



Rivanna Water and Sewer Authority

Board of Directors Meeting

December 19 , 2017

2:15pm



695 MOORES CREEK LANE
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BOARD OF DIRECTORS

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

DATE: December 19, 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 November 14, 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 Finance*
 - b) *Staff Report on Ongoing Projects*
 - c) *Staff Report on Operations*
 - d) *Recommendation to Award Engineering Services Contract, Crozet Flow Equalization Tank and Pumping Station Upgrade - Greeley & Hansen Engineers*
 - e) *Request for Additional Construction Administration and Inspection Services for the Granular Activated Carbon (Gac) Improvements at Various RWSA Water Treatment Plants – Hazen and Sawyer Engineers*
8. **OTHER BUSINESS**
 - a) *Comprehensive Annual Financial Report Fiscal Year Ending June 30, 2017*
 - b) *Urban Water Supply Strategy Overview, presented by Bill Mawyer, Executive Director and Andrea Terry, Water Resources Manager*

c) *Crozet Interceptor Flow Equalization Tank Siting Study Results, presented by Scott Schiller, Senior Engineer*

d) *Request for the Approval of the Strategic Plan, presented by Bill Mawyer, Executive Director*

9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

10. CLOSED MEETING

11. ADJOURNMENT

GUIDELINES FOR PUBLIC COMMENT AT RIVANNA BOARD OF DIRECTORS MEETINGS

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

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

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

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

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

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



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**RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
November 14, 2017**

A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was held on Tuesday, November 14, 2017 at 2:15 p.m. in the 2nd floor conference room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Mr. Mike Gaffney – Chair, presiding; Ms. Lauren Hildebrand; Mr. Maurice Jones; Mr. Gary O’Connell; Dr. Liz Palmer; and Mr. Jeff Richardson.

Board Members Absent: Ms. Kathy Galvin.

Staff Present: Ms. Miranda Baird, Mr. Mark Brownlee, Mr. Tim Castillo, Ms. Victoria Fort, Mr. Tom Freeman, Mr. Doug March, Mr. Bill Mawyer, Ms. Katie McIlwee, Mr. Phil McKalips, Ms. Betsy Nemeth, Ms. Michelle Simpson, Ms. Andrea Terry, Ms. Jennifer Whitaker, Mr. Lonnie Wood, and Mr. Jay Young.

Also Present: Mr. Kurt Krueger, RWSA counsel; members of the public and media representatives; and Raftelis consultant Darin Thomas.

1.0 Call to Order

The regular meeting of the RWSA Board of Directors was called to order by Mr. Gaffney on Tuesday, November 14, 2017 at 2:15 p.m.

Mr. Gaffney welcomed Mr. Jeff Richardson, the new Albemarle County Executive, who would serve as the Secretary-Treasurer for the RWSA Board. Mr. Gaffney mentioned that Mr. Richardson has 27 years of local government experience, including 17 years in senior management – serving 12 years as Deputy City Manager for Asheville, NC, and since 2013 has served as County Manager for Cleveland County, NC.

Dr. Palmer moved to approve Jeff Richardson as Secretary-Treasurer of the Rivanna Water and Sewer Authority Board of Directors. Mr. O’Connell seconded the motion, which passed by a vote of 6-0. Ms. Galvin was absent from the meeting and the vote.

2.0 Minutes of Previous Board Meetings

a) Minutes of Regular Board Meeting on October 24, 2017

Mr. Mawyer stated that he had a correction to agenda item 5.0 Items from the Public, in which Dede Smith stated that “the Ragged Mountain Dam had impeded the ability to serve the Rivanna,” which should be changed to “the South Fork Rivanna Reservoir Dam,” not Ragged Mountain. He noted that Ms. Smith had contacted him about it, and he assured her that he would get it corrected.

Dr. Palmer moved to approve the RWSA Board meeting minutes of October 24, 2017 as corrected. Mr. Jones seconded the motion, which passed by a vote of 6-0. Ms. Galvin was absent from the meeting and the vote.

3.0 Recognition

There were no recognitions.

4.0 Executive Director’s Report

Mr. Mawyer reported that the Rivanna Reservoir was 100% full and had been since November 1, and staff would recommend to the Board to discontinue all water use restrictions. He stated that the urban system collectively is about 85% full and Ragged Mountain Reservoir was about 77% full. He stated that they continue to have positive discussions with UVA about the lease of the Observatory Water Treatment Plant and related facilities, and Mr. Krueger and Ms. Whitaker had worked to pull together a new draft lease that would separate the ground lease component from the cost of water service that the current agreement has with the City. He stated that staff and Ms. Hildebrand had met the previous day with Don Sundgren of UVA, and it had been a positive meeting – with progress in moving forward in preparing plats and other terms and conditions. Mr. Mawyer stated that in addition to including the 7.8-acre water treatment plant property in the new lease, they were also trying to capture all the pipes and pump stations that take water to and from the treatment plant.

Mr. Mawyer reported that Davenport & Co. had done a presentation at the October meeting and told the Board that the RWSA had 826 days of operating cash on hand. He stated that this was correct, but when staff practically calculates how much cash is on hand, they use the operating expenses of paying day-to-day bills as well as the debt service expense paid every month – which Davenport does not recognize in considering cash on hand. Mr. Mawyer noted that in considering both components of the operating budget, staff maintains that the RWSA has 459 days of operating cash on hand, which is less than the Authority’s goal of 548 days.

Mr. Mawyer reported that he and Ms. McIlwee had met at Ragged Mountain with Brian Richter’s sustainability class from UVA and discussed the water supply plan, drought management, and other relevant items of interest. He stated that on November 16, he would be meeting with the PAC Committee – which includes UVA, the City, and the County – about long-term water strategies.

Mr. Mawyer stated that the strategic plan was moving forward, and there would be a work session with both Authority boards after their regular business meetings.

5.0 Items from the Public

There were no items from the public presented.

6.0 Responses to Public Comments – No Responses This Month

Mr. Mawyer indicated that staff had sent Ms. Dede Smith more information about water quality and reaffirmed the answer provided to her in October that they had seen no impacts on water quality because of the lowered levels in the reservoirs experienced several weeks earlier.

7.0 Consent Agenda

- a) Staff Report on Operations*
- b) Staff Report on Ongoing Projects*
- c) Recommendation for an Additional ½ Day Holiday on November 22 and December 22, 2017*
- d) Proposed 2018 Board Meeting Schedule*

Mr. Jones moved to approve the Consent Agenda as presented. Dr. Palmer seconded the motion, which passed by a vote of 6-0 vote. Ms. Galvin was absent from the meeting and the vote.

8.0 Other Business

- a) Recommendation to Discontinue Water Use Restrictions*

Mr. Mawyer reported that they had had a lot of discussion over the preceding several weeks regarding drought, and he noted that the South Fork Rivanna Reservoir was 100% full and had been since November 1st. He presented a chart showing the reservoir on October 4, when it was at 45% capacity, and he pointed out that the water is now overflowing the dam. He stated that there were about 100 million gallons per day going over the dam, compared to a maximum release through the gates of 20 million gallons.

Mr. Mawyer indicated that on August 3, the reservoir was full; by September 15, it was at 77% capacity; and over the following 2-3 weeks, it dropped to 42% capacity when the Board authorized a recommendation for mandatory restrictions on October 5 to the City and the County. He stated that by November 1, the reservoir was full and continues to be full. Mr. Mawyer explained that part of Rivanna's plan with DEQ was to ensure sustained filling of the reservoir – and after talking with them last week, DEQ was comfortable that the two weeks represented a sustained filling and was comfortable in removing the water restrictions. He stated that the next steps were to continue to work with DEQ and the Authority's watershed consultant, as they optimize operational and regulatory procedures, including when to shift water production from Rivanna to Observatory WTP, when to start using Sugar Hollow to supply Ragged Mountain or the Rivanna Reservoir, and other operational issues. Mr. Mawyer stated that they would also evaluate whether any of those things affected the permit, which is the regulatory portion, and there would be a work session on December 1 with the consultant's staff to consider those scenarios and how Rivanna can optimize the use of its facilities.

Mr. Mawyer reported that they were also considering repairing the gates and meter if needed, and they have a consultant evaluating the meter when measures the outflow to see if it needs any work. He stated that their target now is to refill the Ragged Mountain Reservoir, which was 77% full, and the 23% represents about 350-million gallons below capacity. He stated they started the transfer from Sugar Hollow on November 1, and they can transfer a maximum of 4 million gallons per day – so it would take about 120 days to refill Ragged Mountain when considering

the use of 1 MGD by the Observatory WTP. He noted that they wanted to get started on this as soon as possible now that the Rivanna Reservoir was full.

Mr. Mawyer mentioned that they increased production at the Rivanna treatment plant and decreased it at Observatory, so there would be a net gain to the Ragged Mountain Reservoir. He stated that they had been taking out 4-5 MGD at Observatory when trying to conserve Rivanna, but now they were switching the strategy and trying to conserve Ragged Mountain and maximize Rivanna.

Mr. Mawyer stated that staff recommends that the Board authorize staff to notify the Albemarle County Service Authority, the Albemarle County Board of Supervisors, and the City of Charlottesville that water use restrictions were no longer required.

Dr. Palmer asked Mr. Mawyer to explain the process of lifting the restrictions, as it had been a confusing process.

Mr. Mawyer responded that the written directives were less clear on how to get out of restrictions than they were to get in. He explained that the RWSA sent a letter to the City, County and ACSA asking for the restrictions, and now would send them a letter saying that they were no longer needed – which is what the drought management plan addresses. He noted that the City's ordinance says the notice should go to the director of public works, but Rivanna improvised and addressed it to the director of public utilities as those duties had been relocated by the City

Dr. Palmer asked if the Board of Supervisors had to vote to get them out of the restrictions.

Mr. Mawyer responded that he believed that was correct.

Mr. O'Connell clarified that the ACSA Board had to first recommend to the Board of Supervisors to rescind the emergency, and the resolution the Service Authority Board would consider would be to allow the ACSA Executive Director to lift the water restrictions once the County acts. He stated that the ACSA was looking for the restrictions to be lifted by November 17 if all those actions occurred.

Mr. Richardson pointed out that the Board of Supervisors would consider the action at their November 16 meeting, and noted that staff had already received the appropriate documentation.

Mr. Jones mentioned that the item would go before City Council on November 20.

Dr. Palmer moved to authorize the Executive Director to notify the City, County and ACSA that restrictions were no longer needed. Mr. O'Connell seconded the motion, which passed by a vote of 6-0. Ms. Galvin was absent from the meeting and the vote.

Mr. O'Connell noted that the ACSA Board would meet on the morning of November 16 and would recommend to the Board of Supervisors that they lift the emergency that's been declared. He stated that the resolution that the ACSA Board was considering would allow the ACSA

Executive Director to lift the emergency water restrictions, which the ACSA was telling the public would be November 17.

Dr. Palmer commented that some of her constituents had indicated that they wanted to wash their cars.

Mr. O'Connell stated that most of the commercial carwashes were already in operation, so this would pertain to someone washing their car at home.

9.0 Other Items from Board/Staff not on Agenda

Mr. Gaffney recognized Mr. Krueger for being honored by the Charlottesville Chamber of Commerce with the Paul Goodloe McIntire Award for Citizenship for 2017, which would be presented on November 30. Mr. Gaffney noted that Mr. Krueger had worked with numerous nonprofit organizations, including 23 years of work with the YMCA – including construction and financing of their new facility.

Board members and meeting attendees applauded.

Mr. Krueger commented that in 2012, Mr. Gaffney had also received the award.

10.0 Joint Strategic Planning Work Session with RSWA Board

Mr. Mawyer stated that Darin Thomas of Raftelis would discuss the strategic plan draft as developed through the Goal Teams and project steering committee, and there would be a speaker from each of the six goal teams who would discuss the six goals and how they were derived. He stated that this was a work session with the intent being to have the plan completed and ready for approval in December.

Mr. Thomas opened the discussion and stated that the strategic planning project is reflected in the strategic framework found in the board pockets, and after incorporating edits and comments from this meeting, they would move toward the development of their official strategic plan – which would be a more detailed written document. Mr. Thomas reported that in mid-June, the strategic planning project started with a kickoff session done with the project steering team, which included members of the boards. He stated that there had been a significant amount of stakeholder engagement activity, which included an online survey, one-on-one interviews with Board members, internal and external community stakeholders, and a public meeting. Mr. Thomas stated that all of the stakeholder information was gathered and turned into a deliverable called the “Sense of Stakeholder Summary,” and at the boards’ August 22nd meetings, they shared that feedback and received additional input from the boards.

Mr. Thomas stated that at that point they moved to the foundation workshop, a session that ultimately allows them to get close to final vision, values and mission, and also allows them to identify the broad goal categories for the organization. He stated that once that strategic guidance was gathered, they engaged the Rivanna Authorities through goal teams, and today each goal team champion would present the work of their team to express how success needed to be defined against the goals they champion – as well as how progress would be measured. Mr. Thomas stated that they would also try to answer the question of what the authorities need to

focus on to advance those goals. He stated that in looking at the strategic framework, the intent is to provide the organization with a one-pager of their entire strategic plan, ranging from vision, values, and mission, to goals, measures and strategies. Mr. Thomas stated that the work of the goal teams culminated in a strategy workshop that took place on October 12, and all of the work culminated in finalization of the framework document. He stated that at this meeting the goal champions would discuss their respective areas and solicit feedback and input from the boards.

Mr. Thomas stated that the desired future state of both authorities was best expressed in the vision, which is to serve the community and be a recognized leader in environmental stewardship by providing exceptional water and solid waste services. He stated that the things that would guide them in making decisions were values, which are that the RWSA and RSWA are committed to the values of integrity, teamwork, respect, and quality. Mr. Thomas noted that vision and values also guide them in fulfilling their mission and purpose, expressed as “the professional team of knowledgeable and engaged personnel serving the Charlottesville, Albemarle, and UVA community by providing high-quality water treatment, refuse, and recycling services in a financially and environmentally sustainable manner. He stated that those as foundations for the strategic plan would help guide them as they fulfill their goals, work on achieving performance for measures, and implement strategies.

Ms. Betsy Nemeth, Human Resources Manager for the authorities, stated that she is the goal team leader for Workforce Development and referenced a list of team members – Cynthia Polera, Travis Goode, David Rhodes, Lil Will Dobson, Steve Minnis, Patricia Defibaugh, and Brian Haney. She stated that the first step the group took was to develop a goal for workforce development: “To attract, develop, and retain a professional, highly skilled, dedicated, and versatile team.” Ms. Nemeth stated they narrowed a big group of strategies down to four: develop a comprehensive staffing, classification, and compensation plan; create a formal development and career path program, which emerged from the employee surveys; conduct a training needs assessment and enhance the training program; and develop an employee engagement program. She reported that a few key measures include reducing the turnover rate below 10% and to do it by department, increase the percentage of training completed to include licensing, and to increase the number of employees who meet the minimum requirements for positions one level above their current position.

Dr. Palmer asked if retirements were included in the 10% turnover, noting that there were several retirements happening.

Ms. Nemeth responded that retirements were included in turnover now, adding that there would be five retirements this year. She explained that there are 88 employees, and trying to keep that number below 10 does not provide much of a buffer so they may be factored out.

Dr. Palmer asked if there were any strategies related to diversity.

Ms. Nemeth replied that she would like the authorities to have more diversity, and noted that they did not establish a strategy for it. She stated that there were two aspects to diversity as it pertained to the authorities: female diversity, particularly among operators as there was currently just one female operator; and ethnic/racial diversity. Ms. Nemeth stated that they saw more

diversity in wastewater and solid waste than in water, and it was not present in administration. She stated that in a meeting earlier that day with the Daily Progress, they brought up the fact that you could target groups to recruit diverse candidates.

Mr. O'Connell asked if they had projected retirements in some kind of succession and preparation for the future.

Ms. Nemeth responded that this was "career pathing," and this included employees who wanted to move into supervisory roles and how to get them into those positions, as well as recruiting for future positions because licensed personnel were not out there, and those who were licensed were retiring. She stated that the thought process was to start getting people in the organization and grow them as trainees so they grow from within, adding that it helps them become Class 1 operators, and those are who tended to retire.

Dr. Palmer asked if there were sufficient resources for them to achieve the goals.

Ms. Nemeth responded that they have some resources, with ideas and time being the key and career pathing programs requiring time to establish, as they were individualized. She stated that the top strategy would pull resources in, and once they fleshed that out they have a consultant – Evergreen Consulting – that was doing a classification and compensation study. Ms. Nemeth stated there was a final draft being reviewed, and she suspected that this was where the resources were – to get the funds to bring people in and to stay competitive in the market from a salary perspective.

Mr. Richardson asked if there had been any kind of relationship with Piedmont Virginia Community College on the technical training.

Ms. Nemeth responded that there was not, but there had been discussion about reaching out to several colleges including PVCC. She stated they have discussed expanding the intern program over the summer, and for IT they would want someone who did work on cybersecurity – so they would reach out to CATEC. Ms. Nemeth mentioned that Rivanna recruits interns from Virginia colleges and would be starting a new program this year in which they rotated people through all departments, as well as specific areas of student interest.

Mr. Thomas stated that based on the strategic feedback from the boards and the stakeholders, the first priority was to focus on workforce. He stated there were six goals within the strategic plan, and the next high priority goal focused on "Operational Optimization", with discussion to be led by the Tim Castillo.

Mr. Castillo reported that their goal team leader was Dr. Gullick, but he was out of town. Mr. Castillo stated that the team also included Matt Bussell, Brian Baird, Deborah Hoyt, Doug March, Steve Miller, Brian Estes, and Kevin Palmer. Mr. Castillo stated that they developed a goal of efficiently, reliably, and safely provide high quality services that ensure the best value for customers. He stated that the team created strategies for doing this: continue to evaluate, prioritize, and approve key business and operational processes; improve preventive maintenance

and emergency planning programs; enhance Rivanna's culture of safety; and protect the workforce and the public through continually growing a culture of safety.

Mr. Castillo stated that they determined that they needed to conduct some internal process audits – at least two per department per year as a reasonable target. He stated that another specific objective was to ensure that 90% of the operational preventive maintenance program work orders were completed on time, which would enhance their ability to predict necessary repairs as well as do preventive repairs. He stated that the specific objective related to safety was to decrease the number of safety incidents and injury lost time, as there are specific industry metrics that can be used as benchmarks.

Dr. Palmer asked if they were conducting their operations audits now, and who was doing them.

Mr. Castillo responded that they have begun that process, with wastewater and water departments having conducted audits and solid waste departments doing audits as well. He stated that this was something they needed to do and continue focusing on to truly achieve operational efficiencies. Mr. Castillo explained that Rivanna could either do that internally or use outside consultants to assist, or a team approach using both to maximize expertise.

Dr. Palmer asked if that hybrid approach was the industry standard.

Mr. Castillo responded that it was, although there were some people who felt they knew it all.

Mr. Thomas reported that another opportunity identified through stakeholder engagement was the notion of more effective communication – both internally and externally – and also to be able to collaborate more. He stated that the next goal, "Communications and Collaboration" would be presented by Lonnie Wood.

Mr. Wood stated that the goal champion had been Teri Kent, but he had been drafted to complete the task. He stated that their team also included Ken Chapman, Mark Roach, Carol Wiles, Victoria Fort, Conrad Zeller, Chris Ward, and Steve Minnis, Jr. He stated that one of the team's observations was that employees were far more focused on internal communication versus external, so they set a goal to increase the number of facility tours offered. Mr. Wood stated that the goal is to foster a culture that encourages open communication and strengthens partnerships, and the first draft included "internal" and "external" strengthening of partnerships. He stated that one strategy was to create and implement a comprehensive public outreach plan, with other opportunities including the use of City and County communications with their customers as a vehicle for Rivanna. Mr. Wood stated that another strategy was to create and maintain the internal communications platform, with a focus on establishing a better platform than email, such as a Share Point or intranet site, or push notifications via phones.

Dr. Palmer stated that every strategic plan talked about communication and the issues related to it, and the RSWA has been trying to work out the communications between the City, County, and Rivanna – as there had been some disconnect in the past. She noted that there was still some confusion as to purpose of certain individuals, with Andy Lowe from Albemarle County staff

present at this meeting. Dr. Palmer emphasized that it was a work in progress but could be worked out with some additional effort.

Mr. Henry asked if, in the context of communicating with staff who did not have access to electronic platforms, whether they had worked with those employees to determine best mechanisms for communication.

Mr. Wood responded that it was mostly a generational matter, as younger employees were connected with phones and used the internet, whereas more seasoned employees did not use those media. He confirmed that part of the strategy was to ensure that Rivanna reached them all.

Mr. Jones asked about social media as a performance metric.

Mr. Wood responded that the team had discussed it, and that was an item that would be resource driven, as you had to be dedicated to keeping the information constant and current.

Dr. Palmer stated that the staff changeover, with the website is less busy than it was before, but it was also more challenging to find the older information and studies – and she had heard from constituents who were frustrated by this.

Mr. Wood responded that this was something that was balanced out with web design, and a lot of websites were not repositories for historical reports but were the interface for customers. He stated that you could put an FTP site up that could be filled with documents, which is where they had been with Rivanna's site, and it might be possible to have information in a different place than on the website.

Dr. Palmer stated that this might be a good idea, especially when talking about the water supply, the drought, instream flow requirements, etc. – as people may want to go back and look at those documents.

Mr. Mawyer stated that Ms. McIlwee had been working to improve the Authority website, but there were already more than 100 pages within the current site and they needed to determine how they want the website to be used.

Dr. Palmer noted that some of the historical information could be linked off.

Mr. Wood stated that there was an add-on program available for Laserfiche that would go to publicly available information, but someone would need to be dedicated to keeping it up.

Mr. O'Connell asked how they would measure "increased employee engagement ratings."

Mr. Wood responded that this could be accomplished through engagement surveys that could be compared from year to year, and they could also observe trends in what employees were accessing on the website. He stated that the recently established employee council could help disseminate information.

Mr. Thomas added that there are specially designed survey instruments that allow organizations to get a sense of engagement. He stated that the next area of focus was “Environmental Stewardship”, and stated that each goal team focused on trying to provide a definition of success – and the strategies and measures hopefully contain the most pertinent things that get at achieving success as developed by each of the goal teams.

Ms. Terry stated that she is the goal team champion for environmental stewardship, and their team members include Junior Harris, Bethany Houchens, Cliff Hunt, Jim Langolf, Bill Morris, and Kathy Ware. She reported that the team’s goal is “to be a leader in our community’s environmental protection and education,” and the strategies established included increasing internal environmental engagement. Ms. Terry stated that in their work, she recognized that people are proud that Rivanna is an environmental agency, as water resources are an environmental resource, they clean up the water, and they handle solid waste. She stated that they realized they would need to identify resources in the organization to support environmental outreach and grant initiatives, although Rivanna does bits and pieces in different places. Ms. Terry reported that the third strategy is “to provide regional strategy in environmental stewardship,” and “to increase collaboration with other environmental groups.” She added that measures of success identified included exceeding the DEQ permit compliance.

Dr. Palmer asked her to elaborate on “designate resources to support environmental outreach and green initiatives,” and what the resource needs are to meet environmental stewardship goals.

Ms. Terry reported that there was a need for time for staff to perform those functions, and possibly additional resources – which would need to be defined once they come up with specific objectives.

Dr. Palmer asked when they would determine those objectives.

Ms. Terry responded that this was the next step in the strategic planning process.

Mr. Mawyer explained that in the next phase of the process, they would take a closer look at the goals and determine the actionable items and the schedule, as well as the resources required. He noted that they may have Raftelis assist with each goal team to create actionable items and how they achieve these goals, along with what resources are needed, then staff would come back to the Board and clarify any positions or dollars needed.

Mr. Henry asked if they would identify specific numbers associated with the measures the goal team has established.

Ms. Terry responded that this was possible, and the team struggled a bit in trying to ascertain what the right metric would be in which to accomplish that – so it was still evolving and the team would want input on that.

Mr. O’Connell asked for confirmation that each goal team would essentially come up with an action plan.

Mr. Mawyer responded that there would be subcategories for each goal, what resources are needed, and a schedule for accomplishment along with priorities throughout five years. He added that budget implications would also be included as part of the next phase.

Ms. Terry commented that the goal team had lots of ideas to get put into the overarching strategies, which provide a launching point for moving forward.

Mr. Thomas stated that with some of the metrics identified, they need to determine what an appropriate target is – and once they know the baseline they can set those targets. He stated that the transition is to develop strategy implementation work plans, and typically they recognize that this is a five-year planning instrument and it is good to do the work plans on an annual basis. Mr. Thomas noted that this enables them to look at a cross-section of strategies and figure out time, energy, resources, money, staffing positions, etc. – and what the organization can realistically achieve, recognizing the need to secure Board support for that investment.

Mr. Thomas stated that the fifth goal area is “Solid Waste Services”, with Phil McKalips as goal team leader.

Mr. McKalips reported that their goal team included Miranda Baird, Mike Haley, Mark Brownlee, Scott Schiller, Jay Young, and Mark Charron. He stated that they established a goal “to provide reliable, convenient, and innovative solid waste and recycling services.” He stated that solid waste services came up in discussion frequently during their initial discussions when they were forming strategies. Mr. McKalips stated that through that discussion, they developed three strategies, the first of which was “to determine community needs and preferred service levels.” He stated that they had a concern about a “build it and they will come” issue, and they wanted to ensure they were responding to what the community wanted. Mr. McKalips emphasized that they wanted to get a broader view of what the community desired, beyond just the contact with McIntire as it was already known that visitors to McIntire are big proponents of recycling. He stated that they have already started down this path with the establishment of the new Ivy transfer station, the solar facility, and the new gas flare– and they felt it was a good time to take and develop a master plan for the site to look at how it might be used for other things. Mr. McKalips noted that these could include additional recycling or composting, and the goal team expanded that to include “developing a strategy or mechanism for engaging the public” and finding out what they want to see out of solid waste services. He stated that the next goal necessary was to try to enhance their partnerships, and perhaps Rivanna could function as a broker of the City and County in creating better coordination. Mr. McKalips stated that internally they would want to get a better handle on what is state of the art in recycling and solid waste management.

Dr. Palmer stated that one of the issues they need to remember is that the public tends to focus on recycling, but this is a much bigger issue that includes things like a small business component that needs services. She commented that it astounds her that a county the size of Albemarle only has one place for the public to bring their trash, when Augusta has 11 and Nelson has 6. Dr. Palmer noted that she was not certain if this tied into the illegal dumping issue, as that was hard to ascertain, but she wanted to make sure they focus on the big picture as they go forward. She added that she tried hard to get commercial haulers and businesses to talk to her about this issue,

but it was difficult to engage them – and she was looking to the County’s solid waste committee to help with that engagement.

Mr. Thomas stated that the last high priority goal, based on stakeholder feedback and the reality of being a water, wastewater, and solid waste authority was to focus on “Infrastructure and Asset Management Planning”, and Ms. Whitaker would share that team’s work.

Ms. Whitaker stated that her goal team had a similar theme to that heard earlier, with people represented from the landfill, administration, engineering, IT, water, wastewater, and maintenance. She stated that it was very important to have the end users involved to ensure they are meeting the needs of the entire Authority. Ms. Whitaker reported that their goal is “to plan, deliver and maintain dependable infrastructure in a financially responsible manner. She stated that in trying to break that down, it is a big task. Ms. Whitaker noted that the Authority as a whole was formed with the sole function of being an infrastructure arm of the community, so it was important for Rivanna to do this job well. She stated that the first strategy her team talked about was asset management program, and there has been much discussion over the last year about what is currently in place and what is desired.

Ms. Whitaker stated that their work also included a discussion how they manage assets, what they see as an asset, how they plan for useful life and replacement, and how to predict and prevent infrastructure failure. She stated that they have at least 15 different tools that each department and part of the agency use to track this type of information, and the goal team would like to see something that’s more universal, for purposes of centralization and sharing. Ms. Whitaker noted that this can then be used to predict future replacement rates, given that infrastructure assets are expensive to replace. She added that they also talked about developing an infrastructure planning and delivery program, and while there were a significant number of standard operating procedures in place, more project managers and consultants were brought in as the organization grew – and they want to make sure there is consistent delivery of infrastructure programs regardless of who the project manager is or what firm is working with them. Ms. Whitaker stated the last item was to develop and maintain a long-term master plan for all critical asset classes, and historically Rivanna has master planned for the things it needed in the immediate. She stated that where they have not been as strong is in having a master plan for all asset classes: finished water, wastewater, and plants. Ms. Whitaker stated that part of their goal here is to do a gap analysis and identify things that have plans and those they don’t, with master planning done to clarify long-term needs.

Ms. Whitaker reported that in terms of measurements for the asset management program, the goal is to get the asset management program identified, structured, and implemented within the Authority – and the metric then becomes how many assets are able to be added.

Mr. Jones asked if they needed additional asset management software to be able to manage that.

Ms. Whitaker responded that the goal team was resistant when they started the discussion, and where they are headed is likely to software that can link to GIS and the other work order systems to be a universal platform. She commented that they are currently in the “pre-RFP” stages in which they are identifying needs and what platforms are available for management.

Mr. O'Connell asked if she expected some of this to surface in the next CIP request to be submitted.

Ms. Whitaker replied that it would be either in the CIP or the Operations and Management budget, with asset management having a cost to implement for software purchasing and consultant assistance. She stated that there would also be resources needed for some of the master planning work, and it could be done through capital or operations.

Mr. Oberdorfer asked how much of the inventory could be rated, from an asset condition rating perspective.

Ms. Whitaker asked him to define his definition of "rating."

Mr. Oberdorfer responded that it could be a condition rating on all 300 miles of pipe, for example.

Ms. Whitaker responded that the Authority's infrastructure is divided into two categories: inside the fence and outside the fence. She explained that they have a fairly extensively developed program on below ground, outside of the fence assets such as water pipelines and sewer manholes. She stated they have had a master plan in place for the sewer program, which has been updated once in the five-year cycle, and they have a fair amount of information in terms of knowing what needed to be upgraded and when. Ms. Whitaker added that they are finishing up their first major round of CCTV work on all of that, and they have permanent flow meters in the whole system. She stated that on the water side, they have gone through the second and third round of valve replacements, and they have done some pipeline condition assessments. Ms. Whitaker noted that Rivanna's infrastructure is either very old or 25 years old, and the things that are on the cusp of failing have been recently replaced or would be replaced soon. She emphasized that where they feel they need to invest some effort is inside the fence line, in part because the facility was built in 1981 and 1983, with the most recent upgrade happening in 2009. Ms. Whitaker added that there are several hundred pumps onsite, with records of upkeep and maintenance, but the timeline for replacement and associated budgeting needed to be clarified. She mentioned that a lot of the infrastructure with the water treatment plants was going to be replaced soon.

Dr. Palmer commented that it is amazing how much infrastructure replacement and improvement has been done over the last 15-18 years. She stated that Rivanna has done a lot, especially given that there was no master plan in place for some time, and it was great that they were going to the next step.

Ms. Whitaker thanked her, adding that staff was very interested in constantly improving what they were doing and how they were doing it.

Mr. Thomas stated that as the organization moves forward and tries to get to its desired future state or vision, staying true to its values and focusing on its mission, it believes it should focus on

the six goals identified. He stated that organizational performance can be measured by the metrics, which provide guidance, and hopefully these map well with the strategies.

Mr. Thomas stated that they would like to complete the strategic plan over the next two to three weeks, with the framework, environmental scan, a message from the Executive Director and the Chair, a trend analysis of the industry, a community profile, etc. He stated that ultimately it would result in a document that could help guide the organization, allow the Board to stay engaged with what's going on at the detailed operational level, and communicate externally to stakeholders.

Board members thanked him for Raftelis's work.

Mr. Thomas responded that Rivanna had a great team.

Mr. Mawyer stated that he was pleased with the status of the plan and it had been a very positive and inclusive process, with Board feedback integrated with staff's input. He stated that while the process was ending, it was really just beginning because they were getting to actionable items, strategies, and implementation. Mr. Mawyer stated that while there were challenges, there were also opportunities.

Mr. Gaffney asked if the goal teams would continue meeting and measuring against objectives.

Mr. Mawyer responded that they would, noting that they may reconstitute the teams to reflect skill sets and time availability, and they would need to come up with phasing for strategies and resources required – which would be presented to the Board. He added that Rivanna also looked for ways through its own efficiencies and to address the easier items first, finding other ways to do business that may not require additional resources. Mr. Mawyer acknowledged that the goal team discussions did discuss the need for future resources, and he was aware that they may need to ask for those.

Mr. Gaffney asked if there could be quarterly reports from team leaders.

Mr. Mawyer responded that there would be, and this would be discussed further in a future meeting.

11.0 Closed Meeting

At 3:25 p.m., Mr. Jones moved that the Rivanna Water and Sewer Authority Board enter into a joint closed meeting with the Rivanna Solid Waste Authority Board to discuss confidential personnel matters as permitted by Section 2.2-3711.A.1 of the Code of Virginia. Dr. Palmer seconded the motion, which passed by a vote of 6-0. Ms. Galvin was absent from the meeting and the vote.

12.0 Resumption of Open Meeting/Certify Closed Meeting

Mr. Krueger read the following resolution into the record:

WHEREAS, the Rivanna Water and Sewer Authority has convened a joint closed meeting with the Rivanna Solid Waste Authority on this date pursuant to an affirmative recorded vote and in accordance with the provisions of the Virginia Freedom of Information Act; and

WHEREAS, Section 2.2-3712.D of the Code of Virginia requires a certification by the Rivanna Water and Sewer Authority that such closed meeting was conducted in conformity with Virginia law;

NOW, THEREFORE, BE IT RESOLVED that the Rivanna Water and Sewer Authority hereby certifies that, to the best of each member's knowledge, (i) only public business matters lawfully exempted from open meeting requirements by Virginia law, and (ii) only such public business matters as were identified in the motion by which the closed meeting was convened were heard, discussed or considered in the closed meeting by the Rivanna Water and Sewer Authority.

At 4:03 p.m., Mr. Jones moved to adopt the above resolution certifying the joint closed meeting with the Rivanna Solid Waste Authority Board. Mr. O'Connell seconded the motion, which passed a roll call vote of 6-0. Ms. Galvin was absent from the meeting and the vote.

Mr. Gaffney stated now that both boards are back in session, after coming out of close sessions, that there is an agreement to raise the Executive Director's salary 3.5%, from \$177,500 to \$183,712.50.

Dr. Palmer moved to raise the Executive Director's salary. Mr. Jones seconded the motion, which passed by a vote of 6-0. Ms. Galvin was absent from the meeting and the vote.

12.0 Adjournment

At 4:04 p.m., Dr. Palmer moved to adjourn the RWSA Board meeting. Mr. Jones seconded the motion, which was approved by a vote of 6-0. Ms. Galvin was absent from the meeting and the vote.

There being no further business, the meeting adjourned at 4:04 p.m.

MEMORANDUM

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

FROM: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: EXECUTIVE DIRECTOR'S REPORT

DATE: DECEMBER 19, 2017

Observatory Water Treatment Plant Lease

Discussions with UVA continue to move forward. The current approach is to create three documents which address all of the Authority's facilities located on UVA property, including:

- a lease for the Observatory Water Treatment Plant property and two raw water pump stations (Royal and Stadium Road)
- a second lease for use of the Alderman Road Finished Water Pumping Station
- an easement for all raw and finished water pipes, plus the Observatory Water Storage Tank, located off Fontaine Avenue.

Drinking Water Infrastructure Plan, Crozet Area

Staff met with DEQ in November to review preliminary water demand, water supply and downstream release findings. At DEQ's suggestion, staff will provide a pre-application project overview to all related State and Federal Agencies in February. Staff also plans to provide an update to the Crozet community on January 11, 2018.

Staff Development

The following staff members have completed technical and management training which will benefit the Authority:

- Ben Fricke, GIS Coordinator – FAA Remote Pilot Certification (Commercial Drone Pilot License)
- Travis Goode, Engineering Technician / Inspector – ACI Concrete Field Testing Technician – Grade 1 certification
- Jim Barton, Engineering Technician / Inspector – Construction Manager in Training certification

Community Outreach

Our Water Resources Manager gave a presentation about our drinking water and wastewater programs to a high school Environmental Sustainability class from St. Anne's / Belfield.

The Wastewater Department recently provided tours and presentations of the Moores Creek Advanced Water Resource Recovery Facility to students from three educational institutions including:

- an Environmental Biology class from PVCC
- a student in the Environmental Studies program from John Hopkins University
- an Environmental Sustainability class from St. Anne's / Belfield

MEMORANDUM

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

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

SUBJECT: OCTOBER MONTHLY FINANCIAL SUMMARY – FY 2018

DATE: DECEMBER 19, 2017

Urban Water flows and rate revenues are 12% over budget estimates for first four months of this fiscal year, and Urban Wastewater flows and rate revenues are 9% under budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	\$ 2,562,648	\$ 2,168,032	\$ 689,012	\$ 5,419,692
Expenses	(2,055,661)	(2,536,553)	(624,945)	(5,217,159)
Surplus (deficit)	<u>\$ 506,987</u>	<u>\$ (368,521)</u>	<u>\$ 64,067</u>	<u>\$ 202,533</u>
Debt Service				
Revenues	\$ 1,923,288	\$ 2,841,887	\$ 281,944	\$ 5,047,119
Expenses	(1,879,831)	(2,758,553)	(281,465)	(4,919,849)
Surplus (deficit)	<u>\$ 43,457</u>	<u>\$ 83,334</u>	<u>\$ 479</u>	<u>\$ 127,270</u>
Total				
Revenues	\$ 4,485,936	\$ 5,009,919	\$ 970,956	\$ 10,466,811
Expenses	(3,935,492)	(5,295,106)	(906,410)	(10,137,008)
Surplus (deficit)	<u><u>\$ 550,444</u></u>	<u><u>\$ (285,187)</u></u>	<u><u>\$ 64,546</u></u>	<u><u>\$ 329,803</u></u>

Urban Wastewater received the annual Nutrient Exchange Credit of \$87,105 and Albemarle County's annual septage receiving support of \$109,441 in July.

Some expense categories are over the prorated year-to-date budget as follows:

- A. Personnel Costs (Lab – page 10) – Lab salaries are over budget due to the August payment of accumulated leave balances to the lab manager upon his retirement, and due to overlapping salaries in July for the former lab manager and his replacement.

- B. Other Services & Charges (Urban Wastewater, Administration, Maintenance, Engineering - pages 5, 8, 10, 11) - The annual property and liability insurance premium of \$111,600 was paid in July, which is pushing this expense category over the prorated budget for several departments. This cost will even out over time compared to budget estimates.

Urban Wastewater is also over budget on odor control costs for Crozet Interceptor/Pump Stations. Utility costs are running higher than budget estimates also. The Administration Department budgeted \$30,000 this year for the strategic plan and has expended \$23,000 for this fiscal year which is \$13,000 over the prorated budget but under the annual budget. The Engineering Department paid two quarterly bills for water and sewer system modeling services in July, including the quarter ending in June.

- C. Equipment Purchases (Crozet - page 3) – Crozet incurred some unbudgeted small equipment purchases.
- D. Information Technology (Engineering – page 11) – Engineering paid \$25,000 in August to renew an annual computer software license agreement.
- E. Operations and Maintenance (Urban Wastewater, Administration, Lab, Engineering – pages 5, 8, 10, 11) – Urban Wastewater has expended \$4,000 more than the total annual budget of \$215,000 for Pipelines and Appurtenances due to emergency repairs. More than \$116,000 was spent on a Rivanna Interceptor stream bank restoration in Dunlora in October. Unbudgeted repairs were made to the steps outside the Administration building along with tree pruning, costing a total of about \$8,000.
- F. Professional Services (Urban Water, Crozet Water – pages 2, 3) – Urban Water is \$20,000 over the prorated budget for the reservoir management study, but is not over the annual budget. Urban Water has spent the total year's budget for legal fees, related to the Observatory plant lease. This will continue to be significantly over budget. Crozet Water has spent \$11,000 more than the total annual budget for Engineering and Technical Services due to incurring unbudgeted costs.

