

## Rivanna Water and Sewer Authority

## **Board of Directors Meeting**

# November 14, 2017 2:15pm



#### **BOARD OF DIRECTORS**

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

- DATE: November 14, 2017
- 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 October 24, 2017
- 3. RECOGNITION
- 4. EXECUTIVE DIRECTOR'S REPORT
- 5. ITEMS FROM THE PUBLIC
- 6. RESPONSES TO PUBLIC COMMENTS
- 7. CONSENT AGENDA
  - a) Staff Report on Operations
  - b) Staff Report on Ongoing Projects
  - c) Recommendation for an Additional <sup>1</sup>/<sub>2</sub> Day Holiday on November 22 and December 22, 2017
  - d) Proposed 2018 Board Meeting Schedule

#### 8. OTHER BUSINESS

a) Recommendation to Discontinue Water Use Restrictions

#### 9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

10. WORK SESSION on the STRATEGIC PLAN with RAFTELIS

- 11. CLOSED MEETING
- 12. ADJOURNMENT

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

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

Members of the public requesting to speak will be recognized during the specific time designated on the meeting agenda for "Items From The Public." 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 October 24, 2017

A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was held on Tuesday, October 24, 2017 at 2:15 p.m. in the 2<sup>nd</sup> floor conference room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

**Board Members Present:** Mr. Mike Gaffney – Chair, presiding; Ms. Kathy Galvin (left meeting at 3:31 p.m.); Ms. Lauren Hildebrand; Mr. Maurice Jones; Mr. Gary O'Connell; and Dr. Liz Palmer.

Board Members Absent: Mr. Doug Walker.

**Staff Present:** Ms. Miranda Baird, Mr. Tim Castillo, Ms. Victoria Fort, Mr. Tom Freeman, Dr. Richard Gullick, Ms. Katie McIlwee, Mr. Doug March, Mr. Bill Mawyer, Ms. Betsy Nemeth, Mr. Scott Schiller, Ms. Michelle Simpson, Ms. Andrea Terry, Ms. Jennifer Whitaker, and Mr. Lonnie Wood.

Also Present: Mr. Kurt Krueger, RWSA counsel and members of the public.

#### 1.0 Call to Order

The regular meeting of the RWSA Board of Directors was called to order by Mr. Gaffney on Tuesday, October 24, 2017 at 2:16 p.m.

#### 2.0 Minutes of Previous Board Meetings

- a) Minutes of Regular Board Meeting on September 26, 2017
- b) Minutes of Special Emergency Board Meeting October 5, 2017

Mr. Jones moved to approve the RWSA Board meeting minutes of September 26, 2017 and October 5, 2017. Dr. Palmer seconded the motion, which passed by a vote of 6-0. Mr. Walker was absent from the meeting and the vote.

#### 3.0 Recognition

There were no recognitions.

#### 4.0 Executive Director's Report

Mr. Mawyer introduced Katie McIlwee, Rivanna's new Executive Assistant to the Executive Director and Communications Manager. He stated that Ms. McIlwee holds a bachelor's degree in classical studies and art history and a master's degree in library science, as well as significant experience with software, communications and administration with private firms and NGIC. He thanked Miranda Baird for helping to bridge the gap after Teri Kent's departure.

Mr. Mawyer reported that reservoir conditions had improved, and between October 5 and today the South Fork Rivanna Reservoir level has increased from 42% to 60% full, and about 160 million gallons have been added to the reservoir, a 2.5 foot increase in the water level. He stated that these numbers were more recent than what the Board has in their meeting materials. Mr. Mawyer reported that Rivanna is pleased that the measures taken by the Board to implement mandatory restrictions have been effective, and usage has declined from day to day – where it had normally averaged about 10 MGD but had a few days down to 8 MGD. He noted that operational changes were working, as staff has switched the load from the South Rivanna Water Treatment Plant to the Observatory Water Treatment Plant. He explained that they used to make 8 MGD at the Rivanna plant and 2 MGD at the Observatory plant, but have switched that to 5 MGD at the SRWTP and 5 MGD at the OWTP, and the 3 MGD switched to production at the Observatory WTP fed from the Ragged Mountain Reservoir helped maintain the South Fork Rivanna Reservoir. Mr. Mawyer noted that DEQ had also allowed Rivanna to reduce the instream release to the Rivanna River from the South Fork Rivanna dam.

Mr. Gaffney asked for confirmation that indications were that the previous day's rain were still accumulating.

Mr. Mawyer responded that the accumulations were still coming in, and Rivanna would continue these measures until the South Fork Rivanna Reservoir was full, working with DEQ to define what "full" means and at what point they would be comfortable with the release requirements and minimizing those when the time is right to lessen the drought stages. He stated that they have been adding about 1% a day to the storage in the SFRR, so the hope is to reach 90% in the next 30 days, at which time they would have the discussion regarding minimization of the drought measures.

Mr. O'Connell mentioned that the time given in the daily report was for the prior day.

Mr. Mawyer replied that it was through midnight, which is when the reservoir levels are measured, and on the daily report the production at the treatment plants is for the prior day.

Mr. Mawyer reported that Rivanna has continued with its community outreach program and had participated in the "Imagine a Day Without Water" program on the Downtown mall. He stated that Wastewater Manager Tim Castillo had students from Sutherland Middle School and the STEM team visit the Moore's Creek plant and learn about advanced wastewater treatment. Mr. Mawyer stated that Senior Civil Engineer Victoria Fort had met with 1<sup>st</sup> year engineering students at UVA and provided a realistic discussion of what it means to become a civil engineer – particularly what engineers do for Rivanna.

Mr. Mawyer reported that the Rivanna strategic plan was moving forward, with a work session

scheduled with both Rivanna boards on November 14<sup>th</sup> to present the steering team's draft plans to the boards and get their comments, with intent that the strategic plan would be ready for consideration and approval on December 12<sup>th</sup>.

#### 5.0 <u>Items from the Public</u>

Ms. Dede Smith addressed the Board and noted that she is a city resident and water user, noting that she was not here to criticize the community water supply plan. Ms. Smith stated that this was not a "test" of it, and not all the pieces were in place for the plan. She stated that Rivanna had done an honorable job of getting Observatory Water Treatment Plant up to speed, even though it had come with some criticism. Ms. Smith stated that she was very impressed with the conservation impact, and with the rise in the South Fork Rivanna Reservoir levels - but it is at the expense of the Rivanna River. She emphasized that a 1 MGD release to Rivanna is "horrifying," and noted that she has eight years' worth of Rivanna daily flow reports for DEQ, which reflect what is taken out for water and what percentage of that goes back into the river. Ms. Smith suggested comparing this to the times when it was below crest, and reported that the Ragged Mountain Dam has greatly impeded the ability to serve the Rivanna. She stated that she hoped in their drought report at this meeting, they would talk about the impact of the drought and particularly the South Fork Rivanna Reservoir on the water quality, whether they've needed to kick in the granular-activated carbon (GAC) system, whether there is an increase in the load of sediment, and whether there are unexpected impacts like algae. Ms. Smith stated that these are just pieces of the puzzle that would be great information as they weigh options for the future.

Mr. Mawyer stated that he did not have any detailed comments prepared regarding water quality, but he was not aware of any change in it related to a drought situation. He noted that Rivanna had not implemented the GAC system at any plants yet, with Crozet right at the threshold, and they could look at water quality but was not aware of any drought-related problems.

Dr. Gullick confirmed that there had not been any change in water quality parameters necessitating treatment adjustments.

#### 6.0 <u>Responses to Public Comments – No Responses This Month</u>

There were no responses to public comments this month.

#### 7.0 Consent Agenda

- a) Staff Report on Finance
- b) Disposition of FY17 Rate Center Results
- c) Staff Report on Operations
- d) Staff Report on Ongoing Projects

*e)* Recommendation to Award Engineering Services Agreement for Geotechnical and Materials Testing - Schnabel Engineering, LLC *f)* Request to Execute Work Authorization for Preliminary Engineering Report – Observatory WTP and South Rivanna WTP - Short, Elliot and Hendrickson Engineers

g) Recommendation to Award Construction Contract – 2017 Sanitary Sewer Rehabilitation and Repair - IPR Northeast, LLC

Dr. Palmer moved to approve the Consent Agenda as presented.

Mr. O'Connell asked Mr. Mawyer if staff would address the water plants when they did the drought status report, including the current status of the Observatory project.

Mr. Mawyer responded that they were working on projects to expand the facility.

Mr. O'Connell seconded the motion, which passed by a 6-0 vote. Mr. Walker was absent from the meeting and the vote.

#### 8.0 Other Business

a) Drought Status Update

Mr. Mawyer reported that he had prepared a short update on the drought for the Board, and several Board members had forwarded numerous questions to him, including questions that had been received by the Service Authority. He stated that he expanded the presentation and staff had provided that information to the Board separately at this meeting, although it was not in their packets distributed earlier in the week. Mr. Mawyer stated that at the October 5<sup>th</sup> emergency meeting, staff had presented pictures of the South Fork Rivanna Reservoir and indications of drought conditions.

Mr. Mawyer presented a chronology of the status, beginning with August 3<sup>rd</sup> when the SFRR was 100% full; September 15<sup>th</sup>, when the SFRR was 77% full; and in early October, when the SFFR had declined over 32% to 45% full – with drought watch measures implemented on October 3<sup>rd</sup> and an emergency meeting of the RWSA Board on October 5<sup>th</sup>, then going to drought warning procedures. He stated that in the first week of October, Rivanna began implementing operational changes of switching from the South Fork Rivanna treatment plant to the Observatory plant, as well as contacting DEQ about the minimum instream flow release.

Mr. Mawyer reported that the mandatory water restrictions were approved by City Council and the Board of Supervisors, as well as the Albemarle County Service Authority Board of Directors. He stated that these measures appear to have been helping, as demand dropped from 10 MGD to about 8 MGD on certain days. Mr. Mawyer reported they decreased water treatment at the South Rivanna plant and increased it at the Observatory plant, leveling each at about 5 MGD and thus saving about 3 MGD that would not have to be taken out of the SFRR. He stated that Rivanna had been working with DEQ through a phased implementation, with Rivanna typically required to release 10 MGD from the SFRR, representing 70% of the inflow. He stated that DEQ allowed this to be reduced to 50%, then to 10% of the inflow – or about 2 MGD – on October 9th.

Mr. Mawyer stated that Rivanna moved from a low of 42% of reservoir capacity to 54% by October 18, and now at 60% – with water levels rising by 2.5 feet and 160 million gallons total storage filled.

He stated that they need to complete infrastructure projects to fulfill the community water supply plan and complete the triangle of three urban reservoirs working more cohesively and collectively. Mr. Mawyer noted that staff has presented information on the South Fork Rivanna Reservoir – Ragged Mountain Reservoir waterline and would continue reporting on all of these projects, with the Board having approved a contract to design the location of the pipe and procure the property and the easements to put the pipe in. He stated that construction would be the next phase, and Rivanna was moving forward with a project to upgrade and expand the Observatory Water Treatment Plant, which is estimated at \$10-15 million. Mr. Mawyer noted that currently, Rivanna's permit indicates they can produced 7 MGD at Observatory, with the goal of making Observatory self-sustaining for the entire urban area – with staff considering recalibrating to bring that level to 10 MGD. He mentioned that he and Ms. Hildebrand had met earlier in the week with UVA Assistant Vice President and Chief Facilities Officer Don Sundgren regarding renewal of the contract agreement between the City and UVA, and the lease on the Observatory Water Treatment Plant. He stated that this was a positive discussion, and they plan to meet with Mr. Sundgren again the week prior to Thanksgiving.

Mr. Mawyer stated that Rivanna had provided UVA with a master plan of what properties were needed for the next 100 years to grow the Observatory plant from 7 to 10 to 20 MGDof capacity, with a map of how that would occur and what the facilities would look like in terms of a footprint and where they would be located. He stated they have proposed to UVA that they need about 7.8 acres to fulfill that master plan.

Dr. Palmer asked about the timing of the capacity increase.

