RIVANNA
WATER & SEWER AUTHORITY

Board of Directors Meeting

February 25, 2020

2:15pm

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

BOARD OF DIRECTORS

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

DATE: **February 25, 2020**

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

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

AGENDA

1. ***CALL TO ORDER***

2. ***MINUTES OF PREVIOUS BOARD MEETINGS***
   a. *Minutes of Regular Board Meeting on January 28, 2020*

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 Operations*
   c. *Staff Report on Ongoing Projects*
   d. *Staff Report on Wholesale Metering*
   e. *Award of Nonprofessional Services Contract for Construction Visual Documentation Services; Commonwealth Documentation, LLC*

8. ***OTHER BUSINESS***
   a. *Presentation: Proposed FY 2021 – 2025 Capital Improvement Plan; 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)

Rev. September 22, 2009

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RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
January 28, 2020

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, January 28, 2020 at 2:50 p.m. in the 2nd floor conference room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Lauren Hildebrand, Dr. Liz Palmer, Jeff Richardson, Gary O'Connell**,** Mike Gaffney, Lloyd Snook**.**

Board Members Absent: Dr. Tarron Richardson.

Rivanna Staff Present: David Tungate, Lonnie Wood, Michelle Simpson, Austin Marrs, Andrea Terry, Victoria Fort, Jennifer Whitaker, Scott Schiller, Dr. Bill Morris, Dyon Vega, Katie McIlwee, Bill Mawyer.

Attorney(s) Present: Kurt Krueger.

1. CALL TO ORDER
Mr. Gaffney called the January 28, 2020 regular meeting of the Rivanna Water and Sewer Authority to order at 2:50 p.m.

2. MINUTES OF PREVIOUS BOARD MEETINGS
a. Minutes of Regular Board Meeting on December 17, 2019

Mr. Gaffney asked the board members if there were any questions or comments about the December 17, 2019 meeting and heard none.

Dr. Palmer moved that the board approve the minutes of the board meeting from December 17, 2019. The motion was seconded by Mr. O'Connell and passed unanimously (6-0). Dr. Richardson was absent from the meeting and the vote.

3. RECOGNITIONS
There were no recognitions.

4. EXECUTIVE DIRECTOR'S REPORT
Mr. Mawyer stated that RWSA continues to give tours to students and others who want to see the facility there at Moores Creek, as well as at other locations.

Mr. Mawyer stated that they are working on easements for the South Fork Rivanna Reservoir-to-Ragged Mountain Reservoir water line project. He stated that last month's minutes stated they had made offers to 9 of 11 private property owners, and that now, they have made offers to 9 of 12 private property owners. He explained that the change was that one of the properties was previously owned by VDOT, and it had reverted back to a private owner and therefore it switched from the public ownership column to the private one. He stated that the number of

properties had not changed.

Ms. Hildebrand asked if this was left over from the Western Bypass project.

Mr. Mawyer replied yes. He stated that the consultants are moving forward with the effort.

Mr. Mawyer stated that they were moving forward with the Observatory Water Treatment Plant lease and that they have made progress, particularly in the last few days. He stated that they received comments back from UVA, and that he, Mr. Krueger, and Mr. Gaffney have worked on them. He stated that they are getting closer to having a final lease for the Observatory Water Treatment Plant.

Mr. Mawyer stated that there will be a used cooking oil facility provided at the McIntire Recycling Center where residents, at no cost, can bring used cooking oil and place it in a container. He stated that the container will then be taken by a vendor, and the products are reused for animal feed or biofuels.

Mr. O'Connell thanked Mr. Mawyer for following up on this. He stated that grease is the biggest problem in the sewer system.

Dr. Palmer stated that Dr. Morris had given a great presentation the month before about fatbergs.

Mr. Mawyer stated that next month, RWSA will begin its budgeting process with the Board and present its FY 21-25 CIP. He stated that staff has been working with Ms. Hildebrand and Mr. O'Connell as a subcommittee on that budget.

Dr. Palmer stated that on the easements for South Rivanna to Ragged Mountain Pipeline, Mr. Mawyer had mentioned he was working with the County, City, County Schools, and VDOT. She asked about UVA and the UVA Foundation.

Mr. Mawyer replied that he was counting UVA Foundation in the "private" column. He stated they have a number of properties and that RWSA is working with them. He stated there is no property for UVA on that part of the line, but that UVA does have a property when going from Ragged Mountain to Observatory WTP and they will have to get easements from UVA for that pipeline replacement project.

Dr. Palmer asked if they were actively engaging with UVA.

Mr. Mawyer replied that they were on all those projects.

5. ITEMS FROM THE PUBLIC

Mr. Gaffney opened the meeting to the public.

Mr. John Martin (White Hall District) noted the lack of members of the public present and that he would like to talk to people in the community about that. He stated this is an important subject matter, and that citizens should be more involved and interested.

Mr. Martin mentioned that the County's website is being redone. He stated that on the current website, on the first page, there is a yellow box at the top that says, "Calendar." He stated that clicking on that, it gives the month with all the meetings of the boards and commissions. He stated that RWSA, RSWA, and ACSA meetings have never been listed, however. He stated that all the people who could make that change were in the room. He stated that the same was true of the City website, noting they do not list those meetings.

Mr. Snook stated that the City's website hardly listed any of the meetings. He stated that this website was also in the process of being changed and that by March, a new version would be rolled out.

Mr. Martin stated that the City is a partner with Rivanna, and that City residents are also concerned. He suggested making the change to the County website and perhaps insert a link to the City's website, as a County resident may want to see what is happening in the City. He stated that clicking on the Rivanna meetings, perhaps it could include a link to the current agendas. He stated that it would be a great convenience to members of the public to have that, and that he believes there would be interest in having that.

Mr. Gaffney closed the public comment portion of the meeting.

6. RESPONSES TO PUBLIC COMMENTS

Dr. Palmer stated she just emailed the County's communications staff and cc'ed Mr. Richardson, suggesting to put those meetings on the website's calendar.

7. CONSENT AGENDA

a. Wholesale Metering Report – December 2019

b. Sole Source Determination and Award of Services Contract for Biosolids Disposal- McGill Environmental

c. Award of Service Contract for Biosolids Transportation - Country Line, Inc.

d. Award of Service Contract for Granular Activated Carbon – Calgon Carbon

Mr. O'Connell stated that he had mentioned to staff that apparently, some of the trailer loads, when they are coming back, are empty, and that he would ask to explore bringing some compost back that could either be provided to residents or parks. He stated that this would allow for reuse of the material in the community instead of sitting in Waverly. He stated that some of it could be bagged and some of it could be loose.

Mr. Gaffney asked if this was biosolids composting.

Mr. O'Connell stated that it was the result of that.

Mr. Mawyer replied yes. He stated that they take the biosolids to McGill.

Mr. O'Connell stated that it sounded as if it might be feasible to get compost back from that process, and that Rivanna was exploring ways to possibly do that.

Dr. Palmer moved that the Board approve the Consent Agenda. The motion was seconded by Mr. O'Connell and passed unanimously (6-0). Dr. Richardson was absent from the meeting and the vote.

7. OTHER BUSINESS

a. Presentation: Staff Report on Finance

Mr. Lonnie Wood (Director of Finance) stated that RWSA has two main processes -- the Operating Budget (which includes debt payment and debt service), and the five-year CIP.

Mr. Wood stated that the Operating Budget has two main areas, daily costs like maintenance personnel, chemicals, and debt service cost is the other area. He stated that the charges are separated into six main rate centers, or what are called "cost centers" on the Solid Waste side.

Mr. Wood stated that there are two urban rate centers that are shared by the two customers (City Public Utilities and ACSA), and that there are four non-urban rate centers that are exclusively the Service Authority. He stated that there are two main operating departments -- the Water department, and the Wastewater department, and that the two urban rate centers are part of both of those, so the City and County share those two.

Mr. Wood indicated to the Service Authority-only rate centers each have their own standalone budget costs and rates.

Mr. Wood stated that for the urban cost centers, the operating rates were listed on the report for water and wastewater, which are determined and charged on a cost-per-thousand-gallon basis. He stated as the flows are produced, they are split out, based on the billing methodology, to each customer.

Mr. Wood stated that for the debt service charges, which is basically like a mortgage payment,, they can come up with a monthly payment, and so those are done on a monthly charge basis, not on a flow basis.

Mr. Wood stated that the four non-urban rate centers are all on a monthly charge basis.

Mr. Wood presented last year's budget and the current budget versus actual for the Water department and described the information within the report.

Mr. Wood indicated to a field called "Allocation Departments." He explained that they have six rate centers and four support departments (Admin, Engineering, Maintenance, and Lab). He stated that their costs each month get absorbed into the rate centers because they don't have a way to charge revenue.

Mr. Wood indicated to the monthly charge and the expenses related to it. He explained that the report included the principal, interest, reserve charges, and the estimated growth charge for the CIP.

Mr. Wood stated that the five-year CIP is reviewed annually and that this process was currently occurring. He stated that in terms of the CIP funding and how they estimate the future debt service needs, they estimate that they will use 10% cash reserve on all projects. He stated that this is written into the financial policies. He stated that anything remaining will be funded through a debt issuance, through revenue bonds, and that this is usually timed on however quickly or slowly projects are executed. He stated that they sometimes receive grant funds, such as in 2009 when they received ENR grant funds, which helped defray bond issue costs.

Mr. Wood presented the current year's CIP, with the total ($97 million). He stated that this total is broken out by rate centers, shared projects (split between all four), non-urban water, and non-urban wastewater.

Mr. Wood indicated to the percentage of cash-to-expense ratio (14%), explaining that this meant they were doing better than the 10% target.

Mr. Wood stated that the Percentage of Funding in Place shows that of the $97 million, they had $35 million in proceeds waiting to be spent on projects, cash available in the capital fund, or work in progress that's been done in previous years. He stated that $45 million of the $97 million is funded.

Mr. Wood presented the budget calendar for the current year for the CIP process, including the water operating process and solid waste process. He stated that they always target May to be adoption, and so at the May board meeting, there is a public hearing where the budget and related rates are adopted. He stated that April and May are advertising (which includes twice in the newspaper). He stated that March is when they will see Finance introduce the Operating and Debt Service Budget. He stated that February is when they will see Finance introduce the CIP to the Board.

Mr. Wood stated that financial reports are created each month. He stated that Finance provides a memo that tries to explain some of the large variances, and that they present the flows graphically. He stated that the six rate centers are presented separately, along with the four support departments he mentioned earlier. He stated that the monthly report looks very similar to the budget report, with a budget, budget year-to-date (the budget divided by six-twelfths, as it was December), the actual, and the budget variance for each rate center.

Mr. Wood presented an example of what is reported for flows. He stated that for 2019, they would see that wastewater flows were very high, and in 2018, they were very low. He stated that wastewater flows can have as much as 80-90% variance at any given time comparing one year to another, which makes it very difficult to predict the flow and therefore, the related revenue for wastewater.

Mr. Mawyer stated that difference is generally a function of wet weather, or rain, that gets into the wastewater system.

Mr. O'Connell stated that one conversation they've had is if there is some way to budget [inaudible] between the City, County, and Rivanna to smooth this somehow so that there won't be wild fluctuations of a bill that is double one month or year.

Dr. Palmer stated it helps a lot getting the debt service out.

Mr. Wood stated that it helped a lot getting the debt service out, but now that they have a tighter system, they are having more of that rainwater flow into the system and not leaking out of it. He stated that they actually still have the problem, which was shown the year before, of having quite a bit of flow coming into the plant.

Mr. Wood stated he was talking to [Quinn Lunsford. Director of Finance for the Albemarle County Service Authority] and [Chris Cullinan, Director of Finance for the City of Charlottesville] about that issue, noting it was fairly complex because it necessarily involves discussing reserves. He stated that reserves for the smaller rate centers are different than the ones for the larger rate centers, and that it is difficult to write a policy for each one of those. He added that when they start changing the way revenues are charged, this is a very serious thing for the bond trustee, meaning they would have to bring the trustee in to make official changes.

Mr. Wood stated that they could attempt to do a finance-review level when they have wet weather again, and that perhaps the finance departments need to set up some metrics and measures on how to smooth this out.

Mr. Snook asked whether when it rains more, it costs more.

Mr. Wood stated that this was true on the wastewater side.

Dr. Palmer stated it would cost less on the water side, as people would not use as much water.

Mr. Mawyer stated that if it is drier, water costs go up, because people use more water and less wastewater.

Mr. Wood stated that this doesn't happen very often. He stated that he actually plotted that data over the past 15 years, and that it has happened twice. He stated that the year before that, they were low, so they had a $1 million deficit followed by a $1.5 million surplus. He stated that they therefore equaled out over a two-year period.

Mr. Gaffney stated that what Mr. O'Connell is trying to determine is how to smooth the numbers.

Mr. Wood stated that Mr. O'Connell doesn't want the huge cash flow to hit that happened the previous year and that he understood this.

Mr. O'Connell stated that in one month, there was a $500,000 to $750,000 swing.

Mr. Gaffney stated that it was not a true-up by the end of the year, but was a month-by-month basis.

Mr. Wood stated that what they were talking about was that they may be able to have a true up. He stated that, for example, if they have a 20% variance in the wastewater flow, that triggers them to look at a true up. He stated that they also want to look at spending to see if they also had a deficit that year, because it wouldn't make sense to have a true up and then have a deficit compounding the deficit in one year, and so it becomes a more complex issue.

Mr. Gaffney asked if there had been an I and I [inflow and infiltration] update recently.

Mr. Mawyer replied that they were currently doing a five-year update of the flows that Rivanna monitors. He stated that the ACSA monitors their flows in their systems.

Mr. Gaffney asked if the Board would be hearing that report at some point.

Mr. Mawyer replied yes.

Mr. O'Connell stated that they have done a much better job of keeping it in the system rather than just going to the top of manholes. He stated that part of what the study does is identifies problem areas to focus on to do much more work.

Ms. Hildebrand stated that it was not due to lack of effort by the County and City, as they have aggressive capital improvement programs to address infiltration and inflows. She stated that it is an ongoing process.

b. Staff Report on Operations

Mr. David Tungate, Director of Operations, presented the Operations Report, which is submitted every month. He stated that the January Board meeting will cover the December Operations Report.

Mr. Tungate stated that with regards to water operations, there is a list of all of the water treatment plants in the report, with the total monthly production. He indicated to the maximum daily production in the month, per facility. He stated that Observatory WTP, on December 4, did 2.1 million gallons per day.

Mr. Tungate stated that the report gives some perspective as it compares to the average, which is the total monthly production divided by the number of days in the month. He stated that this is broken down into Observatory, South Rivanna, and North Rivanna plants (the urban system); and the maximum daily production of the urban system, which was 9.39 million gallons. He stated that the average per day was 8 million gallons. He stated that there are then the two County plants (Crozet and Scottsville). He stated that the report adds up the total average daily production in the system as a whole, along with the total production by water treatment for the entire system, for the month.

Mr. Tungate stated that below that table, it shows that all the water treatment facilities were in regulatory compliance during the month of December.

Mr. Tungate stated that there is a column on the report for the status of the reservoirs. He stated that he was happy to say that Ragged Mountain filled over the weekend, and while it was 99.6% full as of last Thursday, it was now 100% full, so if the report were updated that day, it would show 100% for all of the reservoirs.

Mr. Tungate stated that the Wastewater Operations Report shows four wastewater facilities -- Moores Creek, and the County wastewater plants of Glenmore, Scottsville, and Stone Robinson . He stated that the report includes the average daily effluent flow, which represents how much water they are putting back into the receiving streams. He stated in Moores Creek, the average was 8.8 million gallons. He stated that this gives some perspective on the relative size of the facilities. He stated for Glenmore, the average was 97,000 gallons, Scottsville with 58,000 gallons, and Stone Robinson (a smaller facility) with 10,000 gallons.

Mr. Tungate presented the average Carbonaceous Biological Oxygen Demand (CBODs), explaining that the limit at Moores Creek is 11 mg/l, and that they were less than quantitative levels, and therefore below what their instruments could measure. He stated the report includes the performance of the other two facilities (Glenmore and Scottsville), and that because Stone Robinson is so small, they are not required to report that data.

Mr. Tungate presented the information for suspended solids, noting this was the same information. He stated with regards to ammonia, the limit level for the winter months at Moores Creek is 7 mg/l, and that their average was 1.2 mg/l.

Mr. Tungate presented the Moores Creek nutrient discharges. He stated that they are allowed to discharge 282,994 pounds of nitrogen per year, and 18,525 pounds of phosphorus per year from the plant into Moores Creek, which goes to the Rivanna, which goes to the James River, which then goes to the Chesapeake Bay.

Mr. Tungate stated that the average monthly allocation is simply the numbers 282,994 pounds and 18,525 pounds divided by 12. He stated that for the Moores Creek discharge for December, they put in 10,081 pounds of nitrogen, and were allowed to put in 23,583. He stated that they put in 226 pounds of phosphorus, and they were allowed to put in 1,544 pounds. He stated that their monthly performance for nitrogen and phosphorus, as it relates to their monthly allocation, were at 43% and 15%, respectively. He stated that for their year-to-date, they were at 55% nitrogen and 37% phosphorus. He stated that this is important because those credits are sold on the nutrient exchange, which is a revenue stream for the utility.

Mr. Mawyer stated that the credit is based on the difference between what they are allowed to discharge and what they actually do discharge. He stated that the credits allow them to sell that discharge to another plant who may not be meeting their nutrient reduction requirements.

Mr. Gaffney asked about the difference between year-to-date and monthly allocation.

Mr. Mawyer stated that this takes the annual number and divides it into 12.

Mr. Tungate stated that in some months, they were higher than 43%, so that the average for the year is 55% for nitrogen and 37% for phosphorus.

Mr. Snook asked how much they are able to sell the credits for.

Mr. Mawyer replied that in 2019, it was about $80,000. He stated that this is where they have concern, however, because the new State's water improvement plan (phase III) will take the credits away.

Mr. Mawyer stated that the State is trying to find a way to further clean the Chesapeake Bay and reduce the annual allocations of the nitrogen and phosphorus (which are set by the State). He stated that they deemed that the Chesapeake Bay can cleanse itself up to so many pounds of nitrogen and phosphorus and then, the State allocated those pounds to the different wastewater treatment plants that flow into the Bay. He stated that in addition to Rivanna, Lynchburg, Henrico, and the City of Richmond all have wasteload allocations.

Mr. Mawyer stated that the State is concerned that they are not cleaning up the Bay at an adequate rate, and so they are trying to reduce the number of pounds of nutrients that plants such as Rivanna's put back into Moores Creek, James River, and the Bay.

Mr. Gaffney asked what the new ingredient was that the State may be restricting.

Mr. Mawyer replied that they want to reduce nitrogen and phosphorus, and that there are also studies on ammonia and chlorophyll.

Mr. Tungate stated that there are new ammonia standards proposed. He stated that in terms of the health of the Bay, the James River dumps into the southern end of the Bay, and so the overall health of the Bay is determined by how much influence the James River Watershed has as opposed to the Potomac and others. He stated that there have been many debates, and looking at the reductions in the James River water, it has been better than some of the other watersheds. He stated that the professional organization Rivanna belongs to (VAMWA) is saying it is not fair that they are going back to the James River to make the reductions because they should appeal to other places (even Pennsylvania).

Mr. Tungate stated that the utilities that are buying the credits are concerned about staying in compliance and are considering rate increases and wastewater treatment changes. He stated that it was bigger than just Rivanna not selling credits.

Mr. Tungate stated that RWSA's current position where they have treatment the way it is, and credits available, is a better place to be than those utilities who don't have the treatment and are buying credits to stay in compliance.

Mr. Tungate presented graphs on urban water storage, with data as of 1/1/20. He stated that if the report was updated that day, the red line showing total storage would go all the way to 100%. He showed the last two years of rainfall measured at Observatory. He stated that Observatory was used because it is in the middle of the system as it compares to water production and wastewater treatment. He stated that 2018 was a wet year, and that typically as wastewater flows go up, water production goes down. He stated this could also be influenced by temperature and the season.

c. Staff Report on Ongoing Projects

Ms. Jennifer Whitaker, Director of Engineering and Maintenance, presented. She stated that the Ongoing Projects Report has lived in several iterations over the years but that generally, it is a monthly report that discusses all capital improvement programs as well as operational programs that fall within the Engineering and Maintenance Division.

Ms. Whitaker stated that in the report, on a month-to-month basis, pages 1 and 2 focus on four separate categories of projects. She stated that they typically try to put the projects that are under construction and are changing frequently at the beginning. She stated that currently, those projects include Crozet Water Treatment Plant, Valve Project, Bucks Elbow Tank, and Moores Creek Wetlands Work.

Ms. Whitaker stated that the second group of projects are projects that are in design or bidding, so they are fairly far along in the process.

Ms. Whitaker stated that the third group consisted of planning and studies, which are typically projects occurring some time out and are in the process of being evaluated or being studied to look at alternatives.

Ms. Whitaker stated that there is a group called “Other Significant Projects,” which may include catch-all projects such as security, or could be ongoing projects. She stated that the interceptor sewer work falls in that category, as it continues. She stated that they also try to capture urgent and emergent repairs in this category as well, with the idea that they have a mechanism to do some of their larger urgent repairs but make the board aware of them, as they may have questions or want to see how much money is being spent on those types of repairs.

Ms. Whitaker stated that, for instance, they recently had a tree uproot in McIntire Park, which exposed part of the urban waterline. She stated that one of the projects that week was to bring a crew out to reestablish and stabilize the bank, and so this project shows up on the report under urgent repair.

Ms. Whitaker stated that the projects are typically identified on the report in blue, with a quick snapshot of the project, including the engineer’s name, the contractor, the planned construction or design date, the status of the project’s completion, construction budget figures, and any change orders. She stated that at the end of a project, it gives a sense of how much the project cost versus what was expected. She stated that expected completion is also included in the report, as well as the total capital budget needed to change during the project.

Ms. Whitaker stated that the report also includes a line for current status (e.g. in construction, going out to bid).

Ms. Whitaker stated that all 27 projects were listed with the quick snapshot. She stated that if a Board member is inclined to get more information about the projects, there are two places to go to get it. She stated that one way is to go to the CIP, where there is a paragraph that describes the whole project. She stated that the other way was through the blue underlined project titles, which are hyperlinks that bookmark to the back of the document, which includes more in-depth information about the project. She stated that summary information is included in the front of the document, and the history of the projects are included in the back.

Ms. Whitaker stated that this report is put together by the entire staff of engineers every month and represents a fairly substantial amount of capital project execution on a month-to-month basis.

Mr. O'Connell asked if Ms. Whitaker ever considered putting some pictures in the report showing the current status of a few projects.

Ms. Whitaker replied that they do have a website link that shows pictures and locations. She stated that they have not been put into the monthly report in part because at one point, the report was becoming so cumbersome that they were having trouble getting it ready. She stated that perhaps some maps and photographs might be useful.

Dr. Palmer stated a link to the CIP at the beginning of the report could be helpful.

Mr. Gaffney asked if the McIntire Park line was along the railroad.

Ms. Whitaker replied yes, that it was behind the ballfields.

Mr. Mawyer stated that they tried to make this as streamlined as they could by giving some executive summaries in the front of the report, and then to read further information, this was included in the back.

Dr. Palmer commented about the history of the projects in the report.

Ms. Whitaker stated that they used to write page-long histories, and there was some emphasis on streamlining digestibility of the document. She stated that as they had more and more projects, the documents became onerous. She stated that the histories may not be quite as extensive as they used to be, but that she could provide answers to questions that may come up.

Mr. Gaffney stated that it became onerous when there was a new paragraph every month for three or four years.

Dr. Palmer stated that she remembered this well, but that sometimes, she would go back and read them. She stated that she was wondering if there was any place to go to see it.

Mr. O'Connell stated that there was a nice balance of keeping the history and being able to find it. He stated that this provides good historic information, especially to the new Board members, as well as seeing the current status.

Dr. Palmer mentioned the CIP as well.

Ms. Whitaker stated that they could provide the link to the CIP on the report.

d. Award of Construction Contract and CIP Amendments – Renovation and Upgrade of South Rivanna and Observatory Water Treatment Plants

Mr. Scott Schiller, Engineering Manager, presented.

Mr. Schiller stated that the main purpose of this presentation was to request a contract award and CIP amendment.

Mr. Schiller stated that at the South Rivanna plant, they would be adding two new filters, which should be going in the area adjacent to the existing filters, as well as all new filter control panels. He stated that they would be doing some general architectural and other building improvements to the old filter building and constructing a new alum and fluoride chemical storage building to be located behind the hypochlorite building.

Mr. Schiller stated that this project would also involve enclosing the liquid lime storage area in a building for weather purposes. He stated that they would also construct a new administration building for the Water Department, which would be located to the side of a parking area. He stated that they would also be doing some general mechanical pumping and electrical service improvements throughout the plant.

Mr. Schiller stated that at the Observatory Water Treatment Plant, they would be adding a new chemical building that would contain all chemicals, except for hypochlorite, which would be stored in a different building. He stated that they would be adding plate settlers to the two sedimentation tanks, as well as new sludge collectors. He stated that they would be demolishing two sedimentation basins to allow for future expansion of the plant.

Mr. Schiller stated that they would be adding another 4 MGD of GAC capacity to Observatory, which would involve a building expansion. He stated that they would be adding a section onto the filter building for the new backwash pumps, as well as a new blower for the filter system. He stated that they will be rebuilding all filters and replacing all the filter-facing piping. He stated that there is a gallery in the filter building where all the piping is being removed and completely replaced, and that much of this piping is original.

Mr. Schiller stated that there would be some general architectural improvements to the building, and that they would complete a loop road around the facility, which is used for chemical deliveries and other transported materials on site. He stated that they would also be rebuilding the settled water flume, which takes water from the sedimentation basins and brings it to the filter.

Mr. Schiller stated that this was great deal of work, and that the summaries for both items included more of the pressing items.

Mr. O'Connell asked if the situation with the settling plates was similar to that of Crozet.

Mr. Schiller replied yes.

Mr. Mawyer stated that this allows them to treat more water by creating more surface area within the same basin footprint.

Mr. Schiller stated that they opened bids on January 9, 2020 and received four, ranging in value from $36,748,500 to $44,937,000. He stated that the engineer's estimate was $32,000,570. He stated that based on those bids, the apparent low bidder is English Construction out of Lynchburg, and that their bid of about $36 million was approximately 13% higher than the engineer's estimate.

Mr. Schiller stated that SEH (the engineer for the project) as well as staff, internally reviewed the bids and documents, and found them to be responsive, and they recommended the award to English Construction.

Mr. Schiller stated that as far as the capital budget summary, the two approved capital budgets are $15 million for the South Rivanna project, and $19,700,000 for the Observatory project, for a total budget of $34,700,000. He stated that they had come to the Board previously with information pertaining to the GAC expansion, and at that time, the only increase to the budget was to account for the engineering services. He stated that they did indicate the GAC construction would potentially add $5.8 million to the $34,700,000 budget.

Mr. Schiller stated that they were now requesting a $43 million total project budget, which would be $2.5 million higher than previously anticipated.

Mr. Schiller stated that as far as the anticipated schedule, they anticipated mobilizing and starting construction in March. He stated that as far as the more major milestones, they anticipated substantial completion of the South Rivanna work in the summer of 2021, and then the major Observatory three-month shutdown occurring during the winter of 2021-2022. He stated that the overall completion of the project would be in the spring of 2023.

Mr. O'Connell asked if there had been any response back from UVA about the lease.

Mr. Mawyer replied that Mr. Krueger had received a response, which he and Mr. Gaffney reviewed. He stated that Mr. Krueger is prepared to go back to UVA's counsel with a few requests and suggestions, but that from his view, he would say they were far down the road with completing the lease. He stated that the term of the lease seemed like it would be 49 years, with a renewal option of 50 years. He stated that the 49 year term effectively would be 59 years, as there would be 10 additional years added to the initial term if the lease is not renewed.

Mr. Gaffney stated that there is a 49-year lease and if they choose to terminate, they have 10 years to find land, plan, raise money, and build a new plant. He stated that effectively, it makes it a 59-year lease.

Mr. Krueger stated that because it is UVA, they cannot condemn it, so they have to do this consensually with UVA to get the plant lease.

Mr. O'Connell stated that it sounded like they were close.

Mr. Mawyer agreed they were very close. He stated that most of the requests UVA made generally were acceptable.

Mr. Gaffney stated that there were a few minor points to negotiate.

Ms. Hildebrand stated that it sounded like the major point of the schedule has been worked out.

Mr. O'Connell asked if there was a valid lease through 2021 regardless.

Mr. Krueger replied yes.

Mr. Mawyer replied it was until April 2021.

Mr. Schiller stated that December 2021 would be the beginning of the three-month shutdown.

Mr. Mawyer stated that the idea was to get South Rivanna WTP renovated first so it can carry the full load when they shut down Observatory.

Mr. Schiller stated that this would allow them to treat 12 MGD at South Rivanna very reliably, which they can do now for short periods of time, but that this would allow them to do it for a longer time. He stated that if they take down Observatory, they will need the full urban demand supplied by South Rivanna.

Mr. O'Connell asked if that meant they would not be starting any of the Observatory work.

Mr. Schiller replied that they would start some of the work, but nothing that would impact plant operations. He stated that the chemical building, for instance, was something they could start building without any shutdowns or other impacts.

Mr. Mawyer stated that as was mentioned the month before in Mr. Schiller's presentation, the South Rivanna plant will not get any treatment capacity increase, and will stay at 12 MGD. He stated that Observatory will be increased from 7.7 MGD to 10 MGD. He stated that this is a slight increase, but that they could get this at a relatively small amount of investment while renovating the plant. He stated that they have a special agreement with the City and the ACSA on how the 2.3 MGD of capacity is funded. He stated that otherwise, the City pays 48%, and the ACSA pays 52% of the costs.

Mr. Gaffney asked if they have filmed the existing plant so that when they build the new plant, they can see the before and after.

Mr. Mawyer replied there was a video and commentary about the two projects.

Mr. Gaffney stated that it would be great to look at the old piping and facilities.

Mr. Schiller stated that there would be extensive pre-construction videos.

Dr. Palmer suggested having a history section in the video.

Mr. Schiller replied that they are considering keeping one of the old control units. He stated that there is also an old plaque downstairs dated 1953 and that they would maintain some of the history of the plant.

Mr. O'Connell asked about the lease and the fact that it is not signed, and what impact this has from a legal standpoint.

Mr. Krueger stated that if they didn't have a lease, they would have to get out of the plant. He stated that that would be the case if they could not negotiate a new lease as of 2021. He stated that the flip side of this was that they have gotten drafts that they believe are getting closer to what they want. He stated that there are points in them that he, Mr. Gaffney, and Mr. Mawyer believe they could live with, although they are irksome and could allow UVA to make some decisions they would never want them to make. He stated that they would continue to negotiate on those fronts. He stated that he would rather discuss this further in closed session.