Attachments

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017
Fiscal Year 2018

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

Notes

Revenues

	<i>Budget FY 2018</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
Operations Rate Revenue	\$ 15,403,127	\$ 5,134,376	\$ 5,093,446	\$ (40,930)	-0.80%
Lease Revenue	64,000	21,333	33,603	12,270	57.51%
Administration & Maintenance Revenue	410,000	136,667	141,756	5,089	3.72%
Other Revenues	534,630	178,210	237,335	59,125	33.18%
Use of Watershed Management Funds	80,000	26,667	46,312	19,645	
Interest Allocation	15,000	5,000	8,995	3,995	79.90%
Total Operating Revenues	\$ 16,506,757	\$ 5,502,252	\$ 5,561,447	\$ 59,194	1.08%

Expenses

Personnel Cost	A	\$ 7,841,522	\$ 2,465,205	\$ 2,338,619	\$ 126,586	5.13%
Professional Services	F	590,350	196,783	207,052	(10,269)	-5.22%
Other Services & Charges	B	2,552,662	850,887	1,035,622	(184,734)	-21.71%
Communications		142,605	47,535	55,921	(8,386)	-17.64%
Information Technology	D	324,400	108,133	69,268	38,866	35.94%
Supplies		44,970	14,990	14,341	649	4.33%
Operations & Maintenance	E	3,613,450	1,204,483	1,195,397	9,086	0.75%
Equipment Purchases	C	336,300	112,100	89,195	22,905	20.43%
Depreciation		788,000	262,667	262,667	(0)	0.00%
Reserve Transfers		272,500	90,833	90,833	0	
Total Operating Expenses		\$ 16,506,759	\$ 5,353,617	\$ 5,358,915	\$ (5,298)	-0.10%
Operating Surplus/(Deficit)		\$ (2)	\$ 148,635	\$ 202,532		

Debt Service Budget vs. Actual**Revenues**

Debt Service Rate Revenue	\$ 13,561,158	\$ 4,520,386	\$ 4,520,388	\$ 2	0.00%
Use of Reserves for 2016 Bond DS	600,000	200,000	200,000	-	0.00%
Septage Receiving Support - County	109,440	36,480	109,441	72,961	200.00%
Buck Mountain Surcharge	84,000	28,000	63,200	35,200	125.71%
Buck Mountain Lease Revenue	1,600	533	1,309	775	145.38%
Trust Fund Interest	46,400	15,467	34,300	18,834	121.77%
Reserve Fund Interest	100,500	33,500	118,481	84,981	253.67%
Total Debt Service Revenues	\$ 14,503,098	\$ 4,834,366	\$ 5,047,119	\$ 212,753	4.40%

Debt Service Costs

Total Principal & Interest	\$ 12,370,200	\$ 4,123,400	\$ 4,123,400	\$ -	0.00%
Reserve Additions-Interest	99,000	33,000	118,481	(85,481)	-259.03%
Debt Service Ratio Charge	725,000	241,667	241,667	-	0.00%
Reserve Additions-CIP Growth	1,308,900	436,300	436,300	-	0.00%
Total Debt Service Costs	\$ 14,503,100	\$ 4,834,367	\$ 4,919,848	\$ (85,481)	-1.77%
Debt Service Surplus/(Deficit)	\$ (2)	\$ (1)	\$ 127,271		

Summary

Total Revenues	\$ 31,009,855	\$ 10,336,618	\$ 10,608,565	\$ 271,947	2.63%
Total Expenses	31,009,859	10,187,984	10,278,762	(90,779)	-0.89%
Surplus/(Deficit)	\$ (4)	\$ 148,635	\$ 329,803		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Urban Water Rate Center
Revenues and Expenses Summary

<i>Budget FY 2018</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 6,758,077	\$ 2,252,692	\$ 2,511,956	\$ 259,263	11.51%
Lease Revenue	35,000	11,667	23,762	12,095	103.68%
Miscellaneous	7,000	2,333	-	(2,333)	-100.00%
Use of Reserves	40,000	13,333	23,156	9,822	73.67%
Interest Allocation	6,300	2,100	3,774	1,674	79.70%
Total Operating Revenues	\$ 6,846,377	\$ 2,282,126	\$ 2,562,647	\$ 280,522	12.29%

Expenses

Personnel Cost	\$ 1,828,852	\$ 576,537	\$ 548,150	\$ 28,387	4.92%
Professional Services	142,450	47,483	78,950	(31,467)	-66.27%
Other Services & Charges	606,100	202,033	173,302	28,731	14.22%
Communications	64,690	21,563	22,119	(555)	-2.57%
Information Technology	65,300	21,767	14,755	7,011	32.21%
Supplies	7,000	2,333	1,931	403	17.25%
Operations & Maintenance	1,522,660	507,553	424,672	82,881	16.33%
Equipment Purchases	106,500	35,500	9,922	25,578	72.05%
Depreciation	260,000	86,667	86,667	(0)	0.00%
Reserve Transfers	250,000	83,333	83,333	0	0.00%
Subtotal Before Allocations	\$ 4,853,552	\$ 1,584,770	\$ 1,443,801	\$ 140,969	8.90%
Allocation of Support Departments	1,992,824	630,708	611,859	18,849	2.99%
Total Operating Expenses	\$ 6,846,377	\$ 2,215,479	\$ 2,055,661	\$ 159,818	7.21%
Operating Surplus/(Deficit)	\$ 0	\$ 66,647	\$ 506,987		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 5,345,730	\$ 1,781,910	\$ 1,781,912	\$ 2	0.00%
Trust Fund Interest	18,000	6,000	13,480	7,480	124.67%
Reserve Fund Interest	18,000	6,000	63,387	57,387	956.46%
Buck Mountain Surcharge	84,000	28,000	63,200	35,200	125.71%
Lease Revenue	1,600	533	1,309	775	145.38%
Total Debt Service Revenues	\$ 5,467,330	\$ 1,822,443	\$ 1,923,288	\$ 100,845	5.53%

Debt Service Costs

Total Principal & Interest	\$ 4,242,130	\$ 1,414,043	\$ 1,414,043	\$ -	0.00%
Reserve Additions-Interest	18,000	6,000	63,387	(57,387)	-956.46%
Debt Service Ratio Charge	400,000	133,333	133,333	-	0.00%
Reserve Additions-CIP Growth	807,200	269,067	269,067	-	0.00%
Total Debt Service Costs	\$ 5,467,330	\$ 1,822,443	\$ 1,879,831	\$ (57,387)	-3.15%
Debt Service Surplus/(Deficit)	\$ -	\$ -	\$ 43,457		

Rate Center Summary

Total Revenues	\$ 12,313,707	\$ 4,104,569	\$ 4,485,935	\$ 381,366	9.29%
Total Expenses	12,313,707	4,037,922	3,935,491	102,431	2.54%
Surplus/(Deficit)	\$ 0	\$ 66,647	\$ 550,444		
Costs per 1000 Gallons	1.99		1.61		
Thousand Gallons Treated or Flow (MGD)	3,432,018	1,144,006	1,275,752	131,746	11.52%
	9.403		10.372		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Crozet Water Rate Center
Revenues and Expenses Summary

<i>Budget FY 2018</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 915,336	\$ 305,112	\$ 305,112	\$ -	0.00%
Lease Revenues	29,000	9,667	9,841	174	1.80%
Use of Reserves	24,000	8,000	17,009	9,009	112.61%
Interest Allocation	900	300	569	269	89.51%
Total Operating Revenues	\$ 969,236	\$ 323,079	\$ 332,530	\$ 9,451	2.93%

Expenses

Personnel Cost	\$ 289,212	\$ 91,228	\$ 86,050	\$ 5,179	5.68%
Professional Services	47,000	15,667	58,823	(43,157)	-275.47%
Other Services & Charges	121,480	40,493	33,827	6,666	16.46%
Communications	4,230	1,410	1,776	(366)	-25.97%
Information Technology	14,200	4,733	509	4,224	89.24%
Supplies	670	223	359	(136)	-60.95%
Operations & Maintenance	233,630	77,877	66,939	10,937	14.04%
Equipment Purchases	26,400	8,800	20,294	(11,494)	-130.61%
Depreciation	25,000	8,333	8,333	0	0.00%
Reserve Transfers	20,000	6,667	6,667	(0)	0.00%
Subtotal Before Allocations	\$ 781,822	\$ 255,432	\$ 283,578	\$ (28,146)	-11.02%
Allocation of Support Departments	187,417	59,316	57,888	1,428	2.41%
Total Operating Expenses	\$ 969,238	\$ 314,747	\$ 341,465	\$ (26,718)	-8.49%
Operating Surplus/(Deficit)	\$ (2)	\$ 8,331	\$ (8,935)		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 691,476	\$ 230,492	\$ 230,492	\$ -	0.00%
Trust Fund Interest	1,800	600	1,303	703	117.24%
Reserve Fund Interest	2,700	900	1,777	877	97.47%
Total Debt Service Revenues	\$ 695,976	\$ 231,992	\$ 233,573	\$ 1,581	0.68%

Debt Service Costs

Total Principal & Interest	\$ 426,977	\$ 142,326	\$ 142,326	\$ -	0.00%
Reserve Additions-Interest	2,700	900	1,777	(877)	-97.47%
Reserve Additions-CIP Growth	266,300	88,767	88,767	-	0.00%
Total Debt Service Costs	\$ 695,977	\$ 231,992	\$ 232,870	\$ (877)	-0.38%
Debt Service Surplus/(Deficit)	\$ (1)	\$ (0)	\$ 703		

Rate Center Summary

Total Revenues	\$ 1,665,212	\$ 555,071	\$ 566,103	\$ 11,032	1.99%
Total Expenses	1,665,215	546,740	574,335	(27,595)	-5.05%
Surplus/(Deficit)	\$ (3)	\$ 8,331	\$ (8,232)		
Costs per 1000 Gallons	5.31		4.71		
Thousand Gallons Treated	182,610	60,870	72,526	11,656	19.15%
Flow (MGD)	0.500		0.590		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Scottsville Water Rate Center
Revenues and Expenses Summary

<i>Budget FY 2018</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 412,236	\$ 137,412	\$ 137,412	\$ -	0.00%
Use of Reserves	16,000	5,333	6,147	814	
Interest Allocation	400	133	237	104	77.65%
Total Operating Revenues	\$ 428,636	\$ 142,879	\$ 143,796	\$ 917	0.64%

Expenses

Personnel Cost	\$ 154,467	\$ 48,753	\$ 45,302	\$ 3,452	7.08%
Professional Services	26,000	8,667	8,582	85	0.98%
Other Services & Charges	19,490	6,497	5,668	828	12.75%
Communications	3,210	1,070	1,342	(272)	-25.38%
Information Technology	7,000	2,333	1,131	1,202	51.53%
Supplies	750	250	-	250	100.00%
Operations & Maintenance	66,570	22,190	4,404	17,786	80.15%
Equipment Purchases	14,400	4,800	1,231	3,569	74.36%
Depreciation	17,000	5,667	5,667	(0)	0.00%
Reserve Transfers	2,500	833	833	0	0.00%
Subtotal Before Allocations	\$ 311,387	\$ 101,060	\$ 74,159	\$ 26,901	26.62%
Allocation of Support Departments	117,247	37,124	36,605	519	1.40%
Total Operating Expenses	\$ 428,634	\$ 138,184	\$ 110,764	\$ 27,420	19.84%
Operating Surplus/(Deficit)	\$ 2	\$ 4,695	\$ 33,032		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 129,448	\$ 43,149	\$ 43,148	\$ (1)	0.00%
Trust Fund Interest	400	133	377	244	182.99%
Reserve Fund Interest	1,500	500	948	448	89.57%
Total Debt Service Revenues	\$ 131,348	\$ 43,783	\$ 44,473	\$ 691	1.58%

Debt Service Costs

Total Principal & Interest	\$ 129,848	\$ 43,283	\$ 43,283	\$ -	0.00%
Reserve Additions-Interest	-	-	948	(948)	
Reserve Additions-CIP Growth	1,500	500	500	-	
Total Debt Service Costs	\$ 131,348	\$ 43,783	\$ 44,731	\$ (948)	-2.16%
Debt Service Surplus/(Deficit)	\$ -	\$ -	\$ (257)		

Rate Center Summary

Total Revenues	\$ 559,984	\$ 186,661	\$ 188,269	\$ 1,608	0.86%
Total Expenses	559,982	181,966	155,495	26,472	14.55%
Surplus/(Deficit)	\$ 2	\$ 4,695	\$ 32,775		
Costs per 1000 Gallons	22.39		19.52		
Thousand Gallons Treated	19,143	6,381	5,675	(706)	-11.06%
or					
Flow (MGD)	0.052		0.046		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Urban Wastewater Rate Center
Revenues and Expenses Summary

Budget FY 2018	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 6,680,446	\$ 2,226,815	\$ 1,926,622	\$ (300,193)	-13.48%
Stone Robinson WWTP	27,630	9,210	7,132	(2,078)	-22.56%
Septage Acceptance	390,000	130,000	143,099	13,099	10.08%
Nutrient Credits	100,000	33,333	87,105	53,772	161.31%
Miscellaneous Revenue	10,000	3,333	-	(3,333)	-100.00%
Interest Allocation	6,800	2,267	4,074	1,807	79.73%
Total Operating Revenues	\$ 7,214,876	\$ 2,404,959	\$ 2,168,032	\$ (236,927)	-9.85%

Expenses

Personnel Cost	\$ 1,230,128	\$ 387,367	\$ 332,340	\$ 55,027	14.21%
Professional Services	54,000	18,000	10,700	7,300	40.56%
Other Services & Charges	B 1,571,400	523,800	706,783	(182,983)	-34.93%
Communications	10,430	3,477	5,789	(2,312)	-66.50%
Information Technology	57,300	19,100	5,527	13,573	71.06%
Supplies	2,700	900	649	251	27.85%
Operations & Maintenance	E 1,390,300	463,433	562,324	(98,891)	-21.34%
Equipment Purchases	54,000	18,000	17,213	787	4.37%
Depreciation	465,000	155,000	155,000	-	0.00%
Reserve Transfers	-	-	-	-	-
Subtotal Before Allocations	\$ 4,835,258	\$ 1,589,077	\$ 1,796,325	\$ (207,249)	-13.04%
Allocation of Support Departments	2,379,618	753,154	740,227	12,927	1.72%
Total Operating Expenses	\$ 7,214,876	\$ 2,342,231	\$ 2,536,553	\$ (194,322)	-8.30%
Operating Surplus/(Deficit)	\$ 0	\$ 62,728	\$ (368,521)		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 7,384,689	\$ 2,461,563	\$ 2,461,564	\$ 1	0.00%
Use of Reserves for 2016 Bond DS	600,000	200,000	200,000	-	0.00%
Septage Receiving Support - County	109,440	36,480	109,441	72,961	200.00%
Trust Fund Interest	26,200	8,733	19,105	10,372	118.76%
Reserve Fund Interest	77,300	25,767	51,776	26,010	100.94%
Total Debt Service Revenues	\$ 8,197,629	\$ 2,732,543	\$ 2,841,886	\$ 109,343	4.00%

Debt Service Costs

Total Principal & Interest	\$ 7,561,430	\$ 2,520,477	\$ 2,520,477	\$ -	0.00%
Reserve Additions-Interest	77,300	25,767	51,776	(26,010)	-100.94%
Debt Service Ratio Charge	325,000	108,333	108,333	-	0.00%
Reserve Additions-CIP Growth	233,900	77,967	77,967	-	0.00%
Total Debt Service Costs	\$ 8,197,630	\$ 2,732,543	\$ 2,758,553	\$ (26,010)	-0.95%
Debt Service Surplus/(Deficit)	\$ (1)	\$ (0)	\$ 83,334		

Rate Center Summary

Total Revenues	\$ 15,412,505	\$ 5,137,502	\$ 5,009,918	\$ (127,584)	-2.48%
Total Expenses	15,412,506	5,074,774	5,295,105	(220,331)	-4.34%
Surplus/(Deficit)	\$ (1)	\$ 62,728	\$ (285,187)		
Costs per 1000 Gallons	2.11		2.44		
Thousand Gallons Treated or Flow (MGD)	3,424,639	1,141,546	1,038,607	(102,939)	-9.02%
	9.383		8.444		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

<i>Budget FY 2018</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 352,344	\$ 117,448	\$ 117,448	\$ -	0.00%
Interest Allocation	300	100	189	89	88.88%
<i>Total Operating Revenues</i>	\$ 352,644	\$ 117,548	\$ 117,637	\$ 89	0.08%

Expenses

Personnel Cost	\$ 90,823	\$ 28,607	\$ 24,460	\$ 4,146	14.49%
Professional Services	3,000	1,000	-	1,000	
Other Services & Charges	31,490	10,497	11,556	(1,060)	-10.09%
Communications	2,600	867	596	271	31.22%
Information Technology	3,500	1,167	-	1,167	100.00%
Supplies	100	33	-	33	100.00%
Operations & Maintenance	121,450	40,483	28,796	11,687	28.87%
Equipment Purchases	3,100	1,033	867	167	16.13%
Depreciation	5,000	1,667	1,667	(0)	0.00%
<i>Subtotal Before Allocations</i>	\$ 261,063	\$ 85,353	\$ 67,942	\$ 17,411	20.40%
Allocation of Support Departments	91,584	29,024	28,760	264	0.91%
<i>Total Operating Expenses</i>	\$ 352,647	\$ 114,377	\$ 96,702	\$ 17,675	15.45%
<i>Operating Surplus/(Deficit)</i>	\$ (3)	\$ 3,171	\$ 20,935		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 1,582	\$ 527	\$ 528	\$ 1	0.13%
Trust Fund Interest	-	-	-	-	
Reserve Fund Interest	600	200	355	155	77.72%
<i>Total Debt Service Revenues</i>	\$ 2,182	\$ 727	\$ 883	\$ 1	0.09%

Debt Service Costs

Total Principal & Interest	\$ 1,582	\$ 527	\$ 527	\$ -	0.00%
Reserve Additions-Interest	600	200	355	(155)	-77.72%
<i>Total Debt Service Costs</i>	\$ 2,182	\$ 727	\$ 883	\$ (155)	-21.37%
<i>Debt Service Surplus/(Deficit)</i>	\$ -	\$ -	\$ 1		

Rate Center Summary

Total Revenues	\$ 354,826	\$ 118,275	\$ 118,520	\$ 245	0.21%
Total Expenses	354,829	115,105	97,585	17,520	15.22%
Surplus/(Deficit)	\$ (3)	\$ 3,171	\$ 20,935		
Costs per 1000 Gallons	8.12		7.90		
Thousand Gallons Treated or Flow (MGD)	43,412	14,471	12,239	(2,232)	-15.42%
	0.119		0.100		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

<i>Budget FY 2018</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 284,688	\$ 94,896	\$ 94,896	\$ -	0.00%
Interest Allocation	300	100	153	53	52.90%
Total Operating Revenues	\$ 284,988	\$ 94,996	\$ 95,049	\$ 53	0.06%

Expenses

Personnel Cost	\$ 90,848	\$ 28,615	\$ 24,460	\$ 4,155	14.52%
Professional Services	2,000	667	-	667	100.00%
Other Services & Charges	22,900	7,633	9,961	(2,327)	-30.49%
Communications	2,630	877	1,495	(618)	-70.53%
Information Technology	4,400	1,467	-	1,467	100.00%
Supplies	100	33	-	33	100.00%
Operations & Maintenance	57,850	19,283	7,327	11,956	62.00%
Equipment Purchases	3,400	1,133	867	267	23.53%
Depreciation	16,000	5,333	5,333	0	0.00%
Subtotal Before Allocations	\$ 200,128	\$ 65,042	\$ 49,443	\$ 15,599	23.98%
Allocation of Support Departments	84,858	26,891	26,571	320	1.19%
Total Operating Expenses	\$ 284,987	\$ 91,933	\$ 76,014	\$ 15,919	17.32%
Operating Surplus/(Deficit)	\$ 1	\$ 3,063	\$ 19,035		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 8,233	\$ 2,744	\$ 2,744	\$ (0)	-0.01%
Trust Fund Interest	-	-	34	34	
Reserve Fund Interest	400	133	237	104	77.71%
Total Debt Service Revenues	\$ 8,633	\$ 2,878	\$ 3,015	\$ 138	4.78%

Debt Service Costs

Total Principal & Interest	\$ 8,233	\$ 2,744	\$ 2,744	\$ -	0.00%
Reserve Additions-Interest	400	133	237	(104)	-77.71%
Estimated New Principal & Interest	-	-	-	-	
Total Debt Service Costs	\$ 8,633	\$ 2,878	\$ 2,981	\$ (104)	-3.60%
Debt Service Surplus/(Deficit)	\$ -	\$ -	\$ 34		

Rate Center Summary

Total Revenues	\$ 293,621	\$ 97,874	\$ 98,064	\$ 190	0.19%
Total Expenses	293,620	94,810	78,995	15,815	16.68%
Surplus/(Deficit)	\$ 1	\$ 3,063	\$ 19,069		
Costs per 1000 Gallons	14.27		14.45		
Thousand Gallons Treated or Flow (MGD)	19,967	6,656	5,259	(1,397)	-20.98%
	0.055		0.043		

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Administration

<i>Budget FY 2018</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Payment for Services SWA	\$ 409,000	\$ 136,333	\$ 136,333	\$ (0)	0.00%
Miscellaneous Revenue	1,000	333	1,827	1,494	448.17%
Total Operating Revenues	\$ 410,000	\$ 136,667	\$ 138,161	\$ 1,494	1.09%

Expenses

Personnel Cost	\$ 1,544,126	\$ 483,618	\$ 484,800	\$ (1,183)	-0.24%
Professional Services	171,900	57,300	46,212	11,088	19.35%
Other Services & Charges	B 111,940	37,313	57,774	(20,461)	-54.84%
Communications	21,280	7,093	5,408	1,685	23.76%
Information Technology	118,000	39,333	14,630	24,703	62.80%
Supplies	22,000	7,333	8,534	(1,200)	-16.37%
Operations & Maintenance	E 36,600	12,200	22,793	(10,593)	-86.83%
Equipment Purchases	8,300	2,767	2,767	(0)	0.00%
Depreciation	-	-	-	-	
Total Operating Expenses	\$ 2,034,146	\$ 646,958	\$ 642,918	\$ 4,039	0.62%

Department Summary

Net Costs Allocable to Rate Centers		\$ (1,624,146)	\$ (510,291)	\$ (504,758)	\$ (5,533)	1.08%
<u>Allocations to the Rate Centers</u>						
Urban Water	44.00%	\$ 714,624	\$ 224,528	\$ 222,093	\$ 2,435	
Crozet Water	4.00%	\$ 64,966	20,412	20,190	221	
Scottsville Water	2.00%	\$ 32,483	10,206	10,095	111	
Urban Wastewater	48.00%	\$ 779,590	244,940	242,284	2,656	
Glenmore Wastewater	1.00%	\$ 16,241	5,103	5,048	55	
Scottsville Wastewater	1.00%	\$ 16,241	5,103	5,048	55	
	100.00%	\$ 1,624,146	\$ 510,291	\$ 504,758	\$ 5,533	

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Maintenance

<i>Budget FY 2018</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Miscellaneous Revenue

Total Operating Revenues

-	-	3,595	3,595	
\$ -	\$ -	\$ 3,595	\$ 3,595	

Expenses

Personnel Cost

Professional Services

Other Services & Charges

Communications

Information Technology

Supplies

Operations & Maintenance

Equipment Purchases

Depreciation

Total Operating Expenses

	\$ 1,150,821	\$ 361,868	\$ 359,171	\$ 2,698	0.75%
	-	-	-	-	
B	12,300	4,100	9,133	(5,033)	-122.75%
	15,635	5,212	10,074	(4,862)	-93.30%
	6,500	2,167	2,328	(161)	-7.44%
	500	167	95	71	42.71%
	64,450	21,483	25,815	(4,331)	-20.16%
	94,850	31,617	27,787	3,830	12.11%
	-	-	-	-	
	\$ 1,345,056	\$ 426,613	\$ 434,402	\$ (7,789)	-1.83%

Department Summary

Net Costs Allocable to Rate Centers

\$ (1,345,056)	\$ (426,613)	\$ (430,807)	\$ 11,384	-2.67%
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Allocations to the Rate Centers

Urban Water

30.00%

Crozet Water

3.50%

Scottsville Water

3.50%

Urban Wastewater

56.50%

Glenmore Wastewater

3.50%

Scottsville Wastewater

3.00%

100.00%

\$ 403,517	\$ 127,984	\$ 129,242	\$ (1,258)
47,077	14,931	15,078	(147)
47,077	14,931	15,078	(147)
759,957	241,037	243,406	(2,369)
47,077	14,931	15,078	(147)
40,352	12,798	12,924	(126)
\$ 1,345,056	\$ 426,613	\$ 430,807	\$ (4,193)

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Laboratory

Budget FY 2018	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
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Operating Budget vs. Actual

Notes

Revenues

N/A

Expenses

Personnel Cost	A	\$ 293,948	\$ 92,222	\$ 126,576	\$ (34,354)	-37.25%
Professional Services		-	-	-	-	
Other Services & Charges		10,412	3,471	4,649	(1,179)	-33.96%
Communications		600	200	400	(200)	
Information Technology		2,200	733	70	663	90.47%
Supplies		1,650	550	733	(183)	-33.31%
Operations & Maintenance	E	55,000	18,333	23,385	(5,052)	-27.55%
Equipment Purchases		1,500	500	333	167	33.34%
Depreciation		-	-	-	-	
Total Operating Expenses		\$ 365,310	\$ 116,010	\$ 156,147	\$ (40,137)	-34.60%

Department Summary

Net Costs Allocable to Rate Centers		\$ (365,310)	\$ (116,010)	\$ (156,147)	\$ 40,137	-34.60%
<u>Allocations to the Rate Centers</u>						
Urban Water	44.00%	\$ 160,736	\$ 51,044	\$ 68,705	\$ (17,660)	
Crozet Water	4.00%	14,612	4,640	6,246	(1,605)	
Scottsville Water	2.00%	7,306	2,320	3,123	(803)	
Urban Wastewater	47.00%	171,696	54,525	73,389	(18,865)	
Glenmore Wastewater	1.50%	5,480	1,740	2,342	(602)	
Scottsville Wastewater	1.50%	5,480	1,740	2,342	(602)	
	100.00%	\$ 365,310	\$ 116,010	\$ 156,147	\$ (40,137)	

Rivanna Water & Sewer Authority
Monthly Financial Statements - October 2017

Engineering

<i>Budget FY 2018</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual**Revenues**

N/A

Expenses

Personnel Cost		\$ 1,168,296	\$ 366,389	\$ 307,310	\$ 59,079	16.12%
Professional Services		144,000	48,000	3,785	44,215	92.11%
Other Services & Charges	B	45,150	15,050	22,968	(7,918)	-52.61%
Communications		17,300	5,767	6,923	(1,156)	-20.05%
Information Technology	D	46,000	15,333	30,317	(14,984)	-97.72%
Supplies		9,500	3,167	2,039	1,128	35.61%
Operations & Maintenance	E	64,940	21,647	28,942	(7,295)	-33.70%
Equipment Purchases		23,850	7,950	7,915	35	0.44%
Depreciation & Capital Reserve Transfers		-	-	-	-	
<i>Total Operating Expenses</i>		\$ 1,519,036	\$ 483,302	\$ 410,198	\$ 73,104	15.13%

Department Summary

Net Costs Allocable to Rate Centers		\$ (1,519,036)	\$ (483,302)	\$ (410,198)	\$ (73,104)	15.13%
<u>Allocations to the Rate Centers</u>						
Urban Water	47.00%	\$ 713,947	\$ 227,152	\$ 192,793	\$ 34,359	
Crozet Water	4.00%	60,761	19,332	16,408	2,924	
Scottsville Water	2.00%	30,381	9,666	8,204	1,462	
Urban Wastewater	44.00%	668,376	212,653	180,487	32,166	
Glenmore Wastewater	1.50%	22,786	7,250	6,153	1,097	
Scottsville Wastewater	1.50%	22,786	7,250	6,153	1,097	
	100.00%	\$ 1,519,036	\$ 483,302	\$ 410,198	\$ 73,104	

MEMORANDUM

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

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

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: STATUS REPORT: ONGOING PROJECTS

DATE: DECEMBER 19, 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:	95%
Base Construction Contract + Change Orders to Date = Current Value:	\$22,563,000 + \$974,710 = \$23,537,710
Expected Completion Date:	March 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 February following some additional work on the carbon treated water meter vault. 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 and start-up testing has been completed. Issues identified during the start-up testing are currently being addressed and once complete, RWSA staff will schedule the GAC material to be delivered and installed. The GAC system should be placed in operation in January. 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 February. 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 anticipated to be in operation by March. 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 and interior piping are 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, allowing the contractor to complete their GAC building electrical service connection.

Observatory WTP - The GAC system is anticipated to be in operation by March. 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 complete and in service. Landscape retaining walls and storm sewer systems have been installed, with landscaping and fencing to be installed soon.

We plan to have a press release upon completion of all GAC systems, likely in March 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/DBP 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

Design Engineer:	Michael Baker International (Baker)
Construction Contractor:	Linco, Inc.
Construction Start:	January 2016
Percent Complete:	94%
Base Construction Contract + Change Orders to Date = Current Value:	\$2,228,254 - \$155,149 = \$2,073,105
Expected Completion Date:	February 2018
Total Capital Project Budget:	\$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 one of the two remaining meters in December of 2017. The final remaining site, located adjacent to Ivy Road, is currently on hold due to site access difficulties which must be coordinated with DVP. Staff is working with the contractor to resolve the issues with this site and determine a final completion schedule.

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. Moores Creek AWWRF Odor Control Phase 2, Bridge Repairs and Second Centrifuge

Design Engineer:	Hazen and Sawyer
Construction Contractor:	MEB General Contractors
Construction Start:	June 2016
Percent Complete:	81%
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 and covers at the headworks facility are complete and the channels with screening facilities are back in service. Bridge repairs are underway. The second centrifuge was delivered in early December and will be installed over the next few months.

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. Crozet Finished Water Pump Station

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction, Inc.
Construction Start:	May 2017
Percent Complete:	33 %
Base Construction Contract +	
Change Orders to Date = Current Value:	\$1,941,000
Expected Completion Date:	September 2018
Total Capital Project Budget:	\$2,600,000

Current Status:

The contractor has completed excavation and shoring for the pump station foundation. Controlled low strength material has been placed up to the concrete cover slab elevation. Concrete footings for the building foundation and floor slab are now being placed. The pump cans were installed in October, and suction line piping is now in place. Electrical rough-in work for the building is scheduled to begin during the week of December 11.

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 AWWRF Roof Replacements

Design Engineer:	Hazen and Sawyer
Construction Contractor	Triangle Roofing Services, Inc.
Construction Start:	March 2018
Percent Complete	0%
Base Construction Contract + Change Orders to Date = Current Value:	\$818,000
Expected Completion:	September 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. Final Contract Documents have been executed. Consideration is being given to the contractor's request to defer construction work until March 2018 to mitigate safety hazards associated with re-roofing during the winter months.

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 AWWRF: 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 AWWRF, 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 AWWRF. 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 and a Notice of Award has been provided. Contract Documents are being finalized with execution anticipated prior to the end of December. Frazier Engineering continues to conduct condition assessment activities and has completed a preliminary review of previous CCTV results. Manhole inspections on various interceptors are scheduled to begin by the end of December. 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

There are no current urgent or emergency repairs.

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:

A kick-off meeting for the PER work was held in November. Hydraulic tests on the filters will be conducted during the week of December 11. The consultant will meet VDH on site in mid-December to review the scope of proposed improvements.

History:

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.

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:

SEH has completed a scope of work and design fee estimate for a PER for this project. A kick-off meeting for the PER work was held in November. The consultant will meet VDH on site in mid-December to review the scope of proposed improvements.

History:

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.

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:	18% Design Complete
Construction Start:	September 2018
Completion:	December 2020
Total Capital Project Budget:	\$7,000,000

Current Status:

Hydraulic tests on the treatment plant filters will be conducted during the week of December 11.

History:

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

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:

Dewberry has reviewed several alignment options in the field and is now in the process of developing a design scope of work.

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 refill of Ragged Mountain Reservoir 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:

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.

History:

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.

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:	Advertised for Bids
Construction Start:	April 2018
Completion:	October 2018
Total Capital Project Budget:	\$500,000

Current Status:

The project was advertised for bid on November 28, 2017. The bid opening is scheduled for January 9, 2018.

History:

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:	15% 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. An operations workshop was held with the City and ACSA on December 7, 2017.

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:	90% Design Complete
Construction Start:	April 2018
Expected Completion Date:	September 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 January with a contract award at the March 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)
Project Start:	October 2016
Project Status:	Siting Study 100% Complete
Construction Start:	2019
Completion:	2020
Total Capital Project Budget:	\$2,325,000

Current Status:

G&H has submitted a work authorization to continue the project through construction which has been submitted this month for Board approval.

History:

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.

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:	Completed
Completion:	December 2017
Total Contract Cost:	\$82,195

Current Status:

We are on schedule to approve the Strategic Plan during the Board meeting on December 19.

History:

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 provided the draft Strategic Plan for discussion by both Rivanna Boards in a joint work session during the regular Board meetings on November 14.

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:	Finalize the Strategic Plan

19. Reservoir Management Plan

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 www.rivanna.org/reservoir-study. 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:

Preliminary design work began in November 2017. A project kick-off meeting was held in November, and the consultant is in the process of data collection and review for the Preliminary Engineering Report.

History:

RWSA has negotiated a scope and fee with Michael Baker International for the routing study, preliminary design, plat creation and easement acquisition process.

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

Consultant:	Gomez and Sullivan
Project Start:	October 2016
Project Status:	Exemption Surrender Process – Phase 2 Underway
Construction Start:	2019
Completion:	2020
Total Capital Project Budget:	\$1,000,000

Current Status:

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 at the beginning of the new year.

History:

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.

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. Drinking Water Infrastructure Plan – Crozet Area

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

Current Status:

Staff met with DEQ in November to review preliminary water demand, supply and downstream release findings. At DEQ's suggestion, staff will provide a pre-application project overview to all related State and Federal Agencies in February. Staff also plans to provide an update to the Crozet community in January 2018.

History:

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.

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 are 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: DAVE TUNGATE, WATER MANAGER
TIMOTHY CASTILLO, WASTEWATER MANAGER**

**REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR
RICHARD GULLICK, DIRECTOR OF OPERATIONS**

SUBJECT: OPERATIONS REPORT FOR NOVEMBER 2017

DATE: DECEMBER 19, 2017

WATER OPERATIONS:

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

<i>Water Treatment Plant</i>	<i>Average Daily Production (MGD)</i>	<i>Total Monthly Production (MG)</i>	<i>Maximum Daily Production in the Month (MGD)</i>
Observatory	1.96	59.01	---
South Rivanna	5.88	176.39	---
North Rivanna	<u>0.31</u>	<u>9.30</u>	---
Urban Total	8.15	244.70	10.11 (11/14/17)
Crozet	0.47	14.29	0.732 (11/19/17)
Scottsville	<u>0.044</u>	<u>1.33</u>	0.082 (11/28/17)
RWSA Total	8.66	260.32	---

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

Status of Reservoirs (as of December 11, 2017):

- Urban Reservoirs: 83.0 % of Total Useable Capacity
- Ragged Mountain Reservoir is –6.04 feet (79.5%)
- Sugar Hollow Reservoir is – 12.30 feet (54.7%)
- South Rivanna Reservoir is full (100%)
- Beaver Creek Reservoir is – 2.91 feet (81.3%)
- 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 November 2017. Performance of the WRRFs in November was as follows compared to the respective VADEQ permit limits:

WRRF	<i>Average Daily Effluent Flow (mgd)</i>	<i>Average CBOD₅ (ppm)</i>		<i>Average Total Suspended Solids (ppm)</i>		<i>Average Ammonia (ppm)</i>	
		<i>RESULT</i>	<i>LIMIT</i>	<i>RESULT</i>	<i>LIMIT</i>	<i>RESULT</i>	<i>LIMIT</i>
Moore's Creek	8.17	<QL	11	0.8	22	0.08	8.6
Glenmore	0.122	0.8	15	2.1	30	0.05	NL
Scottsville	0.049	2.1	25	5.1	30	0.16	NL
Stone Robinson	0.002	6	30	10	30	1.3	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 Moore's Creek AWRRF were as follows for November 2017:

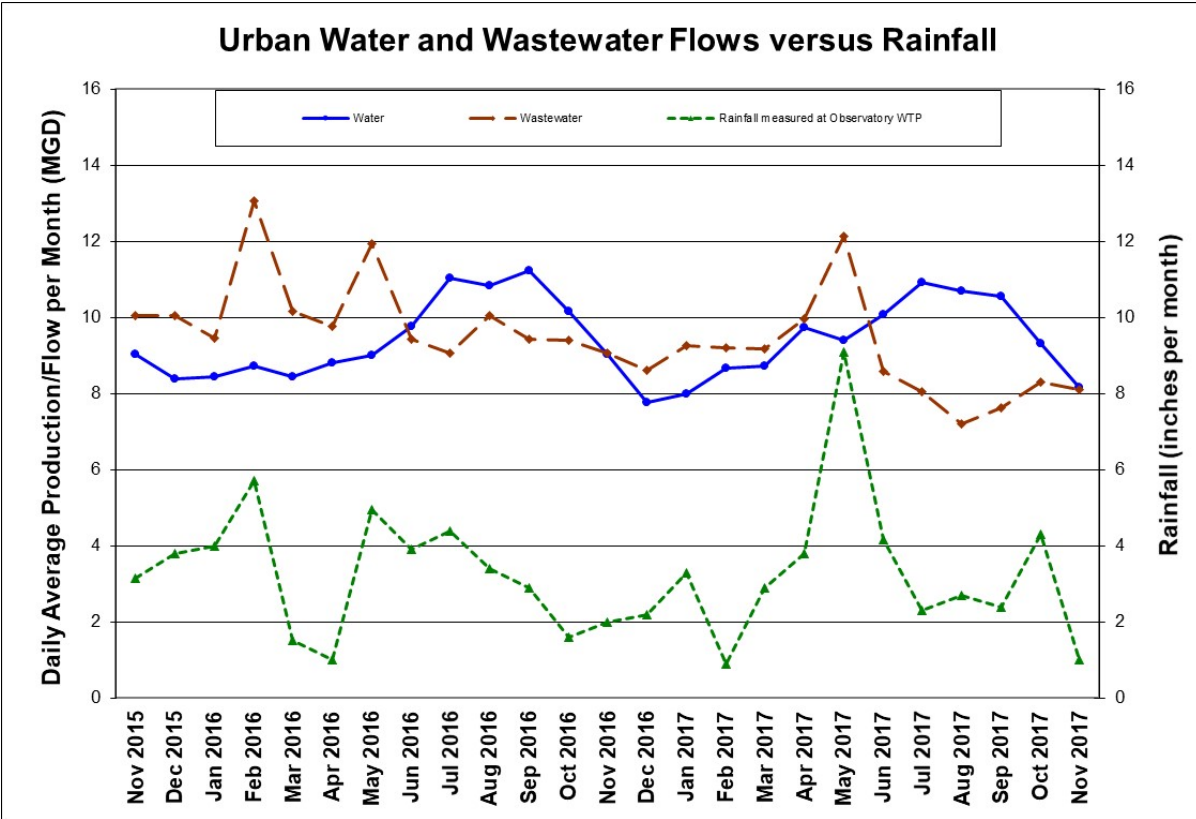
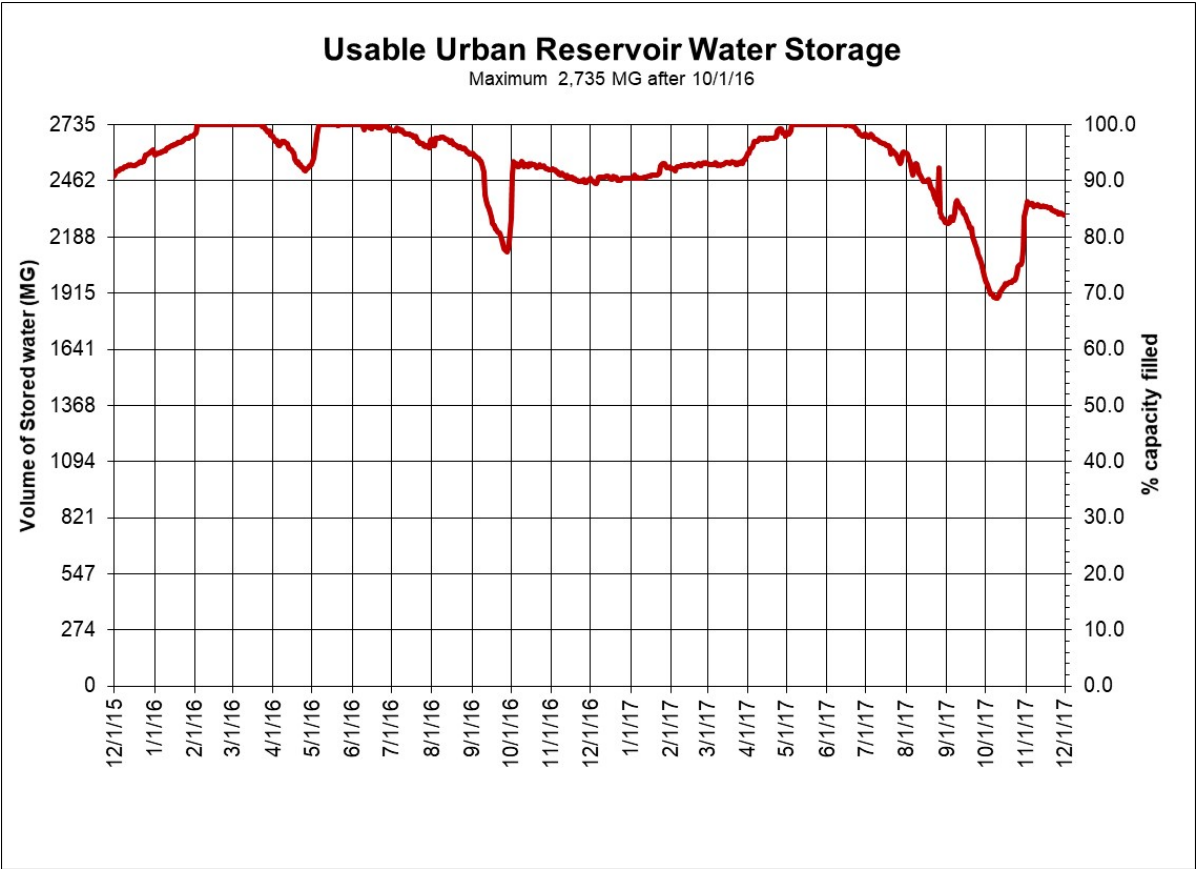
<i>State Annual Allocation (lb./yr.)</i>		<i>Average Monthly Allocation (lb./mo.)*</i>	<i>Moore's Creek Discharge (lb./mo.)</i>	<i>Performance as % of Average Allocation*</i>
Nitrogen	282,994	23,583	3,534	15%
Phosphorous	18,525	1,544	110	7%

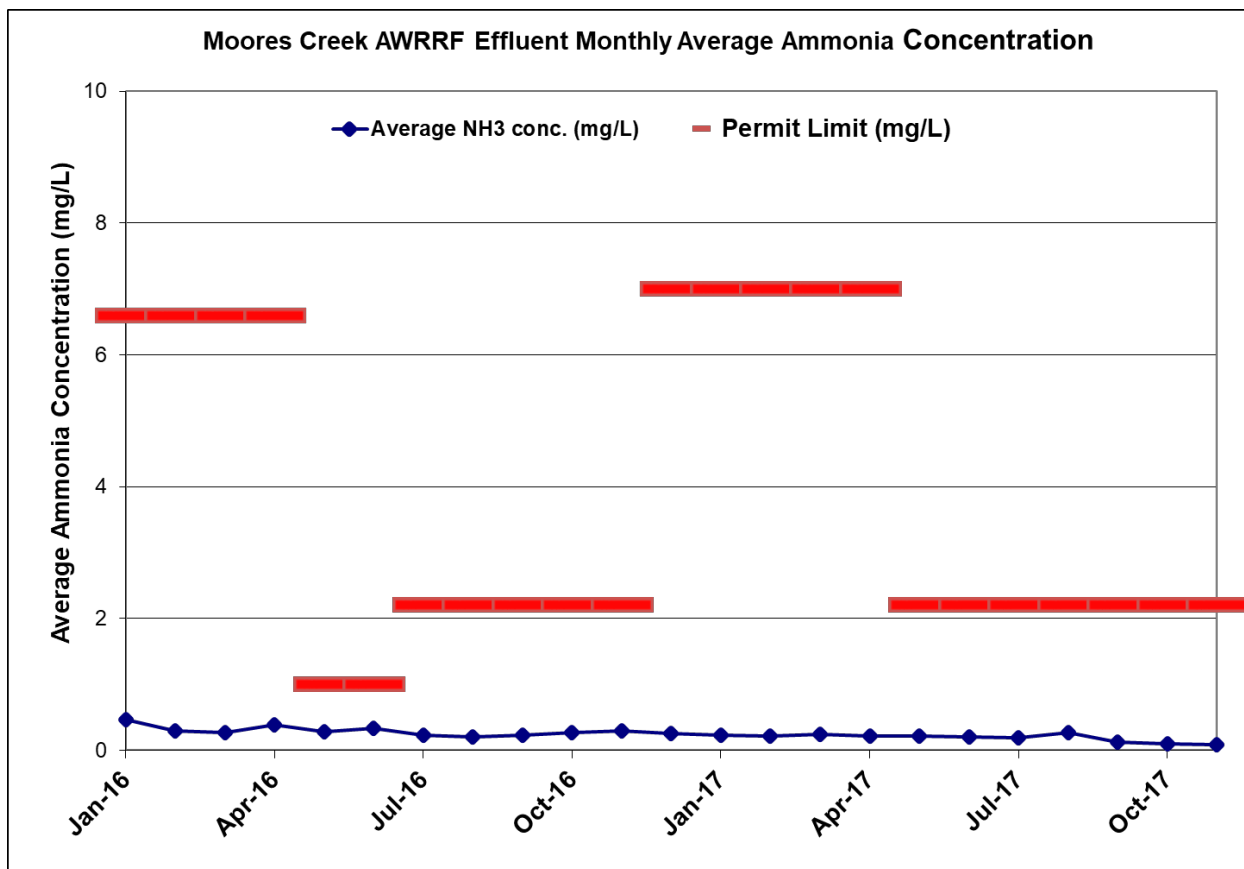
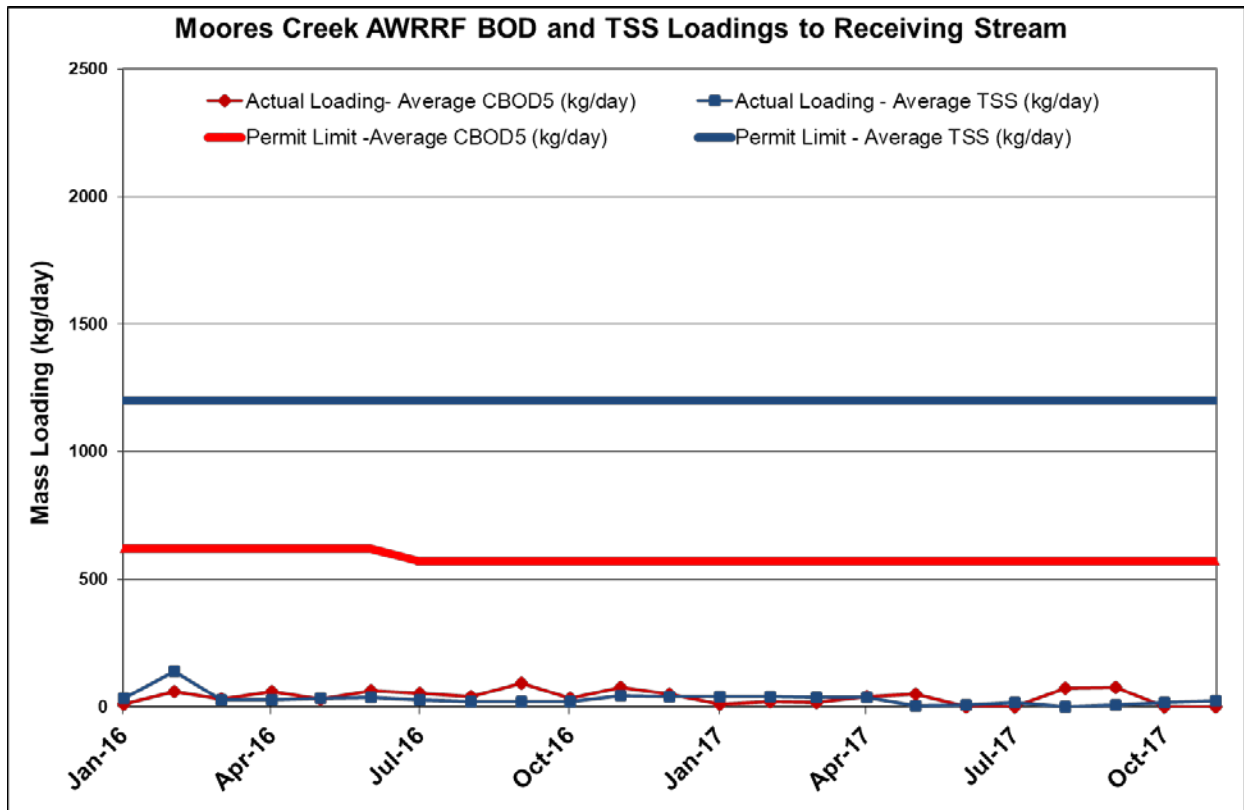
*State allocations are expressed as annual amounts. One-twelfth of that allocation is an internal monthly benchmark for comparative purposes only.