Mr. Mawyer responded that they thought they were going to 10 MGD for a few decades, but with the drought experience they felt it would be beneficial to have redundancy – and they had conducted a regional exercise with a hypothetical situation in which a plane hit the South Fork Rivanna dam and put it out of service. He reported that this helped lead them to a conclusion that they should upgrade the Observatory capacity to 10 MGD now, which would be accomplished over the next 4-5 years, and to 20 million MGD by 2060. He noted that they would have the expansion designed, bid and constructed within the next 5 years.

Dr. Palmer asked how much acreage would be required to achieve 10 MGD at Observatory.

Mr. Mawyer responded that it would be 7.8 acres, and he pointed out that there was very little difference in the footprints for 10 and 20 MGD capacity. He also noted that they would be at the end of a 99-year lease in 2021 but were trying to look another 99 years down the road, which was the footprint Rivanna was asking UVA to include in the agreement.

Mr. Gaffney asked what the current footprint is.

Mr. Mawyer explained that the lease was put together in 1922 and one document says 5 acres,

but another document seems to conflict with this a bit. He stated that they have approximately 5 acres, but the discussion with UVA yielded the decision to prepare a plat without trying to reconcile what they already had – with 7.8 acres total for the footprint of the 100-year plan. He mentioned that the acreage was all open space, and the initial conversation with Mr. Sungren indicated there was no concern about the footprint as proposed.

Mr. Krueger mentioned that in the 1930s and 40s, the lease was amended to add and subtract small pieces of property – with no surveys done, just handwritten drawings. He stated that while they don't have surveys, they do have clarification of the boundaries based on those drawings.

Ms. Galvin asked what was meant by making Observatory "self-sustaining."

Mr. Mawyer responded that this pertained to the urban area, independent of SRWTP – with each able to produce enough water to serve the city and urban areas of the county. He explained that the next project – the Avon to Pantops waterline – was a critical component of the plan. He noted that there were three parts: water supply, water treatment, and water distribution. Mr. Mawyer emphasized that it would take several projects to create the desired redundancy, and all projects were in the engineering phase. He noted that this would all be presented in the CIP, with information forthcoming in terms of impact on rates.

Mr. Mawyer reported that at the September 26<sup>th</sup> Board meeting, it was discussed that there was a less than 3% chance of the combined reservoir levels to be less than 75% in the next 12 weeks– but over the following next few days, Rivanna changed its view and declared a drought watch on October 3<sup>rd</sup> and brought the drought warning request to the Board on October 5<sup>th</sup>. Mr. Mawyer explained that Rivanna had utilized the regional drought management plan, which stated to run the hydrologic model, which collectively considered rainfall, history of the area, runoff, and demand for the three urban reservoirs: Observatory, Sugar Hollow, and Rivanna. He stated that staff felt that the hydrologic model in the plan was not giving the whole story, with the SFRR declining rapidly and agreement that it was prudent to move forward with drought management measures so that water in the SFRR could be conserved.

Mr. Mawyer explained that the water supply had dropped to approximately 22 days, and there were questions as to how that could have occurred without any public warning – when the worst level in 2002 was 60 days and the community was then extremely worried. He stated that the graph indicates that on August 3<sup>rd</sup>, the SFRR was 100% full, and there was a gradual decline until September 1 when it rained and supply went up above 80%. Mr. Mawyer reported that on September 15, the Rivanna Reservoir was 77% full, which was not concerning for that time of year. He noted that the model indicated that collective water storage was above the criteria and therefore indicated there was no drought, adding that it was a complicated drought management criteria when there is a probability of a percentage.

Mr. Krueger asked for confirmation that the hydrologic study studies all three reservoirs as a group in terms of storage.

Mr. Mawyer confirmed that it was a collective measurement, and the drought management plan uses a measure of how much water is collectively in the three reservoirs and not individually

each one. He stated that if all reservoirs were the same size and declined equally, it would be more meaningful, but with Ragged Mountain being twice the size of Rivanna, Rivanna gets to the bottom a lot quicker. Mr. Mawyer pointed out that in addition to water conservation measures, they implemented operational measures and worked with DEQ on regulatory issues. He explained that the mathematical answer as to why they went from acceptable levels on September 26 to drought conditions on October 3 is that the water coming in to the Rivanna Reservoir was less than the water going out – with the amount taken out for the treatment plant and the amount released to the river, as well as natural evaporation, all being factors.

Mr. Mawyer reported that Ragged Mountain had been nearly 90% full for most of this time, and the question arose as to why the new reservoir was not providing enough water to offset South Fork. He noted that water could not be transferred from Ragged Mountain to South Fork, and they must have both treatment plants – Observatory and SRWTP – in operation, to provide the needed capacity for the entire urban area. He stated that the Rivanna Reservoir was the concern, and when it declined to 42% it triggered the drought policy.

Mr. Mawyer stated that people in the community noticed and commented on the dramatic reduction and asked why it took so long for Rivanna to address it, and he referenced the graph that showed things being normal in early August then going back up, but in the latter part of September there was a longer decline in the reservoir and it went from 77% to 42% in just a two-week period. He stated that it would have been good if the RWSA had acted about a week earlier, but there was not much time prior to that between September 15 and when they took action on October 3<sup>rd</sup>.

Mr. Krueger pointed out that the reason the Ragged Mountain to South Fork pipeline has always been part of the water supply plan is because it provides the transferability for raw water between those reservoirs that currently does not exist.

Mr. Mawyer explained that there had been another question from the public regarding 10 MGD being released from the Rivanna reservoir, and Rivanna's initial review of the inflow and outflow data revealed that there was about 10 MGD unaccounted for but no certainty as to where it was going – and it was still unclear where it went or if it was "real." He explained that inflow was measured at a gauge at Garth Road and the Mechums River, with the Rivanna Reservoir being supplied by Moormans and Mechums but no gauge existing in Moormans. He reported that using the gauge at Mechums, they did a hydrologic correlation that stated if Mechums was flowing at 2 MGD then Moormans was assumed to be 1 MGD and collectively the Rivanna reservoir should be receiving 3 MGD as a theoretical example. He stated that this gauge was what they used to measure inflow, but the gauge was out at Garth Road and DEQ managed it – with data periodically revised, and inflow data revised to indicate that it was 15% less than originally thought. Mr. Mawyer emphasized that they were still working on the flow balance of inflow to outflow in the reservoir, and they were not sure if the lack of 10 million gallons was real, but there is no evidence of a hole in the floor in the reservoir because the inflow and outflow has now balanced – with water being added and numbers starting to make sense.

Dr. Palmer asked how many millions of gallons the 15% would have accounted for.

Mr. Mawyer responded that it would depend on how many days it was for, and DEQ sometimes revises it back for a week, but there was not an exact number to calculate. He stated that in reading the number and correlating how much they have to release in the river, so they have to read it and release it every day – and when they go back and update their data, it could indicate that not that much needed to be released, but the water was already gone.

Mr. Gaffney asked if Rivanna was considering putting in its own meters in the rivers.

Mr. Mawyer responded that they had not discussed this but it was a possibility, and they would have to talk to DEQ and USGS – with the USGS owning the meter and DEQ maintaining it.

Mr. O'Connell asked if the meter measuring the flows released in the river was below the dam.

Mr. Mawyer explained that there were three pipes in the Rivanna reservoir dam that let water out – the north gate, which is a pipe that lets water out; the south gate, which has the meter on it that is used to measure outflow to be sure they're meeting minimum instream release; and a third outlet running through the old hydro plant. He noted that two of the gates are three-foot diameter pipes, and the pipe that goes through the old hydro plant is six feet in diameter. Mr. Mawyer noted when they talk about gates to control the flow, the pipe and steel flow containment piece were built in 1966 – with some leakage by the north gate and through the hydro plant gate. He stated that they had been leaking about 3 MGD out of the north gate and hydro plant and not taking credit for it in the instream release calculation, so some days they were over releasing. He stated that they only have an instream release on days when the reservoir was not overflowing, and if it was overflowing that's more than the release.

Mr. Mawyer noted that a brand new flow meter was installed in 2016, and the manufacturer was present to verify correct installation. He stated that Rivanna has a question as to whether it measures flow correctly at higher release volumes, and now that they are down to a release of 1-2 MGD, it appears to be reading correctly. He added that they would be testing the meter to verify that the release of 20 MGD earlier in the summer was also reading correctly.

Dr. Palmer asked about the 3 MGD leakage in two of the outlets, and whether those were closed during this period of time and if they were still leaking.

Mr. Mawyer responded that they were closed, but there was still water going past at about 0.5 MGD.

Dr. Palmer asked how they were fixed.

Mr. Mawyer responded that they were fixed, and explained that there was some speculation that the dam gates malfunctioned and released excess water to the river – but Rivanna does not feel that was the real cause of the sudden drop in the reservoir. He stated that the gates are actually a slide going down into a pipe, and two of the pipes were three feet in diameter, with one being six feet in diameter, and he presented a visual depiction of the top of the dam and the stem of the gate that goes all the way down to the bottom of the reservoir to try to close the pipe.

Mr. Mawyer stated this was not an exact science, and it was not possible to turn a dial that provides an exact amount of release in a given day, as streamflow was a significant factor. He explained that two operators had to work in tandem, with one coming down and pushing a button for an electric operator to lower or raise the gate. He stated that this operator then radios the other person to see how the flow would be reduced, and troubleshooting until the level is correct. Mr. Mawyer pointed out that they typically adjust the gates at 9 a.m., but have to measure the release from midnight to midnight – so nine hours of water has already gone through. He noted that the plant manager does the math and decides what would need to be released and how the gates need to be adjusted. Mr. Mawyer added that the release requirement with DEQ is a minimum, and they don't want to be below – so a greater release is acceptable in trying not to be too far below the minimum. He acknowledged that some days in August had releases that substantially exceeded the release amount needed, but that was a lesson learned in the process and as they go forward they may need to adjust the gate daily based on summer and/or drought conditions.

Mr. Mawyer noted that none of the flows coming out of the dam were sealed 100% tight, and one was supposed to be open with two closed, and the 3 MGD was now down to about 0.5 MGD, through Rivanna's maintenance efforts. He confirmed that there were no meters on those, so they had to calculate and estimate – and if there was 0.5 million going out with 2 million required for release, they use that in the calculation and try to set the third gate so the sum equals the required amount and no additional release is made.

Mr. O'Connell asked if those gates were wide open if the reservoirs were full and overflowing.

Mr. Mawyer responded that they were closed if the conditions were overflowing.

Mr. O'Connell commented that this was reflecting what was coming in above versus what was leaving, so there was a balance being achieved.

Mr. Mawyer confirmed this, adding that other than the 5-8 MGD pulled out to treat, the inflow would equal the outflow when it was overflowing.

Mr. Mawyer stated that if it didn't rain and there was an abnormally dry winter, Rivanna would use other tools in the event of a declining reservoir situation: water stored in the Sugar Hollow Reservoir that could be released, and water in the Beaver Creek Reservoir that has excess capacity. He noted that Rivanna would work with DEQ on the river release and whether they would agree to go to a less than 10% release. Mr. Mawyer also mentioned that there was a pool of water below the "usable storage" that could be pumped out and used, even though it may not necessarily be the highest water quality, and that water can be treated for use.

Mr. Gaffney asked if what he explained was the typical order that would be followed.

Mr. Mawyer responded that it was, adding that DEQ would probably not compromise much more if all the tools in the box were not utilized.

Mr. Mawyer stated that there were concerns that the water supply plan was broken, but the plan is working and additional water supply was created by the new Ragged Mountain Reservoir – with a plan to complete the water supply plan by constructing the Ragged Mountain to Rivanna pipeline and expanding the Observatory water treatment plant, as well as a plan for the Avon to Pantops pipeline. He stated that Rivanna did not have permits to remove the sediment from South Fork nor any location to dispose of the dredge material, so this was not a viable option.

