



Board of Directors Meeting

January 28, 2020

2:15pm



695 Moores Creek Lane | Charlottesville, Virginia 22902-9016

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www.rivanna.org

BOARD OF DIRECTORS

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

DATE: January 28, 2020

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

TIME: 2:15 p.m.

AGENDA

- 1. CALL TO ORDER**
- 2. MINUTES OF PREVIOUS BOARD MEETINGS**
 - a. Minutes of Regular Board Meeting on December 17, 2019*
- 3. RECOGNITION**
- 4. EXECUTIVE DIRECTOR'S REPORT**
- 5. ITEMS FROM THE PUBLIC**
- 6. RESPONSES TO PUBLIC COMMENTS**
- 7. CONSENT AGENDA**
 - a. Wholesale Metering Report – December 2019*
 - b. Sole Source Determination and Award of Services Contract for Biosolids Disposal- McGill Environmental*
 - c. Award of Service Contract for Biosolids Transportation - Country Line, Inc.*
 - d. Award of Service Contract for Granular Activated Carbon – Calgon Carbon*
- 8. OTHER BUSINESS**

Presentations:

 - a. Staff Report on Finance, Director of Finance, Lonnie Wood*
 - b. Staff Report on Operations, Director of Operations, Dave Tungate*
 - c. Staff Report on Ongoing Projects, Director of Engineering and Maintenance, Jennifer Whitaker*
 - d. Award of Construction Contract and CIP Amendments – Renovation and Upgrade of South Rivanna and Observatory Water Treatment Plants – Engineering Manager, Scott Schiller*

9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

10. CLOSED MEETING

11. 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." 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 presentations 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(s)



RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
December 17, 2019

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, December 17, 2019 at 2:15 p.m. in the 2nd floor conference room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Lauren Hildebrand, Kathy Galvin, Dr. Liz Palmer, Jeff Richardson, Gary O’Connell, Dr. Tarron Richardson.

Board Members Absent: Mike Gaffney.

Rivanna Staff Present: David Tungate, Lonnie Wood, Michelle Simpson, Austin Marrs, Andrea Terry, Victoria Fort, Jennifer Whitaker, Scott Schiller, Dr. Bill Morris, Phil McKalips, Vincent Deavers, Matt Bussell, Katie McIlwee, Bill Mawyer.

Attorney(s) Present: Kurt Krueger.

Also Present: Members of the public and media representatives.

1. CALL TO ORDER

Dr. Richardson called the December 17, 2019 regular meeting of the Rivanna Water and Sewer Authority to order at 2:15 p.m.

2. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on November 19, 2019

Dr. Richardson asked the board members if there were any questions or comments about the November 19, 2019 meeting.

Dr. Palmer stated that she had put in one correction.

Mr. Mawyer stated that on line 178, and 179, the minutes reflected that he was stating that the Authority financed \$17.6 million in bonds, on which they were paying 3.9% interest. He stated the words, “on which is about \$17.6 million” should be deleted because it was redundant to the first sentence and was somewhat confusing.

Dr. Palmer moved that the board approve the minutes of the regular board meeting of November 19, 2019, with the change noted. The motion was seconded by Ms. Galvin and passed unanimously (6-0). Mr. Gaffney was absent from the meeting and the vote.

3. RECOGNITIONS

Dr. Richardson read aloud the resolution in appreciation for Ms. Galvin:

“WHEREAS, Ms. Galvin has served as a member of the Board of Directors for the Rivanna

Water & Sewer Authority and the Rivanna Solid Waste Authority since November 2011; and

“WHEREAS, over that same period Ms. Galvin has demonstrated leadership in water and sewer, solid waste and recycling services; and has been a valuable member of the Boards of Directors and a resource to the Authorities; and

“WHEREAS, Ms. Galvin’s understanding of the water, sewer, solid waste and recycling operations of the City of Charlottesville, the Water & Sewer Authority and the Solid Waste Authority has supported a strategic decision-making process that provided benefits to the customers served by the City of Charlottesville as well as the community as a whole. During Ms. Galvin’s tenure and through her efforts, major projects were completed including:

- the Ragged Mountain Reservoir Dam
- the Rivanna Sewer Pumping Station
- Odor Control Improvements at the Moores Creek Advanced Water Resource Recovery Facility
- Granular Activated Carbon Filters for all water treatment plants
- a Refuse Transfer Station at the Ivy Material Utilization Center
- a Strategic Plan for both Authorities; and

“WHEREAS, the Board of Directors of the Water & Sewer Authority and the Solid Waste Authority are most grateful for the professional and personal contributions Ms. Galvin has provided to both Authorities and to the community; and

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

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

The Board presented a plaque to Ms. Galvin.

Ms. Galvin stated that it was an honor to serve on the Board, noting that they had accomplished much work together that has kept the community alive and thriving. She stated that some things that may seem mundane (such as odor mitigation) are actually fundamental. She also gave her regards to staff for their pursuit of excellence, adding that it has been exciting to see the innovation.

Dr. Palmer stated that although the City and County do not always get along well, she very much enjoyed working with Ms. Galvin, and expressed her appreciation for their honest discussions.

4. EXECUTIVE DIRECTOR’S REPORT

Mr. Mawyer stated that there were many goals connected to the Strategic Plan. One of the goals is Workforce Development, and that he first wanted to recognize one of the staff, Mr. Vincent

94 Deavers, who recently has worked hard to obtain his commercial driver's license. He asked Mr.
95 Deavers to speak about the experience.

96
97 Mr. Deavers stated that it was very trying.

98
99 Mr. Mawyer asked Mr. Deavers to explain what he had to do to obtain his license.

100
101 Mr. Deavers stated that the worst part was parallel parking and turning around.

102
103 Mr. Mawyer stated that he understood that it takes about six months of practice and training. He
104 stated that there is a training area where they take the candidates for CDLs and they are trained
105 on how to drive and park the bigger trucks and trailers. He stated that Mr. Deavers then had to
106 take a written exam with the Department of Motor Vehicles, as well as a field driving test. He
107 stated that it is a stringent requirement to receive the CDL and that he was pleased that Mr.
108 Deavers was able to obtain it. He stated that there is a need for that service and congratulated Mr.
109 Deavers.

110
111 Mr. Mawyer stated that the Board agreed to increase the Education Assistance Program on July
112 1, 2019 and there are two staff members who were using the program and pursuing graduate
113 degrees with Rivanna's support. He stated that this was a great thing, as Rivanna develops its
114 workforce.

115
116 Mr. Mawyer stated that they also supported the Imagine a Day Without Water initiative, along
117 with Ms. Hildebrand's and Mr. O'Connell's groups. He stated that this is a program where K-12
118 students are invited to submit their artwork on what it means to imagine a day without water. He
119 stated that they celebrated with the winners at Mr. O'Connell's office recently and were happy to
120 participate in this program. He stated that there were over 300 poster submissions for the group
121 effort. He thanked Ms. McIlwee for managing this.

122
123 Ms. Galvin asked if this initiative was evenly spread over the County and City.

124
125 Ms. McIlwee replied that the County had more submissions because they have more schools. She
126 stated that it was evenly spread comparatively and proportionately.

127
128 Ms. Galvin noted that this was a lot of submissions.

129
130 Mr. O'Connell stated that it was also high-quality artwork.

131
132 Ms. McIlwee stated that she believed the first or second year of the initiative had the most
133 submissions, but that this year had more submissions than the previous year.

134
135 Mr. Mawyer asked if there was an online voting program.

136
137 Ms. McIlwee replied yes. She stated that the City set up a website for fan-favorite voting and that
138 there were over 1,800 votes.

140 Ms. Hildebrand stated that they had tried to expand this to high school, but that it did not seem to
141 gain much traction. She stated that this was a first for this year.

142
143 Ms. McIlwee stated that it was also opened to Kindergarten and that they did have some
144 submissions from them.

145
146 Mr. Mawyer stated that under the Infrastructure and Master Planning program, he, Mr. David
147 Tungate (Director of Operations) and Mr. Rob Haacke (Wastewater Manager) attended the
148 Virginia Association of Municipal Wastewater Agencies (VAMWA) quarterly meeting in
149 Richmond with a particular eye on what the State is currently doing with the WIP3 (Water
150 Improvement Plan). He explained that “3” is the third phase of how to clean up the Chesapeake
151 Bay. He stated that Virginia has to submit a plan to the EPA, and that they are monitoring if the
152 State is being successful.

153
154 Mr. Mawyer stated that some of the concern, and what VAMWA is monitoring, are the
155 regulations that the State has proposed to adjust on wastewater treatment plants to make Rivanna
156 further reduce the nutrients that they release with treated wastewater (nitrogen and phosphorus).
157 He stated that one concern they get, as noted in the Financial Report, was that they got a check
158 for \$78,763 that year for nutrient credits that they create. He explained they treat wastewater to
159 lower nutrient levels than they have to, and thereby create the credits. He stated that with part of
160 the new plan, Rivanna feels like the State is going to take RWSA’s ability to obtain those credits
161 and revenue away.

162
163 Mr. Mawyer stated that VAMWA is monitoring the issue and this was a reason he attends the
164 meetings so he can obtain information about issues like this.

165
166 Mr. Mawyer stated that regarding the South Rivanna Reservoir to Ragged Mountain Reservoir
167 waterline easement effort, Rivanna has made offers to nine of eleven private property owners,
168 and they had one acceptance so far, which they were pleased with. He stated that they continue
169 to work with VDOT, and with the City for property owned near Ragged Mountain Reservoir, as
170 well as with the County School Board as the pipe will be located behind Albemarle High School
171 and Jouett Middle School.

172
173 Mr. Mawyer stated that they are continuing with negotiations on the Observatory Water
174 Treatment Plant lease, noting it has been in UVA’s hands for the past few weeks and that
175 Rivanna was expecting a response from UVA sometime soon.

176
177 Mr. Mawyer stated that he and Mr. Tungate also went to the Virginia Biosolids Council in
178 Richmond. He stated that this is where they learn about biosolids regulations. He stated that the
179 conversation now about PFAS being in biosolids and whether biosolids should be allowed for
180 land application, is a hot topic. He recalled that they brought those alternatives to the RWSA
181 Board a month or two earlier, and that the Board decided we would continue to compost all of
182 the biosolids at the McGill facility in Waverly, Virginia. He stated that although they are still
183 doing this, they want to be aware of regulations that are being proposed, as well as new
184 technologies and opportunities.

Mr. Mawyer stated that Rivanna makes over 500 truck trips to McGill per year, delivering about 14,000 tons per year of biosolids. He stated that this is what is left at the end of the wastewater treatment process, and that the biosolids are spun, dried, and put on the truck almost every day, with some days having more than one truckload.

Mr. Mawyer recalled that the prior month, the Board was informed that Rivanna will start the new corrosion inhibitor product in the Crozet water distribution system. He stated that this was going well and that they have not heard any concerns from customers about odors, colors, or issues with the change in the corrosion inhibitor. He explained that the product helps to coat the interior of the water pipes and all fixtures in the home so that lead doesn't leach into the drinking water.

Mr. Mawyer noted that Rivanna is continuing to streamline its documents. He stated that in Attachment 7B (Staff Report on Ongoing Projects), this is one of the most voluminous sections to the Board Report. He explained that they have gone to what he calls the "Executive Summary" format in that they list all the projects up front, and then they list the brief summary of the status of those projects. He stated that if the reader is still interested, they can go to the back and read the history and more information. He stated that they can also choose not to read all the history and focus on the first few pages.

Mr. Mawyer stated that there was also a new document in the board packet, in Attachment 7C (Staff Report on Operations). He stated that this will be a standard part of the packet where they will have the Wholesale Metering Program Report. He stated that as they finish the Wholesale Metering project, they will have a report every month in the board packet as a part of Consent Agenda Item 7C. He stated that the board will start to see those graphs grow. He stated that Ms. Victoria Fort would be telling the Board about the program, including a review of the graph to understand the data.

Mr. Mawyer stated that there was also a suggestion from the Board about Rivanna quantifying and documenting its sustainability efforts. He stated that they had an engineer coming early in February to help give some orientation and training on greenhouse gases, climate action plans, carbon footprints, and other topics to help bring Rivanna up to speed on those and how to calculate the metrics so that they can be reported back to the Board.

5. ITEMS FROM THE PUBLIC

Dr. Richardson opened the meeting to the public.

Mr. John Martin (White Hall District) stated that the week before, he attended the meeting at Agnor-Hurt Elementary School, hosted by the County to explain the project of devoting a parcel of land on the reservoir to a brewing company to build a brewery there. He stated that the meeting was attended by scores of South Fork Reservoir neighbors. He stated that those people clearly felt anguished about the proposal. He recalled that one woman who had been sitting near him was making comments about living on the reservoir, and that she abruptly stopped her comments as she was crying.

Mr. Martin stated that this all came down upon the residents with very little notice. He stated that the parcel of land he was referring to was at the end, where the reservoir does a turn and goes back up north. He stated that it was a parcel of land directly opposite the Ivy Natural Area land. He stated that it has been occupied by a church, which has combined its congregation with another church, and so they are moving out of the building. He stated that if this is no longer going to be a church, he wanted to consider what would be the highest and best use of that particular parcel of land on the reservoir.

Mr. Martin stated that going back to the water planning days 15 years before, they talked a lot about the history of the reservoir, and that one member gave several recitations of her knowledge of the history of the people who lived on the site of the reservoir before it was filled. He stated that this was fascinating information that he hadn't known previously. He stated that there was a whole community called Hydraulic, and that there was a plant there where they mined sand and gravel, which was used to build UVA post-Civil War. He stated that this community has totally vanished, and that it was something that should be better known. He stated that these are people that should be remembered.

Mr. Martin stated that the highest and best use, in his mind, for that property would be to use it as a site to do some sort of historical remembrance or recognition that those people existed, for the benefit of the entire community. He stated that the subject parcel would be the perfect location to do this.

Mr. Martin stated that in terms of going about this, he didn't know, and he didn't know what money would be involved, but that it seemed to him that it would be very appropriate if Rivanna (joint City and County) purchased that land, and condemned it if need be. He stated that they should purchase the land with the City and the County, working out the financial aspect of it together, and have Rivanna be the good steward that it is of the reservoir and administer the property, going forward.

Mr. Martin stated that the prospect of there being a brewery there with signage and lights on the reservoir was troubling, not only for the people who live around the reservoir, but the whole community.

Mr. Martin asked if Rivanna would consider his idea, noting that time was of the essence. He reiterated that the community didn't know about the proposal until a few weeks earlier. He stated that his suggestion would work toward the betterment of the reservoir and the lives of those who live around it, as well as the betterment of the entire community (City and County).

6. RESPONSES TO PUBLIC COMMENTS

Mr. Mawyer stated that Rivanna has been coordinating with the County (and specifically, with Dr. Palmer) about its involvement in the project, which was minimal as it was a by-right development and did not go through a formal development review process. He stated that the Water Resources Manager, staff, and Ms. Fort have provided feedback to the County.

Mr. Mawyer stated that Rivanna never considered purchasing the property and that this hadn't been part of their plan.

278 Dr. Palmer stated that the project was going before the ABC Board for an ABC license in a
279 hearing in the beginning of the year. She stated that the development is by right, and there is a
280 State law that says a brewery can start with a tasting room anywhere in the County, or in
281 Virginia, if the zoning is RA. She stated that it is a horrible law that was passed a few years
282 earlier. She stated that she spoke with the ABC agent last Friday and that he told her that if
283 someone puts a pumpkin patch outside and makes one batch of pumpkin brew a year, they can
284 qualify as an Agricultural Operation. She stated that it is an amazing State law that the County
285 doesn't seem to have any control over.

286
287 Dr. Palmer stated that what the Board of Supervisors would be looking at on Wednesday was a
288 resolution in support of the objectors of the ABC license. She stated that she could send this
289 resolution to the RWSA Board, noting that there was a lot of history of the property in it and that
290 the Supervisors worked very hard over the weekend.

291
292 Dr. Palmer stated that she personally thought the project was a travesty, and that she couldn't
293 believe it was happening for a variety of reasons. She stated that the Board of Supervisors only
294 found out about it weeks before and that they had to scramble to figure out how to respond.

295
296 Dr. Palmer stated that purchasing the property would be a big deal. She stated that the City is an
297 abutting owner, with the first several feet of the particular property on two sides of City property.
298 She stated that she assumed that City staff was notified back when the ABC license was applied
299 for, but that she didn't know how this process works. She stated that Rivanna found out about the
300 project from the Rivanna Conservation Alliance, and that it was an amazing set of circumstances.
301 She stated that the County staff finds out when the ABC license is applied for, which her
302 understanding was either September or October, but that the Board of Supervisors was not
303 notified.

304
305 Dr. Palmer stated that if the City was interested in doing anything, the County would be
306 interested in finding out.

307
308 Ms. Galvin asked Dr. Palmer to send her the resolution so that she, at the very least, could send it
309 to her colleagues and the future Councilors-Elect who are assuming office January 1. She asked
310 when the resolution would be read and passed.

311
312 Dr. Palmer replied that the Board of Supervisors would be doing this the next day (December
313 18). She stated that she assumed the Board would pass it. She stated that as soon as it goes
314 through that process, she would send the resolution to the RWSA Board.

315
316 Ms. Galvin stated that it would be good to have a passed resolution from the County to use as a
317 model. She stated that she could forward it along.

318
319 Ms. Galvin stated that she believed that the landscape is pristine and a shared amenity. She stated
320 that she also found it troubling that the brewery was being proposed. She stated that zoning has
321 been her nemesis ever since she took office, and that this was something that represented a
322 problem they are dealing with at the State level.

Ms. Galvin stated that she didn't know if it would help to bring this up to the UVA Rowing Team.

Dr. Palmer stated that the ABC Board only allows the Board of Supervisors to object on a very limited set of issues. She stated that she could also send this list when she sends out the resolution, as there are many "whereas" statements in the resolution, but that the objecting points are very short. She stated that this reflects what they are able to object to.

Ms. Galvin stated that this was very helpful. She thanked Mr. Martin for bringing the matter to the board's attention.

7. CONSENT AGENDA

a. Staff Report on Finance

b. Staff Report on Ongoing Projects

c. Staff Report on Operations

Ms. Hildebrand moved that the board approve the Consent Agenda. The motion was seconded by Ms. Galvin and passed unanimously (6-0). Mr. Gaffney was absent from the meeting and the vote.

8. OTHER BUSINESS

a. Presentation: Wholesale Water Meter Program; Senior Civil Engineer, Victoria Fort, PE

Ms. Victoria Fort stated that now that they have reached the end of the project (noting it had been a long road to get to that point), they thought it was a good time to explain how they got to where they are, the next steps, and information about the report the Board will be seeing each month and what the information means.

Ms. Fort presented a map that had been provided previously in another presentation and that at one point, they were showing all the incomplete sites. She stated that the sites are now all green on the map, which means they are complete and in operation.

Ms. Fort stated that to provide an overview of where the project came from, it came out of the 2012 Water Cost Allocation Agreement. She stated that this Agreement essentially allocated the additional safe-yield that would come out of the implementation of the Community Water Supply Plan, and how the two agencies (City and ACSA) would share in the cost of the projects that make up the Water Supply Plan. She stated that the cost of the new Ragged Mountain Dam would be shared 85/15% between ACSA and the City, and the new pipeline that will connect the South Rivanna and Ragged Mountain Reservoirs would be shared 80/20%. She stated that the cost of dredging, if conducted, would be shared 50/50%.

Ms. Fort stated that the Agreement also contained a provision that required RWSA to implement a metering program to monitor each agency's actual water usage.

368
369 Ms. Fort stated that following the signing of that Agreement, a contract was awarded to Michael
370 Baker International in August 2012 to complete an alternative study and provide services all the
371 way through design and construction.

372
373 Ms. Fort stated that by September of 2013, the study was completed, and a jurisdictional
374 approach was selected, which means that any water that was crossing over the jurisdictional
375 boundary would be metered rather than metering every single interconnect between the City and
376 County. She stated that when this approach was put together, there were about 34 meters, and
377 that this was eventually reduced to 25 meter sites.

378
379 Ms. Fort stated that they then proceeded with design, and the construction contract was awarded
380 in November 2015 for \$2.2 million to Linco, Inc. She stated that their original substantial
381 completion date was in February of 2017, and by early 2018, there was still a struggle with
382 delays in getting the construction contract completed. She stated that there was one site the
383 contractor declined to complete due to site difficulties.

384
385 Ms. Fort stated that Rivanna in April of 2018 terminated the contract with Linco for
386 convenience. She stated that staff managed completion of the rest of the project and all of the
387 punch list in-house, primarily through Rivanna's own maintenance staff, noting that staff has put
388 a tremendous amount of work into the project.

389
390 Ms. Fort stated that between April of 2018 and March of 2019, Rivanna spent a lot of time
391 completing the work and doing a lot of troubleshooting on the instrumentation. She stated that by
392 March of 2019, they were able to move into calibration of the meters.

393
394 Ms. Fort stated that during that same period, in May of 2018, they completed the Wholesale
395 Metering Administrative and Implementation Policy, which ACSA and the City have signed off
396 on. She stated that from March through October of 2019, they worked through calibration of the
397 meters.

398
399 Mr. Mawyer asked her to explain how calibration was performed.

400
401 Ms. Fort stated that calibration testing confirms that the reading from the meter is accurate within
402 the manufacturer's specifications. She stated that there were a few different ways of calibrating,
403 and that most of them are done using a comparative test method, which uses a test meter and
404 compares it to what the user's meter is reading. She stated that if the reading is off by a certain
405 percentage, the meter would fail and that if it was within a certain percentage, it would pass.

Ms. Fort stated that in the end, they closed out the CIP project in July of 2019, and the total project expenditures were \$3.2 million.

Ms. Fort stated that the punch list and meter troubleshooting were completed between April of 2018 and March of 2019. She stated that in terms of the punch list, Linco declined to complete one of the metering sites. She presented a picture of this site (Meter Site 15), explaining that it was wedged between Ivy Road and the railroad, with overhead utilities and underground utilities. She stated that it was a difficult site to construct, and that this was completed under the on-call construction services contract with Faulconer Construction. She stated that this work was completed in June of 2018.