Mr. Krueger pointed out that the Observatory Plant is so interconnected with UVA's water system that UVA realizes that if they got to 2021 and decided not to give a new lease, the fire protection at UVA would probably be in as much trouble as the rest of the City and County, and that this would result in a nuclear meltdown sort of situation. He stated that there is some comfort in the fact that UVA recognizes that its water supply for its own university is very much related to Observatory.

Mr. Gaffney stated that the fine points they are negotiating are so that, in 50 years, if they have to negotiate the next 49 years, they don't want future members on the Board to ask what they were thinking. He stated that UVA is thinking the same way, and are both approaching it from that standpoint.

Mr. O'Connell stated that it sounded like that in the longer term, they could live with the finer points and try to find a middle ground that satisfies everyone.

Mr. Gaffney stated something Leonard Sandridge (UVA) stated to him when they were negotiating the mitigation of the Ivy Landfill was that he wanted a fixed price and that if there were any surprises in the mitigation, UVA was not obligated. He stated that Leonard told him that he didn't want someone 15-20 years later to wonder what he was thinking. He stated that

this was our and UVA's approach and that they were trying to bring these together to finalize the agreement.

Mr. Schiller stated that there were three requested actions. He stated that the first is authorization for the Executive Director to award the construction contract to English Construction for a total value of $36,748,500. He stated that the change orders to the construction contract necessary for completion of work shall not exceed 10% of the original construction contract value of the contract awarded.

Mr. Schiller stated that the second requested action is to amend the FY 20-24 CIP for the Observatory Water Treatment Improvements Project to increase the budget by $6.3 million, which would bring the total budget for that project to $26 million.

Mr. Schiller stated that the third requested action is to amend the FY 20-24 CIP for the South Rivanna Water Treatment Improvement Project to increase the budget by $2 million, bringing the total budget for that project to $17 million.

Mr. O'Connell made a motion to approve the three requested actions. The motion was seconded by Ms. Hildebrand and passed unanimously (6-0). Dr. Richardson was absent from the meeting and the vote.

Mr. O'Connell expressed that though the projects are expensive, it was necessary to move forward with them.

Mr. Schiller added that a value engineering process was performed with the projects to make sure they were moving forward with necessary improvements. He stated that at this point, to minimize the efforts would involve pulling out critical items.

Ms. Hildebrand expressed that the approach they took to the bidding process was a good one.

9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

Mr. O'Connell gave members the ACSA's updated Strategic Plan, in which he said there were two major focuses. He stated that one was priority in customer notifications, requests for information, and the use of information for an advanced metering radio metering system. He stated that the second one was they are trying to respond to customer needs that came out of the customer survey they did about a year ago.

10. **Adjournment**

At 3:44 p.m., Mr. O'Connell moved to adjourn the meeting of the Rivanna Water and Sewer Authority. The motion was seconded by Mr. Richardson and passed unanimously (6-0). Dr. Richardson was absent from the meeting and the vote.

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **EXECUTIVE DIRECTOR'S REPORT**

DATE: **FEBRUARY 28, 2020**

STRATEGIC PLAN GOAL: COMMUNICATION AND COLLABORATION

Employee Wellness Benefits

A new gym membership has been added to the Employee Wellness benefit. Now employees can choose between memberships at the ACAC or the Charlottesville YMCA, which also allows employees to use YMCA facilities in Crozet and Waynesboro. RWSA contributes $43/month to gym membership for employees.

New Employee Orientation

Our Human Resources Manager, Betsy Nemeth, and our Communications Manager, Katie McIlwee, did a great job in creating a video to help orient our new employees.

STRATEGIC PLAN GOAL: INFRASTRUCTURE AND MASTER PLANNING

S. Rivanna to Ragged Mtn Reservoir Water Line Easements

Acquisition efforts continue. Offers have been made to 10 of 12 private property owners, with 1 acceptance. Documents are also being prepared for 3 public property owners (VDOT, City, County School Board).

Observatory Water Treatment Plant Lease

Discussions are continuing with UVA.

STRATEGIC PLAN GOAL: ENVIRONMENTAL STEWARDSHIP

Sustainability Workshop

One of our engineering consultants provided a training workshop for Rivanna and City Utilities staff on greenhouse gas emissions, energy management, bioenergy recovery, and other climate action and sustainability topics. This information will be helpful as we integrate sustainability into our operating and construction programs.

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MEMORANDUM

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

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

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **JANUARY MONTHLY FINANCIAL SUMMARY – FY 2020**

DATE: **FEBRUARY 25, 2020**

Urban Water flow and rate revenues are 4.5% over budget estimates for the first seven months of this fiscal year, and Urban Wastewater flow and rate revenues are 6% over budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 4,598,805	$ 5,373,828	$ 1,320,901	$ 11,293,534
Expenses	(4,793,355)	(5,120,770)	(1,236,997)	(11,151,122)
Surplus (deficit)	$ (194,550)	$ 253,058	$ 83,904	$ 142,412
Debt Service				
Revenues	$ 3,939,561	$ 5,127,710	$ 873,413	$ 9,940,684
Expenses	(3,937,532)	(5,077,618)	(873,092)	(9,888,242)
Surplus (deficit)	$ 2,029	$ 50,092	$ 321	$ 52,442
Total				
Revenues	$ 8,538,366	$ 10,501,538	$ 2,194,314	$ 21,234,218
Expenses	(8,730,887)	(10,198,388)	(2,110,089)	(21,039,364)
Surplus (deficit)	$ (192,521)	$ 303,150	$ 84,225	$ 194,854

A. Annual Transactions

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

B. Professional Services (Urban Water, Urban Wastewater, Engineering – pages 2, 5, 11) – Urban Water legal fees are over budget related to the Observatory plant lease negotiations and Buck Mountain land issues. Engineering has incurred unbudgeted expenditures for engineering and technical services for an addition to the engineering trailer. Urban Wastewater engineering/technical services is over budget for several unbudgeted items such as an exterior lighting plan for Moores Creek AWRRF as well as for septage handling, stormwater management (SWPPP) and spill prevention (SPCC) support.

C. Other Services and Charges (Urban Water, Urban Wastewater – page 2, 5) – Urban Water is over budget on Utilities, and Urban Wastewater is over budget on Crozet odor control costs and on biosolids composting costs.

D. Communications (Urban Water – page 2) – Telephone and data services are over budget due to needed upgrades to data lines.

E. Information Technology (Engineering – page 11) – Engineering has spent $13,500 more than the annual budget related to the purchase of a program to assist with capturing data from engineering/inspector personnel while in the field into the GIS system.

F. Operations & Maintenance (Urban Water, Urban Wastewater, Glenmore Wastewater, Administration – pages 2, 5, 6, 8) – Urban Water is $203,700 over the annual budget for several pipeline repair costs at Lambeth, Meriwether, South Rivanna, and Georgetown/Hydraulic and Pen Park Lane. Urban Wastewater is over budget on pump station maintenance costs for impeller replacements. Glenmore Wastewater is over budget on equipment maintenance and repair costs for blower replacement and actuator control repairs. The Administration department is over budget for some heating and air conditioning work in the Administration building.

G. Equipment Purchases (Lab – page 10) The Lab made a $42,000 unbudgeted purchase of an analyzer to be used for wastewater nutrient and drinking water quality testing.

Attachments

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

Consolidated Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2020	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 17,381,293	$ 10,139,088	$ 10,614,618	$ 475,531	4.69%
Lease Revenue		100,000	58,333	67,081	8,748	15.00%
Admin., Maint. & Engineering Revenue		478,000	278,833	296,340	17,507	6.28%
Other Revenues		562,478	328,112	587,470	259,358	79.05%
Use of Reserves		667,000	389,083	-	(389,083)	-100.00%
Interest Allocation		31,500	18,375	24,363	5,988	32.59%
Total Operating Revenues		**$ 19,220,271**	**$ 11,211,825**	**$ 11,589,873**	**$ 378,049**	**3.37%**
Expenses						
Personnel Cost	**A**	$ 8,760,078	$ 5,069,492	$ 5,022,570	$ 46,922	0.93%
Professional Services	**B**	666,050	388,529	543,371	(154,842)	-39.85%
Other Services & Charges	**C**	2,980,612	1,738,690	1,854,396	(115,706)	-6.65%
Communications	**D**	142,593	83,179	101,004	(17,824)	-21.43%
Information Technology	**E**	352,750	205,771	182,037	23,734	11.53%
Supplies		46,180	26,938	19,049	7,889	29.29%
Operations & Maintenance	**F**	5,069,478	2,957,196	2,954,736	2,459	0.08%
Equipment Purchases	**G**	359,550	209,738	278,549	(68,811)	-32.81%
Depreciation		843,000	491,750	491,750	-	0.00%
Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 19,220,291**	**$ 11,171,283**	**$ 11,447,462**	**$ (276,179)**	**-2.47%**
Operating Surplus/(Deficit)		**$ (20)**	**$ 40,542**	**$ 142,412**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 15,861,022	$ 9,252,263	$ 9,252,264	$ 1	0.00%
Septage Receiving Support - County		109,440	63,840	109,441	45,601	71.43%
Buck Mountain Surcharge		125,900	73,442	69,600	(3,842)	-5.23%
Buck Mountain Lease Revenue		1,600	933	4,364	3,430	367.55%
Trust Fund Interest		158,200	92,283	99,533	7,249	7.86%
Reserve Fund Interest		690,000	402,500	405,482	2,982	0.74%
Total Debt Service Revenues		**$ 16,946,162**	**$ 9,885,261**	**$ 9,940,683**	**$ 55,422**	**0.56%**
Debt Service Costs						
Total Principal & Interest		$ 14,473,236	$ 8,442,721	$ 8,442,721	$ -	0.00%
Reserve Additions-Interest		690,000	402,500	405,482	(2,982)	-0.74%
Debt Service Ratio Charge		725,000	422,917	422,917	-	0.00%
Reserve Additions-CIP Growth		1,057,925	617,123	617,123	-	0.00%
Total Debt Service Costs		**$ 16,946,161**	**$ 9,885,261**	**$ 9,888,242**	**$ (2,982)**	**-0.03%**
Debt Service Surplus/(Deficit)		**$ 1**	**$ 1**	**$ 52,441**		

Summary

Total Revenues	$ 36,166,433	$ 21,097,086	$ 21,530,557	$ 433,471	2.05%
Total Expenses	36,166,452	21,056,543	21,335,704	(279,161)	-1.33%
Surplus/(Deficit)	**$ (19)**	**$ 40,543**	**$ 194,852**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Urban Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2020*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 7,118,541	$ 4,152,482	$ 4,339,671	$ 187,189	4.51%
Lease Revenue		70,000	40,833	49,528	8,695	21.29%
Miscellaneous		-	-	199,446	199,446	
Use of Reserves		600,000	350,000	-	(350,000)	-100.00%
Interest Allocation		13,200	7,700	10,159	2,459	31.94%
Total Operating Revenues		**$ 7,801,741**	**$ 4,551,016**	**$ 4,598,805**	**$ 47,789**	**1.05%**
Expenses						
Personnel Cost		$ 1,861,134	$ 1,077,690	$ 1,070,276	$ 7,414	0.69%
Professional Services	B	207,200	120,867	188,962	(68,096)	-56.34%
Other Services & Charges	C	574,963	335,395	438,787	(103,392)	-30.83%
Communications	D	65,100	37,975	46,894	(8,919)	-23.49%
Information Technology		77,000	44,917	37,350	7,567	16.85%
Supplies		6,100	3,558	3,219	339	9.53%
Operations & Maintenance	F	2,356,590	1,374,678	1,418,292	(43,615)	-3.17%
Equipment Purchases	G	50,500	29,458	49,527	(20,068)	-68.12%
Depreciation		300,000	175,000	175,000	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 5,498,587	$ 3,199,537	$ 3,428,307	$ (228,769)	-7.15%
Allocation of Support Departments		2,303,155	1,333,652	1,365,048	(31,396)	-2.35%
Total Operating Expenses		**$ 7,801,742**	**$ 4,533,189**	**$ 4,793,354**	**$ (260,165)**	**-5.74%**
Operating Surplus/(Deficit)		**$ (1)**	**$ 17,827**	**$ (194,550)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 6,178,598	$ 3,604,182	$ 3,604,181	$ (1)	0.00%
Trust Fund Interest		54,000	31,500	33,941	2,441	7.75%
Reserve Fund Interest		387,000	225,750	227,475	1,725	0.76%
Buck Mountain Surcharge		125,900	73,442	69,600	(3,842)	-5.23%
Lease Revenue		1,600	933	4,364	3,430	367.55%
Total Debt Service Revenues		**$ 6,747,098**	**$ 3,935,807**	**$ 3,939,561**	**$ 3,754**	**0.10%**
Debt Service Costs						
Total Principal & Interest		$ 5,223,498	$ 3,047,041	$ 3,047,041	$ -	0.00%
Reserve Additions-Interest		387,000	225,750	227,475	(1,725)	-0.76%
Debt Service Ratio Charge		400,000	233,333	233,333	-	0.00%
Reserve Additions-CIP Growth		736,600	429,683	429,683	-	0.00%
Total Debt Service Costs		**$ 6,747,098**	**$ 3,935,807**	**$ 3,937,532**	**$ (1,725)**	**-0.04%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 2,028**		
Rate Center Summary						
Total Revenues		$ 14,548,839	$ 8,486,823	$ 8,538,365	$ 51,543	0.61%
Total Expenses		14,548,840	8,468,996	8,730,887	(261,891)	-3.09%
Surplus/(Deficit)		**$ (1)**	**$ 17,827**	**$ (192,521)**		
Costs per 1000 Gallons		$ 2.30		$ 2.31		
Operating and DS		$ 4.28		$ 4.21		
Thousand Gallons Treated		3,397,700	1,981,992	2,071,441	89,449	4.51%
or						
Flow (MGD)		9.309		9.635		

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Crozet Water Rate Center
Revenues and Expenses Summary

	Budget FY 2020	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Operating Budget vs. Actual					
Notes					
Revenues					
Operations Rate Revenue	$ 1,028,808	$ 600,138	$ 600,138	$ -	0.00%
Lease Revenues	30,000	17,500	17,553	53	0.30%
Use of Reserves	52,000	30,333	-	(30,333)	-100.00%
Interest Allocation	1,800	1,050	1,413	363	34.58%
Total Operating Revenues	**$ 1,112,608**	**$ 649,021**	**$ 619,104**	**$ (29,917)**	**-4.61%**
Expenses					
Personnel Cost	$ 300,589	$ 174,067	$ 170,969	$ 3,098	1.78%
Professional Services	12,850	7,496	-	7,496	100.00%
Other Services & Charges	137,816	80,393	63,077	17,316	21.54%
Communications	4,950	2,888	3,534	(646)	-22.37%
Information Technology	2,600	1,517	820	697	45.97%
Supplies	1,395	814	502	312	38.33%
Operations & Maintenance	398,400	232,400	163,339	69,061	29.72%
Equipment Purchases	6,500	3,792	8,592	(4,800)	-126.59%
Depreciation	30,000	17,500	17,500	-	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	$ 895,100	$ 520,865	$ 428,332	$ 92,533	17.77%
Allocation of Support Departments	217,513	125,956	128,334	(2,378)	-1.89%
Total Operating Expenses	**$ 1,112,613**	**$ 646,821**	**$ 556,666**	**$ 90,155**	**13.94%**
Operating Surplus/(Deficit)	**$ (5)**	**$ 2,200**	**$ 62,438**		
Debt Service Budget vs. Actual					
Revenues					
Debt Service Rate Revenue	$ 1,311,312	$ 764,932	$ 764,932	$ -	0.00%
Trust Fund Interest	5,500	3,208	3,484	275	8.58%
Reserve Fund Interest	21,500	12,542	12,570	28	0.23%
Total Debt Service Revenues	**$ 1,338,312**	**$ 780,682**	**$ 780,986**	**$ 304**	**0.04%**
Debt Service Costs					
Total Principal & Interest	$ 1,230,815	$ 717,975	$ 717,975	$ -	0.00%
Reserve Additions-Interest	21,500	12,542	12,570	(28)	-0.23%
Reserve Additions-CIP Growth	86,000	50,167	50,167	-	0.00%
Total Debt Service Costs	**$ 1,338,315**	**$ 780,684**	**$ 780,712**	**$ (28)**	**0.00%**
Debt Service Surplus/(Deficit)	**$ (3)**	**$ (2)**	**$ 274**		

Rate Center Summary

Total Revenues	$ 2,450,920	$ 1,429,703	$ 1,400,090	$ (29,614)	-2.07%
Total Expenses	2,450,928	1,427,505	1,337,378	90,127	6.31%
Surplus/(Deficit)	**$ (8)**	**$ 2,198**	**$ 62,711**		
Costs per 1000 Gallons	$ 5.59		$ 4.28		
Operating and DS	$ 12.31		$ 10.28		
Thousand Gallons Treated	199,053	116,114	130,125	14,011	12.07%
Flow (MGD)	0.545		0.605		

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Scottsville Water Rate Center
Revenues and Expenses Summary

	Budget FY 2020	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual					
Notes					
Revenues					
Operations Rate Revenue	$ 520,812	$ 303,807	$ 303,807	$ -	0.00%
Use of Reserves	15,000	8,750	-	$ (8,750)	-100.00%
Interest Allocation	800	467	633	167	35.74%
Total Operating Revenues	**$ 536,612**	**$ 313,024**	**$ 304,440**	**$ (8,583)**	**-2.74%**
Expenses					
Personnel Cost	$ 197,349	$ 114,263	$ 112,749	$ 1,514	1.33%
Professional Services	20,000	11,667	675	10,992	94.21%
Other Services & Charges	33,318	19,436	13,586	5,850	30.10%
Communications	3,430	2,001	3,105	(1,105)	-55.20%
Information Technology	800	467	560	(94)	-20.04%
Supplies	410	239	142	98	40.79%
Operations & Maintenance	121,340	70,782	48,374	22,408	31.66%
Equipment Purchases	3,200	1,867	6,065	(4,199)	-224.92%
Depreciation	20,000	11,667	11,667	(0)	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	$ 399,847	$ 232,387	$ 196,922	$ 35,465	15.26%
Allocation of Support Departments	136,770	79,210	79,647	(438)	-0.55%
Total Operating Expenses	**$ 536,617**	**$ 311,597**	**$ 276,569**	**$ 35,028**	**11.24%**
Operating Surplus/(Deficit)	**$ (5)**	**$ 1,427**	**$ 27,871**		
Debt Service Budget vs. Actual					
Revenues					
Debt Service Rate Revenue	$ 128,749	$ 75,104	$ 75,103	$ (1)	0.00%
Trust Fund Interest	1,700	992	995	4	0.37%
Reserve Fund Interest	8,400	4,900	4,866	(34)	-0.70%
Total Debt Service Revenues	**$ 138,849**	**$ 80,995**	**$ 80,964**	**$ (31)**	**-0.04%**
Debt Service Costs					
Total Principal & Interest	$ 129,524	$ 75,556	$ 75,556	$ -	0.00%
Reserve Additions-Interest	8,400	4,900	4,866	34	
Reserve Additions-CIP Growth	925	540	540	-	
Total Debt Service Costs	**$ 138,849**	**$ 80,995**	**$ 80,961**	**$ 34**	**0.04%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ 3**		

Rate Center Summary

Total Revenues	$ 675,461	$ 394,019	$ 385,405	$ (8,614)	-2.19%
Total Expenses	675,466	392,592	357,530	35,062	8.93%
Surplus/(Deficit)	**$ (5)**	**$ 1,427**	**$ 27,874**		
Costs per 1000 Gallons	$ 29.56		$ 27.30		
Operating and DS	$ 37.21		$ 35.29		
Thousand Gallons Treated	18,151	10,588	10,132	(456)	-4.31%
or					
Flow (MGD)	0.050		0.047		

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Urban Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2020	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 8,033,620	$ 4,686,278	$ 4,974,620	$ 288,342	6.15%
Stone Robinson WWTP		22,478	13,112	10,055	(3,057)	-23.32%
Septage Acceptance		450,000	262,500	298,707	36,207	13.79%
Nutrient Credits		90,000	52,500	78,763	26,263	50.02%
Miscellaneous Revenue		-	-	500	500	
Interest Allocation		14,400	8,400	11,183	2,783	33.13%
Total Operating Revenues		**$ 8,610,498**	**$ 5,022,791**	**$ 5,373,827**	**$ 351,037**	**6.99%**
Expenses						
Personnel Cost		$ 1,281,463	$ 741,850	$ 737,822	$ 4,028	0.54%
Professional Services	B	175,000	102,083	161,465	(59,382)	-58.17%
Other Services & Charges	C	2,030,825	1,184,648	1,232,866	(48,218)	-4.07%
Communications		10,430	6,084	7,749	(1,665)	-27.36%
Information Technology		62,500	36,458	15,593	20,865	57.23%
Supplies		2,700	1,575	1,458	117	7.41%
Operations & Maintenance	F	1,724,650	1,006,046	1,023,311	(17,265)	-1.72%
Equipment Purchases		77,500	45,208	39,369	5,840	12.92%
Depreciation		470,000	274,167	274,167	(0)	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 5,835,068	$ 3,398,119	$ 3,493,799	$ (95,680)	-2.82%
Allocation of Support Departments		2,775,430	1,607,259	1,626,970	(19,711)	-1.23%
Total Operating Expenses		**$ 8,610,498**	**$ 5,005,378**	**$ 5,120,770**	**$ (115,391)**	**-2.31%**
Operating Surplus/(Deficit)		**$ (0)**	**$ 17,412**	**$ 253,058**		

Debt Service Budget vs. Actual

	Budget FY 2020	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 8,229,143	$ 4,800,333	$ 4,800,334	$ 1	0.00%
Septage Receiving Support - County	109,440	63,840	109,441	45,601	71.43%
Trust Fund Interest	96,900	56,525	61,014	4,489	7.94%
Reserve Fund Interest	266,900	155,692	156,921	1,230	0.79%
Total Debt Service Revenues	**$ 8,702,383**	**$ 5,076,390**	**$ 5,127,710**	**$ 51,320**	**1.01%**
Debt Service Costs					
Total Principal & Interest	$ 7,880,079	$ 4,596,713	$ 4,596,713	$ -	0.00%
Reserve Additions-Interest	266,900	155,692	156,921	(1,230)	-0.79%
Debt Service Ratio Charge	325,000	189,583	189,583	-	0.00%
Reserve Additions-CIP Growth	230,400	134,400	134,400	-	0.00%
Total Debt Service Costs	**$ 8,702,379**	**$ 5,076,388**	**$ 5,077,618**	**$ (1,230)**	**-0.02%**
Debt Service Surplus/(Deficit)	**$ 4**	**$ 2**	**$ 50,093**		

Rate Center Summary

	Budget FY 2020	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 17,312,881	$ 10,099,181	$ 10,501,537	$ 402,357	3.98%
Total Expenses	17,312,877	10,081,766	10,198,387	(116,621)	-1.16%
Surplus/(Deficit)	**$ 4**	**$ 17,415**	**$ 303,150**		
Costs per 1000 Gallons	$ 2.54		$ 2.44		
Operating and DS	$ 5.11		$ 4.86		
Thousand Gallons Treated	3,390,400	1,977,733	2,099,882	122,149	6.18%
or					
Flow (MGD)	9.289		9.767		

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2020*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 370,524	$ 216,139	$ 216,139	$ -	0.00%
Interest Allocation		700	408	536	128	31.26%
Total Operating Revenues		**$ 371,224**	**$ 216,547**	**$ 216,675**	**$ 128**	**0.06%**
Expenses						
Personnel Cost		$ 95,340	$ 55,197	$ 54,477	$ 720	1.30%
Professional Services		-	-	2,194	(2,194)	
Other Services & Charges		35,210	20,539	20,769	(229)	-1.12%
Communications		3,000	1,750	2,129	(379)	-21.66%
Information Technology		3,700	2,158	6,590	(4,432)	-205.33%
Supplies		100	58	-	58	100.00%
Operations & Maintenance	F	119,450	69,679	85,384	(15,705)	-22.54%
Equipment Purchases		2,900	1,692	1,400	292	17.24%
Depreciation		5,000	2,917	2,917	0	0.00%
Subtotal Before Allocations		$ 264,700	$ 153,991	$ 175,859	$ (21,869)	-14.20%
Allocation of Support Departments		106,527	61,702	61,676	26	0.04%
Total Operating Expenses		**$ 371,227**	**$ 215,693**	**$ 237,535**	**$ (21,843)**	**-10.13%**
Operating Surplus/(Deficit)		**$ (3)**	**$ 855**	**$ (20,860)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 3,778	$ 2,204	$ 2,205	$ 1	0.05%
Trust Fund Interest		-	-	-	-	
Reserve Fund Interest		3,100	1,808	2,027	219	12.11%
Total Debt Service Revenues		**$ 6,878**	**$ 4,012**	**$ 4,232**	**$ 1**	**0.03%**
Debt Service Costs						
Total Principal & Interest		$ 1,578	$ 921	$ 921	$ -	0.00%
Reserve Additions-CIP Growth		2,200	1,283	1,283	-	0.00%
Reserve Additions-Interest		3,100	1,808	2,027	(219)	-12.11%
Total Debt Service Costs		**$ 6,878**	**$ 4,012**	**$ 4,231**	**$ (219)**	**-5.46%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 1**		

Rate Center Summary

Total Revenues	$ 378,102	$ 220,560	$ 220,907	$ 348	0.16%
Total Expenses	378,105	219,705	241,767	(22,062)	-10.04%
Surplus/(Deficit)	**$ (3)**	**$ 855**	**$ (20,859)**		
Costs per 1000 Gallons	$ 9.31		$ 12.30		
Operating and DS	$ 9.48		$ 12.52		
Thousand Gallons Treated	39,892	23,270	19,309	(3,961)	**-17.02%**
or					
Flow (MGD)	0.109		0.090		

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2020	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 308,988	$ 180,243	$ 180,243	$ -	0.00%
Interest Allocation		600	350	439	89	25.30%
Total Operating Revenues		**$ 309,588**	**$ 180,593**	**$ 180,682**	**$ 89**	**0.05%**
Expenses						
Personnel Cost		$ 95,366	$ 55,212	$ 54,477	$ 736	1.33%
Professional Services		2,000	1,167	-	1,167	100.00%
Other Services & Charges		28,000	16,333	12,826	3,507	21.47%
Communications		3,930	2,293	2,214	79	3.44%
Information Technology		1,700	992	-	992	100.00%
Supplies		25	15	-	15	100.00%
Operations & Maintenance		58,850	34,329	27,557	6,772	19.73%
Equipment Purchases		3,200	1,867	1,400	467	25.00%
Depreciation		18,000	10,500	10,500	-	0.00%
Subtotal Before Allocations		$ 211,071	$ 122,707	$ 108,973	$ 13,734	11.19%
Allocation of Support Departments		98,523	57,064	57,253	(189)	-0.33%
Total Operating Expenses		**$ 309,594**	**$ 179,771**	**$ 166,227**	**$ 13,545**	**7.53%**
Operating Surplus/(Deficit)		**$ (6)**	**$ 822**	**$ 14,455**		

Debt Service Budget vs. Actual

	Budget FY 2020	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 9,442	$ 5,508	$ 5,509	$ 1	0.02%
Trust Fund Interest	100	58	100	41	70.71%
Reserve Fund Interest	3,100	1,808	1,622	(186)	-10.31%
Total Debt Service Revenues	**$ 12,642**	**$ 7,375**	**$ 7,231**	**$ (144)**	**-1.95%**
Debt Service Costs					
Total Principal & Interest	$ 7,742	$ 4,516	$ 4,516	$ -	0.00%
Reserve Additions-Interest	3,100	1,808	1,622	186	10.31%
Estimated New Principal & Interest	1,800	1,050	1,050	-	0.00%
Total Debt Service Costs	**$ 12,642**	**$ 7,375**	**$ 7,188**	**$ 186**	**2.53%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ 42**		

Rate Center Summary

	Budget FY 2020	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 322,230	$ 187,968	$ 187,912	$ (55)	-0.03%
Total Expenses	322,236	187,146	173,415	13,731	7.34%
Surplus/(Deficit)	**$ (6)**	**$ 822**	**$ 14,497**		
Costs per 1000 Gallons	$ 14.28		$ 14.92		
Operating and DS	$ 14.87		$ 15.57		
Thousand Gallons Treated	21,677	12,645	11,139	(1,506)	**-11.91%**
or					
Flow (MGD)	0.059		0.052		

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Administration

Operating Budget vs. Actual

	Notes	*Budget FY 2020*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 466,000	$ 271,833	$ 271,833	$ (0)	0.00%
Miscellaneous Revenue		2,000	1,167	15,883	14,716	1261.40%
Total Operating Revenues		**$ 468,000**	**$ 273,000**	**$ 287,716**	**$ 14,716**	**5.39%**
Expenses						
Personnel Cost	**A**	$ 1,841,351	$ 1,064,945	$ 1,098,992	$ (34,047)	-3.20%
Professional Services		229,000	133,583	132,078	1,505	1.13%
Other Services & Charges		106,400	62,067	54,974	7,092	11.43%
Communications		18,500	10,792	11,880	(1,089)	-10.09%
Information Technology		174,250	101,646	83,965	17,681	17.40%
Supplies		21,500	12,542	10,572	1,969	15.70%
Operations & Maintenance	**F**	64,500	37,625	46,590	(8,965)	-23.83%
Equipment Purchases		24,000	14,000	8,507	5,493	39.24%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,479,501**	**$ 1,437,199**	**$ 1,447,558**	**$ (10,359)**	**-0.72%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (2,011,501)**	**$ (1,164,199)**	**$ (1,159,842)**	**$ (4,357)**	**0.37%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 885,060**	**$ 512,248**	**$ 510,331**	**$ 1,917**	
Crozet Water	4.00%	**$ 80,460**	**46,568**	**46,394**	**174**	
Scottsville Water	2.00%	**$ 40,230**	**23,284**	**23,197**	**87**	
Urban Wastewater	48.00%	**$ 965,520**	**558,815**	**556,724**	**2,091**	
Glenmore Wastewater	1.00%	**$ 20,115**	**11,642**	**11,598**	**44**	
Scottsville Wastewater	1.00%	**$ 20,115**	**11,642**	**11,598**	**44**	
	100.00%	**$ 2,011,501**	**$ 1,164,199**	**$ 1,159,842**	**$ 4,357**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Maintenance