Mr. Mawyer presented information on rainfall differences from 2015, 2016, and 2017. He stated that from June-September of 2017, there were 10 inches of rain, which was less than rainfall for the same period in 2015, 2016, and the normal. He reported that from January-September, there was 31 inches of rainfall, which was less than rainfall for the same period in 2015, 2016, and the normal. Mr. Mawyer presented information on the data points used to determine when the emergency water restrictions would be declared by the Board, and Rivanna did not see emergency water restrictions in the foreseeable future because water was continuing to be added to the Rivanna reservoir. He stated if they were to get to an emergency situation, they would look at the water level in the Rivanna Reservoir – and they would also look at how significant the decline is, over a longer period of time, as well as weather forecasts and the water levels in the Sugar Hollow Reservoir and Beaver Creek. Mr. Mawyer stated if they did have to go to emergency water restrictions, they would notify the community through media channels, the website, social media, and through customer contacts at ACSA and the city.

Mr. Krueger asked if the hydrologic models used several weeks earlier, which measured the reservoirs on a composite basis, provided a bit of a false outlook. He also asked if that same model also provided a picture of each individual reservoir, so they could consider that in addition to the composite.

Mr. Mawyer responded that it was part of Rivanna's future action plan to use the model with all of its capability – collectively and individually.

Dr. Palmer asked if the DEQ would need to be involved with the change of reservoir management.

Mr. Mawyer responded that the management criteria were contained in Rivanna's permit, and those were the conditions asked for by Rivanna and granted by the DEQ – and they have already begun discussion as to how to improve the permit and the drought management plan. He stated that the hope was to supplement the permit and the plan, not to do a rewrite.

Mr. Gaffney noted that they could always increase production atthe Observatory plant much earlier, prior to them building a pipeline.

Mr. Mawyer agreed, stating that one of the things learned was that they could use Observatory WTP sooner, and they would need to discuss when to use Sugar Hollow because there is a plan to use it earlier in the process rather than holding it as they are now to see if Rivanna gets really low. He mentioned that the consultant's plan says to use Sugar Hollow sooner, which would mean sending it down to South Fork or Ragged Mountain, and this was in the operating procedures from Hydrologics. Mr. Mawyer noted that the drought management plan addresses

what the conditions are and the steps to use Chris Greene and Lake Albemarle, which are small tools that present significant challenges in getting water from them.

Dr. Palmer commented that it seems to her the situation is a very dry period coupled with operational management changes that should be done prior to rewriting instream flow requirements.

Mr. Mawyer agreed that they could start using Observatory sooner and monitor the gates at Rivanna more closely.

Dr. Palmer asked if the two leaky gates would remain closed.

Mr. Mawyer responded that they would continue to have the 0.5 million release, which they would take credit for in the release requirements, and given that the valves were from 1966 there was a question as to whether it made sense to spend the money to replace them just to save the 0.5 million used in calculations for minimum instream flow.

Dr. Palmer stated if they got to a situation in which they were reducing instream flow in the Moormans, they would have to weigh that as a factor because it was about 0.4 MGD.

Mr. Mawyer responded that they were also putting out about 1 MGD out of Sugar Hollow.

Mr. Krueger pointed out that DEQ would never let Rivanna get below the 0.5 MGD Rivanna release anyway, so those leaky gates wouldn't really be a factor.

Dr. Palmer agreed, but noted that if they are leaky now they may get leakier over time and should be addressed.

Mr. Mawyer agreed, stating that when the dam is overflowing and the water is flowing, a few million gallons coming out the gates didn't matter much – but in drought times, every million gallon counts.

Dr. Palmer reiterated that they need to make sure the gates are working properly and can be controlled. She asked what percentage of the loss is from leaky gates versus the reduction in rainfall, as she was just trying to figure out what to expect with the next dry spell.

Mr. Gaffney responded that if they're counting 0.5 million at each leaky gate for the minimum release calculation, than it is not the cause of the reservoir going down.

Dr. Palmer stated that the 2.5 MGD is the issue, and she was trying to gauge how relevant that was to the situation.

Mr. Mawyer explained that before they took drought measures, they were taking out 9 MGD for treatment and releasing 9 MGD, for a total of 18 MGD – then they were releasing another 3 MGD they weren't counting. He stated that was approximately 15% of the quantity due to the leaking gates.

Mr. O'Connell stated that at that point, the Mechums and Moormans streamflow fell off, which was not making up the difference and started the reservoir level dropping.

Mr. Mawyer noted that the overflow stopped and they had to start measuring the inflow, taking 70% and trying to release that. He noted that the question is whether the amount measured at the Mechums gauge was correct or not, and whether the water was even reaching the Rivanna reservoir – specifically whether the correlation between the Mechums and Moormans was correct at a flow that low. He stated that the correlation of the model was likely looking at an average, and this may have been well below the average.

Ms. Whitaker pointed out that one of the biggest factors here was the hydropower facility and the 72-inch tunnel, and when they decommission that, one of the items in the plan is to seal it off – so that shouldn't be an issue going forward. She stated that this should happen within 18 to 24 months.

Mr. O'Connell asked how much water was going through that.

Mr. Mawyer responded that it was 2.75 MGD between the north gate and the hydro.

Mr. Jones asked when they anticipated going over this with DEQ and bringing it back to the Board, including next steps.

Mr. Mawyer replied that he anticipated this to occur over the next few months, stating that Rivanna sends DEQ information every day and talks to them via telephone every week regarding reservoir levels. He stated that DEQ tests whether to continue the variance to reduce minimum instream release, and once the reservoir levels were full again, Rivanna would get with DEQ and establish what the permit stipulates and what might need to be refined.

Mr. O'Connell noted that DEQ gets the data every day.

Ms. Whitaker responded that there is a compliance submission, and it was currently sent to them daily as part of this process. She confirmed that data from all the reservoirs was sent to DEQ.

Mr. Mawyer explained that the reservoirs were not lowered because of the hurricanes but might in the future if they felt with high certainty that a storm would hit on a specific day and dump a lot of water in - but the storms that were forecast in 2017 were uncertain and did not reach the area.

Mr. O'Connell asked if that was more routinely done before Ragged Mountain was rebuilt.

Ms. Whitaker stated that with every hurricane season and prediction, Rivanna looks at this from a dam safety standpoint at every dam, and the issue was understanding how certain the predictions were, the timeline to get the water down, and the risks and rewards for action. She stated that this season, hurricane trajectories were moving away from our area, so there wasn't a

need to respond, and with the reservoirs down a bit they had the capacity to handle the level of rainfall called for.

Mr. Mawyer addressed the question of whether the drought management plan worked, stating that Rivanna feels it does work but needs to be supplemented through work with DEQ to capture the lessons learned this fall.

Mr. Mawyer stated that in going forward, to prevent a water shortage from happening in the future, Rivanna would capture the experiences gained and integrate them into the plan to be better prepared with all resources the next time. He noted that this was the first year of implementing the updated drought management plan – because Ragged Mountain was built in 2014, filled in 2015, and there was no drought in 2016 so this was the first experience.

Mr. Mawyer mentioned that there were more detailed explanations in a white paper that would be issued to the community, and posted on the Rivanna website. He agreed to share the information electronically with the Board.

#### b) Financial Review – Director of Finance/Administration

Mr. Wood reported that in looking at his notes from the Board's previous discussion of finances, most of the Board's interest related to reserves, financial policies, and bond and debt capacity. He stated that he created another summary from that point until now to show the capital funding activity that has occurred, with approximately \$209 million spent on capital projects since 2009 and nearly \$30 million cash used to fund those projects – with a target of 10% cash use and actual achievement of 14% cash use. Mr. Wood stated that using cash for capital spending saved approximately \$22 million in interest payments over the next 30 years. He stated that over the past 7-8 years, Rivanna's assets have increased by 133%, with cash balances improving but not quite as strong as the capital assets. Mr. Wood mentioned that debt had also increased significantly – about 200% – with factors being the wet weather ENR project, the Ragged Mountain Dam, the pump stations, Meadowcreek sewer replacement, etc.

Mr. O'Connell commented that it was pretty remarkable to have that level of investment and still have the rates be fairly steady.

Mr. Wood responded that they have had a few rate increases. He explained that Rivanna had policies adopted in 2011 describing what the reserves are, how they are used and how they are built up over time as bonds are issued. Mr. Wood stated that overall, the reserves have been fairly even, and he presented reserve balance information showing that current levels ending in June 2017 were about \$33 million. He noted that each rate center had its own reserve to keep all the money separated, and the consent agenda had addressed that. Mr. Wood stated that reserves were set aside for repairs and emergencies, and without those reserves they would have to raise rates. He presented an image of emergency repairs at Moores Creek in which a clarifier had to be taken out of service, which greatly reduced capacity. He stated that reserves also provided management flexibility for unexpected financial events like the bond validation lawsuit. Rivanna would have had to stop construction on that project for about six months. Without reserves they

would not have been able to do the temporary odor control measures. He noted that Rivanna has had two increases in its bond ratings since 1999.

#### *c) Financial Review and Capital Funding Analysis, Davenport & Co.*

Mr. Ted Cole of Davenport & Co. addressed the Board and presented several slides related to Rivanna's bonds, noting that as an authority they are rated AA2 by Moody's and AA+ by Standard and Poor's. He stated that the highest rating is AAA, and the goal was to reach that. Mr. Cole stated that Rivanna interacts with rating agencies when they do bond issues, and the agencies also interact when they need to ensure current ratings – with the last official write up of the Authority taking place in 2012. He stated that as they move forward with capital, there may be more conversations with bonding agencies, and overall there has been general positive performance at the Authority since 2012 – which could help set them up for continued improvement with ratings. Mr. Cole stated that better bond ratings equate to a lower cost of borrowing, which equates to better debt capacity and better debt affordability. He presented information on rating agency methodologies, stating that they have evolved into a more transparent approach over the past few years, with a scorecard used that weights categories of operations – the economy, the underlying service area, finances, management and debt. Mr. Cole noted that Rivanna has some short-term control over these things, but there are longer term factors such as the economy that the Board cannot control.

Mr. Cole stated that two key credit factors tying back to Rivanna policies include debt service coverage, meaning that as an Authority, the only collateral or security they can offer a bond holder is a lien on net revenues – so there are revenues coming in from Rivanna's two customers, operating expenses must be paid, and there is net revenue that is the pledge a bond holder receives. He stated that one of the things a bond holder considers is the net revenue available to pay debt, a concept called "debt service coverage," which is a one-time coverage that relies on available dollars to pay it. Mr. Cole noted that it was not uncommon for a wholesaler like Rivanna to have a one-times coverage, and in 2011 the Authority adopted policies that stated they would be held to 1.5 times coverage – which is a higher standard that provides additional buffer to the bond holders in the event expenses are up or revenues are down. He stated that in general, higher coverage was better from a credit perspective and the rating agencies pay a lot of attention to that – which is one of the reasons that policy was adopted in 2011, to put a bit more conservatism in the debt service coverage ratio.

Mr. Cole stated that the other factor was liquidity, and Rivanna's reserves have been tracking relatively stable since 2010 – with restricted versus non-restricted reserves being managed well, and bond documents requiring certain reserve levels that must be met year in and year out. He stated that beyond that, they have more discretionary reserves at the Board level that they can choose to fund and maintain. Mr. Cole mentioned that the Board had adopted a policy in 2011 to have "Tier Two" and "Tier Three" reserves, as defined in the bond indenture, equal to 1.5 times the budget.

Mr. Cole reported that Davenport subscribes to a database that is maintained by Moody's, and he presented some peer systems across the country and within Virginia: AAA-rated utilities, AA1-rated utilities, and AA2-rated utilities. He stated that they were looking at those with equal

ratings and those that were above, with six different systems in Virginia that are either water only or sewer only – with Upper Occoquan being a wholesaler like Rivanna, serving four or five different communities, and other systems selling directly to households and commercial enterprises. Mr. Cole noted that there were a few other comparables included that are AA or higher, as rated by Moody's.

Mr. Cole reported that liquidity is measured in two different ways, including days' cash on hand, or how many days of operating expenses reserves can cover, with Rivanna finishing FY17 at about 900 days on hand. He stated that there is also a liquidity measure of "percent of budget," which is about 250% of budget. He emphasized that Rivanna has been maintaining very healthy reserves at two different levels – bond indenture and Board policy levels. Mr. Cole reported that measuring unrestricted cash as a percentage of operating and maintenance budget has Rivanna at 200% or above in all measures. He emphasized that most of the data was for 2016, with 2017 data just coming out now, but there are systems out there with much greater liquidity.