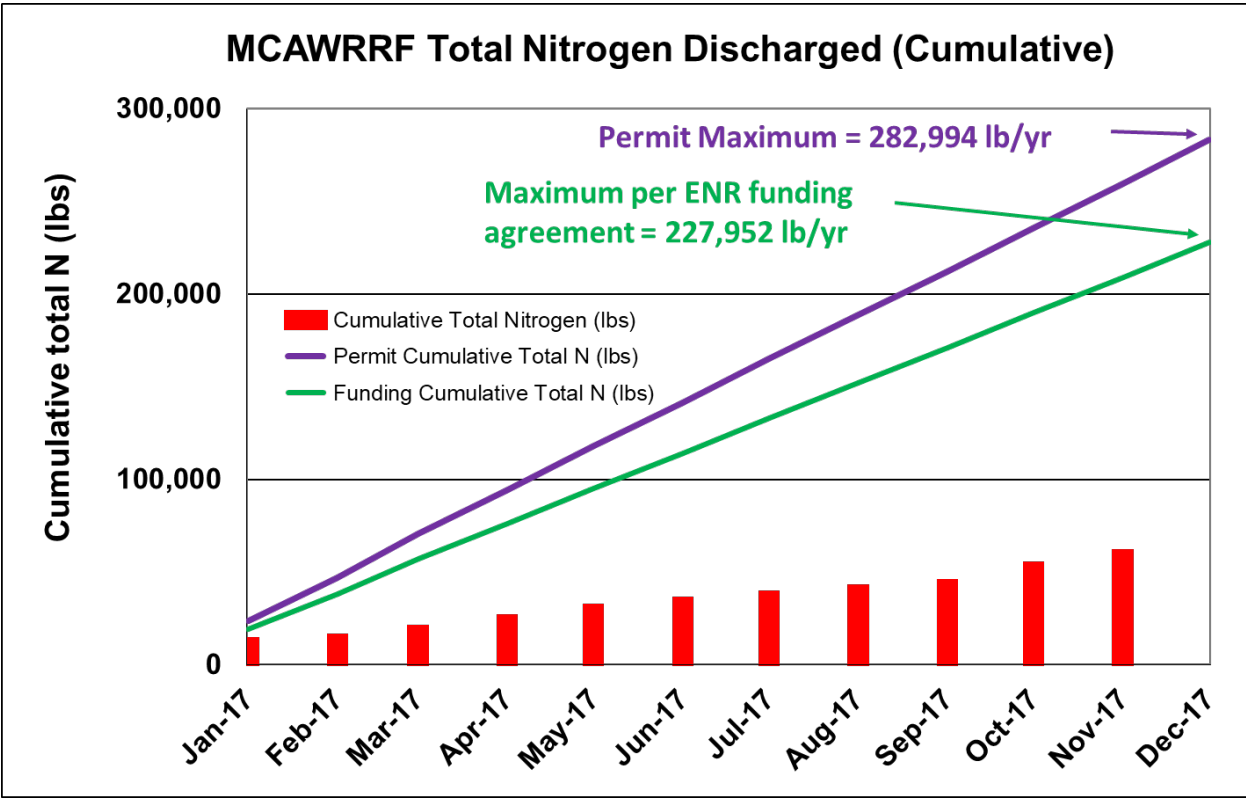
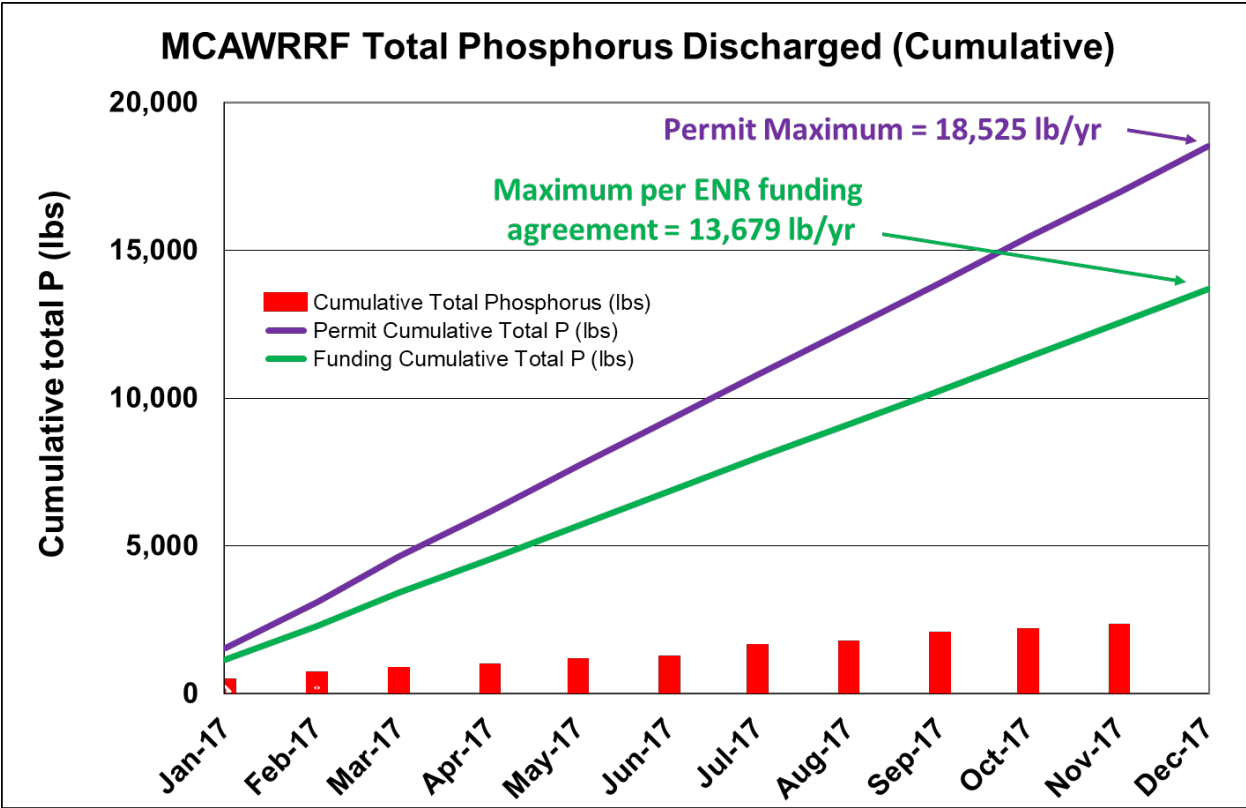
WATER AND WASTEWATER DATA:

The following graphs are provided for review:

- Usable Urban Reservoir Water Storage
- Urban Water and Wastewater Flows versus Rainfall
- Moore's Creek AWRRF BOD and TSS Loadings to Receiving Stream
- Moore's Creek AWRRF Effluent Monthly Average Ammonia Concentrations
- Moore's Creek AWRRF Total Phosphorus Discharged
- Moore's Creek AWRRF Total Nitrogen Discharged







MEMORANDUM

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

**FROM: JENNIFER A. WHITAKER, DIRECTOR OF ENGINEERING AND
MAINTENANCE**

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

**SUBJECT: RECOMMENDATION TO AWARD ENGINEERING SERVICES
CONTRACT, CROZET FLOW EQUALIZATION TANK AND
PUMPING STATION UPGRADE - GREELEY & HANSEN
ENGINEERS**

DATE: DECEMBER 19, 2017

RWSA and ACSA continue to work on sewer system rehabilitation to address wet weather inflow and infiltration (I&I) reduction goals in the Crozet Interceptor. The goals are based on the flow metering and modeling results of the Comprehensive Sanitary Sewer Model & Study conducted in 2006 and updated in 2016. The 2016 study update identified the need to proceed with the design and construction of a flow equalization tank in the Crozet area. Based on those results, a siting study for a flow equalization tank upstream of Crozet Pump Station No. 4 was completed, which identified a preferred location.

The purpose of this project will be to further analyze the preferred location during the preliminary engineering phase and then perform final design, bidding phase and construction administration services. Facilities to be designed under this project include a 1.0 million gallon flow equalization tank with an automatic floor flushing system, an odor control system, and modifications to the existing Crozet Pump Station No. 4 to include additional pumping capabilities as required to pump flow during a wet weather event to the flow equalization tank. Any property acquisition and easements required for the flow equalization tank and associated facilities will be coordinated separately by RWSA during this project.

Staff has negotiated a scope, fee and schedule with Greeley and Hansen to perform preliminary engineering, final design, bidding, and construction administration services for the Crozet Flow Equalization Tank and Pumping Station Upgrade project.

Board Action Requested:

Staff requests that the Board of Directors authorize the Executive Director to execute a work authorization with Greeley and Hansen Engineers for preliminary engineering, final design, bidding, and construction administration services for the Crozet Flow Equalization Tank and Pumping Station Upgrade project, for an amount not to exceed \$333,318, and that the Executive Director be authorized to execute necessary amendments in additional amounts, if deemed

necessary to complete the design, bidding, and construction of the improvements identified above, not to exceed 10% of the initial authorization.

MEMORANDUM

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

FROM: JENNIFER A. WHITAKER, CHIEF ENGINEER

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

**SUBJECT: REQUEST FOR ADDITIONAL CONSTRUCTION
ADMINISTRATION AND INSPECTION SERVICES FOR THE
GRANULAR ACTIVATED CARBON (GAC) IMPROVEMENTS
AT VARIOUS RWSA WATER TREATMENT PLANTS – HAZEN
AND SAWYER ENGINEERS**

DATE: DECEMBER 19, 2017

The Granular Activated Carbon project, including new facilities and improvements at all five RWSA water treatment plants, was approved to be awarded to Ulliman Schutte Construction at the March 24, 2015 RWSA Board Meeting. The construction work was originally estimated to take 30 months to complete. Due to additional scope of work items, various delay requests due to adverse weather conditions, and some unforeseen conditions experienced during the rehabilitation work, the contract time is anticipated to be extended up to four additional months.

At the same March 2015 Board meeting a construction administration and inspection contract was also authorized to the engineering consultant firm of Hazen and Sawyer. The original Hazen and Sawyer Work Authorization No. 17 was for \$1,686,700, and was also assumed to last about 30 months. Due to the extension of the construction contract time, Hazen and Sawyer's construction services will also have to be extended four months in order to effectively monitor and close-out the work.

Board Action Requested:

RWSA staff recommends that the Board of Directors authorize the Executive Director to execute Amendment No. 2 to the existing Work Authorization No. 17 with Hazen and Sawyer in the amount of \$43,000 for additional construction administration and inspection services.

MEMORANDUM

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

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

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

**SUBJECT: COMPREHENSIVE ANNUAL FINANCIAL REPORT
FISCAL YEAR ENDING JUNE 30, 2017**

DATE: DECEMBER 19, 2017

The Authority's Comprehensive Annual Financial Report for the fiscal year ending June 30, 2017 is included with your Board packet. A large part of preparing the financial statements involves having the financial reports audited for the purposes of obtaining an opinion from an independent Certified Public Accountant as to the accuracy of the information presented in the report.

The audit also reviews internal accounting controls and tests for compliance with relevant laws and regulations as a function of expressing their opinion on the financial information. I am pleased to inform you that the Authority received an unqualified opinion, which is the highest opinion that the financial statements are materially accurate and fairly presented.

Mr. Robert Huff, a principal of the Charlottesville office of Robinson, Farmer, Cox Associates, will be at the meeting to give a brief review of their audit and discuss any audit findings they may have. I would also like to thank Kathy Ware, Accountant, who performed much of the detailed work in the preparation of this report, and the entire administrative staff for their assistance during the audit.

This report will be submitted to the Certification Program of the Government Finance Officers Association.

Attachment: Comprehensive Annual Financial Report



COMPREHENSIVE ANNUAL FINANCIAL REPORT
YEARS ENDED JUNE 30, 2017 AND 2016

SERVING

CHARLOTTESVILLE & ALBEMARLE COUNTY, VIRGINIA

Front Cover Photograph

Ribbon Cutting for New Rivanna Pump Station and Tunnel

**RIVANNA WATER & SEWER AUTHORITY
CHARLOTTESVILLE, VIRGINIA**

COMPREHENSIVE ANNUAL FINANCIAL REPORT

YEARS ENDED JUNE 30, 2017 AND 2016

Prepared By:

Department of Finance and Administration

RIVANNA WATER & SEWER AUTHORITY

Comprehensive Annual Financial Report
Fiscal Years Ended June 30, 2017 and 2016

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RIVANNA WATER & SEWER AUTHORITY

Comprehensive Annual Financial Report
Fiscal Years Ended June 30, 2017 and 2016

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BOARD MEMBERS

Michael A. Gaffney, Chairman

Maurice Jones, Vice-Chairman

Doug Walker, Secretary/Treasurer

Lauren Hildebrand

Dr. Liz A. Palmer

Kathleen Galvin

Gary B. O'Connell

EXECUTIVE DIRECTOR

William I. Mawyer, Jr., P.E.

DIRECTOR OF FINANCE/ADMINISTRATION

Lonzy E. Wood, III, CPA

GENERAL COUNSEL

McGuire Woods, LLP
Charlottesville, Virginia

TRUSTEE AND ESCROW AGENT

Bank of New York Mellon
New York, New York

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CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

October 23, 2017

To the Board of Directors
Rivanna Water and Sewer Authority
Charlottesville, Virginia

The Comprehensive Annual Financial Report (CAFR) of the Rivanna Water and Sewer Authority (Authority) for the fiscal year ended June 30, 2017 is submitted herewith. This report has been prepared in conformity with the reporting and accounting standards promulgated by the Government Accounting Standards Board and the Financial Accounting Standards Board and with the accounting and reporting standards for enterprise funds set out by the Government Finance Officers Association of the United States and Canada, with such modifications as apply to our status as an independently chartered corporation.

Based upon a comprehensive framework of internal control that it has established for this purpose, management assumes responsibility for the completeness and reliability of the information contained in this report. The objective of internal control is to provide reasonable, rather than absolute, assurance that the financial statements are free of material misstatements, because the cost of each internal control should not outweigh the potential benefit.

Management's discussion and analysis (MD&A) immediately follows the independent auditors' report and provides a narrative introduction, overview, and analysis of the basic financial statements. MD&A complements this letter of transmittal and should be read in conjunction with it.

ORGANIZATION AND SERVICES PROVIDED

The Rivanna Water and Sewer Authority is a regional non-profit public corporation and political subdivision of the Commonwealth of Virginia chartered in 1972 under the Virginia Water and Waste Authorities Act (1950, as amended), that supplies drinking water to and treats the sewage of Charlottesville (City) and certain areas of Albemarle County (County). The Authority is a wholesale agency and bills monthly both Charlottesville and the Albemarle County Service Authority (ACSA), which handle retail distribution of water and collection of sewage in their respective service areas.

The Authority is charged to acquire, finance, construct, operate and maintain facilities for the impoundment, production, storage, treatment and transmission of potable water and for the interception, treatment and discharge of wastewater. The Authority operates under the terms of a Service Agreement signed June 12, 1973 by the officers of the Charlottesville City Council, the Albemarle County Board of Supervisors, the Albemarle County Service Authority and the Rivanna Water and Sewer Authority. The Authority has determined that it is not part of the reporting entity of either the City of Charlottesville or the County of Albemarle and will not be included in the financial report of either (see Note 1 to the Financial Statements).

ORGANIZATION AND SERVICES PROVIDED: (CONTINUED)

The Authority is governed by a seven-member Board of Directors (Board). The Board appoints an Executive Director, who manages Authority operations under their direction. The Authority is now organized in administration, laboratory, engineering, maintenance, water, and wastewater departments. The Authority operates and maintains five water treatment plants and three wastewater treatment plants and the associated water storage facilities, pump stations, transmission mains and interceptor sewers, as well as a hydropower generating facility. Retail distribution of water and collection of wastewater is performed by the Authority's two customers: the City of Charlottesville's Public Utilities Division and the Albemarle County Service Authority.

JOINT ADMINISTRATION

By mutual agreement of the respective Boards of Directors, the Authority currently shares administrative staff and office space with the Rivanna Solid Waste Authority, which is billed monthly for its portion of the costs. Administrative procedures were implemented to ensure proper segregation of funds, purchasing activity, personnel, and similar matters. In general, the Rivanna Solid Waste Authority adopted existing Authority administrative policies, procedures and regulations for its own use. The Authorities also agreed adopted and administer joint Safety Regulations and a joint Safety Program.

ECONOMIC CONDITION AND PROSPECTS

The University of Virginia provides a significant buffer against large swings in the economy of our service area. In addition, the Charlottesville urban area is a major retail trade center for the surrounding region. Housing growth remains steady. Although most growth occurs in County developments, in-filling in Charlottesville continues. Both Charlottesville and Albemarle County enjoy low unemployment rates, steady economic growth and high bond ratings.

A ten-year compilation analysis report dated September 2017 by the Charlottesville Regional Chamber of Commerce examining employment in the Greater Charlottesville Region concluded that combined private and public-sector employment grew by 11%, or 12,005 jobs, from 2006 to 2016, compared to a 4% increase in Virginia outside of the region. In 2016, 75% of jobs within the Region were located in the City of Charlottesville and Albemarle County, and the other 25% are reported in the Counties of Fluvanna, Green, Louisa, Nelson, and Orange.

The Charlottesville-Albemarle area attracts many visitors to its historic sites, and the wine industry has been popular and has served to help benefit the tourism sector of the regional economy. The travel and tourism industry make a vital contribution to the local economy.

The University of Virginia has begun several large capital projects that will continue to be the impetus of growth for water and sewer services. Our current Capital Improvement Program, as discussed below, reflects the Authority's response to the current and projected service burden on our facilities and to the need to respond to regulatory requirements.

LONG-TERM FINANCIAL PLANNING

The Authority expects continued growth in demand for water supply and sewage disposal services as well as changing regulations. Our current five-year Capital Improvement Program (CIP) for Fiscal years 2017-2021 is heavily driven by regulatory changes in the future for water quality standards including the requirements of the Disinfectant By-product Rule (DPBR). This rule regulates maximum contaminant level for total trihalomethanes (THMs) and haloacetic acids (HAAs) in drinking water. The long-term goal is to finance most of these projects with revenue bonds; however, the Authority has targeted using a significant portion of cash reserves to fund its current \$136 million CIP. For details, please refer to the MD&A.

MAJOR INITIATIVES

The Urban Water Granular Activated Carbon (GAC) and Water Treatment Plant Improvements project is currently the largest capital project underway in the water department, with a \$25 million capital budget targeted for completion in FY 2018. The Rivanna Pump Station and Tunnel is the largest capital project in progress in the wastewater system, with an estimated cost of \$32 million. It will also be completed in FY 2018. Phase 2 of the Moores Creek AWWRF Odor Control project is another large wastewater project expected to be completed in FY 2018 at a cost of \$10 million.

As mentioned previously, the DPBR regulations are requiring the water plants to undergo major capital upgrades to install GAC treatment systems. These systems carry significant capital costs as well as significant operating costs in the future. Over the past few years, the Authority has been investing many of its resources in the wastewater systems to control and reduce inflow and infiltration into the systems from heavy rain events. This was an environmental and regulatory objective which is nearly complete with the construction of the Rivanna Pump Station. Now we are addressing the water infrastructure of the Authority with many upgrades to the treatment and transmission systems planned for the next 5 to 10 years.

The Crozet water service area continues to see expanded growth in the average and maximum daily demand. Discussions with Albemarle County planning staff and ACSA have confirmed recent growth trends and indicate that the rate of growth in Crozet is increasing. While several projects are currently underway to address the immediate need in Crozet, it is now necessary to develop a comprehensive mid-range and long-range plan 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.

BUDGETARY CONTROLS AND FINANCIAL POLICIES

The Authority is required by the Service Agreement to adopt an annual budget for setting wholesale rates as well as for fiscal guidance to staff. Separate fiscal year budgets are currently prepared for six rate centers to include direct costs and allocations of administrative, engineering, maintenance, lab and debt service expenses. Until the Service Agreement was amended in August 2015, projections of flows and expenses were used to calculate rates per thousand gallons for the two Urban rate centers and flat monthly charges for the other rate centers to cover both operating and debt service costs. Actual flows vary each year from the flows estimated when the rates were set, due to unpredictable weather conditions. Effective with the October 2015 billing, RWSA began charging a fixed monthly rate for the Urban rate center debt service costs while continuing to charge operations rates per thousand gallons. This was a very positive change, because RWSA is required to make fixed debt service payments each fiscal year, and it is important to have a fixed revenue source to pay those expenses.

A proposed budget for each fiscal year is prepared by the Authority Directors and the Executive Director and submitted to the Board of Directors, usually in February, with a public hearing held on the proposed rates in April or May. All budget items lapse at the end of the fiscal year except capital commitments. It should be noted that the budget is prepared for internal use and does not reflect the accrual basis of accounting. An example of this is that principal payments on debt are shown as an expense.

Budgetary compliance is monitored and reported to the Board by the Director of Finance & Administration and the Executive Director. Projections of both revenues and expenses are understood to reflect anticipated service levels and to incorporate a variety of economic, climatic, and demographic forecasts. Variances from budget line items are examined at least monthly to assure a reasonable relation between actual costs and actual service levels, emergencies, or economic conditions. The Authority Board of Directors adopted in August 2011 certain financial policies that help guide the capital and operating budgeting process by defining reserves, reserve goals, uses of discretionary funds, and setting financial targets on debt and capital funding.

BUDGETARY CONTROLS AND FINANCIAL POLICIES: (CONTINUED)

The Authority's accounting records are maintained on the accrual basis of accounting. Under this method, revenues are recognized when earned and expenses are recorded when incurred, without regard to receipt or payment of cash. Current controls provide reasonable assurance that the Authority's assets are properly recorded and protected and that the financial data may be used with confidence in the preparation of historical reports and projections. Accounting control is maintained by segregation of duties and data security systems in all areas of record keeping, disbursements, and purchasing authority. These controls are reviewed regularly by staff and are evaluated as part of the annual financial audit (see Annual Audit section below).

ANNUAL AUDIT

The Code of Virginia, the June 12, 1973 Service Agreement, the Trust Agreement and its Supplements require an annual audit of the books and records of the Authority. The opinion of our independent certified public accountants is included in the Financial Section.

AWARDS

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to Rivanna Water and Sewer Authority for its comprehensive annual financial report for the fiscal year ended June 30, 2016. To be awarded a Certificate of Achievement, a governmental unit must publish an easily readable and efficiently organized comprehensive annual financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year only. We believe that our current comprehensive annual financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

ACKNOWLEDGEMENTS

The help of the Authority's staff and of our certified public accountants is gratefully acknowledged. Such help and the Board of Directors' support and commitment to financial reporting excellence are essential to the preparation of this report.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Lonzy E. Wood, III", is written over a horizontal line.

Lonzy E. Wood, III
Director of Finance and Administration



Government Finance Officers Association

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**Rivanna Water & Sewer Authority
Virginia**

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

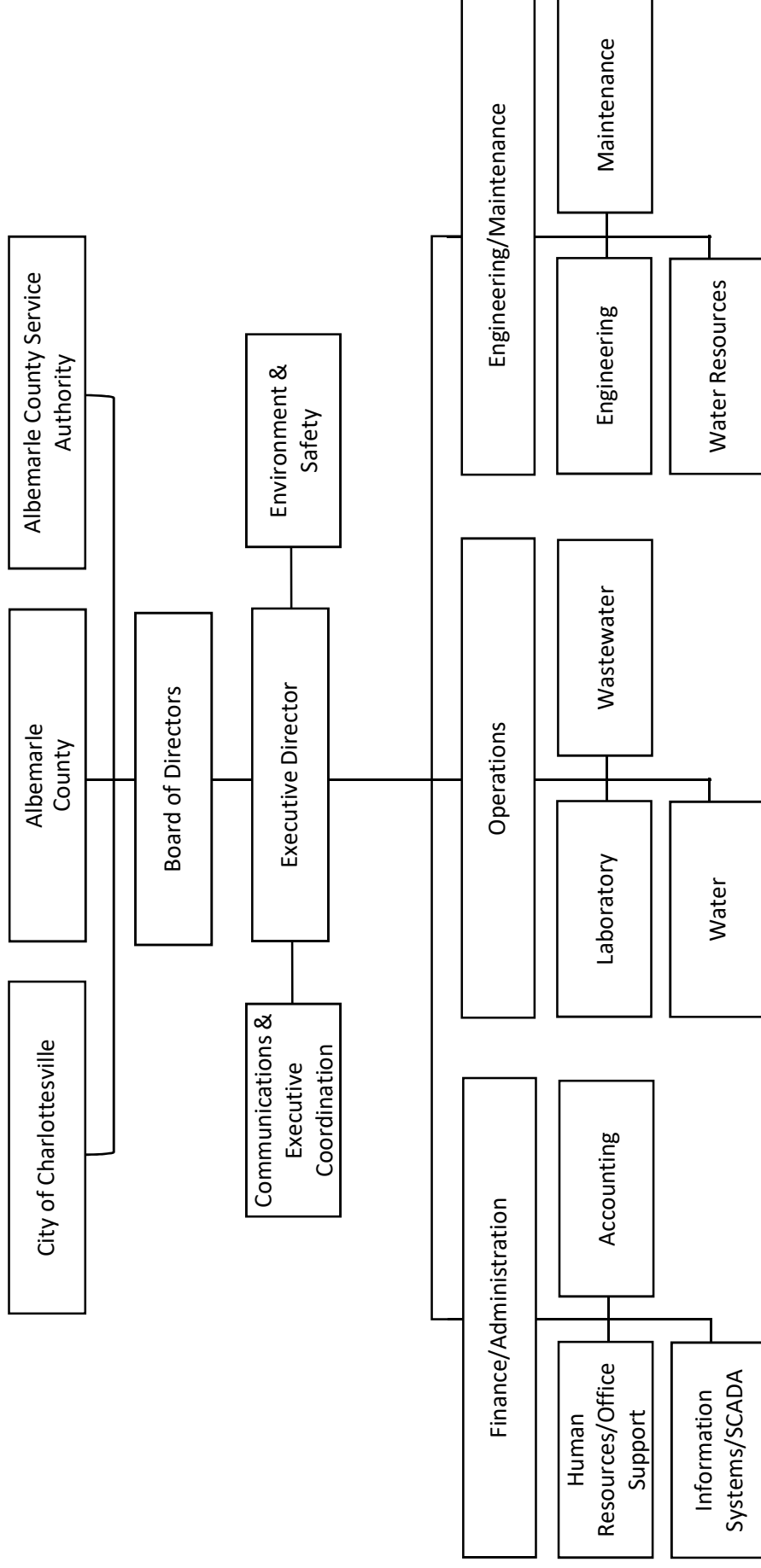
June 30, 2016

Executive Director/CEO

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Rivanna Water & Sewer Authority

Organizational Chart



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ROBINSON, FARMER, COX ASSOCIATES

CERTIFIED PUBLIC ACCOUNTANTS

A PROFESSIONAL LIMITED LIABILITY COMPANY

Independent Auditors' Report

To the Board of Directors
Rivanna Water & Sewer Authority
Charlottesville, Virginia

Report on the Financial Statements

We have audited the accompanying financial statements of the business-type activities of Rivanna Water & Sewer Authority, as of and for the years ended June 30, 2017 and 2016, and the related notes to the financial statements, which collectively comprise the Rivanna Water & Sewer Authority's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the *Specifications for Audits of Authorities, Boards, and Commissions*, issued by the Auditor of Public Accounts of the Commonwealth of Virginia. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the business-type activities of Rivanna Water and Sewer Authority, as of June 30, 2017 and 2016, and the respective changes in financial position, and cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, and schedules related to pension and OPEB funding on pages 13-23 and 73-76 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise Rivanna Water & Sewer Authority's basic financial statements. The introductory section and statistical section are presented for purposes of additional analysis and are not a required part of the basic financial statements. The schedule of expenditures of federal awards is presented for purposes of additional analysis as required by Title 2 U.S. *Code of Federal Regulations* (CFR) Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards*, and is also not a required part of the basic financial statements.

The schedule of expenditures of federal awards is the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated in all material respects in relation to the basic financial statements as a whole.

The introductory and statistical sections have not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated October 23, 2017, on our consideration of Rivanna Water & Sewer Authority's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Rivanna Water & Sewer Authority's internal control over financial reporting and compliance.

Boinson, Farmer, & Associates

Charlottesville, Virginia

October 23, 2017

Management's Discussion and Analysis

To the Board of Directors Rivanna Water & Sewer Authority Charlottesville, Virginia

As management of the Rivanna Water & Sewer Authority (the Authority), we offer readers of our financial statements this narrative overview and analysis of the financial activities of the Authority for the fiscal year ended June 30, 2017. We encourage readers to consider the information presented here in conjunction with additional information that we have furnished in our letter of transmittal, which can be found on pages 3 through 6 of this report.

Overview of the Financial Statements:

This discussion and analysis is intended to serve as an introduction to the Authority's basic financial statements. Since the Authority is engaged only in business-type activities, its basic financial statements are comprised of only two components: 1) enterprise fund financial statements and 2) notes to the financial statements. This report also contains required supplementary information in addition to the basic financial statements themselves.

Enterprise fund financial statements. The enterprise fund financial statements are designed to provide readers with a broad overview of the Authority's finances, in a manner similar to a private-sector business.

The statement of net position presents information on the Authority's assets, deferred outflows of resources, liabilities, and deferred inflow of resources with the difference reported as net position. Over time, increases or decreases in net position may serve as a useful indicator of whether the financial position of the Authority is improving or deteriorating.

The statement of revenues, expenses, and changes in net position presents information showing how the Authority's net position changed during the most recent fiscal year. All changes in net position are reported as soon as the underlying event giving rise to the change occurs, regardless of the timing of the cash flows. Thus, revenues and expenses are reported in this statement for some items that will only result in cash flows in future fiscal periods (e.g. earned but unused vacation leave).

The basic enterprise fund financial statements can be found on pages 26 through 29 of this report.

Notes to the financial statements. The notes provide additional information that is essential to a full understanding of the data provided in the financial statements. The notes to the financial statements can be found on pages 31 through 70 of this report.

Required supplementary information. This report also includes required supplementary information concerning the Authority's progress in funding its obligation to provide pension and other postemployment benefits to its employees. It is located immediately following the notes to financial statements.

Financial Highlights:

- The Authority's total net position increased by \$6.1 million in FY 2017 and by \$4.9 million in FY 2016, which is an indication of improvement in financial position.
- Capital assets net of accumulated depreciation increased by \$30.4 million this year and by \$20.1 million last year due to a robust capital improvement program.
- Total liabilities increased by \$13 million in FY 2017 and by \$39.5 million in FY 2016 primarily due to the issuance of new revenue bonds to fund capital projects.
- Total operating expenses increased 7% this year and 9% last year due to increases in personnel and maintenance costs.

Financial Analysis:

The Authority's assets and deferred outflows of resources exceeded its liabilities and deferred inflows of resources at the close of the most recent fiscal year by \$141.8 million (net position). Of this amount, \$32.6 million (unrestricted net position) may be used to meet the Authority's normal ongoing operating obligations to customers and creditors while \$3.7 million of net position is restricted for the bondholders. The largest portion of the Authority's net position (74%) reflects its investment in capital assets, net of depreciation and related debt outstanding that was used to acquire those assets. The Authority uses these capital assets to provide services to its customers; consequently, these assets are not available for future spending. Although the Authority's investment in capital assets is reported net of related debt, the resources needed to repay this debt are derived from the revenue generating capability of these capital assets and not from the capital assets themselves. Total net position increased 5% this year and 4% last year, and each category of net position has increased.

	Net Position		
	2017	2016	2015
Current and other assets	\$ 60,323,302	\$ 72,609,632	\$ 48,854,901
Capital assets	263,852,256	233,412,702	213,267,291
Total assets	<u>\$ 324,175,558</u>	<u>\$ 306,022,334</u>	<u>\$ 262,122,192</u>
Deferred outflows of resources	<u>\$ 1,874,215</u>	<u>\$ 1,298,582</u>	<u>\$ 1,389,205</u>
Noncurrent liabilities	\$ 170,711,501	\$ 157,803,972	\$ 122,744,653
Current liabilities	13,574,665	13,418,468	8,983,538
Total liabilities	<u>\$ 184,286,166</u>	<u>\$ 171,222,440</u>	<u>\$ 131,728,191</u>
Deferred inflows of resources	<u>\$ -</u>	<u>\$ 443,880</u>	<u>\$ 1,009,264</u>
Net position:			
Net investment in capital assets	\$ 105,412,275	\$ 101,129,762	\$ 99,020,753
Restricted for bond covenants	3,729,350	3,335,539	2,940,314
Unrestricted	32,621,982	31,189,295	28,812,875
Total net position	<u>\$ 141,763,607</u>	<u>\$ 135,654,596</u>	<u>\$ 130,773,942</u>

Financial Analysis: (Continued)

Operating revenues increased by \$384,000 this year compared to a \$1.6 million increase last year. Metered water sales increased 6% this year and 4% last year due to rate increases in both years and increased flows this year. Wastewater service charge revenues dropped 2% this year despite charging higher rates, because urban wastewater flows were much lower than in the prior year. Urban wastewater flows increased 9% in FY 2016 over the prior year resulting in a \$1.2 million increase in wastewater revenue.

Total operating expenses increased by \$1.3 million this year primarily due to a 22% increase in personnel costs due to one new position, health care costs, raises, accrual of future pension costs, and accrual of future obligations related to early retirement incentives. There was a \$1.6 million increase in operating expenses in FY 2016, largely due to higher line maintenance costs and the need for many large repairs to pumping stations. \$2.7 million of interest payments on bonded debt was capitalized to the unfinished capital projects this year as a cost of acquisition and \$1 million in the prior year. Key elements of these changes are explained further in the Review of Operations section.

Changes in Net Position			
	2017	2016	2015
Revenues:			
Operating revenues			
Metered water sales	\$ 13,753,977	\$ 13,014,328	\$ 12,555,666
Wastewater service charges	14,444,159	14,799,741	13,625,855
Nonoperating revenues			
Investment earnings	296,433	369,675	82,083
Buck Mountain revenue	115,700	84,000	74,900
Administrative reimbursement	328,000	299,000	265,000
Other revenues	305,763	370,173	337,148
Total revenues	<u>\$ 29,244,032</u>	<u>\$ 28,936,917</u>	<u>\$ 26,940,652</u>
Expenses:			
Operating expenses			
Personnel costs	\$ 7,483,807	\$ 6,155,243	\$ 5,878,175
Professional services	885,072	602,891	473,193
Other services and charges	2,764,905	2,607,118	2,532,408
Operations and maintenance	4,214,246	4,710,701	3,991,590
Depreciation expense	5,411,996	5,396,029	4,983,753
Nonoperating expenses			
Interest expense	2,248,229	4,027,843	3,608,072
Debt issuance costs	126,766	556,438	59,273
Total expenses	<u>\$ 23,135,021</u>	<u>\$ 24,056,263</u>	<u>\$ 21,526,464</u>
Change in net position	<u>\$ 6,109,011</u>	<u>\$ 4,880,654</u>	<u>\$ 5,414,188</u>
Net position, beginning of year	<u>135,654,596</u>	<u>130,773,942</u>	<u>125,359,754</u>
Net position, end of year	<u>\$ 141,763,607</u>	<u>\$ 135,654,596</u>	<u>\$ 130,773,942</u>

Capital Asset and Debt Administration:

Capital Assets - The Authority's investment in capital assets net of accumulated depreciation increased 13% in the current year and 9% in the prior year because of costs incurred on major water and wastewater construction projects in both years. Construction costs of \$35.8 million were incurred this year, and there are still many capital projects in progress with accumulated costs totaling \$72.3 million. More detailed information on the Authority's capital assets is presented in Notes 4 and 5 of the notes to the financial statements and is addressed further under the operations discussion below.

Capital Asset and Debt Administration: (Continued)

The various categories of capital assets net of depreciation at the end of the past three fiscal years are as follows:

	<u>2017</u>	<u>2016</u>	<u>2015</u>
Land and improvements	\$ 10,604,850	\$ 10,604,850	\$ 10,604,850
Buildings and operating equipment	180,753,567	173,175,985	177,998,152
Trucks and autos	148,252	116,905	108,789
Office equipment	3,003	5,005	7,007
Construction in progress	<u>72,342,584</u>	<u>49,509,957</u>	<u>24,548,493</u>
Total capital assets, net	<u>\$ 263,852,256</u>	<u>\$ 233,412,702</u>	<u>\$ 213,267,291</u>

Major capital asset activity for the current fiscal year included:

Urban Water GAC/WTP Improvements	\$ 8,184,890
Rivanna Pump Station and Tunnel	7,537,974
Moore's Creek AWWRF Odor Control-Phase 2	5,741,681
Crozet Water GAC/WTP Improvements	1,730,356
Rt. 29 Pipeline-VDOT Betterment	1,713,514
Schenks Branch Interceptor	1,557,296
Wholesale Water Master Metering-Urban	1,523,247
Scottsville Water GAC	885,845
Observatory WTP Improvements	619,220
South Rivanna WTP Leaf Screen	430,818
Crozet WTP Finished Water Pump Station	395,663
Route 29 Pumping Station Site Acquisition	365,771
Stillhouse Tank Repairs and System Improvements	311,068
Crozet Ground Storage Tank Repairs/Upgrades	284,818
Meadowcreek Interceptor Improvements	179,741
S. Rivanna WTP Filter Press Rehabilitation	165,242
MCAWWRF Second Centrifuge	160,575
Other	279,751
Capitalized Interest	2,713,381
Retainage on Construction in Progress	1,015,627
Other	279,751
Total Current Year Construction Costs and Adjustments	<u>\$ 36,076,229</u>

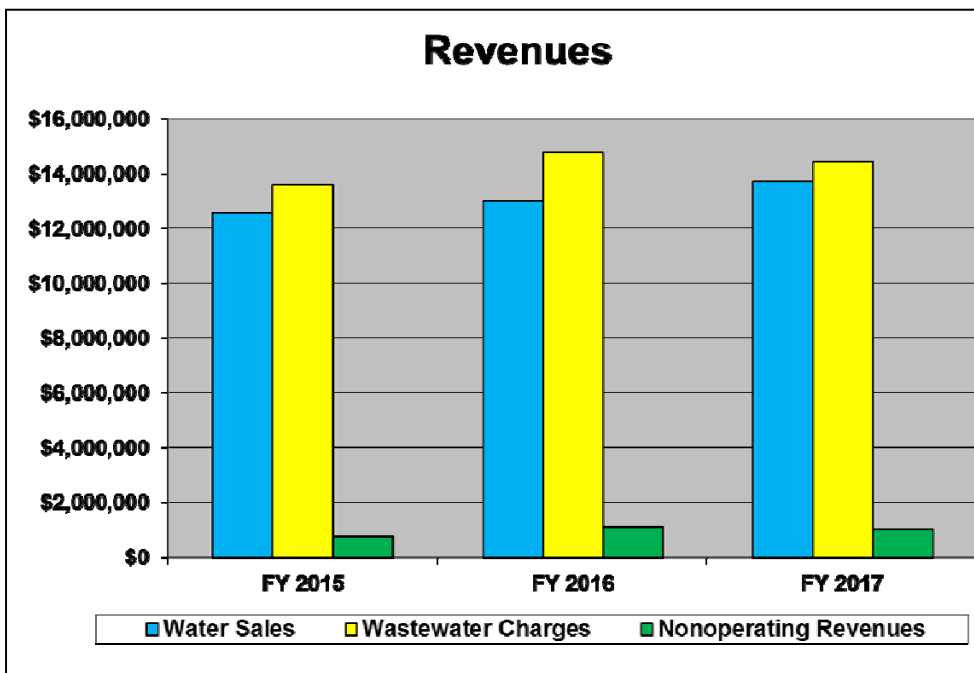
Long-Term Debt - At the end of the current fiscal year, the Authority had \$173 million in bonds outstanding, which is an increase of \$12.5 million. This change is the net of \$19.2 million of bond proceeds less \$6.1 million of principal repayments and approximately \$600,000 of bond premium amortization. The Authority issued the \$10 million Series 2016 Revenue Bonds in December 2016 to finance odor control and bridge repair capital projects at the Moore's Creek wastewater facility. An additional \$8.3 million was drawn on Revenue Bond Series 2014A to help fund the Rivanna Interceptor and Pump Station projects, and \$0.9 million was drawn on Revenue Bond Series 2015A for the Schenks Branch Interceptor project. Both bonds are Virginia Revolving Loan Fund debt instruments which act like construction loans where the proceeds stay with the State until the construction costs are paid to the contractor, and only the amount drawn is recognized as outstanding debt. More detailed information regarding the Authority's long-term debt is presented in Note 6 of the notes to the financial statements.