Operating Budget vs. Actual

	Notes	*Budget FY 2020*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 10,000	$ 5,833	$ -	$ 5,833	100.00%
Miscellaneous Revenue		-	-	6,756	6,756	
Total Operating Revenues		**$ 10,000**	**$ 5,833**	**$ 6,756**	**$ 12,589**	
Expenses						
Personnel Cost		$ 1,345,633	$ 778,683	$ 729,215	$ 49,468	6.35%
Professional Services		-	-	-	-	
Other Services & Charges		14,500	8,458	10,190	(1,732)	-20.48%
Communications		17,600	10,267	13,489	(3,222)	-31.38%
Information Technology		6,500	3,792	2,298	1,493	39.39%
Supplies		2,000	1,167	358	809	69.35%
Operations & Maintenance		77,400	45,150	49,028	(3,878)	-8.59%
Equipment Purchases		147,150	85,838	86,756	(918)	-1.07%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,610,783**	**$ 933,354**	**$ 891,334**	**$ 42,021**	**4.50%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,600,783)**	**$ (927,521)**	**$ (884,578)**	**$ (29,431)**	**3.17%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 480,235**	**$ 278,256**	**$ 265,373**	**$ 12,883**	
Crozet Water	3.50%	**56,027**	**32,463**	**30,960**	**1,503**	
Scottsville Water	3.50%	**56,027**	**32,463**	**30,960**	**1,503**	
Urban Wastewater	56.50%	**904,442**	**524,049**	**499,786**	**24,263**	
Glenmore Wastewater	3.50%	**56,027**	**32,463**	**30,960**	**1,503**	
Scottsville Wastewater	3.00%	**48,023**	**27,826**	**26,537**	**1,288**	
	100.00%	**$ 1,600,783**	**$ 927,521**	**$ 884,578**	**$ 42,943**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Laboratory

Operating Budget vs. Actual

	Notes	*Budget FY 2020*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
N/A						
Expenses						
Personnel Cost		$ 394,222	$ 228,076	$ 220,558	$ 7,517	3.30%
Professional Services		-	-	-	-	
Other Services & Charges		9,230	5,384	1,030	4,355	80.88%
Communications		1,153	673	816	(143)	
Information Technology		2,500	1,458	113	1,345	92.22%
Supplies		2,150	1,254	256	998	79.59%
Operations & Maintenance	F	61,500	35,875	56,257	(20,382)	-56.81%
Equipment Purchases	G	2,200	1,283	43,494	(42,210)	-3289.12%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 472,955**	**$ 274,003**	**$ 322,524**	**$ (48,521)**	**-17.71%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (472,955)**	**$ (274,003)**	**$ (322,524)**	**$ 48,521**	**-17.71%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 208,100**	**$ 120,561**	**$ 141,911**	**$ (21,349)**	
Crozet Water	4.00%	**18,918**	**10,960**	**12,901**	**(1,941)**	
Scottsville Water	2.00%	**9,459**	**5,480**	**6,450**	**(970)**	
Urban Wastewater	47.00%	**222,289**	**128,782**	**151,586**	**(22,805)**	
Glenmore Wastewater	1.50%	**7,094**	**4,110**	**4,838**	**(728)**	
Scottsville Wastewater	1.50%	**7,094**	**4,110**	**4,838**	**(728)**	
	100.00%	**$ 472,955**	**$ 274,003**	**$ 322,524**	**$ (48,521)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - January 2020

Engineering

Operating Budget vs. Actual

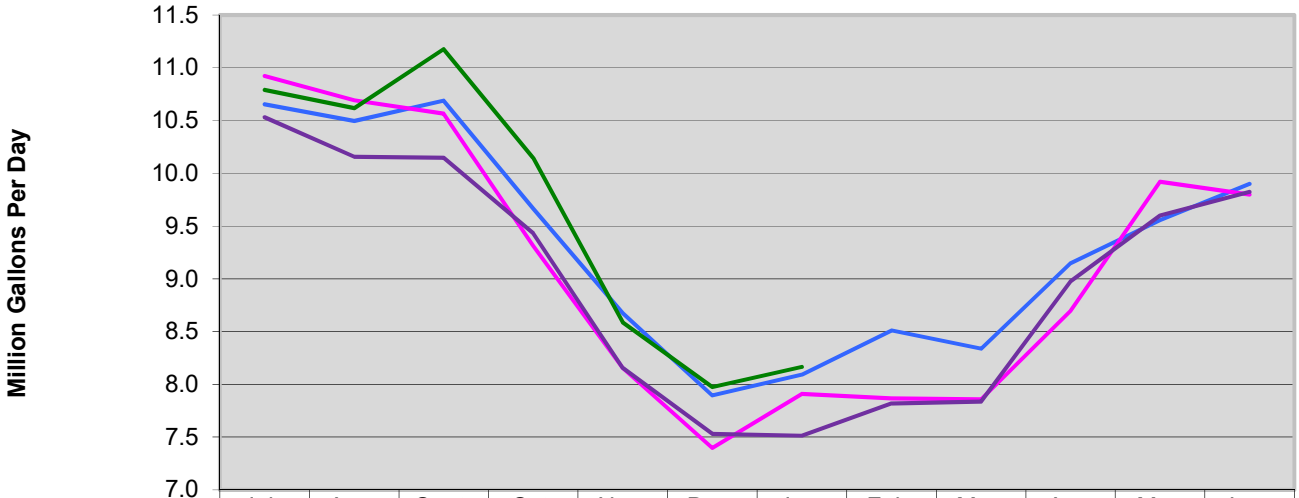
		Budget FY 2020	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ 1,868	$ 1,868	
Total Operating Revenues		**$ -**	**$ -**	**$ 1,868**	**$ 1,868**	
Expenses						
Personnel Cost		$ 1,347,631	$ 779,508	$ 773,035	$ 6,474	0.83%
Professional Services	**B**	20,000	11,667	57,996	(46,329)	-397.11%
Other Services & Charges		10,350	6,038	6,292	(254)	-4.21%
Communications		14,500	8,458	9,194	(736)	-8.70%
Information Technology	**E**	21,200	12,367	34,748	(22,381)	-180.98%
Supplies		9,800	5,717	2,543	3,174	55.52%
Operations & Maintenance		86,798	50,632	36,605	14,027	27.70%
Equipment Purchases	**G**	42,400	24,733	33,441	(8,707)	-35.21%
Depreciation & Capital Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 1,552,679**	**$ 899,120**	**$ 953,853**	**$ (54,734)**	**-6.09%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,552,679)**	**$ (899,120)**	**$ (951,986)**	**$ 56,602**	**-6.30%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 729,759**	**$ 422,586**	**$ 447,433**	**$ (24,847)**	
Crozet Water	4.00%	**62,107**	**35,965**	**38,079**	**(2,115)**	
Scottsville Water	2.00%	**31,054**	**17,982**	**19,040**	**(1,057)**	
Urban Wastewater	44.00%	**683,179**	**395,613**	**418,874**	**(23,261)**	
Glenmore Wastewater	1.50%	**23,290**	**13,487**	**14,280**	**(793)**	
Scottsville Wastewater	1.50%	**23,290**	**13,487**	**14,280**	**(793)**	
	100.00%	**$ 1,552,679**	**$ 899,120**	**$ 951,986**	**$ (52,866)**	

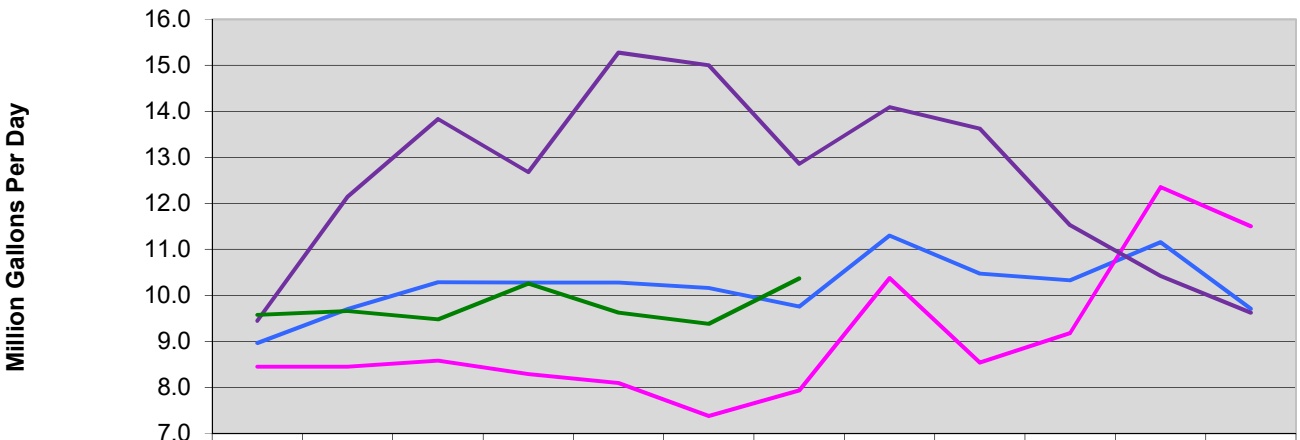
Rivanna Water and Sewer Authority
Flow Graphs

Urban Water Flows



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG.	10.66	10.50	10.69	9.67	8.68	7.90	8.09	8.51	8.34	9.15	9.56	9.90
FY 2018	10.92	10.69	10.57	9.31	8.16	7.40	7.91	7.87	7.86	8.70	9.92	9.80
FY 2019	10.53	10.16	10.15	9.43	8.16	7.53	7.51	7.82	7.84	8.98	9.60	9.82
FY 2020	10.79	10.62	11.18	10.14	8.59	7.98	8.16					

Urban Wastewater Flows



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG	8.97	9.70	10.28	10.28	10.28	10.16	9.76	11.30	10.47	10.33	11.16	9.71
FY 2018	8.45	8.45	8.59	8.29	8.10	7.38	7.94	10.38	8.54	9.18	12.36	11.50
FY 2019	9.45	12.14	13.83	12.68	15.28	15.00	12.86	14.09	13.62	11.52	10.42	9.62
FY 2020	9.58	9.66	9.48	10.26	9.63	9.38	10.37					

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

FROM: **DAVE TUNGATE, DIRECTOR OF OPERATIONS**

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

SUBJECT: **OPERATIONS REPORT FOR JANUARY 2020**

DATE: **FEBRUARY 25, 2020**

WATER OPERATIONS:

The average daily/monthly total water distributed for January 2020 was as follows:

Water Treatment Plant	***Average Daily Production (MGD)***	***Total Monthly Production (MG)***	***Maximum Daily Production in the Month (MGD)***
Observatory	1.03	31.88	1.77 (01/30/20)
South Rivanna	6.81	211.07	7.58 (01/10/20)
North Rivanna	0.33	10.14	0.42 (01/21/20)
Urban Total	8.17	253.09	9.58 (01/13/20)
Crozet	0.543	16.83	0.68 (01/05/20)
Scottsville	0.052	1.60	0.07 (01/03/20)
RWSA Total	8.77	271.52	---

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

Status of Reservoirs (as of February 18, 2020):

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

WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during January 2020. Performance of the WRRFs in January was as follows compared to the respective VDEQ permit limits:

WRRF	*Average Daily Effluent Flow (mgd)*	*Average $CBOD_5$ (ppm)*		*Average Total Suspended Solids (ppm)*		*Average Ammonia (ppm)*	
		RESULT	*LIMIT*	*RESULT*	*LIMIT*	*RESULT*	*LIMIT*
Moores Creek	10.0	<QL	11	<QL	22	<QL	7.0
Glenmore	0.103	2.0	15	3.0	30	NR	NL
Scottsville	0.061	2.0	25	6.0	30	NR	NL
Stone Robinson	0.002	NR	30	NR	30	NR	NL

NR = Not Required
NL = No Limit
<QL: Less than analytical method quantitative level (2.0 ppm for CBOD, 1.0 ppm for TSS, and 0.1 ppm for Ammonia).

Nutrient discharges at the Moores Creek AWRRF were as follows for January 2020.

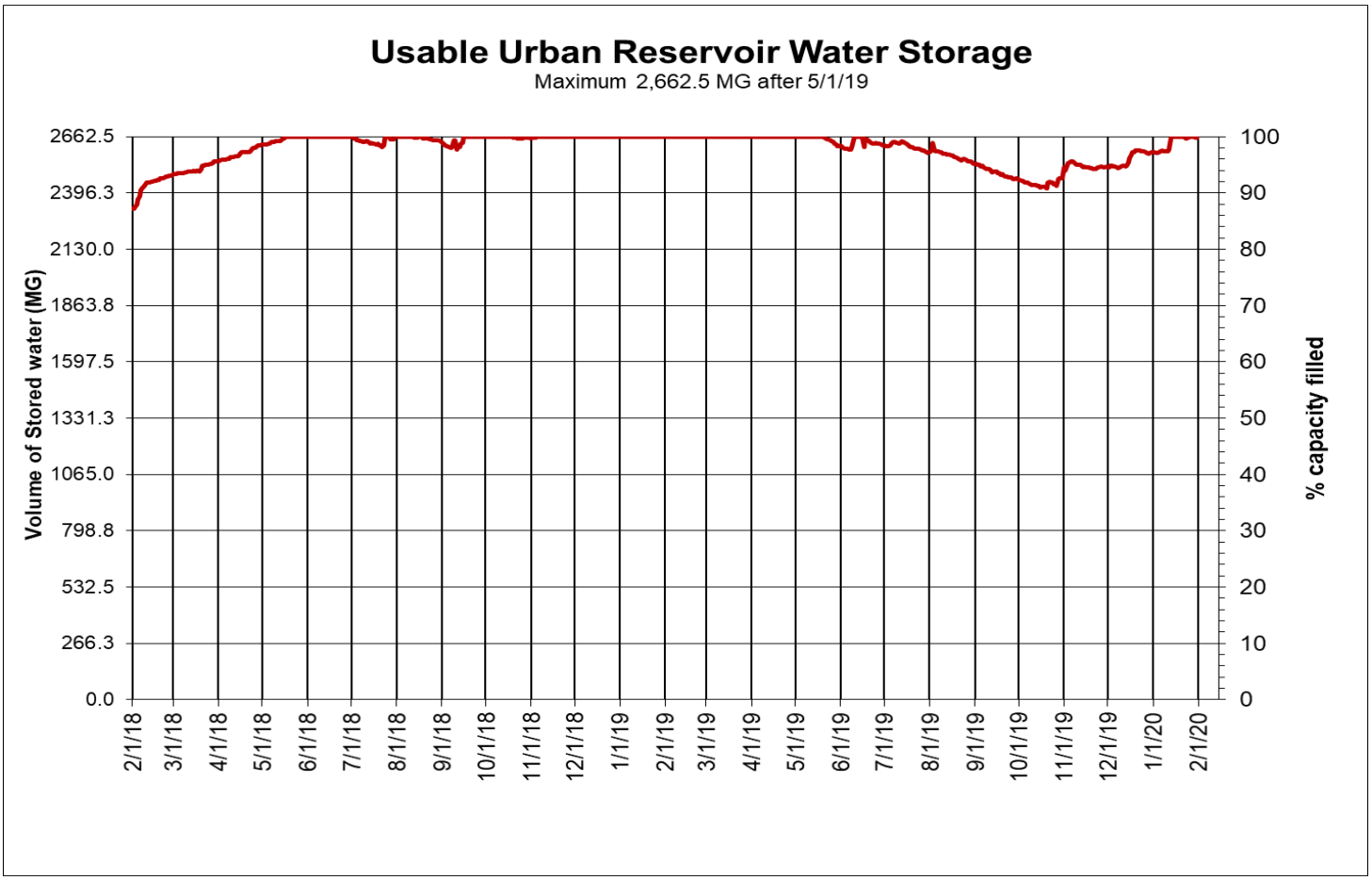
State Annual Allocation (lb./yr.) Permit		*Average Monthly Allocation (lb./mo.) **	*Moores Creek Discharge January (lb./mo.)*	*Performance as % of monthly average Allocation**	*Year to Date Performance as % of annual allocation*
Nitrogen	282,994	23,583	10,842	46%	3.8%
Phosphorous	18,525	1,544	199	13%	1%

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

WATER AND WASTEWATER DATA:

The following graphs are provided for review:

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


Usable Urban Reservoir Water Storage
Maximum 2,662.5 MG after 5/1/19
Volume of Stored water (MG)
2662.5
2396.3
2130.0
1863.8
1597.5
1331.3
1065.0
798.8
532.5
266.3
0.0
% capacity filled
100
90
80
70
60
50
40
30
20
10
0
2/1/18
3/1/18
4/1/18
5/1/18
6/1/18
7/1/18
8/1/18
9/1/18
10/1/18
11/1/18
12/1/18
1/1/19
2/1/19
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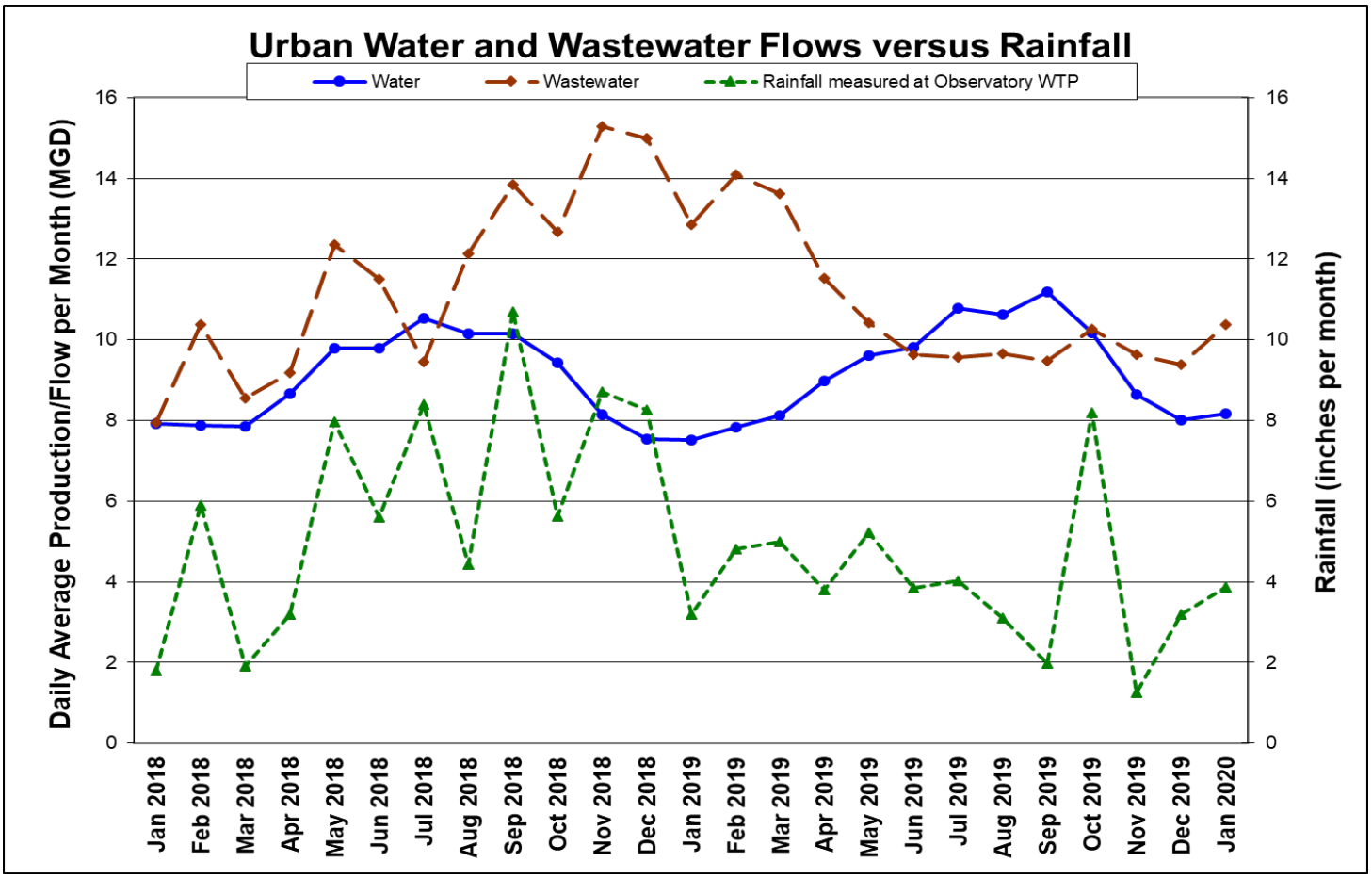
2/1/20


Urban Water and Wastewater Flows versus Rainfall
Water
Wastewater
Rainfall measured at Observatory WTP
Daily Average Production/Flow per Month (MGD)
Rainfall (inches per month)
16
14
12
10
8
6
4
2
0
Jan 2018
Feb 2018
Mar 2018
Apr 2018
May 2018
Jun 2018
Jul 2018
Aug 2018
Sep 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019
Mar 2019
Apr 2019
May 2019
Jun 2019
Jul 2019
Aug 2019
Sep 2019
Oct 2019
Nov 2019
Dec 2019
Jan 2020

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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: **FEBRUARY 25, 2020**

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

For the current, approved CIP, please visit: https://www.rivanna.org/financials-and-procurement/

Under Construction

1. Crozet Water Treatment Plant Expansion
2. Valve Repair – Replacement (Phase 2)
3. South Rivanna and Observatory Water Treatment Plant Renovations

Design and Bidding

4. Ragged Mtn Reservoir to Observatory WTP Raw Water Line and Pump Station
5. Crozet Flow Equalization Tank
6. Beaver Creek Dam and Pump Station Improvements
7. Crozet Interceptor Pump Station Rebuilds
8. MC Digester Sludge Storage Improvements
9. MC Aluminum Slide Gate Replacements
10. Sugar Hollow Dam –Gate Replacement and Intake Tower Repairs
11. Airport Road Water Pump Station and Piping
12. South Rivanna Dam – Gate Repairs

Planning and Studies

13. South Rivanna Reservoir to Ragged Mtn Reservoir Water Line Right-of-Way
14. Urban Water Demand and Safe Yield Study
15. Urban Finished Water Infrastructure Master Plan
16. Upper Schenks Branch Interceptor, Phase II

17. Asset Management Plan
18. Albemarle-Berkeley PS Basin Demolition and Capacity Analysis
19. Buck Mountain Master Plan

Other Significant Projects

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

Under Construction

1. Crozet Water Treatment Plant Expansion

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Orders Construction Co. (WVA)
Construction Start:	December 2018
Percent Completion:	40%
Base Construction Contract + Change Order to Date = Current Value:	$7,170,000- $285,000 = $6,885,000
Expected Completion Date:	May 2021
Total Capital Project Budget:	$8,500,000

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

2. Valve Repair – Replacement (Phase 2)

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

Current Status: Valve replacements will resume in April. Staff is continuing to coordinate with external project stakeholders, such as VDOT and ACSA, and has further valve testing coordinated during the week of February 24th.

3. South Rivanna and Observatory Water Treatment Plant Renovations

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Construction Contractor:	English Construction Company, Inc.

Construction Start:	March 2020
Percent Complete:	0%
Base Construction Contract + Change Orders to Date = Current Value:	$36,748,500
Completion:	March 2023
Approved Capital Budget:	$43,000,000

Current Status: The Contract was awarded to English Construction Company, Inc. on February 10, 2020. The construction contract is being executed**.**

Design and Bidding

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

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

Current Status: Easement acquisitions are underway.

5. Crozet Flow Equalization Tank

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

Current Status: Permitting is being completed and construction bids will be received in April 2020.

6. Beaver Creek Dam and Pump Station Improvements

Design Engineer:	Schnabel Engineering (Dam)
Design Engineer:	Hazen & Sawyer (Pump Station)
Project Start:	February 2018
Project Status:	5% Design and Permitting Underway
Construction Start:	2023
Completion:	2026
Approved Capital Budget:	$9,036,000

Current Project Estimate: $27,000,000

Current Status: Preliminary design of the dam modifications is underway. A draft site selection study memo for the new Raw Water Pump Station and intake is under review by staff. Development of a Joint Permit Application for the new Pump Station, Intake, and Dam Spillway Upgrades will be completed in the summer of 2020. Staff forwarded an application for federal funding (up to 65%) for the project this month.

7. Crozet Interceptor Pump Station Rebuilds

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

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

8. MC Digester Sludge Storage Improvements

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

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

9. MC Aluminum Slide Gate Replacements

Design Engineer:	Hazen and Sawyer
Project Start:	November 2018
Project Status:	Design
Construction Start:	May 2020
Completion:	December 2020
Approved Capital Budget:	$470,000

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

10. Sugar Hollow Dam –Gate Replacement and Intake Tower Repairs

Design Engineer:	Schnabel Engineering

Project Start:	January 2019
Project Status:	Design 40%
Construction Start:	2021
Completion:	2021
Approved Capital Budget:	$1,140,000

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

11. Airport Road Water Pump Station and Piping

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	July 2019
Project Status:	Preliminary Design 20%
Construction Start:	2021
Completion:	2022
Approved Capital Budget:	$5,800,000

Current Status: Geotechnical investigations and Preliminary Engineering Report preparation remain underway, with Staff and the Consultant continuing to coordinate on the details and alignment of the water main.

12. South Rivanna Dam – Gate Repairs

Design Engineer:	N/A
Contractor:	Bander Smith, Inc.
Project Start:	July 2019
Project Status:	Work Authorization under Development
Construction Start:	Spring- Fall 2020
Completion:	2020
Approved Capital Budget:	$900,000

Current Status: Gate repairs are currently expected to occur in late spring or summer of 2020 following a condition assessment of the gates this winter.

Planning and Studies

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

Design Engineer:	Michael Baker International (Baker)
Project Start:	October 2017
Project Status:	Easement Acquisition Underway
Completion:	2021

Approved Capital Budget:	$2,295,000

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

14. Urban Water Demand and Safe Yield Study

Design Engineer:	Hazen and Sawyer
Project Start:	November 2018
Project Status:	99% complete
Completion:	March 2020
Approved Capital Budget:	$154,000

Current Status: Hazen has completed the Safe Yield analysis and report writing. A presentation to the Board is anticipated in March 2020.

15. Urban Finished Water Infrastructure Master Plan

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

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

16. Upper Schenks Branch Interceptor, Phase II

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

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

17. Asset Management Plan

Design Consultant:	GHD, Inc.
Project Start:	July 2018
Project Status:	Phase 1 – 99% Complete Phase 2 – 15% Complete
Completion:	2020
Approved Capital Budget:	$500,000

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

18. Albemarle-Berkeley PS Basin Demolition and Capacity Analysis

Design Consultant:	Short Elliot Hendrickson (SEH)/GHD, Inc.
Project Start:	September 2019
Project Status:	Design 10%
Completion:	2021
Approved Capital Budget:	$200,000

Current Status: Staff held a kickoff meeting with the Design Consultant for the Basin Demolition portion of the project (SEH), and the Design Consultant is beginning work on the environmental investigation and 90% design documents. Demolition of the basin is scheduled to be complete by September 2020.

19. Buck Mountain Master Plan

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

Current Status: Study is underway.

Other Significant Projects

20. Urgent and Emergency Repairs

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

Project No.	Project Description	Approx. Cost
2018-06	South Rivanna Dam Apron and River Bank Repairs	$200,000
2019-07	Urban Water Line Valve and Blow-off Repair	$80,000
2020-01	Urban Waterline Exposure @ McIntire Park	$75,000
2020-02	CZI-MH-96 Exposure @ Lickinghole Creek	$88,000

- South Rivanna Dam Apron and River Bank Repairs: Repairs to the north and south concrete aprons will be designed by Schnabel Engineering and those services will be procured from the on-call contractor.
- Urban Water Line Valve and Blow-off Repair: Faulconer Construction will complete the drain valve replacements, as well as any piping/outlet modifications to the associated drain lines. Staff is coordinating the logistics of the projects, including the associated water main shutdowns for the repairs both on Mallside Forrest Court and Gasoline Alley. These repairs are scheduled to take place consecutively in March, with property owner coordination and planning taking place in February.
- Urban Waterline Exposure @ McIntire Park: On January 16th, 2020, RWSA staff discovered that a large section of bank had collapsed within McIntire Park due to recent rains and runoff, causing approximately 20' of RWSA's 24" Urban Waterline to become exposed. Due to the amount and size of fill required to properly stabilize the area, RWSA immediately mobilized its On-Call Maintenance Contractor, Faulconer Construction. Minor tree clearing work took place on 1/16 in order to better access the exposure site and protect the waterline, and Faulconer temporarily covered the pipe with No. 57 stone to provide interim bedding. The permanent repair work was completed on January 27th, 2020. The affected section of bank was armored with Class III, II, and I rip rap, and compacted No. 57 stone was used behind the rip rap in order to appropriately bed the pipe. Staff will continue to monitor this section of bank, due to the bank's slope and nature of the soils.
- CZI-MH-96 Exposure on Lickinghole Creek: On February 3rd, 2020, the RWSA Maintenance Department discovered that Crozet Interceptor Manhole #96 (CZI-MH-96) had become exposed approximately 4' deep immediately adjacent to Lickinghole Creek due to recent rain events and excessive erosion. The RWSA Maintenance Department mobilized to the area on February 4th and installed sandbags to protect the MH from the pending rainstorm. RWSA mobilized Faulconer Construction on February 10th in order to make the permanent repair. Imbricated stone with No. 57 stone backfill will be installed over approximately 100-120 LF of creek bank, which will protect the creek bank and RWSA sewer from further erosion. The mobilization and material staging process is ongoing, with stabilization work to immediately follow. RWSA has coordinated with all applicable regulatory agencies, including the US Armory Corps of Engineers (USACE) and Virginia Marine Resources Commission (VMRC).

21. Interceptor Sewer and Manhole Repair

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

$1,713,330

Current Status: Repairs to the Upper Morey Creek Interceptor are ongoing. Staff is continuing to coordinate in order to complete rehabilitation of this portion of MRI, as well as evaluate the current condition of the overall interceptor system and prioritize for the next round of repairs.

22. Security Enhancements

Contractor:	Security 101
Construction Start:	August 2019
Percent Complete:	Design 25%
Completion:	2021
Approved Capital Budget:	$1,000,000

Current Status: RWSA is negotiating the initial Work Authorization with Security 101 for Access Control Implementation on all exterior doors at MCAWRRF, as well as all WTP motorized gates. Conduit work will begin at MCAWRRF in late February/early March.

History

Under Construction

1. Crozet Water Treatment Plant Expansion

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

2. Valve Repair – Replacement (Phase 2)

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

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

Two (2) valve replacements were completed in May 2019; one (1) valve was replaced on the Crozet Waterline, and one (1) valve was replaced on the South Rivanna Waterline. Due to the unavailability of certain valves and lead times on selected materials, the contractor demobilized from the project in

late May. The Capital Improvement Plan was further amended on October 22, 2019 to compensate the contractor for this extra demobilization/remobilization, as well as the installation of a necessary bypass line that will keep South Rivanna WTP in service during one of the valve replacements.

3. **South Rivanna and Observatory Water Treatment Plant Renovations**

An informational meeting with prospective contractors was held on September 26, 2019 to maximize interest in the project. A project kickoff meeting with staff was held on November 14, 2018 and 30% design documents were provided in February. A Value Engineering Workshop took place the week of April 8, 2019, and a memo summarizing the results has being completed. Agreed upon results were incorporated into the project.