Ms. Fort stated that they worked through a massive amount of punch list items which included site restoration, paving, and instrumentation setup. She stated that one site was supposed to have an electrical service, but this was never completed, so staff had the electrical service and all the instrumentation installed at that site.

Ms. Fort stated that regarding the troubleshooting, they had a lot of problems getting the instrumentation up and running. She presented a picture of Site 14 as an example. She stated that most of the metering sites include the meter itself. She stated that the meter connects to a register. She stated that the register is the computer that logs and processes all the data, then sends it to the transmitter. She stated that this is transmitted via cellular signal to a cloud server, where Rivanna can retrieve all the metering data.

Ms. Fort stated that getting the meters, registers, and transmitters to talk to each other was a challenge. She stated that staff spent a lot of time working with replacement of the two manufacturers of the selected meters (Mueller and Master Meter), on site, on the phone, and through email. She stated that they also had some issues with some of the bidirectional meters because when there was flow in a negative direction, the Badger transmitters could not transmit the negative numbers, and so many of the meters had to be reprogrammed.

Ms. Fort stated that some of the cellular transmitters (the end points that are part of the Badger AMA system) were faulty, and many of these had to be replaced. She stated that by March of 2019, they finally had all the instrumentation functioning and transmitting data, and so it was then time to move into calibration, which staff believed at the time would be the end. She stated that this proved not to be true.

Ms. Fort stated that they performed calibration in March, June, August, and October of 2019, with four separate visits from calibration crews. She stated that during the first visit in March, eight of 25 meters passed calibration, so eight of the meters were within 3% of the accurate value on the test meter. She stated that they then spent a lot of time with the engineering consultant and

447 with the manufacturers of the meters trying to come up with reasons why the other meters
448 wouldn't calibrate.

449
450 Ms. Fort stated that Rivanna spent a lot of time with its own maintenance staff, ruling out
451 possible causes of error such as improper grounding that causes some issues and trapped air. She
452 stated that they looked at the makeup of the water itself to make sure that the magnetic signal
453 wouldn't be thrown off. She stated that they were able to find some issues, and that much of it
454 was due to a learning curve by the calibration crew and staff.

455
456 Ms. Fort stated that with the subsequent visits in June, August, and October, they were able to
457 get all 25 meters to pass calibration testing and become fully operational. She stated that they
458 now have 25 meters that they feel are accurate.

459
460 Ms. Fort stated that throughout the process, they had to replace about 10 meters. She stated that
461 with some, they determined that the ones that had been replaced were actually accurate and that
462 they have these meters in inventory as spares.

463
464 Ms. Fort stated that some of the meters were under warranty, and some were not. She stated that
465 some of the cost was absorbed by contingency in the project, before it was closed out. She stated
466 that some of the meters were covered under warranty and provided at no cost by the
467 manufacturer, and with the remaining items, they had to pay out of the operations budget.

468
469 Dr. Palmer asked how often the meters have to be recalibrated and what their life span is.

470
471 Ms. Fort replied that calibration is recommended, at a minimum, every year. She stated that
472 some manufacturers recommend calibrating twice a year. She stated that the finished water
473 meters at the three plants are calibrated at least once annually.

474
475 Ms. Fort stated that in terms of life span, the meters should last ten years. She stated that the five
476 or six Master ultrasonic meters are under warranty for ten years. She stated that the Mueller
477 meters that make up the bulk of the program were only warranted for a year.

478
479 Ms. Fort stated that access to some sites was a challenge during calibration. She stated that the
480 one site that is not on the Badger system (Meter Site 26) is located on Route 29 in a travel lane,
481 in a manhole. She stated that they had to do lane closures, which VDOT only allows at night.
482 She stated that they found out the first time they tried to calibrate it that at night, flows are very
483 low, and they are below the minimum needed for calibration of that site. She stated that they then
484 had to get ACSA and the City there the next time, do the same lane closures, and flow hydrants
485 and check pressure so that they had enough flow for that meter to calibrate.

487 Ms. Fort stated that another challenging site was Meter Site 24 on Greenbrier Terrace. She stated
488 that it is always full of water and mosquitos. She stated that it is a 20-inch meter and is very
489 difficult to manipulate. She stated that this meter had to be replaced during the summer of 2019,
490 which was not easy. She stated that they also found that the test port was located too close to the
491 meter itself, so a few months back, they installed a new test port outside of the meter hole so that
492 they can accurately test it in the future.

493
494 Dr. Palmer asked how long it took to calibrate the meter on Route 29.

495
496 Ms. Fort replied that the entire process took about 3-4 hours.

497
498 Dr. Palmer asked if Route 29 had to be closed in that area.

499
500 Ms. Fort replied yes. She stated that they closed two lanes on the northbound side, noting that
501 one was a left-turn lane and one was a through lane. She stated that this was coordinated with
502 VDOT and that they were able to keep traffic going, but that there are restrictions on hours
503 during which work can be done and when lanes can be closed.

504
505 Ms. Fort stated that once everything was calibrated, the project entered the implementation
506 phase. She stated that she would provide some information on where the data comes from and
507 how Rivanna compiles and reports it.

508
509 Ms. Fort stated that the data is retrieved from multiple sources, such as the Badger site. She
510 presented a screenshot of the Badger site showing 24 of the 25 sites, explaining that all kinds of
511 analytics can be pulled off the Badger site to get information. She stated that the last of the 25
512 meters is the one in Route 29, which comes from SCADA.

513
514 Ms. Fort stated that they have the production data for the three water treatment plants. She stated
515 that there are City and ACSA swap meters, where in a few places in the system, there are City
516 meters on the ACSA side of the water line, or an ACSA meter on the City side of the
517 jurisdictional break. She stated that both groups are sending Rivanna data on all the swap meter
518 accounts every month, which are factored into the equation as well.

519
520 Ms. Fort stated that they have a potable water meter at the Observatory Water Treatment Plant
521 that gets subtracted out from the production number to give a net production at Observatory.

522
523 Ms. Fort stated that all of this data is put into a spreadsheet that Rivanna has provided to the City
524 and ACSA as part of the implementation policy. She stated that the spreadsheet calculates the
525 water usage of each agency for every month.

Ms. Fort presented the monthly board report and stated that she would explain where the data comes from. She presented the water allocation worksheet, explaining that they input the data from the jurisdictional meters, water treatment plant production numbers, and the swap meter accounts, and that it calculates the total monthly usage for ACSA and the City, average daily usage, and percent usage by each entity as compared to the total.

Ms. Fort stated that this chart is taken directly from the worksheet and put into the Board report. She stated that while all the details are not provided in the report, the summary is given. She stated that they will also include any other pertinent data that comes up each month about the meters, as well as the charts.

Dr. Palmer stated that she thought there were 25 meters.

Ms. Fort replied that there are 25.

Dr. Palmer stated that under "Jurisdictional Meter Sites," there were 32 displayed. She asked if she was reading the information wrong.

Ms. Fort replied that the sites were originally numbered 1-32, and the numbering convention was maintained after the number of meters was reduced to 25. She stated they originally had 32 sites.

Dr. Palmer stated that she could then see the ones that were missing and understood.

Ms. Fort stated that throughout the design process, the sites were referred to by number and that they decided not to renumber them.

Ms. Fort stated that she would provide a brief overview of the charts included in the Board report. She stated that the Water Cost Allocation Agreement allocates the additional safe yield that they create out of the implementation of the community water supply plan. She stated that the ultimate total safe yield, as part of that agreement, is 18.7 MGD. She stated that the City is allocated 6.71 MGD, and the ACSA is allocated 11.99 MGD. She stated that with the annual true-up that is done as part of the metering implementation policy, if the previous 12 months' average daily usage exceeds the allocation of either entity, then a true-up would be required for the payments for the projects.

Ms. Fort stated that to give a sense of how the number changes once a month, billing data is used for the last 11 months. She explained that on the chart, where the numbers turn green and blue, for the City and ACSA, respectively, this is the wholesale metering data. She stated that as they obtain more metering data, more of this will turn green and blue, and they will be using the actual wholesale data. She stated that this chart was more for demonstration purposes.

567
568 Ms. Fort stated that the chart shows that the average usage was 4.66 MGD by the City and 4.55
569 MGD by the ACSA for November. These averages are lower for both the City and ACSA as
570 compared to the annual allocation.

571
572 Mr. Mawyer noted that these were examples as they were not official data.

573
574 Ms. Fort stated that this was correct, adding that the data was based on billing and not on the
575 wholesale data. She stated that it will vary slightly from what is billed monthly.

576
577 Mr. O'Connell asked if the percentage was for the first full month.

578
579 Ms. Fort replied yes.

580
581 Mr. O'Connell asked if they would then build upon that until they get to 12 months.

582
583 Ms. Fort replied yes.

584
585 Ms. Fort stated that for next steps, they will be completing another calibration prior to the true-up
586 month (which is July of each year). She stated that they will complete another round of
587 calibration testing in the spring with all the things that staff has learned, adding that they feel this
588 will go much more smoothly. She stated that the annual true-up is in July of every year because
589 it requires 12 full months of data. She stated that the first real true-up will be in July of 2021. She
590 stated that they would probably go through the exercise to get a sense of what the process looks
591 like in 2020, but that it would be official in 2021.

592
593 Ms. Fort stated that the program requires periodic audits. She stated that once every five years,
594 they have an outside engineer review the program to make sure it's still functioning the way it
595 was meant to and that it is meeting the objectives that were set forth by that Agreement.

596
597 Ms. Fort stated that any time updates are needed to the swap meter accounts, or new
598 development requires a new water connection across jurisdictional boundary, they may need to
599 add jurisdictional meters to the program as well. She stated that updates will be needed from
600 time to time, and this will continue to be considered on an annual basis.

601
602 Mr. Mawyer asked her to explain what a swap meter is.

603
604 Ms. Fort replied that a swap meter is a meter on the opposite side of the jurisdictional boundary
605 from the customer.

607 Mr. Mawyer stated that, as an example, it was a City meter that's being supplied off the County
608 line.

609
610 Ms. Fort stated that this was correct, or vice-versa. She stated that there were not many of these.

611
612 Mr. Mawyer stated that these are swapped to keep the usage summation correct between the City
613 and ACSA.

614
615 Ms. Fort stated that she had mentioned that one of the methods of meter testing is using a test
616 meter. She presented a picture where two test meters were being tested to see if they were
617 reading the same. She stated that this was not a common setup, but that she wanted to show what
618 the test meter looks like. She stated that the test meter is used to validate the readings on the
619 meter they are testing.

620
621 Dr. Palmer noted that the project had been going on for many years. She stated that she was on
622 the ACSA Board when they were first discussing the project, and remembered how this cannot
623 be completely accurate. She stated that they could not put in enough meters to have it be, and
624 that there is a point at which the cost of the meters is too high, and that there was a discussion
625 several years ago about how valuable the project was, given the cost.

626
627 Dr. Palmer asked how accurate the meters are as far as a percentage.

628
629 Ms. Fort replied that she would have to go back to the design report to provide the correct
630 answer. She stated that it depends on the accuracy of the meters themselves, and then the fact
631 that they are not metering every interconnection, but only the ones across the jurisdictional
632 boundaries. She stated that there is some inherent inaccuracy associated with that, but they
633 should be within at least a few percentage points. She stated that she could provide a more exact
634 number to the Board.

635
636 Dr. Palmer stated that there was no hurry on this, but that perhaps this could be presented at the
637 next meeting. She stated that she would like to revisit and have that information in case there are
638 questions about it.

639
640 Mr. Mawyer stated that within the program of 25 meters, there is the possibility that a meter
641 could not be working correctly at any time. He stated that in fact, in the first report, there is one
642 meter that didn't record correctly. He stated that the policy says that they go back and average
643 historical readings and apply it to keep the summation as close as it can be. He stated that in
644 terms of accuracy, it's a very relative thing. He stated that they are accurate meters, but the
645 collection of 25 data points and some of errors in the compounding of those readings need to be
646 considered.

647
648 Mr. Mawyer stated that the main purpose of the whole project is to compare back to those
649 allocation graphs of 6.71 MGD (City) and 11.99 MGD (ACSA).

650
651 Ms. Galvin stated that this is tied to the cost allocation agreement percentages between the City
652 and County.

653
654 Mr. Mawyer stated that this was correct.

655
656 Ms. Galvin stated that it has a monetary implication, and that this was another check on this,
657 which was a hard-fought formula. She stated that she remembered vividly how the City was
658 involved with figuring that out. She stated that there were many closed-door sessions with a
659 mediator from Richmond, and that it was an intense time.

660
661 Dr. Palmer stated that it was a very long process.

662
663 Ms. Galvin stated that she found it amazing to see, at her last Board meeting, a presentation on
664 the very thing that was her first task as a new Councilor and board member to figure out the cost
665 allocation agreement.

666
667 Dr. Palmer stated that she had forgotten how long they had been working on it.

668
669 Ms. Galvin stated that it had been eight years, as it started in 2012.

670
671 Ms. Hildebrand asked if it was possible that the City and the County could get the backup sheet,
672 at least initially, to see some detail. She stated that they knew the detail based on the policy, but
673 that it would be nice to see real numbers associated, rather than just a total, for those people who
674 are more involved in the detail. She stated that this would be helpful.

675
676 Ms. Hildebrand stated that she was referring to the backup sheet that was showed.

677
678 Mr. Mawyer asked if the backup sheet was in the cloud.

679
680 Ms. Fort replied no. She stated that this was something managed internally.

681
682 Ms. Hildebrand stated that this would be helpful to have. She stated that she was also curious as
683 far as the water loss calculations that are continuing to evolve and recommendations from the
684 American Water Works Association. She stated that there is some discussions and serious
685 consideration as to whether it is necessary to calibrate things less often, and more often. She
686 stated that some of those meters may fall into the category of being more often, as they are used

687 for certain purposes. She stated that it wasn't a question, but more of a comment of what is going
688 on in the water loss conversation that continues to evolve. She suggested that perhaps revisiting
689 this, especially with the water treatment plants.

690
691 Ms. Hildebrand stated that there is some conversation about large meters and having those
692 calibrated every quarter. She stated that they would then look to have things that are less
693 frequently calibrated, so instead of every year, they are calibrated every three years.

694
695 Ms. Galvin stated that the frequency in monitoring changes would depend on location.

696
697 Ms. Hildebrand replied yes. She stated that she was not sure what effect this would have on the
698 metering, but that it was something that should be considered.

699
700 Mr. Mawyer stated that he would look into this.

701
702 Ms. Hildebrand stated that there was a consultant who was helping her to provide guidelines and
703 that she could help inform that process.

704
705 Ms. Fort stated that currently, they have budgetted twice-annual calibration for the sites, noting
706 that this seems to be consistent with most calibration firms that they are talking to for meters
707 used for this purpose. She stated that they will also have to assess after they see how things go
708 the next go-around with calibration and whether doing it more often or less often would make
709 sense.

710
711 Mr. O'Connell stated that there was a lot of good engineering value related to all this besides the
712 financial results that come from it. He stated that it is available to all engineering departments
713 through an annual water audit, which was part of the water loss prevention approach.

714
715 Mr. O'Connell asked if Ms. Fort could talk about the water treatment plant metering, as this was
716 another major component of the project. He noted that all but one water treatment plant was
717 about to upgraded.

718
719 Mr. Schiller stated that the Scottsville site was almost done. He stated that they still have to
720 calibrate its meter, but that it was installed and is functional.

721
722 Mr. O'Connell stated that there were brand new meters at all the treatment plants, so the water
723 volume information was much more accurate.

724
725 Mr. O'Connell asked if there was also more frequent calibration.

Ms. Fort replied that it was once a year. She stated that all three of the urban water treatment plant meters were replaced as part of the program. She stated that this was done with the GAC construction, and so those have been completed for a few years.

Mr. O'Connell asked if they had more accurate numbers coming out of the treatment plants in terms of the water used.

Ms. Fort replied yes.

Mr. O'Connell stated that there would be more accurate usage within the system as well.

Mr. Mawyer stated that this was a project where large meters, vaults, and underground pits were not like the water meter boxes in people's yards that can be opened and meters easily installed. He stated that this was a much bigger project with many challenges over several years. He expressed appreciation for Ms. Fort, Ms. Jennifer Whitaker, and Mr. Scott Schiller, as well as Maintenance staff, who all worked to get the project done. He stated that it was painful many times with the Service Authority expecting completion and RWSA not meeting the commitments.

Mr. Mawyer stated that fortunately, they made it to the end, and it will be an ongoing project with calibrations every year, repairs, and maintenance. He stated that this was thus not the end, but was a different beginning, of the wholesale meter project.

Dr. Palmer stated that they were warned at the beginning of the project by Mr. Mawyer's predecessor that the project was going to be a difficult one.

b. Presentation: Industrial Pretreatment Program; Lab Manager, Dr. Bill Morris

Mr. Mawyer introduced Dr. Bill Morris as Rivanna's Lab Manager. He stated that they manage the industrial wastewater pretreatment through Dr. Morris and his staff.

Dr. Morris stated that he also worked with Mr. Haacke (Wastewater Manager) on the program as well.

Dr. Morris stated that the purpose of the program is to protect the sewer system and the treatment processes. He stated that it is also required by the Environmental Protection Agency and the Virginia Department of Environmental Quality. He stated that they have to submit a report on the industries monitored annually.

Dr. Morris stated that even though the program is required, it is in Rivanna's best interest to do this, because if anything comes into the plant that they cannot deal with or that overwhelms the

767 plant, and then they discharge something that puts them over the regulatory limits, then they are
768 responsible for that. He stated that prevention is the best course of action to take.

769
770 Dr. Morris stated that under the Virginia Pollutant Discharge Elimination System (VPDES),
771 Rivanna is required to implement a pretreatment program that complies with the EPA's Clean
772 Water Act. He stated that they have to submit an annual report on the pretreatment program by
773 January 31 of each year. He stated that this details all the industries that are permitted, and all the
774 activities or any changes to things that they may have done in that year.

775
776 Dr. Morris stated that there are wastewater discharge limits. He stated that the pretreatment
777 program looks at certain constituents, including fats, oils, and greases (FOG). He stated that
778 typically, ACSA and the City handle FOG, and that this is primarily from restaurants and other
779 large food processing facilities. He stated that metals (manganese, copper, lead, and other heavy
780 metals) that are bad for the environment and drinking water are also monitored.

781
782 Dr. Morris stated that nutrients are more typically monitored out of the plant. He stated that they
783 didn't have any large industrial producers of nitrogen or phosphorus, but that they do still make
784 all the industries test for that whenever they renew their permit, which is every three years.

785
786 Dr. Morris stated that pH was very important to control, and that they require that everyone's
787 discharge be between 6.0 and 9.0 (not too acidic, not too basic). He stated that they also look at
788 biochemical oxygen demand because they have to meet certain requirements dealing with this.
789 He stated that biochemical oxygen demand involves putting nutrients into a sample along with
790 bugs to see how much oxygen the bugs consume, which shows the potential for pollution in
791 water. He stated that this was one measurement of it.

792
793 Dr. Morris presented a picture showing a pH adjusting system. He stated that it was not the exact
794 one that Microsystems has, but one of the industries that we regulate has one of these that takes
795 all of their waste and automatically adjusts the pH before discharging it to the sewer.

796
797 Dr. Morris presented a picture of what people call a "fatberg." He explained that this is what
798 happens whenever there are a lot of fats, oils, greases, and baby wipes that are flushed. He stated
799 that all these things stick together and create fatbergs that clog up the sewers. He stated that they
800 can become very big. He stated that London has a very old sewer system at 150 years old and a
801 couple years ago, they had a fatberg the size of the Statue of Liberty that they had to deal with.

802
803 Dr. Morris stated that when there is a fatberg, people have to be sent down to the sewer to break
804 it up. He stated that it is very dangerous work because the fatbergs can contain pockets of gases
805 such as methane or carbon dioxide, which if released, can be deadly. He stated that prevention
806 was recommended.

807
808 Dr. Palmer asked what is being done to prevent that in the system.
809

810 Dr. Morris replied that ACSA and the City require that all restaurants, breweries, or major
811 producers of food to have FOG (fat, oils and grease) traps. He stated that those traps catch the
812 FOG as it goes through, before it gets to the sewer system, and then the grease traps are emptied,
813 and some other industrial waste hauler hauls it away and disposes of it properly.
814

815 Mr. Mawyer mentioned that companies such as Valley Proteins collects and reuses waste oils.
816

817 Dr. Palmer asked if the other chemical discharge companies have their own sewage treatment
818 plants, or if this only kicks in when it is a large company.
819

820 Dr. Morris replied that there were a couple things that could trigger having this. He stated that he
821 has to identify significant industrial users, which fall into two subgroups: categorical, which falls
822 into a category that has been preordained by EPA as something that needs to be monitored (metal
823 finishing, semiconductor manufacturing); and non-categorical, which is any company who
824 doesn't fit into one of those categories, but still discharges more than 25,000 gallons per day.
825

826 Dr. Morris stated that an industry could also be non-categorical if Rivanna has determined it
827 could adversely affect the treatment process, as they have the discretion to choose places that
828 need permits. He stated that they just spent a lot of time and money on the odor control project,
829 and that although sulfate and sulfur are particularly dangerous industrial wastes, they can cause
830 serious odor problems. He stated that if they were experiencing this or suspected that an industry
831 might be doing that, Rivanna could look into it and regulate them, and make them pretreat or
832 have to dispose of their waste some other way besides the sanitary sewer.
833

834 Dr. Morris stated that examples of businesses that discharge pollutants of concern are
835 restaurants, breweries, wineries, dentists, and drycleaners.
836

837 Dr. Morris stated that currently, there are three significant industrial users that Rivanna monitors,
838 and that all three of them are categorial. He stated that Microsystems is a metal finishing
839 company that makes very fine gratings that are used in medical equipment and guided systems
840 for focusing lasers.
841

842 Dr. Morris stated that Northrup Grumman makes metal components for submarines and navy
843 ships, and the reason they are categorial is because they have one tiny scrubber in their plant
844 that serves to deburr metal. He stated that they put soapy water into it and have lots of metal
845 parts in it that sloshes it around. He stated that the outflow of that is considered categorial
846 industrial waste, and Northrup Grumman has to send Rivanna a report on it twice a year. He

847 stated that it's never been in levels that have been of concern, but because they are categorical,
848 they have to do it.