Mr. O'Connell asked whether the AAA-rated entities were more liquid because they were large.

Mr. Cole responded that it was also because of the median, but there is a point that as a percent of budget you don't need to keep squirreling away money, and upper limit versus lower limits among those entities probably capture a varied percentage.

Mr. Gaffney asked if Virginia Beach was part of that locality versus a standalone entity, so they benefit from the city's rating.

Mr. Cole confirmed that it is an enterprise system of the city, so it operates much like an authority in that it's cordoned off from tax revenue – but if they're issuing revenue bonds they would have a separate and distinct bond rating, which would be AAA in their case but wouldn't mandatorily be.

Mr. Cole presented information on net revenues covering debt service, and he noted that Rivanna's policy has been 1.5 times net revenues over debt service – and they have remained at that level for FY12-16 but would likely fall below that for FY17 due to drier weather and lower flows. He noted that sometimes flows compensate to help reach the 1.5, but that was unlikely in FY17, and even though they may have fallen short they were still above the minimum required in the bond indenture. Mr. Cole stated that on a comparative basis, in looking at various systems across the state and nationally, Rivanna was at the 1-1.5 times coverage. He noted that wholesalers often end up on the lower end of coverage, but their policy helps bring them to a stronger comparative level.

Mr. Cole presented information on debt capacity, stating that Davenport has tried to demonstrate what Rivanna's debt capacity is. He explained that all the numbers presented reflect the policies of 150% of unrestricted cash in reserves and 1.5 times coverage debt service coverage. He stated that they were using the revenue growth necessary to achieve those parameters and the resulting debt capacity, with revenue growth possibly being rates increasing, flow, number of accounts, flow per account, etc. Mr. Cole stated that they were not necessarily saying that rates needed to go up – just that revenues did – and how that would be generated would be a combination of

growth, flow, and rates. He stated that Rivanna embraced a balanced approach between debt and equity for capital, with 10% cash funding as a requirement. He stated that they have built in assumptions of 3% operating expense growth per year, with any debt assumed being a level debt structure and a 25-year term at 5%, which is above the current market.

Mr. Cole stated that in taking into account all that information, Davenport delineated this into four different results – assuming 3% revenue, 1.5 times coverage, the liquidity policy – with no additional debt capacity over the next five years, but cash funding available of about \$30 million for capital capacity. He emphasized that with 3% revenue growth, the debt capacity cannot increase, and 3% revenue growth is not sufficient to reach the 1.5 times debt service coverage or better. Mr. Cole stated that assuming 5% revenue growth, there is some debt capacity in 2021 and 2022, because the debt service minimum is achieved. He noted that this would equate to about \$23 million of debt and \$33 million of pay-as-you-go cash funding, totaling about \$55 million in capital funding capacity. Mr. Cole added that assuming 7% growth, debt capacity builds a bit more, as does cash, for a total of about \$96 million capital capacity – and at 10% revenue growth, it's even higher in terms of capacity.

Mr. O'Connell asked if this would include 2% growth from flows coming from more customers in each system, for example.

Mr. Cole confirmed this, adding that rate increases could also be on top of this, with a combination needed to enhance revenue growth.

Mr. Wood pointed out that staff had shown the Board the previous year that they would need a 5% increase in rates every year to fund the CIP, and this confirms that.

Mr. Cole agreed, stating that 7% growth gets them to about \$100 million between debt and equity over the next five years, and the current CIP is about \$98 million.

Mr. Wood stated that there were also some projects not yet on the list, so that amount was really a floor estimate.

Mr. Cole commented that staff had done a good job of tapping into lower interest rate loan programs, achieving better than Davenport's assumed 5% rate, and that should help the results here although the 5% was better for long-term planning, given market conditions. He also reiterated that they would like to see Rivanna's bond rating increase, with a strong City and County behind them.

#### 9.0 Other Items from Board/Staff not on Agenda

Mr. Mawyer introduced a new staff member, Tom Freeman, a senior engineer coming from a consulting and VDOT background.

#### 10.0 <u>Closed Meeting</u>

There was no closed meeting held.

#### 11.0 Adjournment

### At 3:48 p.m., Mr. Jones moved to adjourn the RWSA Board meeting. Mr. O'Connell seconded the motion, which was approved by a vote of 5-0. Mr. Walker was absent from the meeting and the vote. Ms. Galvin was absent from the vote.

There being no further business, the meeting adjourned at 3:48 p.m.



#### MEMORANDUM

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

FROM: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: EXECUTIVE DIRECTOR'S REPORT

DATE: NOVEMBER 14, 2017

#### **Reservoir Update**

As the result of recent rains, reduced demand by the community in response to use restrictions, operational strategies implemented by staff, and cooperative changes authorized by our VDEQ regulators, the South Fork Rivanna Reservoir has been 100% full and overflowing since 7:30 p.m. on November 1st. Based on this sustained recovery of the reservoir, we are recommending that the Board of Directors authorize the discontinuation of all water use restrictions. We will continue to work with the VDEQ and our watershed consultant to optimize our reservoir and treatment plant operational and regulatory procedures as we prepare for the next period of dry weather.

#### **Financial Update**

We wanted to provide a clarification on one point included in last month's presentation from our financial advisor, Davenport, LLC. Davenport reported that the Authority has roughly 826 "operating days cash on hand". This calculation used a strict definition of operating expenses, and did not take into account the monthly cash flows needed for our substantial debt service principal and interest payments.

The metric used for peer comparisons only uses personnel, maintenance and other costs, such as chemicals and utilities, needed for operating purposes. These costs represent 53% of our annual budget (and cash flow needs). If the debt service principal and interest monthly requirements had been included, which represent the remaining 47% of our annual budget, the calculation would indicate we have 459 "operating days cash on hand". The policy adopted by the Authority recommends maintaining 548 "operating days cash on hand".

#### **Community Outreach**

Our Communications Manager and I met with Brian Richter's "Sustainability" class from UVA at the Ragged Mountain Reservoir to review our water supply facilities and drought management program.

Next week, I will provide an update on the Community Water Supply Plan including, our drought management program, to the Planning and Coordination Council attended by representatives from

the City, County and UVA, as well as to the Natural Resources Committee of the League of Women Voters.

#### **<u>Strategic Plan for the Authorities</u>**

Our Strategic Planning project is nearing completion. The Project Steering Committee completed a draft Strategic Plan during a Strategy Workshop on October 12. Both Rivanna Boards will review the draft Strategic Plan in a joint work session today. We are on schedule to approve the Strategic Plan during the Board meeting on December 19.



#### MEMORANDUM

TO:	RIVANNA WATER & SEWER AUTHORITY BOARD OF DIRECTORS
FROM:	DAVE TUNGATE, WATER MANAGER TIMOTHY CASTILLO, WASTEWATER MANAGER
<b>REVIEWED BY:</b>	BILL MAWYER, EXECUTIVE DIRECTOR RICHARD GULLICK, DIRECTOR OF OPERATIONS
SUBJECT:	<b>OPERATIONS REPORT FOR OCTOBER 2017</b>

#### DATE: NOVEMBER 14, 2017

#### WATER OPERATIONS:

The average daily/monthly total water distributed for October 2017 was as follows:

Water Treatment Plant	Average Daily Production (MGD)	Total Monthly Production (MG)	Maximum Daily Production in the Month (MGD)
Observatory	3.91	121.28	
South Rivanna	5.05	156.40	
North Rivanna	<u>0.35</u>	<u>11.05</u>	
Urban Total	9.31	288.73	11.38 (10/06/17)
Crozet	0.54	16.76	0.807 (10/02/17)
Scottsville	<u>0.041</u>	<u>1.28</u>	0.061 (10/11/17)
RWSA Total	9.89	306.77	

• All RWSA water treatment facilities were in regulatory compliance during the month of October.

Status of Reservoirs (as of November 3, 2017):

- ▶ Urban Reservoirs: 85.92 % of Total Useable Capacity
- Ragged Mountain Reservoir is –6.8 feet (77%)
- ➢ Sugar Hollow Reservoir is − 3.02 feet (86.9%)
- South Rivanna Reservoir is full (100%)
- ➢ Beaver Creek Reservoir is − 3.09 feet (80.1%)
- Totier Creek Reservoir is full (100%)

#### WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during the month of October 2017. Performance of the WRRFs in October was as follows compared to the respective VADEQ permit limits:

WRRF	Average Daily E <u>f</u> fluent	Average (pp	CBOD5 m)	Averag Suspendo (pp	e Total ed Solids m)	Average A (pp	Ammonia m)
	Flow (mgd)	RESULT	LIMIT	RESULT	LIMIT	RESULT	LIMIT
Moores Creek	8.58	<ql< th=""><th>11</th><th>0.6</th><th>22</th><th>0.1</th><th>8.6</th></ql<>	11	0.6	22	0.1	8.6
Glenmore	0.102	0.5	15	1.6	30	NA	NL
Scottsville	0.043	1.5	25	3.3	30	0.43	NL
Stone Robinson	0.002	NR	30	NR	30	NR	NL

NR = Not Required

NL = No Limit

<QL: Less than analytical method quantitative level (2 ppm for CBOD, and 1 ppm for TSS) is reported as zero.

Nutrient discharges at the Moores Creek AWRRF were as follows for October 2017:

State Annual (lb./y	Allocation r.)	Average Monthly Allocation (lb./mo.)*	Moores Creek Discharge (lb./mo.)	Performance as % of Average Allocation*	
Nitrogen	282,994	23,583	3,534	15%	
Phosphorous	18,525	1,544	110	7%	

\*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
- Moores Creek AWRRF BOD and TSS Loadings to Receiving Stream
- Moores Creek AWRRF Effluent Monthly Average Ammonia Concentrations
- Moores Creek AWRRF Total Phosphorus Discharged
- Moores Creek AWRRF Total Nitrogen Discharged















#### 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: NOVEMBER 14, 2017

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

#### Under Construction

- 1. Drinking Water Activated Carbon and Water Treatment Plant Improvements
- 2. Wholesale Water Master Metering
- 3. Moores Creek AWRRF Odor Control Phase 2, Bridge Repairs & Second Centrifuge
- 4. Crozet Finished Water Pump Station
- 5. Moores Creek AWRRF Roof Replacements
- 6. Interceptor Sewer & Manhole Repair
- 7. Urgent and Emergency Repairs

#### Design and Bidding

- 8. Observatory Water Treatment Plant Expansion
- 9. South Rivanna Water Treatment Plant Improvements
- 10. Crozet Water Treatment Plant Expansion
- 11. Interconnect Lower Sugar Hollow and Ragged Mountain Raw Water Mains
- 12. Sugar Hollow Reservoir to Ragged Mountain Reservoir Transfer Flow Meter
- 13. Route 29 Pump Station and Pipeline
- 14. Piney Mountain Tank Rehabilitation
- 15. Avon to Pantops Water Main
- 16. Crozet Interceptor Pump Stations Bypass & Isolation Valves
- 17. Crozet Flow Equalization Tank

#### Planning and Studies

- 18. Strategic Plan
- 19. Reservoir Management Plan
- 20. South Fork Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way
- 21. South Rivanna Hydropower Plant Decommissioning
- 22. Drinking Water Infrastructure Plan Crozet Area

#### 1. Drinking Water Activated Carbon and WTP Improvements

Design Engineer:	Hazen and Sawyer	
Construction Contractor:	Ulliman Shutte Construction, LLC	
Construction Start:	April 2015	
Percent Complete:	94%	
Base Construction Contract +		
Change Orders to Date = Current Value:	22,563,000 + 974,710 = 23,537,710	
Expected Completion Date:	February 2018	
Total Capital Project Budget:	Urban GAC: \$24,000,000	
	Crozet GAC: \$3,418,390	
	Scottsville GAC: \$1,600,000	

#### Current Status:

*Crozet WTP* – The Granular Activated Carbon (GAC) system has under gone start-up procedures and should be placed in service in December. The GAC material was installed in the contactors on October 11-12. The GAC building, GAC contactors and piping, and chemical feed systems are 100% complete. Interior electrical conduit and wiring systems, as well as HVAC systems have been completed. Stormwater management facilities have been completed. New chainlink fencing and gates will be installed soon, as well as landscaping.