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

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

Design and Bidding

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

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

The RMR to Observatory WTP raw water pump station is planned to replace the existing Stadium Road and Royal pump stations, which have exceeded their design lives or will require significant upgrades with the Observatory WTP expansion. The pump station will pump up to 10 million gallons per day (MGD) of raw water to the Observatory WTP. The new pump station site selection and design

are being conducted in coordination with the South Rivanna Reservoir to RMR pipeline in the interest of improved operational and cost efficiencies. An integrated pump station would also include the capacity to transfer up to 16 MGD of raw water from RMR back to the SR WTP.

5. Crozet Flow Equalization Tank

A 2016 update to the 2006 model was completed which evaluated the I&I reduction goals previously established and future capital project needs. Based on the results of that study, it was determined that the Crozet Interceptor system and the existing Crozet Pump Stations (1 through 4) have adequate capacity to handle the 2015 peak wet weather flow from the Crozet Service Area during a two-year storm. However, as projected growth in the service area occurs, peak wet weather flows in the area under the storm conditions established in the updated model will begin to exceed the firm capacities of the pump stations by 2025. Additional I&I reductions in order to reduce flows enough to not exceed the pump station firm capacities are not feasible and as a result, the construction of a flow equalization tank was identified as the best method to alleviate wet weather capacity issues.

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

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

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

6. Beaver Creek Dam and Pump Station Improvements

Dam: RWSA operates the Beaver Creek Dam and reservoir as the sole raw water supply for the Crozet Area. In 2011, an analysis of the Dam Breach inundation areas and changes to Virginia Department of Conservation and Recreation (DCR) *Impounding Structures Regulations* prompted a change in hazard classification of the dam from Significant to High Hazard. This change in hazard classification requires that the capacity of the spillway be increased. This CIP project includes investigation, preliminary design, public outreach, permitting, easement acquisition, final design, and construction of the anticipated modifications. Work for this project will be coordinated with the new relocated raw water pump station and intake and a reservoir oxygenation system project.

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

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

7. **Crozet Interceptor Pump Station Rebuilds**

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

8. **MC Digester Sludge Storage Improvements**

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

9. **MC Aluminum Slide Gate Replacements**

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

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

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

repairs will include repairs to the intake gate valves and tower walls, including repair or replacement of intake trash racks, and sealing/grouting of minor concrete wall cracks.

11. Airport Road Water Pump Station and Piping

The Rt. 29 Pump Station and Pipeline master plan was developed in 2007 and originally envisioned a multi-faceted project that reliably connected the North and South Rivanna pressure bands, reduced excessive operating pressures, and developed a new Airport pressure zone to serve the highest elevations near the Airport and Hollymead Town Center. The master plan update was completed in June of 2018 to reflect the changes in the system and demands since 2007. This project, along with the South Rivanna River Crossing and North Rivanna Transmission Main project, will provide a reliable and redundant finished water supply to the North Rivanna area. The proposed pump station will be able to serve system demands at both the current high pressure and future low pressure conditions. These facilities will also lead to future phase implementation which will include a storage tank and the creation of the Airport water pressure zone. The North Rivanna Transmission Main improvements included under a separate CIP project have been added to this project to allow connection of the pump station to the distribution system.

12. South Rivanna Dam – Gate Repairs

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

Planning and Studies

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

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

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

14. Urban Water Demand and Safe Yield Study

The City of Charlottesville, Albemarle County Service Authority, and RWSA entered into the Ragged Mountain Dam Project Agreement in 2012. This Agreement included provisions to monitor the bathymetric capacity of the Urban water reservoirs as well as a requirement to conduct reoccurring demand analysis, demand forecasting and safe yield evaluations. This study will evaluate and calculate current and future demands and present safe yield. Per the project Agreement, these analyses shall be completed by calendar year 2020.

15. Urban Finished Water Infrastructure Master Plan

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

16. Upper Schenks Branch Interceptor, Phase II

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

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

17. Asset Management Plan

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

the consultant will also assist RWSA with the procurement of a software package to facilitate the overall program.

18. Albemarle-Berkeley PS Basin Demolition and Capacity Analysis

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

19. Buck Mountain Master Plan

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

Other Significant Projects

20. Urgent and Emergency Repairs

- South Rivanna Dam Apron and River Bank Repairs

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

- Urban Water Line Valve and Blow-off Repair

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

21. Interceptor Sewer and Manhole Repair

Results from sewer flow monitoring and modeling under the Comprehensive Sanitary Sewer Study provided awareness to specific inflow and infiltration (I&I) concerns in the collection system and

resulted in strengthened commitments from the City, ACSA and RWSA to continue professional engineering services to aid in the rehabilitation and repair of the sewer collection system. Engineering services will be used for sewer infrastructure condition assessments and the development of a sewer rehabilitation bid package for the procurement of a contractor to perform the recommended rehabilitation work.

22. <u>Security Enhancements</u>

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

RWSA Engineering staff held a meeting with Operations staff to discuss overall project needs and priorities in October 2018. Meetings with ACSA and City staff were held in Fall/Winter 2018-2019 to discuss how access control and intrusion detection systems have been implemented into to the day-to-day operations of the two utilities. A Request for Proposal (RFP) for an Implementer to facilitate selection of an access control system, confirmation of design requirements based upon RWSA's facilities and project goals, and installation of the selected system was issued on June 6, 2019. RWSA conducted a Pre-Proposal Meeting on June 14, 2019, and proposals were opened on June 27, 2019. Interviews were conducted on July 15-16, 2019, and a Contract Award Recommendation was approved by the Board on July 23, 2019.

RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane | Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

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

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

SUBJECT: **WHOLESALE METERING REPORT FOR JANUARY 2020**

DATE: **FEBRUARY 25, 2020**

The monthly and average daily water usage by the City and the ACSA for January 2020 were as follows:

	Month	***Daily Average***	
City Usage (gal)	126,486,938	4,080,224	**50.0%**
ACSA Usage (gal)	126,548,404	4,082,207	**50.0%**
Total (gal)	**253,035,342**	**8,162,430**	

The *RWSA Wholesale Metering Administrative and Implementation Policy* requires that water use be measured based upon the annual average daily water demand of the City and ACSA over the trailing twelve (12) consecutive month period. The *Water Cost Allocation Agreement (2012)* established a maximum water allocation for each party. If the annual average water usage of either party exceeds this value, a financial true-up would be required for the debt service charges related to the Ragged Mountain Dam and the SRR-RMR Pipeline projects. Below are graphs showing the calculated monthly water usage by each party, the trailing twelve-month average (extended back to February 2019*), and that usage relative to the maximum allocation for each party (6.71 MGD for the City and 11.99 MGD for ACSA).

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

**As of the publish date for this report, Meter Site 11 has been removed and returned to the manufacturer for testing and repair. The monthly reading at that site for January 2020 was estimated based on the average of the most recent three months of data, per the implementation policy procedures. This meter was isolated from the system on January 17, so the value used for this site was prorated to represent only 17 days of usage.

Figure 1: City of Charlottesville Monthly Water Usage

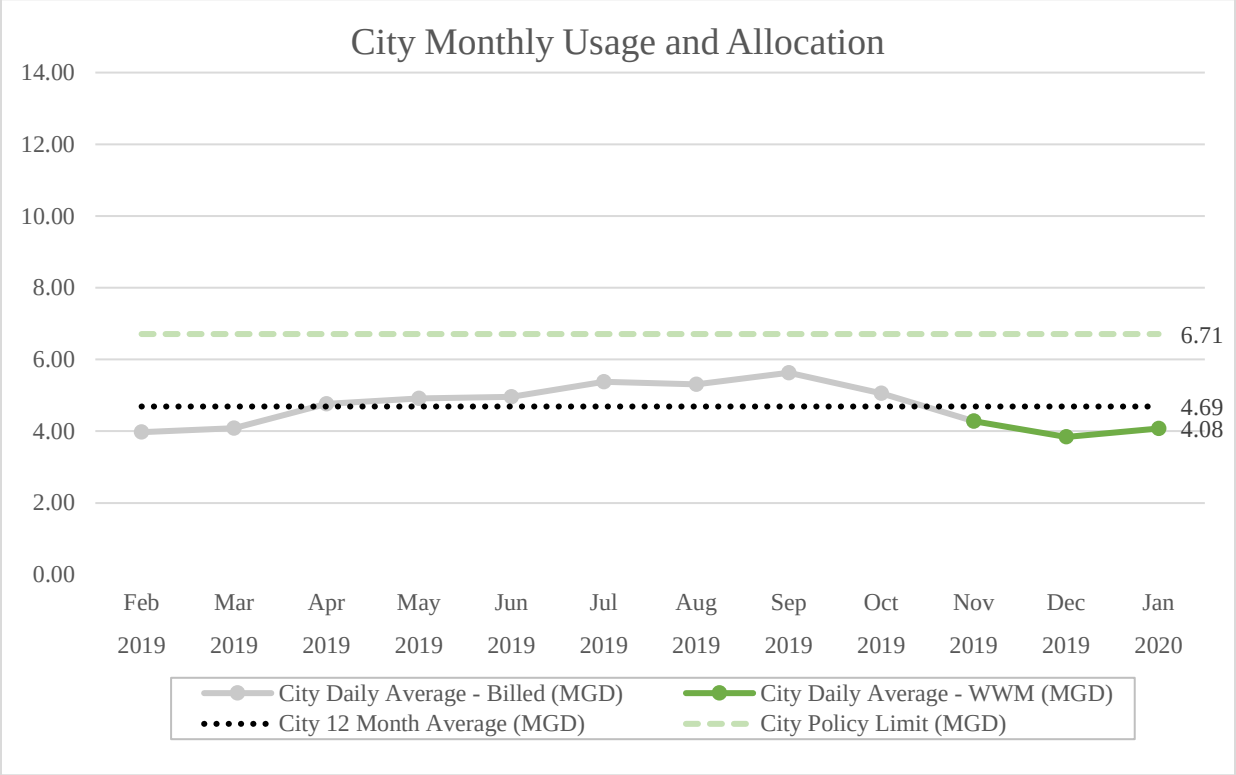
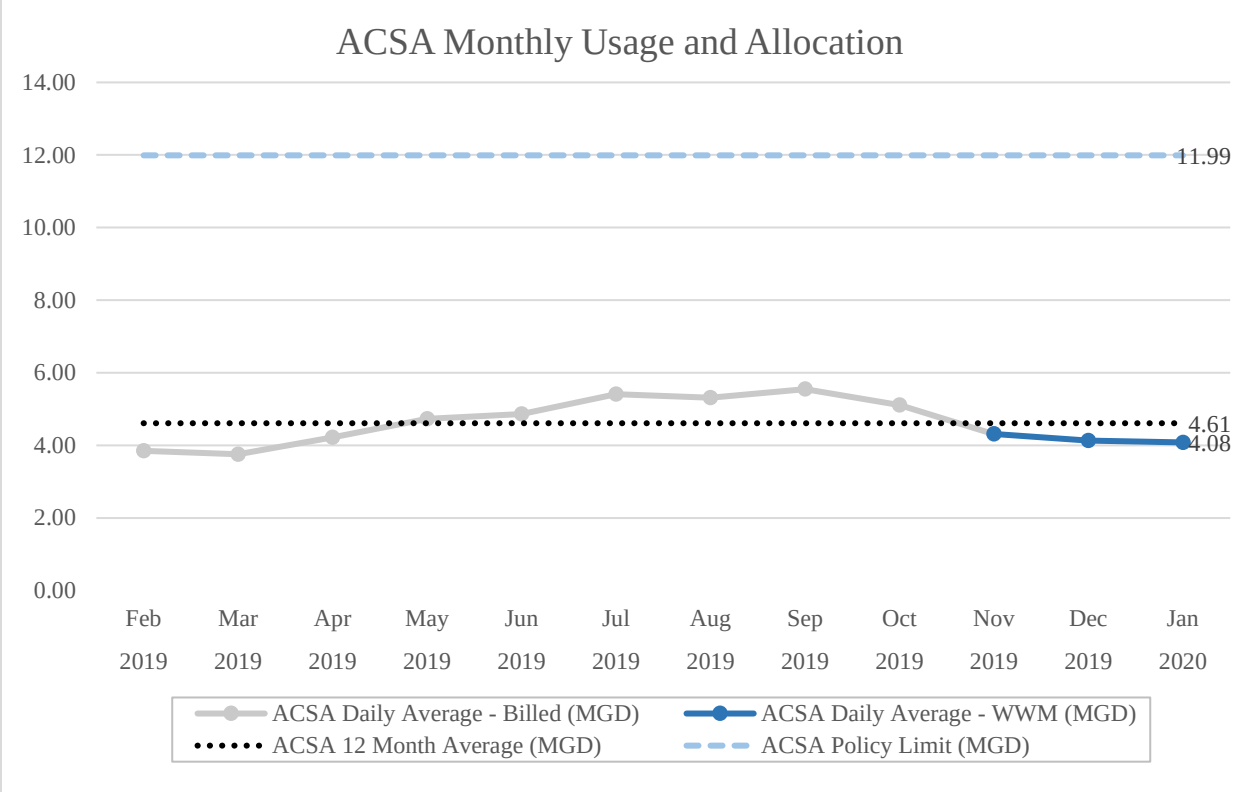


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation



RIVANNA AUTHORITIES
RIVANNA SOLID WASTE AUTHORITY
RIVANNA WATER & SEWER AUTHORITY
695 Moores Creek Lane
Charlottesville, Virginia 22902-9016
434.977.2970
434.293.8858
www.rivanna.org

MEMORANDUM

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

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

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

SUBJECT: **AWARD OF NONPROFESSIONAL SERVICES CONTRACT FOR CONSTRUCTION VISUAL DOCUMENTATION SERVICES; COMMONWEALTH DOCUMENTATION, LLC**

DATE: **FEBRUARY 25, 2020**

The Rivanna Water and Sewer Authority (RWSA) and Rivanna Solid Waste Authority (RSWA) are continually improving their infrastructure based on age or the need to expand and increase capacity, and as a result, wanted to procure services to comprehensively document the pre, during, and post construction changes associated with completion of construction, and other, projects through photographs, videos, and special software. This documentation is beneficial during the construction process itself, as well as after the improved infrastructure is in use.

As a result, RWSA and RSWA advertised a joint Request for Proposals on January 19, 2020 and proposals were due on February 4, 2020. As part of the procurement process, competitive negotiation was utilized as the procurement method for this contract. Due to the nature of dealing with various construction sites and activities, it is critical to review a contractor's qualifications and references to confirm capabilities and the satisfaction of other owners who have worked with the contractor in similar situations. This method would allow RWSA and RSWA to evaluate not only the firm's experience, capabilities and availability, but also the management approaches and key personnel. In addition, this approach would still allow RWSA and RSWA to factor price into the decision-making process, but not use it as the sole determining factor.

On February 4, 2020, one proposal was received from Commonwealth Documentation, LLC (dba Multivista). Multivista is currently providing construction photo documentation services as a subcontractor to the design engineer for the Crozet Water Treatment Plant – Expansion and Rehabilitation project, and our experience with the company to date has been very positive. In addition, the submitted qualifications of the company and the proposed project team, responsiveness to the scope of services, professional competence, qualifications, competitive labor rates, depth of key personnel, and extensive experience with similar projects provided in the proposal further demonstrated the company's extensive capabilities. As a result, it was determined that RWSA and RSWA would recommend awarding a contract to Multivista.

Board Action Requested:

Authorize the Executive Director to execute a contract for an initial term of one year, with options to renew the contract for four additional one-year terms, with Commonwealth Documentation, LLC for Construction Visual Documentation Services.

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434.293.8858
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MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **INTRODUCTION OF THE FY 2021 – 2025 CAPITAL IMPROVEMENT PLAN**

DATE: **FEBRUARY 25, 2020**

We are pleased to present the proposed FY 2021 – 2025 Capital Improvement Plan (CIP) totaling $135.2 M. We continue to strategically plan for the water supply, drinking water, and wastewater treatment facilities required to meet the reliability, quantity and quality expectations of our community. Projects to achieve these objectives in a financially responsible manner have been included in this proposed CIP.

During this five-year period, the CIP will significantly strengthen our drinking water systems with expenditures of $106.2 M for essential projects including:

- Renovations and Upgrades to our largest Water Treatment Plants (South Rivanna, Observatory and Crozet)
- Additional Granular Activated Carbon Water Filtering Facilities at the Observatory Water Treatment Plant
- Replacement of Raw Water Piping and Pumping Stations from the Ragged Mountain Reservoir to the Observatory Water Treatment Plant
- Repairs to the Sugar Hollow and South Rivanna Reservoir Dams
- A Water Pumping Station and Piping located near Airport Road
- Modifications to the Beaver Creek Reservoir Dam and Pump Station

We will also complete significant improvements to our wastewater treatment and piping facilities to ensure our streams and environment are protected. The proposed FY 21 – 25 CIP includes $24.2 M for essential wastewater projects including:

- A Wastewater Storage Tank to serve the Crozet area
- Renovations and Repairs to Wastewater Facilities (Moores Creek, Scottsville, Glenmore, Crozet)
- Replacement of Wastewater Piping, Upper Schenks Branch

This proposed CIP will continue the efforts of the Authority to provide reliable drinking water and wastewater infrastructure for our community.

Board Action Requested:

The FY 21 – 25 CIP totaling $135.2 M is provided for review by the Board of Directors.

Capital Improvement Plan

Fiscal Years 2021 – 2025

Drafted February 2020


Glenmore Secondary Clarifier Coating


Upper Schenks Branch Interceptor

OUR 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.


Observatory Water Treatment Plant


Moores Creek AWRRF


Sugar Hollow Dam

Rivanna Water & Sewer Authority
695 Moores Creek Lane
Charlottesville, Virginia 22902

RIVANNA
WATER & SEWER AUTHORITY

Introduction

The Capital Improvement Plan (CIP) for Fiscal Years 2021-2025 has been prepared as a strategic and financially responsible plan for the Rivanna Water and Sewer Authority (RWSA) to complete major infrastructure construction projects. The projects included in the CIP are necessary to achieve the RWSA's core mission of providing safe, high-quality drinking water and environmentally responsible wastewater treatment services for the City of Charlottesville and the Albemarle County Service Authority (ACSA). The CIP is a 5-year planning document which provides an estimated budget and schedule for projects as they advance through the design and construction process.

The infrastructure requirements of the Capital Improvement Plan are developed through our Asset Management and Master Planning programs to address water and wastewater capacity demands, regulatory mandates and rehabilitation needs. Each year, these projects are reviewed and prioritized by the RWSA management team and brought forth for review by the Board of Directors.

During the past year, several capital projects were completed, and as such are being removed from the 2021-2025 CIP. These projects account for approximately $5.1 million or 5.2% of FY 2020-2024 CIP. These projects include:

- 5 Birdwood Golf Course Waterline
- 9 Piney Mountain Tank Rehabilitation
- 11 Water Demand Projection and Safe Yield Study
- 21 Buck's Elbow Ground Storage Tank Chlorination System
- 23 Scottsville WTP Finished Water Flow Meter
- 43 Glenmore WRRF Secondary Clarifier Coating

The total 5-year 2021-2025 CIP is approximately $135.2 million, with the previous expenditures on active projects totaling approximately $5.4 million, leaving a net proposed 5-year projected expenditure of $129.8 million.

There are eleven new projects added to the CIP this year. The total estimated expenditures for the projects equal $4.71 million from 2021-2025 and include:

- 19 Crozet Ground Storage Tank Leak Repair ($0.1 million)
- 20 Buck's Elbow Tank and Waterball Painting ($0.083 million)
- 22 Scottsville WTP Lagoon Liner Replacement ($0.315 million)
- 32 Interceptor Sewer and Manhole Repair (Phase 2) ($0.7 million)
- 44 Moores Creek AWRRF Inplant Clarifier and Lime Silo Demolition ($0.65 million)
- 45 Moores Creek AWWRF Generator Fuel Storage Expansion ($0.1 million)
- 46 Moores Creek AWWRF Meter and Valve Replacements ($0.66 million)
- 47 Moores Creek AWWRF Facility Renovations ($0.475 million)
- 48 Moores Creek AWWRF 5kV Electrical System Upgrade ($0.5 million)
- 49 Moores Creek AWWRF Lighting Upgrade ($1.0 million)

- 51 Scottsville WRRF Generator and ATS ($0.13 million)

An additional ten projects that were in the previous 10-year plan that are now transitioning into the 5-year horizon. These projects equal $4.61 million from 2021-2025 and include:

- 12 Second North Rivanna River Crossing ($0.045 million)
- 23 Scottsville Tank Rehabilitation ($0.28 million)
- 28 Maury Hill Branch Sewer Replacement ($0.29 million)
- 30 Albemarle-Berkley Pump Station Upgrade ($0.04 million)
- 34 Moores Creek AWRRF Engineering and Administration Building ($1.2 million)
- 38 Moores Creek AWRRF Mechanical Thickener Improvement ($0.1 million)
- 40 Moores Creek AWRRF Gas Sphere Rehabilitation ($0.08 million)
- 41 Moores Creek AWRRF Cogeneration Upgrades ($1.9 million)
- 42 Moores Creek AWRRF Maintenance Building ($0.1)
- 43 Moores Creek AWWRF Structural Modifications ($0.57 million)

There are several projects where the proposed budgets have been modified based on the anticipated project requirements and necessitate funding adjustments. The projects with changes include:

- 5 Observatory WTP Improvements ($19.7 million existing / $26 million proposed)
- 6 Sugar Hollow Dam Rubber Crest Gate Replacement ($1.14 million existing / $1.7 million proposed)
- 7 Valve Repair and Replacement – Phase 2 ($0.883 million existing / $1.13 million proposed)
- 9 South Rivanna River Crossing ($5.34 million existing / $2.8 million proposed)
- 10 Airport Road Pump Station and North Rivanna Transmission Main ($2.3 million existing / $5.85 million proposed)
- 14 South Rivanna WTP Improvements ($15 million existing / $17 million proposed)
- 17 Beaver Creek Dam and Pump Station Improvements ($9.04 million existing / $20.76 million proposed)
- 21 Scottsville WTP LT2 Improvements ($0.10 million existing / $0.16 million proposed)
- 26 Crozet Interceptor ($0.62 million existing / $0.73 million proposed)
- 29 Crozet WW Pump Station 1, 2, 3 Rehabilitation ($0.54 million existing / $0.59 million proposed)
- 35 Moores Creek AWRRF Digester Sludge Storage Improvements ($0.31 million existing / $0.55 million proposed)
- 36 Moores Creek AWWRF Aluminum Slide Gate Replacement ($0.47 million existing / $0.675 million proposed)
- 53 Radio Upgrades ($0.65 million existing / $0.40 million proposed)
- 54 Asset Management ($0.50 million existing / $1.12 million proposed)
- 55 Security Enhancements ($1.0 million existing / $2.73 million proposed)

FINANCIAL SUMMARY

MAJOR SYSTEM CATEGORIES

FINANCIAL SUMMARY
Major System Categories – Water

	Five-Year Capital Program			Projected Future Expenses by Year						
System Description	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress**
Urban Water (UW)										
Community Water Supply Plan	$6,182,000	$6,160,000	$1,710,249	$584,751	$535,000	$1,506,000	$2,216,000	$5,790,000	$12,342,000	$301,054
Observatory WTP & Ragged Mountain/Sugar Hollow Reservoir System	$20,840,000	$6,860,000	$3,118,198	$5,811,802	$15,170,000	$3,600,000	$0	$0	$27,700,000	$618,880
Finished Water Storage/Distribution	$10,875,914	$4,155,000	$2,961,914	$1,834,000	$4,122,000	$2,493,000	$725,000	$2,895,000	$15,030,914	$312,274
South & North Fork Rivanna Water System	$18,950,000	$2,000,000	$10,056,415	$7,353,585	$2,540,000	$1,000,000	$0	$0	$20,950,000	$746,112
Subtotal (UW)	$56,847,914	$19,175,000	$17,846,776	$15,584,138	$22,367,000	$8,599,000	$2,941,000	$8,685,000	$76,022,914	$1,978,320
Non-Urban Water (NUW)										
Crozet Water System	$17,536,000	$11,905,000	$9,051,000	$892,000	$1,050,000	$6,435,000	$6,010,000	$6,003,000	$29,441,000	$1,526,851
Scottsville Water System	$100,000	$655,000	$100,000	$60,000	$0	$140,000	$175,000	$280,000	$755,000	$0
Subtotal (NUW)	$17,636,000	$12,560,000	$9,151,000	$952,000	$1,050,000	$6,575,000	$6,185,000	$6,283,000	$30,196,000	$1,526,851
WATER TOTAL	$74,483,914	$31,735,000	$26,997,776	$16,536,138	$23,417,000	$15,174,000	$9,126,000	$14,968,000	$106,218,914	$3,505,171

FINANCIAL SUMMARY
Major System Categories – Wastewater

	Five-Year Capital Program			Projected Future Expenses by Year						
System Description	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress**
Urban Wastewater (UWW)										
Wastewater Interceptors and Pumping Stations	$11,303,330	$1,290,000	$6,757,945	$3,740,385	$855,000	$205,000	$45,000	$1,020,000	$12,623,330	$716,848
Moores Creek AWRRF	$3,449,632	$7,782,000	$3,026,632	$2,975,000	$2,510,000	$510,000	$475,000	$1,735,000	$11,231,632	$1,007,383
Subtotal (UWW)	$14,752,962	$9,072,000	$9,784,577	$6,715,385	$3,365,000	$715,000	$520,000	$2,755,000	$23,854,962	$1,724,231
Non-Urban Wastewater (NUWW)										
Scottsville WRRF	$210,000	$125,000	$65,000	$145,000	$0	$125,000	$0	$0	$335,000	$0
Glenmore WRRF	$65,000	$0	$0	$65,000	$0	$0	$0	$0	$65,000	$0
Subtotal (NUWW)	$275,000	$125,000	$65,000	$210,000	$0	$125,000	$0	$0	$400,000	$0
WASTEWATER TOTAL	$15,027,962	$9,197,000	$9,849,577	$6,925,385	$3,365,000	$840,000	$520,000	$2,755,000	$24,254,962	$1,724,231
All Systems Security & Technology	$2,596,000	$2,099,000	$1,971,000	$1,014,000	$480,000	$640,000	$550,000	$40,000	$4,695,000	$167,637
TOTAL	$92,107,876	$43,031,000	$38,818,353	$24,475,523	$27,262,000	$16,654,000	$10,196,000	$17,763,000	$135,168,876	$5,397,039

PROJECT DETAILS

Completed Projects

During fiscal year 2020, several capital improvement projects were completed, were advanced to the final phases of close-out, or were determined to be no longer necessary. As such they will be removed from consideration in future planning documents. Presented in the table below are the six (6) completed projects, pertinent information on the adopted budgets, as well as the projected final costs and any anticipated savings. There was a total completed projects cost savings of $0.9 million.

5. Birdwood Golf Course Waterline: RWSA and the UVA Foundation chose to expedite construction of the portion of the future South Rivanna to Ragged Mountain 36-inch raw water main through the Birdwood property. This enabled pipeline work to proceed just ahead of the planned golf course reconstruction project to prevent subsequent disruption to the property and adjacent neighbors, as well as mitigate future increased water line construction costs. The golf course reconstruction project began in November 2018. This work was completed within budget in the summer of 2019 and included installation of approximately 5,900 linear feet of 36-inch raw water main along the eastern property boundary of the golf course.

9. Piney Mountain Tank Rehabilitation: The 700,000-gallon Piney Mountain Tank serves the North Rivanna pressure band. A routine inspection of the Piney Mountain Tank revealed several deformed roof rafters, indicating the potential for structural deficiency. An in-depth structural inspection was performed and a list of recommended roof repairs provided. This project included 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 improvements included in this project are needed to maintain the existing tank in service for at least the next 10 years. The tank repairs were substantially complete in July of 2019 and the project was closed out in November 2019.

11. Water Demand Projection and Safe Yield Study: In January 2012, the City of Charlottesville, Albemarle County Service Authority, and RWSA entered into the Ragged Mountain Dam Project Agreement. Within the agreement are provisions to monitor the bathymetric capacity of the Urban water reservoirs as well as a requirement to conduct reoccurring demand analysis, demand forecasting and safe yield evaluations. The bathymetric survey of the South Rivanna Reservoir and the Ragged Mountain Reservoir were funded in the FY2019 O&M Budget. Subsequent to collecting the reservoir survey data, this study evaluated and calculated current and future demands and present safe yield. Per the project agreement, these analyses shall be completed by calendar year 2020.

21. Buck's Elbow Ground Storage Tank Chlorination System: The 2,000,000-gallon Buck's Elbow Ground Storage Tank provides finished water storage for the Crozet Area. Due to the water age that is currently present in the Buck's Elbow Ground Storage Tank, RWSA Water Department staff performs constant monitoring on the chlorine residuals in the tank. When chlorine residuals drop, staff must manually feed chlorine into the tank. Currently, this requires staff to bring all required pumping infrastructure to the site and climb the tank to access the injection point(s). To enhance the efficiency and safety of this process, a chemical feed station will be

installed at the Buck's Elbow Ground Storage Tank site. The need for staff to climb the tank will be negated, and all pumping infrastructure will remain on site in a secured area. An active mixing system will also be installed in order to supplement the existing passive mixing system and further decrease water age inside of the tank. Installation of the active mixing system and construction of the chlorine feed station at the Buck's Elbow Ground Storage Tank began in Fall 2019, and completed in early 2020.

23. Scottsville WTP Finished Water Flow Meter: The Scottsville Water Treatment Plant provides potable drinking water to Albemarle County Service Authority customers in the Scottsville service area. After water has been treated at the plant, it is collected in an existing clearwell which was constructed with the original facility. From the clearwell, the water is pumped into the distribution system by one of two high service pumps. The flow from these pumps is not metered. In order to keep a record of the total flow entering the Scottsville distribution system, plant operators must periodically conduct draw-down tests to verify the pumping rate of each of the two pumps. The total flow is then calculated based on the run time of each pump. Based on these procedures, this method of measuring flow may not be fully representative of the flow entering the system as the pumping rate will vary based on the clearwell level and the hydraulic grade line of the distribution system. In addition, the Virginia Department of Health has indicated that the flow should be metered during recent conversations related to the disinfection profile calculation throughout the plant. To resolve this issue, this project modified the high service pump discharge piping to allow for the installation of a finished water meter.

43. Glenmore WRRF Secondary Clarifier Coating: The secondary clarifiers at the Glenmore facility were painted over 10-years ago. The clarifier environment is a particularly harsh environment subject to corrosive gasses, grit abrasion and mechanical wear. Based on observations by operations staff, the coating system was in need of replacement to prevent deterioration and failure of the underlying metal superstructure. This project included the cleaning and full coating of the metal portions of the clarifier and installation of new sweeps.