Capital Asset and Debt Administration: (Continued)

To meet the new reporting standards set forth by the Governmental Accounting Standards Board, the Authority recognized for the first time in FY 2015 the net pension liability of \$2.6 million as a long-term liability, and the balance at June 30, 2017 and 2016 is \$4.2 million and \$3 million, respectively. This represents the Authority's share of the Virginia Retirement System (VRS)'s actuarially determined total pension liability less plan assets or net position to pay for that liability. The actuary also determines the contribution rates needed in the future that the Authority pays directly to VRS to gradually fund this obligation. The contribution rate for FY 2017 was 9.62% of covered employee compensation, and the contributions were paid into VRS along with the 5% employee contributions to meet this future obligation. More detailed information regarding the Authority's pension plan and the net pension liability is presented in Note 8 of the notes to the financial statements.

Review of Operations:

Total operating revenues increased 1.4% or \$384,000 in Fiscal Year 2017. The budget for FY 2017 called for higher revenues for the year which were programmed into the rates set by the Board of Directors. Water operating revenues were \$740,000 higher in FY 2017 compared to FY 2016. There was less wastewater flow in FY 2017 than there was in FY 2016 which caused the revenues related to wastewater to be lower than the previous year by 2.4% or \$356,000. Total FY 2016 wastewater flows were 9.6% above FY 2015 levels causing wastewater charges to increase \$1.2 million over FY2015 wastewater revenues.



The Authority has been steadily increasing rates over the decade due to the aggressive capital improvement plan revised and adopted by the Board of Directors each year (see Capital Improvement & Long-Term Trends Section). During the 2016 fiscal year, the Board adopted an amendment to the service agreement between the City of Charlottesville, Albemarle County Service Authority, the County of Albemarle and Rivanna (a.k.a. the Four Party Agreement). This amendment changed the structure of the debt service component of the rates charged to our two customers from a per 1,000 gallons rate charged on

consumption to a fixed monthly charge. The Operating Rate charged did not change and remains a per 1,000 gallons rate charged to the two customers based on consumption. This affected the Urban area only, because the other area rates were already set as a fixed monthly charge.

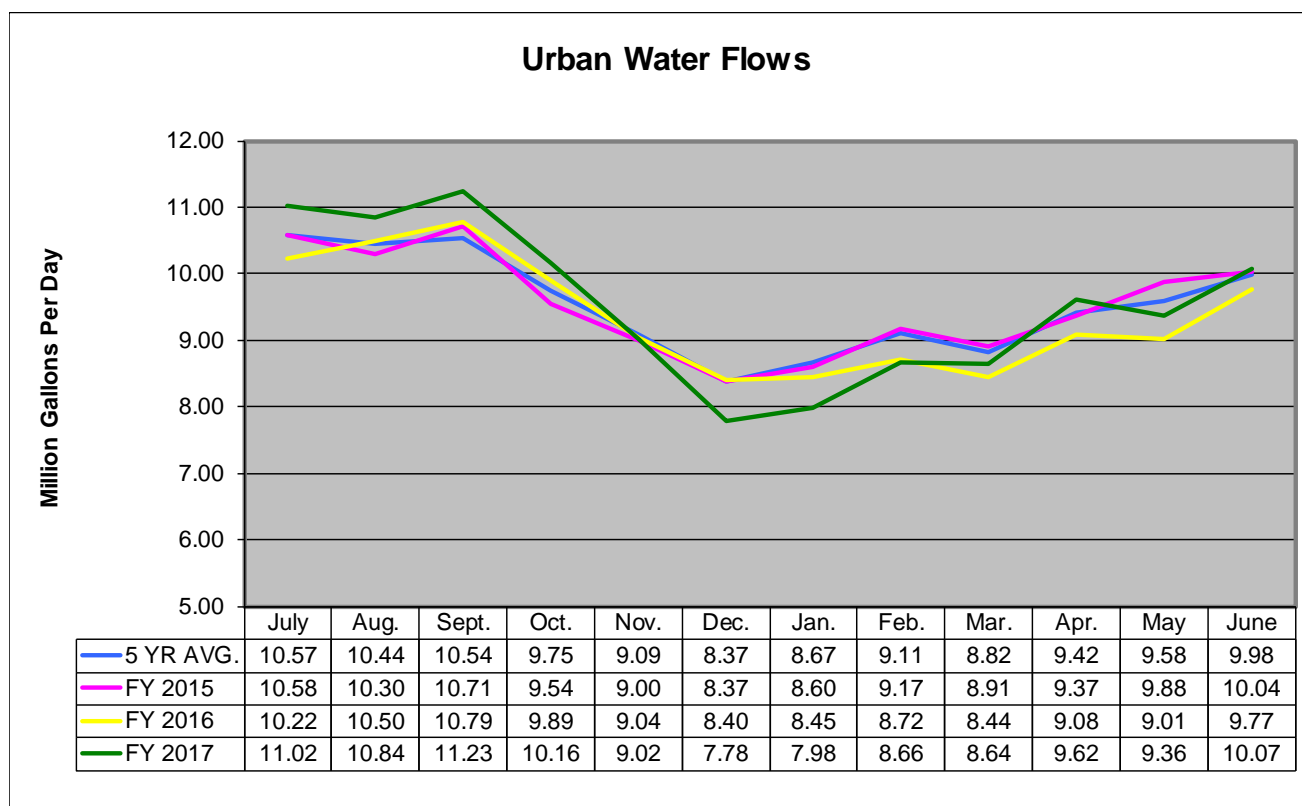
The significant debt service component of the revenue charge was targeted to change, because the rate charge is governed by several cost allocation agreements to allocate out costs in differing methods depending on the project, customer usage and growth variables. Previously, the variability of the revenue charge as it relates to a hard to predict variable such as flows was also an issue that was solved with this change, especially for wastewater charges. Weather events affected the flows used in charging for debt service under the previous method of rate setting, and that created a level of uncertainty in the revenue projections each year that was unnecessary. Staff recommended this change to alleviate this uncertainty for Rivanna and for its customers, which significantly improved the predictability of this component of the Authority's revenues.

Review of Operations: (Continued)

The capital program has been the single largest driver to the Authority's revenue requirements, especially for wastewater rates for the past several years. As shown in the chart below, FY 2017 Urban debt service rates increased except for a 4.4% decrease for the ACSA, based on the cost allocation agreements between the City and ACSA for the various capital projects being funded by bonds and the related debt service. Operating rates and related costs for water are being affected by the GAC project which has significant yearly costs for the granular carbon used in the new treatment process at all 5 plants.

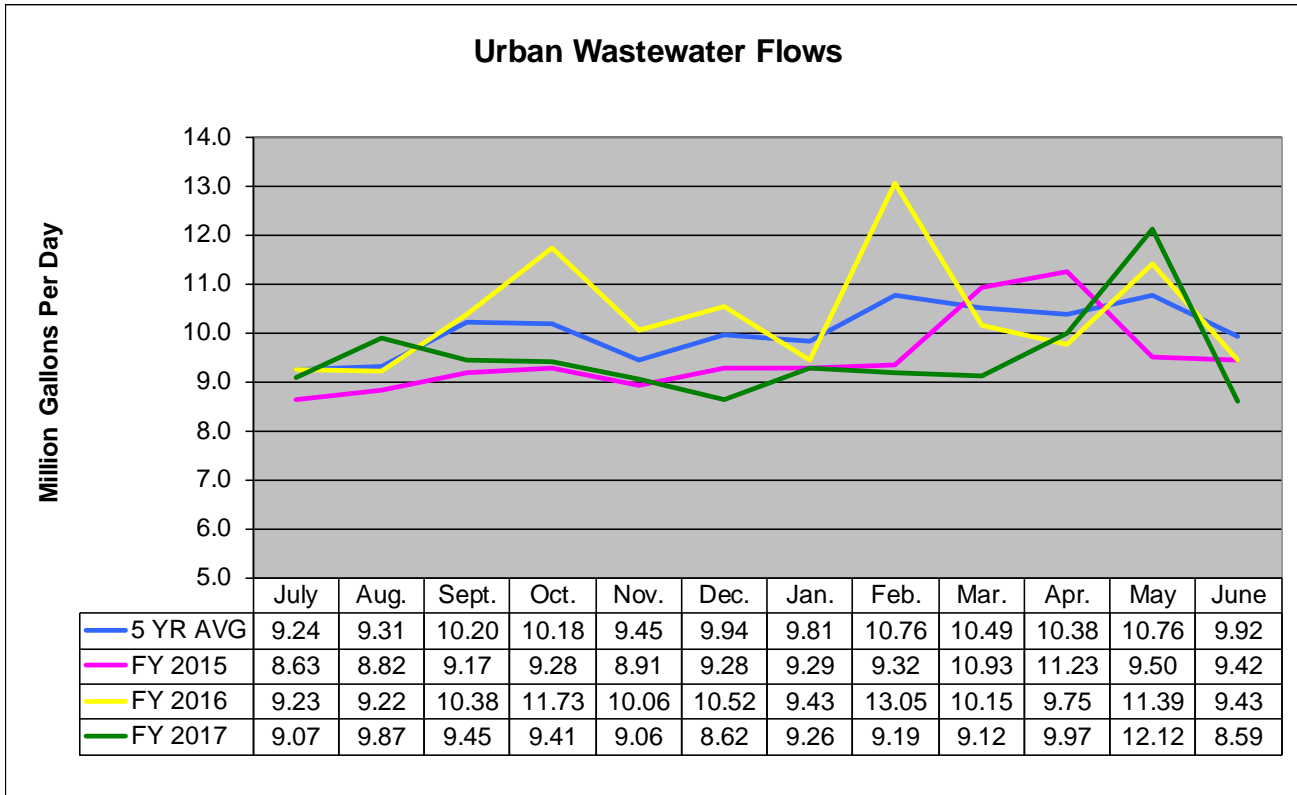
<u>Urban Rates</u>					
			<u>Water</u>		<u>Wastewater</u>
Operations Rates - City & ACSA (\$ per 1,000 gallons):					
	FY 2015	\$	1.683	10.8%	\$ 1.768 -2.3%
	FY 2016	\$	1.713	1.8%	\$ 1.789 1.2%
	FY 2017	\$	1.833	7.0%	\$ 1.835 2.6%
Debt Service Rates (\$ per month) (Note*):					
City:	FY 2015	\$	148,549	-23.2%	\$ 310,678 7.0%
	FY 2016	\$	158,099	6.4%	\$ 333,645 7.4%
	FY 2017	\$	162,968	3.1%	\$ 369,037 10.6%
ACSA:	FY 2015	\$	269,379	-10.9%	\$ 223,598 -6.0%
	FY 2016	\$	279,864	3.9%	\$ 232,493 4.0%
	FY 2017	\$	284,031	1.5%	\$ 222,280 -4.4%
*Note: In FY 2016 the Board of Directors amended the Service Agreement to go from a rate per 1,000 gallons to a fixed monthly charge for all debt service costs. FY 2015 rates have been restated to a fixed monthly charge for comparison purposes.					

Flows in the two urban rate centers are the single largest determining factor in the revenues billed to our two customers. The graphs below show the flows for the year compared to the last two years and the five-year average.



Review of Operations: (Continued)

Urban Water flows have trended close to the five-year average and are more predictable to estimate. Urban Wastewater flows (below) were fairly stable for the year but were consistently below the 5-year average for most of the year. As you can see, for FY 2016, flows were erratic compared to the trend due to weather patterns that can significantly affect metered flows and revenues. Because of this, it is very difficult to predict the revenues and charges to our customers for wastewater services from one year to the next.



Total expenses decreased by \$921,000 for FY 2017 and was capital project driven. Total interest payments for FY 2017 increased; however, of the interest that was paid, a much larger portion was capitalized to the capital projects during the construction period. For FY 2017, \$2.7 million in interest payments were capitalized compared to only \$977,000 for FY 2016. This expense will increase next year as the projects are completed. Direct operating costs in certain categories experienced increases in FY 2017. Personnel costs were much higher this year with new positions and filling long-term vacant positions. Several adjustments for OPEB, pension and early retirement costs were made this year as well. Health insurance costs were also up roughly 10% over the previous year. A vulnerability assessment and a reservoir management study were in full swing this year causing the engineering and consultant costs to increase over \$354,000.

Review of Operations: (Continued)

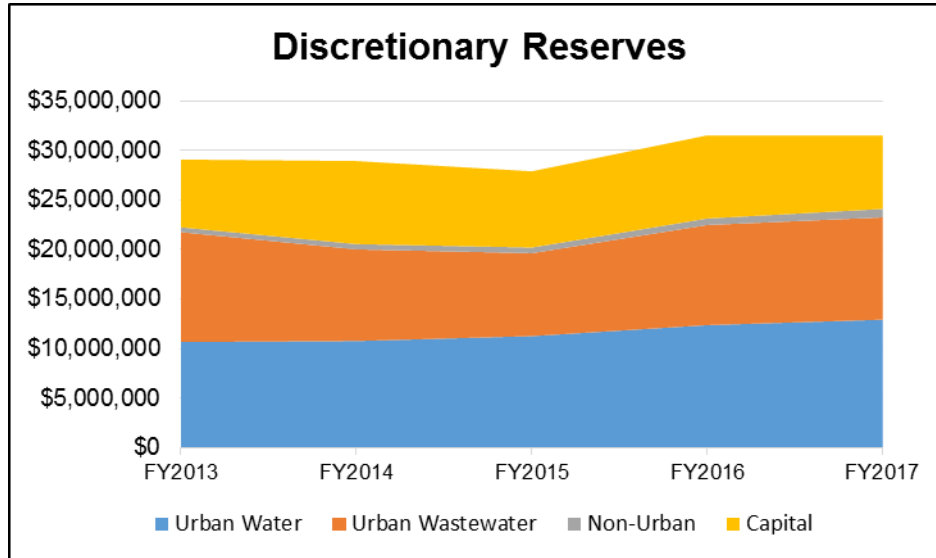
Change in Expenses FY 2017 vs. FY 2016:

	FY 2017	FY 2016	Change	
Direct Operating*	\$ 15,348,031	\$ 14,075,953	\$ 1,272,078	9%
Depreciation	5,411,996	5,396,029	15,967	0%
Interest	2,248,229	4,027,843	(1,779,614)	-44%
Debt issuance costs	126,766	556,438	(429,672)	-77%
	<u>\$ 23,135,022</u>	<u>\$ 24,056,263</u>	<u>\$ (921,241)</u>	<u>-4%</u>

* - Personnel, Chemicals, Operations & Maintenance, Utilities

Cash balances have been stable for the past few years, maintaining a strong debt service coverage ratio the past several years. (See Table 8 in the Statistical Section). Unrestricted cash balances for FY 2017 are at \$26.4 million, which is relatively unchanged from FY 2016. For the past decade, the Authority slowly built cash reserves

for rate stabilization, unforeseen maintenance issues and support for an aggressive capital replacement program through its rate setting policies. The Board of Directors supports the need for a strong cash position to mitigate unforeseen costs in an aging infrastructure and to better handle wide fluctuations in flow. Rate stabilization reserves totaled \$2 million at June 30, 2017. Recognizing the increase in debt service obligations over the years, the executive management wisely continues to emphasize the need to maintain adequate reserves to mitigate a decline in revenues in the event of a drought and provide financial flexibility as issues are managed that periodically face the Authority. Below is a chart showing discretionary reserves, which have remained steady over the last several years:



Over the last several years, financial policies have been adopted and revised as needed to formally support this philosophy. The Authority generally targets to have 60 days of working capital, which is roughly \$5.1 million. The Capital fund cash had been accumulating in previous fiscal years according to the Capital Improvement Plan; however, during the past two years the Authority has used a large portion of the capital fund to pay project costs that are not fully covered by the recently issued bonds mentioned previously. The Authority has a financial policy goal of funding 10% of our total capital program costs with cash reserves. Over the last ten years, the Authority has used capital cash to fund roughly \$29 million in projects. This fund is continuously replenished from the excess revenues building into the rates and charges.

Review of Operations: (Continued)

Capital Improvements & Long-Term Trends

The Authority generally updates the five-year projection of our Capital Improvement Plan (CIP) annually. The following table shows the changes in the CIP adopted in March 2017 compared to the previously adopted capital plan:

Changes in CIP			
2016-2020	\$	133,275,139	Previously adopted CIP
		(14,236,366)	Budgets for completed projects
		16,846,923	New project budgets added
2017-2021	\$	<u>135,885,696</u>	Total 5-Year CIP

The total five-year CIP is estimated at \$135.9 million in capital spending needs through the year 2021. Of this amount roughly, \$66.1 million is work-in-progress (nearly 50%) and has already been expended and funded at year end. There is roughly \$14.9 million in available bond proceeds to fund future capital work and \$7.4 million in the capital fund to fund the CIP. The future funding needs will be roughly \$40 million in additional debt to be issued and \$7.5 million in future reserves to be placed in the capital fund.

Several years ago, with the support of the City of Charlottesville Utilities Division and the ACSA, the Authority initiated a comprehensive plan to improve the wastewater collection and treatment infrastructure to address issues with inflow and infiltration. A goal developed among the three agencies to reduce rainwater inflow and infiltration into the sewer system by 25% by 2020 was driving some of these improvements. Several projects have been completed over the years, and the largest remaining project is the expansion of the Rivanna Pump Station.

Rivanna Pump Station Tunnel

This project was started just before FY 2015 began and is nearly completed. The total budget for this project is \$32.2 million. The old pump station facility is undersized and sits adjacent to the Woolen Mills neighborhood and Riverview Park. This facility will be decommissioned and replaced with a force main traveling beneath a section of the residences in the neighborhood and a railroad right of way (by way of a 1,620 foot, 8-foot diameter tunnel) and will terminate on the existing site of the Moores Creek Advanced Water Resource Recovery Facility. The termination point will be a newly constructed pump station designed to manage a peaking flow of 53 million gallons per day (mgd).



Review of Operations: (Continued)

Bio-Scrubber – Odor Control Project



The Authority initiated Phase 2 of the Odor Control project at the Moores Creek facility in FY 2017. The project goals are to make infrastructure improvements to help keep odors at the “fence line” of the facility and significantly reduce the impacts to the local neighborhoods. Several clarifiers will be covered, and a new bio-scrubbing facility will be built to treat gasses collected from the clarifiers.

With the new Ragged Mountain Dam now complete, focus has turned to the treatment plants and supporting infrastructure using the raw water sources for finished water demands. The Observatory Water Treatment Plant was originally constructed in the 1950's, and very little has been replaced or upgraded in that time. Some of the transmission infrastructure leading up to that plant is early 1900's vintage. This plant will also be upgraded for the Granular Activated Carbon (GAC) project mentioned before. The GAC project will affect all 5 water treatment plants and in total is roughly a \$30 million project. Other phases of the Water Supply Plan include the pipeline to be constructed in the future between the South Fork Reservoir and the Ragged Mountain Reservoir, with current efforts being focused on possible right-of-way acquisitions.

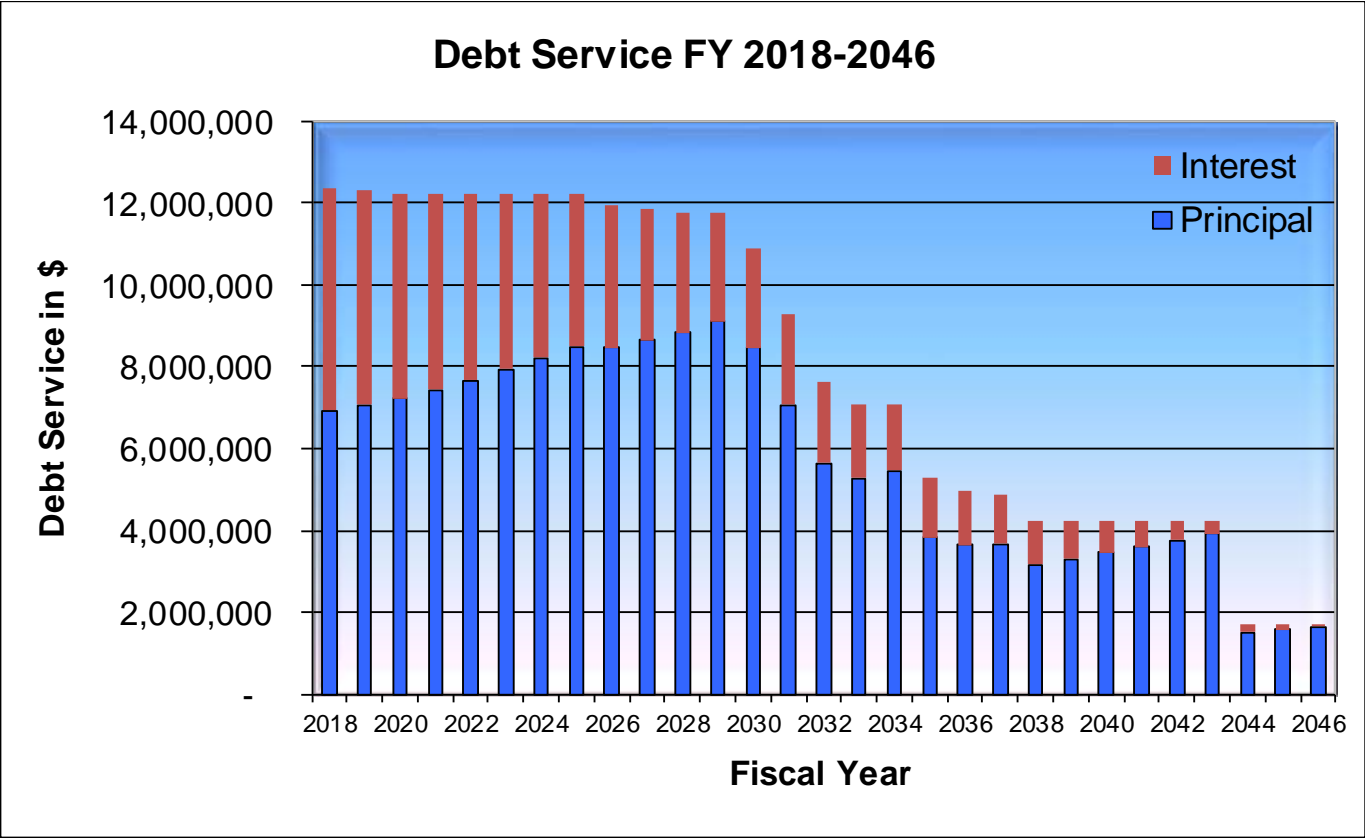
Despite the significant infrastructure needs identified in the CIP, the Authority is positioned to provide for these needs by using more cash up front for projects and having a debt and rate structure that will accommodate more debt in the future. The Authority has been slowly but consistently implementing rate increases to pay for such infrastructure needs in 5 year increments. As shown in the following graph, which represents debt service payments on existing debt, the Authority has a fairly consistent to a declining debt structure for the next 12 years with large declines thereafter.

Additionally, the rates are currently programmed to generate \$14.5 million annually in debt service revenues; however, the water and wastewater capital needs will require additional rate increases in the future to maintain solid cash positions and future debt service needs.

Clarifier Covers – Odor Control Project



Review of Operations: (Continued)



Requests for Information:

This financial report is designed to provide a general overview of the Authority’s finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the Finance Department at 695 Moores Creek Lane, Charlottesville, Virginia 22902-9016.

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Basic Financial Statements

Statement of Net Position
At June 30, 2017 and 2016

	At June 30,	
	2017	2016
ASSETS		
Current assets:		
Cash and cash equivalents (Note 1)	\$ 26,411,859	\$ 26,440,517
Investments (Note 3)	10,048,635	10,047,797
Restricted cash and cash equivalents	17,194,342	29,381,783
Accounts receivable and interest receivable	2,461,718	2,413,398
Unbilled accounts receivable	41,200	39,900
Prepaid expenses	135,604	136,665
Total current assets	\$ 56,293,358	\$ 68,460,060
Noncurrent assets:		
Restricted assets:		
Cash and cash equivalents	\$ 2,043,103	\$ 3,118,649
Investments (Note 3)	1,986,841	1,030,923
Total restricted assets	\$ 4,029,944	\$ 4,149,572
Capital assets: (Note 4)		
Land and improvements	\$ 10,604,850	\$ 10,604,850
Buildings and operating equipment	262,667,240	249,745,368
Trucks and autos	1,212,729	1,176,760
Office equipment	93,659	93,659
Less accumulated depreciation	(83,068,806)	(77,717,892)
Subtotal net capital assets	\$ 191,509,672	\$ 183,902,745
Construction in progress (Note 5)	72,342,584	49,509,957
Total net capital assets	\$ 263,852,256	\$ 233,412,702
Total noncurrent assets	\$ 267,882,200	\$ 237,562,274
Total assets	\$ 324,175,558	\$ 306,022,334
DEFERRED OUTFLOWS OF RESOURCES		
Deferred charge on refunding	\$ 749,345	\$ 816,952
Differences between expected and actual experience	257,484	29,859
Net difference of actual and expected pension plan earnings	443,909	-
Post measurement date employer pension contributions	423,477	451,771
Total deferred outflows of resources	\$ 1,874,215	\$ 1,298,582

The accompanying notes to financial statements are an integral part of this statement.

Statement of Net Position
At June 30, 2017 and 2016

	At June 30,	
	2017	2016
LIABILITIES		
Liabilities:		
Current liabilities:		
Accounts payable and other accrued expenses	\$ 2,570,085	\$ 4,349,707
Compensated absences - current portion (Note 7)	366,000	323,000
Other long-term obligation (Note 9)	69,593	-
Revenue bonds - current portion (Note 6)	3,694,342	2,960,396
Subtotal current liabilities	\$ 6,700,020	\$ 7,633,103
Current liabilities (payable from restricted assets):		
Retainage payable	\$ 2,266,167	\$ 1,250,540
Accrued interest payable	1,379,128	1,699,286
Revenue bond principal - current portion (Note 6)	3,229,350	2,835,539
Subtotal current liabilities (payable from restricted assets)	\$ 6,874,645	\$ 5,785,365
Total current liabilities	\$ 13,574,665	\$ 13,418,468
Noncurrent liabilities:		
Compensated absences (net of current portion) (Note 7)	\$ 32,473	\$ 60,998
Net OPEB obligation (Note 11)	-	45,406
Other long-term obligation (Note 9)	413,475	-
Net pension liability	4,168,792	2,981,253
Revenue bonds (net of current portion) (Note 6)	166,096,761	154,716,315
Total noncurrent liabilities	\$ 170,711,501	\$ 157,803,972
Total liabilities	\$ 184,286,166	\$ 171,222,440
DEFERRED INFLOWS OF RESOURCES		
Net difference of actual and expected pension plan earnings	\$ -	\$ 443,880
NET POSITION		
Net Position:		
Net investment in capital assets	\$ 105,412,275	\$ 101,129,762
Restricted for bond covenants	3,729,350	3,335,539
Unrestricted	32,621,982	31,189,295
Total net position	\$ 141,763,607	\$ 135,654,596

RIVANNA WATER & SEWER AUTHORITY**Exhibit 2**Statement of Revenues, Expenses, and Changes in Net Position
Years Ended June 30, 2017 and 2016

	Year Ended June 30,	
	2017	2016
Operating revenues:		
Metered water sales	\$ 13,753,977	\$ 13,014,328
Wastewater service charges	14,444,159	14,799,741
Total operating revenues	\$ 28,198,136	\$ 27,814,069
Operating expenses:		
Personnel costs	\$ 7,483,807	\$ 6,155,243
Professional services	885,072	602,891
Other services and charges	2,764,905	2,607,118
Operations and maintenance	4,214,246	4,710,701
Depreciation	5,411,996	5,396,029
Total operating expenses	\$ 20,760,026	\$ 19,471,982
Operating income	\$ 7,438,110	\$ 8,342,087
Nonoperating revenues (expenses):		
Investment earnings	\$ 296,433	\$ 369,675
Buck Mountain revenue	115,700	84,000
Administrative reimbursement	328,000	299,000
Other revenues	305,763	370,173
Interest expense	(2,248,229)	(4,027,843)
Debt issuance costs	(126,766)	(556,438)
Total nonoperating revenues (expenses)	\$ (1,329,099)	\$ (3,461,433)
Change in net position	\$ 6,109,011	\$ 4,880,654
Net position, beginning of year	135,654,596	130,773,942
Net position, end of year	\$ 141,763,607	\$ 135,654,596

The accompanying notes to financial statements are an integral part of this statement.

RIVANNA WATER & SEWER AUTHORITY
Exhibit 3
Statement of Cash Flows
Years Ended June 30, 2017 and 2016

	Year Ended June 30,	
	2017	2016
Cash flows from operating activities:		
Receipts from customers and users	\$ 28,897,979	\$ 28,424,703
Payments to suppliers of goods and services	(8,257,239)	(7,694,114)
Payments to and on behalf of employees for services	(7,078,552)	(6,512,690)
Net cash provided by (used for) operating activities	\$ 13,562,188	\$ 14,217,899
Cash flows from capital and related financing activities:		
Additions to capital assets	\$ (33,360,786)	\$ (22,107,171)
Principal payments on bonds	(6,120,712)	(4,837,375)
Bond refunding payments	-	(20,455,000)
Proceeds of bonds, net of issue costs, premiums	19,206,714	56,301,462
Premium on bonds issued	-	5,329,294
Debt issuance costs	(126,766)	(556,438)
Interest payments	(5,791,961)	(4,729,995)
Net cash provided by (used for) capital and related financing activities	\$ (26,193,511)	\$ 8,944,777
Cash flows from investing activities:		
(Purchase) of investments	\$ (1,028,660)	\$ (13,006,550)
Sale of investments	-	5,004,750
Maturity of investments	2,484	1,324
Interest and dividends received	365,854	245,524
Net cash provided by (used for) investing activities	\$ (660,322)	\$ (7,754,952)
Increase (decrease) in cash and cash equivalents	\$ (13,291,645)	\$ 15,407,724
Cash and cash equivalents at beginning of year (including \$32,500,432 and \$11,085,128, respectively reported in restricted accounts)	58,940,949	43,533,225
Cash and cash equivalents at end of year (including \$19,237,445 and \$32,500,432, respectively reported in restricted accounts)	\$ 45,649,304	\$ 58,940,949
Reconciliation of operating income (loss) to net cash provided by (used for) operating activities:		
Operating income	\$ 7,438,110	\$ 8,342,087
Adjustments to reconcile operating income (loss) to net cash provided by (used for) operating activities:		
Depreciation	5,411,996	5,396,029
Buck Mountain revenue	115,700	84,000
Other nonoperating revenues	633,763	669,173
Changes in operating assets and liabilities:		
(Increase) decrease in receivables	(49,620)	(142,539)
Increase (decrease) in net OPEB obligation	(45,406)	(158,000)
Increase (decrease) in compensated absences	14,475	(5,113)
Increase (decrease) in other long-term obligation	483,068	-
Increase (decrease) in net pension liability	1,187,539	338,947
(Increase) decrease in deferred outflows of resources - pension	(643,240)	(46,335)
Increase (decrease) in deferred inflows of resources - pension	(443,880)	(565,384)
(Increase) decrease in prepaid expenses	1,061	(79,842)
Increase (decrease) in operating payables and accrued expenses	(541,378)	384,876
Net cash provided by (used for) operating activities	\$ 13,562,188	\$ 14,217,899
Noncash investing, capital and financing activities:		
Increase (decrease) in fair value of investments	\$ (171,743)	\$ 65,915
(Increase) decrease in retainage payable for capital projects	(1,015,627)	(975,637)

The accompanying notes to financial statements are an integral part of this statement.

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RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements At June 30, 2017 and 2016

Note 1–Summary of Significant Accounting Policies:

In the interest of efficient water quality management for the upper Rivanna River Basin, the Rivanna Water and Sewer Authority was formed on June 7, 1972 as a joint venture of the City of Charlottesville, the Albemarle County Service Authority, and the County of Albemarle, pursuant to the Virginia Water and Waste Authorities Act (1950 as amended). The Authority is responsible for acquiring, financing, constructing and maintaining facilities for the improvement, treatment, storage and transmission of potable water, and for the interception, treatment and discharge of wastewater for the City and County. The Authority operates under the terms of a Service Agreement among the Authority, the Albemarle County Service Authority, the City of Charlottesville, and the County of Albemarle which was signed June 12, 1973.

A. Financial Reporting Entity

The Rivanna Water & Sewer Authority was established according to the Agreement mentioned above for the purposes stated. The participating entities are City of Charlottesville, County of Albemarle, and Albemarle County Service Authority. The City of Charlottesville and the Albemarle County Service Authority have an ongoing financial responsibility to the Authority because a covenant to pay the Authority's rates and charges is included in the operating agreement.

The Authority's governing body is comprised of three members appointed by the County, three members appointed by the City, and one member who is jointly appointed by the City and County. Therefore, none of the participants appoints a voting majority of board members.

The Authority is perpetual. No participating government has access to its resources or surpluses, nor is any participant liable for the Authority's debts or deficits. The Authority also has the ability to finance its capital projects through user charges or the sale of revenue bonds.

Based on the above representations, the Rivanna Water & Sewer Authority has been determined to be a joint venture of the City of Charlottesville, County of Albemarle and Albemarle County Service Authority. The Authority is not a component unit of any of the participating governments. There are no component units to be included within the Authority's financial statements.

For purposes of reporting entity disclosure, it should be noted that a separate entity, the Rivanna Solid Waste Authority, provides garbage and refuse transfer and disposal services to the City of Charlottesville and Albemarle County. Although certain administrative employees provide services to both Authorities, each Authority is operationally and legally independent.

B. Basis of Accounting

Rivanna Water & Sewer Authority operates as an enterprise fund, uses the flow of economic resources measurement focus and its accounts are maintained on the accrual basis of accounting. Under this method, revenues are recognized when earned, and expenses are recorded as liabilities when incurred, without regard to receipt or payment of cash. The Authority accrues revenue for services rendered but not yet billed at the end of the fiscal year. The Authority accounts have been audited by an independent firm annually since its founding in accordance with the requirements of the Service Agreement, dated June 12, 1973, among the Authority, the City of Charlottesville, Albemarle County, and Albemarle County Service Authority.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 1–Summary of Significant Accounting Policies: (Continued)

B. Basis of Accounting (Continued)

The Authority distinguishes *operating* revenues and expenses from *nonoperating* items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with the Authority's principal ongoing operations. The principal operating revenues of the Authority are charges to customers for sales and services. Operating expenses include the cost of sales and services, administrative expenses, and depreciation on capital assets. All revenues and expenses not meeting this definition are reported as nonoperating revenues and expenses.

C. Accounts Receivable

Accounts receivable are stated at book value utilizing the direct write-off method for immaterial uncollectible accounts.

D. Basic Financial Statements

Since the Authority is only engaged in business-type activities, it is required to present only the financial statements required for enterprise funds. For the Authority, the basic financial statements and required supplementary information consist of:

- Management's discussion and analysis
- Enterprise fund financial statements
 - Statement of Net Position
 - Statement of Revenues, Expenses, and Changes in Net Position
 - Statement of Cash Flows
 - Notes to the Financial Statements
- Required Supplementary Information
 - Schedule of Changes in Net Pension Liability and Related Ratios
 - Schedule of Employer Contributions
 - Notes to Required Supplementary Information
 - Schedule of OPEB Funding Progress

E. Capital Assets

Capital assets, which include property, plant, equipment, and infrastructure assets (e.g., roads, bridges, sidewalks, and similar items), are reported in the financial statements. Capital assets are defined by the Authority as assets with an initial, individual cost of more than \$5,000 (amount not rounded) and an estimated useful life in excess of one year. Such assets are recorded at historical cost or estimated historical cost if purchased or constructed. Donated capital assets are recorded at acquisition value at the date of donation.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 1–Summary of Significant Accounting Policies: (Continued)

E. Capital Assets (Continued)

The costs of normal maintenance and repairs that do not add to the value of the asset or materially extend its useful life are not capitalized.

Major outlays for capital assets and improvements are capitalized as projects are constructed. Interest incurred during the construction phase of capital assets of business-type activities is included as part of the capitalized value of the assets constructed. The Authority capitalized interest in the amount of \$2,713,381 and \$976,855 for the years ended June 30, 2017 and 2016, respectively.

Property, plant, equipment and infrastructure are depreciated using the straight-line method over the following estimated useful lives:

<u>Assets</u>	<u>Years</u>
Buildings & operating equipment	5 to 50
Trucks & autos	5 to 10
Office equipment	5 to 10
Data processing equipment	5

F. Cash and Cash Equivalents

The Authority's cash and cash equivalents consist of demand deposits, certificates of deposit, short-term U.S. Governmental obligations, and other investments with an original maturity of three months or less from the date of acquisition, all of which are readily convertible to known amounts of cash.

G. Investments

Money market investments, participating interest-earning investment contracts (repurchase agreements) that have a remaining maturity at time of purchase of one year or less, nonparticipating interest-earning investment contracts (nonnegotiable certificates of deposit (CDs) and external investment pools) are measured at amortized cost. All other investments are reported at fair value.

H. Budgets and Budgetary Accounting

A budget is prepared for information, fiscal planning purposes, and to provide the basis for setting wholesale rates, in accordance with the requirements of the Service Agreement, dated June 12, 1973, among the Authority, the City of Charlottesville, Albemarle County, and the Albemarle County Service Authority. Rates charged by the six rate centers are not subjected to regulatory scrutiny but may be changed at any time by the Authority's Board of Directors, if necessary, in order to adjust revenues. None of the participating entities are required to approve the budget. The budget is adopted as a planning document and is not a legal control on expenses.

The budgets are adopted on an appropriation basis. Principally, the appropriation basis of budgeting provides for a full accrual basis of accounting, capital expenditures, and bond principal payments and partially provides for depreciation of utility plant and amortization.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 1–Summary of Significant Accounting Policies: (Continued)

I. Inventory

Consumption of materials and supplies is recorded as an expense when used. No inventory amounts are recorded as an asset, as available inventories are not significant.

J. Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

K. Net Position

Net position is the difference between assets and deferred outflows of resources and liabilities and deferred inflows of resources. Net investment in capital assets represents capital assets, reduced by accumulated depreciation and by any outstanding debt, deferred outflows of resources and increased by deferred inflows of resources related to the acquisition, construction or improvement of those assets. Restricted net position represents restricted assets reduced by liabilities and deferred inflows of resources related to those assets. The balance in the replacement reserve is presented as restricted net position.

L. Restricted Assets

Certain proceeds of the Authority's revenue bonds and certain resources set aside for their repayment are classified as restricted assets on the statement of net position, because they are maintained in separate bank accounts, and their use is limited by applicable bond covenants. The "revenue bond general operating reserve" is used to report resources set aside to subsidize potential deficiencies from the Authority's operation that could adversely affect debt service payments. The "revenue bond payment account" is used to segregate resources accumulated for debt service payments over the next twelve months. The "debt service reserve" is used to report resources set aside to make up potential future deficiencies in the revenue bond payment account. The "repair and replacement reserve" is used to report resources set aside to meet unexpected contingencies or to fund asset renewals and replacements.

M. Long-Term Obligations

Bond premiums and discounts are amortized over the life of the bonds. Bonds payable are reported net of the applicable bond premium or discount. Bond issuance costs are expensed as incurred.

N. Reclassification

Certain amounts in previously issued financial statements have been restated to conform to the current year's classifications.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 1–Summary of Significant Accounting Policies: (Continued)

O. Deferred Inflows and Outflows of Resources

In addition to assets, the statement of net position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net position that applies to a future period(s) and so will not be recognized as an outflow of resources (expense) until then. The Authority has two items that qualify for reporting in this category. One item is the deferred charge on refunding reported in the statement of net position. A deferred charge on refunding results from the difference in the carrying value of refunded debt and its reacquisition price. This amount is deferred and amortized over the shorter of the life of the refunded or refunding debt. The other item is comprised of certain items related to the measurement of the net pension liability. It is comprised of contributions to the pension plan made during the current year and subsequent to the net pension liability measurement date, which will be recognized as a reduction of the net pension liability next fiscal year, differences between expected and actual experience and net difference of actual and expected pension plan earnings. For more detailed information on the Pension item, reference the pension note.

In addition to liabilities, the statement of net position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, deferred inflows of resources, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (revenue) until that time. The Authority has one item that qualifies for reporting in this category. Certain items related to the measurement of the net pension liability are reported as deferred inflows of resources. These include differences between expected and actual experience, change in assumptions, and the net difference between projected and actual earnings on pension plan investments. For more detailed information on this item, reference the pension note.

P. Net Position Flow Assumption

Sometimes the Authority will fund outlays for a particular purpose from both restricted (e.g., restricted bond or grant proceeds) and unrestricted resources. In order to calculate the amounts to report as restricted net position and unrestricted net position in the financial statements, a flow assumption must be made about the order in which the resources are considered to be applied. It is the Authority's policy to consider restricted net position to have been depleted before unrestricted net position is applied.

Q. Pensions

For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of the Authority's Retirement Plan and the additions to/deductions from the Authority's Retirement Plan's net fiduciary position have been determined on the same basis as they were reported by the Virginia Retirement System (VRS). For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 2—Acquisition of Water and Wastewater Facilities:

Under the terms of the Service Agreement (See Note 1), the Authority agreed to purchase certain water production, transmission and storage facilities and wastewater interception and treatment facilities from the City and the Albemarle County Service Authority. The agreement provides that the sale be consummated ten years from the date of the agreement or at such later time as the debts, if any, attributed to each such facility have been paid or provision is made for their payment, and that the Authority will lease the facility until such time as the sale is consummated. The purchase price is the fair value of the facilities as of June 12, 1973, as determined by all payments paid by the Authority during the term of lease applicable to the principal retired on the debt of such facilities. In accordance with generally accepted accounting principles, the aforementioned agreement has been treated as an installment purchase of the facilities, with the purchase price being discounted at an annual rate of 6% for ten years.

The following tabulation reflects the agreed upon purchase price and accounting thereof:

Fair value as of June 12, 1973:	
Facilities acquired from City of Charlottesville	\$ 6,128,124
Facilities acquired from Albemarle County Service Authority	<u>3,604,384</u>
Total purchase price	\$ 9,732,508
Add: Interest portion of rental payments not applied to principal reduction	<u>1,154,074</u>
Total contracts payable	\$ 10,886,582
Less: Interest included in contract price computed at annual rate of 6% for 10 years	<u>4,940,705</u>
Asset carrying value	\$ <u><u>5,945,877</u></u>

The contracts payable have been reduced by the amount of the annual rental payments on the facilities as outlined in the following tabulation:

	<u>City of Charlottesville</u>	<u>Albemarle County Service Authority</u>
Contracts payable, June 12, 1973	\$ <u>6,354,634</u>	\$ <u>4,531,948</u>
Rental payments and contract adjustments in prior fiscal years	\$ <u>1,760,676</u>	\$ <u>3,680,395</u>
Total rental payments	\$ <u>1,760,676</u>	\$ <u>3,680,395</u>
Final payment on facilities with no outstanding debt as of June 30, 1983	<u>4,593,958</u>	<u>851,553</u>
Total payments	\$ <u>6,354,634</u>	\$ <u>4,531,948</u>
Contracts payable, June 30, 2017	\$ <u><u>-</u></u>	\$ <u><u>-</u></u>

The total annual rental payments over the initial ten year agreement were not sufficient to retire the contracts payable to the Albemarle County Service Authority. The deferred interest was amortized over the initial ten year period of the agreement and was fully amortized as of June 30, 1983.