*Scottsville WTP* – The GAC system has been filled with water to undergo system flushing, testing and commissioning. Once the system has gone through the start-up testing time period, RWSA staff will schedule the GAC material to be delivered and installed. The filters should be placed in operation in December.. The GAC metal building, and GAC contactor and piping is 100% complete. Asphalt paving and lawn restoration is on-going.

*North Rivanna WTP* – The GAC system is scheduled to be in operation in December. The GAC metal building, and GAC contactors and piping have been completed. Building finishes, electrical conduit and wiring, and HVAC system installations are being completed. The filter backwash line is in service, and the contractor has begun selective demolition work in the existing filter plant. The electrical system rehabilitation and improvement work in the existing filter building is on-going. A new fiber optic line for SCADA controls to the raw water pump station is in service, and SCADA controls have been updated. The existing generator has been relocated and is in the process of having electrical equipment transferred over to it.

After reviewing the existing status of the aged, original electrical wiring systems in the filter building with the contractor, RWSA staff has determined that additional wiring upgrades is warranted and recommended. A Request for Proposal will be issued, and the contractor will provide cost estimates for the additional work. Once a cost has been negotiated, a change order will be prepared.

South Rivanna WTP – The GAC system is scheduled to be in operation in December. The GAC metal building, and GAC contactors and piping have been completed. Chemical feed systems are being worked on. The filter air scour system will be completed and started up when the electrical room for the GAC building is in service. The liquid lime feed tanks have been set, and work is progressing on the interior piping layout. The liquid lime feed building is approximately 98% complete. All clarifier and filter work is complete and in service. Electrical installations have been started, and the existing MCC power center was calibrated and tested. The contractor can complete their GAC building electrical service connection.

*Observatory WTP* - The GAC system is scheduled to be in operation in December. The GAC building, Intermediate Pump Station building, and chlorine contact tank are essentially complete, except for some interior painting and finishes. The electrical conduit and wiring installation for the buildings is ongoing. The new potable water service line and booster pump system is scheduled to be complete and in service in November. Landscape retaining walls and storm sewer systems have been installed.

We plan to have a press release upon completion of all GAC systems, likely in January 2018, along with individual on-site celebration events for Scottsville, Crozet and the Urban System (South Rivanna Water Treatment Plant).

#### History:

In 2006, the US EPA promulgated the Stage 2 Disinfectant and Disinfection Byproducts (D/DBP) Rule, which limits the maximum levels of certain disinfection byproducts in water distribution systems. RWSA hired Hazen and Sawyer to evaluate alternatives to reduce disinfection byproducts and ensure compliance with the Stage 2 D/DPR Rule. Hazen and Sawyer presented possible alternatives to assure continuous compliance with the Stage 2 D/DBP Rule, and the Board selected installation of granular activated carbon contactors. At the March 2015 RWSA board meeting, the Board approved a construction award to USC in the amount of \$22,014,250 and a construction management work authorization in the amount of \$1,686,700 to Hazen and Sawyer. In addition, the Board approved changes to the 2015-2019 Capital Improvement Plan (CIP) as follows: (1) Combined the Crozet GAC and Crozet Water Treatment Plant Improvements projects and increased the budget by \$550,800 for a new total project budget of \$3,190,000; (2) Increased the budget for Scottsville GAC by \$382,100 for a new total project budget of \$1,600,000; and (3) Combined the Urban Water GAC, South Fork Rivanna Water Treatment Plant Improvements, and the North Fork Water Treatment Plant Improvements projects into a single account with a combined total project budget of \$24,000,494.

An additional CIP amendment was approved by the RWSA Board at the March 22, 2016 meeting. This adjustment increased the Crozet Water GAC and Water Treatment Plant Improvements project to \$3,418,390. The RWSA Board also approved an additional change order amount to Ulliman Schutte of \$840,356 at the December 15, 2015 meeting. This additional cost is for Observatory WTP flocculator upgrades, and is funded from a separate CIP project (Observatory WTP improvements).

#### 2. Wholesale Water Master Metering

Michael Baker International (Baker)
Linco, Inc.
January 2016
94%
\$2,228,254 - \$155,149 = \$2,073,105
November 2017
\$3,600,000

#### Current Status:

The three water treatment plant flow meters and 23 of 25 distribution system flow meters have been completed. Based on recent progress, staff anticipates completion of the meters in December of 2017. However, this schedule may be impacted by site access difficulties with the last meter site located adjacent to Ivy Road which must be coordinated with DVP.

#### History:

In January 2012, a Water Cost Allocation Agreement was signed by the City of Charlottesville (City) and ACSA designating how the two agencies would share in the financing of the New Ragged Mountain Dam project. Within the agreement is a general provision developed by the ACSA and City to enhance measurement of the water usage by each of the distribution agencies.

The Board authorized staff in August of 2012 to enter into an agreement with Michael Baker International, Inc. (Baker) to complete an engineering study on metering plan alternatives. Baker's study identified several alternatives for a metering plan based on combinations of metering and estimating methodologies. Based on feedback from ACSA, the City, and RWSA, Baker recommended a Jurisdictional Approach which included installation of water meters at 34 locations at the City/County corporate boundary and at each of the three urban water treatment plants at an estimated cost of \$6.4 million. At its September 2013 meeting, the RWSA Board of Directors requested staff to proceed with the Jurisdictional Coverage Approach. In February 2014, the Board of Directors authorized Baker to complete preliminary and final design for the project and to provide bid-phase services. The final design includes construction of 25 metering systems in underground vaults and required acquisition of twenty (20) permanent water line easements and one (1) permanent access easement.

Staff met with the ACSA and the City on July 12, 2017 and established a plan for implementation of the new meters in accordance with the 2012 Water Cost Allocation Agreement and the Baker Study.

#### 3. <u>Moores Creek AWRRF Odor Control Phase 2, Bridge Repairs and Second</u> <u>Centrifuge</u>

Design Engineer:	Hazen and Sawyer
Construction Contractor:	MEB General Contractors
Construction Start:	June 2016
Percent Complete:	75%
Base Construction Contract +	
Change Orders to Date = Current Value:	\$6,796,000 + \$1,317,873 = \$8,113,873
Expected Completion Date:	February 2018
Total Capital Project Budget:	Odor Control Phase 2 - \$10,108,000
	MC Bridge Repairs - \$330,000
	Second Centrifuge - \$1,290,000

#### Current Status:

The bio-scrubber has been assembled and startup occurred in October. The biological process may take several months to fully be effective. The coating system in the headworks facility is nearly complete and installation of the new covers has begun. Bridge repairs are underway and delivery of the centrifuge is anticipated in mid-November.

In addition to the above construction activities, the following initiatives are being conducted as part of the overall Odor Control program:

- Digester Coating (\$540,000 budgeted). Odor-causing gases have been found to be emitted from the digester roofs. This project is intended to seal the interior of the digesters, reducing gas emission as well as protecting the integrity of the existing digester roof from harmful corrosion. Bids were received on August 3, 2017, and the Board approved the award at the September 2017 BOD meeting. Contract documents are being executed and construction is expected to be completed by April 2018.
- Holding Pond Cleanout (\$500,000 budgeted). Over time, grit and organic material have accumulated in the Wet Weather Holding Ponds and Equalization Basins and have been a source of odor. This project is to remove these accumulated solids in the summer of 2018 after the other components of the Odor Control project have been completed.
- Solids Handling (\$550,000 budgeted). RWSA purchased covered trailers to load biosolids directly from the centrifuge's conveyor system. Conveyor system modifications are complete and the new trailers are being utilized.

#### History:

At its September 2013 meeting, members of City Council inquired about the possibility to add another phase of odor control to the current Capital Program in response to citizen complaints. Staff asked Hazen at that time to compile conceptual costs to implement the next phases of odor control from the 2007 master plan, which were estimated over \$10 million dollars. In an effort to better define our next steps for odor control while being cost effective, Hazen performed an operations audit over the winter and two rounds of air and liquid phase sampling at the wastewater treatment facility in summer and fall of 2014. Hazen attended the Board of Directors meeting in December and presented a summary of recommendations and estimated project costs for a project that would significantly control odors from traveling beyond the MCAWRRF fence line.

At the January 27, 2015 meeting, the Board approved this project with a budget of \$9,330,000 and adopted it with the 2015-2019 CIP. DEQ issued the Certificate to Construct in early November 2015. This project advertised for bid on November 6, 2015 and bids were opened on December 17, 2015. Unfortunately, all of the bids were considerably over the project budget and subsequently were rejected. The design engineers, Hazen and Short Elliot Hendrickson, Inc. evaluated ways to reduce the scope of work without sacrificing the odor control goals. The redesigned project with reduced scope advertised for bid on February 5, 2016 and bids were opened on March 30, 2016. The Board of Directors approved award of the construction contract to MEB General Contractors, Inc. at the April 2016 Board Meeting with an associated capital budget increase.

#### 4. <u>Crozet Finished Water Pump Station</u>

Short Elliot Hendrickson (SEH)
Anderson Construction, Inc.
May 2017
23 %
\$1,941,000
September 2018
\$2,600,000

#### Current Status:

The contractor has completed excavation and shoring for the pump station foundation. The pump cans were installed in October, and suction line piping is now under construction. The excavation has been partially filled in. Once all pipe installation is complete, the contractor will finish backfilling and begin the reinforced concrete foundation for the building.

#### History:

Bids were received and opened for the project on March 7, 2017. The apparent low bidder was Anderson Construction, Inc. from Lynchburg, VA. The Board of Directors approved

the contract bid award of \$1,941,000 at the March 2017 meeting, a Notice of Award was issued on April 10, 2017, and a Notice to Proceed was issued on May 3, 2017.

The filter plant effluent line to the ground storage tank has been installed, tested, disinfected and placed into service. The existing generator and electrical lines have been relocated and placed into a temporary location. The pipeline and generator were relocated in order to make room for the new pump station foundation excavation. Partial removal of old, existing asbestos cement (transite) pipe was completed in July.

As part of the current FY 2016 CIP, the Crozet Water Treatment Plant is being studied to expand the treatment capacity to secure future demand needs of the Crozet community. Prior to any plant expansion, it has been determined that the finished water pumping facilities are in need of replacement. The existing pump station is very small and was constructed as part of the original plant construction in the late 1960s. The pumping equipment and controls are outdated, and reduce operational reliability and efficiency. The pump house is located in a low, poorly drained area near the ground storage clearwell, and drainage issues exist. Due to the age and condition of pumps, electrical systems, building systems and controls, it has been determined that a full station replacement is necessary. An Alternatives Analysis Report was completed in June 2016, and the chosen alternative is to construct a new, larger building uphill from the existing clearwell tank. The new pump station building will be of similar construction as what is being proposed for the GAC facility at Crozet WTP.

#### 5. Moores Creek AWRRF Roof Replacements

Design Engineer:	Hazen and Sawyer
Construction Contractor	Triangle Roofing Services, Inc.
Construction Start:	November 2017
Percent Complete	0%
Base Construction Contract +	
Change Orders to Date = Current Value:	\$818,000
Expected Completion:	July 2018
Total Capital Project Budget:	\$1,264,000

#### Current Status:

Construction bids were received on September 7, 2017 to replace the metal roof on eight buildings and award of the project was approved by the Board at the September Board Meeting. A Notice of Award was provided to Triangle Roofing Services, Inc. on October 10, 2017. Documents related to insurance and bonding requirements are being finalized in order to fully execute the final Contract Documents.

#### History:

The majority of the buildings at the Moores Creek Advanced Water Resource Recovery Facility were constructed in 1981 and 1982 during a major expansion of the existing treatment plant. All buildings constructed at that time were built with a metal roof system. In 2014, deficiencies were identified in the roof at the Administration Building and the roof

was replaced. The materials of the original roof at the Administration Building are the same as the roof material on the other buildings. Likewise, many of the buildings have started to experience leaks and structural deficiencies. As a result, the purpose of this project is to replace the roof systems at the following buildings at the Moores Creek AWRRF: Blower Building, Moores Creek Pump Station, Sludge Pump Station No. 2, Maintenance Building 1, and Maintenance Building 2. Following additional review of the conditions of various buildings located at the Moores Creek AWRRF, this project also now includes replacement of the roof systems Sludge Pumping Building, the Primary Pump Building, and the Effluent Pump Building.