Completed Projects

			Five-Year Capital Program			
Line No.	**Proj. No.**	**Project Description**	**Adopted Budget 5/2019**	**Previous Expenditures (6/30/2019)**	**Final Projected Costs/Close Out**	**Savings**
5	20.05	Birdwood Golf Course Waterline	$4,000,000	$2,714,728	$3,086,000	$914,000
9	20.09	Piney Mountain Tank Rehabilitation	$570,000	$88,585	$484,413	$85,587
11	20.11	Water Demand Projection and Safe Yield Study	$167,000	$79,106	$167,000	$0
21	20.21	Buck's Elbow Ground Storage Tank Chlorination System	$239,000	$6,643	$230,000	$9,000
23	20.23	Scottsville Water Treatment Plant Finished Water Flow Meter	$145,000	$12,128	$134,979	$10,021
43	20.43	Glenmore WRRF Secondary Clarifier Coating	$160,000	$1,100	$138,751	$21,249
		TOTAL	$5,096,000	$2,902,290	$4,241,143	$854,857

CIP 20-24 Total	**CIP 21-25 Completed**	**CIP 21-25 Remaining**	**CIP 21-25 New Funding**	**CIP 21-25 New Total**
$97,203,876	$5,096,000	$92,107,876	$43,061,000	$135,168,876

Community Water Supply Plan

The Community Water Supply Plan represents the program developed with substantial community input to fulfill RWSA's contractual obligation to the City of Charlottesville (City) and the Albemarle County Service Authority (ACSA) to provide adequate drinking water for their future needs. An initiative started in 2003 to find a long-term solution that could achieve both local support and meet federal and state requirements. After multiple community meetings, updates with local officials, and frequent consultations with federal and state agencies, local support was obtained to apply for federal and state permits to expand the Ragged Mountain Reservoir and build a future pipeline between the South Rivanna and Ragged Mountain Reservoirs, with stream and wetlands mitigation to be provided through property in the Buck Mountain Creek area and property adjacent to a lower reach of Moores Creek near its confluence with the Rivanna River. Federal and state permits were granted in 2008, and amended in 2011.

The first phase of this long-term program centered around the expansion of the Ragged Mountain Reservoir, a project that would simultaneously address a legal obligation to correct safety deficiencies on the existing site. Through a combination of technical investigations, engineering evaluations, and continued public discussion, a decision was reached in February 2011 through the City Council and Board of Supervisors to build the new dam as an earthen dam, with the initial phase raising the reservoir pool height by 30 feet. The decision also outlined an objective of the further pursuit of water conservation through the City and ACSA, and the pursuit of opportunities for dredging of the South Rivanna Reservoir, with the second phase of reservoir expansion in the future as necessary.

Project Descriptions:

1. South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way: The approved 50-year Community Water Supply Plan includes the future construction of a new raw water pipeline from the South Rivanna River to the Ragged Mountain Reservoir. This new pipeline will replace the Upper Sugar Hollow Pipeline along an alternative alignment to increase raw water transfer capacity in the Urban Water System. The project includes a detailed routing study to account for recent and proposed development and road projects in Albemarle County and the University of Virginia. Preliminary design, preparation of easement documents, and acquisition of water line easements along the approved route will also be completed as part of this project. Prior expenditures also covered a previous review of the 2009 conceptual design that was requested by the Board.

2. South Rivanna Reservoir Dredging: The South Rivanna Reservoir stores raw water for treatment at the South Rivanna Water Treatment Plant and in the future, is proposed to provide water for transfer to the enlarged Ragged Mountain Reservoir. River flow into the reservoir is from a drainage area, almost entirely within Albemarle County, of approximately 259 square miles. Soil erosion from natural events, from land use in the agricultural area, from land disturbances in the developed areas, and from re-suspension of flood plain deposits created during the 19th century (stream bank erosion), are likely the causes of sediment becoming trapped within the reservoir. The initial design of the reservoir anticipated the accumulation of

these sediments, and a significant portion of the total storage volume was designated for this purpose. Currently the sediment stored does not exceed the available sediment storage capacity.

The January 2012 Ragged Mountain Dam Project Agreement outlines that "the City and ACSA agree to direct, and RWSA agrees, to perform such dredging projects at the South Fork Rivanna Reservoir as may be specified jointly by the City and ACSA pursuant to the Water Cost Allocation Agreement." The Cost Allocation Agreement stipulates that target maintenance dredging shall be performed, and that the dredging be market driven, cost effective, and opportunistic and shall not exceed $3.5M. In 2012 and 2013, RWSA, via the Public-Private Education Facilities and Infrastructure Act (PPEA) process, solicited proposals to provide maintenance dredging. In July 2013, the one qualified PPEA proposer withdrew its proposal, citing difficulties in obtaining necessary land agreements.

Future Board decisions on the project contracting approach will dictate the next steps. This project remains in the CIP as the fulfillment of a contractual obligation from the January 2012 Ragged Mountain Dam Cost Allocation Agreement, and RWSA counsel has offered an opinion that consent to amend the Agreement from the City and ACSA is required before the RWSA Board can amend or cancel the project. The project has been moved to FY 2026.

3. Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line: Raw water is transferred from the Ragged Mountain Reservoir (RMR) to the Observatory Water Treatment Plant by way of two 18-inch cast iron pipelines, which have been in service for more than 110 and 70 years, respectively. The increased frequency of emergency repairs and expanded maintenance requirements are one impetus for replacing these pipelines. The proposed water line will be able to reliably transfer water to the expanded Observatory plant, which will have the capacity to treat 10 million gallons per day (mgd). The new pipeline is expected to be constructed of 36-inch ductile iron and approximately 14,000 feet in length.

4. Ragged Mountain Reservoir to Observatory Raw Water Pump Station: The Ragged Mountain Reservoir (RMR) to Observatory WTP raw water pump station is planned to replace the existing Stadium Road and Royal pump stations, which in part have exceeded their design lives or will require significant upgrades with the Observatory WTP expansion. The pump station will pump up to 10 mgd to the Observatory WTP. The new pump station will be integrated with the planned South Rivanna Reservoir (SRR) to RMR pipeline in the interest of improved operational and cost efficiencies. An integrated pump station will also include the capacity to transfer up to 16 million gallons per day (mgd) of raw water from RMR back to the SRR WTP. The location of this pump station will be determined and the required property purchased as part of the SRR to RMR raw water main preliminary design and right of way acquisition, which is currently underway.

Community Water Supply Plan

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
1	20.01	South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way	$2,295,000		$1,710,249	$584,751					$2,295,000	$301,054
2	20.02	South Rivanna Reservoir Dredging	$10,000	($10,000)							$0	
3	20.03	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line	$3,217,000	$4,280,000			$325,000	$1,186,000	$1,706,000	$4,280,000	$7,497,000	
4	20.04	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pump Station	$660,000	$1,890,000			$210,000	$320,000	$510,000	$1,510,000	$2,550,000	
		TOTAL	$6,182,000	$6,160,000	$1,710,249	$584,751	$535,000	$1,506,000	$2,216,000	$5,790,000	$12,342,000	$301,054

Observatory WTP and Ragged Mountain/Sugar Hollow Reservoir System

The Observatory Water Treatment Plant (WTP) and Ragged Mountain/Sugar Hollow Reservoir System is comprised of the water treatment facility on Observatory Mountain and the associated raw water infrastructure that stores and conveys source water to the plant. The raw water storage system includes the new Ragged Mountain Dam (constructed in 2014, with a useable raw water storage capacity of 1.44 billion gallons) and the Sugar Hollow Dam (originally constructed in 1947, upgraded in 1999 and downstream discharge improvements completed in September 2014, with a useable raw water storage capacity of 339 million gallons as updated by a 2015 bathymetric survey). The system also includes 17.6 miles of 18-inch raw water cast-iron mains, originally installed in 1908, 1922, and 1946. The Sugar Hollow Raw Water Main historically conveyed water from the Sugar Hollow Dam to the Observatory Water Treatment Plant, however, as a result of the New Ragged Mountain Dam project, the main now discharges directly into Ragged Mountain Reservoir. The remaining downstream section of the Sugar Hollow main now conveys raw water from the Ragged Mountain Reservoir to the treatment plant. The line crosses the Mechums River (where an abandoned pumping station is sited) on its way to Ragged Mountain Reservoir, and eventually passes through the Royal Pumping Station and terminates at the Observatory WTP. The Ragged Mountain Raw Water Main conveys water from the Ragged Mountain Reservoir through the Stadium Road Pumping Station and terminates at the Observatory Water Treatment Plant.

Project Descriptions:

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

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

   It should be noted that the Observatory Water Treatment Plant is sited on land leased to RWSA by the University of Virginia. The terms of the existing lease expire on April 17, 2021. The new lease is currently under negotiation.

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

Observatory Water Treatment Plant and Ragged Mountain/Sugar Hollow Reservoir System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
5	20.06	Observatory Water Treatment Plant Improvements	$19,700,000	$6,300,000	$2,648,198	$5,051,802	$14,700,000	$3,600,000			$26,000,000	$618,880
6	20.07	Sugar Hollow Dam Rubber Crest Gate Replacement	$1,140,000	$560,000	$470,000	$760,000	$470,000				$1,700,000	
		TOTAL	$20,840,000	$6,860,000	$3,118,198	$5,811,802	$15,170,000	$3,600,000	$0	$0	$27,700,000	$618,880

Finished Water Storage/Transmission – Urban System

The urban finished water storage and transmission system serves to provide transmission of treated water from the three RWSA water plants (Observatory, South Rivanna, and North Rivanna) to the distribution networks of the Albemarle County Service Authority, the City of Charlottesville, and the University of Virginia. The system includes approximately 40 miles of pipeline, six water storage tanks: Avon Street (2 MG), Pantops (5 MG), Piney Mountain. (0.7 MG), Stillhouse (0.7 MG), Observatory (3 MG), and Lewis Mountain (0.5 MG), and the Alderman Road and Stillhouse pumping stations.

Project Descriptions:

7. Valve Repair & Replacement (Phase 2): Isolation valves are critical for normal operation of the water distribution system and timely emergency response to water main breaks. Staff continuously reviews results from an ongoing valve exercising and condition assessment program performed by the RWSA Maintenance Department. This project will repair any valves identified during the condition assessment as having a repairable deficiency and replace the highest priority valves that are inoperable and/or unrepairable. This phase of the Valve Repair-Replacement Project will include the repair of an existing valve on the Southern Loop Waterline and replacement of valves on the North Rivanna, South Rivanna, Pantops, and Crozet Waterlines. Completion of Phase 2 of the Valve Repair-Replacement Project is anticipated in Summer 2020.

8. Central Water Line: The southern half of the Urban Area water system is currently served by the Avon Street and Pantops 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 reducing system flexibility. In 1987, the City and ASCA developed the Southern Loop Agreement, outlining project phasing and cost allocations, as envisioned at the time. The first two phases of the project were constructed shortly thereafter. The third phase, known as the "Eastern Branch" is the subject of the current project. The initial funding for this project was used for route alignment determination, hydraulic modeling, and preliminary design. Due to the complicated nature of our finished water systems, it was decided at the August 2018 Board meeting that a more comprehensive approach is warranted and we should complete the Finished Water Master Plan prior to moving forward with final design and construction of the Avon to Pantops Water Main.

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

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

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

11. Finished Water System Master Plan: As identified in the 2017 Strategic Plan, the Authority has a goal to plan, deliver and maintain dependable infrastructure in a financially responsible manner. Staff has identified asset master planning as a priority strategy to improve overall system development. There are asset classes where comprehensive and ongoing plans exist or are in development (e.g. wastewater collection, raw water supply, Crozet water, etc.). In the case of the urban finished water system, many of the previously identified capital projects are in design or construction. As such, staff have identified a need to develop a current and ongoing finished water master plan. This work will utilize the demand forecasting from the Water Demand Project and Safe Yield Study.

12. Second North Rivanna River Crossing: Currently the northern most area of Albemarle County is served by a single 12-inch line under the North Fork Rivanna River. In 2015 a storm caused a failure of this line and it was replaced with a concrete-encased fully restrained pipe. The 2018 Rt. 29 Pipeline and Pump Station Master Plan indicated that a future time additional hydraulic capacity will be required at this crossing. The current finished water master planning effort will evaluate the timing of this improvement. The existing schedule is based on the need for a redundant feed across the river.

Finished Water Storage/Transmission – Urban System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
7	20.08	Valve Repair & Replacement (Phase 2)	$882,914	$250,000	$1,132,914						$1,132,914	$154,218
8	20.10	Central Water Line	$2,100,000	$2,850,000	$1,375,000				$725,000	$2,850,000	$4,950,000	$137,749
9	20.12	South Fork Rivanna River Crossing	$5,340,000	($2,540,000)		$260,000	$922,000	$1,618,000			$2,800,000	
10	20.13	Airport Rd. Pump Station and North Rivanna Transmission Main	$2,300,000	$3,550,000	$201,000	$1,574,000	$3,200,000	$875,000			$5,850,000	
11	20.14	Finished Water System Master Plan	$253,000		$253,000						$253,000	$20,307
12	20.58	Second North Rivanna River Crossing		$45,000						$45,000	$45,000	
		TOTAL	$10,875,914	$4,155,000	$2,961,914	$1,834,000	$4,122,000	$2,493,000	$725,000	$2,895,000	$15,030,914	$312,274

South and North Rivanna Water Systems

The South Rivanna Water System is comprised of the source water, storage, conveyance and treatment infrastructure currently serving the urban area from the South Fork Rivanna River. The system includes the South Fork Rivanna Reservoir and Dam (built in 1966). The Dam is co-located with the raw water intake and pump station, as well as a small hydroelectric generation facility. The source water from the South Rivanna Reservoir is treated at the South Rivanna treatment plant (12-mgd rated capacity).

The North Rivanna Water System is comprised of a river intake and raw water pumping station on the North Fork of the Rivanna River, as well as the North Fork Water Treatment Plant (2-mgd rated capacity built in 1973). The North Rivanna System provides water to the ACSA service area located along US Route 29, between Forest Lakes subdivision and Piney Mountain Road.

Project Descriptions:

13. South Rivanna Hydropower Plant Decommissioning: The South Fork Hydropower Plant is a small hydroelectric generating facility constructed in 1987. The plant has historically operated intermittently, as river flows allow. The generated power is used at the South Rivanna Water Treatment Plant, thereby reducing power purchased off the electric grid. During an effort to troubleshoot and repair the turbine, a large rain and lightning event caused unexpected flooding into the facility. Insurance paid damages to more recent improvements, but not the pre-existing needs to repair the turbine. Engineering investigations in 2013 associated with the failed mechanical equipment and flood event confirmed the need for further disassembly and inspection of the turbine shaft and blade linkages from a remote factory location.

    Due to the complexity of possible rehabilitation, the associated Federal Energy Regulatory Commission (FERC) dam permitting, and the numerous variables in the economic analysis, proposals were solicited from national hydropower experts to initiate a feasibility study to determine the cost effectiveness of rehabilitating the hydropower plant while making sure to account for FERC-related costs and issues. The feasibility study was completed in May 2016 and determined that rehabilitation of the facility had a small likelihood for a positive return on investment. This conclusion was brought to the Board of Directors along with a recommendation to initiate the surrender of the exemption to licensure and decommission the facility. The Board approved this recommendation and staff has begun the exemption surrender process. The budget includes regulatory support as well as physical improvements such as removing defunct electrical components, abandoning components of the turbine and re-establishment of the penstock as a reservoir drain.

14. South Rivanna Water Treatment Plant Improvements: The South Rivanna Water Treatment Plant recently completed upgrades as part of the Urban Granular Activated Carbon project. Over the course of that project, several other significant needs were identified and assembled into a single project within this Capital Plan. The project components include, but are not limited to, the following: a new alum and fluoride storage facility; installation of two additional filters to meet firm capacity needs and new filter control panels; building around the lime storage facilities; the addition of a second variable frequency drive at the Raw Water Pump Station as well as other general pump station improvements; the relocation for the

electrical gear from a sub terrain location at the Sludge Pumping Station to a new aboveground enclosure; a new administration building on site for additional office, meeting, and storage space; high service pump improvements and the addition of variable frequency drives to three of the pumps; sedimentation basin improvements; replacement of filter inlet valves and actuators; remodeling of the existing filter building for better lab and control space and painting throughout; new clarifier drives; and incoming electrical system improvements for the facility. Currently this facility operates at 80-90% of capacity and the identified upgrades will improve reliability and resiliency, particularly at higher flow rates.

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

16. North Rivanna Water Treatment Plant Upgrade: The North Rivanna Water Treatment Plant was recently upgraded with Granular Activated Carbon (GAC) treatment. While components of the plant's electrical system were upgraded during the GAC project, the remaining equipment and process controls are original to the plant and in need of upgrades. As a result, a needs assessment for the plant was updated to identify potential improvements and the associated costs. At the same time, future regulatory impacts to the plant are being evaluated which may limit the benefit of investing those significant dollars in plant upgrades. In order to clarify this process, this project will include an abandonment and alternatives analysis which will evaluate the costs and implications of maintaining operations at the North Rivanna Water Treatment Plant versus adjusting our Urban System operational guidelines in an attempt to maintain our overall withdrawal and finished water production capabilities should the plant be taken out of service.

South and North Rivanna Water Systems

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
13	20.15	South Rivanna Hydropower Plant Decommissioning	$725,000		$725,000						$725,000	$127,081
14	20.16	South Rivanna Water Treatment Plan Improvements	$15,000,000	$2,000,000	$8,046,415	$7,353,585	$1,600,000				$17,000,000	$619,031
15	20.17	South Rivanna Dam - Gate Repairs	$900,000		$900,000						$900,000	
16	20.18	North Rivanna Water Treatment Plant Upgrade	$2,325,000		$385,000		$940,000	$1,000,000			$2,325,000	
		TOTAL	$18,950,000	$2,000,000	$10,056,415	$7,353,585	$2,540,000	$1,000,000	$0	$0	$20,950,000	$746,112

Crozet Water System

The Crozet Water System includes the source water, raw water conveyance, finished water treatment, transmission and storage infrastructure for the Crozet community in western Albemarle County. The source water for this system is the Beaver Creek Reservoir and Garnett Dam which were built in 1964 with a current useable storage capacity of 521 million gallons. Raw water is treated at the Crozet Water Treatment Plant (1.0 mgd rated capacity) and provides finished water to the Albemarle County Service Authority. The system includes the Crozet Elevated (Waterball) Tank (0.05 MG) for water treatment plant backwash; the Crozet Ground Storage Tank (0.5 MG) and pump station, and the Buck's Elbow Storage Tank (2.0 MG).

Project Descriptions:

17. Beaver Creek Dam & Pump Station Improvements: RWSA operates the Beaver Creek Dam and reservoir as the sole raw water supply for the Crozet Area. In 2011, an analysis of the Dam Breach inundation areas and changes to Virginia Department of Conservation and Recreation (DCR) *Impounding Structures Regulations* prompted a change in hazard classification of the dam from Significant to High Hazard. This change in hazard classification requires that the capacity of the spillway be increased. Following the completion of an updated alternatives analysis by Schnabel Engineering in 2018, staff decided to proceed with design of a labyrinth spillway and chute through the existing dam with a bridge to allow Browns Gap Turnpike to cross over the new spillway. Work for this project will be coordinated with the new relocated raw water pump station and intake.

    The Drinking Water Infrastructure Plan for the Crozet water service area recommends installation of a new Raw Water Pump Station and Intake at the Beaver Creek Dam in order to meet new minimum instream flow requirements and provide adequate raw water pumping capacity to serve the growing Crozet community for the next 50 years. The pump station will be moved out of its existing location at the toe of the dam to a new location, to be determined during design. The new intake structure will include enhanced controls as well as a Hypolimnetic Oxygenation System that will serve to enhance water quality within the reservoir.

18. Crozet Water Treatment Plant Expansion: The Crozet water treatment system is currently permitted and rated to supply up to 1.0 mgd of water to the ACSA distribution system. Over the past several years, average day usage of water has increased steadily, with maximum day demand approaching plant capacity. In addition, much of the existing plant systems are the same as when the plant was constructed in the 1960's.

    Expanding the plant capacity at Crozet WTP will require a new Virginia Department of Environmental Quality Water Withdrawal Permit and will include possible stream release requirements. In order to fully analyze all aspects of the design required for this project a Preliminary Engineering Report (PER), plant field testing, preliminary permitting work and coordination with pertinent regulators were completed. The results of the PER stated that the current treatment plant can be upgraded, and the capacity increased, through installation of newer, and more technologically advanced equipment into the existing footprint of the filter plant. Work associated with this project includes general building rehabilitation, filter

improvements, sedimentation expansion and improvements, chemical feed improvements, flocculator expansion, alum storage/containment improvements and waste sludge handling and removal improvements.

19. Crozet Ground Storage Tank Leak Repair: The 500,000-gallon Crozet Ground Storage Tank serves as the wet well for the finished water pumps at the Crozet Water Treatment Plant as well as one of two water storage tanks in the Crozet Service Area. In late 2017, a small leak at the base of the tank was discovered, and a subsequent inspection by a remotely operated vehicle (ROV) in February of 2018 confirmed that the leak was likely in the floor of the tank near the tank inlet-outlet pipe. The tank will need to be drained and cleaned, damaged sections assessed and repaired, and floor coating restored prior to putting back in service. Repair work is anticipated to take place in fall of 2020 or spring of 2021 following the completion of upgrades to the Crozet Water Treatment Plant.

20. Buck's Elbow Tank and Waterball Painting: The 2,000,000-gallon Buck's Elbow Ground Storage Tank provides finished water storage for the Crozet Area while the 50,000-gallon Crozet Waterball Tank serves as filter backwash storage at the Crozet Water Treatment Plant (CZWTP). Routine inspections of these tanks in 2012 indicated that the tanks would require recoating by 2020. The current coating system has lasted beyond this initial prediction and as such was moved to 2025. The project includes recoating the interior and top-coating the exterior of both tanks to prevent corrosion. Minor repairs and improvements to both tanks will also be included in this work, such as foundation repairs and safety enhancements.

Crozet Water System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
17	20.19 20.20 21.15	Beaver Creek Dam & Pump Station Improvements	$9,036,000	$11,722,000	$1,007,000	$336,000	$1,050,000	$6,435,000	$6,010,000	$5,920,000	$20,758,000	$288,134
18	20.22	Crozet Water Treatment Plant Expansion	$8,500,000		$8,044,000	$456,000					$8,500,000	$1,238,717
19	21.03	Crozet Ground Storage Tank Leak Repair		$100,000		$100,000					$100,000	
20	21.01	Buck's Elbow Tank and Waterball Painting		$83,000						$83,000	$83,000	
		TOTAL	$17,536,000	$11,905,000	$9,051,000	$892,000	$1,050,000	$6,435,000	$6,010,000	$6,003,000	$29,441,000	$1,526,851

Scottsville Water System

The Scottsville Water System is comprised of the raw water conveyance, finished water treatment, transmission and storage infrastructure for the Town of Scottsville in southern Albemarle County. The source water for this system is the Totier Creek Intake, and the backup supply is the Totier Creek Reservoir, which was built in 1971 with a current useable capacity of 182 million gallons. Raw water is treated at the Scottsville Water Treatment Plant (0.25 mgd rated capacity) and provides finished water to the Albemarle County Service Authority. The system includes the Scottsville Storage Tank (0.25 MG).

Project Description:

21. Scottsville Water Treatment Plant LT2 Improvements: RWSA conducts routine regulatory sampling of the raw water from Totier Creek and Totier Creek Reservoir for compliance with the EPA Long Term 2 Enhanced Surface Water Treatment Rule (LT2). The rule provides risk based guidance on the needed level of treatment for the deactivation of microbial pathogens. This project includes the design and construction of additional of ultraviolet (UV) disinfection to the treatment process in Scottsville.

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

23. Scottsville Tank Rehabilitation: The 250,000 gallon Scottsville Standpipe Tank serves as finished water storage for the Scottsville water system. A routine inspection of the tank in June of 2017 revealed the tank would require recoating by 2025. This project includes recoating of both the interior and exterior of the tank. Minor repairs and improvements to the tank based on recommendations from past inspections will also be included in this work. Construction of the tank improvements are expected to begin in the spring of 2025.

Scottsville Water System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
21	20.24	Scottsville Water Treatment Plant LT2 Improvements	$100,000	$60,000	$100,000	$60,000					$160,000	
22	21.04	Scottsville Water Treatment Plant Lagoon Liner Replacement		$315,000				$140,000	$175,000		$315,000	
23	20.66	Scottsville Tank Rehabilitation		$280,000						$280,000	$280,000	
		TOTAL	$100,000	$655,000	$100,000	$60,000	$0	$140,000	$175,000	$280,000	$755,000	$0

Wastewater Interceptors/Pumping Stations

The RWSA wastewater interceptors and pumping stations convey wastewater from the collection systems of the City of Charlottesville and Albemarle County Service Authority to the Moores Creek Advanced Water Resource Recovery Facility (MCAWRRF). This grouping includes: the Crozet Interceptor and four associated pumping stations; the Moores Creek Interceptor and Relief Sewer; the Morey Creek, Maury Hills, Powell Creek, Meadow Creek, Schenks Branch, Woodbrook and Rivanna Interceptors; as well as the Albemarle-Berkley Interceptor and associated Albemarle Pumping Station. Also included in this system are the two primary pump stations into the MCAWRRF, the Rivanna and Moores Creek Pump Stations.

Project Descriptions:

24. Upper Schenks Branch Interceptor: The Schenks Branch Interceptor is located in the eastern part of the City of Charlottesville and ties into the Meadowcreek Interceptor. The interceptor was constructed in the mid-1950s of 21-inch clay and concrete pipe. The existing interceptor is undersized to serve present and future wet weather flows as determined by the City, and is to be upgraded to 30-inch pipe. The Upper Schenks Branch Interceptor consists of two sections along McIntire Road. Both of these sections have been designed with the first phase of this project located in the City's Schenks Branch Greenway, completed in early 2016. The second phase of the Upper Schenks Interceptor will be replaced by RWSA in coordination with the City of Charlottesville's sewer upgrades once easement negotiations with Albemarle County are complete (or the City authorizes the second phase project be constructed under McIntire Road).

25. Interceptor Sewer and Manhole Repair – Phase 1: This project is used to conduct assessments of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Planned projects to complete Phase 1 include the continuation of rehabilitation efforts along the Morey Creek Interceptor, as well as evaluation of the Upper Rivanna Interceptor. Rehabilitation of the Moores Creek, Moores Creek Relief, Powell Creek, and Upper Rivanna Interceptors will take place during subsequent phases. A sewer rehabilitation contract has been developed under this project which procured a dedicated contractor for all evaluation and rehabilitation work. The intent of this project is to complete a condition assessment of all RWSA interceptors (except those replaced during the period with new pipe) by 2021 and complete this phase of repairs as defects are identified. Such periodic assessment of all sewer pipe reflects industry best practices and the maintenance expectations of federal and state regulators as a part of avoiding sanitary sewer overflows.

26. Crozet Interceptor: The Crozet Interceptor is located in western Albemarle County and serves the Crozet area. Flow metering indicated that the interceptor experienced substantial inflow and infiltration and requires rehabilitation. In order to minimize future infrastructure improvements, ACSA and RWSA have agreed to rehabilitate this interceptor and the sewers that flow to the interceptor. The initial phase of rehabilitation to repair defects in manholes and pipelines contributing to the inflow and infiltration in the interceptor upstream of Crozet Pump Station No. 4 has been completed. The current budget accounts for rehabilitation needs for the lower portions of the interceptor based upon previously completed condition assessments. While wet weather flows have moderately improved based on the initial phase of work, the

ACSA and RWSA continue to investigate and remediate deficiencies along the entire interceptor.

The force main component of the Crozet Interceptor was installed in 1986, and it conveys wastewater from Crozet to the RWSA Urban Wastewater system through an 18" ductile iron pipeline and a series of four (4) pumping stations. Air Release Valves (ARVs) are strategically placed along the force main in order to prevent air-locking and continue conveyance of wastewater at full capacity. Over time, several of the tapping saddles that allow the ARVs to be mounted to the force main have degraded, which could lead to the ARVs becoming separated from the force main and subsequent sanitary sewer overflows. The overall goal of this project is to replace the highest-priority ARVs and/or tapping saddles along the force main. This project is slated to start immediately after the Crozet Flow Equalization Tank (FET) has come online in March 2021. The FET will allow for the force main to be taken offline for up to two (2) days, permitting the ARV assembly repairs to be performed in a safe manner and in a more feasible timeframe.

27. Crozet Flow Equalization Tank: Rehabilitation work in the RWSA and ACSA sewer systems is on-going to meet the Inflow and Infiltration (I/I) reduction goals in the Crozet Interceptor. This is based on the flow metering and modeling results of the Comprehensive Sanitary Sewer Model & Study conducted in 2006 and as part of the Crozet Interceptor CIP project. The results of the 2006 study were updated in 2016 to evaluate I/I reduction goals and future capital project needs. The need to proceed with construction of a flow equalization tank in the Crozet area was confirmed as a result of this study update, which took in to account recent flow monitoring data that had been collected following previous I/I reduction efforts. Based on those results, a preliminary engineering evaluation and siting analysis of a flow equalization tank upstream of Crozet Pump Station No. 4 was completed to ensure that the facility could be designed, permitted, constructed and ready for operation to meet projected two-year storm flow targets.

28. Maury Hill Branch Sewer Upgrade: Based on the sewer study performed in 2016, the Maury Hill Branch Sewer was targeted for capacity upgrades around 2020. This project would include an upgrade from 8-inch diameter to 12-inch diameter sewer along with all new manholes. The work was anticipated to be coincident with rehabilitation needs and capacity increases to accommodate the growth at the UVA Fontaine Research Park.

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

30. Albemarle-Berkley Pump Station Upgrade: The Albemarle-Berkeley Pump Station was constructed in 1975 and conveys flows from several Albemarle County Public Schools and other ACSA customers into RWSA's gravity Albemarle-Berkeley Interceptor. Recently, the pump station's run times have increased, with the pumps running nearly continuously for some

periods. It is anticipated that much of the pumping infrastructure has reached or exceeded its expected lifespan, and that the equipment may be in need of replacement.
Under this project, staff will work with a consultant to perform a Capacity Analysis for the pump station, which will help quantify the current and future flows into the pump station, based upon the present and anticipated population served by the pump station. Once the capacity analysis is complete, staff will review the results, and utilize consultant assistance in order to formulate a set of bidding documents that will include the installation of bypass pumping, demolition of the existing pump station, and construction of a new pumping station that is sized to meet the current and future flows as determined by the Capacity Analysis.

31. Albemarle-Berkley Pump Station – Basin Demolition: Historically, the Albemarle Berkley Pump Station was located adjacent to an open-air basin that occasionally collected sewage during power outages. With the addition of a back-up power generator, the basin no longer serves a technical purpose. Given the proximity of the deteriorating structure to school property, this project serves to demolish and fill the area of the existing basin to allow for a more beneficial use of the property. Preliminary design of the basin demolition began in Fall 2019, and the demolition is scheduled to be completed by Summer 2020.