Depreciation has been based upon the engineer's estimates of useful lives remaining as of the valuation date (June 12, 1973). Depreciation expense on these facilities amounted to \$64,918 and \$74,436 for the years ended June 30, 2017 and 2016, respectively.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 3—Deposits and Investments:

Deposits

Deposits with banks are covered by the Federal Deposit Insurance Corporation (FDIC) and collateralized in accordance with the Virginia Security for Public Deposits Act (the “Act”) Section 2.2-4400 et. seq. of the Code of Virginia. Under the Act, banks and savings institutions holding public deposits in excess of the amount insured by the FDIC must pledge collateral to the Commonwealth of Virginia Treasury Board. Financial Institutions may choose between two collateralization methodologies and depending upon that choice, will pledge collateral that ranges in the amounts from 50% to 130% of excess deposits. Accordingly, all deposits are considered fully collateralized.

Investments

Statutes authorize the Authority to invest in obligations of the United States or agencies thereof, obligations of the Commonwealth of Virginia or political subdivisions thereof, obligations of the International Bank for Reconstruction and Development (World Bank), the Asian Development Bank, the African Development Bank, “prime quality” commercial paper and certain corporate notes, banker’s acceptances, repurchase agreements and the State Treasurer’s Local Government Investment Pool (LGIP).

The Authority does not have a formal investment policy that addresses credit risk or interest rate risk.

Credit Risk of Debt Securities

The Authority’s rated debt investments as of June 30, 2017 were rated by Standard & Poor’s and the ratings are presented below using Standard & Poor’s rating scale.

Authority's Rated Debt Investments' Values

Rated Debt Investments	Fair Quality Ratings		
	AAA	AA+	AAf
U.S. Agencies Securities	\$ 7,741	\$ -	\$ -
Local Government Investment Pool	15,982,637	-	-
VML/VACo Virginia Investment Pool	-	-	10,048,635
Virginia State Non-Arbitrage Pool	12,567,350	-	-
U.S. Treasury Notes & Bonds	-	1,979,100	-
U.S. Treasury & Agency Money Market Funds	4,676,244	-	-
Total	\$ 33,233,972	\$ 1,979,100	\$ 10,048,635

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 3—Deposits and Investments: (Continued)

Interest Rate Risk

Investment Maturities (in years)				
Investment Type	Fair Value	Less Than 1 Year	1-5 Years	6-10 Years
U.S. Agencies Securities	\$ 7,741	\$ -	\$ -	\$ 7,741
Local Government Investment Pool	15,982,637	15,982,637	-	-
VML/VACo Virginia Investment Pool	10,048,635	10,048,635	-	-
Virginia State Non-Arbitrage Pool	12,567,350	12,567,350	-	-
U.S. Treasury & Agency Money Market Funds	4,676,244	4,676,244	-	-
U.S. Treasury Notes & Bonds	1,979,100	-	1,979,100	-
Total	\$ 45,261,707	\$ 43,274,866	\$ 1,979,100	\$ 7,741

External Investment Pools

The State Non-Arbitrage Pool (SNAP) is an open-end management investment company registered with the Securities and Exchange Commission. In May 2016, the Board voted to convert the SNAP fund to an LGIP structure, which would be managed in conformance with GASB 79. On October 3, 2016, the Prime Series became a government money market fund and the name was changed to Government Select Series. The Government Select Series has a policy of investing at least 99.5% of its assets in cash, U.S. government securities (including securities issued or guaranteed by the U.S. government or its agencies or instrumentalities) and/or repurchase agreements that are collateralized fully.

The Authority invests in the Virginia Investment Pool (“VIP”) which is sponsored by VML/VACo Finance and is professionally managed under the governance of the VIP Board of Trustees. The VIP investment strategy is to preserve capital, and it only invests in instruments allowable by the Code of Virginia. The Authority owns shares of the VIP and not the underlying instruments held by the VIP.

The fair value of the positions in the external investment pools (Local Government Investment Pool, State Non-Arbitrage Pool and VML/VACo Virginia Investment Pool) is the same as the value of the pool shares. As LGIP is not SEC registered, regulatory oversight of the pool rests with the Virginia State Treasury. LGIP and SNAP are amortized cost basis portfolios under the provisions of GASB Statement No. 79. There are no withdrawal limitations or restrictions imposed on participants in LGIP and SNAP. The VML/VACo Virginia Investment Pool has a limit of two withdrawals per month.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 4—Capital Assets:

Details of changes in capital assets for the year ended June 30, 2017 are as follows:

	Balance July 1, 2016	Increases	Decreases	Balance June 30, 2017
Capital assets not being depreciated:				
Land and improvements	\$ 10,604,850	\$ -	\$ -	\$ 10,604,850
Construction in progress	<u>49,509,957</u>	<u>35,796,478</u>	<u>12,963,851</u>	<u>72,342,584</u>
Total capital assets not being depreciated	<u>\$ 60,114,807</u>	<u>\$ 35,796,478</u>	<u>\$ 12,963,851</u>	<u>\$ 82,947,434</u>
Other capital assets:				
Buildings & operating equipment:				
Water system	\$ 91,643,002	\$ 1,407,992	\$ -	\$ 93,050,994
Wastewater system	157,614,102	11,541,686	-	169,155,788
Support departments	<u>488,264</u>	<u>19,489</u>	<u>47,295</u>	<u>460,458</u>
Subtotal	\$ 249,745,368	\$ 12,969,167	\$ 47,295	\$ 262,667,240
Accumulated depreciation	<u>(76,569,383)</u>	<u>(5,391,585)</u>	<u>(47,295)</u>	<u>(81,913,673)</u>
Total	<u>\$ 173,175,985</u>	<u>\$ 7,577,582</u>	<u>\$ -</u>	<u>\$ 180,753,567</u>
Trucks and autos:				
Water system	\$ 174,725	\$ -	\$ -	\$ 174,725
Wastewater system	179,255	22,620	-	201,875
Support departments	<u>822,780</u>	<u>27,136</u>	<u>13,787</u>	<u>836,129</u>
Subtotal	\$ 1,176,760	\$ 49,756	\$ 13,787	\$ 1,212,729
Accumulated depreciation	<u>(1,059,855)</u>	<u>(18,409)</u>	<u>(13,787)</u>	<u>(1,064,477)</u>
Total	<u>\$ 116,905</u>	<u>\$ 31,347</u>	<u>\$ -</u>	<u>\$ 148,252</u>
Office equipment:				
Water system	\$ 2,715	\$ -	\$ -	\$ 2,715
Wastewater system	2,714	-	-	2,714
Support departments	<u>88,230</u>	<u>-</u>	<u>-</u>	<u>88,230</u>
Subtotal	\$ 93,659	\$ -	\$ -	\$ 93,659
Accumulated depreciation	<u>(88,654)</u>	<u>(2,002)</u>	<u>-</u>	<u>(90,656)</u>
Other capital assets, net	<u>\$ 5,005</u>	<u>\$ (2,002)</u>	<u>\$ -</u>	<u>\$ 3,003</u>
Capital assets, net	<u><u>\$ 233,412,702</u></u>	<u><u>\$ 43,403,405</u></u>	<u><u>\$ 12,963,851</u></u>	<u><u>\$ 263,852,256</u></u>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 4—Capital Assets: (Continued)

Details of changes in capital assets for the year ended June 30, 2016 are as follows:

	Balance July 1, 2015	Increases	Decreases	Transfers	Balance June 30, 2016
Capital assets not being depreciated:					
Land and improvements	\$ 10,604,850	\$ -	\$ -	\$ -	\$ 10,604,850
Construction in progress	24,548,493	25,365,886	404,422	-	49,509,957
Total capital assets not being depreciated	<u>\$ 35,153,343</u>	<u>\$ 25,365,886</u>	<u>\$ 404,422</u>	<u>\$ -</u>	<u>\$ 60,114,807</u>
Other capital assets:					
Buildings & operating equipment:					
Water system	\$ 91,393,588	\$ 249,414	\$ -	\$ -	\$ 91,643,002
Wastewater system	157,453,373	216,535	55,806	-	157,614,102
Support departments	400,402	87,862	-	-	488,264
Subtotal	<u>\$ 249,247,363</u>	<u>\$ 553,811</u>	<u>\$ 55,806</u>	<u>\$ -</u>	<u>\$ 249,745,368</u>
Accumulated depreciation	<u>(71,249,211)</u>	<u>(5,375,978)</u>	<u>(55,806)</u>	<u>-</u>	<u>(76,569,383)</u>
Total	<u>\$ 177,998,152</u>	<u>\$ (4,822,167)</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 173,175,985</u>
Trucks and autos:					
Water system	\$ 165,254	\$ 26,165	\$ -	\$ (16,694)	\$ 174,725
Wastewater system	179,255	-	-	-	179,255
Support departments	806,086	-	-	16,694	822,780
Subtotal	<u>\$ 1,150,595</u>	<u>\$ 26,165</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 1,176,760</u>
Accumulated depreciation	<u>(1,041,806)</u>	<u>(18,049)</u>	<u>-</u>	<u>-</u>	<u>(1,059,855)</u>
Total	<u>\$ 108,789</u>	<u>\$ 8,116</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 116,905</u>
Office equipment:					
Water system	\$ 2,715	\$ -	\$ -	\$ -	\$ 2,715
Wastewater system	2,714	-	-	-	2,714
Support departments	88,230	-	-	-	88,230
Subtotal	<u>\$ 93,659</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 93,659</u>
Accumulated depreciation	<u>(86,652)</u>	<u>(2,002)</u>	<u>-</u>	<u>-</u>	<u>(88,654)</u>
Other capital assets, net	<u>\$ 7,007</u>	<u>\$ (2,002)</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ 5,005</u>
Capital assets, net	<u><u>\$ 213,267,291</u></u>	<u><u>\$ 20,549,833</u></u>	<u><u>\$ 404,422</u></u>	<u><u>\$ -</u></u>	<u><u>\$ 233,412,702</u></u>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 5—Construction in Progress:

Details of construction in progress for the year ended June 30, 2017 are as follows:

	Balance July 1, 2016	Cost of Construction	Expense/ Transfer to Capital Assets	Balance June 30, 2017
Beaver Creek Dam Alterations	\$ 133,886	\$ -	\$ -	\$ 133,886
Capitalized Interest	2,061,658	2,713,381	793,940	3,981,099
Comprehensive Sanitary Sewer Model and Study Update	348,127	9,943	358,070	-
Crozet Flow Equalization Tank	-	37,356	-	37,356
Crozet Water GAC/WTP Improvements	935,045	1,730,356	-	2,665,401
Crozet Ground Storage Tank Repairs and Upgrades	30,921	284,818	315,739	-
Crozet Interceptor Sewer & Manhole Repair	180,715	-	-	180,715
Crozet Water Treatment Plant Expansion	-	90,419	-	90,419
Crozet Water Treatment Finished Water Pump Station	-	395,663	-	395,663
Interceptor Sewer & Manhole Repair	123,330	1,000	-	124,330
MCAWRRF Administration Building Repairs	-	38,591	38,591	-
MCAWRRF Roof Replacements	-	61,492	-	61,492
MCAWRRF Second Centrifuge	12,399	160,575	-	172,974
MCAWRRF Odor Control-Phase 2	927,380	5,741,681	-	6,669,061
Meadowcreek Interceptor Improvements	3,943,171	179,741	4,122,912	-
Moore's Creek Bridge Repairs	30,741	6,650	-	37,391
New Rivanna Pump Station and Tunnel	22,502,522	7,537,974	-	30,040,496
Observatory Water Treatment Plant Improvements	422,978	619,220	-	1,042,198
Radio Upgrades	-	3,567	-	3,567
Retainage on Construction in Progress	1,250,540	1,015,627	-	2,266,167
Route 29 Pipeline - VDOT Betterment	1,235	1,713,514	-	1,714,749
Route 29 Pumping Station Site Acquisition	466,416	365,771	-	832,187
Scottsville Water GAC	330,665	885,845	-	1,216,510
Shenks Branch Interceptor	4,691,219	1,557,296	6,248,515	-
South Fork Hydropower Plant Decommissioning	58,552	23,780	-	82,332
South Fork Reservoir to Ragged Mtn Pipeline R/W	25,249	-	-	25,249
South Fork Rivanna Reservoir Dredging	127,558	-	127,558	-
South Rivanna WTP Filter Press Rehabilitation	-	165,242	165,242	-
South Rivanna WTP Leaf Screen	-	430,818	430,818	-
Stillhouse Tank Repairs and System Improvements	51,398	311,068	362,466	-
Sugar Hollow to Ragged Mtn. Res. Transfer Flow Meter	-	6,953	-	6,953
Urban Water GAC/WTP Improvements	10,107,128	8,184,890	-	18,292,018
Wholesale Water Master Metering-Urban	747,124	1,523,247	-	2,270,371
	<u>\$ 49,509,957</u>	<u>\$ 35,796,478</u>	<u>\$ 12,963,851</u>	<u>\$ 72,342,584</u>

Cost of construction includes interest capitalized during the fiscal year, where applicable. For the years ended June 30, 2017 and 2016, capitalized interest was \$2,713,381 and \$976,855, respectively.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 5—Construction in Progress: (Continued)

Details of construction in progress for the year ended June 30, 2016 are as follows:

	Balance July 1, 2015	Cost of Construction	Expense/ Transfer to Capital Assets	Balance June 30, 2016
Administration Building Repairs	\$ 183,998	\$ 168,732	\$ 352,730	\$ -
Albemarle-Berkley Interceptor	-	24,706	24,706	-
Beaver Creek Dam Alterations	133,886	-	-	133,886
Capitalized Interest	1,084,803	976,855	-	2,061,658
Comprehensive Sanitary Sewer Model and Study Update	180,640	167,487	-	348,127
Crozet Water GAC/WTP Improvements	286,734	648,311	-	935,045
Crozet Ground Storage Tank Repairs and Upgrades	3,609	27,312	-	30,921
Crozet Interceptor Sewer & Manhole Repair	126,826	53,889	-	180,715
Interceptor Sewer & Manhole Repair	-	123,330	-	123,330
MCAWRRF Second Centrifuge	-	12,399	-	12,399
MCAWRRF Odor Control-Phase 2	352,476	574,904	-	927,380
Meadowcreek Interceptor Improvements	3,790,178	152,993	-	3,943,171
Moore's Creek Bridge Repairs	10,490	20,251	-	30,741
New Rivanna Pump Station and Tunnel	10,684,001	11,818,521	-	22,502,522
Observatory Water Treatment Plant Improvements	33,725	389,253	-	422,978
Retainage on Construction in Progress	274,903	975,637	-	1,250,540
Route 29 Pipeline - VDOT Betterment	-	1,235	-	1,235
Route 29 Pumping Station Site Acquisition	450,747	15,669	-	466,416
Scottsville Water GAC	99,767	230,898	-	330,665
Scottsville WRRF Solids Processing Improvements	26,986	-	26,986	-
Shenks Branch Interceptor	3,474,381	1,216,838	-	4,691,219
South Fork Hydropower Plant Rehabilitation	1,598	56,954	-	58,552
South Fork Reservoir to Ragged Mtn Pipeline R/W	24,859	390	-	25,249
South Fork Rivanna Reservoir Dredging	127,558	-	-	127,558
Stillhouse Tank Repairs and System Improvements	8,094	43,304	-	51,398
Urban Water GAC/WTP Improvements	2,705,797	7,401,331	-	10,107,128
Wholesale Water Master Metering-Urban	482,437	264,687	-	747,124
	<u>\$ 24,548,493</u>	<u>\$ 25,365,886</u>	<u>\$ 404,422</u>	<u>\$ 49,509,957</u>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 6—Long-Term Obligations:

A. Changes in Long-Term Obligations

The following is a summary of long-term obligation transactions for the year ended June 30, 2017:

	<u>Balance July 1, 2016</u>	<u>Issuances</u>	<u>Retirements</u>	<u>Balance June 30, 2017</u>	<u>Due Within One Year</u>
Revenue bonds payable	\$ 151,932,636	\$ 19,206,714	\$ (6,120,712)	\$ 165,018,638	\$ 6,923,692
Add (less) amounts:					
For issuance premiums	<u>8,579,614</u>	<u>-</u>	<u>(577,799)</u>	<u>8,001,815</u>	<u>-</u>
Total revenue bonds	<u>\$ 160,512,250</u>	<u>\$ 19,206,714</u>	<u>\$ (6,698,511)</u>	<u>\$ 173,020,453</u>	<u>\$ 6,923,692</u>
Net OPEB obligation	<u>\$ 45,406</u>	<u>\$ -</u>	<u>\$ (45,406)</u>	<u>\$ -</u>	<u>\$ -</u>
VERIP liability	<u>\$ -</u>	<u>\$ 483,068</u>	<u>\$ -</u>	<u>\$ 483,068</u>	<u>\$ 69,593</u>
Compensated absences	<u>\$ 383,998</u>	<u>\$ 388,974</u>	<u>\$ (374,499)</u>	<u>\$ 398,473</u>	<u>\$ 366,000</u>
Net pension liability	<u>\$ 2,981,253</u>	<u>\$ 2,151,540</u>	<u>\$ (964,001)</u>	<u>\$ 4,168,792</u>	<u>\$ -</u>
Totals	<u>\$ 163,922,907</u>	<u>\$ 22,230,296</u>	<u>\$ (8,082,417)</u>	<u>\$ 178,070,786</u>	<u>\$ 7,359,285</u>

The following is a summary of long-term obligation transactions for the year ended June 30, 2016:

	<u>Balance July 1, 2015</u>	<u>Issuances</u>	<u>Retirements</u>	<u>Refunded</u>	<u>Balance June 30, 2016</u>	<u>Due Within One Year</u>
Revenue bonds payable	\$ 120,923,549	\$ 56,301,462	\$ (4,837,375)	\$ (20,455,000)	\$ 151,932,636	\$ 5,795,935
Add (less) amounts:						
For issuance premiums	<u>3,746,656</u>	<u>5,329,294</u>	<u>(496,336)</u>	<u>-</u>	<u>8,579,614</u>	<u>-</u>
Total revenue bonds	<u>\$ 124,670,205</u>	<u>\$ 61,630,756</u>	<u>\$ (5,333,711)</u>	<u>\$ (20,455,000)</u>	<u>\$ 160,512,250</u>	<u>\$ 5,795,935</u>
Net OPEB obligation	<u>\$ 203,406</u>	<u>\$ (135,000)</u>	<u>\$ (23,000)</u>	<u>\$ -</u>	<u>\$ 45,406</u>	<u>\$ -</u>
Compensated absences	<u>\$ 389,111</u>	<u>\$ 350,806</u>	<u>\$ (355,919)</u>	<u>\$ -</u>	<u>\$ 383,998</u>	<u>\$ 323,000</u>
Net pension liability	<u>\$ 2,642,306</u>	<u>\$ 1,759,091</u>	<u>\$ (1,420,144)</u>	<u>\$ -</u>	<u>\$ 2,981,253</u>	<u>\$ -</u>
Totals	<u>\$ 127,905,028</u>	<u>\$ 63,605,653</u>	<u>\$ (7,132,774)</u>	<u>\$ (20,455,000)</u>	<u>\$ 163,922,907</u>	<u>\$ 6,118,935</u>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 6—Long-Term Obligations: (Continued)

B. Details of Long-Term Obligations

	<u>Total Amount</u>	<u>Amount Due Within One Year</u>
<u>Revenue Bonds</u>		
Water and Sewer System Revenue Bonds - Series of 2005A - On November 10, 2005, the Authority issued \$2,340,929 in bonds for purposes of financing the Moores Creek wastewater pre-treatment project. These bonds are secured by a supplemental trust agreement between the Authority and trustee for the bondholders. This agreement states that these obligations will be repaid from revenue generated by the Authority and are backed by a restricted cash account. The bond resolution provides a redemption schedule with an interest only payment due in April 2007 and semi-annual payments of principal and interest of \$79,670 from October 2007 through October 2026. The bonds bear interest at 3%.	\$ 1,308,666	\$ 120,980
\$24,000,000 Regional Water and Sewer System Revenue Bond - Series 2009A - On August 1, 2009 the Authority issued \$24,000,000 in bonds for purposes of financing the Moores Creek Wastewater Treatment Plant upgrades, including the Enhanced Nutrient Removal project. These bonds are secured by a supplemental trust agreement between the Authority and trustee for the bondholders. This agreement states that the obligation will be repaid from revenue generated by the Authority and is backed by a restricted cash account. The bond resolution provided a redemption schedule with an interest only payment due in April 2011 and semi-annual payments of principal and 3.35% interest of \$843,077 from October 2011 through October 2030. The interest rate was reduced to 2.65% on October 1, 2014, which reduced the semi-annual payments to \$802,099.	18,106,709	1,131,820
\$15,179,718 Regional Water and Sewer System Revenue Bond - Series 2010A - On June 29, 2010 the Authority issued \$15,179,718 in bonds for purposes of financing the acquisition, construction and equipping of improvements to the Authority's water and sewer system, including the replacement of the Meadow Creek Sanitary Sewer Interceptor together with related expenses. These bonds are secured by a supplemental trust agreement between the Authority and trustee for the bondholders. This agreement states that the obligation will be repaid from revenue generated by the Authority and is backed by a restricted cash account. The bond resolution provided a redemption schedule with an interest only payment due in April 2012 and semi-annual payments of principal and 2.93% interest of \$513,715 from October 2012 through October 2030. Effective October 1, 2016, the interest rate was reduced to 2.05%, reducing semi-annual payments to \$481,261.	11,300,805	734,601

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 6—Long-Term Obligations: (Continued)

B. Details of Long-Term Obligations (Continued)

	<u>Total Amount</u>	<u>Amount Due Within One Year</u>
\$6,982,662 Regional Water and Sewer System Revenue Bond - Series 2011A - On March 17, 2011 the Authority issued \$6,982,662 in bonds for purposes of financing the acquisition, construction and equipping of improvements to the Authority's sewer system including improvements necessary to address the wet weather flows at the Moores Creek Wastewater Treatment Plant. These bonds are secured by a supplemental trust agreement between the Authority and trustee for the bondholders. This agreement states that the obligation will be repaid from revenue generated by the Authority and is backed by a restricted cash account. The bond resolution provides a redemption schedule with an interest only payment due in April 2012 and semi-annual payments of principal and 2.93% interest of \$236,308 from October 2012 through October 2031. Effective October 1, 2016 the interest rate was reduced to 2.05%, reducing semi-annual payments to \$221,804.	\$ 5,540,058	\$ 331,728
\$1,017,338 Regional Water and Sewer System Revenue Bond - Series 2011B - On March 17, 2011 the Authority issued \$1,017,338 in bonds for purposes of financing the acquisition, construction and equipping of improvements to the Authority's sewer system including improvements necessary to address the wet weather flows at the Moores Creek Wastewater Treatment Plant. These bonds are secured by a supplemental trust agreement between the Authority and trustee for the bondholders. This agreement states that the obligation will be repaid from revenue generated by the Authority and is backed by a restricted cash account. The bond resolution provides a redemption schedule with an interest only payment due in April 2012 and semi-annual payments of principal and 2.93% interest of \$34,429 from October 2012 through October 2031. The interest rate was reduced to 2.05% as of October 1, 2016, reducing semi-annual payments to \$31,666.	790,924	47,359
\$4,241,488 Regional Water and Sewer System Revenue Bond - Series 2011D - On September 9, 2011 the Authority issued \$4,241,488 in bonds for purposes of financing the acquisition, construction and equipping of improvements to the Authority's water and sewer system. These bonds are secured by a supplemental trust agreement between the Authority and trustee for the bondholders. This agreement states that the obligation will be repaid from revenue generated by the Authority and is backed by a restricted cash account. The bond resolution provided a redemption schedule with an interest only payment due in October 2012 and semi-annual payments of principal and 2.93% interest of \$143,541 from April 2013 through April 2032. The interest rate was reduced to 2.05% effective October 1, 2016, and the semi-annual payments were reduced to \$134,475.	3,457,846	199,079

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 6—Long-Term Obligations: (Continued)

B. Details of Long-Term Obligations (Continued)

	<u>Total Amount</u>	<u>Amount Due Within One Year</u>
\$443,937 Regional Water and Sewer System Revenue Bond - Series 2011E - On September 9, 2011 the Authority issued \$443,937 in bonds for purposes of financing the acquisition, construction and equipping of improvements to the Authority's water and sewer system. These bonds are secured by a supplemental trust agreement between the Authority and trustee for the bondholders. This agreement states that the obligation will be repaid from revenue generated by the Authority and is backed by a restricted cash account.		
The bond resolution provides a redemption schedule with an interest only payment due in October 2012 and semi-annual payments of principal and 2.93% interest of \$15,024 from April 2013 through April 2032. The interest rate was reduced to 2.05% on October 1, 2016, and the semi-annual payments were reduced to \$13,997.	\$ 359,923	\$ 20,722
\$25,100,000 Water and Sewer System Revenue and Refunding Bonds, Series 2012A - On June 13, 2012, the Authority issued \$25,100,000 in Revenue and Refunding Bonds for purposes of financing various water and sewer capital projects and to refund Series 2001 bond with an outstanding amount of \$5,490,000 and Series 2003 bond with an outstanding amount of \$4,827,000. The bonds were issued at a premium in the amount of \$3,706,939.		
The bond resolution provides a redemption schedule with interest due semi-annually and principal due annually from October 1, 2012 through October 1, 2042. The bonds bear interest at an annual rate ranging from 2.125% to 5.125%. The Authority refunded the 2001 and 2003 Series bonds to reduce its total debt service payments over the next 13 years by \$4.93 million and to obtain a net economic gain (difference between the present values of the debt service payments on the old and new debt) of \$1,079,384 after applying existing reserve funds of \$3.55 million.	19,755,000	685,000

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 6—Long-Term Obligations: (Continued)

B. Details of Long-Term Obligations (Continued)

	<u>Total Amount</u>	<u>Amount Due Within One Year</u>
\$26,240,000 Water and Sewer System Revenue and Refunding Bonds, Series 2012B - On October 30, 2012, the Authority issued \$26,240,000 in Revenue and Refunding Bonds for purposes of financing various water and sewer capital projects including the design, development and construction of a new dam; the implementation of wetlands and streambank mitigation plans and costs of issuance. The bonds were issued at a premium in the amount of \$646,250.		
The bond resolution provides a redemption schedule with interest due semi-annually and principal due annually from April 1, 2013 through October 1, 2042. The bonds bear interest at an annual rate ranging from 2.125% to 4.0%. Total payments due each year range from \$1,337,000 to \$1,342,000. They are subject to federal arbitrage regulations.	\$ 23,960,000	\$ 615,000
\$29,043,290 Water and Sewer Revenue Bonds, Series 2014A - On March 28, 2014, the Authority issued \$29,043,290 in revenue bonds for purposes of financing capital improvements and capacity upgrades of the Rivanna Interceptor and pump station at Moores Creek Wastewater Treatment Plant.		
The bond resolution provides a redemption schedule with interest and principal of \$941,168 due semi-annually from April 1, 2017 through April 1, 2036. An interest only payment is due on October 1, 2016. The bonds bear interest at an annual rate of 2.45%. As of June 30, 2017 the Authority has requested draw down of bond proceeds in the amount of \$26,703,384.	26,068,612	1,248,022
\$1,189,672 Water and Sewer Revenue Bonds, Series 2015A - On June 17, 2015, the Authority issued \$1,189,672 in revenue bonds for purposes of financing capital improvements including replacing the final phase of the Schenks Branch Interceptor.		
The bond resolution provides a redemption schedule with an interest payment due October 1, 2016 and interest and principal payments of \$35,296 due semi-annually from April 1, 2017 through April 1, 2036. The bonds bear interest at an annual rate of 1.5%. As of June 30, 2017 the Authority has requested draw down of bond proceeds in the amount of \$1,189,356.	1,160,095	53,381

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 6—Long-Term Obligations: (Continued)

B. Details of Long-Term Obligations (Continued)

	<u>Total Amount</u>	<u>Amount Due Within One Year</u>
\$44,495,000 Taxable Water and Sewer System Revenue and Refunding Bonds, Series 2015B - On November 18, 2015, the Authority issued \$44,495,000 in Revenue and Refunding Bonds for purposes of financing various water capital projects and to refund Series 2005B bond with an outstanding amount of \$20,455,000. The bonds were issued at a premium in the amount of \$5,329,294.		
The bond resolution provides a redemption schedule with interest due semi-annually and principal due annually from April 1, 2016 through October 1, 2045 for total payments of \$1.7 to \$3.3 million per year. The bonds bear interest at an annual rate ranging from 3.094% to 5.125%. The Authority refunded the 2005B Series bonds to reduce its total debt service payments over the next 20 years by \$4.45 million and to obtain a net economic gain (difference between the present values of the debt service payments on the old and new debt) of \$3.51 million.	\$ 43,210,000	\$ 1,340,000
\$10,000,000 Tax Regional Water and Sewer Revenue Bonds, Series 2016 - On December 8, 2016, the Authority issued \$10,000,000 in revenue bonds for purposes of financing various capital improvements.		
The bond resolution provides a redemption schedule with interest due semi-annually and principal due annually from April 1, 2017 through October 1, 2036. The bonds bear interest at an annual rate of 2.35%. Total debt service payment are approximately \$627,000 per year.	10,000,000	396,000
Total Revenue Bonds	\$ 165,018,638	\$ 6,923,692
Issuance premiums (discounts)	\$ 8,001,815	\$ -
Other post employment benefits	\$ 483,068	\$ 69,593
Compensated Absences	\$ 398,473	\$ 366,000
Net pension liability	\$ 4,168,792	\$ -
Total	<u>\$ 178,070,786</u>	<u>\$ 7,359,285</u>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 6—Long-Term Obligations: (Continued)

C. Annual Amortization of Long-Term Debt

The annual requirements to amortize all long-term debt outstanding as of June 30, 2017 are as follows:

Year Ending June 30,	Revenue Bonds	
	Principal	Interest
2018	\$ 6,923,692	5,446,505
2019	7,071,748	5,223,651
2020	7,222,060	4,996,371
2021	7,443,687	4,770,478
2022	7,673,688	4,535,894
2023-2027	41,738,008	18,708,991
2028-2032	39,125,143	12,223,482
2033-2037	21,860,612	7,472,921
2038-2042	17,305,000	3,893,788
2043-2046	8,655,000	659,234
Total	\$ 165,018,638	\$ 67,931,315

D. Prior Year Defeasance of Debt

In prior years, the Authority defeased certain revenue bonds by placing the proceeds of new bonds in an irrevocable trust to provide for all future debt service payments on the old bonds. Accordingly, the trust account assets and the liability for the defeased bonds are not included in the Authority's financial statements.

Note 7—Compensated Absences:

Authority employees earn vacation leave each month at a scheduled rate in accordance with the years of service and sick leave at the rate of eight hours per month. Accumulated unpaid vacation leave amounts are accrued when incurred. At June 30, 2017 and 2016, the liability for accrued vacation leave was \$398,473 and \$383,998, respectively.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan:

Plan Description

Name of Plan: Virginia Retirement System (VRS)
 Identification of Plan: Agent Multiple-Employer Pension Plan
 Administering Entity: Virginia Retirement System (VRS)

All full-time, salaried permanent employees of the Authority are automatically covered by a VRS Retirement Plan upon employment. This is an agent multiple-employer plan administered by the Virginia Retirement System (the System) along with plans for other employer groups in the Commonwealth of Virginia. Members earn one month of service credit for each month they are employed and for which they and their employer pay contributions to VRS. Members are eligible to purchase prior service, based on specific criteria as defined in the Code of Virginia, as amended. Eligible prior service that may be purchased includes prior public service, active military service, certain periods of leave, and previously refunded service.

The System administers three different benefit structures for covered employees – Plan 1, Plan 2, and, Hybrid. Each of these benefit structures has different eligibility criteria. The specific information for each plan and the eligibility for covered groups within each plan are set out in the table below:

RETIREMENT PLAN PROVISIONS		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
About Plan 1 Plan 1 is a defined benefit plan. The retirement benefit is based on a member's age, creditable service and average final compensation at retirement using a formula. Employees are eligible for Plan 1 if their membership date is before July 1, 2010, and they were vested as of January 1, 2013.	About Plan 2 Plan 2 is a defined benefit plan. The retirement benefit is based on a member's age, creditable service and average final compensation at retirement using a formula. Employees are eligible for Plan 2 if their membership date is on or after July 1, 2010, or their membership date is before July 1, 2010, and they were not vested as of January 1, 2013.	About the Hybrid Retirement Plan The Hybrid Retirement Plan combines the features of a defined benefit plan and a defined contribution plan. Most members hired on or after January 1, 2014 are in this plan, as well as Plan 1 and Plan 2 members who were eligible and opted into the plan during a special election window. (see "Eligible Members") <ul style="list-style-type: none"> • The defined benefit is based on a member's age, creditable service and average final compensation at retirement using a formula. • The benefit from the defined contribution component of the plan depends on the member and employer contributions made to the plan and the investment performance of those contributions.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>About Plan 1 (Cont.)</p>	<p>About Plan 2 (Cont.)</p>	<p>About the Hybrid Retirement Plan (Cont.)</p> <ul style="list-style-type: none"> In addition to the monthly benefit payment payable from the defined benefit plan at retirement, a member may start receiving distributions from the balance in the defined contribution account, reflecting the contributions, investment gains or losses, and any required fees.
<p>Eligible Members Employees are in Plan 1 if their membership date is before July 1, 2010, and they were vested as of January 1, 2013.</p> <p>Hybrid Opt-In Election VRS non-hazardous duty covered Plan 1 members were allowed to make an irrevocable decision to opt into the Hybrid Retirement Plan during a special election window held January 1 through April 30, 2014.</p> <p>The Hybrid Retirement Plan's effective date for eligible Plan 1 members who opted in was July 1, 2014.</p> <p>If eligible deferred members returned to work during the election window, they were also eligible to opt into the Hybrid Retirement Plan.</p>	<p>Eligible Members Employees are in Plan 2 if their membership date is on or after July 1, 2010, or their membership date is before July 1, 2010, and they were not vested as of January 1, 2013.</p> <p>Hybrid Opt-In Election Eligible Plan 2 members were allowed to make an irrevocable decision to opt into the Hybrid Retirement Plan during a special election window held January 1 through April 30, 2014.</p> <p>The Hybrid Retirement Plan's effective date for eligible Plan 2 members who opted in was July 1, 2014.</p> <p>If eligible deferred members returned to work during the election window, they were also eligible to opt into the Hybrid Retirement Plan.</p>	<p>Eligible Members Employees are in the Hybrid Retirement Plan if their membership date is on or after January 1, 2014. This includes:</p> <ul style="list-style-type: none"> Political subdivision employees* Members in Plan 1 or Plan 2 who elected to opt into the plan during the election window held January 1-April 30, 2014; the plan's effective date for opt-in members was July 1, 2014. <p>*Non-Eligible Members Some employees are not eligible to participate in the Hybrid Retirement Plan. They include:</p> <ul style="list-style-type: none"> Political subdivision employees who are covered by enhanced benefits for hazardous duty employees.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
Hybrid Opt-In Election (Cont.) Members who were eligible for an optional retirement plan (ORP) and had prior service under Plan 1 were not eligible to elect the Hybrid Retirement Plan and remain as Plan 1 or ORP.	Hybrid Opt-In Election (Cont.) Members who were eligible for an optional retirement plan (ORP) and have prior service under Plan 2 were not eligible to elect the Hybrid Retirement Plan and remain as Plan 2 or ORP.	*Non-Eligible Members (Cont.) Those employees eligible for an optional retirement plan (ORP) must elect the ORP plan or the Hybrid Retirement Plan. If these members have prior service under Plan 1 or Plan 2, they are not eligible to elect the Hybrid Retirement Plan and must select Plan 1 or Plan 2 (as applicable) or ORP.
Retirement Contributions Employees contribute 5% of their compensation each month to their member contribution account through a pre-tax salary reduction. Some political subdivisions elected to phase in the required 5% member contribution but all employees are paying the full 5% as of July 1, 2016. Member contributions are tax-deferred until they are withdrawn as part of a retirement benefit or as a refund. The employer makes a separate actuarially determined contribution to VRS for all covered employees. VRS invests both member and employer contributions to provide funding for the future benefit payment.	Retirement Contributions Employees contribute 5% of their compensation each month to their member contribution account through a pre-tax salary reduction. Some political subdivisions elected to phase in the required 5% member contribution but all employees are paying the full 5% as of July 1, 2016.	Retirement Contributions A member's retirement benefit is funded through mandatory and voluntary contributions made by the member and the employer to both the defined benefit and the defined contribution components of the plan. Mandatory contributions are based on a percentage of the employee's creditable compensation and are required from both the member and the employer. Additionally, members may choose to make voluntary contributions to the defined contribution component of the plan, and the employer is required to match those voluntary contributions according to specified percentages.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Creditable Service Creditable service includes active service. Members earn creditable service for each month they are employed in a covered position. It also may include credit for prior service the member has purchased or additional creditable service the member was granted. A member's total creditable service is one of the factors used to determine their eligibility for retirement and to calculate their retirement benefit. It also may count toward eligibility for the health insurance credit in retirement, if the employer offers the health insurance credit.</p>	<p>Creditable Service Same as Plan 1.</p>	<p>Creditable Service <u>Defined Benefit Component:</u> Under the defined benefit component of the plan, creditable service includes active service. Members earn creditable service for each month they are employed in a covered position. It also may include credit for prior service the member has purchased or additional creditable service the member was granted. A member's total creditable service is one of the factors used to determine their eligibility for retirement and to calculate their retirement benefit. It also may count toward eligibility for the health insurance credit in retirement, if the employer offers the health insurance credit.</p> <p><u>Defined Contributions Component:</u> Under the defined contribution component, creditable service is used to determine vesting for the employer contribution portion of the plan.</p>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Vesting Vesting is the minimum length of service a member needs to qualify for a future retirement benefit. Members become vested when they have at least five years (60 months) of creditable service. Vesting means members are eligible to qualify for retirement if they meet the age and service requirements for their plan. Members also must be vested to receive a full refund of their member contribution account balance if they leave employment and request a refund.</p> <p>Members are always 100% vested in the contributions that they make.</p>	<p>Vesting Same as Plan 1.</p>	<p>Vesting <u>Defined Benefit Component:</u> Defined benefit vesting is the minimum length of service a member needs to qualify for a future retirement benefit. Members are vested under the defined benefit component of the Hybrid Retirement Plan when they reach five years (60 months) of creditable service. Plan 1 or Plan 2 members with at least five years (60 months) of creditable service who opted into the Hybrid Retirement Plan remain vested in the defined benefit component.</p> <p><u>Defined Contributions Component:</u> Defined contribution vesting refers to the minimum length of service a member needs to be eligible to withdraw the employer contributions from the defined contribution component of the plan.</p> <p>Members are always 100% vested in the contributions that they make.</p>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
Vesting (Cont.)	Vesting (Cont.)	Vesting (Cont.) <u>Defined Contributions Component: (Cont.)</u> Upon retirement or leaving covered employment, a member is eligible to withdraw a percentage of employer contributions to the defined contribution component of the plan, based on service. <ul style="list-style-type: none"> • After two years, a member is 50% vested and may withdraw 50% of employer contributions. • After three years, a member is 75% vested and may withdraw 75% of employer contributions. • After four or more years, a member is 100% vested and may withdraw 100% of employer contributions. Distribution is not required by law until age 70½.
Calculating the Benefit The Basic Benefit is calculated based on a formula using the member's average final compensation, a retirement multiplier and total service credit at retirement. It is one of the benefit payout options available to a member at retirement.	Calculating the Benefit See definition under Plan 1.	Calculating the Benefit <u>Defined Benefit Component:</u> See definition under Plan 1.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Calculating the Benefit (Cont.) An early retirement reduction factor is applied to the Basic Benefit if the member retires with a reduced retirement benefit or selects a benefit payout option other than the Basic Benefit.</p>	<p>Calculating the Benefit (Cont.)</p>	<p>Calculating the Benefit (Cont.) <u>Defined Contribution Component:</u> The benefit is based on contributions made by the member and any matching contributions made by the employer, plus net investment earnings on those contributions.</p>
<p>Average Final Compensation A member's average final compensation is the average of the 36 consecutive months of highest compensation as a covered employee.</p>	<p>Average Final Compensation A member's average final compensation is the average of their 60 consecutive months of highest compensation as a covered employee.</p>	<p>Average Final Compensation Same as Plan 2. It is used in the retirement formula for the defined benefit component of the plan.</p>
<p>Service Retirement Multiplier VRS: The retirement multiplier is a factor used in the formula to determine a final retirement benefit. The retirement multiplier for non-hazardous duty members is 1.70%.</p> <p>Sheriffs and regional jail superintendents: The retirement multiplier for sheriffs and regional jail superintendents is 1.85%.</p> <p>Political subdivision hazardous duty employees: The retirement multiplier of eligible political subdivision hazardous duty employees other than sheriffs and regional jail superintendents is 1.70% or 1.85% as elected by the employer.</p>	<p>Service Retirement Multiplier VRS: Same as Plan 1 for service earned, purchased or granted prior to January 1, 2013. For non-hazardous duty members the retirement multiplier is 1.65% for creditable service earned, purchased or granted on or after January 1, 2013.</p> <p>Sheriffs and regional jail superintendents: Same as Plan 1.</p> <p>Political subdivision hazardous duty employees: Same as Plan 1.</p>	<p>Service Retirement Multiplier <u>Defined Benefit Component:</u> VRS: The retirement multiplier for the defined benefit component is 1.00%.</p> <p>For members who opted into the Hybrid Retirement Plan from Plan 1 or Plan 2, the applicable multipliers for those plans will be used to calculate the retirement benefit for service credited in those plans.</p> <p>Sheriffs and regional jail superintendents: Not applicable.</p> <p>Political subdivision hazardous duty employees: Not applicable.</p> <p><u>Defined Contribution Component:</u> Not applicable.</p>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
Normal Retirement Age VRS: Age 65. Political subdivisions hazardous duty employees: Age 60.	Normal Retirement Age VRS: Normal Social Security retirement age. Political subdivisions hazardous duty employees: Same as Plan 1.	Normal Retirement Age <u>Defined Benefit Component:</u> VRS: Same as Plan 2. Political subdivisions hazardous duty employees: Not applicable. <u>Defined Contribution Component:</u> Members are eligible to receive distributions upon leaving employment, subject to restrictions.
Earliest Unreduced Retirement Eligibility VRS: Age 65 with at least five years (60 months) of creditable service or at age 50 with at least 30 years of creditable service. Political subdivisions hazardous duty employees: Age 60 with at least five years of creditable service or age 50 with at least 25 years of creditable service.	Earliest Unreduced Retirement Eligibility VRS: Normal Social Security retirement age with at least five years (60 months) of creditable service or when their age and service equal 90. Political subdivisions hazardous duty employees: Same as Plan 1.	Earliest Unreduced Retirement Eligibility <u>Defined Benefit Component:</u> VRS: Normal Social Security retirement age and have at least five years (60 months) of creditable service or when their age and service equal 90. Political subdivisions hazardous duty employees: Not applicable. <u>Defined Contribution Component:</u> Members are eligible to receive distributions upon leaving employment, subject to restrictions.
Earliest Reduced Retirement Eligibility VRS: Age 55 with at least five years (60 months) of creditable service or age 50 with at least 10 years of creditable service.	Earliest Reduced Retirement Eligibility VRS: Age 60 with at least five years (60 months) of creditable service.	Earliest Reduced Retirement Eligibility <u>Defined Benefit Component:</u> VRS: Members may retire with a reduced benefit as early as age 60 with at least five years (60 months) of creditable service.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Earliest Reduced Retirement Eligibility (Cont.)</p> <p>Political subdivisions hazardous duty employees: 50 with at least five years of creditable service.</p>	<p>Earliest Reduced Retirement Eligibility (Cont.)</p> <p>Political subdivisions hazardous duty employees: Same as Plan 1.</p>	<p>Earliest Reduced Retirement Eligibility (Cont.)</p> <p>Political subdivisions hazardous duty employees: Not applicable.</p> <p><u>Defined Contribution Component:</u> Members are eligible to receive distributions upon leaving employment, subject to restrictions.</p>
<p>Cost-of-Living Adjustment (COLA) in Retirement The Cost-of-Living Adjustment (COLA) matches the first 3% increase in the Consumer Price Index for all Urban Consumers (CPI-U) and half of any additional increase (up to 4%) up to a maximum COLA of 5%.</p> <p><u>Eligibility:</u> For members who retire with an unreduced benefit or with a reduced benefit with at least 20 years of creditable service, the COLA will go into effect on July 1 after one full calendar year from the retirement date.</p> <p>For members who retire with a reduced benefit and who have less than 20 years of creditable service, the COLA will go into effect on July 1 after one calendar year following the unreduced retirement eligibility date.</p>	<p>Cost-of-Living Adjustment (COLA) in Retirement The Cost-of-Living Adjustment (COLA) matches the first 2% increase in the CPI-U and half of any additional increase (up to 2%), for a maximum COLA of 3%.</p> <p><u>Eligibility:</u> Same as Plan 1.</p>	<p>Cost-of-Living Adjustment (COLA) in Retirement <u>Defined Benefit Component:</u> Same as Plan 2.</p> <p><u>Defined Contribution Component:</u> Not applicable.</p> <p><u>Eligibility:</u> Same as Plan 1 and Plan 2.</p>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Cost-of-Living Adjustment (COLA) in Retirement (Cont.)</p> <p><u>Exceptions to COLA Effective Dates:</u> The COLA is effective July 1 following one full calendar year (January 1 to December 31) under any of the following circumstances:</p> <ul style="list-style-type: none"> • The member is within five years of qualifying for an unreduced retirement benefit as of January 1, 2013. • The member retires on disability. • The member retires directly from short-term or long-term disability under the Virginia Sickness and Disability Program (VSDP). • The member is involuntarily separated from employment for causes other than job performance or misconduct and is eligible to retire under the Workforce Transition Act or the Transitional Benefits Program. • The member dies in service and the member's survivor or beneficiary is eligible for a monthly death-in-service benefit. The COLA will go into effect on July 1 following one full calendar year (January 1 to December 31) from the date the monthly benefit begins. 	<p>Cost-of-Living Adjustment (COLA) in Retirement (Cont.)</p> <p><u>Exceptions to COLA Effective Dates:</u> Same as Plan 1.</p>	<p>Cost-of-Living Adjustment (COLA) in Retirement (Cont.)</p> <p><u>Exceptions to COLA Effective Dates:</u> Same as Plan 1 and Plan 2.</p>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Plan Description (Continued)

RETIREMENT PLAN PROVISIONS (CONTINUED)		
PLAN 1	PLAN 2	HYBRID RETIREMENT PLAN
<p>Disability Coverage Members who are eligible to be considered for disability retirement and retire on disability, the retirement multiplier is 1.7% on all service, regardless of when it was earned, purchased or granted.</p> <p>VSDP members are subject to a one-year waiting period before becoming eligible for non-work-related disability benefits.</p>	<p>Disability Coverage Members who are eligible to be considered for disability retirement and retire on disability, the retirement multiplier is 1.65% on all service, regardless of when it was earned, purchased or granted.</p> <p>VSDP members are subject to a one-year waiting period before becoming eligible for non-work related disability benefits.</p>	<p>Disability Coverage Employees of political subdivisions (including Plan 1 and Plan 2 opt-ins) participate in the Virginia Local Disability Program (VLDP) unless their local governing body provides an employer-paid comparable program for its members.</p> <p>Hybrid members (including Plan 1 and Plan 2 opt-ins) covered under VLDP are subject to a one-year waiting period before becoming eligible for non-work-related disability benefits.</p>
<p>Purchase of Prior Service Members may be eligible to purchase service from previous public employment, active duty military service, an eligible period of leave or VRS refunded service as creditable service in their plan. Prior creditable service counts toward vesting, eligibility for retirement and the health insurance credit. Only active members are eligible to purchase prior service. When buying service, members must purchase their most recent period of service first. Members also may be eligible to purchase periods of leave without pay.</p>	<p>Purchase of Prior Service Same as Plan 1.</p>	<p>Purchase of Prior Service <u>Defined Benefit Component:</u> Same as Plan 1, with the following exceptions:</p> <ul style="list-style-type: none"> • Hybrid Retirement Plan members are ineligible for ported service. • The cost for purchasing refunded service is the higher of 4% of creditable compensation or average final compensation. • Plan members have one year from their date of hire or return from leave to purchase all but refunded prior service at approximate normal cost. After that one-year period, the rate for most categories of service will change to actuarial cost. <p><u>Defined Contribution Component:</u> Not applicable.</p>

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Pension Plan Data

Information about the VRS Political Subdivision Retirement Plan is also available in the separately issued VRS 2016 Comprehensive Annual Financial Report (CAFR). A copy of the 2016 VRS CAFR may be downloaded from the VRS website at <http://www.varetire.org/Pdf/Publications/2016-annual-report.pdf>, or by writing to the System's Chief Financial Officer at P.O. Box 2500, Richmond, VA 23218-2500.

