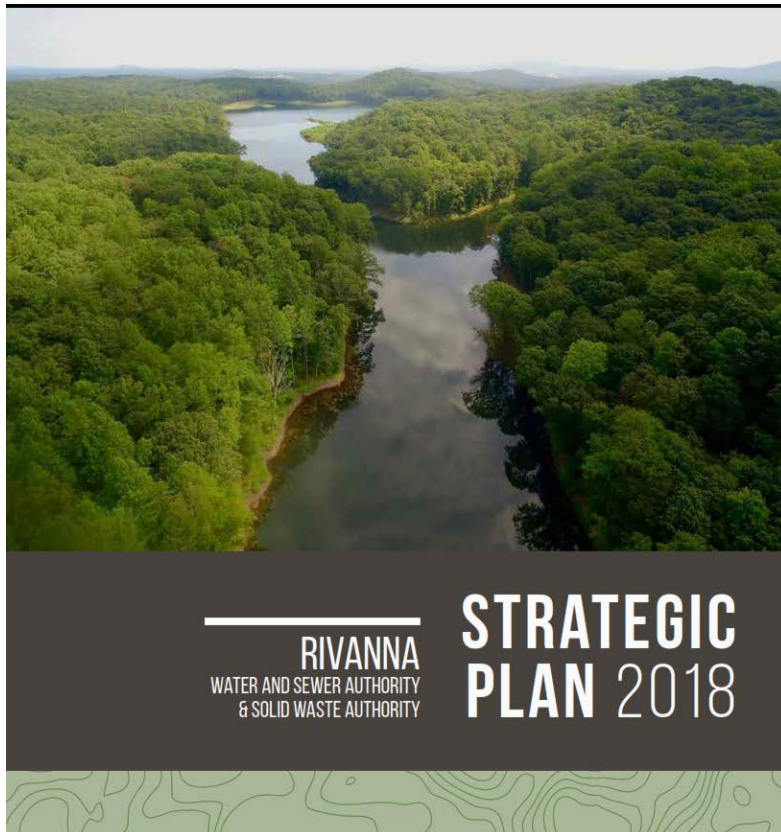
- Number of Critical System disruptions of greater than four hours
- Percent of projects completed on time and on budget
- Number of assets fully logged in the asset management system
- Percent of assets covered in the CIP/master planning effort

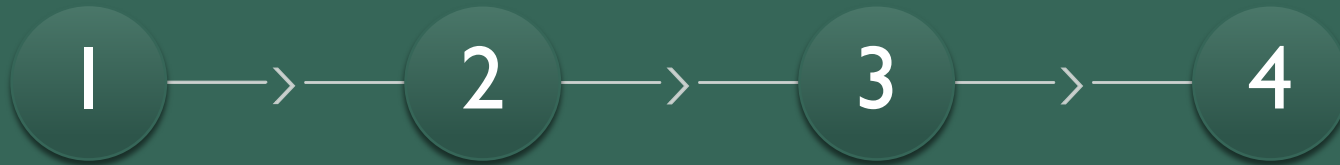
## STRATEGIES

18. Expand adoption and use of the asset management program
19. Increase capacity for knowledge sharing, analysis and planning to remain as nimble as possible in a dynamic and changing operating environment
20. Enhance long- and short-term project planning and delivery processes



# DESIGN UPDATE





Incorporate feedback  
from today

Work with the  
Leadership Team to  
update and finalize

Begin active  
implementation in  
January 2023

Report implementation  
progress - quarterly

## NEXT STEPS