32. Interceptor Sewer and Manhole Repair – Phase 2: This project is used to conduct assessments of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Phase 1 of the Interceptor Sewer and Manhole Repair Project included the completion the baseline evaluation of all RWSA interceptors (except those replaced with new pipe), as well as rehabilitation of the Upper Morey Creek Interceptor, and beginning of rehabilitation on the Lower Morey Creek and Powell Creek Interceptors. Planned projects for Phase 2 include continuation of rehabilitation on the Lower Morey Creek and Powell Creek Interceptors, as well as rehabilitation along the Moores Creek, Moores Creek Relief, and Upper Rivanna Interceptors. Similar to Phase 1, a sewer rehabilitation contract will be developed under this project in order to procure a dedicated contractor for any evaluation and rehabilitation work specified. Rehabilitation of existing sanitary sewer pipe and manholes reduces Inflow & Infiltration (I & I) in the system, thus reducing the chance for sanitary sewer overflows (SSOs) during high flow events.

Urban Wastewater Interceptors/Pumping Stations

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
24	20.25	Upper Schenks Branch Interceptor	$3,985,000		$120,000	$3,180,000	$685,000				$3,985,000	$11,187
25	20.26	Interceptor Sewer and Manhole Repair (Phase 1)	$1,088,330		$1,088,330						$1,088,330	$268,367
26	20.27 21.10	Crozet Interceptor	$625,000	$225,000	$394,615	$395,385	$90,000				$880,000	$181,975
27	20.28	Crozet Flow Equalization Tank	$4,860,000		$4,860,000						$4,860,000	$255,319
28	20.29	Maury Hill Branch Sewer Replacement		$285,000						$285,000	$285,000	
29	20.30	Crozet Pump Station 1, 2, 3 Rehabilitation	$545,000	$45,000	$295,000		$45,000	$205,000	$45,000		$590,000	
30	20.31	Alb. Berkley PS Upgrade		$40,000						$40,000	$40,000	
31	20.32	Alb. Berkley PS - Basin Demolition	$200,000			$165,000	$35,000				$200,000	
32	21.07	Interceptor Sewer and Manhole Repair (Phase 2)		$695,000						$695,000	$695,000	
		TOTAL	$11,303,330	$1,290,000	$6,757,945	$3,740,385	$855,000	$205,000	$45,000	$1,020,000	$12,623,330	$716,848

Moores Creek Advanced Water Resource Recovery Facility

The Moores Creek Advanced Water Resource Recovery Facility (MCAWRRF) is the largest wastewater treatment facility within the RWSA system. The plant was originally constructed in 1958 and upgraded and expanded in 1981 and 1982, and currently has a rated capacity of 15 mgd. From 2009 thru 2012 the facility was upgraded to provide enhanced nutrient removal, and increased wet weather pumping and treatment capacity. This site includes the infrastructure for the wastewater treatment process as well as the RWSA administration facilities.

Project Descriptions:

33. Moores Creek AWRRF Odor Control Phase 2: As part of the implementation of the next phase of the 2007 Odor Control Master Plan at the MCAWRRF, operations audits were performed, liquid and vapor phase sampling was conducted, and a computerized dispersion model was developed from 2013 to 2014. Recommendations for odor control improvements that would significantly control odors from traveling beyond the MCAWRRF fence line were presented to the RWSA Board of Directors in December 2014 and the CIP project was approved at the January 2015 Meeting, with subsequent increases due to project challenges. The final design for odor control improvements includes covering the head works and screening channels, installing grit facilities, constructing a bypass line through one equalization basin, covering the primary clarifiers, building additional odor scrubbing facilities to treat the foul air from the covered sources, removing the post-digestion clarifiers from service, modifying the handling, and hauling and storage of bio solids, all of which has been recently completed in Odor Control Improvements Project. The remaining odor control work included in the current CIP budget includes cleaning the equalization basins and holding ponds which is anticipated to be bid this spring and coating the interior of the digesters which is ongoing.

34. Moores Creek AWWRF Engineering and Administration Building: RWSA currently has its administrative headquarters in two buildings on the grounds of the Moores Creek Advanced Water Resource Recovery Facility. The two-story Administration Building was constructed in the early 1980's and houses offices, IT server space, meeting space and a full service laboratory. The second building is a series of four trailers installed in between 2003-2010 that house the engineering department. The Administration building is located at the head of the wastewater treatment plant and is surrounded by underground piping and process functions that may conflict with existing parking and/or the building in a future plant expansion. There is currently a need to house additional staff; increase office and meeting space; plan for the replacement of the trailers; bring the IT server workrooms to modern standards; provide classroom space for education outreach. This project is currently planned to begin after the completion of the MCAWRRF Master Plan is complete.

35. Moores Creek AWWRF Digester Sludge Storage Improvements: The sole sludge storage tank at the MCAWRRF was constructed in 1959 of reinforced concrete and is in need of repairs. The scope of work would include piping modifications, hydraulic improvements, tank safety improvements such as handrail and lights, and structural improvements to the existing sludge storage tank roof.

36. Moores Creek AWWRF Aluminum Slide Gate Replacement: Several large aluminum slide gates are located at the influent side of the Moores Creek Pump Station. These gates allow staff to stop or divert flow to perform maintenance activities. After repeated attempts to access and repair the gates, it is now necessary to replace and modify the gate arrangement. The replacement includes new gates for greater flexibility and resiliency as well as significant flow bypass pumping. Likewise, there are several gates at the Ultraviolet disinfection facility that leak water, causing a reduced capacity of the facility. Replacement of these gates will restore the process to full capacity. Two additional gates in the holding pond pump station from the original 1977 Moores Creek facility construction are broken and non-operational and will be replaced as part of this work. In addition, motor operated valves at the headworks will improve wet weather operations related to the new grit facility.

37. Moores Creek AWRRF Master Plan: The majority of the Moores Creek Water Resource Recovery Facility was constructed in the early 1980's. At the time, the plant layout was developed with space held open for future process expansion. With the Enhanced Nutrient Removal (ENR) project in 2009, the operation and layout of the plant was fundamentally altered, as needed to meet the new regulation. The project did anticipate the need for future expansion and some of the processes have readily available space. However, a full expansion plan was not developed at the time. As identified in the Strategic Plan, the Authority has a goal to plan, deliver and maintain dependable infrastructure in a financially responsible manner. Staff has identified asset master planning as a priority strategy to improve overall system development. As such, this project will serve to evaluate and plan for future space and process needs to accommodate capacity expansion and/or anticipated regulatory changes.

38. Moores Creek AWRRF Mechanical Thickener: During the design of the Moores Creek AWRRF Phase 2 Odor Control project, the consultants conducted a detailed evaluation of all facility odor sources. One of the key sources identified, was the post-digestion clarifiers. These clarifiers are two round open-topped tanks of digested wastewater sludge, located on the north side of the plant. During the ENR upgrade, the characteristics of the post-aeration sludge changed. This change has led to less predictable sludge handing through the existing gravity thickeners. This change in the post-aeration sludge characteristics has made obtaining a clear thickener overflow more difficult without chemical addition. Removing the post-digestion clarifiers from service combined with solids carryover from the existing gravity thickeners create a number of downstream consequences in primary clarification, sludge digestion and solids dewatering. Removing these facilities from service reduces the sludge thickness and therefore the plant's ability to adequately process it. This project includes the design and installation of a mechanical thickener prior to digestion that will increase plant solids processing reliability and capacity.

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

40. Moores Creek AWRRF Gas Sphere Rehabilitation: The gas sphere was constructed in 1980 and is used to house pressurized methane gas as part of the boiler and cogeneration system at the plant. The sphere was inspected in 2005 and it was determined that the coating system was near the end of its serviceable life and the tank should be recoated in addition to some minor grout repairs and safety improvements. This project will include additional inspections to update the needed improvements, a recoating of the exterior of the tank, repairs to the grout around the concrete ring wall, installation of a safety climb on the exterior of the tank and other minor repairs.

41. Moores Creek AWRRF Cogeneration Upgrades: The MCAWRRF has an existing cogeneration facility that was constructed in 2011. The purpose of the facility was to provide a beneficial purpose for using the gas produced by the digester process at the plant, and in doing so provide both process heating fluid to the digester tanks and electrical energy to the plant's electrical distribution system. Unfortunately, the existing cogeneration facility requires expensive recurring maintenance services, has proprietary equipment which further complicates servicing needs, and has had a number of operational issues that have impeded the benefit this facility was intended to provide. As a result, a Cogeneration System Analysis was performed to determine a recommended approach for proceeding with improvements to the existing facility, installation of a new cogeneration facility without the issues of the previous facility or removing the cogeneration facility altogether and providing a backup boiler. This project includes costs of installation of a new cogeneration facility as described in the Cogeneration System Analysis.

42. Moores Creek AWRRF Maintenance Building Space: The Moores Creek Maintenance Department facilities are undersized to serve the current staffing; parts storage and oil and grease storage needs. The Moores Creek Master Plan is currently evaluating plant needs into the future and will provide specific recommendations for the Maintenance Department. Preliminarily, this project will increase personal spaces such as offices and a locker room. Additionally, the project will construct a new oil and grease storage facility that will meet all current best practices for safety and fire suppression. Lastly, the project will address the need for additional conditioned parts storage.

43. Moores Creek AWRRF Structural Modifications: The aeration basins located at Moores Creek are a series of chambers that each have uniquely controlled oxygen and nutrient loading conditions. Mid way thru the basins are ten nitrogen recycle (NCRY) pumps. Due to the corrosive atmosphere, these submersed pumps require being pulled and rebuilt frequently. To remove the pumps, staff must currently hire a long boom crane. This project will provide the means to pull, move, and load the pumps during maintenance activities.

    Two of the six pumps in the New Rivanna Pump Station are smaller and were designed to be replaced if future average day flows warrant increased capacity. The current configuration resulted in several valves being located approximately 40 feet above the pump floor level. Valve maintenance activities have been challenging due to their height. A project is proposed to install a catwalk from the upper mezzanine level to each valve to provide a safer, walkable access to each valve.

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

45. Moores Creek AWRRF Generator Fuel Storage Expansion: The Moores Creek AWRRF south side electrical facilities have a single large system back-up power generator that was installed between 2009-2012 during the ENR plant upgrade. The generator has a belly tank that allows for approximately 22 hours of operation. This project will install an ancillary fuel tank that will allow for approximately three days of operation.

46. Moores Creek AWRRF Meter and Valve Replacements: As part of the Odor Control Phase II Project, the post digestion clarifiers were eliminated from use and the gravity thickener overflow was diverted through existing piping directly to the Moores Creek Pump Station at the head of the treatment facility. This resulted in less odor generation, however, the gravity thickener overflow lost its metering location at the post digestion clarifiers. A new metering manhole location was installed near the Moores Creek Pump Station where several plant recycle flows come together. Unfortunately, this meter location has been problematic and is subject to backwater flows from the pump station and meter fouling from grease and solids. This project involves installation of individual meters on each recycle flow at locations that will provide less operation and maintenance problems.

    The circulation of Waste Activated Sludge (WAS) and Return Activated Sludge (RAS) is important in the wastewater process to maintain a healthy balance of microorganisms. The existing WAS and RAS flow meters are original to the 1980's construction of the facility and are nearly 40 years old. These meters can no longer be calibrated and replacement parts are not available. Replacement of these meters is necessary for process and operational efficiency

47. Moores Creek AWWRF Facility Renovations: The RWSA Administration Building Board Room finishes are generally original to the facility. The proposed project will update the wall and floor coverings, alter the shelving and update the room furnishings in order to created a more modern and useable meeting space.

    The Duty Pump Station was constructed in 1958 and no longer functions as an actual pump station. It currently houses electrical equipment that serves the plant, but otherwise has available space that could be beneficially used for other purposes. RWSA has a need for additional office space and has evaluated repurposing portions of the Duty Pump Station for office and work space in order to make use of all available space at the plant before proceeding with more significant administrative expansions. This project includes demolition of a select

portion of the interior of the station, cleaning and sanitizing of the areas to be repurposed, and an interior upfit of the space to provide additional office and work space.

48. Moores Creek AWRRF 5kV Electrical System Upgrade: Much of the original 5kV wire at Moores Creek AWRRF was replaced with the Enhanced Nutrient Removal (ENR) Upgrades and the New Rivanna Pump Station Project and brought up to current codes. Several portions of the original 50 year old wire and switchgear remain in the blower building and feed critical portions of the facility. This project will replace the remaining 5kV wire and increase the reliability of the facility.

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

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

Moores Creek Advanced Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
33	20.33	Moores Creek AWRRF Odor Control - Phase 2	$2,216,632		$2,216,632						$2,216,632	$1,000,530
34	20.34	Moores Creek AWRRF Engineering and Administration Building		$1,200,000					$250,000	$950,000	$1,200,000	
35	20.35	Moores Creek AWRRF Digester Sludge Storage Improvements	$313,000	$237,000	$265,000	$285,000					$550,000	
36	20.36	Moores Creek AWRRF Aluminum Slide Gate Replacements	$470,000	$205,000	$470,000	$205,000					$675,000	$6,853
37	20.37	Moores Creek AWRRF Master Plan	$250,000	$25,000	$75,000	$200,000					$275,000	
38	20.38	Moores Creek AWRRF Mechanical Thickener Improvement		$100,000						$100,000	$100,000	
39	20.39	Moores Creek AWRRF Compost Shed Roof Rehabiliation	$200,000				$200,000				$200,000	
40	20.40	Moores Creek AWRRF Gas Sphere Rehabilitation		$80,000						$80,000	$80,000	
41	20.67	Moores Creek AWRRF Cogeneration Upgrades		$1,865,000		$245,000	$1,620,000				$1,865,000	
42	20.68	Moores Creek AWRRF Maintenance Building		$105,000						$105,000	$105,000	
43	20.69 21.06	Moores Creek AWRRF Structural Modifications		$575,000				$350,000	$225,000		$575,000	
44	21.05	Moores Creek AWRRF In-plant Clarifier and Lime Silo Demolition		$655,000		$185,000	$470,000				$655,000	

Moores Creek Advanced Water Resource Recovery Facility (Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
45	21.05	Moores Creek AWRRF Generator Fuel Storage Expansion		$100,000		$100,000					$100,000	
46	21.11 21.17	Moores Creek AWWRF Meter and Valve Replacements		$660,000		$380,000	$120,000	$160,000			$660,000	
47	21.13 21.20	Moores Creek AWRRF Facility Renovations		$475,000		$375,000	$100,000				$475,000	
48	21.18	Moores Creek AWRRF 5kV Electrical System Upgrade		$500,000						$500,000	$500,000	
49	21.21	Moores Creek AWRRF Lighting Upgrade		$1,000,000		$1,000,000					$1,000,000	
		TOTAL	$3,449,632	$7,782,000	$3,026,632	$2,975,000	$2,510,000	$510,000	$475,000	$1,735,000	$11,231,632	$1,007,383

Scottsville Wastewater System

The Scottsville Wastewater System includes the influent pumping station, the water resource recovery facility constructed in 1983, and the historical treatment lagoon (now incorporated into the plant operation). The water resource recovery facility has a rated capacity of 0.2 mgd.

Project Descriptions:

50. Scottsville WRRF Grinder and Air Control Improvements: This project will evaluate methods to automate air control for the biological treatment process. The current method of air control produces inconsistent results, adversely impacting treatment and operations.

51. Scottsville WRRF Whole Plant Generator and ATS: The current back-up power generator at the Scottsville Water Treatment Plant does not power the entire plant, serving only the facilities needed to send flow to the lagoons. This project will provide for a plant-wide generator and automatic transfer switch. This project will offer greater treatment flexibility and monitoring capability for the operations staff; particularly when the plant is unmanned and monitored remotely.

Scottsville Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
50	20.41	Scottsville WRRF Air Control Improvements	$210,000		$65,000	$145,000					$210,000	
51	21.12	Scottsville WRRF Whole Plant Generator and ATS		$125,000				$125,000			$125,000	
		TOTAL	$210,000	$125,000	$65,000	$145,000	$0	$125,000	$0	$0	$335,000	$0

Glenmore Wastewater System

The 0.381-mgd water resource recovery facility, located within the Glenmore subdivision, is operated by RWSA. The facility includes an influent pumping station located immediately adjacent to the treatment facility.

Project Descriptions:

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

Glenmore Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
52	20.42	Glenmore WRRF Influent Pump and VFD Addition	$65,000			$65,000					$65,000	
		TOTAL	$65,000	$0	$0	$65,000	$0	$0	$0	$0	$65,000	$0

All Systems

Project Descriptions:

53. Radio Upgrades: The regional 800 MHz Public Safety Communication System, in which the Rivanna Water and Sewer Authority participates to provide internal and emergency radio communication, is nearing the end of its service life. Because of technology changes (software and hardware) the Charlottesville-UVA-Albemarle County Emergency Communications Center (ECC) will need to upgrade or replace the system to keep it useable. This project plans for the upgrade or replacement of major technology components and equipment of the existing system include: electronic components at all tower sites and the prime site at the ECC facility; new console equipment at the regional ECC; equipment such as tower site generators and UPS systems; an additional tower site (to improve service in southern Albemarle County); microwave backbone; and replacement of the system recording facilities. RWSA is being apportioned a part of the $18.8M project cost proportionately based on the number of radios (2.4% of the total project cost). In addition to this assessment from the ECC, the Authority will also be required to undertake upgrades to its fleet of portable radios.

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

55. Security Enhancements: As required by the federal Bioterrorism Act of 2002, water utilities must conduct vulnerability assessments (VA) and have emergency response plans. RWSA recently completed a VA of its water system in collaboration with other regional partners and identified a number of security improvements that could be applied to both its water and wastewater systems. The purpose of this project will be to install security improvements at RWSA facilities such as an enhanced access control program, industrial strength door and window components, security gate and fencing modifications, an improved lock and key program, facility signage, closed circuit television (CCTV) enhancements, intrusion detection systems (IDS), additional security lighting, mass emergency notification systems, and emergency call stations/panic buttons. In order to implement an access control system at Authority-owned facilities, staff has procured an Implementer that will finalize system design/requirements, procure all necessary equipment, and install the chosen system. Implementation of the access control system at Authority-owned facilities began in Winter 2019-2020.

56. IT Master Plan – Software: Staff is currently updating an IT Master Plan which assessed and benchmarked current software and business practices. Work is currently underway to reconfigure the Network infrastructure and to install and implement major software initiatives. This project will continue to address those Authority wide needs.

All Systems

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
53	20.44	Radio Upgrades	$646,000	($246,000)	$521,000	($121,000)					$400,000	$75,352
54	20.45	Asset Management	$500,000	$615,000	$300,000	$435,000	$215,000	$130,000	$35,000		$1,115,000	$92,285
55	20.46	Security Enhancements	$1,000,000	$1,730,000	$1,000,000	$550,000	$115,000	$510,000	$515,000	$40,000	$2,730,000	
56	20.47	IT Master Plan - Software	$450,000		$150,000	$150,000	$150,000				$450,000	
		TOTAL	$2,596,000	$2,099,000	$1,971,000	$1,014,000	$480,000	$640,000	$550,000	$40,000	$4,695,000	$167,637

APPENDICES

CIP Financial Summary

Water System Summary

Wastewater System Summary

All Systems Summary

CIP Financial Summary

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
1	20.01	South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way	$2,295,000	$0	$1,710,249	$584,751					$2,295,000	$301,054
2	20.02	South Rivanna Reservoir Dredging	$10,000	($10,000)	$0						$0	$0
3	20.03	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line	$3,217,000	$4,280,000	$0		$325,000	$1,186,000	$1,706,000	$4,280,000	$7,497,000	$0
4	20.04	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pump Station	$660,000	$1,890,000	$0		$210,000	$320,000	$510,000	$1,510,000	$2,550,000	$0
5	20.06	Observatory Water Treatment Plant Improvements	$19,700,000	$6,300,000	$2,648,198	$5,051,802	$14,700,000	$3,600,000			$26,000,000	$618,880
6	20.07	Sugar Hollow Dam Rubber Crest Gate Replacement	$1,140,000	$560,000	$470,000	$760,000	$470,000				$1,700,000	$0
7	20.08	Valve Repair & Replacement (Phase 2)	$882,914	$250,000	$1,132,914						$1,132,914	$154,218
8	20.10	Central Water Line	$2,100,000	$2,850,000	$1,375,000				$725,000	$2,850,000	$4,950,000	$137,749
9	20.12	South Fork Rivanna River Crossing	$5,340,000	($2,540,000)	$0	$260,000	$922,000	$1,618,000			$2,800,000	$0
10	20.13	Airport Rd. Pump Station and North Rivanna Transmission Main	$2,300,000	$3,550,000	$201,000	$1,574,000	$3,200,000	$875,000			$5,850,000	$0
11	20.14	Finished Water System Master Plan	$253,000	$0	$253,000						$253,000	$20,307
12	20.58	Second North Rivanna River Crossing	$0	$45,000	$0					$45,000	$45,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
13	20.15	South Rivanna Hydropower Plant Decomissioning	$725,000	$0	$725,000						$725,000	$127,081
14	20.16	South Rivanna Water Treatment Plant Improvements	$15,000,000	$2,000,000	$8,046,415	$7,353,585	$1,600,000				$17,000,000	$619,031
15	20.17	South Rivanna Dam - Gate Repairs	$900,000	$0	$900,000						$900,000	$0
16	20.18	North Rivanna Water Treatment Plant Upgrade	$2,325,000	$0	$385,000		$940,000	$1,000,000			$2,325,000	$0
17	20.19 20.20 21.15	Beaver Creek Dam & Pump Station Improvements	$9,036,000	$11,722,000	$1,007,000	$336,000	$1,050,000	$6,435,000	$6,010,000	$5,920,000	$20,758,000	$288,134
18	20.22	Crozet Water Treatment Plant Expansion	$8,500,000	$0	$8,044,000	$456,000					$8,500,000	$1,238,717
19	21.03	Crozet Ground Storage Tank Leak Repair	$0	$100,000	$0	$100,000					$100,000	$0
20	21.01	Buck's Elbow Tank and Waterball Painting	$0	$83,000	$0					$83,000	$83,000	$0
21	20.24	Scottsville Water Treatment Plant LT2 Improvements	$100,000	$60,000	$100,000	$60,000					$160,000	$0
22	21.04	Scottsville Water Treatment Plant Lagoon Liner Replacement	$0	$315,000	$0			$140,000	$175,000		$315,000	$0
23	20.66	Scottsville Tank Rehabilitation	$0	$280,000	$0					$280,000	$280,000	$0
24	20.25	Upper Schenks Branch Interceptor	$3,985,000	$0	$120,000	$3,180,000	$685,000				$3,985,000	$11,187

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	Proj. No.	Project Description	Current CIP Adopted 5/2019	Proposed Changes	Current Capital Budget	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2019)
25	20.26	Interceptor Sewer and Manhole Repair - Phs 1	$1,088,330	$0	$1,088,330						$1,088,330	$268,367
26	20.27 21.10	Crozet Interceptor	$625,000	$225,000	$394,615	$395,385	$90,000				$880,000	$181,975
27	20.28	Crozet Flow Equalization Tank	$4,860,000	$0	$4,860,000						$4,860,000	$255,319
28	20.29	Maury Hill Branch Sewer Replacement	$0	$285,000	$0					$285,000	$285,000	$0
29	20.30	Crozet Pump Station 1, 2, 3 Rehabilitation	$545,000	$45,000	$295,000		$45,000	$205,000	$45,000		$590,000	$0
30	20.31	Alb. Berkley Pump Station Upgrade	$0	$40,000	$0					$40,000	$40,000	$0
31	20.32	Alb. Berkley Pump Station - Basin Demolition	$200,000		$0	$165,000	$35,000				$200,000	$0
32	21.07	Interceptor Sewer and Manhole Repair - Phs 2	$0	$695,000	$0					$695,000	$695,000	$0
33	20.33	Moores Creek AWRRF Odor Control Phase 2	$2,216,632	$0	$2,216,632						$2,216,632	$1,000,530
34	20.34	Moores Creek AWWRF Engineering and Administration Building	$0	$1,200,000	$0				$250,000	$950,000	$1,200,000	$0
35	20.35	Moores Creek AWWRF Digester Sludge Storage Improvements	$313,000	$237,000	$265,000	$285,000					$550,000	$0
36	20.36	Moores Creek AWWRF Aluminum Slide Gate Replacements	$470,000	$205,000	$470,000	$205,000	$0	$0	$0	$0	$675,000	$6,853

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	Proj. No.	Project Description	Current CIP Adopted 5/2019	Proposed Changes	Current Capital Budget	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2019)
37	20.37	Moores Creek AWRRF Master Plan	$250,000	$25,000	$75,000	$200,000					$275,000	$0
38	20.38	Moores Creek AWWRF Mechanical Thickener Improvement	$0	$100,000	$0					$100,000	$100,000	$0
39	20.39	Moores Creek AWRRF Compost Shed Roof Rehabiliation	$200,000		$0		$200,000				$200,000	$0
40	20.40	Moores Creek AWRRF Gas Sphere Rehabilitation	$0	$80,000	$0					$80,000	$80,000	$0
41	20.67	Moores Creek AWRRF Cogeneration Upgrades	$0	$1,865,000	$0	$245,000	$1,620,000				$1,865,000	$0
42	20.68	Moores Creek AWRRF Maintenance Building	$0	$105,000	$0					$105,000	$105,000	$0
43	20.69 21.06	Moores Creek AWWRF Structural Modifications	$0	$575,000	$0			$350,000	$225,000		$575,000	$0
44	21.05	Moores Creek AWWRF In-plant Clarifier and Lime Silo Demolition	$0	$655,000	$0	$185,000	$470,000				$655,000	$0
45	21.09	Moores Creek AWWRF Generator Fuel Storage Expansion	$0	$100,000	$0	$100,000					$100,000	$0
46	21.11 21.17	Moores Creek AWWRF Meter and Valve Replacements	$0	$660,000	$0	$380,000	$120,000	$160,000			$660,000	$0
47	21.13 21.20	Moores Creek AWWRF Facility Renovations	$0	$475,000	$0	$375,000	$100,000				$475,000	$0
48	21.18	Moores Creek AWWRF 5kV Electrical System Upgrade	$0	$500,000	$0					$500,000	$500,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2019**	**Proposed Changes**	**Current Capital Budget**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2019)**
49	21.21	Moores Creek AWWRF Lighting Upgrade	$0	$1,000,000	$0	$1,000,000					$1,000,000	$0
50	20.41	Scottsville WRRF Air Control Improvements	$210,000		$65,000	$145,000					$210,000	$0
51	21.12	Scottsville WRRF Whole Plant Generator and ATS	$0	$125,000	$0			$125,000			$125,000	$0
52	20.42	Glenmore WRRF Influent Pump & VFD Addition	$65,000	$0	$0	$65,000					$65,000	$0
53	20.44	Radio Upgrades	$646,000	($246,000)	$521,000	($121,000)					$400,000	$75,352
54	20.45	Asset Management	$500,000	$615,000	$300,000	$435,000	$215,000	$130,000	$35,000		$1,115,000	$92,285
55	20.46	Security Enhancements	$1,000,000	$1,730,000	$1,000,000	$550,000	$115,000	$510,000	$515,000	$40,000	$2,730,000	$0
56	20.47	IT Master Plan - Software	$450,000	$0	$150,000	$150,000	$150,000				$450,000	$0
		Total	$92,107,876	$43,031,000	$38,818,353	$24,475,523	$27,262,000	$16,654,000	$10,196,000	$17,763,000	$135,168,876	$5,397,039

Water System Summary

Urban Water System	Summary: Current CIP	Summary: Proposed Changes	Current Capital Budget	Projected Future Expenses by Year: FY21	FY22	FY23	FY24	FY25	Recommended CIP	Work-in -Progress
PROJECT COSTS										
Community Water Supply Plan	$ 10,182,000	$ 6,160,000	$ 1,710,249	$ 584,751	$ 535,000	$ 1,506,000	$ 2,216,000	$ 5,790,000	$ 12,342,000	$ 301,054
Observatory WTP/Ragged Mtn/Sugar Hollow Systems	20,840,000	6,860,000	3,118,198	5,811,802	15,170,000	3,600,000	-	-	27,700,000	618,880
Finished Water Storage/Distribution - Urban System	11,529,914	4,238,000	2,961,914	1,834,000	4,122,000	2,493,000	725,000	2,895,000	15,030,914	312,274
South & North Fork Rivanna WTP and Reservoir System	18,950,000	2,000,000	10,056,415	7,353,585	2,540,000	1,000,000	-	-	20,950,000	746,112
Total Projects Urban Water Systems	**$ 61,501,914**	**$ 19,258,000**	**$ 17,846,776**	**$ 15,584,138**	**$ 22,367,000**	**$ 8,599,000**	**$ 2,941,000**	**$ 8,685,000**	**$ 76,022,914**	**$ 1,978,320**
FUNDING SOURCES URBAN SYSTEM - TO DATE										
Work-in-Progress			$ 1,978,300	$ -	$ -	$ -	$ -	$ -	$ 1,978,300	
Debt Proceeds Available 2015B			14,838,000	-	-	-	-	-	14,838,000	
Capital Funds Available			1,030,476	2,162,524	-	-	-	-	3,193,000	
SUBTOTAL			17,846,776	2,162,524	-	-	-	-	20,009,300	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash reserve transfer to Capital Fund				$ 1,000,000	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ 500,000	$ 6,000,000	
New Debt Needed			-	12,421,614	20,867,000	7,099,000	1,441,000	8,185,000	50,013,614	
SUBTOTAL			-	13,421,614	22,367,000	8,599,000	2,941,000	8,685,000	56,013,614	
TOTAL URBAN WATER FUNDING			**$ 17,846,776**	**$ 15,584,138**	**$ 22,367,000**	**$ 8,599,000**	**$ 2,941,000**	**$ 8,685,000**	**$ 76,022,914**	
									$76,022,914	
Estimated Bond Issues					**$33,288,600**		**$16,725,000**			

Non-Urban Water System	Summary: Current CIP	Summary: Proposed Changes	Current Capital Budget	Projected Future Expenses by Year: FY21	FY22	FY23	FY24	FY25	Recommended CIP	Work-in -Progress
PROJECT COSTS										
Crozet Water System	$ 17,723,000	$ 11,957,000	$ 9,051,000	$ 892,000	$ 1,050,000	$ 6,435,000	$ 6,010,000	$ 6,003,000	$ 29,441,000	$ 1,526,851
Scottsville Water System	245,000	655,000	100,000	60,000	-	140,000	175,000	280,000	755,000	5,485
Total Rural Water Systems	**$ 17,968,000**	**$ 12,612,000**	**$ 9,151,000**	**$ 952,000**	**$ 1,050,000**	**$ 6,575,000**	**$ 6,185,000**	**$ 6,283,000**	**$ 30,196,000**	**$ 1,532,336**
Non-URBAN FUNDING SOURCES										
Work in Progress			$ 1,532,300	$ -	$ -	$ -	$ -	$ -	$ 1,532,300	
Capital Funds Available			$ 334,300						334,300	
Debt Proceeds 2018 Bond			7,284,400	952,000	1,050,000	1,641,701	-	-	10,928,101	
Future Cash reserve transfer to Capital Fund					-	200,000	-	-	200,000	
New Debt Needed			-	-	-	4,733,299	6,185,000	6,283,000	17,201,299	
TOTAL NON-URBAN WATER FUNDING			**$ 9,151,000**	**$ 952,000**	**$ 1,050,000**	**$ 6,575,000**	**$ 6,185,000**	**$ 6,283,000**	**$ 30,196,000**	
Estimated Bond Issues				**$ -**			**17,201,300**			