Employees Covered by Benefit Terms

As of the June 30, 2015 actuarial valuation, the following employees were covered by the benefit terms of the pension plan:

	<u>Number</u>
Inactive members or their beneficiaries currently receiving benefits	51
Inactive members:	
Vested inactive members	16
Non-vested inactive members	17
Inactive members active elsewhere in VRS	<u>33</u>
Total inactive members	66
Active members	<u>78</u>
Total covered employees	<u><u>195</u></u>

Contributions

The contribution requirement for active employees is governed by §51.1-145 of the Code of Virginia, as amended, but may be impacted as a result of funding options provided to political subdivisions by the Virginia General Assembly. Employees are required to contribute 5.00% of their compensation toward their retirement. Prior to July 1, 2012, all or part of the 5.00% member contribution may have been assumed by the employer. Beginning July 1, 2012 new employees were required to pay the 5% member contribution. In addition, for existing employees, employers were required to begin making the employee pay the 5.00% member contribution. This could be phased in over a period of up to 5 years and the employer is required to provide a salary increase equal to the amount of the increase in the employee-paid member contribution.

The Authority's contractually required contribution rate for the year ended June 30, 2017 was 9.62% of covered employee compensation. This rate was based on an actuarially determined rate from an actuarial valuation as of June 30, 2015.

This rate, when combined with employee contributions, was expected to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. Contributions to the pension plan from the Authority were \$423,477 and \$451,771 for the years ended June 30, 2017 and June 30, 2016, respectively.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 8–Pension Plan: (Continued)

Net Pension Liability

The Authority's net pension liability was measured as of June 30, 2016. The total pension liability used to calculate the net pension liability was determined by an actuarial valuation performed as of June 30, 2015, using updated actuarial assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2016.

Actuarial Assumptions – General Employees

The total pension liability for General Employees in the Authority's Retirement Plan was based on an actuarial valuation as of June 30, 2015, using the Entry Age Normal actuarial cost method and the following assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2016.

Inflation	2.5%
Salary increases, including inflation	3.5% – 5.35%
Investment rate of return	7.0%, net of pension plan investment expense, including inflation*

* Administrative expenses as a percent of the market value of assets for the last experience study were found to be approximately 0.06% of the market assets for all of the VRS plans. This would provide an assumed investment return rate for GASB purposes of slightly more than the assumed 7.0%. However, since the difference was minimal, and a more conservative 7.0% investment return assumption provided a projected plan net position that exceeded the projected benefit payments, the long-term expected rate of return on investments was assumed to be 7.0% to simplify preparation of pension liabilities.

Mortality rates: 14% of deaths are assumed to be service related

Largest 10 – Non-LEOS:

Pre-Retirement:

RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with males set forward 4 years and females set back 2 years

Post-Retirement:

RP-2000 Combined Mortality Table Projected with Scale AA to 2020 with males set forward 1 year

Post-Disablement:

RP-2000 Disability Life Mortality Table Projected to 2020 with males set back 3 years and no provision for future mortality improvement

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Actuarial Assumptions – General Employees (Continued)

All Others (Non 10 Largest) – Non-LEOS:

Pre-Retirement:

RP-2000 Employee Mortality Table Projected with Scale AA to 2020 with males set forward 4 years and females set back 2 years

Post-Retirement:

RP-2000 Combined Mortality Table Projected with Scale AA to 2020 with males set forward 1 year

Post-Disablement:

RP-2000 Disability Life Mortality Table Projected to 2020 with males set back 3 years and no provision for future mortality improvement

The actuarial assumptions used in the June 30, 2015 valuation were based on the results of an actuarial experience study for the period from July 1, 2008 through June 30, 2012. Changes to the actuarial assumptions as a result of the experience study are as follows:

Largest 10 – Non-LEOS:

- Update mortality table
- Decrease in rates of service retirement
- Decrease in rates of disability retirement
- Reduce rates of salary increase by 0.25% per year

All Others (Non 10 Largest) – Non-LEOS:

- Update mortality table
- Decrease in rates of service retirement
- Decrease in rates of disability retirement
- Reduce rates of salary increase by 0.25% per year

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Long-Term Expected Rate of Return

The long-term expected rate of return on pension System investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension System investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocation and best estimate of arithmetic real rates of return for each major asset class are summarized in the following table:

Asset Class (Strategy)	Target Allocation	Arithmetic Long-Term Expected Rate of Return	Weighted Average Long-Term Expected Rate of Return
U.S. Equity	19.50%	6.46%	1.26%
Developed Non U.S. Equity	16.50%	6.28%	1.04%
Emerging Market Equity	6.00%	10.00%	0.60%
Fixed Income	15.00%	0.09%	0.01%
Emerging Debt	3.00%	3.51%	0.11%
Rate Sensitive Credit	4.50%	3.51%	0.16%
Non Rate Sensitive Credit	4.50%	5.00%	0.23%
Convertibles	3.00%	4.81%	0.14%
Public Real Estate	2.25%	6.12%	0.14%
Private Real Estate	12.75%	7.10%	0.91%
Private Equity	12.00%	10.41%	1.25%
Cash	1.00%	-1.50%	-0.02%
Total	100.00%		5.83%
		Inflation	2.50%
		*Expected arithmetic nominal return	8.33%

* Using stochastic projection results provides an expected range of real rates of return over various time horizons. Looking at one year results produces an expected real return of 8.33% but also has a high standard deviation, which means there is high volatility. Over larger time horizons the volatility declines significantly and provides a median return of 7.44%, including expected inflation of 2.50%.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Discount Rate

The discount rate used to measure the total pension liability was 7.00%. The projection of cash flows used to determine the discount rate assumed that System member contributions will be made per the VRS Statutes and the employer contributions will be made in accordance with the VRS funding policy at rates equal to the difference between actuarially determined contribution rates adopted by the VRS Board of Trustees and the member rate. Through the fiscal year ending June 30, 2018, the rate contributed by the employer for the Rivanna Water & Sewer Authority Retirement Plan will be subject to the portion of the VRS Board-certified rates that are funded by the Virginia General Assembly. From July 1, 2018 on, participating employers are assumed to contribute 100% of the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore the long-term expected rate of return was applied to all periods of projected benefit payments to determine the total pension liability.

Changes in Net Pension Liability

	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at June 30, 2015	\$ 20,075,349	\$ 17,094,096	\$ 2,981,253
Changes for the year:			
Service cost	\$ 420,980	\$ -	\$ 420,980
Interest	1,376,398	-	1,376,398
Differences between expected and actual experience	343,405	-	343,405
Contributions - employer	-	448,728	(448,728)
Contributions - employee	-	216,819	(216,819)
Net investment income	-	298,454	(298,454)
Benefit payments, including refunds of employee contributions	(825,031)	(825,031)	-
Administrative expenses	-	(10,631)	10,631
Other changes	-	(126)	126
Net changes	\$ 1,315,752	\$ 128,213	\$ 1,187,539
Balances at June 30, 2016	\$ 21,391,101	\$ 17,222,309	\$ 4,168,792

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 8—Pension Plan: (Continued)

Sensitivity of the Net Pension Liability to Changes in the Discount Rate

The following presents the net pension liability of the Authority using the discount rate of 7.00%, as well as what the Authority's net pension liability would be if it were calculated using a discount rate that is one percentage point lower (6.00%) or one percentage point higher (8.00%) than the current rate:

	Rate		
	(6.00%)	(7.00%)	(8.00%)
Rivanna Water & Sewer Authority's Net Pension Liability	\$ 6,836,718	\$ 4,168,792	\$ 1,935,785

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended June 30, 2017, the Authority recognized pension expense of \$520,853. At June 30, 2017, the Authority reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 257,484	\$ -
Net difference between projected and actual earnings on pension plan investments	443,909	-
Employer contributions subsequent to the measurement date	423,477	-
Total	\$ 1,124,870	\$ -

\$423,477 reported as deferred outflows of resources related to pensions resulting from the Authority's contributions subsequent to the measurement date will be recognized as a reduction of the Net Pension Liability in the year ended June 30, 2018. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense in future reporting periods as follows:

<u>Year ended June 30</u>	
2018	\$ 120,166
2019	110,212
2020	292,580
2021	178,435
Thereafter	-

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 9—Voluntary Early Retirement Incentive Program:

Rivanna Water and Sewer Authority has a Voluntary Early Retirement Incentive Program (VERIP) which provides for monthly payments to eligible employees for a period of up to five years after early retirement or until age 65, whichever comes first. Participants in the VERIP must be regular full-time employees eligible for early or full retirement under the provisions of the Virginia Retirement System (VRS) who have been employed by the Authority for 10 of the last 13 years prior to retirement. Employees retiring under the disability provisions of VRS and/or Social Security are not eligible for the VERIP. VERIP participants receive a stipend equal to the difference between (1) the annual VRS retirement benefit amount as reduced for early VRS retirement if appropriate and (2) the recomputed annual VRS benefit with the addition of the lesser of five more years of service or the number of additional years needed to reach age 65. The stipend is paid on a monthly basis. The participant may also receive a monthly payment equal to the amount of the health insurance premium that was being paid for by the Authority on the employee's behalf upon termination, for as long as the employee is covered by VERIP benefits. Applications for the VERIP must be submitted to the Executive Director for approval. The Authority's estimated VERIP liability as of June 30, 2017 was \$483,068. The amount payable within the next year is \$69,593.

Note 10—Risk Management:

The Authority is exposed to various risks of loss related to torts; theft of, damage to and destruction of assets; errors and omissions; injuries to employees; and natural disasters. The Authority joined together with other local governments in the Commonwealth to form the Virginia Association of Counties Group Self-Insurance Risk Pool, a public entity risk pool currently operating as a common risk management and insurance program for member governments. The Authority pays an annual premium to the pool for its workers compensation coverage, property and liability insurance. The Agreement for Formation of the association provides that the association will be self-sustaining through member premiums. Settled claims have not exceeded pool coverage in any of the past three fiscal years.

Note 11—Other Postemployment Benefits—Health Insurance:

Background

In fiscal year 2009 the Authority implemented Governmental Accounting Standards Board (GASB) Statement No. 45 for other postemployment benefits (OPEB) offered to retirees. This standard addresses how governmental reporting entities should account for and report their costs related to postemployment healthcare and non-pension benefits, such as the Authority's retiree health benefit. Historically, the Authority's subsidy was funded on a pay-as-you-go basis, but GASB Statement No. 45 requires that the Authority accrue the cost of the retiree health subsidy and other postemployment benefits during the period of the employees' active employment, while the benefits are being earned, and disclose the unfunded actuarial accrued liability in order to accurately account for the total future cost of postemployment benefits and the financial impact on the Authority. This funding methodology mirrors the funding approach used for pension benefits.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements
At June 30, 2017 and 2016 (Continued)

Note 11—Other Postemployment Benefits—Health Insurance: (Continued)

Plan Description

In addition to the pension benefits described in Note 8, the Authority previously provided post-retirement healthcare benefits for employees who were eligible under a single-employer defined benefit plan. The Plan and benefits have been terminated. Therefore Authority has no assets or liabilities to report as of June 30, 2017.

Note 12—Related Parties:

Rivanna Solid Waste Authority (RSWA) and Rivanna Water and Sewer Authority (RWSA) share office space and administrative staff. Procedures are in place to ensure proper segregation of funds, purchasing activity, personnel and similar matters. RSWA pays RWSA monthly for its share of joint administrative expenses, which totaled \$328,000 in FY 2017 and \$299,000 in FY 2016 and for leachate acceptance and treatment of \$732 in FY 2017 and \$1,974 in FY 2016. Rivanna Solid Waste Authority billed Rivanna Water & Sewer Authority \$58,060 for hauling and tipping fees in FY 2017 and \$60,875 in the previous year. RSWA owed RWSA \$22,331 and \$19,187 at June 30, 2017 and 2016, respectively.

Note 13—Construction Commitments:

Rivanna Water and Sewer Authority had the following significant construction contract commitments for capital projects as of June 30, 2017:

<u>Project</u>	<u>Incurred To Date</u>	<u>Remaining Commitment</u>
Rivanna Pump Station and Tunnel	\$ 25,272,154	\$ 1,553,973
Urban & Rural GAC/WTP Improvements	19,459,980	5,796,430
Wholesale Water Master Metering	1,963,426	962,267
MCAWRRF Odor Control - Phase 2 and MCAWRRF Bridge Repairs	5,323,374	2,790,499
Crozet WTP Finished Water Pump Station	195,985	1,744,015

These contracts give the Authority the right to terminate the contract for any reason.

Note 14—Fair Value Measures:

Fair value for investments is determined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants at the measurement date. The three-level fair value hierarchy prioritizes the inputs used to measure fair value. This hierarchy requires entities to maximize the use of observable inputs and minimize the use of unobservable inputs. The three levels of inputs used to measure fair value are as follows:

- Level 1 — Quoted prices in active markets for identical assets or liabilities.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 14—Fair Value Measures: (Continued)

- Level 2 — Significant observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; or other inputs that are observable or can be corroborated by observable market data.
- Level 3 — Significant unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. This includes certain pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

The Authority is providing the following information related to its investments:

Fair Value Measurements at Reporting Date Using

	<u>Total June 30, 2017</u>	<u>Quoted Prices in Active Markets for Identical Assets (Level 1)</u>	<u>Significant Other Observable Inputs (Level 2)</u>	<u>Significant Unobservable Inputs (Level 3)</u>
U.S. Agencies Securities	\$ 7,741	\$ 7,741	\$ -	\$ -
U.S. Treasury & Agency Money Market Funds	4,676,244	4,676,244	-	-
U.S. Treasury Notes & Bonds	<u>1,979,100</u>	<u>1,979,100</u>	<u>-</u>	<u>-</u>
Total by fair value level	<u>\$ 6,663,085</u>	<u>\$ 6,663,085</u>	<u>\$ -</u>	<u>\$ -</u>

Investments measured at the net asset value (NAV)

VML/VACo Virginia Investment Pool	<u>\$ 10,048,635</u>
Total measured at the NAV	<u>\$ 10,048,635</u>

Note 15—Upcoming Financial Reporting Pronouncements:

The primary objective of statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, is to improve accounting and financial reporting by state and local governments for postemployment benefits other than pensions (other postemployment benefits or OPEB). This Statement replaces the requirements of Statements No. 45, *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions*, as amended, and No. 57, *OPEB Measurements by Agent Employers and Agent Multiple-Employer Plans, for OPEB*. Statement No. 74, *Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans*, establishes new accounting and financial reporting requirements for OPEB plans. This Statement is effective for fiscal years beginning after June 15, 2017. Earlier application is encouraged.

RIVANNA WATER & SEWER AUTHORITY

Notes to the Financial Statements

At June 30, 2017 and 2016 (Continued)

Note 15—Upcoming Financial Reporting Pronouncements: (Continued)

The primary objective of statement No. 81, *Irrevocable Split-Interest Agreements*, is to improve accounting and financial reporting for irrevocable split-interest agreements by providing recognition and measurement guidance for situations in which a government is a beneficiary of the agreement. The requirements of this Statement are effective for financial statements for periods beginning after December 15, 2016, and should be applied retroactively. Earlier application is encouraged.

Statement No. 83, *Certain Asset Retirement Obligations*, addresses accounting and financial reporting for certain asset retirement obligations (AROs). An ARO is a legally enforceable liability associated with the retirement of a tangible capital asset. A government that has legal obligations to perform future asset retirement activities related to its tangible capital assets should recognize a liability based on the guidance in this Statement. This Statement establishes criteria for determining the timing and pattern of recognition of a liability and a corresponding deferred outflow of resources for AROs. The requirements of this Statement are effective for reporting periods beginning after June 15, 2018.

Statement No. 86, *Certain Debt Extinguishment Issues*, improves consistency in accounting and financial reporting for in-substance defeasance of debt by providing guidance for transactions in which cash and other monetary assets acquired with only existing resources—resources other than the proceeds of refunding debt—are placed in an irrevocable trust for the sole purpose of extinguishing debt. This Statement also improves accounting and financial reporting for prepaid insurance on debt that is extinguished and notes to financial statements for debt that is defeased in substance. The requirements of this Statement are effective for reporting periods beginning after June 15, 2017.

Statement No. 87, *Leases*, increases the usefulness of governments' financial statements by requiring recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. It establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Under this Statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources, thereby enhancing the relevance and consistency of information about governments' leasing activities. The requirements of this Statement are effective for reporting periods beginning after December 15, 2019.

Management is currently evaluating the impact these standards will have on the financial statements when adopted.

Required Supplementary Information

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RIVANNA WATER & SEWER AUTHORITY

Schedule of Changes in Net Pension Liability and Related Ratios For the Year Ended June 30, 2017

	2016	2015	2014
Total pension liability			
Service cost	\$ 420,980	\$ 397,302	\$ 408,618
Interest	1,376,398	1,308,253	1,243,939
Differences between expected and actual experience	343,405	43,130	-
Benefit payments, including refunds of employee contributions	(825,031)	(725,341)	(742,220)
Net change in total pension liability	\$ 1,315,752	\$ 1,023,344	\$ 910,337
Total pension liability - beginning	20,075,349	19,052,005	18,141,668
Total pension liability - ending (a)	\$ 21,391,101	\$ 20,075,349	\$ 19,052,005
Plan fiduciary net position			
Contributions - employer	\$ 448,728	\$ 434,762	\$ 428,309
Contributions - employee	216,819	230,505	204,334
Net investment income	298,454	754,877	2,256,556
Benefit payments, including refunds of employee contributions	(825,031)	(725,341)	(742,220)
Administrative expense	(10,631)	(10,246)	(12,143)
Other	(126)	(160)	119
Net change in plan fiduciary net position	\$ 128,213	\$ 684,397	\$ 2,134,955
Plan fiduciary net position - beginning	17,094,096	16,409,699	14,274,744
Plan fiduciary net position - ending (b)	\$ 17,222,309	\$ 17,094,096	\$ 16,409,699
Authority's net pension liability - ending (a) - (b)	\$ 4,168,792	\$ 2,981,253	\$ 2,642,306
Plan fiduciary net position as a percentage of the total pension liability	80.51%	85.15%	86.13%
Covered payroll	\$ 4,403,235	\$ 4,232,146	\$ 4,087,133
Authority's net pension liability as a percentage of covered payroll	94.68%	70.44%	64.65%

This schedule is intended to report information for 10 years. Fiscal year 2015 is the first year for this presentation, no other data is available. Additional years will be included when available.

RIVANNA WATER & SEWER AUTHORITY

Schedule of Employer Contributions For the Years Ended June 30, 2008 Through 2017

Fiscal Year	Contributions in Relation to			Employer's Covered Payroll (4)	Contributions as a % of Covered Payroll (5)
	Contractually Required Contribution (1)	Contractually Required Contribution (2)	Contribution Deficiency (Excess) (3)		
2017	\$ 423,477	\$ 423,477	\$ -	\$ 4,613,774	9.18%
2016	451,771	451,771	-	4,403,235	10.26%
2015	435,295	435,295	-	4,232,146	10.29%
2014	428,317	428,317	-	4,087,133	10.48%
2013	426,490	426,490	-	4,078,576	10.46%
2012	308,088	308,088	-	3,885,089	7.93%
2011	297,182	297,182	-	3,747,565	7.93%
2010	237,625	237,625	-	3,765,849	6.31%
2009	236,823	236,823	-	3,753,142	6.31%
2008	356,111	356,111	-	3,557,554	10.01%

RIVANNA WATER & SEWER AUTHORITY

Notes to Required Supplementary Information
For the Year Ended June 30, 2017

Changes of benefit terms – There have been no actuarially material changes to the System benefit provisions since the prior actuarial valuation. The 2014 valuation includes Hybrid Retirement Plan members for the first time. The hybrid plan applies to most new employees hired on or after January 1, 2014 and not covered by enhanced hazardous duty benefits. Because this is a fairly new benefit and the number of participants was relatively small, the impact on the liabilities as of the measurement date of June 30, 2016 is not material.

Changes of assumptions – The following changes in actuarial assumptions were made effective June 30, 2013 based on the most recent experience study of the System for the four-year period ending June 30, 2012:

Largest 10 – Non-LEOS:

- Update mortality table
- Decrease in rates of service retirement
- Decrease in rates of disability retirement
- Reduce rates of salary increase by 0.25% per year

All Others (Non 10 Largest) – Non-LEOS:

- Update mortality table
- Decrease in rates of service retirement
- Decrease in rates of disability retirement
- Reduce rates of salary increase by 0.25% per year

RIVANNA WATER & SEWER AUTHORITY

Schedule of OPEB Funding Progress

Actuarial Valuation Date	Actuarial Value of Assets (AVA) (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded Actuarial Accrued Liability (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Annual Covered Payroll (c)	UAAL as % of Covered Payroll (b - a) / (c)
07/01/10	\$ -	\$ 1,767,166	\$ 1,767,166	0.00%	\$ 3,880,191	45.54%
07/01/13	-	119,000	119,000	0.00%	n/a	n/a
07/01/14	-	92,000	92,000	0.00%	n/a	n/a
07/01/15	-	66,000	66,000	0.00%	n/a	n/a
07/01/16	-	-	-	0.00%	n/a	n/a

The amounts reported on the schedule for the valuation dates of 7/1/14 and 7/1/15 are prepared from a roll forward of the complete valuation prepared as of 7/1/13.

The plan was terminated and closed to new enrollees in a prior year. The plan is now inactive and therefore the Authority has no assets or liabilities to report.

Statistical Section

Contents

Tables

Financial Trends

These tables contain trend information to help the reader understand how the the Authority's financial performance has changed over time.

1-2

Revenue, Rates and Useage Information

These tables contain information to help the reader assess the factors affecting the Authority's change in revenues and its ability to generate revenues.

3-5

Expenses

This table contains comparative information about the Authority's expenses.

6

Debt Capacity

These tables present information to help the reader assess the affordability of the Authority's current levels of outstanding debt and the Authority's ability to issue debt in the future.

7-8

Demographic and Economic Information

These tables offer demographic and economic indicators to help the reader understand the environment within which the Authority's financial activities take place and to help make comparisons over time.

9-10

Operating Information

These tables contain information about the Authority's operations and resources to help the reader understand how the Authority's financial information relate to the activities it performs.

11-12

Other Information

These tables contain miscellaneous data such as insurance coverage and data from related organizations, Albemarle County Service Authority and City of Charlottesville.

13-15

Sources:

Unless otherwise noted, the information in these tables is derived from the comprehensive annual financial reports for the relevant year.

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RIVANNA WATER & SEWER AUTHORITY

Table 1

Net Position by Component
Last Ten Fiscal Years

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
	Fiscal Years Ended June 30,									
Net investment in capital assets	\$ 105,412,275	\$ 101,129,762	\$ 99,020,753	\$ 93,538,673	\$ 87,302,949	\$ 86,135,840	\$ 77,662,172	\$ 62,172,653	\$ 47,324,770	\$ 40,935,774
Restricted	3,729,350	3,335,539	2,940,314	2,870,788	2,782,090	3,173,804	3,048,111	2,522,530	3,230,185	3,124,165
Unrestricted	32,621,982	31,189,295	28,812,875	32,388,908	31,510,133	24,483,936	23,156,625	26,697,587	20,419,274	20,840,956
Total net position	<u>\$ 141,763,607</u>	<u>\$ 135,654,596</u>	<u>\$ 130,773,942</u>	<u>\$ 128,798,369</u>	<u>\$ 121,595,172</u>	<u>\$ 113,793,580</u>	<u>\$ 103,866,908</u>	<u>\$ 91,392,770</u>	<u>\$ 70,974,229</u>	<u>\$ 64,900,895</u>

RIVANNA WATER & SEWER AUTHORITY

Table 2

Changes in Net Position
Last Ten Fiscal Years

	Fiscal Years Ended June 30,									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Operating revenues:										
Metered water sales	\$ 13,753,977	\$ 13,014,328	\$ 12,555,666	\$ 11,353,630	\$ 11,728,840	\$ 11,058,083	\$ 10,895,551	\$ 10,746,260	\$ 9,867,555	\$ 9,826,958
Wastewater service charges	14,444,159	14,799,741	13,625,855	14,620,353	13,889,105	12,807,628	11,069,488	12,701,859	9,671,122	8,211,378
Total operating revenues	\$ 28,198,136	\$ 27,814,069	\$ 26,181,521	\$ 25,973,983	\$ 25,617,945	\$ 23,865,711	\$ 21,965,039	\$ 23,448,119	\$ 19,538,677	\$ 18,038,336
Operating expenses:										
Personnel costs	\$ 7,483,807	\$ 6,155,243	\$ 5,878,175	\$ 5,756,273	\$ 5,928,994	\$ 5,879,080	\$ 5,525,332	\$ 5,428,691	\$ 5,449,513	\$ 5,224,525
Professional services	885,072	602,891	473,193	418,858	282,427	336,166	338,814	238,975	210,710	215,377
Other services and charges	2,764,905	2,607,118	2,532,408	2,683,136	2,430,718	2,463,176	2,341,123	2,137,741	2,291,946	2,054,600
Operations and maintenance	4,214,246	4,710,701	3,991,590	3,543,311	3,383,574	3,201,971	2,415,211	2,412,752	2,515,504	2,366,111
Depreciation	5,411,996	5,396,029	4,983,753	4,662,094	3,601,730	2,965,612	2,962,912	2,966,823	2,906,351	2,702,333
Total operating expenses	\$ 20,760,026	\$ 19,471,982	\$ 17,859,119	\$ 17,063,672	\$ 15,627,443	\$ 14,846,005	\$ 13,583,392	\$ 13,184,982	\$ 13,374,024	\$ 12,562,946
Operating income	\$ 7,438,110	\$ 8,342,087	\$ 8,322,402	\$ 8,910,311	\$ 9,990,502	\$ 9,019,706	\$ 8,381,647	\$ 10,263,137	\$ 6,164,653	\$ 5,475,390
Nonoperating revenues (expenses):										
Investment earnings	\$ 296,433	\$ 369,675	\$ 82,083	\$ 92,839	\$ 157,526	\$ 124,832	\$ 120,623	\$ 149,587	\$ 418,585	\$ 1,169,571
Buck Mountain revenue	115,700	84,000	74,900	89,000	78,000	68,200	52,400	93,300	90,300	120,300
Administrative reimbursement	328,000	299,000	265,000	257,000	257,000	276,000	277,000	418,000	420,000	419,001
Other revenues	305,763	370,173	337,148	251,373	225,034	214,908	256,541	110,396	140,205	104,582
Interest expense	(2,248,229)	(4,027,843)	(3,608,072)	(2,336,245)	(2,552,331)	(1,830,696)	(2,607,502)	(2,107,381)	(2,090,583)	(2,213,064)
Debt issuance costs	(126,766)	(556,438)	(59,273)	(61,081)	(580,404)	-	(86,827)	(39,525)	(39,995)	(33,768)
Amortization expense	-	-	-	-	-	-	-	-	-	-
Total nonoperating revenues (expenses)	\$ (1,329,099)	\$ (3,461,433)	\$ (2,908,214)	\$ (1,707,114)	\$ (2,415,175)	\$ (1,146,756)	\$ (1,987,765)	\$ (1,375,623)	\$ (1,061,488)	\$ (433,378)
Income before capital grants and contributions	\$ 6,109,011	\$ 4,880,654	\$ 5,414,188	\$ 7,203,197	\$ 7,575,327	\$ 7,872,950	\$ 6,393,882	\$ 8,887,514	\$ 5,103,165	\$ 5,042,012
Capital grants	\$ -	\$ -	\$ -	\$ -	\$ 226,265	\$ 3,003,552	\$ 6,080,256	\$ 11,531,027	\$ 970,169	\$ 810,053
Change in net position	\$ 6,109,011	\$ 4,880,654	\$ 5,414,188	\$ 7,203,197	\$ 7,801,592	\$ 10,876,502	\$ 12,474,138	\$ 20,418,541	\$ 6,073,334	\$ 5,852,065

RIVANNA WATER & SEWER AUTHORITY

Table 3

Revenues by Source
Last Ten Fiscal Years

Fiscal Years Ended June 30,	Operating Revenues			Nonoperating Revenues				Other	
	Water Sales	Wastewater Service Charges	Total Operating Revenues	Investment Earnings	Buck Mountain Revenue	Other Revenue	Nonoperating Revenues	Capital Grants and Contributions	Total Revenues
2008	\$ 9,826,958	\$ 8,211,378	\$ 18,038,336	\$ 1,169,571	\$ 120,300	\$ 523,583	\$ 1,813,454	\$ 810,053	\$ 20,661,843
2009	9,867,555	9,671,122	19,538,677	418,585	90,300	560,205	1,069,090	970,169	21,577,936
2010	10,746,260	12,701,859	23,448,119	149,587	93,300	528,396	771,283	11,531,027	35,750,429
2011	10,895,551	11,069,488	21,965,039	120,623	52,400	533,541	706,564	6,080,256	28,751,859
2012	11,058,083	12,807,628	23,865,711	124,832	68,200	490,908	683,940	3,003,552	27,553,203
2013	11,728,840	13,889,105	25,617,945	157,526	78,000	482,034	717,560	226,265	26,561,770
2014	11,353,630	14,620,353	25,973,983	92,839	89,000	508,373	690,212	-	26,664,195
2015	12,555,666	13,625,855	26,181,521	82,083	74,900	602,148	759,131	-	26,940,652
2016	13,014,328	14,799,741	27,814,069	369,675	84,000	669,173	1,122,848	-	28,936,917
2017	13,753,977	14,444,159	28,198,136	296,433	115,700	633,763	1,045,896	-	29,244,032

RIVANNA WATER & SEWER AUTHORITY

Table 4

Water and Wastewater Rates and Flows Last Ten Fiscal Years

Rates:	Fiscal Years Ended June 30,									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
		*Note 1 (7/1-10/31/15)								
Urban Water - City (per 1,000 gallons)		\$ 2,756	\$ 2,663	\$ 2,341	\$ 2,443	\$ 2,403	\$ 2,438	\$ 2,461	\$ 2,285	\$ 2,226
Urban Water - ACSA (per 1,000 gallons)		\$ 3,795	\$ 3,687	\$ 3,333	\$ 3,465	\$ 3,439	\$ 3,305	\$ 3,320	\$ 2,983	\$ 2,912
Crozet Water (per month)	\$ 124,149	\$ 111,330	\$ 91,942	\$ 84,630	\$ 82,916	\$ 60,853	\$ 50,712	\$ 52,315	\$ 50,226	\$ 43,372
Scottsville Water (per month)	\$ 43,382	\$ 49,012	\$ 41,343	\$ 41,047	\$ 36,280	\$ 31,665	\$ 32,834	\$ 32,089	\$ 31,421	\$ 34,127
Urban Wastewater - City (per 1,000 gallons)		\$ 3,954	\$ 3,822	\$ 3,593	\$ 3,565	\$ 3,179	\$ 2,878	\$ 2,784	\$ 2,466	\$ 2,233
Urban Wastewater - ACSA (per 1,000 gallons)		\$ 3,560	\$ 3,435	\$ 3,463	\$ 3,732	\$ 3,348	\$ 3,048	\$ 3,063	\$ 2,722	\$ 2,460
Glenmore Wastewater (per month)	\$ 26,694	\$ 25,211	\$ 24,451	\$ 24,189	\$ 23,436	\$ 23,246	\$ 21,806	\$ 22,968	\$ 24,606	\$ 19,726
Scottsville Wastewater (per month)	\$ 21,941	\$ 21,425	\$ 28,879	\$ 28,295	\$ 27,619	\$ 26,579	\$ 25,603	\$ 25,216	\$ 25,968	\$ 24,897

*Note 1:

The Fiscal Year 2016 Urban Water and Urban Wastewater rates were revised from the above stated rates to the following rates, effective 11/1/15-6/30/16:
In FY 2016 the Board of Directors amended the Service Agreement to go from a rate per 1,000 gallons to a fixed monthly charge for all debt service costs.
Prior years' rates have been restated below as fixed monthly charges for comparison purposes based on estimated flows.

Urban Water:										
Operations - City & ACSA (per 1,000 gallons)	\$ 1,833	\$ 1,713	\$ 1,683	\$ 1,462	\$ 1,320	\$ 1,315	\$ 1,288	\$ 1,230	\$ 1,164	\$ 1,173
Debt Service - City (per month)	\$ 162,968	\$ 158,099	\$ 148,549	\$ 133,156	\$ 173,354	\$ 177,435	\$ 177,607	\$ 190,117	\$ 172,725	\$ 185,367
Debt Service - ACSA (per month)	\$ 284,031	\$ 279,864	\$ 269,379	\$ 251,418	\$ 282,114	\$ 267,054	\$ 265,358	\$ 274,962	\$ 258,714	\$ 242,183
Urban Wastewater:										
Operations - City & ACSA (per 1,000 gallons)	\$ 1,835	\$ 1,789	\$ 1,768	\$ 1,827	\$ 1,869	\$ 1,734	\$ 1,637	\$ 1,583	\$ 1,549	\$ 1,492
Debt Service - City (per month)	\$ 369,037	\$ 333,645	\$ 310,678	\$ 272,220	\$ 254,371	\$ 224,549	\$ 192,848	\$ 180,084	\$ 149,600	\$ 123,086
Debt Service - ACSA (per month)	\$ 222,280	\$ 232,493	\$ 223,598	\$ 214,771	\$ 228,557	\$ 189,209	\$ 165,411	\$ 181,570	\$ 156,571	\$ 126,336

Flows (in million gallons per day):	Fiscal Years Ended June 30,									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Urban Water	9.535	9.384	9.540	9.618	9.647	9.454	9.569	9.352	9.344	9.546
Crozet Water	0.544	0.542	0.546	0.566	0.503	0.450	0.436	0.420	0.384	0.378
Scottsville Water	0.050	0.048	0.049	0.056	0.053	0.049	0.056	0.077	0.077	0.087
	10.130	9.974	10.135	10.240	10.203	9.953	10.060	9.848	9.805	10.011
Urban Wastewater	9.483	10.381	9.481	10.566	9.719	10.014	9.442	11.158	9.307	8.553
Glenmore Wastewater	0.107	0.108	0.101	0.114	0.121	0.122	0.137	0.125	0.115	0.117
Scottsville Wastewater	0.053	0.072	0.050	0.066	0.050	0.054	0.054	0.083	0.064	0.060
	9.644	10.561	9.632	10.746	9.890	10.190	9.632	11.367	9.486	8.730

RIVANNA WATER & SEWER AUTHORITY

Table 5

Ten Largest Customers
Current Year and Nine Years Ago

	Fiscal Year 2017 (Current Year)			
	Water Revenue		Wastewater Revenue	
	Amount	%	Amount	%
Albemarle County Service Authority	\$ 8,530,098	62.02%	\$ 6,400,143	44.31%
City of Charlottesville	\$ 5,223,879	37.98%	\$ 7,652,666	52.98%
Others	\$ -	0.00%	\$ 391,350	2.71%
	<u>\$ 13,753,977</u>	<u>100.00%</u>	<u>\$ 14,444,159</u>	<u>100.00%</u>

	Fiscal Year 2008 (Nine Years Ago)			
	Water Revenue		Wastewater Revenue	
	Amount	%	Amount	%
Albemarle County Service Authority	\$ 5,683,918	57.84%	\$ 4,009,731	48.83%
City of Charlottesville	\$ 4,143,040	42.16%	\$ 3,909,677	47.61%
Others	\$ -	0.00%	\$ 291,970	3.56%
	<u>\$ 9,826,958</u>	<u>100.00%</u>	<u>\$ 8,211,378</u>	<u>100.00%</u>

Note: The Authority's two wholesale customers, which are both governmental entities, provided 100% of water revenue and 97% of wastewater revenue in FY 2017 and 96% in FY 2008. The remaining wastewater revenue came from septage acceptance customers. Due to lack of materiality, the number of customers by type that provide that revenue is not presented here.

RIVANNA WATER & SEWER AUTHORITY

Table 6

Expenses by Type
Last Ten Fiscal Years

Fiscal Years Ended June 30,	Operations		Depreciation	Interest and Amortization	Bond Issuance Costs	Total
2008	\$	9,860,613	\$	2,246,832	\$	14,809,778
2009		10,467,673	2,906,351	2,130,578	-	15,504,602
2010		10,218,159	2,966,823	2,146,906	-	15,331,888
2011		10,620,480	2,962,912	2,694,329	-	16,277,721
2012		11,880,393	2,965,612	1,830,696	-	16,676,701
2013		12,025,713	3,601,730	2,552,331	580,404	18,760,178
2014		12,401,578	4,662,094	2,336,245	61,081	19,460,998
2015		12,875,366	4,983,753	3,608,072	59,273	21,526,464
2016		14,075,953	5,396,029	4,027,843	556,438	24,056,263
2017		15,348,030	5,411,996	2,248,229	126,766	23,135,021

RIVANNA WATER & SEWER AUTHORITY

Table 7

Outstanding Debt by Type
Last Ten Fiscal Years

	Fiscal Years Ended June 30,									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Revenue bonds payable	\$ 173,020,453	\$ 160,512,250	\$ 124,670,205	\$ 125,680,526	\$ 127,548,686	\$ 103,834,145	\$ 73,831,274	\$ 57,250,353	\$ 44,350,079	\$ 47,765,367
Total outstanding debt	<u>\$ 173,020,453</u>	<u>\$ 160,512,250</u>	<u>\$ 124,670,205</u>	<u>\$ 125,680,526</u>	<u>\$ 127,548,686</u>	<u>\$ 103,834,145</u>	<u>\$ 73,831,274</u>	<u>\$ 57,250,353</u>	<u>\$ 44,350,079</u>	<u>\$ 47,765,367</u>
Debt per capita	\$ 1,136	\$ 1,054	\$ 831	\$ 850	\$ 871	\$ 719	\$ 517	\$ 406	\$ 319	\$ 350
Debt as a percentage of personal income	1.9%	1.7%	1.4%	1.5%	1.5%	1.4%	1.0%	0.8%	0.6%	0.7%

Notes:

Debt per capita was calculated based on population figures for the calendar year (CY) ending within the fiscal year (FY) obtained from U.S. Department of Commerce - Bureau of Economic Analysis for the City of Charlottesville and County of Albemarle. See Table 9.

Debt as a percentage of personal income was calculated based on personal income for the CY ending within the FY obtained from U.S. Department of Commerce - Bureau of Economic Analysis for the City of Charlottesville and County of Albemarle. See Table 9.