850 Dr. Morris stated that Virginia Diodes makes semiconductors for radio telescopes and are also
851 categorical. He stated that whenever they test, nothing of concern was ever found. He stated that
852 most of the materials they work with are made out of quartz, which isn't concerning. He stated
853 that still, they are categorical and must have a permit.

855 Dr. Morris stated that permits were just recently reissued because all three of the companies had
856 permits that went from 2016 and expired July 1, 2019. He stated that the new permits will expire
857 in 2022 and throughout the entire period, they will have to submit semi-annual reports, mostly
858 since they are categorical, and as semiconductors and metal finishers, it will be of different
859 metals. He stated that whenever the companies renew, they will have to test for everything again,
860 such as BOD, phosphorus, ammonia, FOG, etc.

862 Dr. Morris presented a questionnaire that is used if there is a new industry coming to town, or if
863 there is an industry that Rivanna suspects may have a process that they would need to look into.
864 He stated that the company can fill out the questionnaire and Rivanna can evaluate it prior to
865 making them go through the entire permit application, which is a long process that involves a lot
866 of testing.

868 Dr. Morris stated that the company has to include a lot of information and have to account for
869 exactly how much water they produce and how much they discharge, and they have to provide
870 an entire schematic of their process. He stated that Rivanna tries to start out the process simply
871 by screening before going through the more involved process.

873 Dr. Palmer asked at what point the companies actually need their own treatment plants. She
874 asked what is required to meet the permit as far as treating. She stated that Dr. Morris showed a
875 picture of one machine that adjusts pH. She asked if some were requiring a larger operation to
876 get ready to get into the larger sewer system.

878 Dr. Morris replied that the biggest company is Microsystems, which has the pH adjustment and
879 some other methods for filtering out metals. He stated that they have a process where their waste
880 goes into a container, and then they put this through the pH adjustment and perhaps a metal
881 scrubber. He stated that it then comes out, and then they can discharge it to the sewers. He stated
882 that they have to send Rivanna what they are discharging and when they do their semiannual
883 report, they have to send Rivanna the water that has gone through their process before going to
884 the sewer.

886 Dr. Morris stated that Northrup Grumman's waste comes right out of the machine and that it
887 doesn't have that many pollutants in it, as it is mostly soapy water. He reminded that because the
888 company is categorical, they must be permitted.

Mr. Mawyer stated that their equipment has to reduce the metals level below the EPA and Virginia standards, and then they can release it into Rivanna's wastewater. He stated that it is up to the companies how they do this and whether they treat it with equipment or hire a hauler to take it away, but that they have to get their product down below the federal and state standards before they can put it in the sewer system.

Dr. Morris stated that if they choose to have it hauled away, then Rivanna doesn't have to do anything, and this is an option. He stated that the matter is more about the waste released to the sewer.

Mr. O'Connell stated that this is essentially what the grease traps do. He stated that these are capturing the waste, and these are inspected to make sure the companies are regularly doing this, noting that some of them do not. He stated that there are probably more issues with grease in the system than with the metals.

Dr. Morris stated that they didn't have very many large industrial generators. He stated that Virginia Diodes' process is incredibly benign. He stated that Rivanna makes them test at the beginning of every permit system, but that they almost never have anything of concern. He stated that what they have to do semiannually is submit a form signing off saying that they are not releasing any toxic organics.

9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

Mr. Mawyer stated that 2019 has been a great year for the Authorities. He stated that they would miss Ms. Galvin. He stated that 2020 would be another big year they would be looking forward to

Mr. Mawyer stated that they would be jumping into discussions in February, March, and May for the CIP and Operating Budgets, and that staff was currently working on this. He stated that they would be convening with Mr. O'Connell and Ms. Hildebrand as the subcommittee for the budget issues starting in January and will begin to talk about CIP projects and how much they will cost.

Mr. Mawyer wished Ms. Galvin the best.

10. CLOSED MEETING

There were no closed meeting items.

11. Adjournment

At 3:24 p.m., Dr. Palmer moved to adjourn the meeting of the Rivanna Water and Sewer Authority. The motion was seconded by Mr. O'Connell and passed unanimously (6-0). Mr. Gaffney was absent from the meeting and the vote.



MEMORANDUM

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

FROM: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: EXECUTIVE DIRECTOR'S REPORT

DATE: JANUARY 28, 2020

STRATEGIC PLAN GOAL: COMMUNICATION AND COLLABORATION

Community Outreach

Mr. Rob Haacke provided a tour of the Moores Creek Advanced Water Resource Recovery Facility to a group of homeschool students. He also provided a tour to a group from the Treatment Operations Department of the Augusta County Service Authority.

STRATEGIC PLAN GOAL: INFRASTRUCTURE AND MASTER PLANNING

S. Rivanna to Ragged Mtn Reservoir Water Line Easements

Acquisition efforts continue. Offers have been made to 9 of 12 private property owners, with 1 acceptance. Documents are also being prepared for 3 public property owners (VDOT, City, County School Board).

Observatory Water Treatment Plant Lease

Discussions are continuing with UVA.

STRATEGIC PLAN GOAL: OPERATIONAL OPTIMIZATION; ENVIRONMENTAL STEWARDSHIP

Used Oil Collection

In February, we will begin a Used Oil Collection (UCO) pilot program at the McIntire Recycling Center through the support of Five Star Septic, Inc. Free of charge, Five Star Septic will provide a 300-gallon steel UCO collection container and provide weekly service. This offering will allow the public to deposit used cooking oils and liquid grease and hopefully reduce the quantity of these materials that are introduced into the City and County sewer systems, as well as our wastewater treatment plants. UCO collected from this container will be reused to produce animal feeds or biofuels.

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 DECEMBER 2019

DATE: JANUARY 28, 2020

The monthly and average daily water usage by the City and the ACSA for December 2019 were as follows:

| | <i>Month</i> | <i>Daily Average</i> | |
|--------------------|--------------------|----------------------|--------------|
| City Usage (gal) | 119,177,111 | 3,844,423 | 48.2% |
| ACSA Usage (gal) | 127,956,051 | 4,127,615 | 51.8% |
| Total (gal) | 247,133,162 | 7,972,037 | |

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 January 2019*), and that usage relative to the maximum allocation for each party (6.71 MGD for the City and 11.99 MGD for ACSA).

Notes:

*Usage data through October 2019 is based on retail metered flows due to the unavailability of wholesale metering data. Data shown from November 2019 forward represents the usage calculated through the RWSA Wholesale Metering program.

**As of the publish date for this report, Meter Site 11 was experiencing reporting issues, so the monthly reading at that site for December 2019 was estimated based on the most recent three months of data, per the implementation policy procedures.

Figure 1: City of Charlottesville Monthly Water Usage

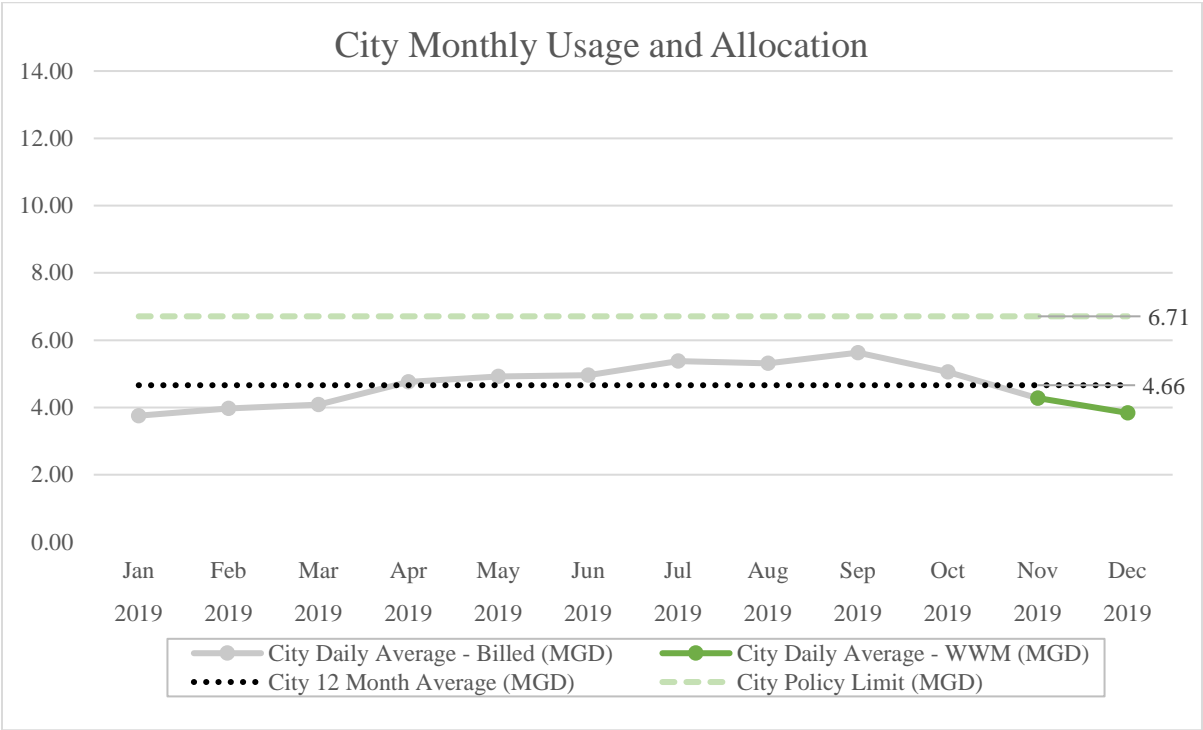
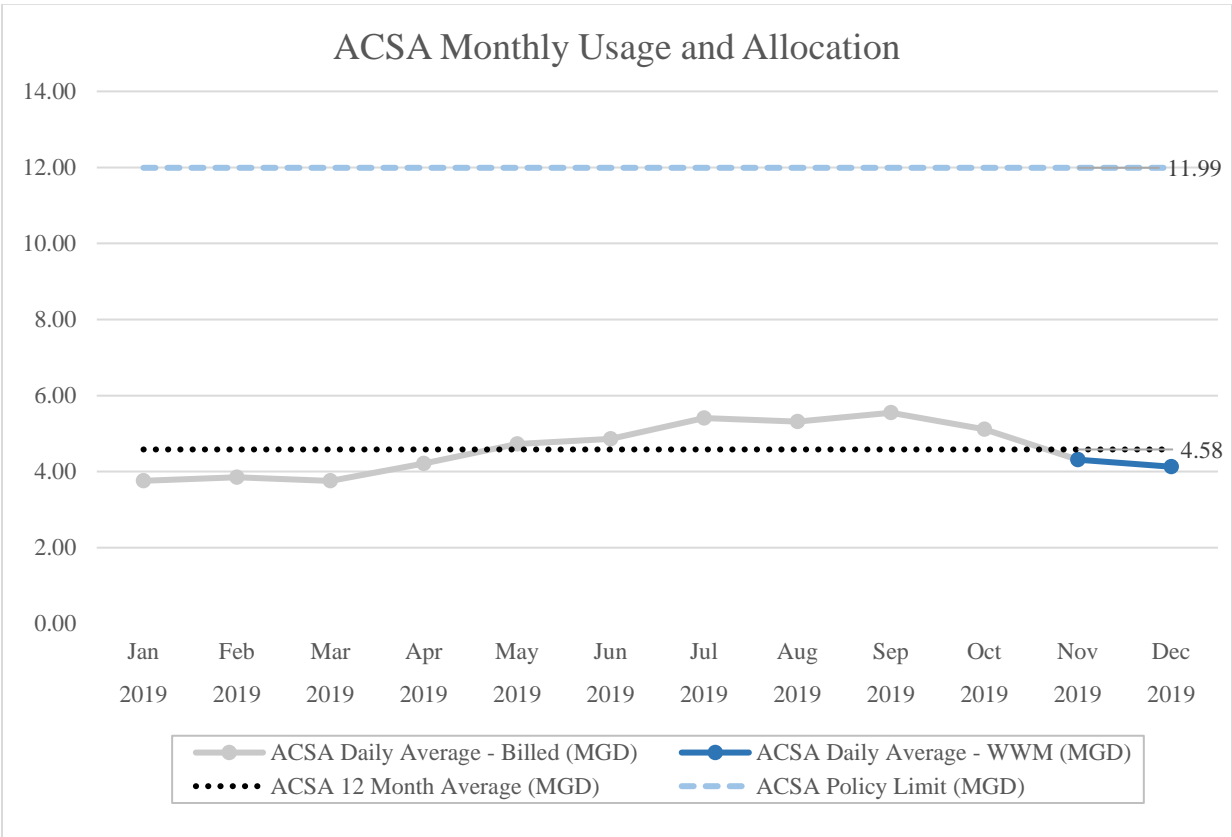


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation





MEMORANDUM

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

FROM: DAVID TUNGATE, DIRECTOR OF OPERATIONS

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

**SUBJECT: SOLE SOURCE DETERMINATION AND AWARD OF SERVICE
CONTRACT FOR BIOSOLIDS DISPOSAL- MCGILL
ENVIRONMENTAL**

DATE: JANUARY 28, 2020

The purpose of this memo is to provide a determination regarding the suitability of a sole source procurement for McGill Environmental in Waverly, VA to dispose of our biosolids. Biosolids are the dewatered solids resulting for the Moores Creek Advanced Wastewater Resource Recovery Facility and water treatment plant residuals from the South Rivanna Water Treatment Plant. We produced approximately 14,000 tons of Class B biosolids in 2019 from the Moores Creek Advanced Wastewater Resource Recovery Facility. About 580 trailer loads are transported annually to our current biosolids composting facility, McGill Environmental.

On September 24, 2019, the RWSA Board considered several biosolids disposal options presented by staff, and decided it wanted to continue transporting biosolids to a compost facility. There are only five facilities licensed with the Virginia Department of Environmental Quality (DEQ) to compost biosolids. The facilities are:

1. Spotsylvania County Landfill, 6241 Massey Road near Lake Anna
2. Rappahannock Regional Solid Waste Landfill in Stafford
3. Rollins Soil Enhancement, Inc. in Westmoreland County
4. Wolf Creek Water Reclamation Facility in Abingdon
5. McGill Environmental in Waverly

Staff investigated disposal of our biosolids at these facilities, and determined that McGill was the only practically available option, as follows:

1. The Spotsylvania facility is owned and operated by Spotsylvania County. We visited this site in November of 2019. The facility processes up to 13,000 tons/year, primarily from Spotsylvania Wastewater plants. The Spotsylvania Utilities and Public Works Director indicated there would be a charge of \$55/ton to accept any of our biosolids which significantly exceeds costs from our current disposal facility. Our transportation costs

would be in addition to the disposal cost. Based on the limited volume accepted at this facility, as well as the cost, this facility is not considered a reasonable disposal option.

2. We have made numerous attempts to contact the Rappahannock Facility, and have not received any response or interest from the facility to accept our biosolids. We do not consider this facility to be a reasonable disposal option at this time.
3. The Rollins Soil Enhancement facility is a private enterprise located in Westmoreland County on the northern neck area of Virginia between Richmond and Fredericksburg. The Virginia DEQ said this facility has not been built even though their permit has been active since 2015.
4. The Wolf Creek facility is owned and operated by the City of Abingdon and processes only a small quantity for the local Wolf Creek Water Reclamation Facility. The rest of their biosolids are landfilled. We do not consider this facility to be a reasonable disposal option.

After a thorough investigation, we determined that McGill Environmental is the only practically available facility to compost our biosolids. The annual cost to dispose of biosolids and water treatment plant residuals at the McGill facility is approximately \$400,000 based on a unit price of \$28.68 / ton. This contract is for a one-year term, with a renewal option for four additional terms.

Board Action Requested:

Staff requests the Board of Directors to approve this sole source determination and authorize the Executive Director to execute a term contract with McGill Environmental for the disposal and composting of RWSA biosolids.



MEMORANDUM

TO: RIVANNA WATER & SEWER AUTHORITY
BOARD OF DIRECTORS

FROM: DAVID TUNGATE, DIRECTOR OF OPERATIONS

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: AWARD OF SERVICE CONTRACT FOR BIOSOLIDS
TRANSPORTATION: COUNTRY LINE, INC.

DATE: JANUARY 28, 2020

We solicited bids (RFB 364) for Biosolids Transportation on December 19, 2019. Four bids were received and opened on January 16, 2020.

Our contract requires the contractor to haul trailers owned by RWSA from Moores Creek to the McGill Environmental composting facility located in Waverly, VA. We generate approximately 14,000 tons of biosolids per year, which results in about 580 individual trailer trips to McGill Environmental each year. Our current transportation costs are approximately \$285,000 per year.

The low bidder was Country Line, Inc. from Amherst, Va. with a unit price cost of \$456.25 per trip. This will result in an estimated annual cost of \$265,000 for hauling biosolids. This contract is for a one-year term, with a renewal option for four additional terms.

Board Action Requested:

Staff requests the Board of Directors to authorize the Executive Director to execute a contract with Country Line, Inc. for biosolids transportation to McGill Environmental for a unit price cost of \$456.25 per trip.



MEMORANDUM

TO: RIVANNA WATER & SEWER AUTHORITY
BOARD OF DIRECTORS

FROM: DAVID TUNGATE, DIRECTOR OF OPERATIONS

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: AWARD OF SERVICE CONTRACT FOR GRANULAR
ACTIVATED CARBON REPLACEMENT – CALGON CARBON

DATE: JANUARY 28, 2020

We solicited bids for Granular Activated Carbon (GAC) Replacement (RFB 360) on October 30, 2019. This bid was unique because bidders had to submit their virgin GAC product for performance testing at a third-party lab with water from the South Rivanna Water Treatment plant. This was an effort to simulate actual raw water conditions and estimate GAC life cycle costs. The performance test was used to estimate how many gallons of water the GAC product would treat before it had exhausted 50% of its treatment capacity.

Some of the important requirements of the GAC bid specification were:

1. Provider must have the ability to reactivate our exhausted GAC.
2. Provider must have the ability to store all RWSA reactivated GAC (492,000 lbs).
3. Provider must supply virgin GAC or reactivated GAC, as requested.
4. Provider must deliver GAC within 20 days of request.

Calgon Carbon, Pittsburgh, PA., was the lowest responsive bidder at \$1.36 per pound of virgin GAC. The initial contract term is for two years, which can be renewed for two additional two year terms.

This contract secures a price of \$1.36/lb. for virgin GAC for all of our water treatments plants, except Scottsville, where the bid was for \$1.53/lb. The most recent GAC purchase in July 2019 was for \$1.49/lb.

| GAC in RWSA system (lbs) | GAC price/lb | Total Cost | Total Annual Savings with new contract |
|--------------------------|--------------|------------|--|
| 480,000 | \$1.49 | \$700,800 | - |
| 480,000 | \$1.36 | \$652,800 | \$48,000 |

Board Action Requested:

Staff requests the Board of Directors authorize the Executive Director to execute a term contract with Calgon Carbon to provide virgin GAC material to our Water Treatment Plants, except Scottsville, for a unit price of \$1.36/lb, and to the Scottsville Water Treatment Plant for \$1.53/lb.



MEMORANDUM

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

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

REVIEWED: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: DECEMBER MONTHLY FINANCIAL SUMMARY – FY 2020

DATE: JANUARY 28, 2020

Urban Water flow and rate revenues are 7% over budget estimates for the first five months of this fiscal year, and Urban Wastewater flow and rate revenues are 5% over budget. Revenues and expenses are summarized in the table below:

| | Urban Water | Urban Wastewater | Total Other Rate Centers | Total Authority |
|---------------------|----------------|---------------------|-----------------------------|--------------------|
| Operations | | | | |
| Revenues | \$ 4,052,491 | \$ 4,572,189 | \$ 1,131,670 | \$ 9,756,350 |
| Expenses | (4,124,252) | (4,407,949) | (1,057,815) | (9,590,016) |
| Surplus (deficit) | \$ (71,761) | \$ 164,240 | \$ 73,855 | \$ 166,334 |
| Debt Service | | | | |
| Revenues | \$ 3,391,386 | \$ 4,414,027 | \$ 749,031 | \$ 8,554,444 |
| Expenses | (3,378,705) | (4,354,780) | (748,706) | (8,482,191) |
| Surplus (deficit) | \$ 12,681 | \$ 59,247 | \$ 325 | \$ 72,253 |
| Total | | | | |
| Revenues | \$ 7,443,877 | \$ 8,986,216 | \$ 1,880,701 | \$ 18,310,794 |
| Expenses | (7,502,957) | (8,762,729) | (1,806,521) | (18,072,207) |
| Surplus (deficit) | \$ (59,080) | \$ 223,487 | \$ 74,180 | \$ 238,587 |

A. Annual Transactions

Some revenues and expenses are over the prorated year-to-date budget due to one-time annual payments made or revenues received for the year. These transactions appear to be significant impacts on the budget vs. actual monthly comparisons but will even out as the year progresses. Examples are payments made for health savings accounts, certain maintenance agreements, lease payments, intern program costs, and insurance. Revenues received annually are the Nutrient Exchange Credit \$78,763 and the annual septage receiving support of \$109,441 from the County.