Wastewater System Summary

	Summary			Projected Future Expenses by Year						
Urban Wastewater System	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Wastewater Interceptor/Pumping Stations	$ 11,303,330	$ 1,290,000	$ 6,757,945	$ 3,740,385	$ 855,000	$ 205,000	$ 45,000	$ 1,020,000	$ 12,623,330	$ 716,848
Moores Creek WWTP	3,449,632	7,782,000	3,026,632	2,975,000	2,510,000	510,000	475,000	1,735,000	11,231,632	1,007,383
Total Urban Wastewater Systems	**$ 14,752,962**	**$ 9,072,000**	**$9,784,577**	**$6,715,385**	**$3,365,000**	**$715,000**	**$520,000**	**$2,755,000**	**$23,854,962**	**$1,724,231**
FUNDING SOURCES URBAN SYSTEM - IN PLACEA										
Work-in-Progress			$ 1,724,231	$ -	$ -	$ -	$ -	$ -	$ 1,724,231	
Debt Proceeds - 2018			3,722,700	-	-	-	-		3,722,700	
Capital Funds Available			4,089,000	-	-	-	-	-	4,089,000	
SUBTOTAL			9,535,931	-	-	-	-	-	9,535,931	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash Reserves			$ -	$ 1,500,000	$ 1,000,000	$ 500,000	$ 500,000	$ -	$ 3,500,000	
New Debt Needed			248,646	5,215,385	2,365,000	215,000	20,000	2,755,000	10,819,031	
SUBTOTAL			248,646	$6,715,385	3,365,000	715,000	520,000	2,755,000	14,319,031	
TOTAL URBAN WASTEWATER FUNDING			**$ 9,784,577**	**$ 6,715,385**	**$ 3,365,000**	**$ 715,000**	**$ 520,000**	**$ 2,755,000**	**$ 23,854,962**	
Estimated Bond Issues					**$ 7,829,000**		**$ 2,990,000**		**$ 10,819,000**	

	Summary			Projected Future Expenses by Year						
Non-Urban Wastewater System	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY21**	**FY22**	**FY23**	**FY24**	**FY25**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Glenmore WWTP	$ 175,000	$ 50,000	$ -	$ 65,000	$ -	$ -	$ -	$ -	$ 65,000	$ -
Scottsville WWTP	210,000	125,000	65,000	145,000	-	125,000	-	-	335,000	-
Total Rural Wastewater Systems	**$385,000**	**$175,000**	**$ 65,000**	**$ 210,000**	**$ -**	**$ 125,000**	**$ -**	**$ -**	**$ 400,000**	**$ -**
FUNDING SOURCES RURAL SYSTEM - NEEDS										
Capital Funds Available			$ 46,000	$ -					46,000	
Future Cash Reserve			-	-	-	100,000			100,000	
New Debt Needed			19,000	210,000	-	25,000	-	-	254,000	
TOTAL RURAL WASTEWATER FUNDING			**$ 65,000**	**$ 210,000**	**$ -**	**$ 125,000**	**$ -**	**$ -**	**$ 400,000**	
Estimated Bond Issues					$ 254,000					

	2021 - 2025 *Draft Proposed* CIP	2020 - 2024 Adopted CIP	Change $
Project Cost			
Urban Water Projects	$ 76,022,900	$ 61,501,900	$ 14,521,000
Urban Wastewater Projects	23,855,000	14,753,000	9,102,000
Non-Urban Projects & Shared	35,291,000	20,949,000	14,342,000
Total Project Cost Estimates	**$ 135,168,900**	**$ 97,203,900**	**$ 37,965,000**
Funding in place			
Work-in-Progress (paid for)	$ 5,402,500	$ 2,943,110	2,459,390
Debt Proceeds Used	29,488,800	35,354,000	(5,865,200)
Cash-Capital Available	7,686,300	6,767,470	918,830
	$ 42,577,600	$ 45,064,580	$ (2,486,980)
Financing Needs			
Possible Future Reserves	$ 10,080,000	7,530,000	2,550,000
New Debt	82,511,300	44,609,320	37,901,980
	$ 92,591,300	$ 52,139,320	$ 40,451,980
Total Funding	**$ 135,168,900**	**$ 97,203,900**	**$ 37,965,000**
Percentage of funding in place	31.5%	46.4%	
Ratio of debt to expense	86.9%	85.3%	
Ratio of cash to expense	13.1%	14.7%	

Rivanna Water and Sewer Authority
CIP 2021-2025
Summary Information

2/14/2020

Detail by Major Systems	Total *Draft* CIP	Urban Water Projects	Urban Wastewater Projects	Shared Projects	Water Non-Urban Projects	Wastewater Non-Urban Projects
Project Cost						
Urban Water Projects	$ 76,022,900	$ 76,022,900	$ -		$ -	$ -
Urban Wastewater Projects	23,855,000	-	23,855,000		-	-
Non-Urban Projects & Shared	35,291,000	-	-	4,695,000	30,196,000	400,000
Total Project Cost Estimates	**$ 135,168,900**	**$ 76,022,900**	**$ 23,855,000**	**$ 4,695,000**	**$ 30,196,000**	**$ 400,000**
Funding in place						
Work-in-Progress (paid for)	$ 5,402,500	$ 1,978,300	$ 1,724,300	$ 167,600	$ 1,532,300	$ -
Debt Proceeds available	29,488,800	14,838,000	3,722,700	-	10,928,100	-
Cash-Capital Available	7,686,300	3,193,000	4,089,000	-	334,300	70,000
Subtotal	$ 42,577,600	$ 20,009,300	$ 9,536,000	$ 167,600	$ 12,794,700	$ 70,000
Financing Needs						
Possible Future Reserves	$ 10,080,000	6,000,000	3,500,000	300,000	200,000	80,000
New Debt	82,511,300	50,013,600	10,819,000	4,327,400	17,101,300	250,000
Subtotal	$ 92,591,300	$ 56,013,600	$ 14,319,000	$ 4,627,400	$ 17,301,300	$ 330,000
Total Funding	**$ 135,168,900**	**$ 76,022,900**	**$ 23,855,000**	**$ 4,795,000**	**$ 30,096,000**	**$ 400,000**
Percentage of funding in place	31.5%	26.3%	40.0%	3.5%	42.5%	17.5%
Ratio of debt to expense	86.9%	85.3%	61.0%	90.2%	93.1%	62.5%
Ratio of cash to expense	13.1%	12.1%	31.8%	6.3%	1.8%	37.5%

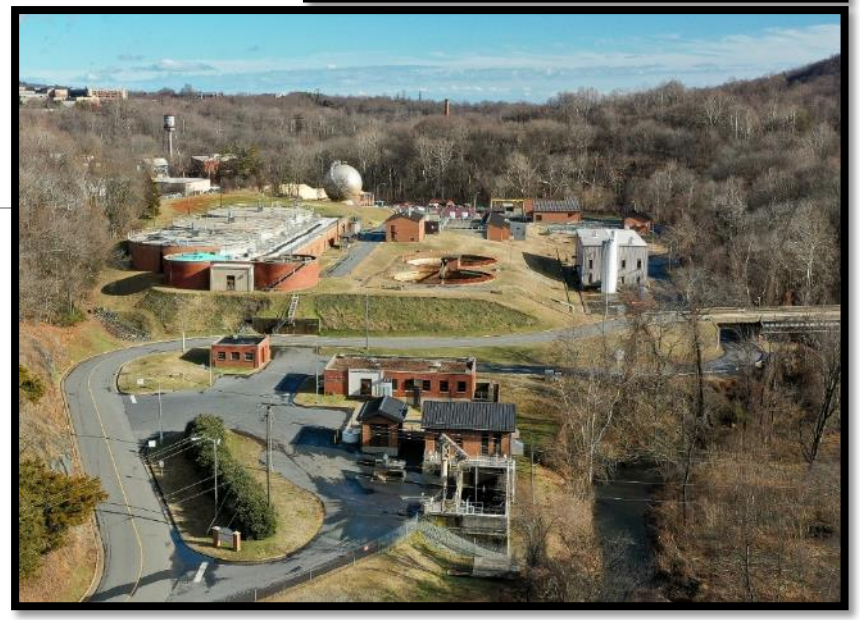
	Urban Water	Urban Wastewater	Non-Urban	Shared	Total
Current Adopted CIP 2020 - 2024	$ 61,501,900	$ 14,753,000	$ 18,353,000	$ 2,596,000	$ 97,203,900
Changes:					
Completed or Closed Projects	(4,654,000)	-	(442,000)	-	(5,096,000)
Adjustments on existing Projects	19,175,000	5,017,000	11,625,000	2,099,000	37,916,000
New Projects	-	4,085,000	1,060,000	-	5,145,000
Total Changes	14,521,000	9,102,000	12,243,000	2,099,000	37,965,000
Total Draft CIP 2021 - 2025	$ 76,022,900	$ 23,855,000	$ 30,596,000	$ 4,695,000	$ 135,168,900

		FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
City of Charlottesville Charges								
Urban Water								
Operating Rate	Per 1000 gal.	2.07	2.095	2.306	2.514	2.715	2.878	3.050
	% Change		1.2%	10.1%	9.0%	8.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 181,008	$ 193,580	218,205	243,839	268,063	292,244	316,386
			6.9%	12.7%	11.7%	9.9%	9.0%	8.3%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,587,700	$ 3,630,500	$ 3,996,300	$ 4,355,967	$ 4,704,444	$ 4,986,711	$ 5,285,914
Debt Service Revenues	Annual	2,172,100	2,323,000	2,618,500	2,926,067	3,216,758	3,506,931	3,796,631
Total		**$ 5,759,800**	**$ 5,953,500**	**$ 6,614,800**	**$ 7,282,034**	**$ 7,921,202**	**$ 8,493,642**	**$ 9,082,545**
	$ Change		**$ 193,700**	**$ 661,300**	**$ 667,234**	**$ 639,168**	**$ 572,440**	**$ 588,903**
	% Change		**3.4%**	**11.1%**	**10.1%**	**8.8%**	**7.2%**	**6.9%**
Urban Wastewater								
Operating Rate	Per 1000 gal.	2.146	2.369	2.527	2.679	2.839	3.010	3.190
	% Change		10.4%	6.7%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 408,260	$ 407,588	407,193	410,168	413,088	416,038	420,868
			-0.2%	-0.1%	0.7%	0.7%	0.7%	1.2%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,711,300	$ 4,016,800	$ 4,197,700	$ 4,449,562	$ 4,716,536	$ 4,999,528	$ 5,299,500
Debt Service Revenues	Annual	4,899,100	4,891,100	4,886,300	4,922,015	4,957,055	4,992,455	5,050,415
Total		**$ 8,610,400**	**$ 8,907,900**	**$ 9,084,000**	**$ 9,371,577**	**$ 9,673,591**	**$ 9,991,983**	**$ 10,349,915**
	$ Change		**$ 297,500**	**$ 176,100**	**$ 287,577**	**$ 302,014**	**$ 318,392**	**$ 357,932**
	% Change		**3.5%**	**2.0%**	**3.2%**	**3.2%**	**3.3%**	**3.6%**
Total all Rate Centers								
Operating Rate Revenue		**$ 7,299,000**	**$ 7,647,300**	**$ 8,194,000**	**$ 8,805,529**	**$ 9,420,980**	**$ 9,986,239**	**$ 10,585,413**
Debt Service Revenues		**7,071,200**	**7,214,100**	**7,504,800**	**7,848,082**	**8,173,813**	**8,499,386**	**8,847,046**
Total City All Revenues		**$ 14,370,200**	**$ 14,861,400**	**$ 15,698,800**	**$ 16,653,611**	**$ 17,594,793**	**$ 18,485,625**	**$ 19,432,459**
	$ Change		**$ 491,200**	**$ 837,400**	**$ 954,811**	**$ 941,182**	**$ 890,832**	**$ 946,834**
	% Change		**3.4%**	**5.6%**	**6.1%**	**5.7%**	**5.1%**	**5.1%**
Additional for 10-Year CIP					**154,400**	**421,950**	**703,900**	**1,006,400**
Total Estimated Charge		**$ 14,370,200**	**$ 14,861,400**	**$ 15,698,800**	**$ 16,808,011**	**$ 18,016,743**	**$ 19,189,525**	**$ 20,438,859**
% Change			**3.4%**	**5.6%**	**7.1%**	**7.2%**	**6.5%**	**6.5%**

		FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
ACSA Charges								
Urban Water								
Operating Rate	Per 1000 gal.	2.07	2.095	2.306	2.514	2.715	2.878	3.050
	% Change		1.2%	10.1%	9.0%	8.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 307,598	$ 321,303	355,982	387,974	418,276	450,082	478,452
			4.5%	10.8%	9.0%	7.8%	7.6%	6.3%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,447,000	$ 3,488,100	$ 3,839,500	$ 4,185,055	$ 4,519,859	$ 4,791,051	$ 5,078,514
Debt Service Revenues	Annual	3,691,200	3,855,600	4,271,800	4,655,688	5,019,315	5,400,988	5,741,418
Total		**$ 7,138,200**	**$ 7,343,700**	**$ 8,111,300**	**$ 8,840,743**	**$ 9,539,174**	**$ 10,192,039**	**$ 10,819,932**
	$ Change		**$ 205,500**	**$ 767,600**	**$ 729,443**	**$ 698,431**	**$ 652,865**	**$ 627,893**
	% Change		**2.9%**	**10.5%**	**9.0%**	**7.9%**	**6.8%**	**6.2%**
Urban Wastewater								
Operating Rate	Per 1000 gal.	2.146	2.369	2.527	2.679	2.839	3.010	3.190
	% Change		10.4%	6.7%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 246,308	$ 278,174	286,039	298,484	307,364	316,274	322,674
			12.9%	2.8%	4.4%	3.0%	2.9%	2.0%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,565,800	$ 4,016,800	$ 4,369,000	$ 4,631,140	$ 4,909,008	$ 5,203,549	$ 5,515,762
Debt Service Revenues	Annual	2,955,700	3,338,100	3,432,500	3,581,812	3,688,372	3,795,292	3,872,092
Total		$ 6,521,500	$ 7,354,900	$ 7,801,500	$ 8,212,952	$ 8,597,380	$ 8,998,841	$ 9,387,854
	$ Change		**$ 833,400**	**$ 446,600**	**$ 411,452**	**$ 384,428**	**$ 401,461**	**$ 389,013**
	% Change		**12.8%**	**6.1%**	**5.3%**	**4.7%**	**4.7%**	**4.3%**
Non-Urban Rate Centers								
Operating Rate Revenue	Annual	$ 2,075,300	$ 2,229,100	2,430,300	2,624,724	2,782,207	2,949,140	3,126,088
Debt Service Revenues	Annual	1,134,400	1,453,300	1,659,800	1,880,800	2,101,800	2,322,800	2,543,800
Total		**$ 3,209,700**	**$ 3,682,400**	**$ 4,090,100**	**$ 4,505,524**	**$ 4,884,007**	**$ 5,271,940**	**$ 5,669,888**
				$ 407,700	**$ 415,424**	**$ 378,483**	**$ 387,932**	**$ 397,948**
				11.1%	**10.2%**	**8.4%**	**7.9%**	**7.5%**
Total all Rate Centers								
Operating Rate Revenue		**$ 9,088,100**	**$ 9,734,000**	**$ 10,638,800**	**$ 11,440,919**	**$ 12,211,075**	**$ 12,943,740**	**$ 13,720,364**
Debt Service Revenues		**7,781,300**	**8,647,000**	**9,364,100**	**10,118,300**	**10,809,487**	**11,519,080**	**12,157,310**
Total ACSA All Revenues		**$ 16,869,400**	**$ 18,381,000**	**$ 20,002,900**	**$ 21,559,219**	**$ 23,020,562**	**$ 24,462,820**	**$ 25,877,674**
	$ Change		**$ 1,511,600**	**$ 1,621,900**	**$ 1,556,319**	**$ 1,461,343**	**$ 1,442,258**	**$ 1,414,854**
	% Change		**9.0%**	**8.8%**	**7.8%**	**6.8%**	**6.3%**	**5.8%**
Additional for 10-Year CIP					**268,900**	**704,340**	**1,174,400**	**1,705,400**
Total Estimated Charge		**$ 16,869,400**	**$ 18,381,000**	**$ 20,002,900**	**$ 21,828,119**	**$ 23,724,902**	**$ 25,637,220**	**$ 27,583,074**
	% Change		**9.0%**	**8.8%**	**9.1%**	**8.7%**	**8.1%**	**7.6%**

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
RWSA							
Operations Revenues							
Urban Water	$ 7,034,700	$ 7,118,600	$ 7,835,800	$ 8,541,022	$ 9,224,304	$ 9,777,762	$ 10,364,428
Urban Wastewater	7,277,100	8,033,600	8,566,700	9,080,702	9,625,544	10,203,077	10,815,261
Other Rate Centers	2,075,300	2,229,100	2,430,300	2,624,724	2,782,207	2,949,140	3,126,088
Total	$ 16,387,100	$ 17,381,300	$ 18,832,800	$ 20,246,448	$ 21,632,055	$ 22,929,979	$ 24,305,777
Change $		994,200	1,451,500	1,413,648	1,385,607	1,297,923	1,375,799
Change %		6.1%	8.4%	7.5%	6.8%	6.0%	6.0%
Debt Service Charge Revenues							
Urban Water	5,863,300	6,178,600	6,890,300	7,581,755	8,236,073	8,907,919	9,538,049
Urban Wastewater	7,854,800	8,229,200	8,318,800	8,503,827	8,645,427	8,787,747	8,922,507
Other Rate Centers	1,134,400	1,453,300	1,659,800	1,880,800	2,101,800	2,322,800	2,543,800
	$ 14,852,500	$ 15,861,100	$ 16,868,900	$ 17,966,382	$ 18,983,300	$ 20,018,466	$ 21,004,356
Change $		1,008,600	1,007,800	1,097,482	1,016,918	1,035,166	985,890
Change %		6.8%	6.4%	6.5%	5.7%	5.5%	4.9%
Total RWSA Customer Revenues	**$ 31,239,600**	**$ 33,242,400**	**$ 35,701,700**	**$ 38,212,830**	**$ 40,615,355**	**$ 42,948,445**	**$ 45,310,133**
Change $		**$ 2,002,800**	**$ 2,459,300**	**$ 2,511,130**	**$ 2,402,525**	**$ 2,333,089**	**$ 2,361,689**
Change %		**6.4%**	**7.4%**	**7.0%**	**6.3%**	**5.7%**	**5.5%**
Additional for 10-Year CIP				**423,300**	**1,126,290**	**1,878,300**	**2,711,800**
Total Estimated Charge	**$ 31,239,600**	**$ 33,242,400**	**$ 35,701,700**	**$ 38,636,130**	**$ 41,741,645**	**$ 44,826,745**	**$ 48,021,933**
% Change		**0.0%**	**7.4%**	**8.2%**	**9.1%**	**10.1%**	**11.3%**

Proposed Capital Improvement Plan FY 2021-2025



FOR THE BOARD OF DIRECTORS

BY BILL MAWYER, EXECUTIVE DIRECTOR

FEBRUARY 25, 2020

Strategic Plan Goal

Infrastructure and Master Planning is one of our six strategic goals

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

Five Year FY 21 – 25 CIP Summary

- 56 Projects
- $135.2 M

Water		Wastewater	
Urban:	$76 M	Urban:	$24 M
Non-Urban:	$30 M	Non-Urban:	$0.4 M

- $4.8 M for “All Systems” support (technology, security)

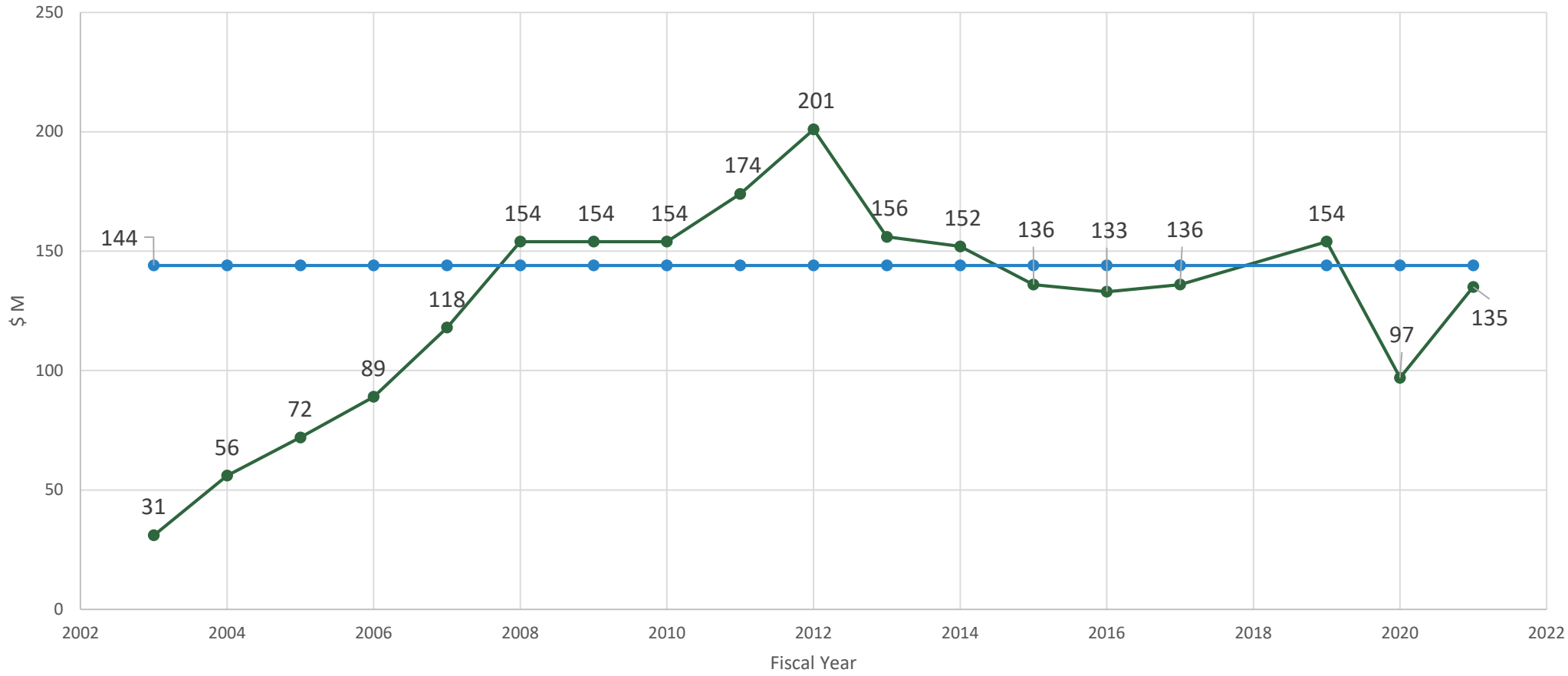
FY 21 – 25		FY 20 -24
Projects: 56	in comparison with	Projects: 37
Budget: $135.2 M		Budget: $97.2 M

Changes from Last Year to the 5-Yr CIP : $38 M increase

1. FY 25 funding for 14 existing projects rolled into the 5-year CIP + $17.7 M
2. Budgets for existing projects increased + $12.1 M
   a. OB & SR WTP Renovations & GAC System: $8.3 M
   b. Beaver Creek Reservoir & Pump Station: $3 M
      - Restored hypolimnetic systems ($1 M)
3. Several projects were reprioritized + $3.5 M
   a. Security Enhancements (from 2026 to 2020-2024; $1.7 M)
   b. MC Cogeneration Upgrade (from 2026 to 2022; $1.8 M)
4. 11 new repair projects were added + $4.7 M
   a. MC Exterior Lighting Upgrade: $1 M
   b. MC Clarifiers and Silo Demolition: $0.6 M
   c. MC 5 Kv Electrical Replacement: $0.5 M
   d. MC Facility Renovations: $0.5 M

$38 M

RWSA CIP History



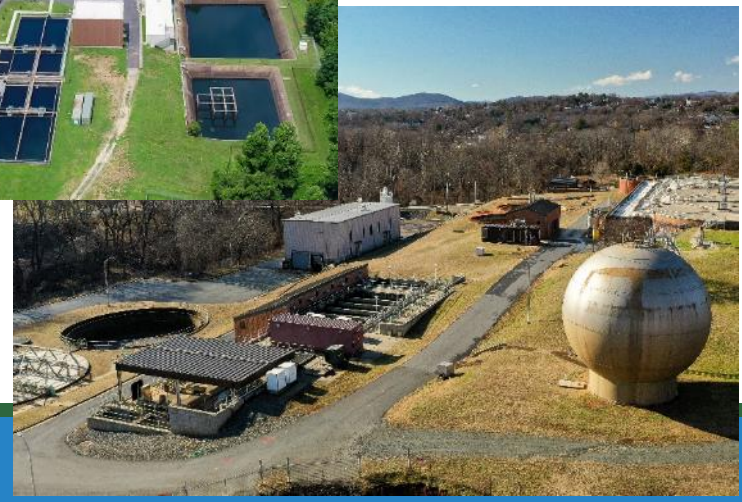
15 Year CIP Planning Forecast

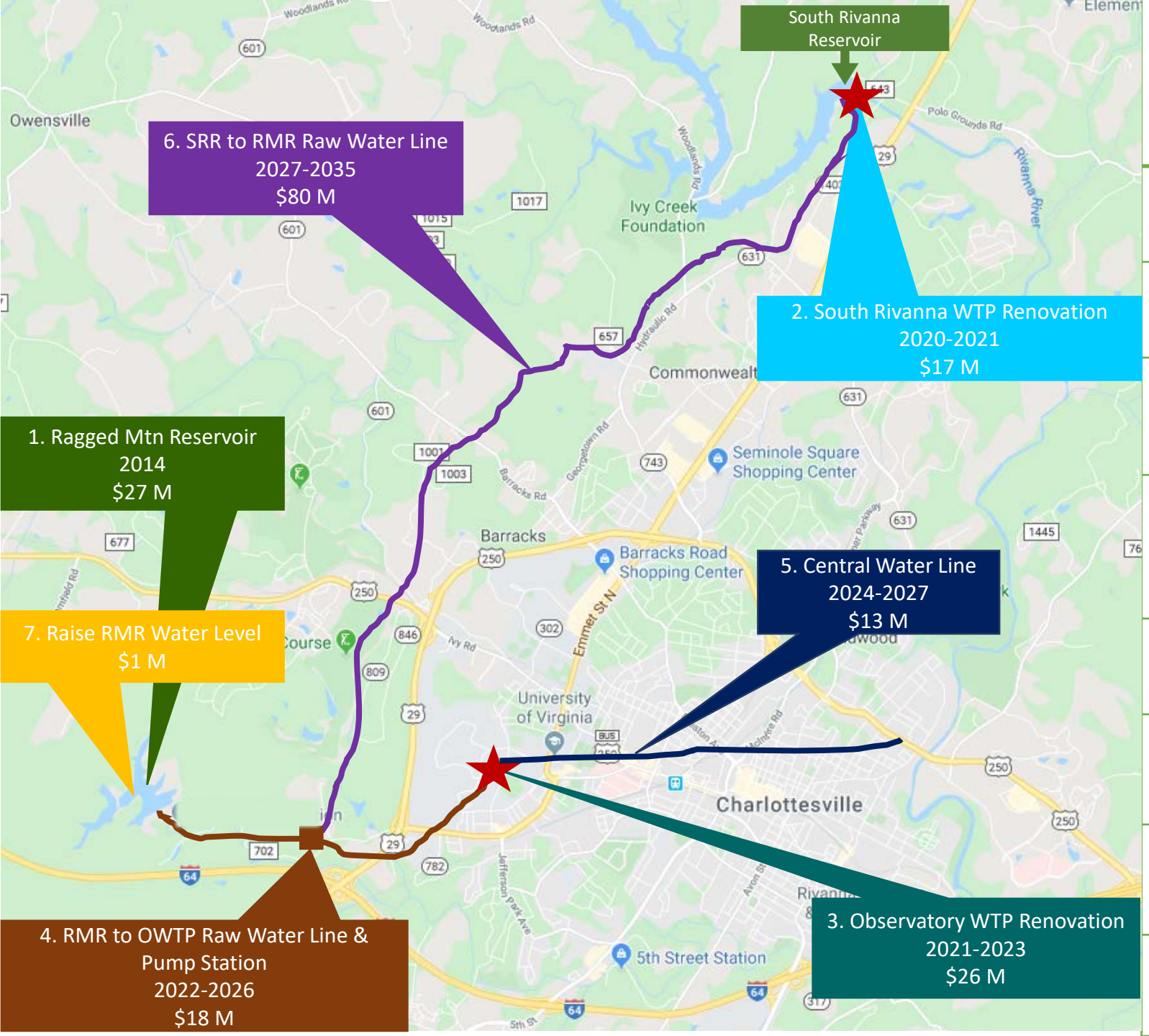
- FY 21-25 $135.2 M
- FY 26-30 $ 80.3 M
- FY 31-35 $ 59.8 M

$275.3 M

Major Programs in the FY 21 – 25 CIP

- **Upgrade the Water Treatment Plants: $52 M**
  - South Rivanna: 12 MGD unchanged
  - Observatory: from 7.7 to 10 MGD
  - Crozet: from 1 to 2 MGD
- **Regulatory: $27 M**
  - Beaver Creek Dam and Pump Station Modifications
  - Crozet WW Flow Equalization Tank
  - MC Exterior Lighting Upgrades
- **Redundancy / Resiliency: $21 M**
  - RMR to OWTP Piping and Pumping
  - SRR to RMR Pipeline and Pumping ROW
  - Airport Road Water Pump Station and Piping
- **Operations and Maintenance / Safety: $11 M**
  - South Rivanna Dam Gate Repairs
  - Sugar Hollow Dam Gate Replacement
  - Security Enhancements
  - WW Interceptor and MH Repairs
  - Albemarle Berkley SPS Basin Demolition
  - MC Cogeneration Facility Upgrades
  - MC Digester Sludge Storage Improvements
  - MC Clarifier and Lime Silo Demolition
- **Growth: $5 M**
  - Schenks Branch WW Pipe Replacement
  - Duty Station Renovation
  - Admin Building Renovation
- **Master Planning: $2 M**
  - Moores Creek WW Facilities
  - Asset Management
  - Information Technology Systems