Table 8

RIVANNA WATER & SEWER AUTHORITY

Revenue Bond Debt Service Coverage
Last Ten Fiscal Years

Fiscal Years Ended June 30,	Gross Revenue (1)	Direct Operating Expense (2)	Net Available	Required Debt Service Payments (3)	Coverage
2008	\$ 19,851,790	\$ 9,860,613	\$ 9,991,177	5,603,277	1.8X
2009	20,607,767	10,467,673	10,140,094	5,591,120	1.8X
2010	24,219,402	10,218,159	14,001,243	5,592,641	2.5X
2011	22,671,603	10,620,480	12,051,123	6,962,703	1.7X
2012	24,549,651	11,880,393	12,669,258	6,724,261	1.9X
2013	26,335,505	12,025,713	14,309,792	8,234,169	1.7X
2014	26,664,195	12,401,578	14,262,617	9,089,702	1.6X
2015	26,940,652	12,875,366	14,065,286	9,094,732	1.5X
2016	28,936,917	14,075,953	14,860,964	9,567,370	1.6X
2017	29,244,032	15,348,030	13,896,002	11,912,673	1.2X

(1) Excluding grant revenue

(2) Excluding depreciation expense

(3) Including payments on revenue bonds and excluding any refunding since the payments were not required to be made in that year

RIVANNA WATER AND SEWER AUTHORITY

Table 9

Demographic Data for the Service Area
City of Charlottesville & Albemarle County, Virginia
Last Ten Calendar Years

Calendar Year	Population (2)	Personal Income (thousands of \$) (2)	Per Capita Personal Income (\$) (2)	Unemployment Rate (1)
2007	136,547	6,944,900	50,861	2.5%
2008	139,211	7,235,166	51,973	3.4%
2009	141,125	6,869,941	48,680	5.8%
2010	142,751	7,172,019	50,241	6.5%
2011	144,364	7,549,474	52,295	5.9%
2012	146,445	8,301,835	56,689	5.5%
2013	147,878	8,124,880	54,943	5.0%
2014	149,973	8,681,505	57,887	4.5%
2015	152,300	9,182,721	60,294	3.6%
2016	not available	not available	not available	3.5%

(1) Virginia Employment Commission - Virginia Workforce Connection - for Charlottesville Metropolitan Service Area

(2) U.S. Department of Commerce - Bureau of Economic Analysis - for City of Charlottesville and Albemarle County

RIVANNA WATER & SEWER AUTHORITY

Table 10

Principal Employers in the Charlottesville Area
Current Year and Nine Years Ago

Employer	Fourth Quarter of 2016		Fourth Quarter of 2007	
	Number of Employees	Rank	Number of Employees	Rank
University of Virginia/ Blue Ridge Hospital	1,000 & over	1	1,000 & over	1
University of Virginia Medical Center	1,000 & over	2	1,000 & over	2
County of Albemarle	1,000 & over	3	1,000 & over	3
Sentara Health Care	1,000 & over	4		
Martha Jefferson Hospital			1,000 & over	4
UVA Health Services Foundation	1,000 & over	5	1,000 & over	7
City of Charlottesville	1,000 & over	6	1,000 & over	5
State Farm Mutual Automobile Insurance	1,000 & over	7	1,000 & over	6
Charlottesville City School Board	500-999	8	500-999	8
U.S. Department of Defense	500-999	9		
Fluvanna County Public School Board	500-999	10		
Northrop Grumman Corporation			500-999	9
Aramark Campus LLC			500-999	10

Source: Virginia Employment Commission, Quarterly Census of Employment and Wages
- for Charlottesville Metropolitan Service Area (MSA)

Each employer's percentage of total employment is not available.

RIVANNA WATER & SEWER AUTHORITY

Table 11

Number of Employees by Identifiable Activity
Last Ten Fiscal Years

	Fiscal Years Ended June 30,									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Number of budgeted full-time equivalent positions:										
Water	23	23	23	22	23	23	23	23	27	27
Wastewater	17	17	17	17	18	18	15	16	25	25
Maintenance (1)	16	17	17	17	16	16	15	14		
Grounds crew maintenance (2)									2	2
Operations Management	2	2	2	2	2	2	2	2	2	2
Administration (3)	15	13	12	12	12	12	12	13	13	12
Laboratory	3	3	3	3	3	3	3	3	3	3
Engineering	9	9	9	9	9	9	9	11	11	10
Total	85	84	83	82	83	83	79	82	83	81

(1) Maintenance includes mechanics and maintenance workers for Water and Wastewater.

(2) Grounds crew maintenance positions worked approximately 60% on wastewater department maintenance and 40% on water department maintenance. Beginning in FY 2010, grounds crew maintenance positions are included in Maintenance.

(3) Administration staff is shared with Rivanna Solid Waste Authority.

RIVANNA WATER & SEWER AUTHORITY

Table 12

Operating and Capital Indicators
Last Ten Fiscal Years

	Fiscal Years Ended June 30,									
	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Water										
Size of watershed (square miles)	766	766	766	766	766	766	766	766	766	766
Raw water safe yield (mgd)										
Urban system	18.8	18.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.80
Rural system	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.40
Miles of pipelines	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.3	64.30
Number of treatment plants	5	5	5	5	5	5	5	5	5	5
Number of pumping stations	7	7	7	7	7	7	7	7	7	7
Number of reservoirs	4	4	4	4	4	4	4	4	4	4
Number of finished water storage tanks	11	11	11	11	11	11	11	11	11	11
Maximum treatment capacity (mgd)	22,750	22,750	22,750	22,750	22,750	22,750	22,750	22,750	22,750	22,750
Water treated (mgd)	10,130	9,974	10,135	10,240	10,203	9,953	10,060	9,984	9,805	10,011
Unused capacity (mgd)	12,620	12,776	12,615	12,510	12,547	12,797	12,690	12,766	12,945	12,739
Percentage of capacity utilized	44.53%	43.84%	44.55%	45.01%	44.85%	43.75%	44.22%	43.89%	43.10%	44.00%
Wastewater										
Miles of pipelines	37	37	37	37	37	37	37	37	37	37
Number of treatment plants	4	4	4	4	4	5	5	5	5	5
Number of pumping stations	7	7	7	7	7	7	7	7	7	7
Maximum treatment capacity (mgd)	15,945	15,945	15,945	15,945	15,945	15,945	15,945	15,945	15,945	15,945
Wastewater treated (mgd)	9,640	10,561	9,632	10,746	9,890	10,190	9,632	8,730	9,486	8,730
Unused capacity (mgd)	6,305	5,384	6,313	5,199	6,055	5,755	6,313	7,215	6,459	7,215
Percentage of capacity utilized	60.46%	66.23%	60.41%	67.39%	62.03%	63.91%	60.41%	54.75%	59.49%	54.75%

Notes: mgd = millions of gallons per day
Safe yield is a measure of raw water resources during a drought of record.

RIVANNA WATER & SEWER AUTHORITY

Table 13

Schedule of Insurance in Force
June 30, 2017

Type Coverage/Company Name	Coverage	Annual Premium
<u>Commercial Property</u> Virginia Association of Counties 07/01/16-07/01/17	\$ 182,022,077 Property Value and Business Income/ Extra Expense	\$ 73,467
<u>Worker's Compensation</u> Virginia Municipal Group Self Insurance Association 07/01/16-07/01/17	\$ 1,000,000 Each Occurrence	\$ 64,192
<u>Comprehensive Automobile</u> Virginia Association of Counties 07/01/16-07/01/17	\$ 10,000,000	\$ 17,391
<u>General Liability</u> Virginia Association of Counties 07/01/16-07/01/17	\$ 10,000,000 Each Occurrence	\$ 12,029
<u>Public Officials Liability</u> Virginia Association of Counties 07/01/16-07/01/17	\$ 10,000,000	\$ 5,635
<u>Crime Coverage</u> Virginia Association of Counties 07/01/16-07/01/17	\$ 500,000	\$ 1,650

RIVANNA WATER & SEWER AUTHORITY

Table 14

Miscellaneous Statistical Data
Albemarle County Service Authority

Year of Incorporation: 1964

Type of Entity:

Independent authority created pursuant to the "Virginia Water & Waste Authorities Act",
Section 15.1-1239, Code of Virginia (1950), as amended

Number of water connections	19,284
Number of sewer connections	16,619
Miles of water lines	345
Miles of sewer lines	288
Number of fire hydrants	2,590

Rates (effective FY 2017) per 1,000 gallons metered consumption

Water

Residential Water Rates and all irrigation usage:

Level 1 (0-3,000 gallons per month)	\$3.99
Level 2 (3,001-6,000 gallons per month)	\$7.98
Level 3 (6,001-9,000 gallons per month)	\$11.97
Level 4 (over 9,000 gallons per month)	\$15.96

Non-Residential and Multi-Family Residential Water Rate
(except irrigation water)

\$7.70

Wastewater

\$8.50

Ten Largest Customers in FY 2017

	Water			Wastewater		
	Billed (in gallons)	Rank	Percentage of Total	Billed (in gallons)	Rank	Percentage of Total
University of Virginia	24,945,800	1	1.47%	23,349,700	1	1.66%
County of Albemarle	23,120,700	2	1.36%	14,758,600	10	1.05%
Southwood Mobile Homes	21,735,000	3	1.28%			
Martha Jefferson Hospital	20,214,200	4	1.19%			
Westminster Canterbury	19,750,000	5	1.16%	18,968,000	3	1.35%
Old Salem Apartments	19,352,900	6	1.14%	19,352,900	2	1.37%
Trophy Chase Apartments	18,961,525	7	1.11%	18,961,525	4	1.35%
Albemarle/Charlottesville Regional Jail	18,254,000	8	1.07%	16,536,000	9	1.17%
Four Seasons Apartments	18,123,000	9	1.06%	18,123,000	5	1.29%
Abbingdon Crossing (Squire Hill)	17,907,100	10	1.05%	17,907,100	6	1.27%
Turtle Creek Apartments				16,735,000	7	1.19%
Westgate Apartments				16,606,500	8	1.18%
	202,364,225		11.89%	181,298,325		12.88%

Miscellaneous Statistical Data
City of Charlottesville, Virginia

Date of incorporation	1888
Date present charter adopted	1976
Form of government	Council Manager
Area	10.4 square miles
Miles of streets	158.1
Number of water customers	14,756
Number of sewer customers	14,626
Miles of water lines	180
Miles of sanitary sewer lines	170
Number of fire hydrants	1047
Bond Rating	AAA/Aaa

Rates FY 2017 per 1,000 cubic feet:

Water	
May - Sept.	\$ 62.78
Oct. - Apr.	\$ 48.29
Wastewater	\$ 74.61

Ten Largest Customers in Fiscal Year 2017:

	Water		Wastewater		Percentage of Total Revenue
	Water Consumption (in cubic feet)	Billed Revenue	Wastewater Treated (in cubic feet)	Billed Revenue	
University of Virginia	64,814,665	\$ 1,768,880	45,699,938	\$ 2,765,308	20.00%
Pepsi Cola	4,281,450	244,100	948,250	70,400	0.51%
Charlottesville Redevelopment and Housing	2,779,539	151,922	2,779,539	207,950	1.50%
City Schools	1,890,729	95,127	1,456,734	109,092	0.79%
Woodard Properties	1,829,154	112,774	1,827,486	139,193	1.01%
City of Charlottesville	1,786,302	106,909	1,551,553	117,253	0.85%
Omni Charlottesville Hotel	1,547,200	90,694	1,298,708	96,476	0.70%
EDR Charlottesville	1,181,500	67,588	1,181,500	87,938	0.64%
Neighborhood Properties	1,054,814	62,912	1,054,814	79,372	0.57%
Blue Atlantic	1,038,021	58,155	1,018,390	75,659	0.55%
	<u>82,203,374</u>	<u>\$ 2,759,061</u>	<u>58,816,912</u>	<u>\$ 3,748,641</u>	<u>27.12%</u>

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ROBINSON, FARMER, COX ASSOCIATES

A PROFESSIONAL LIMITED LIABILITY COMPANY

CERTIFIED PUBLIC ACCOUNTANTS

Independent Auditors' Report on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

**To the Board of Directors
Rivanna Water & Sewer Authority
Charlottesville, Virginia**

We have audited, in accordance with the auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the *Specifications for Audits of Authorities, Boards, and Commissions*, issued by the Auditor of Public Accounts of the Commonwealth of Virginia, the financial statements of the business-type activities of Rivanna Water & Sewer Authority as of and for the year ended June 30, 2017, and the related notes to the financial statements, which collectively comprise Rivanna Water & Sewer Authority's basic financial statements and have issued our report thereon dated October 23, 2017.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered Rivanna Water & Sewer Authority's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of Rivanna Water & Sewer Authority's internal control. Accordingly, we do not express an opinion on the effectiveness of Rivanna Water & Sewer Authority's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether Rivanna Water & Sewer Authority's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Robinson, Turner, & Associates
Charlottesville, Virginia
October 23, 2017

ROBINSON, FARMER, COX ASSOCIATES

A PROFESSIONAL LIMITED LIABILITY COMPANY

CERTIFIED PUBLIC ACCOUNTANTS

Independent Auditors' Report on Compliance For Each Major Program and on Internal Control over Compliance Required by the Uniform Guidance

To the Board of Directors
Rivanna Water & Sewer Authority
Charlottesville, Virginia

Report on Compliance for Each Major Federal Program

We have audited the Rivanna Water & Sewer Authority's compliance with the types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of the Rivanna Water & Sewer Authority's major federal programs for the year ended June 30, 2017. Rivanna Water & Sewer Authority's major federal programs are identified in the summary of auditors' results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulations, and the terms and conditions of its federal awards applicable to its federal programs.

Auditors' Responsibility

Our responsibility is to express an opinion on compliance for each of the Rivanna Water & Sewer Authority's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the Rivanna Water & Sewer Authority's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the Rivanna Water & Sewer Authority's compliance.

Opinion on Each Major Federal Program

In our opinion, the Rivanna Water & Sewer Authority complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2017.

Report on Internal Control over Compliance

Management of the Rivanna Water & Sewer Authority is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the Rivanna Water & Sewer Authority's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the Rivanna Water & Sewer Authority's internal control over compliance.

A deficiency in internal control over compliance exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. *A material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. *A significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

Robinson, Farmer, Cox Associates
Charlottesville, Virginia
October 23, 2017

RIVANNA WATER & SEWER AUTHORITY

Schedule of Expenditures of Federal Awards
Year Ended June 30, 2017

<u>Federal Grantor/Pass-Through Grantor/Program or Cluster Title</u>	<u>Federal CFDA Number</u>	<u>Pass-Through Entity Identifying Number</u>	<u>Federal Expenditures</u>
Environmental Protection Agency			
Pass-through payment:			
Virginia Department of Environmental Quality			
Capitalization Grants for Clean Water State Revolving Funds	66.458	51000114	\$ <u>8,292,312</u>
Total Environmental Protection Agency			\$ <u>8,292,312</u>
Total expenditures of federal awards			\$ <u><u>8,292,312</u></u>

RIVANNA WATER & SEWER AUTHORITY

Notes to Schedule of Expenditures of Federal Awards
Year Ended June 30, 2017

Note 1- Basis of Presentation:

The accompanying schedule of expenditures of federal awards (the Schedule) includes the federal grant activity of Rivanna Water & Sewer Authority under programs of the federal government for the year ended June 30, 2017. The information in this Schedule is presented in accordance with reporting requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Because the Schedule presents only a selected portion of operations of Rivanna Water & Sewer Authority, it is not intended to and does not present the financial position, changes in net position, or cash flows of Rivanna Water & Sewer Authority.

Note 2 – Basis of Accounting

(1) Expenditures reported on the Schedule are reported on the accrual basis of accounting. Such expenditures are recognized following the cost principles contained in OMB Circular A-87, *Cost Principles for State, Local, and Indian Tribal Governments*, wherein certain types of expenditures are not allowable or are limited as to reimbursement.

(2) Pass-through entity identifying numbers were not available for presentation.

Note 3 – Relationship to Financial Statements

Federal expenditures, revenues and capital contributions are reported in the Authority's financial statements as follows:

Loan proceeds	\$ <u>8,292,312</u>
Total federal expenditures per the Schedule of Expenditures of Federal Awards	\$ <u>8,292,312</u>

RIVANNA WATER & SEWER AUTHORITY

Schedule of Findings and Questioned Costs
Year Ended June 30, 2017

Section I - Summary of Auditors' Results

Financial Statements

Type of auditors' report issued:	Unmodified
Internal control over financial reporting:	
Material weakness(es) identified?	No
Significant deficiency(ies) identified?	None reported
Noncompliance material to financial statements noted?	No

Federal Awards

Internal control over major programs:	
Material weakness(es) identified?	No
Significant deficiency(ies) identified?	None Reported
Type of auditors' report issued on compliance for major programs:	Unmodified
Any audit findings disclosed that are required to be reported in accordance with 2 CFR section 200.516(a)?	No

Identification of major programs:

<u>CFDA #</u>	<u>Name of Federal Program or Cluster</u>
66.458	Capitalization Grants for Clean Water State Revolving Funds

Dollar threshold used to distinguish between Type A and Type B programs	\$750,000
Auditee qualified as low-risk auditee?	No

Section II - Financial Statement Findings

There are no financial statement findings to report.

Section III - Federal Award Findings and Questioned Costs

There are no federal award findings and questioned costs to report.

Section IV - Prior Year Audit Findings

There were no prior year audit findings.

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Urban Water Supply Strategy



Presented by:

Bill Mawyer, Executive Director

Andrea Terry, Water Resources Manager

December 19, 2017

Urban Reservoirs



South Fork Rivanna Reservoir

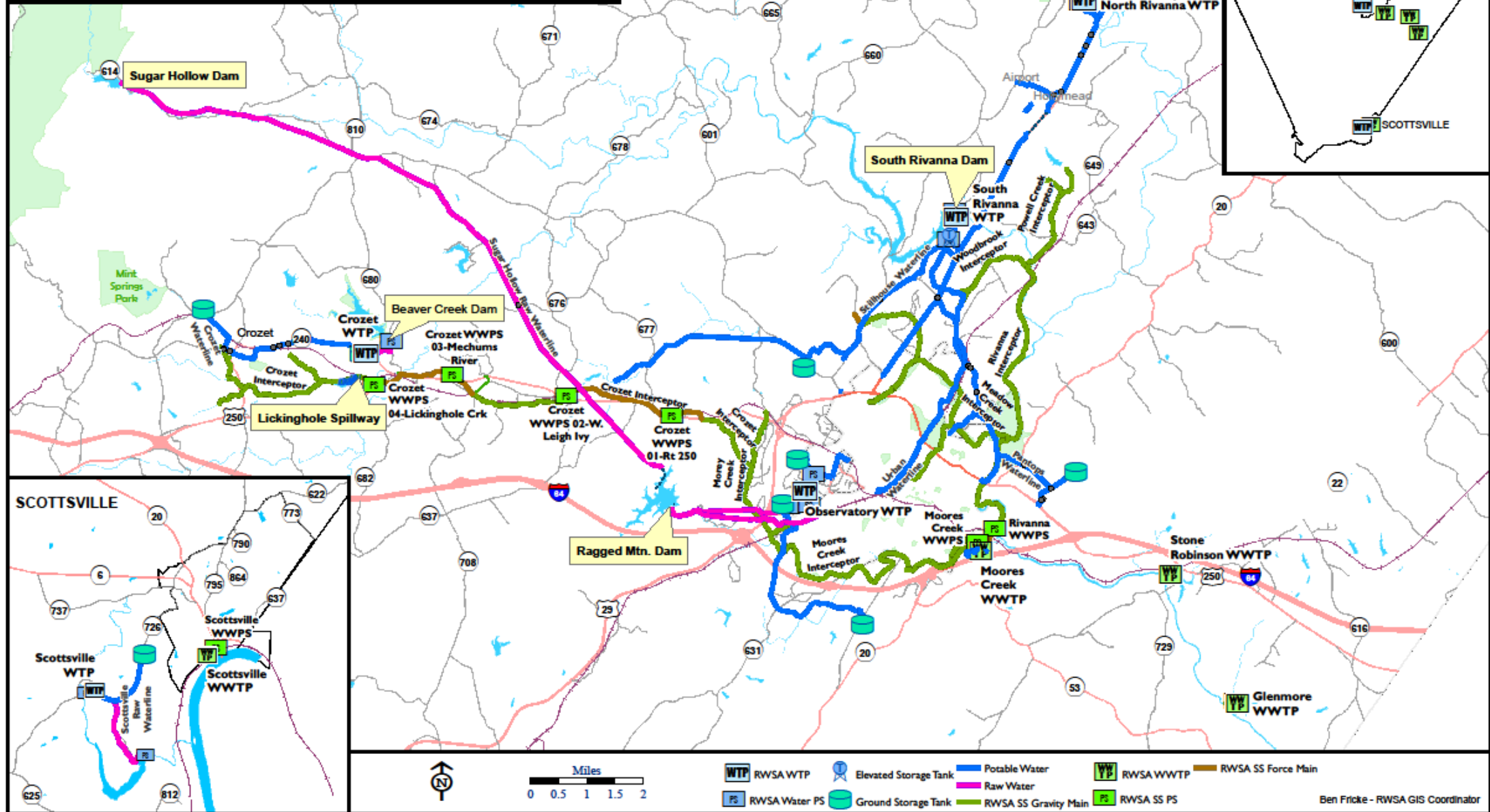


Sugar Hollow Reservoir



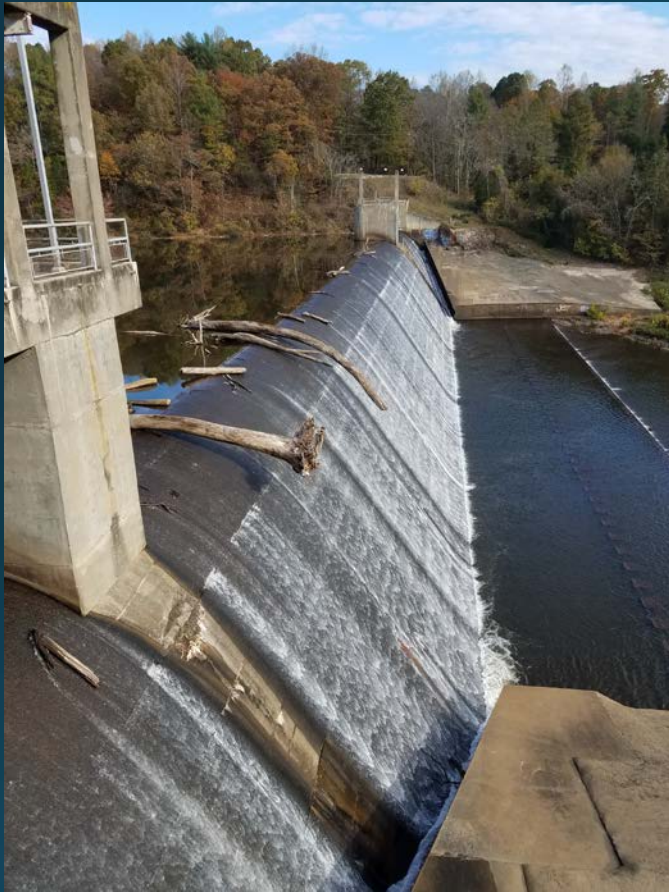
Ragged Mountain Reservoir

Reservoirs	Volume (MG)	Surface Area (Acres)	Watershed (miles ²)
South Fork Rivanna	883	366	259
Ragged Mountain	1,549	170	2
Sugar Hollow	339	47	18



Current Status of Reservoirs

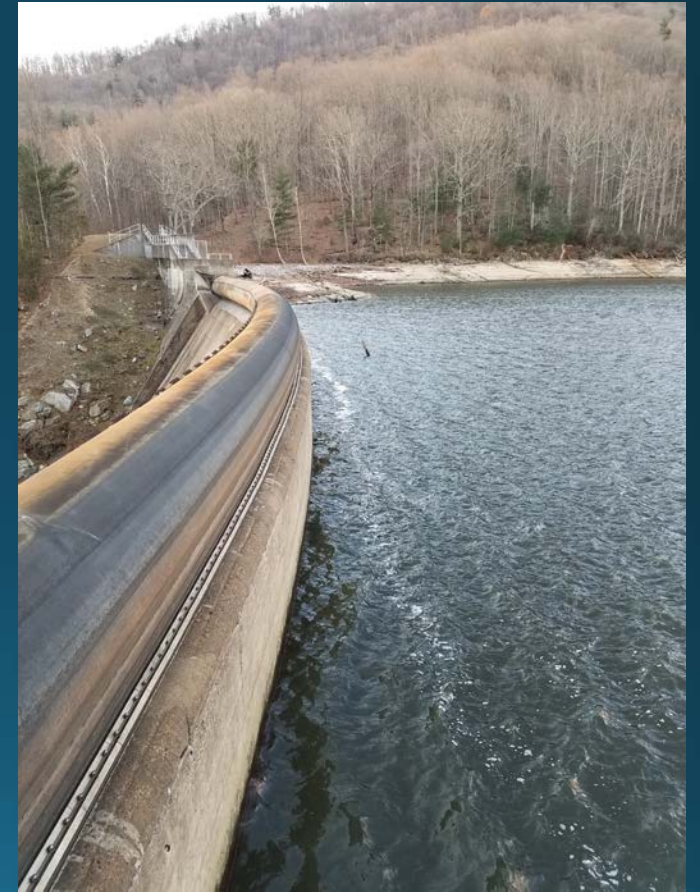
South Fork Rivanna Reservoir – 100%



Ragged Mountain Reservoir – 79.8%
-5.92 feet of 57 feet below dam



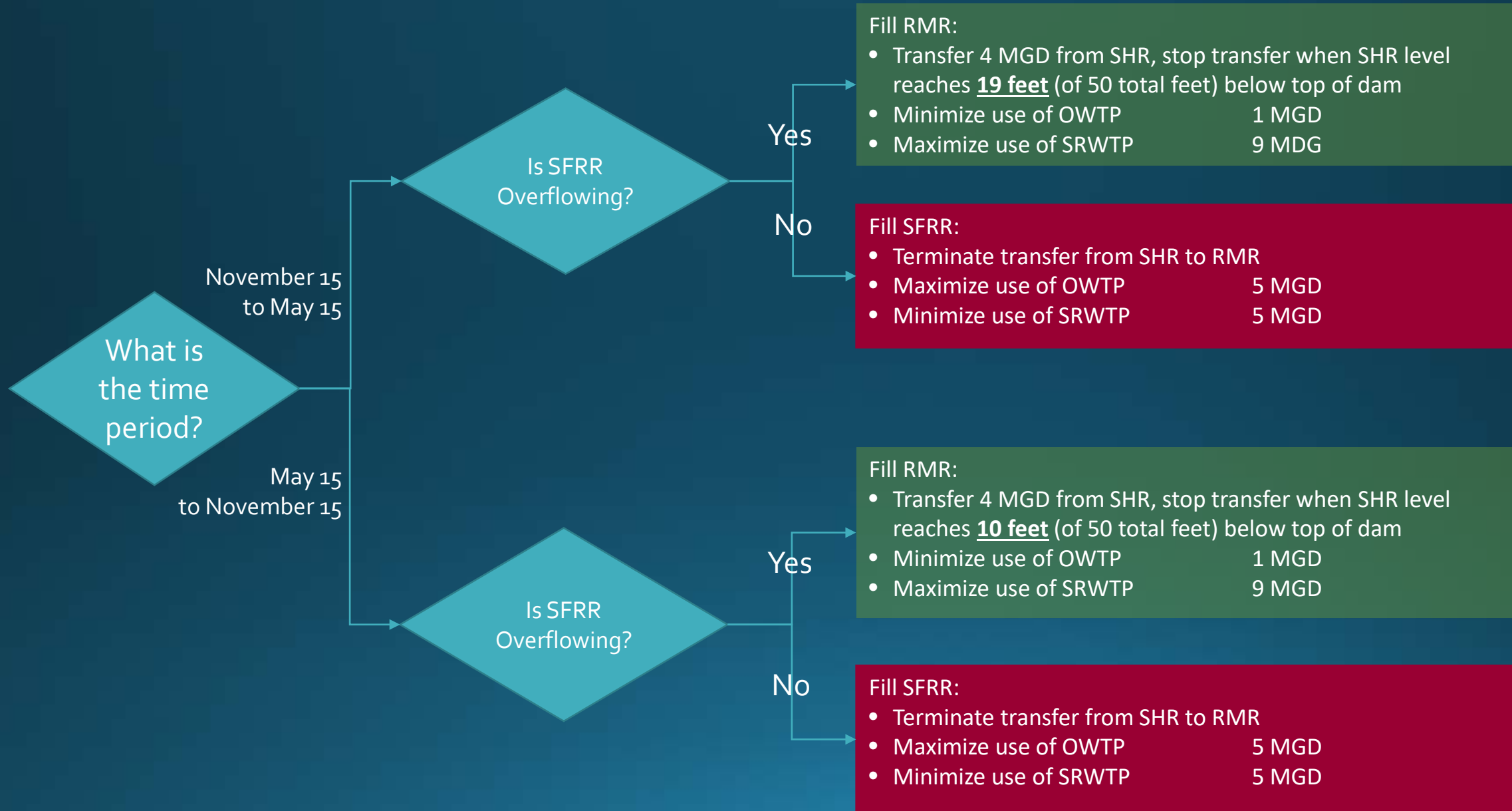
Sugar Hollow Reservoir – 49.8%
-13.9 feet of 50 feet below dam



Total Urban Reservoirs – 82.58% of Capacity

as of December 15, 2017

Transfer Strategy



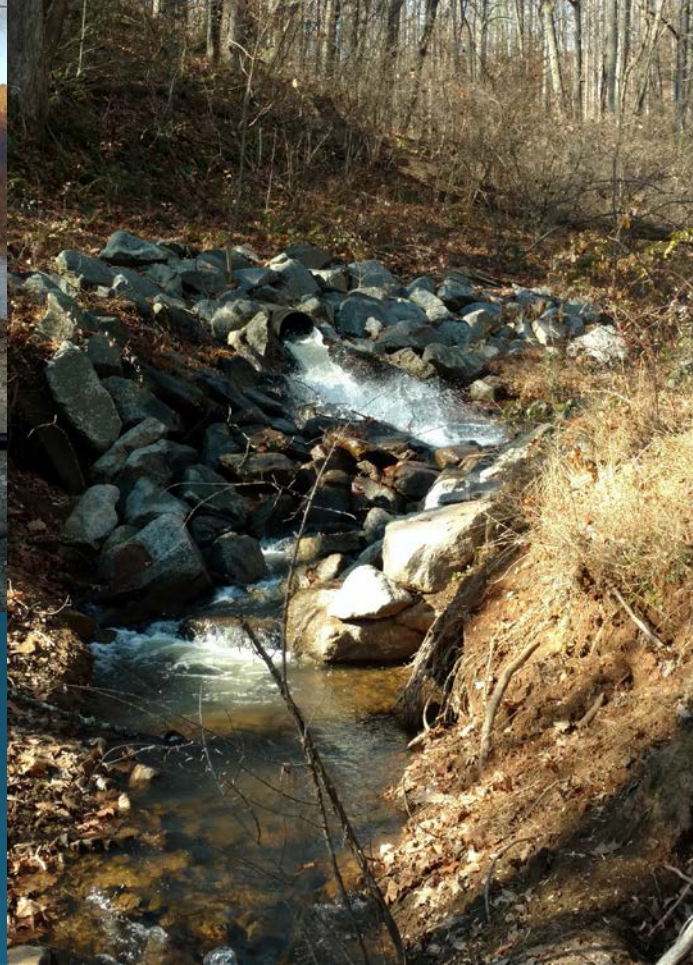
Reservoir Levels



Transfer from Sugar Hollow to Ragged Mountain



Sugar Hollow Reservoir



SHR to RMR Outfall Pipe



Ragged Mtn Reservoir



Sugar Hollow Reservoir

September 21, 2015

37 feet below dam



December 13, 2017

12.5 feet below dam

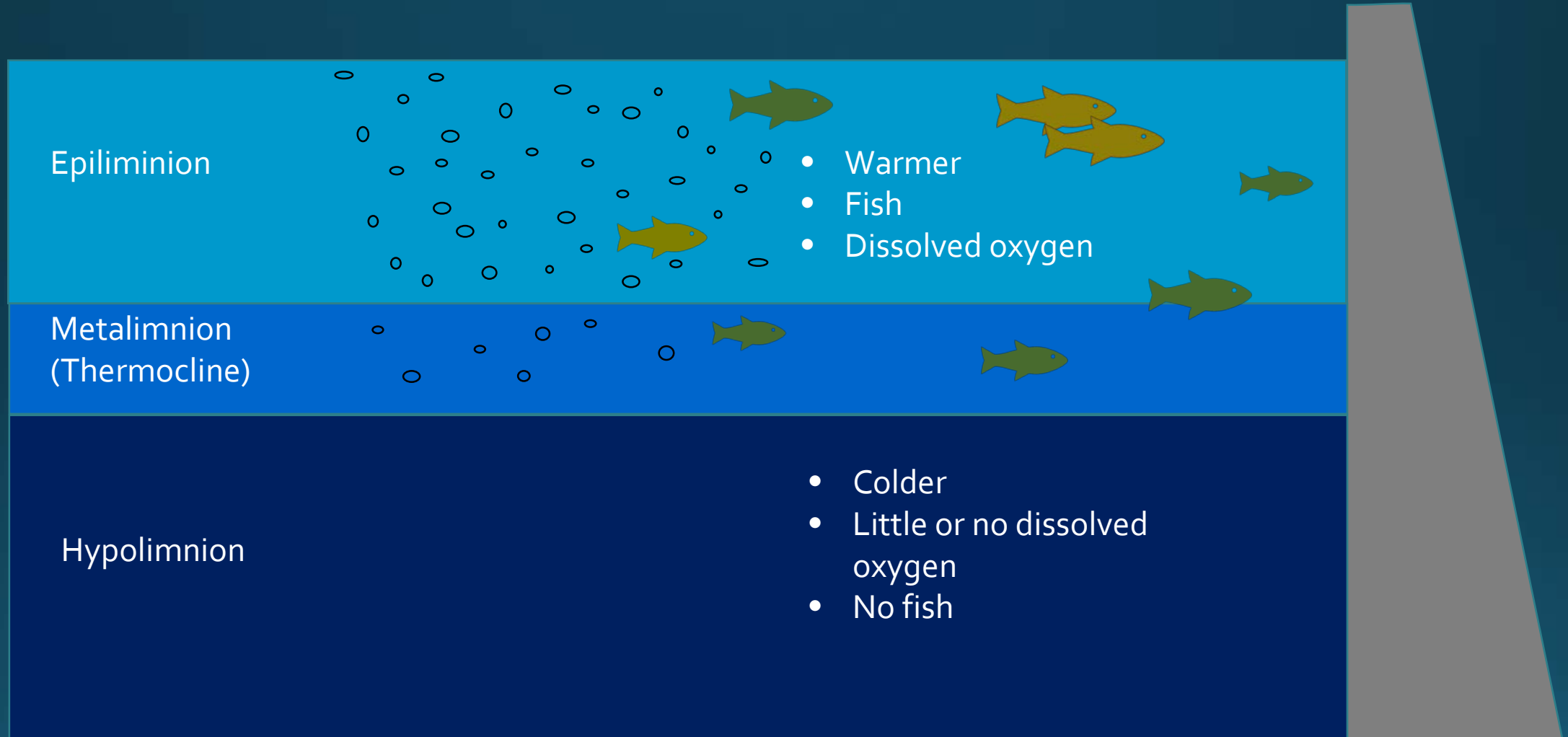


Instream Flows



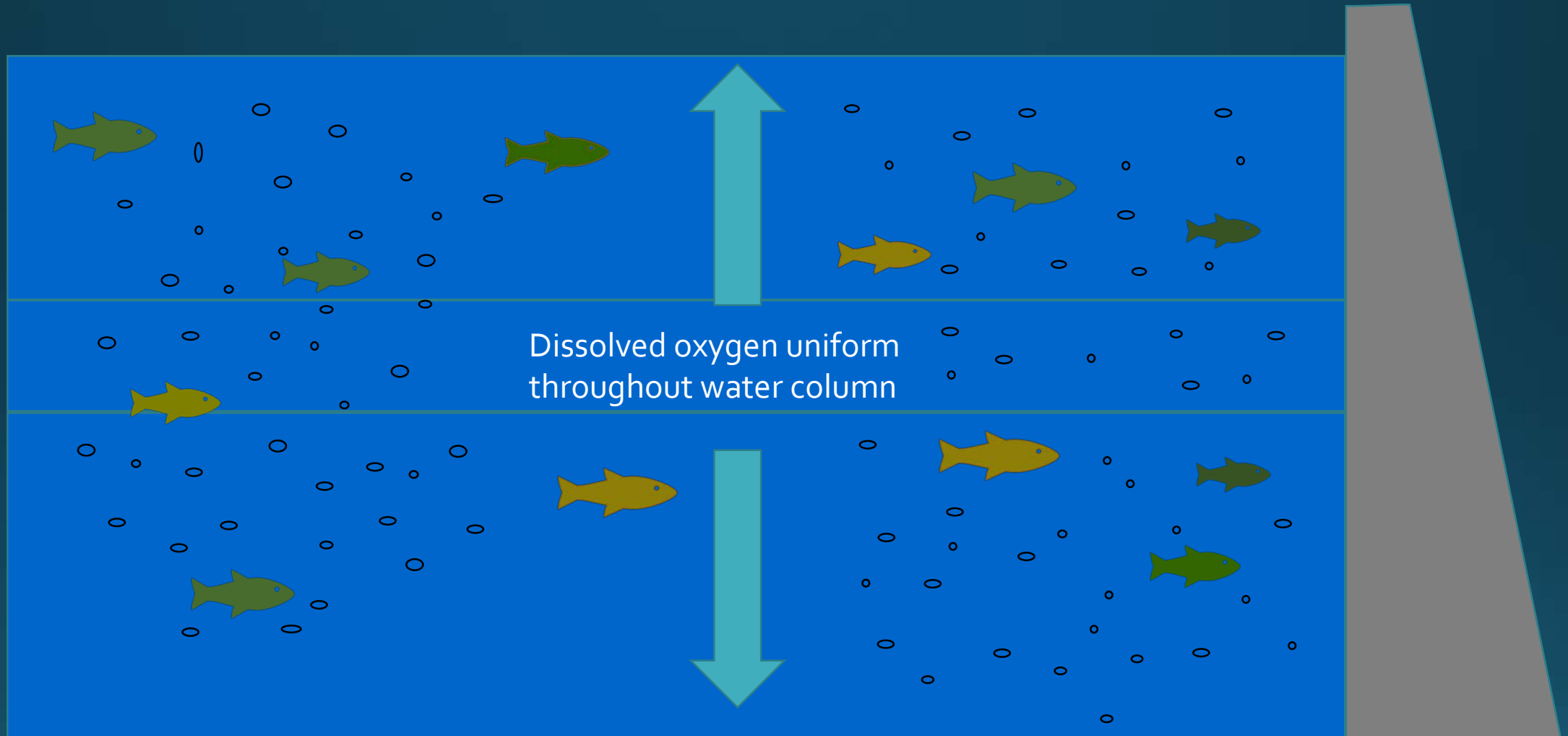
- Required downstream flow releases will be maintained
- Seasonal variability which mimics natural streamflow
- Previously constant release of 400,000 gpd
- Related to natural inflow (100% of inflow)
- Currently 2.6 MGD; max 10 MGD

Reservoirs in Summer Stratified



Reservoirs in Winter

Destratified



Considerations

1. Water Supply

2. Environment

3. Recreation

Questions?