- B. Professional Services (Urban Water, Urban Wastewater, Engineering – pages 2, 5, 11) – Urban Water legal fees are over budget related to the Observatory plant lease negotiations and Buck Mountain land issues. Engineering has incurred unbudgeted expenditures for engineering and technical services for an addition to the engineering trailer. Urban Wastewater engineering/technical services is over budget for several unbudgeted items such as lighting plan for Moores Creek AWRRF, septage handling, SWPPP/SPCC support.
- C. Other Services and Charges (Urban Water, Urban Wastewater – page 2, 5) – Urban Water is over budget on Utilities, and Urban Wastewater is over budget on Crozet odor control costs and on biosolids composting costs.
- D. Communications (Urban Water – page 2) – Telephone and data services are over budget due to needed upgrade to data lines.
- E. Information Technology (Engineering – page 11) – Engineering has spent \$11,000 more than the annual budget related to purchase of a program to assist with capturing data from engineering/inspector personnel while in the field into the GIS system.
- F. Operations & Maintenance (Urban Water, Urban Wastewater, Glenmore Wastewater, Administration, Lab – pages 2, 5, 6, 8, 10) – Urban Water is \$93,400 over the annual budget for several pipeline repair costs at Lambeth, Meriwether and South Rivanna. Urban Wastewater is over budget on pump station maintenance costs for impeller replacements. Glenmore Wastewater is over budget on equipment maintenance and repair costs for blower replacement and actuator control repairs. The Administration department is over budget for some heating and air conditioning work in the Administration building. The Lab exceeded budget for chemicals and made a \$39,000 unbudgeted purchase of an analyzer to be used for nutrient testing.
- G. Equipment Purchases (Urban Water, Crozet Water, Engineering – page 2, 3, 11)

Attachments

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019
Fiscal Year 2020

Consolidated
Revenues and Expenses Summary

| <i>Budget</i> | <i>Budget</i> | <i>Actual</i> | <i>Budget</i> | <i>Variance</i> |
|----------------|---------------------|---------------------|-------------------|-------------------|
| <i>FY 2020</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 | \$ 17,381,293 | \$ 8,690,647 | \$ 9,137,069 | \$ 446,422 | 5.14% |
| Lease Revenue | 100,000 | 50,000 | 54,864 | 4,864 | 9.73% |
| Admin., Maint. & Engineering Revenue | 478,000 | 239,000 | 257,242 | 18,242 | 7.63% |
| Other Revenues | 562,478 | 281,239 | 542,263 | 261,024 | 92.81% |
| Use of Reserves | 667,000 | 333,500 | - | (333,500) | -100.00% |
| Interest Allocation | 31,500 | 15,750 | 22,155 | 6,405 | 40.66% |
| Total Operating Revenues | \$ 19,220,271 | \$ 9,610,136 | \$ 10,013,592 | \$ 403,457 | 4.20% |

Expenses

| | | | | | | |
|------------------------------------|----------|----------------------|---------------------|---------------------|---------------------|---------------|
| Personnel Cost | A | \$ 8,760,078 | \$ 4,380,040 | \$ 4,354,724 | \$ 25,315 | 0.58% |
| Professional Services | B | 666,050 | 333,025 | 478,505 | (145,480) | -43.68% |
| Other Services & Charges | C | 2,980,612 | 1,490,306 | 1,601,939 | (111,633) | -7.49% |
| Communications | D | 142,593 | 71,297 | 85,187 | (13,890) | -19.48% |
| Information Technology | E | 352,750 | 176,375 | 154,570 | 21,805 | 12.36% |
| Supplies | | 46,180 | 23,090 | 13,524 | 9,566 | 41.43% |
| Operations & Maintenance | F | 5,069,478 | 2,534,739 | 2,537,824 | (3,085) | -0.12% |
| Equipment Purchases | G | 359,550 | 179,775 | 199,485 | (19,710) | -10.96% |
| Depreciation | | 843,000 | 421,500 | 421,500 | - | 0.00% |
| Reserve Transfers | | - | - | - | - | |
| Total Operating Expenses | | \$ 19,220,291 | \$ 9,610,146 | \$ 9,847,258 | \$ (237,112) | -2.47% |
| Operating Surplus/(Deficit) | | \$ (20) | \$ (11) | \$ 166,334 | | |

Debt Service Budget vs. Actual

Revenues

| | | | | | |
|------------------------------------|----------------------|---------------------|---------------------|------------------|--------------|
| Debt Service Rate Revenue | \$ 15,861,022 | \$ 7,930,511 | \$ 7,930,512 | \$ 1 | 0.00% |
| Septage Receiving Support - County | 109,440 | 54,720 | 109,441 | 54,721 | 100.00% |
| Buck Mountain Surcharge | 125,900 | 62,950 | 69,600 | 6,650 | 10.56% |
| Buck Mountain Lease Revenue | 1,600 | 800 | 4,364 | 3,564 | 445.47% |
| Trust Fund Interest | 158,200 | 79,100 | 86,417 | 7,317 | 9.25% |
| Reserve Fund Interest | 690,000 | 345,000 | 354,110 | 9,110 | 2.64% |
| Total Debt Service Revenues | \$ 16,946,162 | \$ 8,473,081 | \$ 8,554,444 | \$ 81,363 | 0.96% |

Debt Service Costs

| | | | | | |
|---------------------------------------|----------------------|---------------------|---------------------|-------------------|---------------|
| Total Principal & Interest | \$ 14,473,236 | \$ 7,236,618 | \$ 7,236,618 | \$ - | 0.00% |
| Reserve Additions-Interest | 690,000 | 345,000 | 354,110 | (9,110) | -2.64% |
| Debt Service Ratio Charge | 725,000 | 362,500 | 362,500 | - | 0.00% |
| Reserve Additions-CIP Growth | 1,057,925 | 528,963 | 528,963 | - | 0.00% |
| Total Debt Service Costs | \$ 16,946,161 | \$ 8,473,081 | \$ 8,482,190 | \$ (9,110) | -0.11% |
| Debt Service Surplus/(Deficit) | \$ 1 | \$ 1 | \$ 72,254 | | |

Summary

| | | | | | |
|--------------------------|----------------|----------------|-------------------|------------|--------|
| Total Revenues | \$ 36,166,433 | \$ 18,083,217 | \$ 18,568,036 | \$ 484,820 | 2.68% |
| Total Expenses | 36,166,452 | 18,083,227 | 18,329,448 | (246,222) | -1.36% |
| Surplus/(Deficit) | \$ (19) | \$ (10) | \$ 238,588 | | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Urban Water Rate Center
Revenues and Expenses Summary

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Operating Budget vs. Actual

Notes

Revenues

| | | | | | |
|---------------------------------|---------------------|---------------------|---------------------|-------------------|--------------|
| Operations Rate Revenue | \$ 7,118,541 | \$ 3,559,271 | \$ 3,809,452 | \$ 250,181 | 7.03% |
| Lease Revenue | 70,000 | 35,000 | 40,507 | 5,507 | 15.73% |
| Miscellaneous | - | - | 193,294 | 193,294 | |
| Use of Reserves | 600,000 | 300,000 | - | (300,000) | -100.00% |
| Interest Allocation | 13,200 | 6,600 | 9,239 | 2,639 | 39.98% |
| Total Operating Revenues | \$ 7,801,741 | \$ 3,900,871 | \$ 4,052,491 | \$ 151,620 | 3.89% |

Expenses

| | | | | | |
|------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------|
| Personnel Cost | \$ 1,861,134 | \$ 930,567 | \$ 927,868 | \$ 2,699 | 0.29% |
| Professional Services | B 207,200 | 103,600 | 175,788 | (72,188) | -69.68% |
| Other Services & Charges | C 574,963 | 287,482 | 385,843 | (98,361) | -34.21% |
| Communications | D 65,100 | 32,550 | 39,833 | (7,283) | -22.37% |
| Information Technology | 77,000 | 38,500 | 22,094 | 16,406 | 42.61% |
| Supplies | 6,100 | 3,050 | 2,799 | 251 | 8.23% |
| Operations & Maintenance | F 2,356,590 | 1,178,295 | 1,193,519 | (15,224) | -1.29% |
| Equipment Purchases | G 50,500 | 25,250 | 47,917 | (22,667) | -89.77% |
| Depreciation | 300,000 | 150,000 | 150,000 | - | 0.00% |
| Reserve Transfers | - | - | - | - | |
| Subtotal Before Allocations | \$ 5,498,587 | \$ 2,749,293 | \$ 2,945,659 | \$ (196,365) | -7.14% |
| Allocation of Support Departments | 2,303,155 | 1,151,578 | 1,178,593 | (27,016) | -2.35% |
| Total Operating Expenses | \$ 7,801,742 | \$ 3,900,871 | \$ 4,124,252 | \$ (223,381) | -5.73% |
| Operating Surplus/(Deficit) | \$ (1) | \$ (0) | \$ (71,761) | | |

Debt Service Budget vs. Actual

Revenues

| | | | | | |
|------------------------------------|---------------------|---------------------|---------------------|------------------|--------------|
| Debt Service Rate Revenue | \$ 6,178,598 | \$ 3,089,299 | \$ 3,089,298 | \$ (1) | 0.00% |
| Trust Fund Interest | 54,000 | 27,000 | 29,468 | 2,468 | 9.14% |
| Reserve Fund Interest | 387,000 | 193,500 | 198,656 | 5,156 | 2.66% |
| Buck Mountain Surcharge | 125,900 | 62,950 | 69,600 | 6,650 | 10.56% |
| Lease Revenue | 1,600 | 800 | 4,364 | 3,564 | 445.47% |
| Total Debt Service Revenues | \$ 6,747,098 | \$ 3,373,549 | \$ 3,391,386 | \$ 17,837 | 0.53% |

Debt Service Costs

| | | | | | |
|---------------------------------------|---------------------|---------------------|---------------------|-------------------|---------------|
| Total Principal & Interest | \$ 5,223,498 | \$ 2,611,749 | \$ 2,611,749 | \$ - | 0.00% |
| Reserve Additions-Interest | 387,000 | 193,500 | 198,656 | (5,156) | -2.66% |
| Debt Service Ratio Charge | 400,000 | 200,000 | 200,000 | - | 0.00% |
| Reserve Additions-CIP Growth | 736,600 | 368,300 | 368,300 | - | 0.00% |
| Total Debt Service Costs | \$ 6,747,098 | \$ 3,373,549 | \$ 3,378,705 | \$ (5,156) | -0.15% |
| Debt Service Surplus/(Deficit) | \$ - | \$ - | \$ 12,681 | | |

Rate Center Summary

| | | | | | |
|---|---------------|---------------|--------------------|------------|--------|
| Total Revenues | \$ 14,548,839 | \$ 7,274,420 | \$ 7,443,877 | \$ 169,457 | 2.33% |
| Total Expenses | 14,548,840 | 7,274,420 | 7,502,957 | (228,537) | -3.14% |
| Surplus/(Deficit) | \$ (1) | \$ (0) | \$ (59,080) | | |
| Costs per 1000 Gallons Operating and DS | \$ 2.30 | | \$ 2.27 | | |
| | \$ 4.28 | | \$ 4.13 | | |
| Thousand Gallons Treated or Flow (MGD) | 3,397,700 | 1,698,850 | 1,818,353 | 119,503 | 7.03% |
| | 9.309 | | 9.882 | | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Crozet Water Rate Center
Revenues and Expenses Summary

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Operating Budget vs. Actual

Notes

Revenues

| | | | | | |
|---------------------------------|---------------------|-------------------|-------------------|--------------------|---------------|
| Operations Rate Revenue | \$ 1,028,808 | \$ 514,404 | \$ 514,404 | \$ - | 0.00% |
| Lease Revenues | 30,000 | 15,000 | 14,357 | (643) | -4.28% |
| Use of Reserves | 52,000 | 26,000 | - | (26,000) | -100.00% |
| Interest Allocation | 1,800 | 900 | 1,285 | 385 | 42.77% |
| Total Operating Revenues | \$ 1,112,608 | \$ 556,304 | \$ 530,046 | \$ (26,258) | -4.72% |

Expenses

| | | | | | |
|------------------------------------|---------------------|-------------------|-------------------|------------------|---------------|
| Personnel Cost | \$ 300,589 | \$ 150,294 | \$ 148,216 | \$ 2,078 | 1.38% |
| Professional Services | 12,850 | 6,425 | - | 6,425 | 100.00% |
| Other Services & Charges | 137,816 | 68,908 | 54,838 | 14,070 | 20.42% |
| Communications | 4,950 | 2,475 | 2,932 | (457) | -18.48% |
| Information Technology | 2,600 | 1,300 | 740 | 561 | 43.12% |
| Supplies | 1,395 | 698 | 502 | 196 | 28.05% |
| Operations & Maintenance | 398,400 | 199,200 | 127,711 | 71,489 | 35.89% |
| Equipment Purchases | 6,500 | 3,250 | 8,383 | (5,133) | -157.95% |
| Depreciation | 30,000 | 15,000 | 15,000 | - | 0.00% |
| Reserve Transfers | - | - | - | - | - |
| Subtotal Before Allocations | \$ 895,100 | \$ 447,550 | \$ 358,323 | \$ 89,227 | 19.94% |
| Allocation of Support Departments | 217,513 | 108,756 | 110,662 | (1,905) | -1.75% |
| Total Operating Expenses | \$ 1,112,613 | \$ 556,306 | \$ 468,984 | \$ 87,322 | 15.70% |
| Operating Surplus/(Deficit) | \$ (5) | \$ (2) | \$ 61,062 | | |

Debt Service Budget vs. Actual

Revenues

| | | | | | |
|------------------------------------|---------------------|-------------------|-------------------|---------------|--------------|
| Debt Service Rate Revenue | \$ 1,311,312 | \$ 655,656 | \$ 655,656 | \$ - | 0.00% |
| Trust Fund Interest | 5,500 | 2,750 | 3,025 | 275 | 9.98% |
| Reserve Fund Interest | 21,500 | 10,750 | 10,977 | 227 | 2.12% |
| Total Debt Service Revenues | \$ 1,338,312 | \$ 669,156 | \$ 669,658 | \$ 502 | 0.08% |

Debt Service Costs

| | | | | | |
|---------------------------------------|---------------------|-------------------|-------------------|-----------------|---------------|
| Total Principal & Interest | \$ 1,230,815 | \$ 615,408 | \$ 615,408 | \$ - | 0.00% |
| Reserve Additions-Interest | 21,500 | 10,750 | 10,977 | (227) | -2.12% |
| Reserve Additions-CIP Growth | 86,000 | 43,000 | 43,000 | - | 0.00% |
| Total Debt Service Costs | \$ 1,338,315 | \$ 669,158 | \$ 669,385 | \$ (227) | -0.03% |
| Debt Service Surplus/(Deficit) | \$ (3) | \$ (2) | \$ 273 | | |

Rate Center Summary

| | | | | | |
|---------------------------------|---------------|---------------|------------------|-------------|--------|
| Total Revenues | \$ 2,450,920 | \$ 1,225,460 | \$ 1,199,704 | \$ (25,756) | -2.10% |
| Total Expenses | 2,450,928 | 1,225,464 | 1,138,369 | 87,094 | 7.11% |
| Surplus/(Deficit) | \$ (8) | \$ (4) | \$ 61,335 | | |
| Costs per 1000 Gallons | \$ 5.59 | | \$ 4.14 | | |
| Operating and DS | \$ 12.31 | | \$ 10.05 | | |
| Thousand Gallons Treated | 199,053 | 99,527 | 113,293 | 13,767 | 13.83% |
| Flow (MGD) | 0.545 | | 0.616 | | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Scottsville Water Rate Center
Revenues and Expenses Summary

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Operating Budget vs. Actual

Notes

Revenues

| | | | | | |
|---------------------------------|-------------------|-------------------|-------------------|-------------------|---------------|
| Operations Rate Revenue | \$ 520,812 | \$ 260,406 | \$ 260,406 | \$ - | 0.00% |
| Use of Reserves | 15,000 | 7,500 | - | (7,500) | -100.00% |
| Interest Allocation | 800 | 400 | 576 | 176 | 44.01% |
| Total Operating Revenues | \$ 536,612 | \$ 268,306 | \$ 260,982 | \$ (7,324) | -2.73% |

Expenses

| | | | | | |
|------------------------------------|-------------------|-------------------|-------------------|------------------|---------------|
| Personnel Cost | \$ 197,349 | \$ 98,675 | \$ 97,507 | \$ 1,168 | 1.18% |
| Professional Services | 20,000 | 10,000 | 675 | 9,325 | 93.25% |
| Other Services & Charges | 33,318 | 16,659 | 9,414 | 7,245 | 43.49% |
| Communications | 3,430 | 1,715 | 2,634 | (919) | -53.61% |
| Information Technology | 800 | 400 | 400 | (0) | -0.03% |
| Supplies | 410 | 205 | 142 | 63 | 30.92% |
| Operations & Maintenance | 121,340 | 60,670 | 38,628 | 22,042 | 36.33% |
| Equipment Purchases | 3,200 | 1,600 | 5,857 | (4,257) | -266.05% |
| Depreciation | 20,000 | 10,000 | 10,000 | (0) | 0.00% |
| Reserve Transfers | - | - | - | - | - |
| Subtotal Before Allocations | \$ 399,847 | \$ 199,924 | \$ 165,256 | \$ 34,667 | 17.34% |
| Allocation of Support Departments | 136,770 | 68,385 | 68,466 | (81) | -0.12% |
| Total Operating Expenses | \$ 536,617 | \$ 268,309 | \$ 233,722 | \$ 34,587 | 12.89% |
| Operating Surplus/(Deficit) | \$ (5) | \$ (3) | \$ 27,260 | | |

Debt Service Budget vs. Actual

Revenues

| | | | | | |
|------------------------------------|-------------------|------------------|------------------|--------------|--------------|
| Debt Service Rate Revenue | \$ 128,749 | \$ 64,375 | \$ 64,374 | \$ (1) | 0.00% |
| Trust Fund Interest | 1,700 | 850 | 864 | 14 | 1.67% |
| Reserve Fund Interest | 8,400 | 4,200 | 4,249 | 49 | 1.17% |
| Total Debt Service Revenues | \$ 138,849 | \$ 69,425 | \$ 69,487 | \$ 63 | 0.09% |

Debt Service Costs

| | | | | | |
|---------------------------------------|-------------------|------------------|------------------|----------------|---------------|
| Total Principal & Interest | \$ 129,524 | \$ 64,762 | \$ 64,762 | \$ - | 0.00% |
| Reserve Additions-Interest | 8,400 | 4,200 | 4,249 | (49) | |
| Reserve Additions-CIP Growth | 925 | 463 | 463 | - | |
| Total Debt Service Costs | \$ 138,849 | \$ 69,425 | \$ 69,474 | \$ (49) | -0.07% |
| Debt Service Surplus/(Deficit) | \$ - | \$ - | \$ 14 | | |

Rate Center Summary

| | | | | | |
|---|---------------|---------------|------------------|------------|--------|
| Total Revenues | \$ 675,461 | \$ 337,731 | \$ 330,470 | \$ (7,261) | -2.15% |
| Total Expenses | 675,466 | 337,733 | 303,196 | 34,537 | 10.23% |
| Surplus/(Deficit) | \$ (5) | \$ (3) | \$ 27,273 | | |
| Costs per 1000 Gallons | \$ 29.56 | | \$ 26.81 | | |
| Operating and DS | \$ 37.21 | | \$ 34.78 | | |
| Thousand Gallons Treated or Flow (MGD) | 18,151 | 9,076 | 8,718 | (358) | -3.94% |
| | 0.050 | | 0.047 | | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Urban Wastewater Rate Center
Revenues and Expenses Summary

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Operating Budget vs. Actual

Notes

Revenues

| | | | | | |
|---------------------------------|---------------------|---------------------|---------------------|-------------------|--------------|
| Operations Rate Revenue | \$ 8,033,620 | \$ 4,016,810 | \$ 4,213,051 | \$ 196,241 | 4.89% |
| Stone Robinson WWTP | 22,478 | 11,239 | 8,744 | (2,495) | -22.20% |
| Septage Acceptance | 450,000 | 225,000 | 260,963 | 35,963 | 15.98% |
| Nutrient Credits | 90,000 | 45,000 | 78,763 | 33,763 | 75.03% |
| Miscellaneous Revenue | - | - | 500 | 500 | |
| Interest Allocation | 14,400 | 7,200 | 10,169 | 2,969 | 41.24% |
| Total Operating Revenues | \$ 8,610,498 | \$ 4,305,249 | \$ 4,572,189 | \$ 266,940 | 6.20% |

Expenses

| | | | | | |
|------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------|
| Personnel Cost | \$ 1,281,463 | \$ 640,732 | \$ 636,719 | \$ 4,012 | 0.63% |
| Professional Services | 175,000 | 87,500 | 152,763 | (65,263) | -74.59% |
| Other Services & Charges | 2,030,825 | 1,015,413 | 1,058,074 | (42,661) | -4.20% |
| Communications | 10,430 | 5,215 | 6,527 | (1,312) | -25.17% |
| Information Technology | 62,500 | 31,250 | 15,233 | 16,017 | 51.25% |
| Supplies | 2,700 | 1,350 | 204 | 1,146 | 84.87% |
| Operations & Maintenance | 1,724,650 | 862,325 | 868,517 | (6,192) | -0.72% |
| Equipment Purchases | 77,500 | 38,750 | 34,369 | 4,381 | 11.31% |
| Depreciation | 470,000 | 235,000 | 235,000 | (0) | 0.00% |
| Reserve Transfers | - | - | - | - | |
| Subtotal Before Allocations | \$ 5,835,068 | \$ 2,917,534 | \$ 3,007,407 | \$ (89,873) | -3.08% |
| Allocation of Support Departments | 2,775,430 | 1,387,715 | 1,400,542 | (12,826) | -0.92% |
| Total Operating Expenses | \$ 8,610,498 | \$ 4,305,250 | \$ 4,407,949 | \$ (102,699) | -2.39% |
| Operating Surplus/(Deficit) | \$ (0) | \$ (1) | \$ 164,240 | | |

Debt Service Budget vs. Actual

Revenues

| | | | | | |
|------------------------------------|---------------------|---------------------|---------------------|------------------|--------------|
| Debt Service Rate Revenue | \$ 8,229,143 | \$ 4,114,572 | \$ 4,114,572 | \$ 1 | 0.00% |
| Septage Receiving Support - County | 109,440 | 54,720 | 109,441 | 54,721 | 100.00% |
| Trust Fund Interest | 96,900 | 48,450 | 52,974 | 4,524 | 9.34% |
| Reserve Fund Interest | 266,900 | 133,450 | 137,041 | 3,591 | 2.69% |
| Total Debt Service Revenues | \$ 8,702,383 | \$ 4,351,192 | \$ 4,414,027 | \$ 62,836 | 1.44% |

Debt Service Costs

| | | | | | |
|---------------------------------------|---------------------|---------------------|---------------------|-------------------|---------------|
| Total Principal & Interest | \$ 7,880,079 | \$ 3,940,040 | \$ 3,940,040 | \$ - | 0.00% |
| Reserve Additions-Interest | 266,900 | 133,450 | 137,041 | (3,591) | -2.69% |
| Debt Service Ratio Charge | 325,000 | 162,500 | 162,500 | - | 0.00% |
| Reserve Additions-CIP Growth | 230,400 | 115,200 | 115,200 | - | 0.00% |
| Total Debt Service Costs | \$ 8,702,379 | \$ 4,351,190 | \$ 4,354,780 | \$ (3,591) | -0.08% |
| Debt Service Surplus/(Deficit) | \$ 4 | \$ 2 | \$ 59,247 | | |