In December 2016, the Board of Directors authorized staff to enter into a work authorization with Hazen and Sawyer to design bidding documents to replace the identified roofs at Moores Creek AWRRF. A kick-off meeting was held with plant operations and maintenance staff; asbestos testing was performed to determine impacts during demolition activities; and design is ongoing. An application was submitted to the Albemarle County Architectural Review Board and approval has been obtained.

#### 6. Interceptor Sewer and Manhole Repair

Design Engineer:	Frazier Engineering
Project Start:	July 2017
Project Status:	5% Construction Complete
Construction Start:	November 2017
Completion:	2020
Total Capital Project Budget:	\$1,962,389

#### Current Status:

Award of the 2017 Sanitary Sewer Rehabilitation and Repair Contract to IPR Northeast was approved by the Board at the October Board Meeting. Following the necessary waiting period, a Notice of Award will be provided to IPR Northeast and the process of executing final Contract Documents will begin. Frazier Engineering continues to conduct condition assessment activities and has completed a preliminary review of previous CCTV results. Frazier recommendations based on the CCTV results and previous manhole inspections will be the basis for the initial work authorization provided to the upcoming new sewer rehabilitation contractor.

#### History:

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.
#### 7. Urgent and Emergency Repairs

Staff is currently finishing the final urgent repair within the water and wastewater systems as listed below.

#### **Current Repairs:**

Project No.	Project Description	Approx. Cost
2015-02	Pantops Water Line - Stream Bank Erosion at Bland Circle	\$155,000

#### • <u>Pantops Water Line – Stream Bank Erosion at Bland Circle</u>

RWSA contacted Faulconer Construction regarding this repair work and visited the site with them to review the conditions and develop a plan for repairing the line. RWSA also met with the Army Corp of Engineers to confirm that no regulatory coordination was necessary. Faulconer provided preliminary pricing and the proposed work was approved at the August 2017 Board Meeting. Work began on October 4, 2017 following completion of the Morey Creek Interceptor repair and final restoration work was performed during the week of October 16, 2017. A picture of the river bank repair is shown below:



#### 8. Observatory WTP Expansion

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Project Start:	October 2017
Project Status:	Preliminary Engineering Report
Construction Start:	2019
Completion:	2021
Total Capital Project Budget:	\$10,000,000

#### Current Status:

SEH has completed a scope of work and design fee estimate for a Preliminary Engineering Report (PER) for this project. The PER will consider the design and costs for upgrading the plant systems to achieve a consistent 7 MGD plant capacity, as well as consider the costs involved with upgrading the plant to 10 and 12 MGD capacity.

#### History:

Much of the Observatory Water Treatment Plant is original to the 1953 construction. In an effort to better understand the needed future improvements, 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. A portion of this project was expedited in order to repair and replace old, existing equipment that was not functional. The flocculator systems have been replaced and upgraded as part of the Drinking Water Activated Carbon and WTP Improvements project (GAC). The second flocculator system was started up in May 2017, and both systems are currently in full service. The contractor needs to address some minor punchlist items in order to reach final completion.

#### 9. South Rivanna Water Treatment Plant Improvements

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	October 2017
Project Status:	Preliminary Engineering Report
Construction Start:	2020
Completion:	2022
Total Capital Project Budget:	\$8,160,000

#### Current Status:

A Preliminary Engineering Report will be performed in conjunction with the Observatory WTP Improvements project. The basic work items for this project 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; and the construction of a new metal building to cover the existing liquid lime feed piping and tanks.

#### History:

The South Rivanna Water Treatment Plant is currently undergoing significant upgrades as part of the Granular Activated Carbon Project. Several other significant needs have also been identified and have been assembled into a single project. The projects herein include: expansion of the coagulant storage facilities; installation of additional filters to meet firm capacity needs; the additional of a second variable frequency drive at the raw water pump station; the relocation of the electrical gear at the Sludge Pump Station, the up fit of the office, lab control room and storage space, and the NPDES discharge piping and outfall. The scope of this project will not increase plant treatment capacity.

#### 10. Crozet WTP Expansion

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	August 2016
Project Status:	23% Design Complete
Construction Start:	September 2018
Completion:	December 2020
Total Capital Project Budget:	\$7,000,000

#### Current Status:

SEH has completed the Preliminary Engineering Report (PER) for this project, and is in the process of addressing comments from the Virginia Department of Health. Some preliminary watershed modeling and data collection was also performed as part of this work. In addition, raw water jar testing has been performed to finalize the type of treatment parameters necessary for the upgrade work, and the testing results were incorporated into the PER. The proposed new work will provide needed updates to equipment, as well as a plant capacity upgrade to approximately 1.5 - 2.0 million gallons per day.

A new Work Authorization with SEH was executed to perform preliminary and final design documents, as well as construction administration services. A design kick-off meeting has been completed.

#### History:

This project was created to analyze the feasibility of increasing the supply capacity of the existing Crozet WTP by modernizing plant systems. The goal is to not drastically increase the plant footprint in regards to existing filter plant, flocculation tanks, and sedimentation basins. By modernizing the outdated equipment within these treatment systems, the plant discharge capacity can be improved by approximately 50-100%. The project currently only includes study and design funding.

#### 11. Interconnection Lower Sugar Hollow and Ragged Mountain Raw Water Mains

Design Engineer:	Dewberry Engineers
Project Start:	October 2017
Project Status:	5% Design
Construction Start:	May 2018
Completion:	October 2018
Total Capital Project Budget:	\$225,000

#### Current Status:

RWSA is currently negotiating with Dewberry, one of our term contract design engineers, regarding fees for design services.

#### History:

The two 18-inch water mains that supply water from Ragged Mountain Reservoir to Observatory Water Treatment Plant are 71 and 109 years old. The mains are interconnected at the top of the Ragged Mountain Dam, with one serving the 1920's Royal Pump Station and the other serving the more modern Stadium Road Pump Station. Both pump stations provide raw water to the Observatory Water Treatment Plant. This project will serve to interconnect the two raw water lines near the Route 29/Fontaine Avenue Intersection, which will provide improved reliability and operability in the event of raw water line breaks.

#### 12. Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2017
Project Status:	100% Design Complete
Construction Contractor:	G.L. Howard
Construction Start:	July 2018
Completion:	September 2018
Total Capital Project Budget:	\$350,000

#### Current Status:

This project will require the Sugar Hollow to Ragged Mt. Reservoir transfer line to be out of service and unavailable for approximately 4 weeks. Due to the current Drought Watch Restrictions, staff believes that losing the option to transfer water between the two reservoirs, even for a short time period, is not recommended. Therefore, we are delaying this project until reservoir storage capacities improve and transfers from Sugar Hollow are not needed.

#### History:

RWSA staff has worked with the design engineers to complete plan and profile design drawings for this project. The project will include installation of a flow meter on the 18-inch diameter Sugar Hollow Reservoir discharge pipe, and a control valve that can be operated remotely through the Observatory WTP SCADA system. The control valve will modulate the amount of flow being transferred between the two reservoirs, the flow meter will record data, and staff will be able to remotely monitor the data through the SCADA system. Additional work has been added to this project including replacement of an existing, original gate valve at the site, demolition of two existing small utility structures that have not been used in many years, demolition of the existing Gatekeeper's House, and a separate control valve vault that will optimize the accuracy of the new flow meter by creating adequate separation distance between the meter and modulating control valve. The structures to be demolished and removed have been inspected and tested for asbestos containing materials and lead based paint. There will be some special abatement work required, and the contractor will have to include these costs in their estimate.

After initial cost estimating discussions with the contractor and RWSA staff, it was found that the current project budget is not enough to complete all of the identified work aspects. The Capital Improvement Program budget will likely have to be increased in order to perform all the work in one project.

#### 13. Route 29 Pump Station and Pipeline

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2018
Project Status:	Update Existing Design Report
Construction Start:	2019
Completion:	2021
Total Capital Project Budget:	\$6,000,000

#### Current Status:

This project will include construction of a 2 mgd drinking water pump station and two 1,000,000 gallon ground water storage tanks, as well as completion of a 24-inch diameter pipeline along the Meeting Street corridor. This project has been identified as a need in the County Comprehensive Plan and RWSA Capital Improvement Plan.

Work is currently underway to review and update the 2008 preliminary engineering report, including analysis of current water demand projections. Portions of the work have already been completed, including a temporary bypass pumping location near Kohl's department store, and the abandonment of existing pipeline in the median of Rte. 29 from the south end of Hollymead Town Center to Timberwood Boulevard. Other portions of the project have been completed including the Pump Station Site Acquisition and new 24-inch pipeline installed as part of the Rt. 29 VDOT Betterment project. Once the report update has been completed, the preliminary design of the remaining pipeline and the pump station will be started. Preliminary and final design along with construction funding will be included in the 2019-2023 CIP.

#### <u>History</u>:

A report and technical memorandum on this project was previously completed in 2008. The future pump station and tanks, along with a new transmission pipeline between the pump station and the South Rivanna Water Treatment Plant, will provide an interconnection between the areas presently served by the South Rivanna WTP and the North Rivanna WTP. The interconnection is needed for redundancy of service in the event of an emergency, during drought conditions, and to adequately serve the growing needs of the Rt. 29 area generally north of Hollymead Town Center and Airport Road.

At the May 2017 Board Meeting, a 1.6-acre parcel of land was acquired through condemnation proceedings which included a public hearing. The site location was identified in a prior project report from 2008 (completed by Michael Baker), and is also identified in the current County Comprehensive Plan. The land value of the parcel was estimated through a March 16, 2017 Property Appraisal completed by CRES, Inc., a professional real estate and appraiser company. After negotiations with the current landowner to acquire the property were unsuccessful, and final offers were refused, the land was acquired after a Certificate of Take was recorded. This property will be utilized for future construction of a new drinking water pump station and ground storage tanks.

#### 14. Piney Mountain Tank Rehabilitation

Design Engineer:	Johnson, Mirmiran & Thompson (JMT)
Project Start:	September 2017
Project Status:	40% Design Complete
Construction Start:	April 2018
Completion:	October 2018
Total Capital Project Budget:	\$500,000

#### Current Status:

RWSA has negotiated a scope and fee with JMT for design, bidding, and construction phase services. Preparation of construction documents is underway. <u>History</u>:

The 700,000 gallon Piney Mountain Tank serves the North Rivanna pressure zone. A routine inspection of the Piney Mountain Tank in April of 2012 revealed several deformed roof rafters, indicating the potential for structural deficiency. An in-depth structural inspection was performed in May of 2013 and a list of recommended roof repairs provided. This project includes consultant services for design and bidding of necessary roof repairs and other ancillary items, as well as construction, construction administration, and inspection services. Long term plans for the Rt. 29 service area include the modification or elimination of this facility. The current recommended improvements are needed in order to maintain the existing tank in service for at least the next 10 years.

#### 15. Avon to Pantops Water Main

Design Engineer:	Michael Baker International (Baker)
Project Start:	August 2017
Project Status:	10% Preliminary Design Complete
Construction Start:	2020
Completion:	2023
Total Capital Project Budget:	\$13,000,000

#### Current Status:

Route alignment determination, hydraulic modeling, and preliminary design are underway.

#### History:

An engineering contract has been negotiated and was approved by the Board of Directors in July 2017.

The focus of this project is on the southern half of the urban area water system which is currently served predominantly by the Avon Street and Pantops water storage tanks. The Avon Street tank is hydraulically well connected to the Observatory Water Treatment Plant while the Pantops tank is well connected to the South Rivanna Water Treatment Plant. The hydraulic connectivity between the two tanks, however, is less than desired, creating operational challenges and reduced system flexibility. In 1987, the City and ACSA developed the Southern Loop Agreement which laid out two key phases (with the first being built at the time). The 1987 Agreement and planning efforts will service as a starting point for this current project.