Crozet Interceptor Flow Equalization Tank Siting Study Results



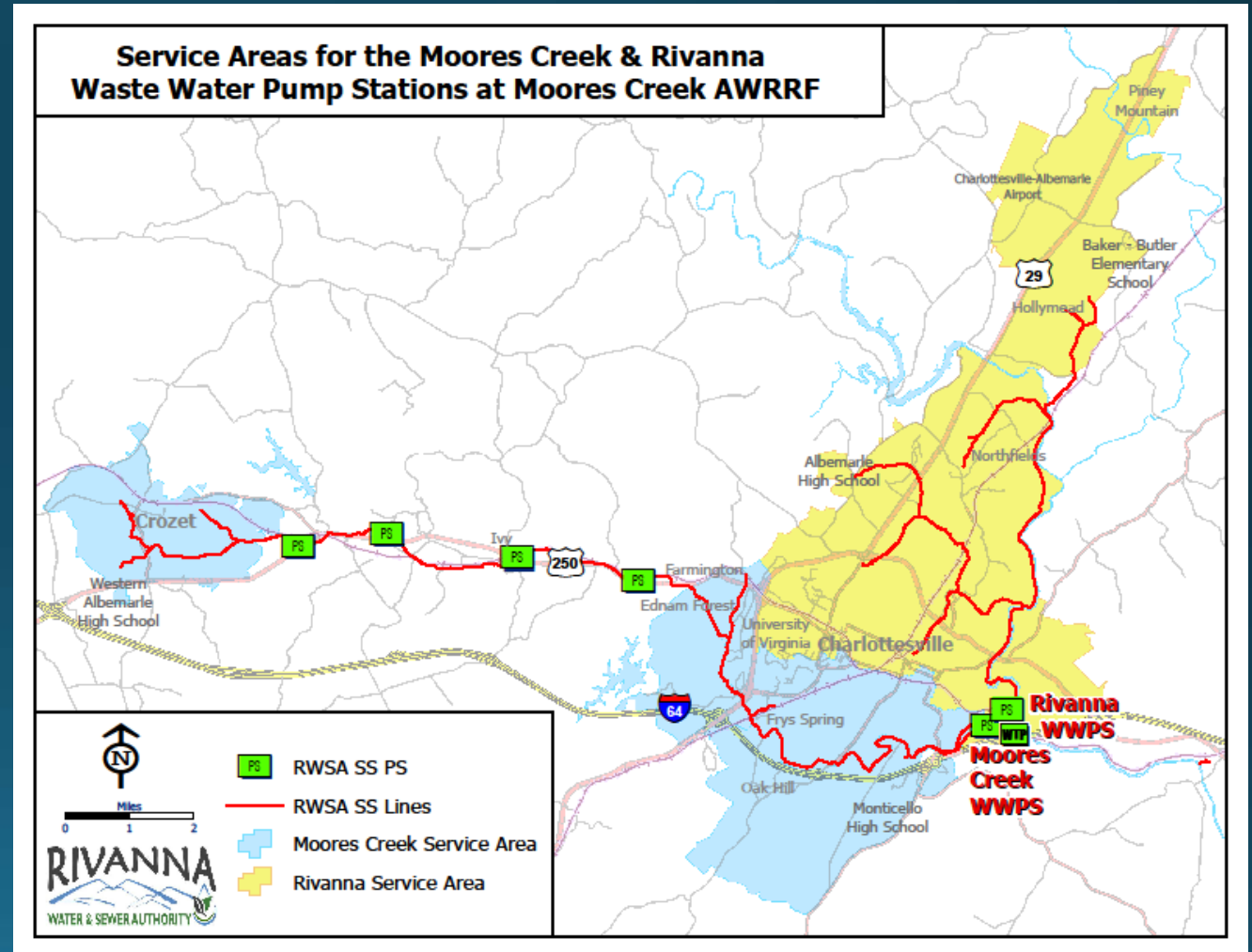
RWSA Crozet Pump Station No. 4



Presented by:
Scott Schiller, Senior Civil Engineer
December 19, 2017

Project Background

- 2016 model update for the Crozet Sewer System indicated inflow and infiltration (I/I) reductions were necessary to provide future peak flow capacity
- Construction of a flow equalization tank (FET) to temporarily store excess wastewater was more feasible than removing most I/I from the system
- Provide wet weather capacity to handle a 2-year design storm



Tank Siting Study



Henrico Co. DPU – Broadwater Creek Flow Equalization Tank

- Confirm existing pump station capacities
- Update model based on capacities
- Identify potential sites
- Evaluate for environmental and cultural issues
- Develop conceptual site layout
- Develop cost estimates
- Provide recommendations

Model Results and FET Sizing

- Size based on a 2-year design storm and updated Crozet Pump Station capacities
 - FET Volume = 1.0 MG
 - Concrete: approximately 72 feet diameter x 36 feet tall
- If located upstream of Crozet Interceptor Reach CZ-7
 - Peak Flow = 6.2 MGD
 - FET Pump Firm Capacity = 3.2 MGD
- If located downstream of Crozet Interceptor Reach CZ-7
 - Peak Flow = 6.7 MGD
 - FET Pump Firm Capacity = 3.7 MGD

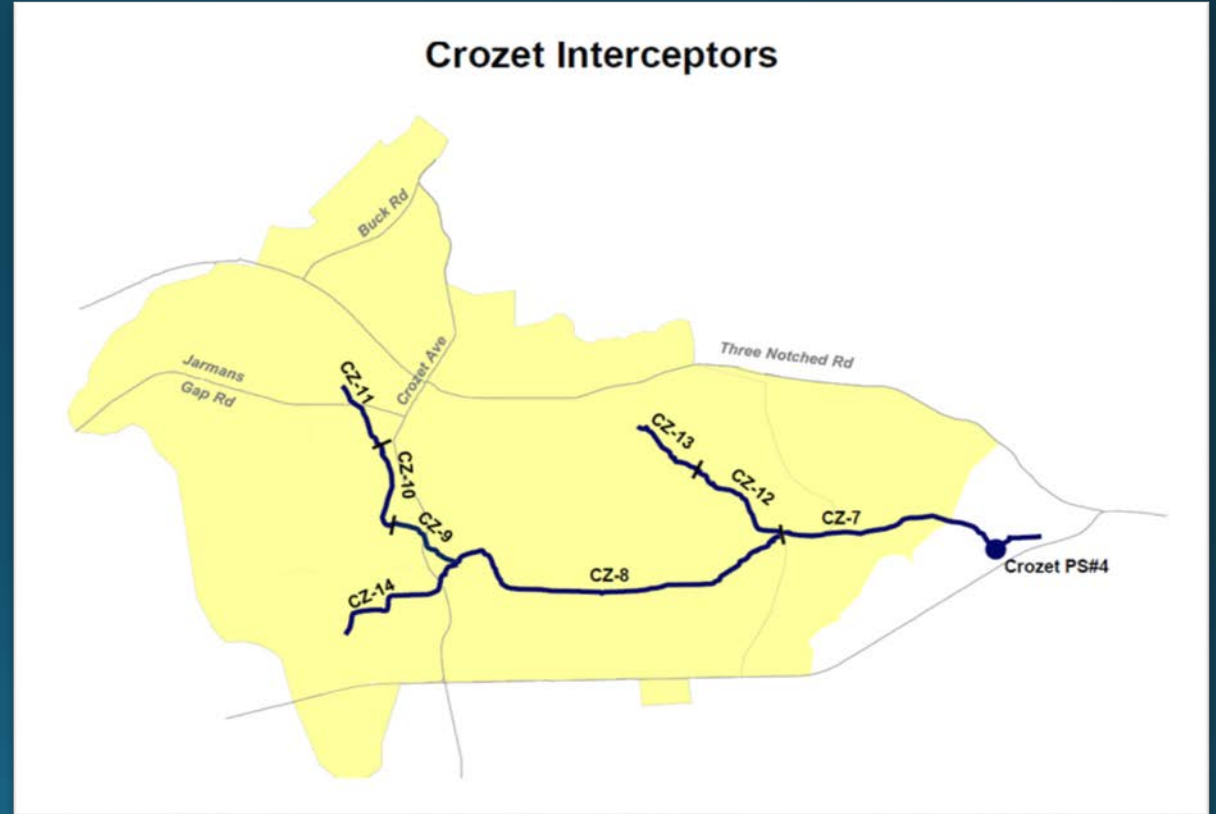
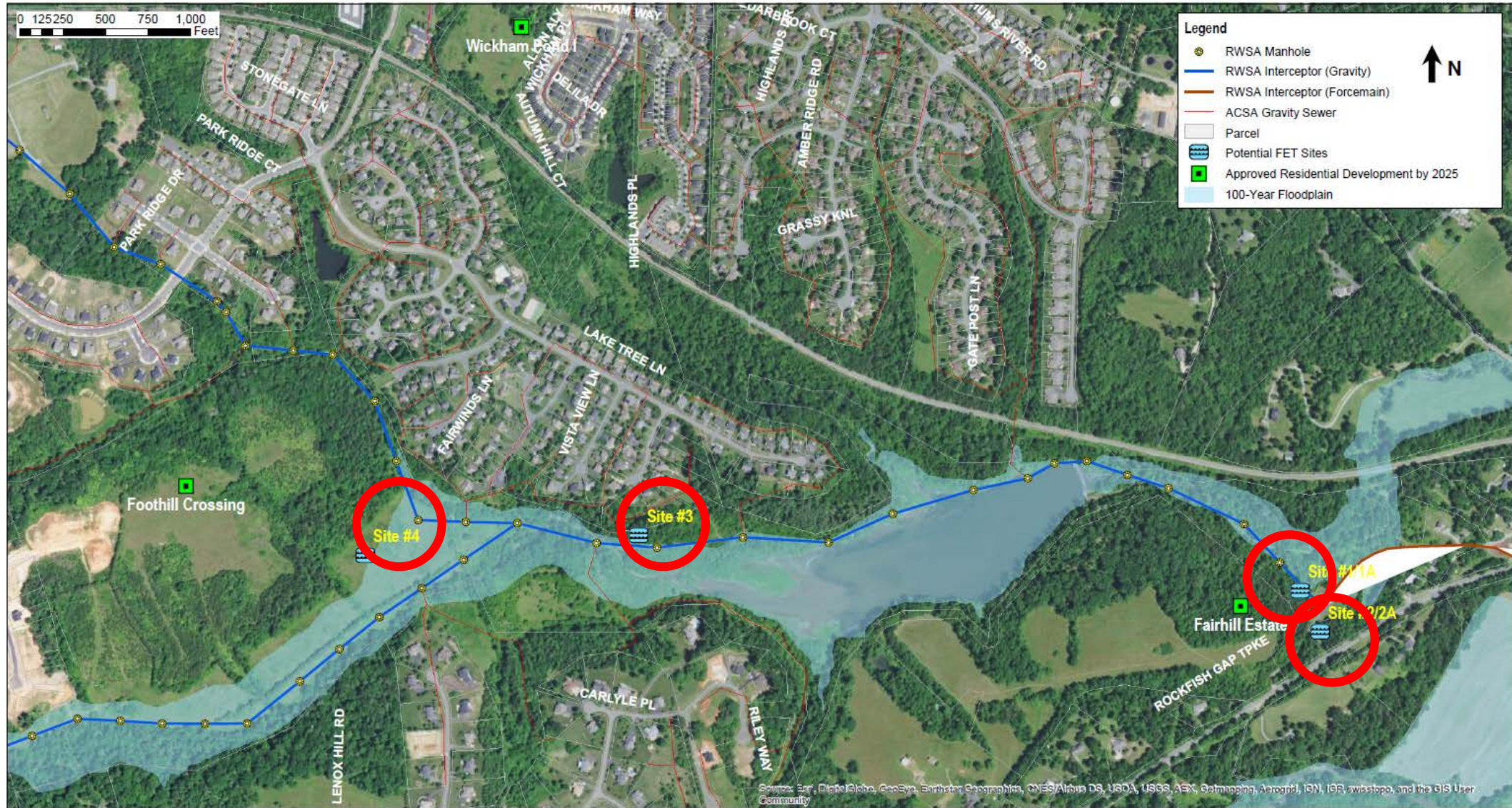


Figure 5-1
Proposed Locations of the Future Flow Equalization Tank



Siting Study Results

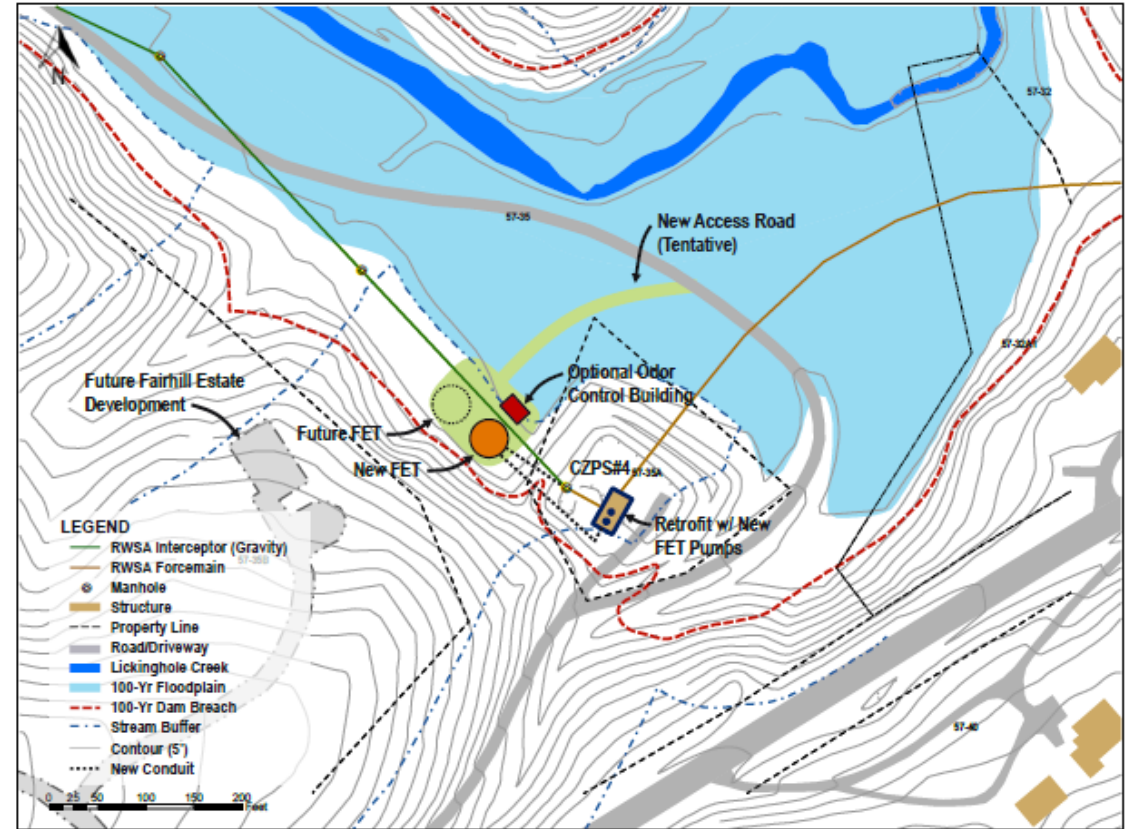
FET Site	FET Volume (MG)	Firm Pumping Capacity (mgd)	FET Pumping Configuration	Estimated Construction Cost	Total Estimated Project Cost
Site #1	1.0	3.7	New PS	\$4.5M	\$6.1M
Site #1A		3.7	Retrofit CZPS #4	\$1.9M	\$2.6M
Site #2		3.7	New PS	\$4.5M	\$6.1M
Site #2A		3.7	Retrofit CZPS #4	\$1.9M	\$2.6M
Site #3		3.2	New PS	\$4.6M	\$6.2M
Site #4		3.2	New PS	\$5.4M	\$7.4M

- 2017 CIP Budget = \$3,745,000
- Met with ACSA and Site #1A was agreed upon by all parties

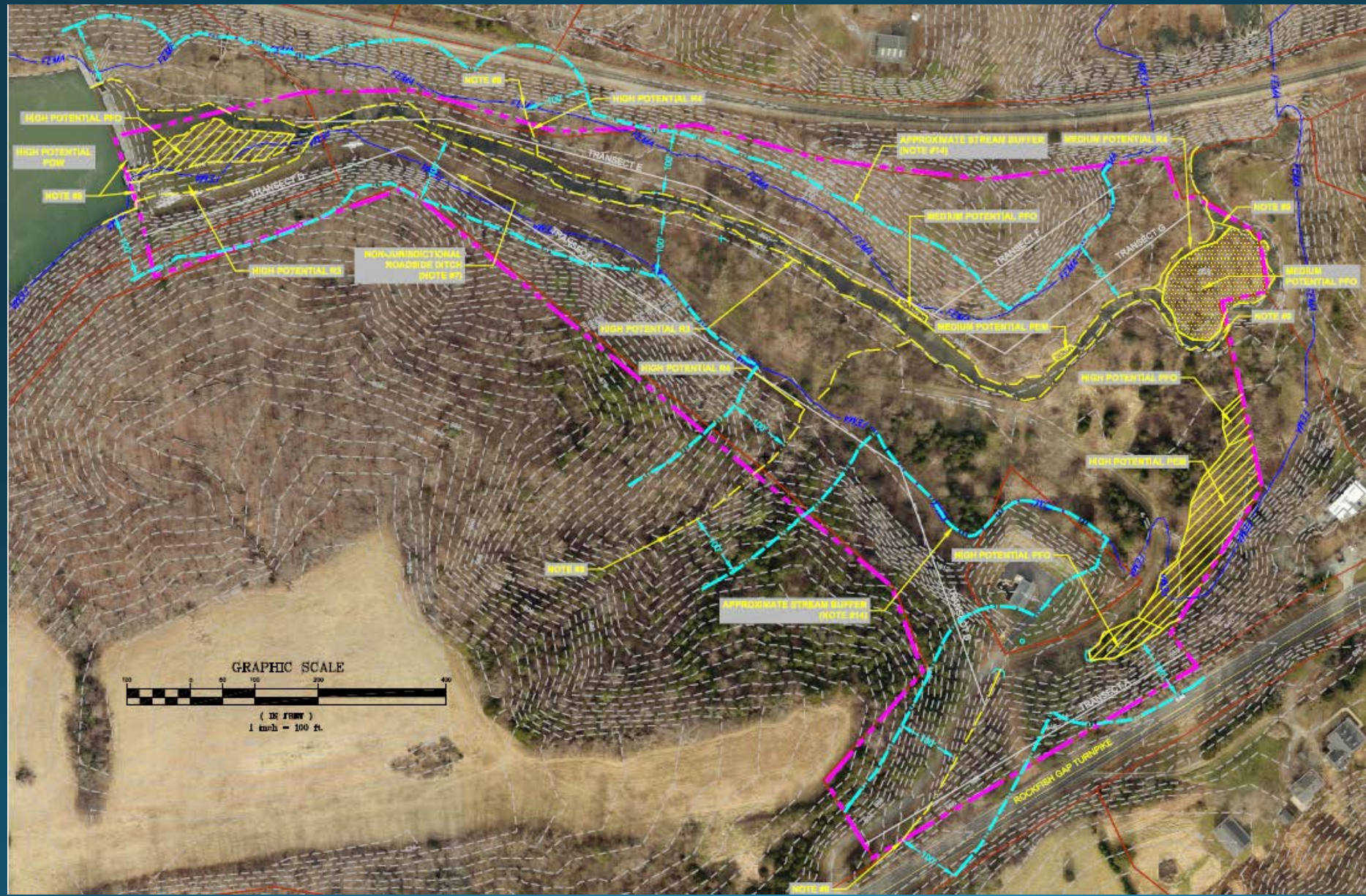
Conceptual Site Layout



Figure 6-2
Site #1A Conceptual Layout



Environmental and Cultural Review



Next Steps

1. Proceed with preliminary engineering, design, property acquisition, public information and bidding
2. Advertise project and award construction bid at December 2018 Board Meeting
3. Issue a Notice to Proceed to the Contractor in February 2019
4. Substantial Completion of construction work by May 2020

Request for Approval of the Strategic Plan by the Rivanna Board of Directors



Presented by:
Bill Mawyer, Executive Director
December 19, 2017

Process Timeline

- June 15: Kick-off Meeting, employee focus groups, and stakeholder interviews
- August 3: Public input session
- August 31: Foundation Workshop
- October 12: Strategy Workshop
- November 14: Presentation of Strategic Framework to the Board of Directors
- December 19: Plan completion

Strategic Framework

Vision

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

Values

The Rivanna Water and Sewer Authority and Rivanna Solid Waste Authority are committed to the following values:

- Integrity
- Teamwork
- Respect
- Quality

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.

Next Steps

- Goal Teams will develop a plan of actionable items and schedules, with assistance from Raftelis
- Resources needs will be evaluated
- Periodic reports will be provided to the Board

Request

Is it respectfully recommended that the Board of Directors approve the Strategic Plan for the Rivanna Authorities.

DRAFT

RIVANNA
WATER AND SEWER AUTHORITY
& SOLID WASTE AUTHORITY

STRATEGIC PLAN 2018



CONTENTS

*Photos courtesy of: page 11 - Bob Mical (Flickr);
page 4, 6, & 17 - Karen Blaha (Flickr); Page 10 -
Charlottesville Tomorrow (Flickr)*

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Industry Trends and Local Context

Strengths, Opportunities, Aspirations, and Results

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The Rivanna Water and Sewer Authority and Rivanna Solid Waste Authority (Rivanna) have long served their community by providing exceptional water, wastewater, and solid waste services.



MESSAGE FROM THE EXECUTIVE DIRECTOR

Continuing to do so, and to be a recognized leader in the environmental stewardship of the region, requires:

- A supportive Board of Directors
- A team of committed employees
- Sufficient financial resources
- Extensive, modern, and well-maintained infrastructure
- Efficient operations
- Satisfied customers and stakeholders

As an important component of our efforts to effectively and efficiently manage both Authorities, Rivanna has developed a new, joint strategic plan in pursuit of a well-defined and positive future for all our constituencies. This document presents and describes that plan.

We would like to express the appreciation of the Rivanna Boards of Directors and management for the support and contributions of the

many people who helped us develop this plan, including:

- Employees who provided input, developed the plan, and will ultimately implement the plan
- External stakeholders who provided valuable input.

We believe that Rivanna has created a strategic plan that will build a strong foundation to position the Authorities as valued environmental and community resources for the City of Charlottesville and Albemarle County. Working as a cohesive team, Rivanna is committed to being a recognized leader in environmental stewardship by providing exceptional water and solid waste services.

William I. Mawyer, PE

Executive Director

*Rivanna Water and Sewer Authority
and Rivanna Solid Waste Authority*

INTRO

OVERVIEW

The Rivanna Water and Sewer Authority and Rivanna Solid Waste Authority (Rivanna) initiated a joint strategic planning process in June 2017 to create an organizational vision and a framework for guiding the utility into the future. The strategic framework presented in this document will help guide investment, allocate resources, and provide a structure for annual reviews to assure that long-term goals and objectives are achieved.

PROCESS

Rivanna's strategic planning process was designed to assure:

- A shared vision of Rivanna's ultimate goals. Organizations driven by clear purposes and shared values have a greater capacity to succeed than those that are not.
- A collective understanding of the available resources, the environment, and the principles upon which strategies will be based.
- Acceptance of the direction and urgency of the strategic and operating plans, which will be integrated into the way Rivanna is operated on a day-to-day basis.

TO ACHIEVE THESE CONDITIONS FOR SUCCESS,

Rivanna's strategic planning process involved input from a broad group of internal and external stakeholders, and deep involvement of more than 60 employees in the strategy development process. Major elements of the process included:

Stakeholder Input

Input was obtained from Board members, employees, and external stakeholders through a combination of interviews, an online employee survey with 74 responses, a public meeting, two board workshops, and four employee focus groups, with approximately 40 attendees.

Foundation Workshop

A Project Steering Team (PST), consisting of members of Rivanna's staff, senior management, and representatives from the Board of Directors, met to consider stakeholder input and to draft the organization's Vision, Values, Mission, and Goals.

Goal Teams

Six multidisciplinary goal teams of employees were established to develop goal statements, key objectives, and potential strategies for the respective goals. Goal Team roles included:

- Goal Champions - the liaisons between the Team and senior management, providing support, and ensuring appropriate resource availability for the team.
- Goal Team Members - six or seven employees from various functions and levels of the Organization.

Strategy Workshop

The Goal Teams presented their work to the PST, which made preliminary decisions concerning the measures and strategies to be included in the final plan.

PST Review

After documentation of the Strategy Workshop results, the PST met again to review and revise, as necessary, the elements of Rivanna's strategic plan.

GOAL TEAMS

The PST believes that the input of the Goal Teams was critical to the success of the strategic planning effort and, as discussed later in the document, the Goal Teams will be integral to successful implementation. To recognize their contribution, the members of the Goal Teams are presented below.

COMMUNICATIONS

Goal Champion:
Lonnie Wood

Goal Team Members:
Ken Chapman
Mark Roach
Carol Wiles
Konrad Zeller
Teri Kent
Katie McIlwee
Chris Ward
Steve Minnis Jr.

ENVIRONMENTAL STEWARDSHIP

Goal Champion:
Andrea Terry

Goal Team Members:
Junior Harris
Bethany Houchens
Cliff Hunt
Jim Langolf
Bill Morris
Kathy Ware

SOLID WASTE SERVICES

Goal Champion:
Phil McKalips

Goal Team Members:
Miranda Baird
Mike Haley
Mark Brownlee
Scott Schiller
Jay Young
Mark Charron

WORKFORCE DEVELOPMENT

Goal Champion:
Betsy Nemeth

Goal Team Members:
Cynthia Polaro
Travis Goode
David Rhoades
Will Dobson
Steve Minnis
Patricia Defibaugh
Brian Haney

INFRASTRUCTURE

Goal Champion:
Jennifer Whitaker

Goal Team Members:
Chris Barfield
Elizabeth Duncan
Ben Fricke
Jon Lowry
Greg Marrs
Dave Tungate
Rob Haacke

OPERATIONAL OPTIMIZATION

Goal Champion:
Rich Gullick

Goal Team Members:
Tim Castillo
Matt Bussell
Brian Baird
Kevin Palmer
Debra Hoyt
Doug March
Steven Miller

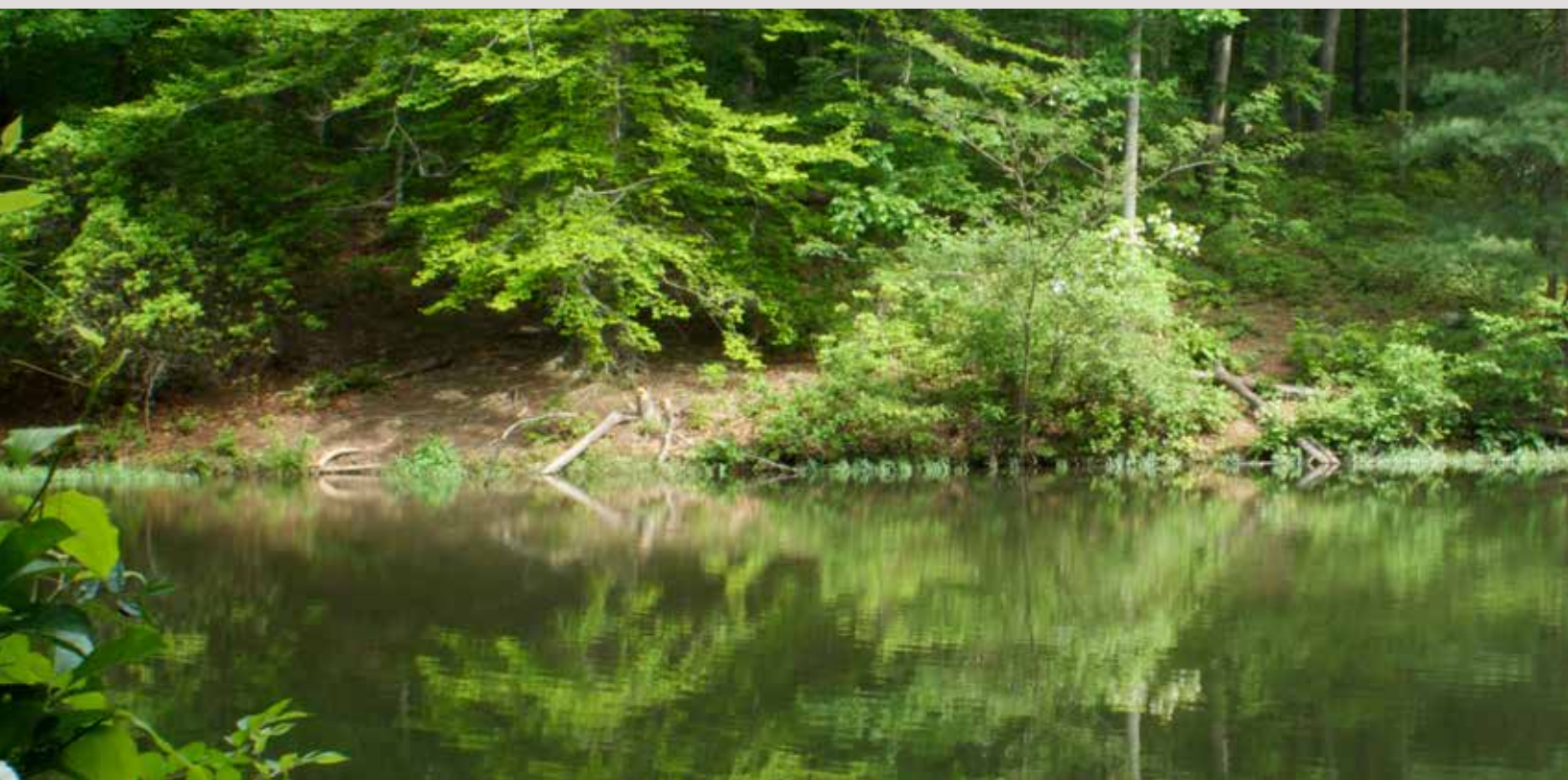
ENVIRONMENTAL SCAN

***THE RIVANNA
AUTHORITIES'
OPERATING
ENVIRONMENT
WAS DOCUMENTED
THROUGH:***

Analysis of community demographics and other external influences (Community Profile)

Considerations of key industry trends and their potential impact on the Organization

The Organization's Strengths, Opportunities, Aspirations, and Results (SOAR)



COMMUNITY PROFILE

The Rivanna Water and Sewer Authority was created in 1972 by the City of Charlottesville (City) and Albemarle County (County) to provide wholesale water supply, water treatment, and wastewater interception and treatment for the City and County. In 1990, the Rivanna Solid Waste Authority was created by the City and County to assume operation of the existing Ivy Landfill, which later closed in 1998. While the Water and Sewer Authority has two main customers (the City and County), the Solid Waste Authority currently provides recycling, solid waste, and household hazardous waste disposal services for more than 8,000 City and County residents and each businesses each month.

The Authorities are located in central Virginia. Charlottesville is surrounded by Albemarle County, but the City and County are two separate entities. According to the US Census Bureau, both the City and the County have experienced 8% population growth rates between 2010 (43,475; 98,970 respectively) and 2016 (49,912; 106,878 respectively). The median household income in the City is \$49,775, which is lower than both that of the County (\$68,449) and the national median (\$53,482). In 2016, the New York Post ranked Charlottesville as the 3rd best place to live in the United States, and Entrepreneur Magazine and Liveability.com ranked the City as the 4th best city in the United States for entrepreneurs.

The largest regional employers are the University of Virginia/UVA Hospital/UVA Medical Center, Albemarle County, the City of Charlottesville, State Farm Mutual Automobile Insurance, the US Department of Defense, and Northrup Grumman Corporation. The largest employers in the City are the University of Virginia Medical Center, the City of Charlottesville, UVA Health Services Foundation, and the Charlottesville City School Board. The area has a rich cultural heritage, having been home to Presidents Thomas Jefferson, James Madison, and James Monroe's estate, Highlands, with the County housing Thomas Jefferson's estate, Monticello. Charlottesville's Downtown Mall is one of the longest outdoor pedestrian malls in the country, and the nearby Shenandoah National Park offers many recreational activities year-round.



INDUSTRY TREND & LOCAL CONTEXT

The services provided by the Rivanna Authorities are central to assuring a sustained vitality of the service area. To achieve continued success, Rivanna must address several local, state, and national trends as it implements its strategic plan.

Rivanna must address future regulatory requirements, changes in usage patterns, and growing concerns about the impact of global climate change. These, and other challenges, must be considered to adequately plan for the Authorities' future.



TREND #1: POPULATION

THE CURRENT SITUATION

The service population is increasing, with the US Census Bureau reporting an 8% increase in both the City and the County's population between 2010 and 2016.

EXPECTATIONS FOR THE FUTURE

- The community seems to be growing, building is increasing, and the density around existing facilities is increasing

POTENTIAL RIVANNA RESPONSES

- Develop a Facilities Master Plan that reflects anticipated growth and stays abreast of other master planning efforts
- Complete capital projects including upgrading the Observatory, Crozet, and Rivanna Water Treatment Plants, completing the Rivanna-to-Ragged Mountain Reservoir Pipeline, and the new Ivy Transfer Station

TREND #2: THE POLITICAL ENVIRONMENT

THE CURRENT SITUATION

Rivanna is highly regarded as a well-run organization. The community has had differing views on several growth-related issues. Also, the City and County sometimes have differing interests, which affects both Authorities. Issues can change quickly, which affects the mission, especially solid waste.

EXPECTATIONS FOR THE FUTURE

- The political situation is expected to be stable, but some capital projects may generate community tension

POTENTIAL RIVANNA RESPONSES

- Continue to be an asset to the community, and provide great water, wastewater, and solid waste services

TREND #3: REGULATIONS

THE CURRENT SITUATION

Like utilities across the nation, Rivanna faces increased regulation and enforcement, which ultimately impacts rates, operations, and capital budgets. Regulations set many priorities for the capital improvements plan (CIP). Rivanna builds to exceed current regulations in order to meet future regulations and to have additional capacity and resiliency.

EXPECTATIONS FOR THE FUTURE

- Continued and changing regulatory challenges, including security, federal dam regulations, and emerging contaminants are of concern
- Increasingly the water quality discussion is shifting from "in the system" to "at the tap", which increases the need for customer outreach
- Changes necessitated by regulation will require careful planning and implementation in terms of processes, equipment, funding, timelines, etc.

POTENTIAL RIVANNA RESPONSES

- Monitor and accommodate changing regulations
- Continue involvement in state and professional associations, such as the Virginia Association of Municipal Wastewater Agencies, to provide input into regulations and process

TREND #4: WORKFORCE ISSUES

THE CURRENT SITUATION

Since many employees have been with Rivanna for several decades, there is some “brain drain” concern related to imminent retirements. In addition, there is concern that the workforce is not yet representative of the demographics of the service population. Finally, Rivanna has faced hiring challenges due to a shortage of applicants with the desired skill sets for open positions.

EXPECTATIONS FOR THE FUTURE

- Retirements are coming
- Trade positions are becoming more sophisticated
- Current hiring challenges are expected to persist

POTENTIAL RIVANNA RESPONSES

- Continue to emphasize hiring locally
- Partner with local organizations that help to develop necessary skills and competencies
- Emphasize knowledge transfer and the importance of training programs



TREND #5: TECHNOLOGY

THE CURRENT SITUATION

Technology is key to meeting environmental regulations, and it touches every facet of Rivanna’s business. To continue to meet customer expectations and service levels, Rivanna needs to ensure that it can fully utilize its existing technology, and consider opportunities to strategically increase technology use.

EXPECTATIONS FOR THE FUTURE

- Regulation and growth will continue to drive the need for enhanced technology
- Rivanna has new technological drivers associated with its sustainability goals

POTENTIAL RIVANNA RESPONSES

- Create a Technology Master Plan, with internal and external resources devoted to developing business cases for new technologies, and to assess the organization’s needs and opportunities
- Allocate sufficient resources to ensure technology training and implementation



TREND #7: UTILITY FINANCIAL CONSTRAINTS

THE CURRENT SITUATION

Rivanna has an extensive, multi-million-dollar capital improvement plan. Future regulations may define necessary resources, as will local government and community expectations. Currently, the Solid Waste Authority is not self-supporting.

EXPECTATIONS FOR THE FUTURE

- Capital and O&M requirements will increase

POTENTIAL RIVANNA RESPONSES

- Work to present information in creative ways, and to communicate the value of the water/ wastewater/ and solid waste services being delivered to the public

TREND #6: CUSTOMER EXPECTATIONS

THE CURRENT SITUATION

The public expects excellent service, but political and economic considerations often place downward pressure on rates. As an organization, Rivanna needs to define its customer base. Additionally, the general public does not differentiate between Rivanna, the Albemarle County Service Authority, and the City of Charlottesville Public Utilities.

EXPECTATIONS FOR THE FUTURE

- Increased planning, growth, and public involvement
- Rivanna needs to decide who it is trying to reach with its communication efforts

POTENTIAL RIVANNA RESPONSES

- Define and communicate with external customers
- Define internal customers and support functions
- Collaborate with a consistent message

TREND #8: ENERGY/REUSE

THE CURRENT SITUATION

Rivanna does not currently face significant energy availability challenges, especially with a third reactor going in at Lake Anna. Although the cost of power is a significant portion of the operating budget, rates are reasonable, there are several alternative energy sources, and Rivanna has upgraded to more efficient facilities and equipment.

EXPECTATIONS FOR THE FUTURE

- Alternative energies may become more cost-effective
- There will likely be more community pressure to conserve

POTENTIAL RIVANNA RESPONSES

- Consider methane or other energy bi-products



TREND #9: INCREASED RISK PROFILE

THE CURRENT SITUATION

The Rivanna Authorities are at risk for weather events that can compromise water, wastewater, and solid waste infrastructure.

EXPECTATIONS FOR THE FUTURE

- Natural disasters can impact facilities and impact treatment, as can dam breaches and cyber risks

POTENTIAL RIVANNA RESPONSES

- Be more involved in City/County planning processes
- Be prepared for wet weather, hurricanes, floods, droughts, etc.



“ TO ACHIEVE CONTINUED SUCCESS, RIVANNA MUST ADDRESS SEVERAL LOCAL, STATE, AND NATIONAL TRENDS AS IT IMPLEMENTS ITS STRATEGIC PLAN. ”



**THE RIVANNA AUTHORITIES UTILIZED
A *STRENGTHS, OPPORTUNITIES,*
ASPIRATIONS, AND *RESULTS* (SOAR)
ANALYSIS TO FORM THE BASIS FOR
ITS STRATEGIC PLAN.**



STRENGTHS

provided input to the development of a **Mission** that builds upon what the organization does extremely well.



OPPORTUNITIES

helped the goal teams and the PST develop **Strategies** to identify and explore innovative approaches to meeting future needs.



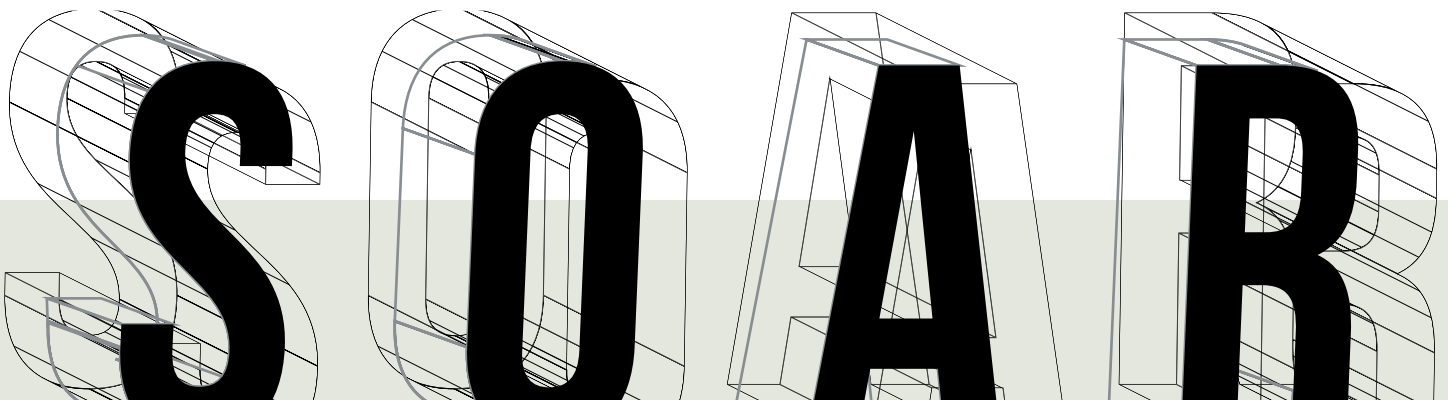
ASPIRATIONS

focused on the expectations or hopes of internal and external stakeholders to inform Rivanna's **Vision**.



RESULTS

supported the determination of the **Measures** of strategic progress.



STRATEGIC

DIRECTION

THIS STRATEGIC PLAN SERVES AS A
BLUEPRINT FOR FUTURE DECISION MAKING.

The Strategic Plan contains the Organization's Vision, Mission Statement, Values, Goals, Measures, and Strategies. It addresses Rivanna's current and future challenges.

This plan provides a structure by which annual reviews can be accomplished to assure that goals and measures retain their relevance over time. By laying out a course of action, this plan represents a disciplined process for making the fundamental decisions that will shape Rivanna's future.



VISION

Ultimately, implementation of this plan will enable Rivanna to achieve its desired future state as articulated in its Vision, which is:

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

MISSION

The Mission describes the organization’s purpose and role within the service area. Rivanna’s Mission is expressed as:

“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 stable and environmentally responsible manner.”

VALUES

Values articulate Rivanna’s deeply held beliefs, norms, and qualities, which drive day-to-day activities. The Rivanna Authorities’ Value Statement is:

The Rivanna Water and Sewer and Rivanna Solid Waste Authorities are committed to the following values:

- Integrity
- Teamwork
- Respect
- Quality



GOALS

Goals represent the most important issues that must be addressed to achieve the desired future. Rivanna's Goals are driven primarily by the factors that are most critical to the organization's future success.

WORKFORCE DEVELOPMENT



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

A high performing workforce requires high performing individuals. Accordingly, Rivanna will attract, retain, motivate, manage, and reward exceptional employees who make significant contributions to its success.

OPERATIONAL OPTIMIZATION



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

The Rivanna team recognizes the importance of making the most of its human, natural, and financial resources. Rivanna's commitment to efficiency will incorporate innovative solutions from across the organization.

COMMUNICATION AND COLLABORATION



To foster a culture that encourages open communications and strengthens partnerships.

Rivanna has committed to maintaining effective internal and external partnerships in furtherance of its mission and vision. Ensuring the Authorities' success requires strong, consistent communication through a variety of mediums.

ENVIRONMENTAL STEWARDSHIP



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

Maintaining and enhancing the long-term health of Rivanna's community and environment are among Rivanna's highest priorities. The Rivanna Authorities are committed to meeting or surpassing all regulatory requirements while providing high quality water, wastewater, and solid waste services.

SOLID WASTE SERVICES



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

The Rivanna Solid Waste Authority provides recycling, solid waste, and hazardous waste disposal services to 8,000 City and County residents and businesses every month. Rivanna is dedicated to helping its communities optimize their solid waste and materials management.

INFRASTRUCTURE AND MASTER PLANNING



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

The Rivanna Authorities are proud of their work on existing infrastructure systems and the new infrastructure under construction. A continued focus on developing and maintaining a sustainable infrastructure that will meet customer needs now and in the future will be critical to success.

MEASURABLE STRATEGIES

Measures demonstrate progress toward accomplishing each Goal. Strategies are the approaches to be used in achieving the Goals. These critical elements of the Strategic Plan, as well as the Vision, Values, Mission, and Goals, are presented in the strategic framework on the following pages.



Through this strategic plan, Rivanna has committed to improving internal and external communications. Effective communication is critical not only for the successful implementation of the strategic plan, but also for Rivanna's overall success.

COMMUNICATIONS

The issue of communication, which surfaced in the stakeholder input process, cuts across the various strategic goals. As indicated on the strategic framework, communications will be enhanced through several efforts, including:

- Enhancing use of multi-disciplinary teams to manage issues and projects
- Leveraging the continued contribution of the Goals Teams convened for the strategic planning effort
- Creating a culture of communication, both internally and externally
- Expanding team building and networking, tying individual contributions to overall organizational success

Enhanced communications will be a major initiative throughout the organization to ensure that all teams and individuals are working towards the ultimate vision and mission.

IMPLEMENTATION

The Goals, Measures, and Strategies contain a series of initiatives and projects that, when implemented, will move Rivanna toward achievement of its desired outcomes. However, it is important to note that for the desired results to be achieved, the Strategies must be effectively implemented. Therefore, careful attention and focus on strategy implementation is essential to achieving strategic success. Elements of the implementation process include:

LEVERAGE GOAL TEAMS

The Goal Teams are knowledgeable, energized and committed to the implementation of the Strategies for their respective Goals. Therefore, they will be instrumental in the implementation planning and ultimate implementation process. Specifically, Goal Teams will:

- Draft implementation plans for each Strategy that will include:
 - » Tasks necessary for implementation
 - » Assigned individuals or groups
 - » Due dates for key tasks
 - » Resources required
- Monitor implementation progress
- Report on implementation progress to senior management

INVOLVE SENIOR MANAGEMENT

During the implementation process, the Goal Teams will communicate with senior management concerning issues such as:

- Implementation progress
- Resources required (people, money, equipment, etc.)
- Strategies, which after initial implementation efforts, may require updates

REPORT TO BOARD OF DIRECTORS

Senior management is accountable to the Board of Directors for implementation of the approved strategic plan and achievement of the stated Goals and Measures. Accordingly, senior management will periodically update the Board on progress, achievements, and issues related to the strategic plan.



Strategic planning is a way of thinking that guides an analysis of the present and helps create a vision of the future. Rivanna has developed a strategic plan that will take some time to implement completely. However, the plan will provide a guide to the organization's long-term strategic success.

STRATEGIC framework

VISION

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

VALUES

The Rivanna Water and Sewer Authority and Rivanna Solid Waste Authority are committed to the following values:

- Integrity
- Teamwork
- Respect
- Quality

MISSION

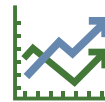
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GOALS



WORKFORCE DEVELOPMENT

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



OPERATIONAL OPTIMIZATION

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



COMMUNICATION AND COLLABORATION

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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 MASTER PLANNING

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

MEASURES

1. Reduce turnover rate to below 10% annually
2. Increase percentage (%) of required trainings completed and applicable licenses obtained
3. Increase the 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. Decrease number of safety incidents and injury lost time



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

1. Increase website performance metrics
2. Increase employee understanding and engagement ratings
3. Increase number of external partnerships and engagement activities
4. Increase community awareness of Rivanna initiatives



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

1. Achieve and maintain 100% permit compliance
2. Increase number of green projects
3. Increase number of times standards on effluent or treated water quality were positively exceeded
4. Increase percentage (%) of solid waste tonnage recycled



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

1. Increase participation rate (both number of people and types of waste)
2. Increase tonnage rates
3. Increase patron satisfaction and outreach



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

1. Improve infrastructure performance and condition rating
2. Increase percent of assets populated in Asset Management Program
3. Increase 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

REALIZING THE VISION

Our vision is “To serve the community and be the recognized leader in environmental stewardship by providing exceptional water and solid waste services.”

This is attainable. To make that future a reality, we must have a plan in place to guide us in making the right decisions and the right investments of our limited time and resources. We have created this plan with the input of our staff and our external stakeholders to ensure that we meet and exceed their expectations. Rivanna is grateful to all the individuals who took the time to provide input during this strategic planning process, and we look forward to sharing our progress and success as we work to achieve our shared goals.



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