Rate Center Summary

| | | | | | |
|---------------------------------|---------------|--------------|-------------------|------------|--------|
| Total Revenues | \$ 17,312,881 | \$ 8,656,441 | \$ 8,986,216 | \$ 329,776 | 3.81% |
| Total Expenses | 17,312,877 | 8,656,439 | 8,762,729 | (106,290) | -1.23% |
| Surplus/(Deficit) | \$ 4 | \$ 1 | \$ 223,487 | | |
| Costs per 1000 Gallons | \$ 2.54 | | \$ 2.48 | | |
| Operating and DS | \$ 5.11 | | \$ 4.93 | | |
| Thousand Gallons Treated | 3,390,400 | 1,695,200 | 1,778,409 | 83,209 | 4.91% |
| or | | | | | |
| Flow (MGD) | 9.289 | | 9.665 | | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Operating Budget vs. Actual

Notes

Revenues

| | | | | | |
|---------------------------------|-------------------|-------------------|-------------------|---------------|--------------|
| Operations Rate Revenue | \$ 370,524 | \$ 185,262 | \$ 185,262 | \$ - | 0.00% |
| Interest Allocation | 700 | 350 | 487 | 137 | 39.26% |
| <i>Total Operating Revenues</i> | \$ 371,224 | \$ 185,612 | \$ 185,749 | \$ 137 | 0.07% |

Expenses

| | | | | | |
|------------------------------------|-------------------|-------------------|--------------------|--------------------|----------------|
| Personnel Cost | \$ 95,340 | \$ 47,670 | \$ 46,998 | \$ 672 | 1.41% |
| Professional Services | - | - | 2,194 | (2,194) | |
| Other Services & Charges | 35,210 | 17,605 | 15,989 | 1,616 | 9.18% |
| Communications | 3,000 | 1,500 | 1,772 | (272) | -18.13% |
| Information Technology | 3,700 | 1,850 | 6,590 | (4,740) | -256.22% |
| Supplies | 100 | 50 | - | 50 | 100.00% |
| Operations & Maintenance | 119,450 | 59,725 | 79,227 | (19,502) | -32.65% |
| Equipment Purchases | 2,900 | 1,450 | 1,200 | 250 | 17.24% |
| Depreciation | 5,000 | 2,500 | 2,500 | 0 | 0.00% |
| <i>Subtotal Before Allocations</i> | \$ 264,700 | \$ 132,350 | \$ 156,470 | \$ (24,120) | -18.22% |
| Allocation of Support Departments | 106,527 | 53,263 | 52,929 | 335 | 0.63% |
| <i>Total Operating Expenses</i> | \$ 371,227 | \$ 185,613 | \$ 209,399 | \$ (23,785) | -12.81% |
| <i>Operating Surplus/(Deficit)</i> | \$ (3) | \$ (1) | \$ (23,649) | | |

Debt Service Budget vs. Actual

Revenues

| | | | | | |
|------------------------------------|-----------------|-----------------|-----------------|-------------|--------------|
| Debt Service Rate Revenue | \$ 3,778 | \$ 1,889 | \$ 1,890 | \$ 1 | 0.05% |
| Trust Fund Interest | - | - | - | - | |
| Reserve Fund Interest | 3,100 | 1,550 | 1,771 | 221 | 14.23% |
| <i>Total Debt Service Revenues</i> | \$ 6,878 | \$ 3,439 | \$ 3,661 | \$ 1 | 0.03% |

Debt Service Costs

| | | | | | |
|---------------------------------------|-----------------|-----------------|-----------------|-----------------|---------------|
| Total Principal & Interest | \$ 1,578 | \$ 789 | \$ 789 | \$ - | 0.00% |
| Reserve Additions-CIP Growth | 2,200 | 1,100 | 1,100 | - | 0.00% |
| Reserve Additions-Interest | 3,100 | 1,550 | 1,771 | (221) | -14.23% |
| <i>Total Debt Service Costs</i> | \$ 6,878 | \$ 3,439 | \$ 3,660 | \$ (221) | -6.41% |
| <i>Debt Service Surplus/(Deficit)</i> | \$ - | \$ - | \$ 1 | | |

Rate Center Summary

| | | | | | |
|---|---------------|---------------|--------------------|----------|---------|
| Total Revenues | \$ 378,102 | \$ 189,051 | \$ 189,410 | \$ 359 | 0.19% |
| Total Expenses | 378,105 | 189,052 | 213,058 | (24,006) | -12.70% |
| Surplus/(Deficit) | \$ (3) | \$ (1) | \$ (23,648) | | |
| Costs per 1000 Gallons | \$ 9.31 | | \$ 12.98 | | |
| Operating and DS | \$ 9.48 | | \$ 13.21 | | |
| Thousand Gallons Treated or Flow (MGD) | 39,892 | 19,946 | 16,128 | (3,818) | -19.14% |
| | 0.109 | | 0.088 | | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Operating Budget vs. Actual

Notes

Revenues

| | | | | | |
|---------------------------------|-------------------|-------------------|-------------------|--------------|--------------|
| Operations Rate Revenue | \$ 308,988 | \$ 154,494 | \$ 154,494 | \$ - | 0.00% |
| Interest Allocation | 600 | 300 | 399 | 99 | 32.93% |
| Total Operating Revenues | \$ 309,588 | \$ 154,794 | \$ 154,893 | \$ 99 | 0.06% |

Expenses

| | | | | | |
|------------------------------------|-------------------|-------------------|-------------------|-----------------|--------------|
| Personnel Cost | \$ 95,366 | \$ 47,683 | \$ 46,998 | \$ 685 | 1.44% |
| Professional Services | 2,000 | 1,000 | - | 1,000 | 100.00% |
| Other Services & Charges | 28,000 | 14,000 | 10,249 | 3,751 | 26.79% |
| Communications | 3,930 | 1,965 | 1,924 | 41 | 2.08% |
| Information Technology | 1,700 | 850 | - | 850 | 100.00% |
| Supplies | 25 | 13 | - | 13 | 100.00% |
| Operations & Maintenance | 58,850 | 29,425 | 27,163 | 2,262 | 7.69% |
| Equipment Purchases | 3,200 | 1,600 | 1,200 | 400 | 25.00% |
| Depreciation | 18,000 | 9,000 | 9,000 | - | 0.00% |
| Subtotal Before Allocations | \$ 211,071 | \$ 105,535 | \$ 96,534 | \$ 9,002 | 8.53% |
| Allocation of Support Departments | 98,523 | 49,262 | 49,176 | 86 | 0.17% |
| Total Operating Expenses | \$ 309,594 | \$ 154,797 | \$ 145,710 | \$ 9,087 | 5.87% |
| Operating Surplus/(Deficit) | \$ (6) | \$ (3) | \$ 9,183 | | |

Debt Service Budget vs. Actual

Revenues

| | | | | | |
|------------------------------------|------------------|-----------------|-----------------|----------------|---------------|
| Debt Service Rate Revenue | \$ 9,442 | \$ 4,721 | \$ 4,722 | \$ 1 | 0.02% |
| Trust Fund Interest | 100 | 50 | 86 | 36 | 72.90% |
| Reserve Fund Interest | 3,100 | 1,550 | 1,416 | (134) | -8.62% |
| Total Debt Service Revenues | \$ 12,642 | \$ 6,321 | \$ 6,225 | \$ (96) | -1.52% |

Debt Service Costs

| | | | | | |
|---------------------------------------|------------------|-----------------|-----------------|---------------|--------------|
| Total Principal & Interest | \$ 7,742 | \$ 3,871 | \$ 3,871 | \$ - | 0.00% |
| Reserve Additions-Interest | 3,100 | 1,550 | 1,416 | 134 | 8.62% |
| Estimated New Principal & Interest | 1,800 | 900 | 900 | - | 0.00% |
| Total Debt Service Costs | \$ 12,642 | \$ 6,321 | \$ 6,187 | \$ 134 | 2.11% |
| Debt Service Surplus/(Deficit) | \$ - | \$ - | \$ 37 | | |

Rate Center Summary

| | | | | | |
|---------------------------------|---------------|---------------|-----------------|---------|---------|
| Total Revenues | \$ 322,230 | \$ 161,115 | \$ 161,118 | \$ 3 | 0.00% |
| Total Expenses | 322,236 | 161,118 | 151,897 | 9,221 | 5.72% |
| Surplus/(Deficit) | \$ (6) | \$ (3) | \$ 9,221 | | |
| Costs per 1000 Gallons | \$ 14.28 | | \$ 15.76 | | |
| Operating and DS | \$ 14.87 | | \$ 16.42 | | |
| Thousand Gallons Treated | 21,677 | 10,839 | 9,248 | (1,591) | -14.67% |
| or | | | | | |
| Flow (MGD) | 0.059 | | 0.050 | | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Administration

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Operating Budget vs. Actual

Notes

Revenues

| | | | | | |
|---------------------------------|-------------------|-------------------|-------------------|------------------|--------------|
| Payment for Services SWA | \$ 466,000 | \$ 233,000 | \$ 233,000 | \$ (0) | 0.00% |
| Miscellaneous Revenue | 2,000 | 1,000 | 15,618 | 14,618 | 1461.78% |
| Total Operating Revenues | \$ 468,000 | \$ 234,000 | \$ 248,618 | \$ 14,618 | 6.25% |

Expenses

| | | | | | | |
|---------------------------------|----------|---------------------|---------------------|---------------------|-------------------|---------------|
| Personnel Cost | A | \$ 1,841,351 | \$ 920,676 | \$ 954,678 | \$ (34,002) | -3.69% |
| Professional Services | | 229,000 | 114,500 | 97,121 | 17,379 | 15.18% |
| Other Services & Charges | | 106,400 | 53,200 | 51,269 | 1,931 | 3.63% |
| Communications | | 18,500 | 9,250 | 9,778 | (528) | -5.71% |
| Information Technology | | 174,250 | 87,125 | 74,962 | 12,163 | 13.96% |
| Supplies | | 21,500 | 10,750 | 7,371 | 3,379 | 31.43% |
| Operations & Maintenance | F | 64,500 | 32,250 | 43,723 | (11,473) | -35.58% |
| Equipment Purchases | | 24,000 | 12,000 | 7,340 | 4,660 | 38.83% |
| Depreciation | | - | - | - | - | |
| Total Operating Expenses | | \$ 2,479,501 | \$ 1,239,751 | \$ 1,246,243 | \$ (6,492) | -0.52% |

Department Summary

| | | | | | | |
|---|---------|-----------------------|-----------------------|---------------------|-------------------|--------------|
| Net Costs Allocable to Rate Centers | | \$ (2,011,501) | \$ (1,005,751) | \$ (997,625) | \$ (8,125) | 0.81% |
| <u>Allocations to the Rate Centers</u> | | | | | | |
| Urban Water | 44.00% | \$ 885,060 | \$ 442,530 | \$ 438,955 | \$ 3,575 | |
| Crozet Water | 4.00% | \$ 80,460 | \$ 40,230 | \$ 39,905 | \$ 325 | |
| Scottsville Water | 2.00% | \$ 40,230 | \$ 20,115 | \$ 19,953 | \$ 163 | |
| Urban Wastewater | 48.00% | \$ 965,520 | \$ 482,760 | \$ 478,860 | \$ 3,900 | |
| Glenmore Wastewater | 1.00% | \$ 20,115 | \$ 10,058 | \$ 9,976 | \$ 81 | |
| Scottsville Wastewater | 1.00% | \$ 20,115 | \$ 10,058 | \$ 9,976 | \$ 81 | |
| | 100.00% | \$ 2,011,501 | \$ 1,005,751 | \$ 997,625 | \$ 8,125 | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Maintenance

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Operating Budget vs. Actual

Notes

Revenues

| | | | | | | | | | |
|---------------------------------|-----------|---------------|-----------|--------------|-----------|--------------|-----------|---------------|---------|
| Payment for Services SWA | \$ | 10,000 | \$ | 5,000 | \$ | - | \$ | 5,000 | 100.00% |
| Miscellaneous Revenue | | - | | - | | 6,756 | | 6,756 | |
| Total Operating Revenues | \$ | 10,000 | \$ | 5,000 | \$ | 6,756 | \$ | 11,756 | |

Expenses

| | | | | | | | | | |
|---------------------------------|-----------|------------------|-----------|----------------|-----------|----------------|-----------|---------------|--------------|
| Personnel Cost | \$ | 1,345,633 | \$ | 672,817 | \$ | 631,795 | \$ | 41,021 | 6.10% |
| Professional Services | | - | | - | | - | | - | |
| Other Services & Charges | | 14,500 | | 7,250 | | 9,648 | | (2,398) | -33.08% |
| Communications | | 17,600 | | 8,800 | | 11,239 | | (2,439) | -27.71% |
| Information Technology | | 6,500 | | 3,250 | | 2,296 | | 954 | 29.35% |
| Supplies | | 2,000 | | 1,000 | | 123 | | 877 | 87.69% |
| Operations & Maintenance | | 77,400 | | 38,700 | | 41,744 | | (3,044) | -7.87% |
| Equipment Purchases | | 147,150 | | 73,575 | | 60,479 | | 13,096 | 17.80% |
| Depreciation | | - | | - | | - | | - | |
| Total Operating Expenses | \$ | 1,610,783 | \$ | 805,392 | \$ | 757,324 | \$ | 48,067 | 5.97% |

Department Summary

| | | | | | | | | | | |
|---|---------|-----------|--------------------|-----------|------------------|-----------|------------------|-----------|-----------------|--------------|
| Net Costs Allocable to Rate Centers | | \$ | (1,600,783) | \$ | (800,392) | \$ | (750,568) | \$ | (36,311) | 4.54% |
| <u>Allocations to the Rate Centers</u> | | | | | | | | | | |
| Urban Water | 30.00% | \$ | 480,235 | \$ | 240,117 | \$ | 225,171 | \$ | 14,947 | |
| Crozet Water | 3.50% | | 56,027 | | 28,014 | | 26,270 | | 1,744 | |
| Scottsville Water | 3.50% | | 56,027 | | 28,014 | | 26,270 | | 1,744 | |
| Urban Wastewater | 56.50% | | 904,442 | | 452,221 | | 424,071 | | 28,150 | |
| Glenmore Wastewater | 3.50% | | 56,027 | | 28,014 | | 26,270 | | 1,744 | |
| Scottsville Wastewater | 3.00% | | 48,023 | | 24,012 | | 22,517 | | 1,495 | |
| | 100.00% | \$ | 1,600,783 | \$ | 800,392 | \$ | 750,568 | \$ | 49,823 | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Laboratory

| Budget FY 2020 | Budget Year-to-Date | Actual Year-to-Date | Budget vs. Actual | Variance Percentage |
|-------------------|------------------------|------------------------|----------------------|------------------------|
|-------------------|------------------------|------------------------|----------------------|------------------------|

Operating Budget vs. Actual

Notes

Revenues

N/A

Expenses

| | | | | | | | | | |
|---------------------------------|----|-------------------|----|-------------------|----|-------------------|----|--------------------|----------------|
| Personnel Cost | \$ | 394,222 | \$ | 197,111 | \$ | 189,834 | \$ | 7,277 | 3.69% |
| Professional Services | | - | | - | | - | | - | |
| Other Services & Charges | | 9,230 | | 4,615 | | 380 | | 4,235 | 91.77% |
| Communications | | 1,153 | | 577 | | 614 | | (37) | |
| Information Technology | | 2,500 | | 1,250 | | - | | 1,250 | 100.00% |
| Supplies | | 2,150 | | 1,075 | | 218 | | 857 | 79.68% |
| Operations & Maintenance | F | 61,500 | | 30,750 | | 83,239 | | (52,489) | -170.70% |
| Equipment Purchases | | 2,200 | | 1,100 | | 850 | | 250 | 22.73% |
| Depreciation | | - | | - | | - | | - | |
| Total Operating Expenses | | \$ 472,955 | | \$ 236,478 | | \$ 275,135 | | \$ (38,657) | -16.35% |

Department Summary

| | | | | | | |
|---|---------|---------------------|---------------------|---------------------|--------------------|----------------|
| Net Costs Allocable to Rate Centers | | \$ (472,955) | \$ (236,478) | \$ (275,135) | \$ 38,657 | -16.35% |
| <u>Allocations to the Rate Centers</u> | | | | | | |
| Urban Water | 44.00% | \$ 208,100 | \$ 104,050 | \$ 121,059 | \$ (17,009) | |
| Crozet Water | 4.00% | 18,918 | 9,459 | 11,005 | (1,546) | |
| Scottsville Water | 2.00% | 9,459 | 4,730 | 5,503 | (773) | |
| Urban Wastewater | 47.00% | 222,289 | 111,144 | 129,313 | (18,169) | |
| Glenmore Wastewater | 1.50% | 7,094 | 3,547 | 4,127 | (580) | |
| Scottsville Wastewater | 1.50% | 7,094 | 3,547 | 4,127 | (580) | |
| | 100.00% | \$ 472,955 | \$ 236,478 | \$ 275,135 | \$ (38,657) | |

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2019

Engineering

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Operating Budget vs. Actual**Revenues**

Payment for Services SWA

Total Operating Revenues

| | | | | |
|-------------|-------------|-----------------|-----------------|--|
| \$ - | \$ - | \$ 1,868 | \$ 1,868 | |
| \$ - | \$ - | \$ 1,868 | \$ 1,868 | |

Expenses

Personnel Cost

Professional Services

Other Services & Charges

Communications

Information Technology

Supplies

Operations & Maintenance

Equipment Purchases

Depreciation & Capital Reserve Transfers

Total Operating Expenses

| | | | | | |
|----------|---------------------|-------------------|-------------------|--------------------|---------------|
| | \$ 1,347,631 | \$ 673,816 | \$ 674,112 | \$ (296) | -0.04% |
| B | 20,000 | 10,000 | 49,963 | (39,963) | -399.63% |
| | 10,350 | 5,175 | 6,235 | (1,060) | -20.48% |
| | 14,500 | 7,250 | 7,934 | (684) | -9.43% |
| E | 21,200 | 10,600 | 32,255 | (21,655) | -204.29% |
| | 9,800 | 4,900 | 2,165 | 2,735 | 55.82% |
| | 86,798 | 43,399 | 34,353 | 9,046 | 20.84% |
| G | 42,400 | 21,200 | 31,891 | (10,691) | -50.43% |
| | - | - | - | - | |
| | \$ 1,552,679 | \$ 776,340 | \$ 838,907 | \$ (62,567) | -8.06% |

Department Summary

Net Costs Allocable to Rate Centers

| | | | | |
|----------------|--------------|--------------|-----------|--------|
| \$ (1,552,679) | \$ (776,340) | \$ (837,039) | \$ 64,435 | -8.30% |
|----------------|--------------|--------------|-----------|--------|

Allocations to the Rate Centers

Urban Water

Crozet Water

Scottsville Water

Urban Wastewater

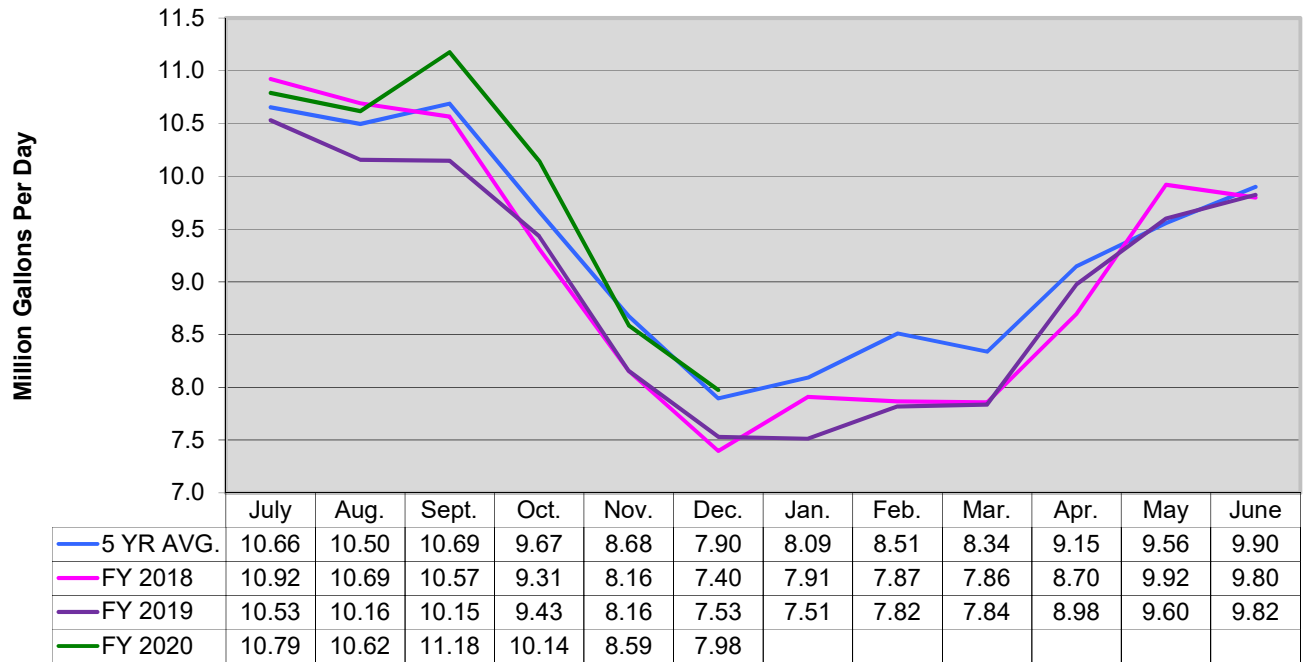
Glenmore Wastewater

Scottsville Wastewater

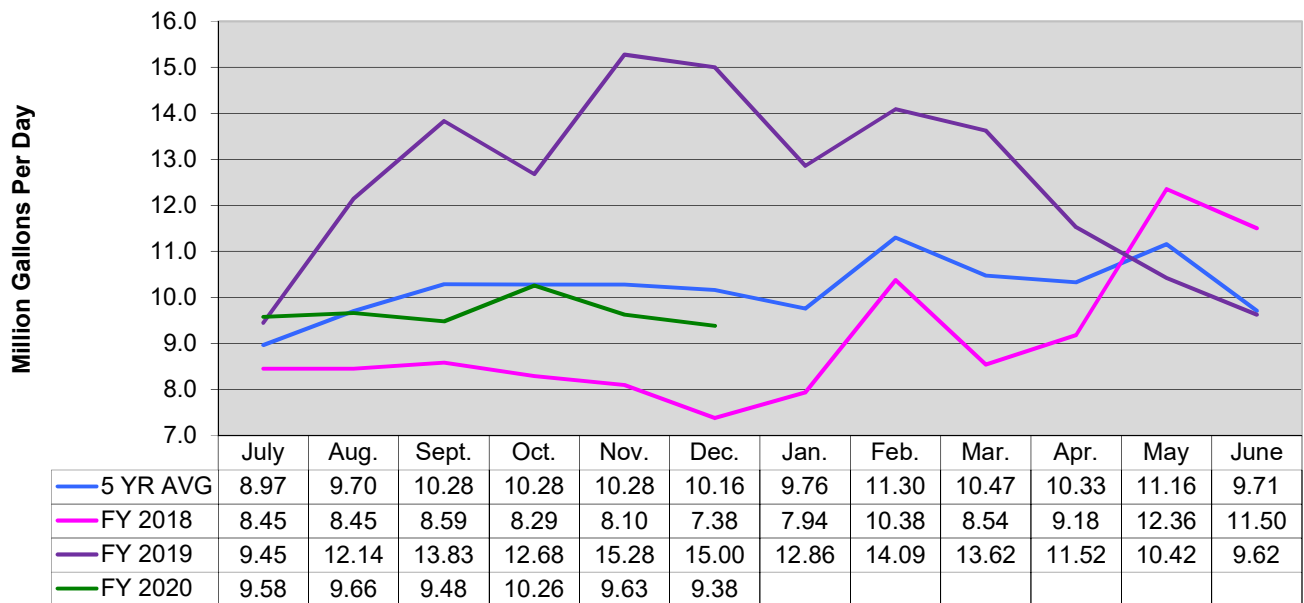
| | | | | |
|---------|---------------------|-------------------|-------------------|--------------------|
| 47.00% | \$ 729,759 | \$ 364,880 | \$ 393,408 | \$ (28,529) |
| 4.00% | 62,107 | 31,054 | 33,482 | (2,428) |
| 2.00% | 31,054 | 15,527 | 16,741 | (1,214) |
| 44.00% | 683,179 | 341,589 | 368,297 | (26,708) |
| 1.50% | 23,290 | 11,645 | 12,556 | (910) |
| 1.50% | 23,290 | 11,645 | 12,556 | (910) |
| 100.00% | \$ 1,552,679 | \$ 776,340 | \$ 837,039 | \$ (60,699) |

