Rivanna Water and Sewer Authority

Board of Directors Meeting

May 22, 2018

2:15pm

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

BOARD OF DIRECTORS

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

DATE: **May 22, 2018**

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 April 24, 2018*

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*
      i. *Presentation of Wastewater Budget: Lonnie Wood, Director of Finanace and Administration*

   b. *Staff Report on Ongoing Projects*

   c. *Staff Report on Operations*

   d. *Recommendation for Approval of Engineering Services for Crozet Flow Equalization Tank and Pumping Station Upgrade, Schnabel Engineering*

   e. *Recommendation for Approval of Engineering Services for Asset Management Plan, GHD, Inc.*

   f. *Recommendation for Approval of Construction Contract Modification for MCAWRRF Digester #2 and #3 Coatings, Short Elliot Henderickson Lyttle Utilities, Inc*

g. *Recommendation for Approval of Work Authorization for Water Treatment Plant Engineering Services, Cornwell Engineering Group*

8. OTHER BUSINESS

a. *Proposed Fiscal Year 2018-2019 Budget Review, Public Hearing and Rate Resolution Adoption: Bill Mawyer, Executive Director*

b. *Presentation of Beaver Creek Dam Modification Alternatives: Jennifer Whitaker, Director of Engineering and Maintenance*

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

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
April 24, 2018

A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was held on Tuesday, April 24, 2018 at 2:15 p.m. in the 2nd floor conference room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Mr. Mike Gaffney, Chair; Ms. Kathy Galvin; Ms. Lauren Hildebrand; Mr. Gary O'Connell; Dr. Liz Palmer; and Mr. Jeff Richardson.

Board Members Absent: Mr. Maurice Jones.

Staff Present: Mr. Mark Brownlee, Ms. Victoria Fort, Mr. Tom Freeman, Ms. Bethany Houchens, Mr. Bill Mawyer, Ms. Katie McIlwee, Mr. Philip McKalips, Mr. Bill Morris, Mr. David Rhodes, Mr. Scott Schiller, Ms. Michelle Simpson, Ms. Andrea Terry, Mr. David Tungate, Ms. Jennifer Whitaker, and Mr. Lonnie Wood.

Also Present: Mr. Kurt Krueger, RWSA counsel.

1. CALL TO ORDER

Mr. Gaffney called the regular meeting of the Board of Directors of the Rivanna Water and Sewer Authority at 2:26 p.m.

2. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on March 27, 2018

Ms. Galvin moved to approve the minutes of March 27, 2018. Mr. Richardson seconded the motion, which passed unanimously (6-0). Mr. Jones was absent from the meeting and the vote.

3. RECOGNITION

Government Finance Officers Association's Certificate of Achievement for Excellence in Financial Reporting awarded to the RWSA for its 2017 comprehensive annual financial report (CAFR)- Resolution of Appreciation

The Board considered the following resolution of appreciation to commendthe Authority's Finance Department and its Director of Finance and Administration, Lonnie Wood, as read into the record. Dr. Palmer moved to adopt the resolution as presented. Mr. Richardson seconded the motion, which passed unanimously (6-0). Mr. Jones was absent from the meeting and the vote.

WHEREAS, March 23, 2018, the Certificate of Achievement for Excellence in Financial Reporting has been awarded to Rivanna Water & Sewer Authority by the Government of Finance Officers Association of the United States and Canada (GFOA) for its comprehensive annual financial report (CAFR).

WHEREAS, the Certificate of Achievement is the highest form of recognition in the area of governmental accounting and financial reporting, and its attainment represents a significant accomplishment by a government and its management.

WHEREAS, the Award of Financial Reporting Achievement has been awarded to the Finance Department and Lonnie Wood, Director of Finance and Administration for preparing the award-winning CAFR.

WHEREAS, the CAFR has been judged by an impartial panel to meet the high standards of the program, which includes demonstrating a constructive "spirit of full disclosure" to clearly communicate its financial story and motivate potential users and user groups to read the CAFR.

NOW, THEREFORE, BE IT RESOLVED, the Rivanna Water & Sewer Authority Board of Directors recognizes and commends the Finance Department and Lonnie Wood for their professional dedication and personal diligence, and orders that this Resolution of Appreciation be entered upon the permanent minutes of the Rivanna Water & Sewer Authority.

4. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer reported that the RWSA has as one of its strategic plan goals "workforce development" and was pleased to announce that David Tungate had been selected as Director of Operations for the Rivanna Water and Sewer Authority. Mr. Mawyer stated that in this position, Mr. Tungate would manage the water, wastewater, and laboratory departments. Mr. Mawyer noted that Mr. Tungate had been the Water Manager for the past six years, managing all five water treatment plants.

Mr. Mawyer reported that the RWSA also had a "communications and collaboration" strategic plan goal, and Ms. McIlwee had developed a new page on the website that talked about resources in the community. He stated that Rivanna had provided a number of presentations and tours of the wastewater and water facilities for groups including Piedmont Virginia Community College and the UVA sustainability class, and had also given a presentation to Greene County High School students. Mr. Mawyer stated that Western Albemarle High School had an environmental studies program, and students had visited Moores Creek for a wastewater tour and would be visiting the Crozet Water Treatment Plant for a tour.

Mr. Mawyer stated that Rivanna would be celebrating completion of the granular activated carbon project during National Drinking Water Week May 6-12, and a press release had been issued earlier in the day. He noted that they would celebrate on May 8 at 10 a.m. at the South Rivanna Water Treatment Plant; on May 9 at 10 a.m. at the Crozet Water Treatment Plant; and on May 16 at the Scottsville Water Treatment Plant. He noted that the RWSA had also extended invitations to the RWSA Board, elected officials, the media, and the general public. He stated that on May 17 at 12 p.m. at Riverview Park in the City of Charlottesville, they would celebrate completion of the odor control project.