#### 16. Crozet Interceptor Pump Stations Bypass and Isolation Valves

Design Engineer:	Johnson, Mirmiran & Thompson (JMT)
Project Start:	August 2017
Project Status:	50% Design Complete
Construction Start:	February 2018
Expected Completion Date:	July 2018
Total Capital Project Budget:	\$720,000

#### Current Status:

A work authorization with JMT was finalized to provide design, bidding and construction administration related services for this project. Design services began in August. Bidding is anticipated for November with a contract award at the January Board Meeting.

#### History:

There are four pump stations located in the Crozet Interceptor system that help convey flow from the Crozet Area into the Morey Creek Interceptor and the rest of the urban collection system. These pump stations were constructed in the 1980s and provided no means of isolating each pump station from its downstream force main. This condition complicates maintenance-related activities as each time a pump station component needs to be serviced or replaced, the volume of wastewater within the force main must be addressed at the pump station as it drains back to the wet well. In addition, the Crozet Interceptor pump stations also have limited storage within their wet wells, and any reduction of down time as a result of dealing with the impacts of no isolation valves, decreases the amount of time available to work on the equipment. In order to alleviate this condition, temporary valves called "line stops" will be temporarily installed on the force mains downstream of the pump stations to allow enough time for a new isolation valve to be installed. Isolation valves will be located in order to provide the maximum amount of down time available based on current system conditions for future pump station maintenance activities. While line stops are in place, bypass connections will also be provided at each pump station. These will allow staff the option of bringing in bypass pumps for more significant pump station shutdowns required for maintenance activities or repairs for which the isolation valves alone cannot account.

#### **17. Crozet Flow Equalization Tank** Design Engineer: Greeley and Hansen (G&H) 2016

Project Start:	October
Project Status:	Siting St
Construction Start:	2019

tudy 100% Complete 2020 \$2,325,000

#### **Current Status:**

Total Capital Project Budget:

Completion:

G&H has completed a report documenting potential tank locations within the drainage basin. A meeting was held with ACSA on October 9, 2017 and a tank location was agreed upon for additional investigation work and preliminary engineering activities.

G&H has submitted a work authorization to continue the project through construction.

#### History:

A Work Authorization with G&H to perform a siting study for the flow equalization tank project was issued in October 2016 and with completion expected in 2017. These services include the sizing of the flow equalization tank and the pumping station based on information from the updated model, a preliminary site selection process based on the sizing requirements identified in order to narrow down the number of sites, and an alternatives analysis performed for each selected site to evaluate the feasibility of locating the facility. This is the first step in the site selection process and will be followed by a more in depth analysis of the potential tank locations and the eventual selection of a final site. As part of the first task, pump tests are being performed at all four Crozet Pump Stations to confirm existing capacities.

Rehabilitation work in the RWSA and Albemarle County Service Authority sewer systems is on-going to meet inflow and infiltration (I&I) reduction goals in the Crozet Interceptor sewer basin based on the flow metering and modeling results of the Comprehensive Sanitary Sewer Model and Study conducted in 2006. The intent was to reduce I&I in the system to meet the 2020 two-year storm flow targets.

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 namely 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. As a result, it is important to progress into the siting study for the flow equalization tank to ensure that it can be constructed in time for the 2025 flow targets but also to facilitate less complicated and more thorough maintenance on the system that has not been possible previously.

#### 18. Strategic Plan

Consultant:	Raftelis Financial Consultants, Inc.
Project Start:	June 2017
Project Status:	90% Complete
Completion:	December 2017
Total Contract Cost:	\$82,195

#### Current Status:

Six strategic goals were drafted by the Project Steering Committee (PSC) during a Strategy Workshop on October 12. Goal Teams presented implementation details to achieve each goal over the next five years.

Raftelis will provide the draft Strategic Plan for discussion by both Rivanna Boards in a joint work session during the regular Board meetings on November 14. We are on schedule to approve the Strategic Plan during the Board meetings on December 19.

#### History:

The joint RWSA and RSWA Authorities issued RFP #17-08 for the development of a Strategic Plan. Proposals from six interested firms were received on May 5, 2017. Interviews with three firms were conducted on May 19, 2017. A public kickoff meeting with Raftelis and the project steering committee, including several RWSA/RSWA Board Members and staff, was held on June 15. One-on-one interviews with Board Members,

staff and community stakeholders are being completed. We will host a Public Meeting entitled "Strategic Planning Input Session" at 6 pm on August 3 at the downtown CommunitySpace to receive additional input from the community. Raftelis has completed 20 one-on-one interviews with regulatory and community organizations to ensure we have extensive community involvement.

The project schedule includes:

June 26 – July 14:	On-Line Survey for All Employees and Board Members
June 26 – 29:	Employee Focus Group meetings; and one-on-one External Stakeholder Interviews with Raftelis
August 3rd:	Public Meeting (evening) hosted by Rivanna and Raftelis
August 22:	Work Session #1 with the Boards, after the regular Board meetings
August 31:	Project Steering Committee meeting #2, (full day, 9 a – 4 p): "Foundation Workshop"
Sept. 19 – 21:	Goal Teams Workshops (employee teams)
October 12:	Project Steering Committee and employee Goal Teams meeting, (full day, 9 a – 4p "Strategy Workshop")
November 14:	Work Session #2 with the Boards, after the regular Board meetings
December 19:	Work Session #3 with the Boards, after the regular Board meetings, to Finalize the Strategic Plan (special meeting for RSWA )

#### **19.** <u>Reservoir Management Plan</u>

Consultant:	DiNatale Water Consultants
Project Start:	November 2014
Project Status:	80% Complete
Completion:	March 2018
Total Contract Cost:	\$336,475

#### Current Status:

The second year of water quality monitoring for this project is in progress. An intensive week of sampling took place in June. A project team meeting was held on June 16 to discuss the results. Sediment sampling at Beaver Creek Reservoir and South Fork Rivanna Reservoir took place in July. The final report with recommendations is expected by March 2018.

#### History:

The Phase 1 report is complete, along with a related public information document, and both have been distributed to the Board and are also available for public review at <u>www.rivanna.org/reservoir-study</u>. In June 2014 staff received proposals for services to develop a Reservoir Management Plan to include all five reservoirs that RWSA manages for water supply (Beaver Creek, Ragged Mountain, South Fork Rivanna, Sugar Hollow, and Totier Creek). A selection committee represented by staff from RWSA, ACSA, and the City reviewed proposals and selected two firms for interviews. DiNatale Water Consultants was awarded this contract in the amount of the \$176,334, and the contract was executed in November 2014. The contract was extended in 2016, with \$160,141 being approved by the Board in August 2016 for Phase 2, for a total approved contract amount of \$336,475.

#### 20. South Fork Rivanna Reservoir to Ragged Mtn. Reservoir Water Line Right-of-Way

Design Engineer:	Michael Baker International (Baker)
Project Start:	October 2017
Project Status:	5% Complete
Completion:	2021
Total Capital Project Budget:	\$2,295,000

#### Current Status:

RWSA has negotiated a scope and fee with Michael Baker International for the routing study, preliminary design, plat creation and easement acquisition process. Preliminary design work will begin in November 2017.

#### History:

The approved 50-year Community Water Supply Plan includes the future construction of a raw water line from the South Fork Rivanna Reservoir to the Ragged Mountain Reservoir. This water line will replace the existing Upper Sugar Hollow Pipeline along an alternative alignment to 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.

#### 21. South Rivanna Hydropower Plant Decommissioning

Gomez and Sullivan
October 2016
Exemption Surrender Process - Phase 2 Underway
2019
2020
\$1,000,000

#### Current Status:

Work associated with the first phase of the exemption surrender process with Gomez and Sullivan and Van Ness Feldman was completed confirming with FERC what the next steps in the surrender process would include. A work authorization with Gomez and Sullivan for Phase 2 of the exemption surrender process was finalized in August 2017 and includes tasks to manage the local regulatory agencies consultation process and development of the surrender application and decommissioning plan. Work associated with the development of a consultation document to be provided to local regulatory agencies has begun with the intent of hosting a meeting with agencies to discuss the decommissioning process prior to the end of the year.

#### History:

RWSA constructed a hydropower plant at the South Fork Rivanna Dam in 1987. Power generation at the plant was limited for a number of years due to various mechanical issues and has been completely offline for the past four years. In December 2011, RWSA retained HDR to perform a mechanical and electrical equipment assessment and to provide recommendations for capital expenditures and continued operation. This assessment identified the need to perform a number of mechanical and electrical modifications to improve operation of the hydropower plant. On June 16, 2013, while the plant was down for testing associated with repairs to the speed reducer and generator, the powerhouse flooded during a heavy rainfall event. A post-flood inspection indicated that the rising water damaged the electrical equipment. In addition to electrical system issues, the turbine blades were "stuck" and inoperable prior to the flood event. Prior to beginning any rehabilitation work on the hydropower plant, it was determined that a feasibility study should be performed that reviewed previous recommendations and took into account interaction with the Federal Energy Regulatory Commission (FERC) to determine if it was cost effective for RWSA to rehabilitate the facility. The feasibility study was conducted by Gomez and Sullivan and concluded that rehabilitation of the facility would most likely not provide a return on investment based on current market conditions. Staff recommended that RWSA proceed with surrendering the exemption to licensure with FERC and decommission the facility. During the meeting on October 25, 2016, the Board of Directors agreed with the recommendation and staff began to proceed with the surrender process.

#### 22. <u>Drinking Water Infrastructure Plan – Crozet Area</u>

Design Engineer:	Hazen and Sawyer
Project Start:	June 2017
Project Status:	30% Complete
Completion:	Fall 2018
Total Capital Project Budget:	\$300,000

#### Current Status:

A progress meeting was completed in October, and additional meetings with the County of Albemarle Planning Department and the VADEQ are scheduled for November.

Hazen is currently reviewing RWSA and ACSA historical average and peak day water demand data, as well as County zoning and land use data, to develop water demand forecasts. RWSA staff has provided Hazen with existing data, reports and service area history to start their analysis. A design team kick-off meeting has been held, and additional meetings with county staff and the VA DEQ will be scheduled this Fall, when future demand analyses have been completed. Field investigation of hydraulic data is being scheduled, however, hydrant flow testing will be suspended until the current Drought Watch restrictions have been lifted.

#### History:

Preliminary meetings with an Albemarle County Board member and Community Development representatives were held in May. A meeting with the Crozet Community Advisory Committee was held on June 21, 2017.

This project was previously entitled the Crozet Water Master Plan, and is identified in the current Capital Improvement Plan as such. The project name has been changed to avoid confusion with the separate Crozet Master Plan document. The Crozet water service area continues to see expanded growth in the average and maximum day water demands. Discussion with county and ACSA officials have confirmed recent growth trends that water use is increasing in Crozet. While some projects ae currently underway to address the immediate need in Crozet, this project will develop a comprehensive mid and long range plan (50 years) for the entire water system including; raw water supply, raw water pumping and conveyance, finished water treatment, finished water pumping, and finished water distribution and storage. Future water demand projections will be an important part of this project. At the June 27, 2017 Board Meeting, it was approved to award this planning project to the consulting engineering firm of Hazen and Sawyer. An Engineering Services Agreement was executed on July 5, 2017, as well as Work Authorization No. 1 for the fee of \$269,120.



#### MEMORANDUM

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

FROM: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: RECOMMENDATION FOR AN ADDITIONAL ½ DAY HOLIDAY ON NOVEMBER 22 AND DECEMBER 22, 2017

DATE: NOVEMBER 14, 2017

An additional <sup>1</sup>/<sub>2</sub> day holiday has been granted by the Governor for State employees, as well as by Albemarle County, the City of Charlottesville (November 22 only) and the Albemarle County Service Authority for its employees.

#### **Board Action Requested**:

It is respectfully requested that the Board of Directors authorize an additional <sup>1</sup>/<sub>2</sub> day holiday (4 hours) for staff on November 22 and December 22, 2017.