**Rivanna Water and Sewer Authority
Flow Graphs**

Urban Water Flows



Urban Wastewater Flows



FINANCIAL REPORTING & BUDGET

January 28, 2020



OPERATION & CAPITAL IMPROVEMENT PLAN (CIP) BUDGETS

2

- Operating Budget
- 5-Year Capital Improvement Plan (CIP)

OPERATING BUDGET PROCESS

3

- The Operating Budget Includes:
 - Operating costs (personnel, maintenance, treatment, utilities, etc.)
 - Debt Service (principal & interest payments) and reserves charges
- Comprised of 6 Rate Centers
 - 2 Urban, shared customers of the City Utilities Dept. and ACSA
 - 4 Non-Urban, exclusively ACSA customers

RATE CENTERS

4

WATER RATE CENTERS

- Urban
- Crozet
- Scottsville

WASTEWATER RATE CENTERS

- Urban
- Glenmore
- Scottsville

BUDGET and REVENUE CHARGES

5

Each Rate Center has:

- Operating Costs and related rates
- Debt Service Costs and related charges
 - *Driven by the Capital Improvement Plan*

Summary of
URBAN
RATE CENTERS

Rivanna Water & Sewer Authority
FY 2020 Adopted Budget

Summary of Itemized Rates

| URBAN RATE CENTERS | | | FY 2019 | FY 2020 |
|-----------------------------|--------------|------------|------------|------------|
| <u>Operating Rates</u> | | | | |
| (\$ per 1,000 Gallons) | | | | |
| | Operations | Water | \$ 2.070 | \$ 2.095 |
| | Operations | Wastewater | 2.146 | 2.369 |
| <u>Debt Service Charges</u> | | | | |
| (\$ Monthly Charge) | | | | |
| <u>Water</u> | | | | |
| | Debt Service | CITY | \$ 181,008 | \$ 193,580 |
| | Debt Service | ACSA | 307,598 | 321,303 |
| <u>Wastewater</u> | | | | |
| | Debt Service | CITY | \$ 408,260 | \$ 407,588 |
| | Debt Service | ACSA | 246,308 | 278,174 |

Summary of NON-URBAN RATE CENTERS

Rivanna Water & Sewer Authority
FY 2020 Adopted Budget

Summary of Itemized Rates

| <u>OTHER RATE CENTERS (Monthly)</u> | | FY 2019 | FY 2020 |
|---|-------------------------|-------------------|-------------------|
| <u>Crozet Water</u> | | | |
| | Operations | \$ 79,782 | \$ 85,734 |
| | Debt Service | 82,964 | 109,276 |
| <u>Scottsville Water</u> | | | |
| | Operations | \$ 36,944 | \$ 43,401 |
| | Debt Service | 10,773 | 10,729 |
| | Water Total | \$ 210,463 | \$ 249,140 |
| <u>Glenmore Wastewater</u> | | | |
| | Operations | \$ 31,060 | \$ 30,877 |
| | Debt Service | 132 | 315 |
| <u>Scottsville Wastewater</u> | | | |
| | Operations | \$ 25,156 | \$ 25,749 |
| | Debt Service | 667 | 787 |
| | Wastewater Total | \$ 57,015 | \$ 57,728 |
| Total Monthly Other Rate Center Charges - ACSA | | \$ 267,478 | \$ 306,868 |

OPERATING Budget Example

Rivanna Water & Sewer Authority
FY 2020 Adopted Budget

Urban Water Summary

Projected Flow (MGD)

Operations Budget

Projected Revenues

Operations Rate

Revenue

Lease Revenues

Use of Reserves

Miscellaneous

Interest Allocation

Total Operations Revenues

Projected Expenses

Personnel Cost

Professional Services

Other Services and Charges

Communications

Information Technology

Supplies

Operations and Maintenance

Equipment Purchases

Depreciation & Reserves

Subtotal Before Allocations

Allocation of Support Departments

Total Operations Expenses

Operations Cost per 1,000 gallons

| FY 2019 | | | FY 2020 | Budget % Change |
|---------------------|------------------------|------------------------|---------------------|--------------------|
| Budgeted FY 2019 | Actual for 6 months | Projected 12 months | Adopted Budget | |
| 9.309 | | | 9.309 | 0.00% |
| \$ 2.070 | | | \$ 2.095 | 1.21% |
| \$ 7,034,788 | \$ 3,552,985 | \$ 7,105,970 | \$ 7,118,541 | 1.19% |
| 70,000 | 33,776 | 67,552 | 70,000 | 0.00% |
| - | - | - | 600,000 | |
| - | 1,600 | 31,900 | - | |
| 12,000 | 8,985 | 17,970 | 13,200 | 10.00% |
| \$ 7,116,788 | \$ 3,597,346 | \$ 7,223,392 | \$ 7,801,741 | 9.62% |
| \$ 1,903,778 | \$ 885,359 | \$ 1,759,223 | \$ 1,861,134 | -2.24% |
| 329,250 | 256,808 | 513,616 | 207,200 | -37.07% |
| 582,700 | 302,655 | 620,189 | 574,963 | -1.33% |
| 64,200 | 39,174 | 73,484 | 65,100 | 1.40% |
| 65,300 | 18,961 | 52,922 | 77,000 | 17.92% |
| 5,000 | 3,413 | 6,826 | 6,100 | 22.00% |
| 1,570,660 | 882,848 | 2,623,337 | 2,356,590 | 50.04% |
| 106,600 | 87,229 | 209,458 | 50,500 | -52.63% |
| 300,000 | 150,000 | 300,000 | 300,000 | 0.00% |
| \$ 4,927,488 | \$ 2,626,447 | \$ 6,159,055 | \$ 5,498,587 | 11.59% |
| 2,189,300 | 994,378 | 2,054,673 | 2,303,154 | 5.20% |
| \$ 7,116,788 | \$ 3,620,825 | \$ 8,213,728 | \$ 7,801,741 | 9.62% |
| \$2.095 | | | \$2.296 | 9.59% |

DEBT SERVICE Budget Example

Rivanna Water & Sewer Authority
FY 2020 Adopted Budget

Urban Water Summary

Projected Flow (MGD)

Debt Service Budget

Projected Revenue

Debt Service Rates

| | CITY | | | | | | | | |
|-----------------------------------|------|---------------------|---------------------|---------------------|---------------------|--|----------------|--|--------------|
| | ACSA | | | | | | | | |
| | | 181,008 | | | | | 193,580 | | 6.95% |
| | | 307,598 | | | | | 321,303 | | 4.46% |
| Debt Service Rate Revenue - CITY | | \$ 2,172,094 | \$ 1,086,048 | \$ 2,172,096 | \$ 2,322,960 | | | | 6.95% |
| Debt Service Rate Revenue - ACSA | | 3,691,177 | 1,845,588 | 3,691,176 | 3,855,638 | | | | 4.46% |
| Trust Fund Interest | | 18,000 | 29,892 | 59,784 | 54,000 | | | | 200.00% |
| Reserve Fund Interest | | 184,000 | 193,860 | 387,720 | 387,000 | | | | 110.33% |
| Buck Mtn. Surcharge | | 118,600 | 65,600 | 131,200 | 125,900 | | | | 6.16% |
| Lease Revenue | | 1,600 | - | - | 1,600 | | | | 0.00% |
| Total Debt Service Revenue | | \$ 6,185,471 | \$ 3,220,988 | \$ 6,441,976 | \$ 6,747,098 | | | | 9.08% |

Principal, Interest & Reserves

| | | | | | | | | | |
|--|---------------------|---------------------|---------------------|---------------------|--|--|--|--|--------------|
| Total Principal & Interest | \$ 4,190,796 | 2,095,398 | \$ 4,190,796 | \$ 5,223,498 | | | | | 24.64% |
| Reserve Additions - Interest | 184,000 | 193,860 | 387,720 | 387,000 | | | | | 110.33% |
| Debt Service Ratio Charge | 400,000 | 200,000 | 400,000 | 400,000 | | | | | 0.00% |
| Est. New Debt Service - CIP Growth | 1,410,675 | 705,338 | 1,410,676 | 736,600 | | | | | -47.78% |
| Total Debt Principal and Interest | \$ 6,185,471 | \$ 3,194,596 | \$ 6,389,192 | \$ 6,747,098 | | | | | 9.08% |

Rate Center Summary

| | | | | | | | | | |
|--------------------------|---------------|-----------------|---------------------|---------------|--|--|--|--|-------|
| Total Revenues | \$ 13,302,259 | \$ 6,818,334 | \$ 13,665,368 | \$ 14,548,839 | | | | | 9.37% |
| Total Expenses | 13,302,259 | 6,815,421 | 14,602,920 | 14,548,839 | | | | | 9.37% |
| Surplus/(Deficit) | \$ - | \$ 2,913 | \$ (937,552) | \$ - | | | | | |

Five Year CAPITAL IMPROVEMENT PLAN

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The 5-Year CIP is reviewed and updated annually with the Board of Directors. All major capital projects are included and adopted in the plan.

Five Year CIP SPENDING PLAN

11

- Projects are funded with a target of Cash Reserves (10%)
- Remaining project costs are financed with debt issuance through Revenue Bonds
 - *the debt service on these bonds is funded by the previously mentioned debt service rates*

Summary of CIP 2020-2024

Rivanna Water and Sewer Authority CIP 2020-2024 Summary Information

5/29/2019

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| Detail by Major Systems | Total Adopted CIP | Urban Water Projects | Urban Wastewater Projects | Shared Projects | Water Non-Urban Projects | Wastewater Non-Urban Projects |
|-------------------------------------|-------------------------|-------------------------|---------------------------------|---------------------|--------------------------------|-------------------------------------|
| <u>Project Cost</u> | | | | | | |
| Urban Water Projects | \$ 61,501,900 | \$ 61,501,900 | \$ - | | \$ - | \$ - |
| Urban Wastewater Projects | 14,753,000 | - | 14,753,000 | | - | - |
| Non-Urban Projects & Shared | 20,949,000 | - | - | 2,596,000 | 17,968,000 | 385,000 |
| Total Project Cost Estimates | \$ 97,203,900 | \$ 61,501,900 | \$ 14,753,000 | \$ 2,596,000 | \$ 17,968,000 | \$ 385,000 |
| <u>Funding in place</u> | | | | | | |
| Work-in-Progress (paid for) | \$ 2,943,110 | \$ 1,601,900 | \$ 515,180 | \$ 123,780 | \$ 702,250 | \$ - |
| Debt Proceeds available | 35,354,000 | 18,520,000 | 5,304,000 | - | 11,530,000 | - |
| Cash-Capital Available | 6,767,470 | 2,410,470 | 4,042,000 | - | 245,000 | 70,000 |
| Subtotal | \$ 45,064,580 | \$ 22,532,370 | \$ 9,861,180 | \$ 123,780 | \$ 12,477,250 | \$ 70,000 |
| <u>Financing Needs</u> | | | | | | |
| Possible Future Reserves | \$ 7,530,000 | 6,000,000 | 1,250,000 | 200,000 | - | 80,000 |
| New Debt | 44,609,320 | 32,969,530 | 3,641,820 | 2,272,220 | 5,490,750 | 235,000 |
| Subtotal | \$ 52,139,320 | \$ 38,969,530 | \$ 4,891,820 | \$ 2,472,220 | \$ 5,490,750 | \$ 315,000 |
| Total Funding | \$ 97,203,900 | \$ 61,501,900 | \$ 14,753,000 | \$ 2,596,000 | \$ 17,968,000 | \$ 385,000 |
| Percentage of funding in place | 46.4% | 36.6% | 66.8% | 4.8% | 69.4% | 18.2% |
| Ratio of debt to expense | 85.3% | 83.7% | 60.6% | 87.5% | 94.7% | 61.0% |
| Ratio of cash to expense | 14.7% | 13.7% | 35.9% | 7.7% | 1.4% | 39.0% |

FY 2021 BUDGET CALENDAR

| | | CIP | Operating Budget (Water) | Operating & Capital Budgets (SWA) |
|---------------|-------|--|--|---|
| November | 20 | CIP - Draft Due | | |
| December | 4 | Director level first review | | |
| December | 12 | Rate & charge analysis prepared | Operating requests due in form Department Managers | Operating requests due in form Department Managers |
| January | 3 | CIP review - Directors | | |
| January | 9 | | Director review first draft of Operating Budget | |
| January | 14-17 | Final adjustments to CIP due / send to City Utilities and ACSA | Second review of Operating Budget | |
| January | 23 | City Utilities & ACSA meeting | | Review Operating and Capital Budget |
| February | 15 | Final Draft prepared | | Second review of Operating & Capital Budget |
| February | 25 | Introduce CIP to Board | Send Operating Budget to City Utilities and ACSA | |
| February | 27 | | Meet with City Utilities and ACSA | Send budget to City and County staff |
| March | 5 | | | Meet with City Public Works and County Staff |
| March | 24 | | Introduce Operating & Debt Service budget to Board, set public hearing for May | Introduce Operating & Capital budget to Board, set public hearing for May |
| April and May | | | Advertise rates in paper | Advertise rates in paper |
| May | 26 | Adopt CIP | Adopt Operating & Debt Service Budget and rates | Adopt Budget and Tipping Fees |

MONTHLY REPORTING

14

- Financial reports are created monthly for the Board Agenda
- Comments are provided to help explain any large variances in actual results compared to budget
- Flows billed are presented graphically

- The six Rate Centers are presented separately
- There are also four support departments that are presented separately.
 - These departments do not generate revenues (with the exception of Administration).
 - Revenues are collected from Solid Waste as it's share of Administration costs.
- The support departments monthly are totaled up and allocated to the Rate Centers.

MONTHLY Financial Statements

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OPERATING
Budget vs. Actual

MONTHLY Financial Statements

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DEBT SERVICE Budget vs. Actual

Rivanna Water & Sewer Authority Monthly Financial Statements - November 2019

Urban Water Rate Center Revenues and Expenses Summary

| <i>Budget FY 2020</i> | <i>Budget Year-to-Date</i> | <i>Actual Year-to-Date</i> | <i>Budget vs. Actual</i> | <i>Variance Percentage</i> |
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|
|---------------------------|--------------------------------|--------------------------------|------------------------------|--------------------------------|

Debt Service Budget vs. Actual

Revenues

| | | | | | |
|------------------------------------|---------------------|---------------------|---------------------|------------------|--------------|
| Debt Service Rate Revenue | \$ 6,178,598 | \$ 2,574,416 | \$ 2,574,415 | \$ (1) | 0.00% |
| Trust Fund Interest | 54,000 | 22,500 | 35,980 | 13,480 | 59.91% |
| Reserve Fund Interest | 387,000 | 161,250 | 169,257 | 8,007 | 4.97% |
| Buck Mountain Surcharge | 125,900 | 52,458 | 69,600 | 17,142 | 32.68% |
| Lease Revenue | 1,600 | 667 | 2,120 | 1,453 | 217.99% |
| Total Debt Service Revenues | \$ 6,747,098 | \$ 2,811,291 | \$ 2,851,372 | \$ 40,081 | 1.43% |

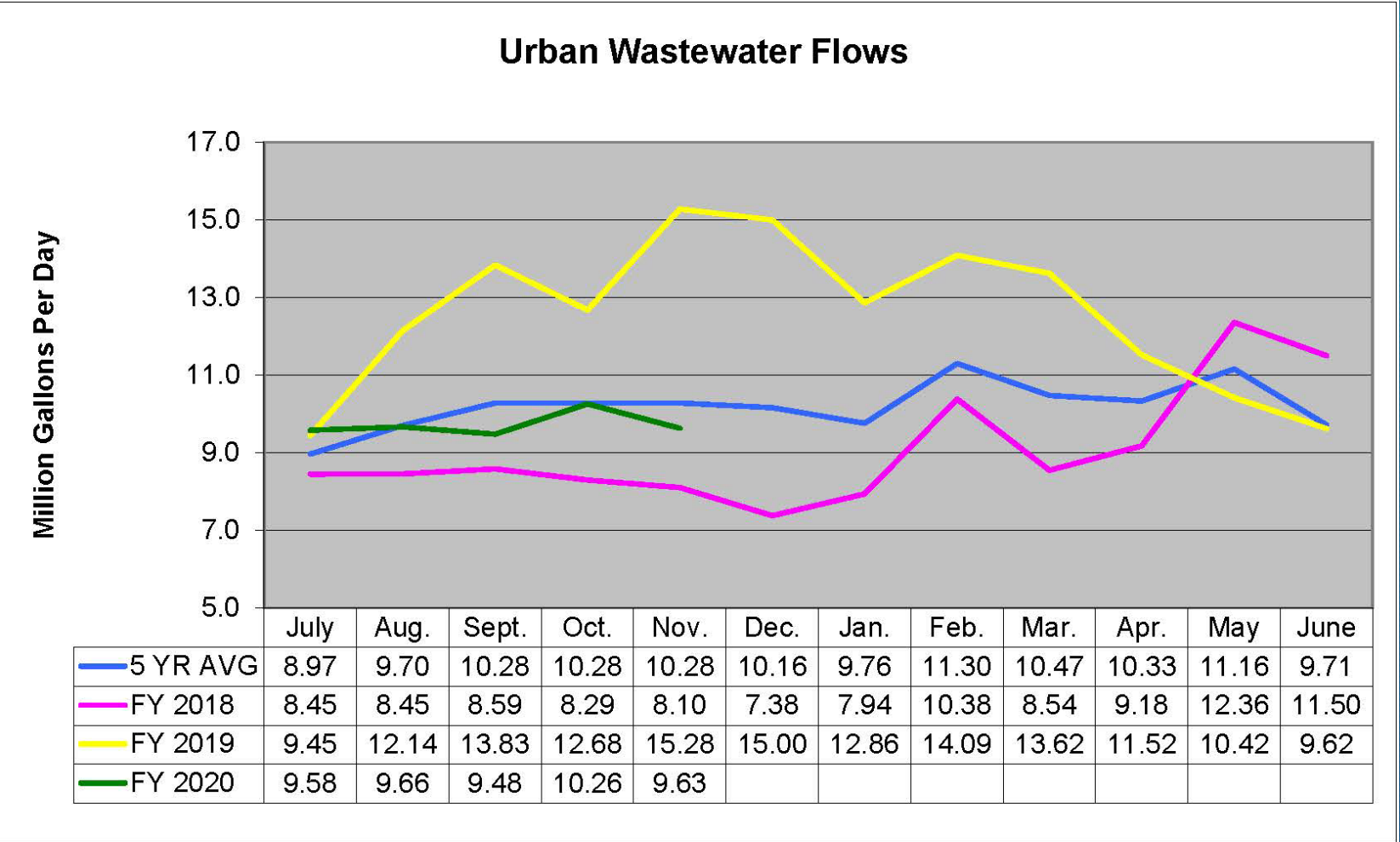
Debt Service Costs

| | | | | | |
|---------------------------------------|---------------------|---------------------|---------------------|-------------------|---------------|
| Total Principal & Interest | \$ 5,223,498 | \$ 2,176,458 | \$ 2,176,458 | \$ - | 0.00% |
| Reserve Additions-Interest | 387,000 | 161,250 | 169,257 | (8,007) | -4.97% |
| Debt Service Ratio Charge | 400,000 | 166,667 | 166,667 | - | 0.00% |
| Reserve Additions-CIP Growth | 736,600 | 306,917 | 306,917 | - | 0.00% |
| Total Debt Service Costs | \$ 6,747,098 | \$ 2,811,291 | \$ 2,819,298 | \$ (8,007) | -0.28% |
| Debt Service Surplus/(Deficit) | \$ - | \$ - | \$ 32,074 | | |

Rate Center Summary

| | | | | | |
|-------------------------------------|---------------|--------------------|------------------|------------|--------|
| Total Revenues | \$ 14,548,839 | \$ 6,062,016 | \$ 6,386,325 | \$ 324,309 | 5.35% |
| Total Expenses | 14,548,840 | 6,081,094 | 6,318,167 | (237,074) | -3.90% |
| Surplus/(Deficit) | \$ (1) | \$ (19,077) | \$ 68,158 | | |
| Costs per 1000 Gallons | \$ 2.30 | | \$ 2.22 | | |
| Operating and DS | \$ 4.28 | | \$ 4.02 | | |
| Thousand Gallons Treated | 3,397,700 | 1,415,708 | 1,572,904 | 157,196 | 11.10% |
| or | | | | | |
| Flow (MGD) | 9.309 | | 10.280 | | |

Urban Wastewater/Water BILLABLE FLOWS GRAPH



Questions or comments?