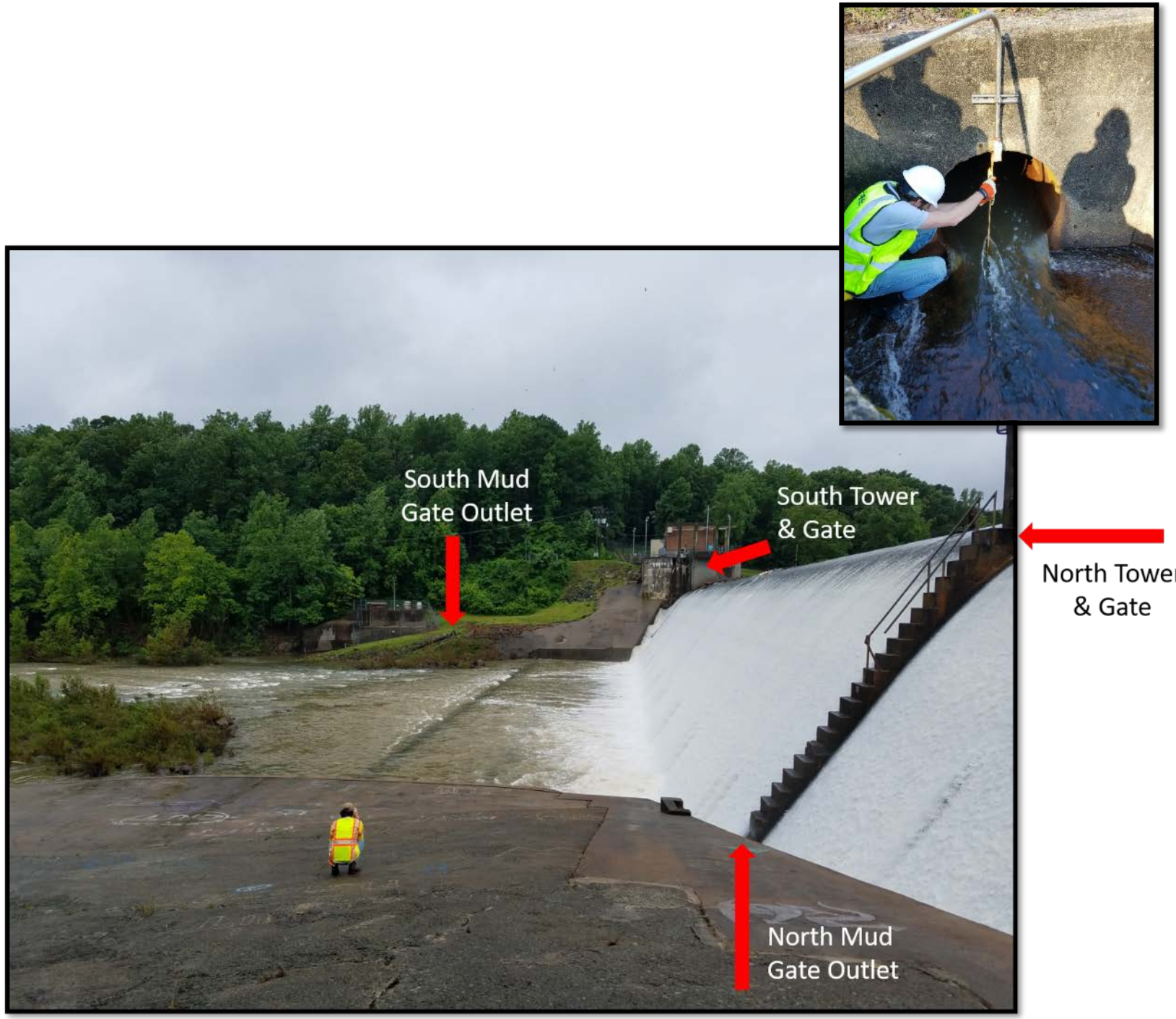


Community Water Supply Plan Projects

1. RMR Dam Completed in 2014	$27 M
2. SR WTP Renovation 2020-2021	$17 M
3. OB WTP Renovation 2021-2023	$26 M
4. RMR to OB WTP Raw Water Line & Pump Station 2022-2026	$18 M
5. Central Water Line 2024-2027	$13 M
6. SRR to RMR Raw Water Line 2027-2040	$80 M
7. Raise RMR Water Level	$1 M
	$182 M

South Rivanna Dam Gate Repairs

- Cost: $0.9 M
- Completion: 2020



Sugar Hollow Dam Gate Replacement

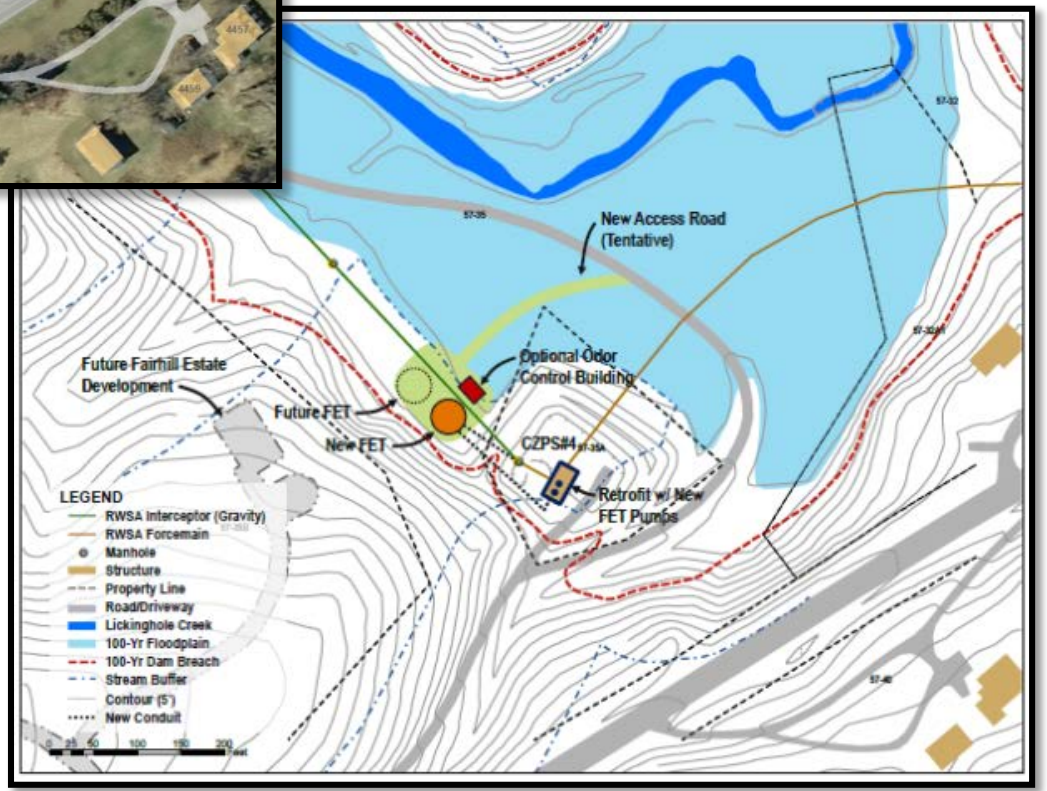
- Cost: $1.1 M
- Completion: 2021

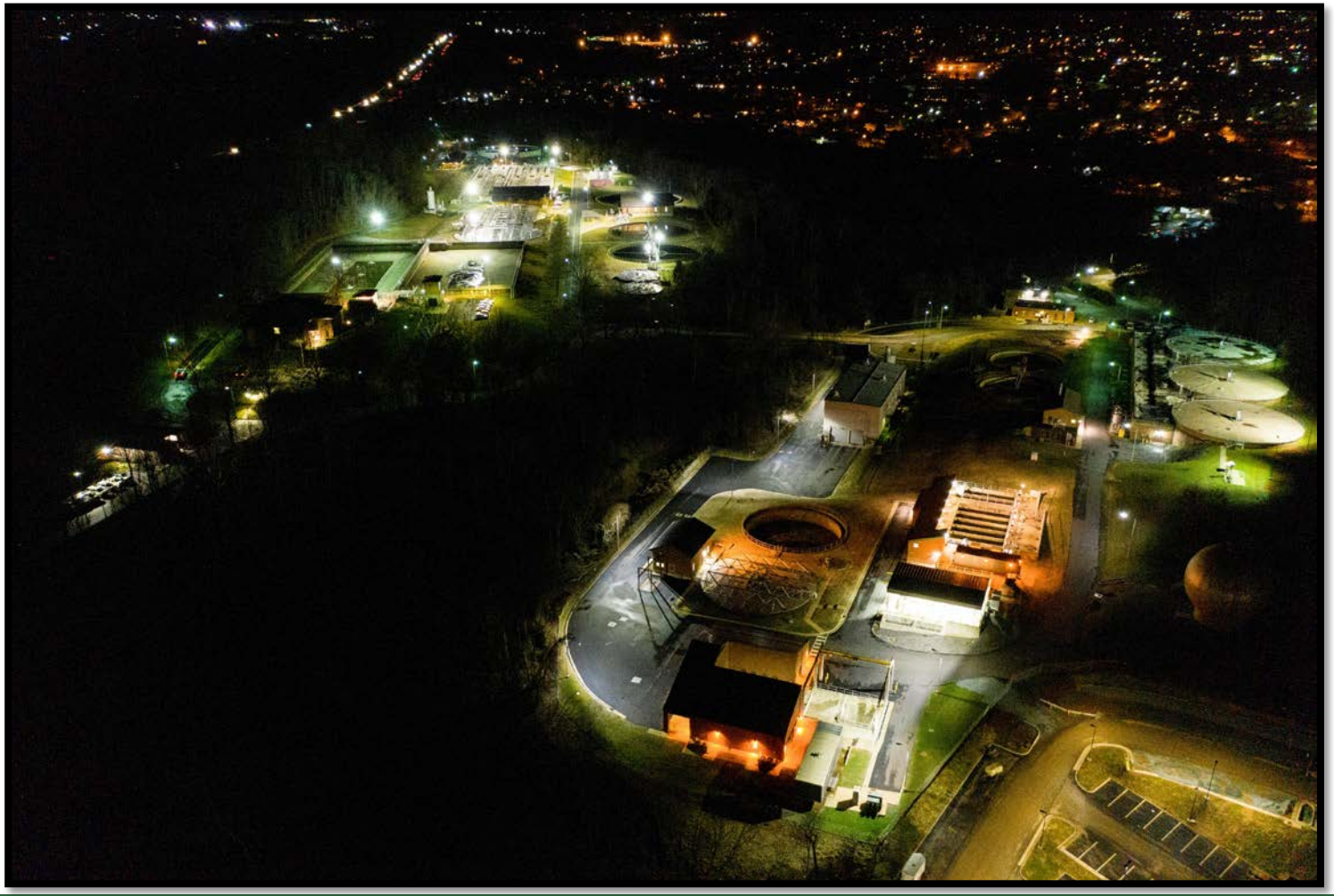
Security Enhancements

- Install Access Control software and hardware
- Replace fencing where needed
- Improve signage
- Enhance use of security cameras
- Cost: $2.7 M
- Completion: 2020 - 2022

Crozet Flow Equalization Tank

- Controls Peak Wastewater Flows within the Entire Crozet System to Avoid Overflows
- Includes New Tank, Odor Control and Modifications to the existing Crozet PS No. 4
- Cost: $4.9 M
- Completion: 2020 – 2021





Moores Creek Lighting Upgrades

- Cost: $1 M
- Completion: 2020 -2022

Moores Creek Renovations

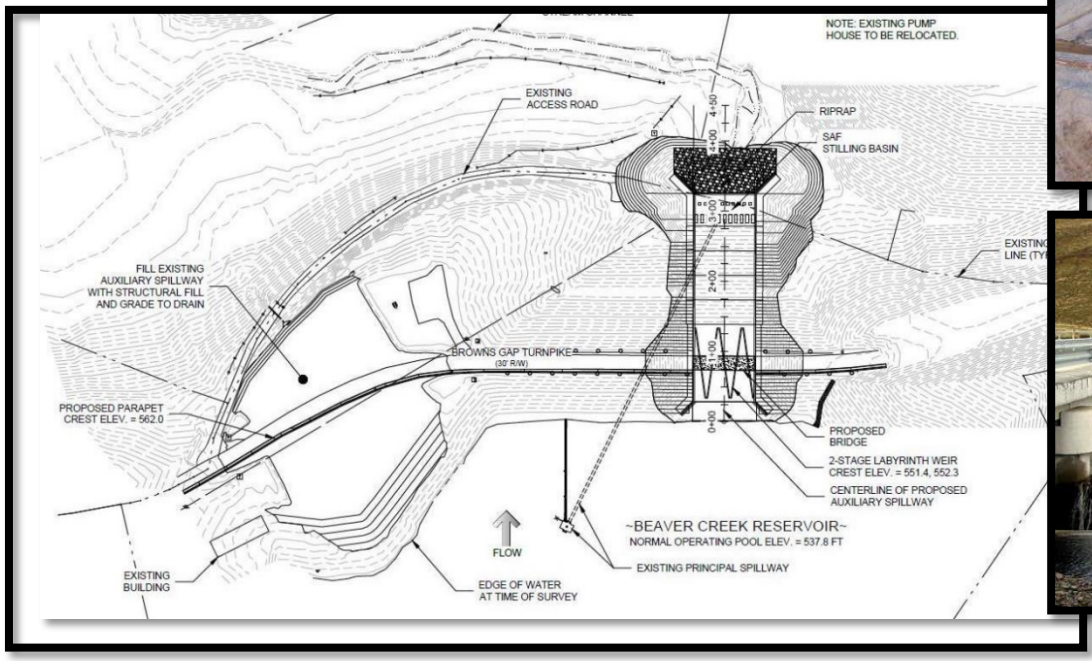
1. Cogeneration ($1.85 M)
2. Clarifiers & Silo Demolition ($0.655 M)
3. Duty Station ($0.375 M)
4. Conference Room ($0.1 M)

Airport Rd Water Pump Station & Piping

- Provide Redundant Water Supply to North Rivanna Pressure Zone
- Eliminate the Need for Temporary Pumping
- Cost: $5.8 M
- Completion: 2021 - 2022

Beaver Creek Dam & Pump Station Modifications

- Upgrade the spillway to meet DCR dam safety standards
- Replace the raw water pump station and intake
- Cost: $27 M
- Completion: 2023 - 2026



Financial Information

Table 1

	2021 - 2025 *Draft Proposed* CIP	2020 - 2024 Adopted CIP	Change $
Project Cost			
Urban Water Projects	$ 76,022,900	$ 61,501,900	$ 14,521,000
Urban Wastewater Projects	23,980,000	14,753,000	9,227,000
Non-Urban Projects & Shared	35,191,000	20,949,000	14,242,000
Total Project Cost Estimates	**$ 135,193,900**	**$ 97,203,900**	**$ 37,990,000**
Funding in place			
Work-in-Progress (paid for)	$ 5,404,200	$ 2,943,110	2,461,090
Debt Proceeds Used	29,494,100	35,354,000	(5,859,900)
Cash-Capital Available	8,436,300	6,767,470	1,668,830
	$ 43,334,600	$ 45,064,580	$ (1,729,980)
Financing Needs			
Possible Future Reserves	$ 9,780,000	7,530,000	2,250,000
New Debt	82,079,300	44,609,320	37,469,980
	$ 91,859,300	$ 52,139,320	$ 39,719,980
Total Funding	**$ 135,193,900**	**$ 97,203,900**	**$ 37,990,000**
Percentage of funding in place	32.1%	46.4%	
Ratio of debt to expense	86.5%	85.3%	
Ratio of cash to expense	13.5%	14.7%	

Financial Information

Table 4 – City of Charlottesville Charges

		FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
City of Charlottesville Charges								
Urban Water								
Operating Rate	Per 1000 gal.	2.07	2.095	2.303	2.510	2.711	2.874	3.046
	% Change		1.2%	9.9%	9.0%	8.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 181,008	$ 193,580	219,738	243,839	268,063	292,244	316,386
			6.9%	13.5%	11.0%	9.9%	9.0%	8.3%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,587,700	$ 3,630,500	$ 3,991,500	$ 4,350,735	$ 4,698,794	$ 4,980,721	$ 5,279,565
Debt Service Revenues	Annual	2,172,100	2,323,000	2,618,500	2,926,067	3,216,758	3,506,931	3,796,631
Total		**$ 5,759,800**	**$ 5,953,500**	**$ 6,610,000**	**$ 7,276,802**	**$ 7,915,552**	**$ 8,487,652**	**$ 9,076,196**
	$ Change		**$ 193,700**	**$ 656,500**	**$ 666,802**	**$ 638,750**	**$ 572,101**	**$ 588,543**
	% Change		**3.4%**	**11.0%**	**10.1%**	**8.8%**	**7.2%**	**6.9%**
Urban Wastewater								
Operating Rate	Per 1000 gal.	2.146	2.369	2.531	2.683	2.844	3.014	3.195
	% Change		10.4%	6.8%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 408,260	$ 407,588	407,227	410,168	413,088	416,038	420,868
			-0.2%	-0.1%	0.7%	0.7%	0.7%	1.2%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,711,300	$ 4,016,800	$ 4,205,000	$ 4,457,300	$ 4,724,738	$ 5,008,222	$ 5,308,716
Debt Service Revenues	Annual	4,899,100	4,891,100	4,886,300	4,922,015	4,957,055	4,992,455	5,050,415
Total		**$ 8,610,400**	**$ 8,907,900**	**$ 9,091,300**	**$ 9,379,315**	**$ 9,681,793**	**$ 10,000,677**	**$ 10,359,131**
	$ Change		**$ 297,500**	**$ 183,400**	**$ 288,015**	**$ 302,478**	**$ 318,884**	**$ 358,453**
	% Change		**3.5%**	**2.1%**	**3.2%**	**3.2%**	**3.3%**	**3.6%**
Total all Rate Centers								
Operating Rate Revenue		**$ 7,299,000**	**$ 7,647,300**	**$ 8,196,500**	**$ 8,808,035**	**$ 9,423,532**	**$ 9,988,944**	**$ 10,588,280**
Debt Service Revenues		7,071,200	7,214,100	7,504,800	7,848,082	8,173,813	8,499,386	8,847,046
Total City All Revenues		**$ 14,370,200**	**$ 14,861,400**	**$ 15,701,300**	**$ 16,656,117**	**$ 17,597,345**	**$ 18,488,330**	**$ 19,435,326**
	$ Change		**$ 491,200**	**$ 839,900**	**$ 954,817**	**$ 941,228**	**$ 890,985**	**$ 946,997**
	% Change		**3.4%**	**5.7%**	**6.1%**	**5.7%**	**5.1%**	**5.1%**
Additional for 10-Year CIP					154,400	421,950	703,900	1,006,400
Total Estimated Charge		**$ 14,370,200**	**$ 14,861,400**	**$ 15,701,300**	**$ 16,810,517**	**$ 18,019,295**	**$ 19,192,230**	**$ 20,441,726**
% Change			**3.4%**	**5.7%**	**7.1%**	**7.2%**	**6.5%**	**6.5%**

Financial Information

Table 5 – ACSA Charges

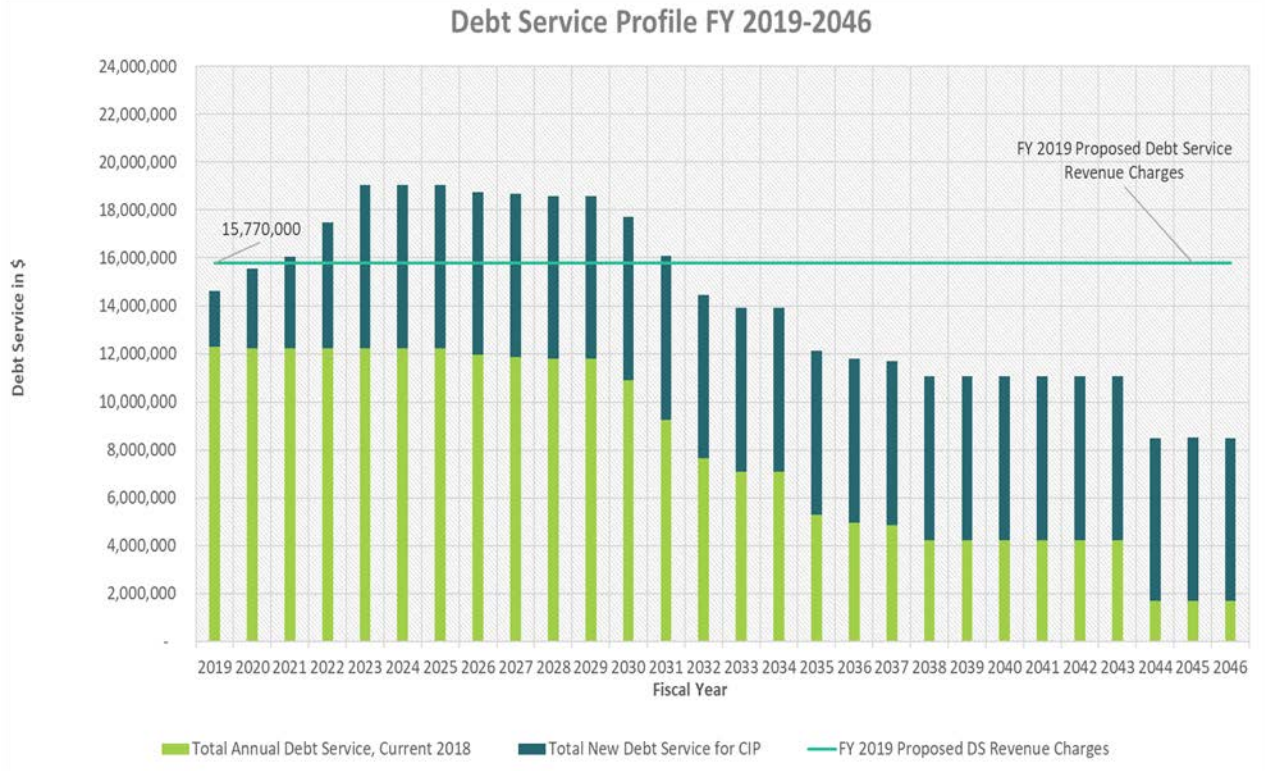
		FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
ACSA Charges								
Urban Water								
Operating Rate	Per 1000 gal.	2.07	2.095	2.303	2.510	2.711	2.874	3.046
	% Change		1.2%	9.9%	9.0%	8.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 307,598	$ 321,303	357,891	387,974	418,276	450,082	478,452
			4.5%	11.4%	8.4%	7.8%	7.6%	6.3%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,447,000	$ 3,488,100	$ 3,835,000	$ 4,180,150	$ 4,514,562	$ 4,785,436	$ 5,072,562
Debt Service Revenues	Annual	3,691,200	3,855,600	4,271,800	4,655,688	5,019,315	5,400,988	5,741,418
Total		**$ 7,138,200**	**$ 7,343,700**	**$ 8,106,800**	**$ 8,835,838**	**$ 9,533,877**	**$ 10,186,424**	**$ 10,813,980**
	$ Change		**$ 205,500**	**$ 763,100**	**$ 729,038**	**$ 698,039**	**$ 652,547**	**$ 627,556**
	% Change		**2.9%**	**10.4%**	**9.0%**	**7.9%**	**6.8%**	**6.2%**
Urban Wastewater								
Operating Rate	Per 1000 gal.	2.146	2.369	2.531	2.683	2.844	3.014	3.195
	% Change		10.4%	6.8%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 246,308	$ 278,174	286,006	298,484	307,364	316,274	322,674
			12.9%	2.8%	4.4%	3.0%	2.9%	2.0%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,565,800	$ 4,016,800	$ 4,376,600	$ 4,639,196	$ 4,917,548	$ 5,212,601	$ 5,525,357
Debt Service Revenues	Annual	2,955,700	3,338,100	3,432,500	3,581,812	3,688,372	3,795,292	3,872,092
Total		$ 6,521,500	$ 7,354,900	$ 7,809,100	$ 8,221,008	$ 8,605,920	$ 9,007,893	$ 9,397,449
	$ Change		**$ 833,400**	**$ 454,200**	**$ 411,908**	**$ 384,912**	**$ 401,973**	**$ 389,556**
	% Change		**12.8%**	**6.2%**	**5.3%**	**4.7%**	**4.7%**	**4.3%**
Non-Urban Rate Centers								
Operating Rate Revenue	Annual	$ 2,075,300	$ 2,229,100	2,428,600	2,622,888	2,780,261	2,947,077	3,123,902
Debt Service Revenues	Annual	1,134,400	1,453,300	1,659,800	1,880,800	2,101,800	2,322,800	2,543,800
Total		**$ 3,209,700**	**$ 3,682,400**	**$ 4,088,400**	**$ 4,503,688**	**$ 4,882,061**	**$ 5,269,877**	**$ 5,667,702**
				$ 406,000	**$ 415,288**	**$ 378,373**	**$ 387,816**	**$ 397,825**
				11.0%	**10.2%**	**8.4%**	**7.9%**	**7.5%**
Total all Rate Centers								
Operating Rate Revenue		**$ 9,088,100**	**$ 9,734,000**	**$ 10,640,200**	**$ 11,442,234**	**$ 12,212,371**	**$ 12,945,113**	**$ 13,721,820**
Debt Service Revenues		**7,781,300**	**8,647,000**	**9,364,100**	**10,118,300**	**10,809,487**	**11,519,080**	**12,157,310**
Total ACSA All Revenues		**$ 16,869,400**	**$ 18,381,000**	**$ 20,004,300**	**$ 21,560,534**	**$ 23,021,858**	**$ 24,464,193**	**$ 25,879,130**
	$ Change		**$ 1,511,600**	**$ 1,623,300**	**$ 1,556,234**	**$ 1,461,324**	**$ 1,442,335**	**$ 1,414,937**
	% Change		**9.0%**	**8.8%**	**7.8%**	**6.8%**	**6.3%**	**5.8%**
Additional for 10-Year CIP					**268,900**	**704,340**	**1,174,400**	**1,705,400**
Total Estimated Charge		**$ 16,869,400**	**$ 18,381,000**	**$ 20,004,300**	**$ 21,829,434**	**$ 23,726,198**	**$ 25,638,593**	**$ 27,584,530**
% Change			**9.0%**	**8.8%**	**9.1%**	**8.7%**	**8.1%**	**7.6%**

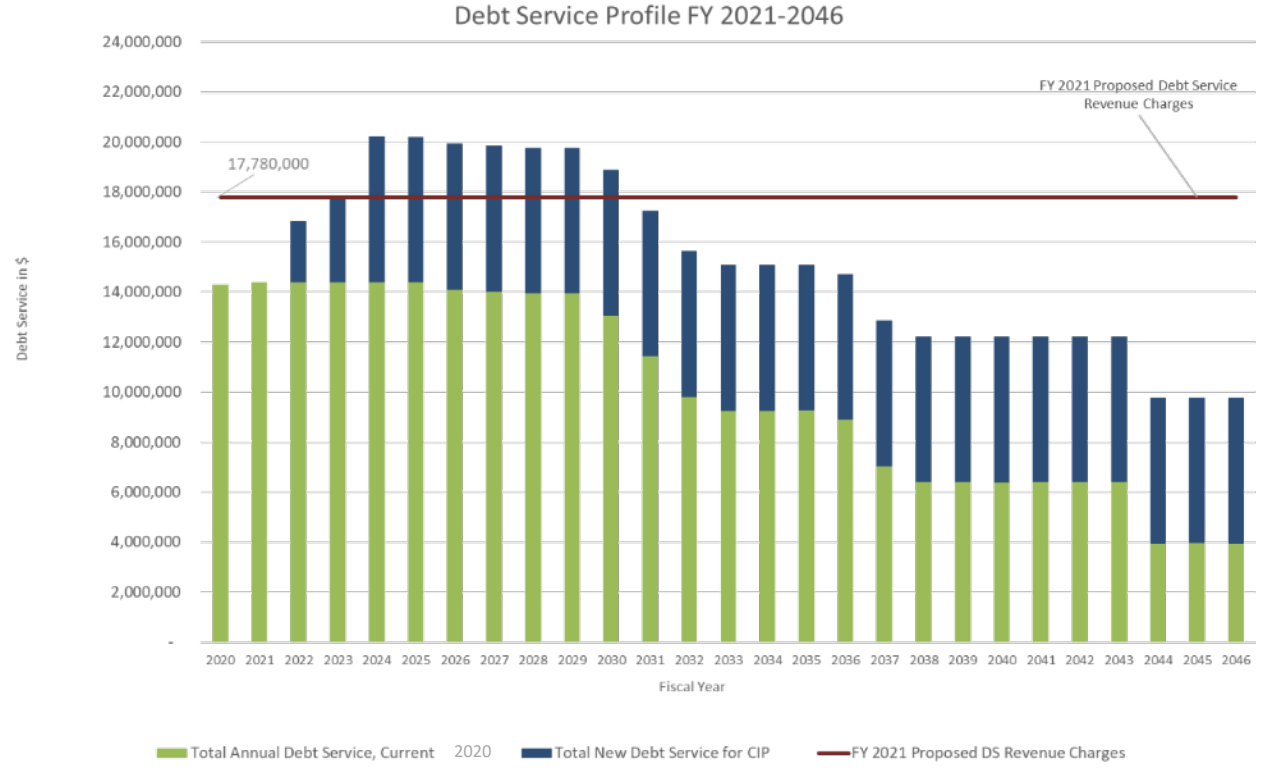
Financial Assessment & Rates

- RWSA Rate Increases (%):

FY	21	22	23	24	25
• City	5.7	7.1	7.2	6.5	6.5
• ACSA	8.8	9.1	8.7	8.1	7.6

- Use of Cash Reserves:
  - $2.9 M in FY 21 for CIP
  - $11 M for 5 year CIP
- Includes proposed 6.3% increase in Operating Expenses in FY 21
- Anticipate next Revenue Bond in 2021, and 2-3 years thereafter


Debt Service Profile FY 2019-2046
Debt Service in $
24,000,000
22,000,000
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
15,770,000
FY 2019 Proposed Debt Service Revenue Charges
2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046
Fiscal Year
Total Annual Debt Service, Current 2018
Total New Debt Service for CIP
FY 2019 Proposed DS Revenue Charges


Debt Service Profile FY 2021-2046
Debt Service in $
24,000,000
22,000,000
20,000,000
18,000,000
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
17,780,000
FY 2021 Proposed Debt Service Revenue Charges
2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046
Fiscal Year
Total Annual Debt Service, Current 2020
Total New Debt Service for CIP
FY 2021 Proposed DS Revenue Charges

Five Year FY 21 – 25 CIP Summary

- 56 Projects
- $135.2 M

Water		Wastewater	
Urban:	$76 M	Urban:	$24 M
Non-Urban:	$30 M	Non-Urban:	$0.4 M

- $4.8 M for “All Systems” support (technology, security)

Questions?