#### MEMORANDUM

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

- FROM: BILL MAWYER, EXECUTIVE DIRECTOR
- SUBJECT: PROPOSED 2018 BOARD MEETING SCHEDULE
- DATE: NOVEMBER 14, 2017

Each year staff proposes a calendar for Board meetings for the upcoming calendar year. Since 2009, the Board has met on the fourth Tuesday of the month at 2:15 p.m. (or upon conclusion of the RSWA Meeting when it is also held), except traditionally the December meeting has been advanced to the third Tuesday in order to avoid a meeting conflicting with the Christmas to New Year's Day holiday period. In 2015, 2016, and 2017 we also moved the November meeting to avoid conflicts with the Thanksgiving holiday.

#### **Board Action Requested**

Staff respectfully recommends adoption of the attached Board Meeting Schedule for Calendar Year 2018.



### **Board Meeting Schedule**

Listed below are the approved RWSA Board of Directors meeting dates for calendar year 2018:

Tuesday, January 23, 2018 Tuesday, February 27, 2018 Tuesday, March 27, 2018 Tuesday, April 24, 2018 Tuesday, May 22, 2018 Tuesday, June 26, 2018 Tuesday, July 24, 2018 Tuesday, August 28, 2018 Tuesday, September 25, 2018 Tuesday, October 23, 2018 Tuesday, November 13, 2018\*

\* The November and December meetings are moved to the second and third Tuesday of the month, respectively, to avoid conflicts with the weeks of Thanksgiving and Christmas.

RWSA meetings will start following the RWSA Board Meetings but not earlier than 2:15 p.m. RWSA meetings will be held in the large conference room of the Moores Creek Wastewater Treatment Plant Administration Building, 695 Moores Creek Lane, Charlottesville, VA.



#### MEMORANDUM

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

#### FROM: WILLIAM I. MAWYER, JR., PE, EXECUTIVE DIRECTOR

#### SUBJECT: RECOMMENDATION TO DISCONTINUE WATER USE RESTRICTIONS

#### DATE: NOVEMBER 14, 2017

This memorandum requests that the water use restrictions declared by the Board of Directors on October 5, 2017, be discontinued.

As the result of recent rains, reduced demand by the community in response to water use restrictions, operational strategies implemented by staff, and cooperative changes authorized by our VDEQ regulators, the South Fork Rivanna Reservoir has been 100% full and overflowing since 7:30 p.m. on November 1st. Based on this sustained recovery of the reservoir, we are recommending that the Board of Directors authorize the discontinuation of all water use restrictions.

We will continue to work with the VDEQ and our watershed consultant to optimize our reservoir and treatment plant operational and regulatory procedures as we prepare for the next period of dry weather.

We have now directed our efforts towards refilling the Ragged Mountain Reservoir by transferring water from the Sugar Hollow Reservoir and by reducing treated water production at the Observatory Water Treatment Plant. The process to refill Ragged Mountain will likely take 4 - 6 months, based on receiving normal winter rainfall amounts required to maintain adequate water levels in Sugar Hollow.

#### **Board Action Requested**

It is respectfully recommended that the Board of Directors authorize the Executive Director to notify the Albemarle County Service Authority, the Albemarle County Board of Supervisors and the Charlottesville Director of Public Utilities that water use restrictions are no longer required.

### **Drought Update**

## for the Rivanna Water and Sewer Authority Board of Directors



Presented by: Bill Mawyer, Executive Director November 14, 2017

## South Fork Rivanna Reservoir



Image taken October 4, 2017

### South Fork Rivanna Reservoir



Image taken November 2, 2017

## South Fork Rivanna Reservoir

August 3<sup>rd</sup>

### 100% Full

- September 15<sup>th</sup>
- October 5<sup>th</sup>
- November 1<sup>st</sup>

42%

77%

100%

## Next Steps

- 1. Work with VDEQ and our watershed consultant to optimize operational and regulatory procedures
- 2. Complete any needed repairs of gates and meters in the South Fork Rivanna Reservoir
- 3. Refill Ragged Mountain Reservoir
  - a) Transfer from Sugar Hollow Reservoir began Nov. 1<sup>st</sup>
  - b) Increase production at the South Rivanna Water Treatment Plant
  - c) Decrease production at the Observatory Water Treatment Plant

## Recommendation

It is respectfully recommended that the Board of Directors authorize the Executive Director to notify the Albemarle County Service Authority, the Albemarle County Board of Supervisors and the Charlottesville Director of Public Utilities that water use restrictions are no longer required.



## **Goals and Strategies**



Presented by: Goal Team Leaders November 14, 2017

## Workforce Development

Goal Team Leader • Betsy Nemeth

Team Members

- Cynthia Polaro
- Travis Goode
- David Rhoades
- Will Dobson
- Steve Minnis
- Patricia Defibaugh
- Brian Haney

## Workforce Development

### Goal:

To attract, develop, and retain a professional, highly skilled, dedicated, and versatile team

### Strategies

- 1. Develop a comprehensive staffing, classification, and compensation plan
- 2. Create a formal development and career pathing program
- 3. Conduct a training needs assessment and enhance the training program
- 4. Develop an employee engagement program

## **Operational Optimization**

Goal Team Leader • Rich Gullick Team Members

Tim Castillo
Matt Bussell

- Brian Baird
- Debra Hoyt
- Doug March
- Steven Miller
- Brian Estes

## Operational Optimization

### Goal:

To efficiently, reliably, and safely provide high quality services, assuring the best value for our customers

### Strategies

- 1. Continually evaluate, prioritize, and improve key business and operational processes
- 2. Improve preventative maintenance and emergency planning
- 3. Enhance Rivanna's culture of safety
- 4. Protect our workforce and the public through continually growing a culture of safety

## **Communication & Collaboration**

Goal Team Leader • Lonnie Wood Team Members

- Ken Chapman
- Mark Roach
- Carol Wiles
- Lonnie Wood
- Konrad Zeller
- Chris Ward
- Steve Minnis Jr.

# Communication & Collaboration

### Goal:

To foster a culture that encourages open communications and strengthens partnerships

### Strategies

- 1. Create and implement a comprehensive public outreach plan
- 2. Create and maintain internal communication platforms
- 3. Enhance internal and external collaboration

## **Environmental Stewardship**

Goal Team Leader • Andrea Terry Team Members
Junior Harris
Bethany Houchens
Cliff Hunt

- Jim Langolf
- Bill Morris
- Kathy Ware

## Environmental Stewardship

Goal:

To be a leader in our community's environmental protection and education

### Strategies

- 1. Increase internal environmental engagement
- 2. Designate resources to support environmental outreach and green initiatives
- 3. Provide regional leadership in environmental stewardship
- 4. Increase collaboration with other environmental groups

## Solid Waste Services

### Goal Team Leader • Phil McKalips

Team Members

- Miranda Baird
- Mike Haley
- Mark Brownlee
- Scott Schiller
- Jay Young
- Mark Charron

## Solid Waste Services

Goal:

To provide reliable, convenient, and innovative solid waste and recycling services

### Strategies

- 1. Determine community needs and preferred service levels
- 2. Enhance partnerships with local governments and the University of Virginia
- 3. Explore and implement high impact, best-in-class solid waste business practices and service delivery

## Infrastructure & Asset Management

### Goal Team Leader • Jennifer Whitaker

Team Members • Chris Barfield

- Elizabeth Duncan
- Ben Fricke
- Jon Lowry
- Greg Marrs
- Dave Tungate
- Rob Haacke

## Infrastructure & Asset Management

### Goal:

To plan, deliver, and maintain dependable infrastructure in a financially responsible manner

### Strategies

- 1. Implement an Authority-wide asset management program
- 2. Develop a comprehensive environmental compliance and infrastructure planning and delivery program
- 3. Develop and maintain long-term master plans for all critical asset classes
# WATER AND SEWER AUTHORITY SOLID WASTE AUTHORITY

RIVANNA AUTHORITIES BOARD MEETING / NOVEMBER 14, 2017 STRATEGIC PLAN UPDATE







## GOALS





#### WORKFORCE DEVELOPMENT

To attract, develop, and retain a professional, highly skilled, dedicated, and versatile team

#### VISION

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

## VALUES



- Integrity
- Teamwork
- Respect
- Quality



#### OPERATIONAL OPTIMIZATION

To efficiently, reliably, and safely provide high quality services, assuring the best value for our customers

#### COMMUNICATION AND COLLABORATION

To foster a culture that encourages open communications and strengthens partnerships

## MISSION

Our professional team of knowledgeable and engaged personnel serve the Charlottesville, Albemarle, and UVA community by providing high quality water treatment, refuse, and recycling services in a financially and environmentally responsible manner



#### **ENVIRONMENTAL STEWARDSHIP**

To be a leader in our community's environmental protection and education



#### SOLID WASTE SERVICES

To provide reliable, convenient, and innovative solid waste and recycling services







#### INFRASTRUCTURE AND ASSET MANAGEMENT

To plan, deliver, and maintain dependable infrastructure in a financially responsible manner

## **MEASURES**

## **STRATEGIES**

- Reduced turnover rate to below 10% annually
- 2. Increased percentage (%) of required trainings completed and applicable licenses obtained
- 3. Number of employees who meet minimum requirements for positions one level above their current position
- 1. Develop a comprehensive staffing, classification, and compensation plan
- 2. Create a formal development and career pathing program
- 3. Conduct a training needs assessment and enhance the training program
- 4. Develop an employee engagement program

- 1. Conduct at least two process audits per department annually
- 2. Ensure that 90% of preventive maintenance (PM) work orders are completed on time
- 3. Decreased number of safety incidents and injury lost time
- 1. Continually evaluate, prioritize, and improve key business and operational processes
- Improve preventative maintenance and emergency planning
  Enhance Rivanna's culture of safety
- Enhance Rivanna's culture of safety
  Protect our workforce and the public through continually growing a culture of safety
- 1. Create and implement a comprehensive public outreach plan
  - Create and implement a comprehensive public outreach pla 2. Create and maintain internal communication platforms
  - 3. Enhance internal and external collaboration
- I. Increase website performance metrics
- 2. Increased employee understanding and engagement ratings
- 3. Increased number of external partnerships and engagement activities
- 4. Increased community awareness of Rivanna initiatives
- 1. Achieve and maintain 100% permit compliance
- 2. Increased number of green projects
- 3. Increased number of times standards on effluent or treated water quality were positively exceeded
- 4. Increase percentage (%) of solid waste tonnage recycled
- $\rightarrow$
- 1. Increase internal environmental engagement
- 2. Designate resources to support environmental outreach and green initiatives
- 3. Provide regional leadership in environmental stewardship
- 4. Increase collaboration with other environmental groups

- Increased participation rate (both number of people and types of waste)
- 2. Increased tonnage rates
- 3. Increased patron satisfaction and outreach
- Determine community needs and preferred service levels
  Enhance partnerships with local governments and the University of Virginia
- 3. Explore and implement high impact, best-in-class solid waste business practices and service delivery

- 1. Improved infrastructure performance and condition rating
- 2. Increased percent of assets populated in Asset Management Program
- 3. Increased percent master planning coverage
- 1. Implement an Authority-wide asset management program
- 2. Develop a comprehensive environmental compliance and infrastructure planning and delivery program
- 3. Develop and maintain long-term master plans for all critical asset classes

## **RIVANNA STRATEGY WORKSHOP SUMMARY**

On October 12, the Rivanna Water and Sewer Authority and Rivanna Solid Waste Authority (Rivanna) hosted a Strategy Workshop, which was facilitated by Raftelis Financial Consultants (Raftelis). This workshop included presentations from each strategic planning goal team and an in-depth review of measures and strategies by the Project Steering Team (PST), around the goal areas of:

- Workforce Development
- Operational Optimization
- Communication and Collaboration
- Environmental Stewardship
- Solid Waste Services
- Infrastructure and Master Planning

The draft framework included in this document presents a comprehensive view of the goals, measures, and strategies discussed and prioritized in the Strategy Workshop. Immediate next steps in the strategic planning process include:

- Draft review by Rivanna's PST
- Review and comments by the Rivanna Boards of Directors (November 14)
- Plan completion (mid-December)

Questions concerning this report or any aspect of the Rivanna strategic planning process should be addressed to Darin Thomas at 336.209.1347 or dthomas@raftelis.com or Catherine Carter at 704.247.3220 or ccarter@raftelis.com