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 DECEMBER 2019

DATE: JANUARY 28, 2020

WATER OPERATIONS:

The average daily/monthly total water distributed for December 2019 was as follows:

| <i>Water Treatment Plant</i> | <i>Average Daily Production (MGD)</i> | <i>Total Monthly Production (MG)</i> | <i>Maximum Daily Production in the Month (MGD)</i> |
|-------------------------------------|--|---|---|
| Observatory | 0.70 | 21.75 | 2.11 (12/04/19) |
| South Rivanna | 6.99 | 216.69 | 8.12 (12/03/19) |
| North Rivanna | <u>0.322</u> | <u>9.97</u> | 0.39 (12/20/19) |
| <i>Urban Total</i> | 8.01 | 248.41 | 9.39 (12/03/19) |
| Crozet | 0.555 | 17.20 | 0.75 (12/19/19) |
| Scottsville | <u>0.055</u> | <u>1.70</u> | 0.07 (12/30/19) |
| <i>RWSA Total</i> | 8.62 | 267.31 | --- |

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

Status of Reservoirs (as of January 23, 2020):

- Urban Reservoirs: 99.80% of Total Useable Capacity
- Ragged Mountain Reservoir is – 0.02 feet (99.6 %)
- Sugar Hollow Reservoir is full (100%)
- South Rivanna Reservoir is full (100%)
- Beaver Creek Reservoir is full (100%)
- Totier Creek Reservoir is full (100%)

WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during December 2019. Performance of the WRRFs in December was as follows compared to the respective VDEQ permit limits:

| WRRF | Average Daily Effluent Flow (mgd) | Average CBOD₅ (ppm) | | Average Total Suspended Solids (ppm) | | Average Ammonia (ppm) | |
|-----------------------|--|---------------------------------------|--------------|---|--------------|------------------------------|--------------|
| | | RESULT | LIMIT | RESULT | LIMIT | RESULT | LIMIT |
| Moore's Creek | 8.8 | <QL | 11 | <QL | 22 | 1.2 | 7.0 |
| Glenmore | 0.097 | 3.0 | 15 | 2.0 | 30 | NR | NL |
| Scottsville | 0.058 | 6.0 | 25 | 19.0 | 30 | NR | NL |
| Stone Robinson | 0.001 | NR | 30 | NR | 30 | NR | NL |

NR = Not Required

NL = No Limit

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

Nutrient discharges at the Moore's Creek AWWRF were as follows for December 2019.

| State Annual Allocation (lb./yr.) Permit | | Average Monthly Allocation (lb./mo.) * | Moore's Creek Discharge December (lb./mo.) | Performance as % of monthly average Allocation* | Year to Date Performance as % of annual allocation |
|---|---------|---|---|--|---|
| Nitrogen | 282,994 | 23,583 | 10,081 | 43% | 55% |
| Phosphorous | 18,525 | 1,544 | 226 | 15% | 37% |

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

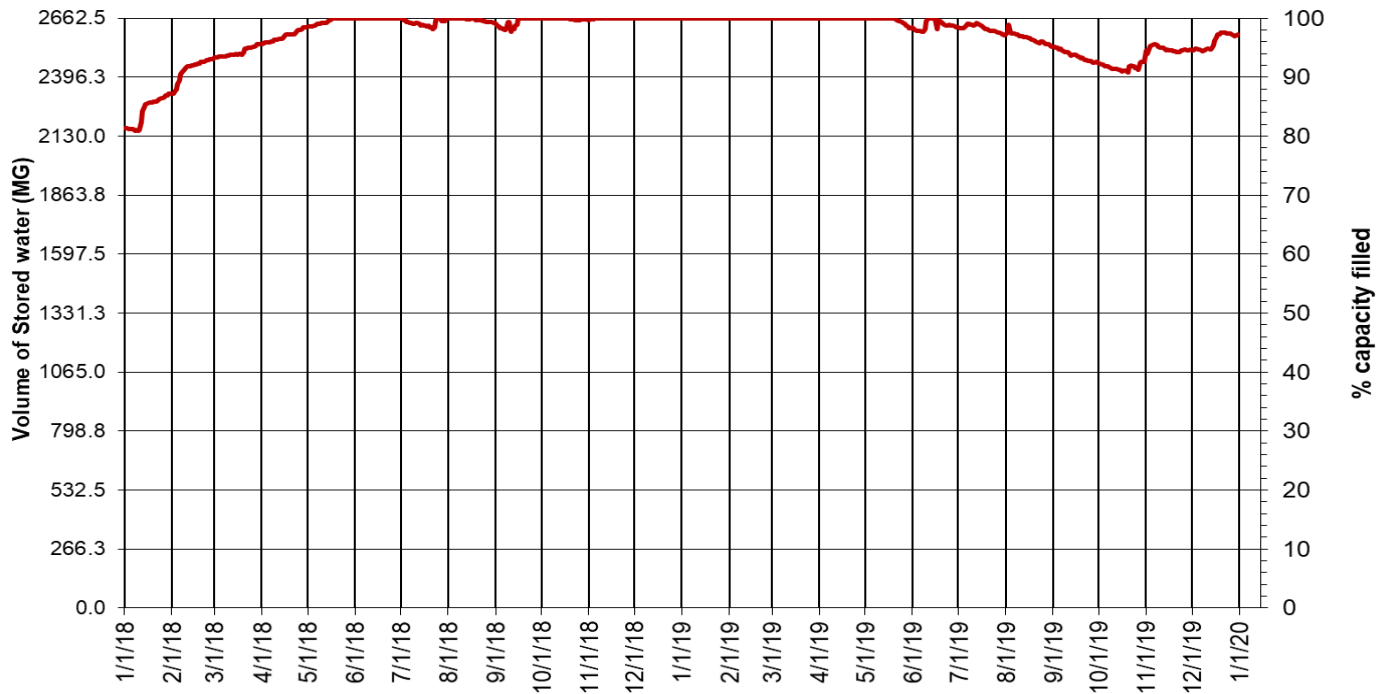
WATER AND WASTEWATER DATA:

The following graphs are provided for review:

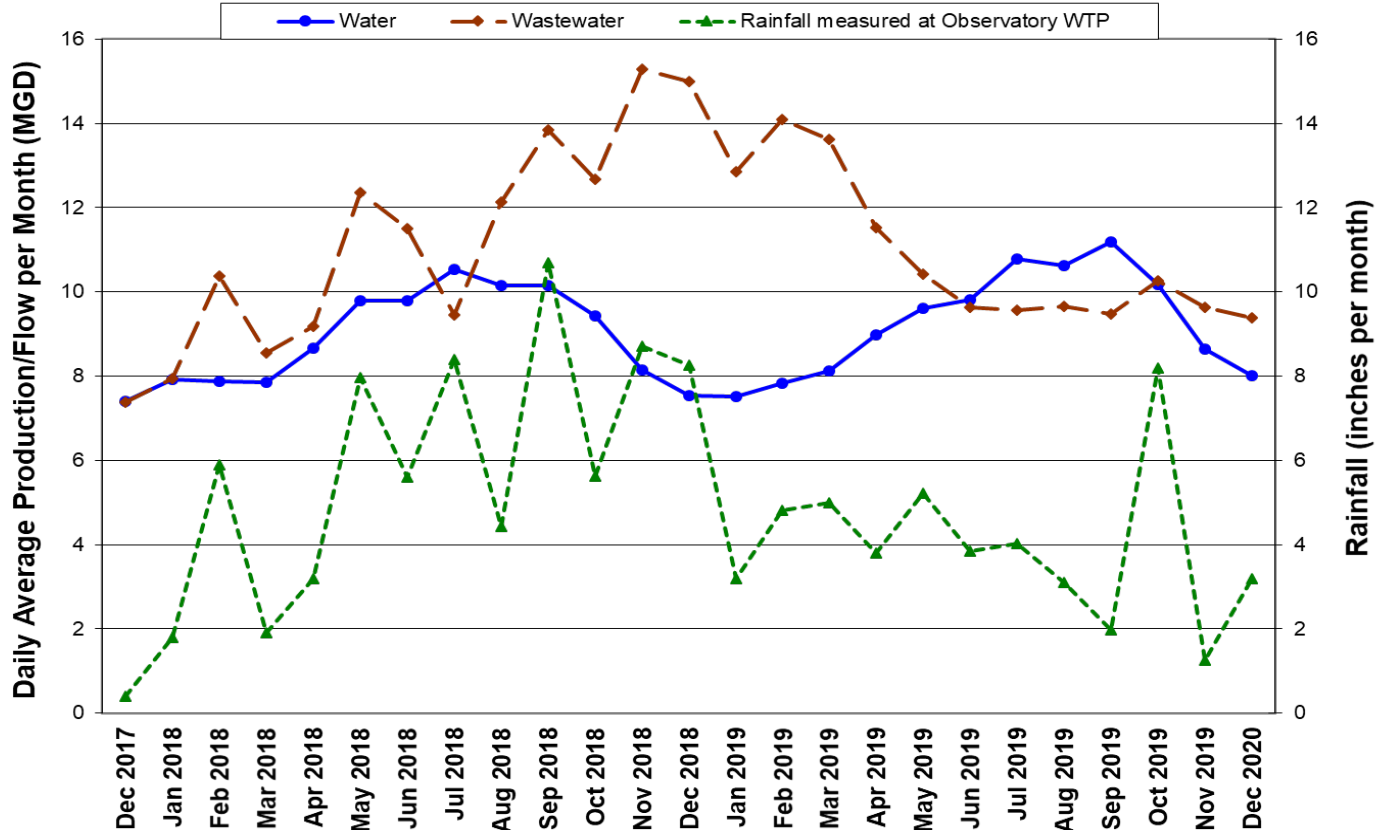
- Usable Urban Reservoir Water Storage
- Urban Water and Wastewater Flows versus Rainfall

Usable Urban Reservoir Water Storage

Maximum 2,662.5 MG after 5/1/19



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: JANUARY 28, 2020

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

Under Construction

1. Crozet Water Treatment Plant Expansion
2. Valve Repair – Replacement (Phase 2)
3. Buck's Elbow Ground Storage Tank Chlorination System
4. Moores Creek Wetland Hydrology Improvements

Design and Bidding

5. Observatory Water Treatment Plant Expansion
6. South Rivanna Water Treatment Plant Improvements
7. Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line and Raw Water Pump Station
8. Crozet Flow Equalization Tank
9. Beaver Creek Dam Alterations
10. Beaver Creek Raw Water Pump Station
11. Crozet Interceptor Pump Station Rebuilds
12. MC Digester Sludge Storage Improvements
13. MC Aluminum Slide Gate Replacements
14. Sugar Hollow Dam – Rubber Crest Gate Replacement and Intake Tower Repairs
15. Route 29 Water Pump Station
16. South Rivanna Dam – Gate Repairs

Planning and Studies

17. South Fork Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way
18. Urban Water Demand and Safe Yield Study
19. Urban Finished Water Infrastructure Master Plan
20. South Rivanna River Crossing and North Rivanna Transmission Main
21. Upper Schenks Branch Interceptor, Phase II
22. Asset Management Plan
23. Albemarle-Berkeley PS Basin Demolition and Capacity Analysis
24. Buck Mountain Master Plan

Other Significant Projects

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

Under Construction

1. Crozet Water Treatment Plant Expansion

| | |
|---|--------------------------------------|
| Design Engineer: | Short Elliot Hendrickson (SEH) |
| Construction Contractor: | Orders Construction Co. (WVA) |
| Construction Start: | December 2018 |
| Percent Completion: | 30% |
| Base Construction Contract + Change Order to Date = Current Value: | \$7,170,000- \$285,000 = \$6,885,000 |
| Expected Completion Date: | May 2021 |
| Total Capital Project Budget: | \$8,500,000 |

Current Status: Work continues on the expansion of the Chemical Building and sanitary force main installation.

2. Valve Repair – Replacement (Phase 2)

| | |
|--|---|
| Design Engineer: | RWSA / Dewberry |
| Construction Contractor: | Garney Construction |
| Construction Start: | May 2019 |
| Percent Complete: | 15% |
| Base Construction Contract + Change Orders to Date = Current Value: | \$843,460.00 - \$33,525.21 + \$178,322.33 = \$988,257.12 |
| Expected Completion: | October 2020 |
| Total Capital Project Budget: | \$1,132,914 |

Current Status: Valve replacements will resume in March/April. Staff is revising shutdown plans based upon previous system testing, and has begun coordinating with ACSA on line flushing plans for the remaining setups.

3. Buck's Elbow Ground Storage Tank Chlorination System

| | |
|--|--------------------------------|
| Design Engineer: | Short Elliot Hendrickson (SEH) |
| Construction Contractor: | Littleton and Associates, Inc. |
| Construction Start: | September 2019 |
| Percent Complete: | 0% |
| Base Construction Contract + Change Orders to Date = Current Value: | \$186,000 |
| Completion: | April 2020 |
| Approved Capital Budget: | \$239,000 |

Current Status: The Contractor mobilized in late December, and has completed the foundation for the pre-fabricated Chlorine Feed Structure. The Contractor will be able to complete the overall scope of work following delivery of the structure, which is slated for early February.

4. MC Wetland Hydrology Improvements

| | |
|--------------------------|----------------------------------|
| Design Engineer: | VHB |
| Project Start: | March 2019 |
| Construction Start: | December 2019, ECS, Mid-Atlantic |
| Completion: | February 2020 |
| Approved Capital Budget: | \$95,000 |

Current Status: Construction is underway.

Design and Bidding

5. Observatory Water Treatment Plant Expansion

| | |
|---------------------------|--------------------------------------|
| Design Engineer: | Short Elliot Hendrickson, Inc. (SEH) |
| Project Start: | October 2017 |
| Project Status: | Award |
| Construction Start: | March 2020 |
| Completion: | March 2023 |
| Approved Capital Budget: | \$19,700,000 |
| Current Project Estimate: | \$26,000,000 |

Current Status: Construction bids were opened on January 9, 2020. A recommendation for award and a CIP amendment are being presented to the Board this month.

6. South Rivanna Water Treatment Plant Improvements

| | |
|---------------------------|--------------------------------|
| Design Engineer: | Short Elliot Hendrickson (SEH) |
| Project Start: | October 2017 |
| Project Status: | Award |
| Construction Start: | March 2020 |
| Completion: | March 2023 |
| Approved Capital Budget: | \$15,000,000 |
| Current Project Estimate: | \$17,000,000 |

Current Status: Construction bids were opened on January 9, 2020. A recommendation for award and a CIP amendment are being presented to the Board this month.

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

| | |
|---------------------------|--|
| Design Engineer: | Michael Baker International (Baker) |
| Project Start: | August 2018 |
| Project Status: | Prelim Design & Easement Acquisition in Progress |
| Construction Start: | 2022 |
| Completion: | 2026 |
| Approved Capital Budget: | \$3,877,000 |
| Current Project Estimate: | \$18,000,000 |

Current Status: Easement acquisitions are underway.

8. Crozet Flow Equalization Tank

| | |
|--------------------------|----------------------|
| Design Engineer: | Schnabel Engineering |
| Project Start: | October 2016 |
| Project Status: | 99% Design |
| Construction Start: | April 2020 |
| Completion: | June 2021 |
| Approved Capital Budget: | \$4,860,000 |

Current Status: Construction bids will be received in March 2020.

9. Beaver Creek Dam Alterations

| | |
|---------------------------|--------------------------------------|
| Design Engineer: | Schnabel Engineering |
| Project Start: | February 2018 |
| Project Status: | Final Design and Permitting Underway |
| Construction Start: | 2023 |
| Completion: | 2026 |
| Approved Capital Budget: | \$4,898,000 |
| Current Project Estimate: | \$15,000,000 |

Current Status: Final design of the dam improvements is underway. Development of a Joint Permit Application for the new Pump Station, Intake, and Beaver Creek Dam Spillway Upgrades will be completed in the summer of 2020. Staff will pursue federal funding for the project.

10. Beaver Creek Raw Water Pump Station and Intake

| | |
|---------------------------|---|
| Design Engineer: | Hazen & Sawyer |
| Project Start: | August 2018 |
| Project Status: | Permitting and Site Selection Work Underway |
| Construction Start: | 2023 |
| Completion: | 2026 |
| Approved Capital Budget: | \$4,138,000 |
| Current Project Estimate: | \$8,000,000 |

Current Status: A draft site selection study memo for the new Raw Water Pump Station and intake is under review by staff. Development of a Joint Permit Application for the new Pump Station, Intake, and Beaver Creek Dam Spillway Upgrades will be completed in the summer of 2020.

11. Crozet Interceptor Pump Station Rebuilds

| | |
|--------------------------|------------|
| Design Engineer: | RWSA |
| Project Start: | July 2018 |
| Project Status: | 50% Design |
| Construction Start: | 2019 |
| Completion: | 2023 |
| Approved Capital Budget: | \$545,000 |

Current Status: The Maintenance Department has begun pump replacement work associated with this overall project. Permitting required for well replacement at PS #3 has begun and other improvements are being coordinated with the completion of the Crozet Flow Equalization Tank project.

12. MC Digester Sludge Storage Improvements

| | |
|--------------------------|--------------------|
| Design Engineer: | TBD |
| Project Start: | Summer 2019 |
| Project Status: | Preliminary Design |
| Construction Start: | Spring 2020 |
| Completion: | Winter 2020 |
| Approved Capital Budget: | \$313,000 |

Current Status: Completed an interior inspection of the sludge storage tank in December.

13. MC Aluminum Slide Gate Replacements

| | |
|------------------|------------------|
| Design Engineer: | Hazen and Sawyer |
| Project Start: | November 2018 |

| | |
|--------------------------|---------------|
| Project Status: | Bidding |
| Construction Start: | April 2020 |
| Completion: | December 2020 |
| Approved Capital Budget: | \$470,000 |

Current Status: Construction bids will be received in March 2020.

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

| | |
|--------------------------|----------------------|
| Design Engineer: | Schnabel Engineering |
| Project Start: | January 2019 |
| Project Status: | Design 40% |
| Construction Start: | 2021 |
| Completion: | 2021 |
| Approved Capital Budget: | \$1,140,000 |

Current Status: Schnabel is proceeding with design of the new rubber crest gate and compiling a list of recommended repairs based on recent site inspections. Construction anticipated to begin in late spring or summer of 2021.

15. Route 29 Water Pump Station and Piping

| | |
|--------------------------|--------------------------------|
| Design Engineer: | Short Elliot Hendrickson (SEH) |
| Project Start: | July 2019 |
| Project Status: | Preliminary Design 20% |
| Construction Start: | 2021 |
| Completion: | 2022 |
| Approved Capital Budget: | \$2,300,000 |

Current Status: Geotechnical investigations and Preliminary Engineering Report preparation are in progress. A site plan pre-application meeting was held with the County on January 13, 2020.

16. South Rivanna Dam – Gate Repairs

| | |
|--------------------------|-------------------|
| Design Engineer: | N/A |
| Project Start: | July 2019 |
| Project Status: | Contract Pending |
| Construction Start: | Spring- Fall 2020 |
| Completion: | 2020 |
| Approved Capital Budget: | \$900,000 |

Current Status: RWSA anticipates completing repair or replacement of the gates with its on-call dam services contractor, Bander Smith, Inc. Gate repairs are currently expected to occur in late spring or summer of 2020 following a condition assessment of the gates this winter.

Planning and Studies

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

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

Current Status: Acquisition efforts continue. Offers have been made to 9 of 12 private property owners, with 1 acceptance. Documents are also being prepared for 3 public property owners (VDOT, City, County School Board).

18. Urban Water Demand and Safe Yield Study

| | |
|--------------------------|------------------|
| Design Engineer: | Hazen and Sawyer |
| Project Start: | November 2018 |
| Project Status: | 90% complete |
| Completion: | February 2020 |
| Approved Capital Budget: | \$154,000 |

Current Status: Hazen is moving forward with the Safe Yield analysis and report writing.

19. Urban Finished Water Infrastructure Master Plan

| | |
|--------------------------|-------------------------------------|
| Design Engineer: | Michael Baker International (Baker) |
| Project Start: | November 2018 |
| Project Status: | 55% complete |
| Completion: | June 2020 |
| Approved Capital Budget: | \$253,000 |

Current Status: Model development and calibration is on-going and will incorporate the finalized water demand information.

20. South Rivanna River Crossing and North Rivanna Transmission Main

| | |
|--------------------------|-------------------------------------|
| Design Engineer: | Michael Baker International (Baker) |
| Project Start: | July 2020 |
| Project Status: | Preliminary Design 10% |
| Construction Start: | 2021 |
| Completion: | 2023 |
| Approved Capital Budget: | \$5,340,000 |

Current Status: Design of the North Rivanna Transmission Main has begun as part of the Route 29 Water Pump Station Project.

21. Upper Schenks Branch Interceptor, Phase II

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

Current Status: Discussions about the pipe alignment have been renewed with the County and the City.

22. Asset Management Plan

| | |
|--------------------------|--|
| Design Consultant: | GHD, Inc. |
| Project Start: | July 2018 |
| Project Status: | Phase 1 – 99% Complete Phase 2 – 10% Complete |
| Completion: | 2020 |
| Approved Capital Budget: | \$500,000 |

Current Status: Development of an asset register, condition assessment protocols, and a pilot study of the asset management process is underway.

23. Albemarle-Berkeley PS Basin Demolition and Capacity Analysis

| | |
|--------------------------|----------------|
| Design Consultant: | GHD, Inc. |
| Project Start: | September 2019 |
| Project Status: | Design 10% |
| Completion: | 2021 |
| Approved Capital Budget: | \$200,000 |

Current Status: Demolition of the basin will be completed by September.

24. Buck Mountain Master Plan

| | |
|--------------------|------------------------|
| Design Consultant: | LPDA (Charlottesville) |
| Project Start: | November 2019 |
| Project Status: | 15% Complete |
| Completion: | May 2020 |
| Budget: | \$56,000 |

Current Status: Study is underway.

Other Significant Projects

25. Urgent and Emergency Repairs

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

| Project No. | Project Description | Approx. Cost |
|-------------|--|--------------|
| 2018-06 | South Rivanna Dam Apron and River Bank Repairs | \$200,000 |
| 2019-07 | Urban Water Line Valve and Blow-off Repair | \$75,000 |
| 2020-01 | Urban Waterline Exposure @ McIntire Park | \$75,000 |

- [South Rivanna Dam Apron and River Bank Repairs](#): Repairs to the north and south concrete aprons will be designed by Schnabel Engineering and those services will be procured from the on-call contractor.
- [Urban Water Line Valve and Blow-off Repair](#): Faulconer Construction will complete the drain valve replacements, as well as any piping/outlet modifications to the associated drain lines. Staff is coordinating the logistics of the projects, including the associated water main shutdowns for the repairs both on Mallside Forrest Court and Gasoline Alley. These repairs are scheduled to take place consecutively in February.
- [Urban Waterline Exposure @ McIntire Park](#): On January 16th, 2020, RWSA staff discovered that a large section of bank had collapsed within McIntire Park due to recent rains and runoff, causing approximately 20' of RWSA's 24" Urban Waterline to become exposed. Due to the amount and size of fill required to properly stabilize the area, RWSA immediately mobilized its On-Call Maintenance Contractor, Faulconer Construction. Minor tree clearing work took place on 1/16 in order to better access the exposure site and protect the waterline, and Faulconer temporarily covered the pipe with No. 57 stone to provide interim bedding. The permanent repair work will commence during the week of January 20th, which will include armoring the bank with large rip rap, backfilling behind the armament with compacted No. 57 stone, and installing drainage improvements to protect the area from excessive erosion.

26. Interceptor Sewer and Manhole Repair

| | |
|--|---|
| Design Engineer: | Frazier Engineering |
| Construction Contractor: | IPR Northeast |
| Construction Start: | November 2017 |
| Percent Complete: | 40% |
| Base Construction Contract + | |
| Change Orders to Date = Current Value: | \$1,244,337.19 |
| Expected Completion: | June 2021 |
| Total Capital Project Budget: | \$1,088,330 (Urban) + \$625,000 (Crozet) = \$1,713,330 |

Current Status: Repairs to the Upper Morey Creek Interceptor are ongoing. Staff is evaluating the current condition of the interceptor system and prioritizing for the next round of repairs.

27. Security Enhancements

| | |
|--------------------------|--------------|
| Contractor: | Security 101 |
| Construction Start: | August 2019 |
| Percent Complete: | Design 10% |
| Completion: | 2021 |
| Approved Capital Budget: | \$1,000,000 |

Current Status: Work will begin in February 2020 to include access control implementation at all exterior doors at MCAWRRF, as well as the motorized gates at all WTPs.

History

Under Construction

1. Crozet Water Treatment Plant Expansion

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

2. Valve Repair – Replacement (Phase 2)

This project will replace the highest-priority valves that are identified during the condition assessment as not operable and not repairable. Phase 2 will continue replacing inoperable and unrepairable valves in the North Rivanna Finished Water System, but it will also replace (and potentially repair) valves on the South Rivanna, Crozet, Pantops, and Southern Loop Finished Water Systems. Once all specified valves have been repaired/replaced in Phase 2, the focus will shift to replacing older isolation valves in subsequent phases.

A Request for Bids (RFB) was issued on November 6, 2018. RWSA staff opened bids for the project on December 11, 2018, and Garney Companies, Inc. was the apparent low bidder (\$843,460). The RWSA Board of Directors approved the bid award recommendation and Capital Improvement Plan Budget Amendment on January 22, 2019. A Notice to Proceed was issued on May 6, 2019.

Two (2) valve replacements were completed in May 2019; one (1) valve was replaced on the Crozet Waterline, and one (1) valve was replaced on the South Rivanna Waterline. Due to the unavailability of certain valves and lead times on selected materials, the contractor demobilized from the project in late May. The Capital Improvement Plan was further amended on October 22, 2019 to compensate the contractor for this extra demobilization/remobilization, as well as the installation of a necessary bypass line that will keep South Rivanna WTP in service during one of the valve replacements.

3. Buck's Elbow Ground Storage Tank Chlorination System

The Contract Documents have been executed by both parties, and a Notice to Proceed (NTP) was issued on September 9, 2019.

The two million-gallon Bucks Elbow Ground Storage Tank provides finished water storage for the Crozet Area. Historically, RWSA has experienced low chlorine residuals in the tank during the warm weather months due to water age and stratification. When chlorine residuals drop, RWSA must manually feed chlorine into the tank. This meant that staff had to bring all required pumping infrastructure to the site and climb the tank to access the injection point(s). To enhance the efficiency and safety of this process, SEH is assisting RWSA with the design of a chlorine feed system that is capable of one-person operation, will not require tank climbing or confined space entry into the adjacent altitude valve vault, and will minimize overall chemical exposure risk to RWSA staff. An active mixing system will also be installed at the Buck's Elbow Ground Storage Tank as a part of the work to supplement the existing passive mixing system. This will ensure that the tank is being appropriately mixed during the chlorine feed process and will decrease overall stratification in the tank.

SEH completed an update to the project's original Alternatives Analysis (completed in Winter 2017 as an O&M Project) and held a review meeting with RWSA Engineering and Operations staff during the week of May 6, 2019. This document was submitted to VDH for preliminary review following the meeting. Bidding documents were finalized, and the Request for Bids was issued on June 20, 2019. Bids were opened on July 11, 2019, and the apparent low bidder was Littleton and Associates, Inc. (\$186,000). A Bid Award Recommendation and Capital Improvement Plan Amendment was approved by the Board of Directors on July 23, 2019. A Notice of Award was issued to Littleton and Associates, Inc. on August 6, 2019. The Notice to Proceed was issued on September 9, 2019.

4. MC Wetland Hydrology Improvements

As part of the Ragged Mountain project, RWSA was required to mitigate for impacts to streams and wetlands. The stream mitigation was completed on the Buck Mtn. property, and the wetland mitigation site is located along Moores Creek on Franklin St. RWSA has been monitoring the mitigation sites, as required by the project permit, since they were constructed in 2014. Reports on the success of the sites are required by the Department of Environmental Quality (DEQ) for 10 years. From this monitoring, it was determined that the wetland is holding more water than is ideal for its function. VHB designed a Hydrology Improvement Plan for the site, which was approved by DEQ. RWSA has obtained the necessary County permits for the improvements (i.e., Erosion and Sediment Control permit).

Design and Bidding

5. Observatory Water Treatment Plant Expansion

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. 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.

6. South Rivanna Water Treatment Plant Improvements

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 13, 2018 and 30% design documents were provided in February. A Value Engineering Workshop took place the week of April 8th and a memo summarizing the results has been completed. Agreed upon results were incorporated into the project. The projects herein include: 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.

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

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

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

8. Crozet Flow Equalization Tank

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

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

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

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

A work authorization with Schnabel Engineering was finalized and a Project Kick-off Meeting was held on July 12, 2018.

9. Beaver Creek Dam Alterations

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.

10. Beaver Creek Raw Water Pump Station and Intake

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

design. The new intake structure will include enhanced controls to allow for access to the best quality water at any given time.

11. Crozet Interceptor Pump Station Rebuilds

The Crozet Interceptor Pump Stations were constructed in the 1980's and many of the components are still original. The project will include the replacement of pumps and valves at Pump Station No. 2 in order to improve pumping capabilities at this location and provide spare parts for the pumps at Pump Station No. 1. This work will also include roof replacements at all four pump stations, siding replacement for the wet well enclosure at Pump Station No. 3, and installation of a new water well at Pump Station No. 3. Components of this project will be coordinated and timed to properly coincide with the Crozet Flow Equalization Tank project.

12. MC Digester Sludge Storage Improvements

With the second centrifuge installation, additional capacity for storage of digested sludge would provide the Authority operational flexibility it does not currently have. Additionally, the sole sludge storage tank at the MCAWRRF was constructed in 1959 of reinforced concrete and is in need of repairs. This project would convert one of the three existing anaerobic digesters (Digester No. 1) into a sludge storage tank through piping modifications, and would provide redundancy to the existing sludge storage tank so it can be removed from service, cleaned, inspected, and repaired with minimal impact to the existing sludge dewatering operations. The piping configuration would also allow flexibility for the anaerobic digester to be used as either an anaerobic digester or sludge storage tank as needed for operations. The scope of work would include piping modifications, hydraulic improvements, tank safety improvements such as handrail and lights, and structural improvements to the existing sludge storage tank roof.

13. MC Aluminum Slide Gate Replacements

Several large aluminum slide gates are located at the influent side of the Moores Creek Pump Station. These gates allow staff to stop or divert flow to perform maintenance activities. After repeated attempts to repair the deteriorated gates, it is now necessary to replace the gates and modify the gate arrangement. There are also several deteriorated gates at the Ultraviolet disinfection facility that leak water, causing a reduced capacity of the facility. Replacement of these gates will restore the process to full capacity.

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

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

15. Route 29 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.

16. South Rivanna Dam – Gate Repairs

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

Planning and Studies

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

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

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

18. Urban Water Demand and Safe Yield Study

The City of Charlottesville, Albemarle County Service Authority, and RWSA entered into the Ragged Mountain Dam Project Agreement in 2012. This Agreement included provisions to monitor the bathymetric capacity of the Urban water reservoirs as well as a requirement to conduct reoccurring demand analysis, demand forecasting and safe yield evaluations. This study will evaluate and

calculate current and future demands and present safe yield. Per the project Agreement, these analyses shall be completed by calendar year 2020.

19. Urban Finished Water Infrastructure Master Plan

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

20. South Rivanna River Crossing and North Rivanna Transmission Main

An update to the Airport Zone Study Report was completed in summer of 2018, confirming the need for and timing of the river crossing and transmission main. As work associated with the Route 29 Pump Station begins, improvements to the North Rivanna Transmission Main as needed to facilitate that project, will be included in that project. 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 Airport Road Pump Station Site, RWSA plans to construct a new river crossing at the South Fork Rivanna River and two "gap" sections of 24-inch water main between the already completed sections. Much of the new water main route is within VDOT right-of-way; however, acquisition of right-of-way will be required at the river crossing and on the Kohl's Property at Hollymead Town Center. The North Rivanna Transmission Main improvements portion of this CIP project have been moved to the Route 29 Pump Station project to allow for the connection of that pump station to the distribution system. These project changes will be formalized during the upcoming CIP development process.

21. Upper Schenks Branch Interceptor, Phase II

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

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

22. Asset Management Plan

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

23. Albemarle-Berkeley PS Basin Demolition and Capacity Analysis

Historically, the Albemarle Berkeley Pump Station was co-located within an open-air basin that occasionally collected sewage during power outages. With the addition of a back-up power generator, the basin no longer serves a technical purpose. Given the proximity of the deteriorating structure to school property, this project serves to demolish and fill the area of the existing basin. In addition, due to unacceptably high run times on the pumps themselves, a second part of the overall project will be to perform a capacity analysis of the PS, given the current and projected upstream conditions.

24. Buck Mountain Master Plan

The purpose of this Master Plan is to consider alternatives for use of the 1300 acre property purchased in the 1980's for a water supply reservoir, which was never built. 600 acres are currently under deed restrictions to mitigate the environmental impacts of the expanded Ragged Mountain Dam. Development of the Buck Mountain Master Plan will consider past and current uses of the property, identify alternatives, and provide recommendations for strategic use of the property into the future.

Other Significant Projects

25. Urgent and Emergency Repairs

- **South Rivanna Dam Apron and River Bank Repairs**

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

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

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

26. Interceptor Sewer and Manhole Repair

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

27. 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.



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: CONSTRUCTION CONTRACT AWARD AND CAPITAL
IMPROVEMENT PLAN AMENDMENT– OBSERVATORY AND
SOUTH RIVANNA WATER TREATMENT PLANTS,
REHABILITATION AND EXPANSION PROJECT – ENGLISH
CONSTRUCTION COMPANY, INC.**

DATE: JANUARY 28, 2020

The Observatory Water Treatment Plant (OBWTP) is the oldest of the three urban water plants. The plant was originally constructed in the mid-1950's and since that time very little has been replaced or upgraded at the facility. As a result, much of the original equipment is inefficient, prone to unexpected failure, and does not have readily accessible replacement parts. Based on a Needs Assessment Study, the plant must undergo a wholesale upgrade to many of its treatment components and processes. In addition to these general improvements, the plant's overall capacity will be increased from 7.7 million gallons per day (MGD) to 10 MGD and the plant's granular activated carbon (GAC) treatment capacity will be increased from 2 MGD to 6 MGD.

The South Rivanna Water Treatment Plant (SRWTP) is a conventional water treatment plant that was constructed in 1964 and expanded in 1984 and supplies the majority of the water to the RWSA's Urban Water System. A Needs Assessment Study was performed for this plant as well, which identified the need for general improvements including but not limited to; expansion of existing chemical storage facilities, of two additional filters, a new administration building for Water Department staff, pumping improvements throughout the plant, electrical and mechanical service improvements, and general renovations.

It was decided that these two projects would be bid together to increase the size of the project and generate volume pricing, installation of similar equipment, and attract larger contractors. After completion of a Value Engineering process, a Request for Bids was issued on November 12, 2019. A pre-bid conference with site visits was held on November 26, 2019. Construction bids were opened for the project on January 9, 2020. Four competitive bids were received for the project with base bids ranging from \$36,748,500 to \$44,937,000. An alternate item (Alternate 1) for a deduct of the GAC expansion at the OBWTP was also included with values ranging from \$1,434,000 to \$2,267,000. The apparent low bidder (base bid) was English Construction Company, Inc. (English) of Lynchburg, VA with a total base bid of \$36,748,500.

Our design engineer, SEH, has reviewed the bid documents submitted by English and verified that the bid and attached documents are both responsive and responsible. English's base bid was 13% higher than the Engineer's estimate of \$32,570,000. This has been attributed to the strong economy in Virginia and the busy nature of the regional contractors. English's deduct value for Alternate 1 of \$1,800,000 was considerably less than the Engineer's deduct estimate of \$3,667,000. Based on these factors, SEH recommends awarding a construction contract for \$36,748,500 to English Construction Company, Inc. and not accepting Alternate 1, due to the importance of increasing GAC treatment capacity.

The current Capital Improvement Plan (CIP) budgets for improvements at the OBWTP and the SRWTP are \$19,700,000 and \$15,000,000 respectively, for a total value of \$34,700,000. The estimated total CIP budget increase for the GAC expansion at the OBWTP prior to bidding was \$5,800,000, which had been communicated with the Board of Directors in July 2019 when the project was amended to include only the consultant services necessary to incorporate the GAC equipment into the design. As a result, prior to bidding the total anticipated CIP budget for these two projects was \$40,500,000. Incorporating English's bid would represent an additional increase to the CIP budget of \$2,500,000 for a total between the two projects of \$43,000,000. Based on the range of bid prices received, SEH and staff believe that the pricing provided is reasonable and in accordance with the current market value for the work.

Board Action Requested:

Staff requests the Board of Directors to approve the following:

1. Authorization for the Executive Director to award a construction contract to English Construction Company, Inc. for a total value of \$36,748,500 and any change orders to the construction contract necessary for completion of the work not exceed 10% of the original construction contract award.
2. An amendment to the FY 20 – 24 CIP for the Observatory WTP Improvements project to increase the budget by \$6,300,000. This amendment would bring the total budget for this project to \$26,000,000.
3. An amendment to the FY 20 – 24 CIP for the South Rivanna WTP Improvements project to increase the budget \$2,000,000. This amendment would bring the total budget for this project to \$17,000,000.

Observatory and South Rivanna Water Treatment Plants, Rehabilitation and Expansion Project – Contract Award and CIP Amendment



Presented to the RWSA Board of Directors by:

Scott Schiller, Engineering Manager

January 28, 2020

South Rivanna WTP – Work Summary

- Add two new filters and provide new filter control panels
- General filter building remodeling
- Construct a new Alum/Fluoride Chemical Storage Building
- Enclose the liquid lime chemical facilities in a building
- Construct a new Administration Building for the Water Department
- Mechanical pumping and Electrical service improvements



Observatory WTP – Work Summary



- Construct a new Chemical Building
- Modify two of the existing sedimentation basins and demo the other two
- Expand the GAC treatment capacity from 2 MGD to 6 MGD by adding 4 GAC contactors, additional piping and building space
- Construct an expansion to the Filter Building to add new backwash pumps
- Rehabilitate all filters and replace all filter face piping
- General filter building remodeling
- Construct a loop road around the site
- Rebuild the settled water flume

Bid Summary

- 4 bids received ranging from \$36,748,500 to \$44,937,000
- Engineer's estimate = \$32,570,000
- Apparent low bidder – English Construction, Lynchburg, VA
 - Total Bid = \$36,748,500
 - 13% higher than Engineer's Estimate
- SEH and staff reviewed bids and recommend award to English Construction

Capital Budget Summary

- Current Approved Capital Budgets:
 - South Rivanna WTP Improvements = \$15,000,000
 - Observatory WTP Improvements = \$19,700,000
 - Total = \$34,700,000
- Est. budget increase for OBWTP GAC Expansion = \$5,800,000
- Est. Total Capital Budget prior to bidding = \$40,500,000
- Proposed Total Capital Budget based on bid results = \$43,000,000

Anticipated Schedule

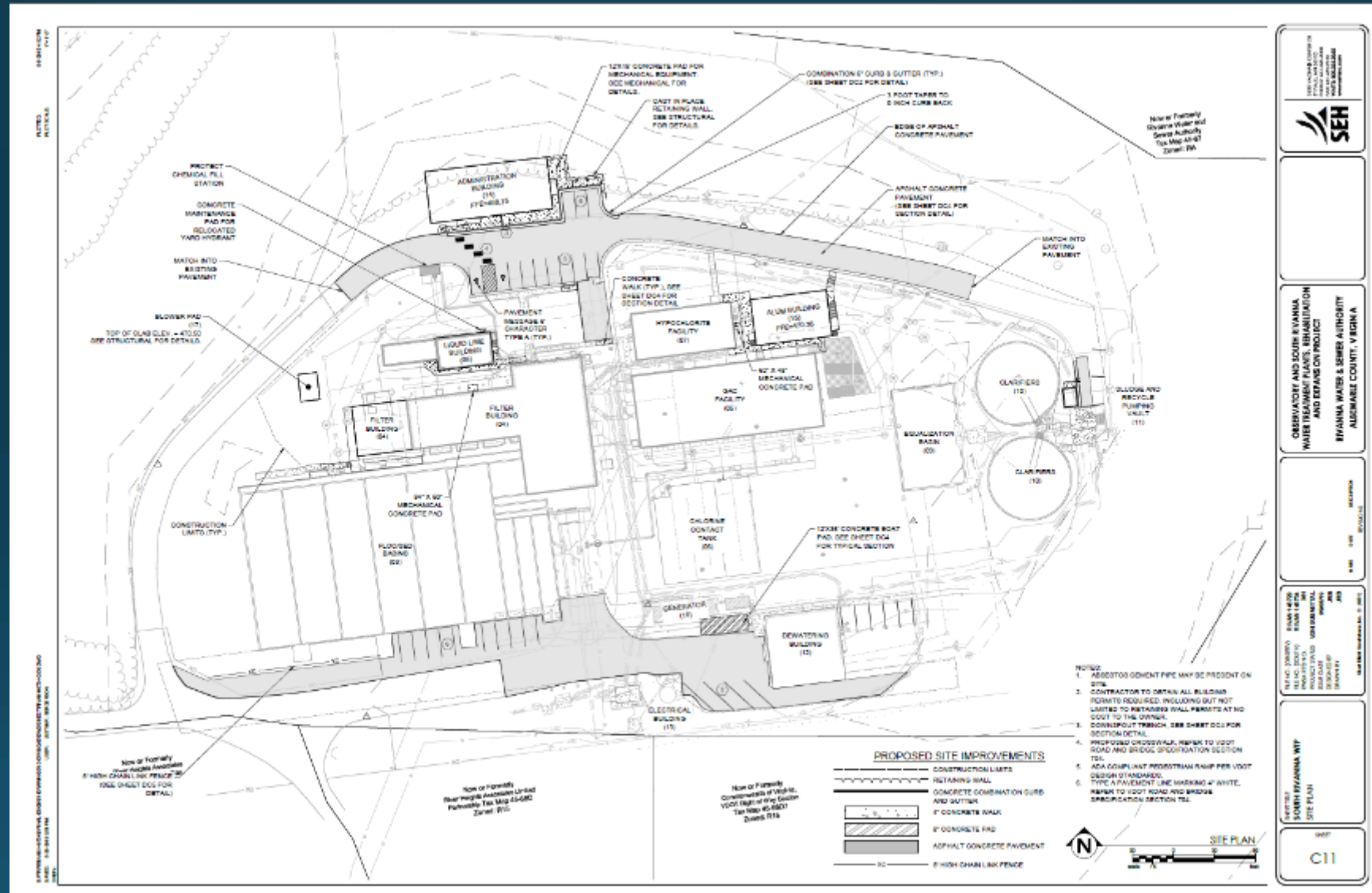
- Start Construction: March 2020
- Construction Phasing:
 - SRWTP Substantial Completion – Summer 2021
 - OBWTP Shutdown – December 2021 to February 2022**
**(UVA Holiday break: shutdown cannot be rescheduled)
- Final Completion – Spring 2023

Questions?

Requested Board Action

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South Rivanna WTP – Proposed Site Plan



Observatory WTP – Proposed Site Plan