Mr. Mawyer reported that under water supply, which is a strategic plan "operational optimization" goal, four of five reservoirs were full – with Ragged Mountain at about 95% full – and rain was currently falling. He stated that they had been filling Ragged Mountain from Sugar Hollow since January 22 and it was still not full. Mr. Mawyer referenced state drought conditions maps that showed Central Virginia still being in a moderate drought, with precipitation in the top left of the map in a watch stage – which was worse than it was in March. He stated that groundwater levels were now in watch stage, improving from the previous month's warning stage. Mr. Mawyer stated that reservoir levels as well as stream flow were both at a good stage.

Mr. Mawyer reported that he, Mr. Gaffney, and Rivanna staff had met with the UVA Foundation in March to continue coordination efforts on the South Fork Rivanna to Ragged Mountain Reservoir pipeline and the approximate one-mile crossing on Birdwood Golf Course. Mr. Mawyer noted that UVA was planning an upgrade and rebuild of the golf course, and Rivanna was coordinating with their staff to ensure the pipe could be installed before UVA's work. He noted that there was an engineering services authorization to be considered later in the consent agenda to allow Rivanna to proceed with the final design work.

Mr. Mawyer reported that Rivanna had mailed approximately 140 letters to property owners along the route of the South Fork Rivanna to Ragged Mountain Water Line on the path where the pipe will likely be located, and this was approved in the FY18 CIP. Mr. Mawyer stated that staff had prepared a one-page summary that was included in the Board packets, as several Board members had suggested that they have the document as a summary of the history, details, and benefits of the project. He noted that they also included a map with pipeline location possibilities.

Ms. Whitaker repeated that staff had recently sent approximately 140 letters to landowners in the pipeline path, reaching out to 200 tax map parcel numbers. She stated that as of the beginning of April, Rivanna had received acknowledgement from 90 property owners – with permission to survey granted from 45 of them. She commented that there was a lot of interest among the landowners, and there was a process in-house to answer their questions and provide information. Ms. Whitaker stated that one frequently asked questions was, "Where is the route?" She stated that this conversation led staff to create the map, which included many pages.

Ms. Whitaker explained that the proposed route ran from the South Rivanna Reservoir to West Rio Road turning in to Hydraulic Road – and on the other end of the project, they had to get to the Ragged Mountain Reservoir, with a route along Reservoir Road through the Birdwood Golf

Course. She stated that the middle area was the heart of the route selection alternatives, and this was the area that was yielding the most calls, as people there were very interested in what was going to happen. She referenced the area near the South Rivanna Reservoir along Woodburn Road, stating that Rivanna hoped to be either in the road or parallel to it, and she referenced another map reflecting the area from Woodburn Road out to Rio Road West. Ms. Whitaker noted on the map the circles representing individual property owners who each received a letter.

Ms. Whitaker stated that for Rio Road and Hydraulic Road, Rivanna had been coordinating with VDOT and has determined that they can likely be in the road right of way through the corridor – which was a very positive development.

Mr. Richardson asked what was meant by being in the road, and whether that meant the road right of way.

Ms. Whitaker confirmed that it could be either the right of way or the road itself.

Mr. Richardson asked what would drive that, and if VDOT would make that determination.

Ms. Whitaker responded that it would be VDOT and the ability to do traffic control, as well as what real estate was available. She noted that in some roads, there may be two or three utilities already there, and in some locations such as Rio Road and Hydraulic Road, there was already a bike lane present that could be utilized – which would help with traffic control. Ms. Whitaker stated that VDOT has the right of way and was working with Rivanna to help find a way through.

Ms. Whitaker referenced a map showing the area around Albemarle High School, where the routing alternatives analysis became more complex. She explained that at this point, they had the opportunity to go north or to keep traveling further to the south and proceed through the Georgetown Road, Terrell Road, Montview subdivision, Colthurst subdivision corridor.

Dr. Palmer asked why the pipeline switched sides on Rio Road, which looked like Hydraulic Road crossing over to go to the east side.

Ms. Whitaker explained that she did not know the answer offhand, but Rivanna's consultants had been working with VDOT, looking at utility mapping and where there may be opportunities and possibilities – as well as doing some survey work where there was the ability to do it from the right of way. She stated that there may be a conflicting utility or a desire on VDOT's part to move it to the other side, and indicated that she would find out more information for the Board.

Ms. Whitaker referenced Georgetown Green and stated that one alternative was to go up Lambs Road and go behind the Albemarle High School complex property; one alternative was to come further south and weave between the baseball field and Georgetown Green; another alternative was to come down and catch Georgetown Road, with a number of options to weave further west and ultimately ending up at Barracks Road. She noted that there was also an alternative to come down Westminster Road through Canterbury Hills, and another alternative weaving its way around the Colonnades property. She stated that the UVA Foundation owned several of the

properties in this vicinity, and Rivanna had been discussing those properties, the University's designs and further plans, and how Rivanna might be able to work with them.

Mr. Richardson asked how those conversations were going, as it made sense to knock out as much as possible with one property owner in terms of linear feat – and this seemed to be the best use of time and the least amount of disruption.

Ms. Whitaker responded that Rivanna staff was in discussions with UVA Foundation, and the immediate focus was Birdwood. She stated that as part of that conversation, Rivanna extended the topics and provided UVA Foundation with maps so they could contemplate what did and did not fit into their plans.

Mr. Mawyer commented that Rivanna would like to take the path of least resistance, with large tracts owned by fewer owners – particularly government owners, the School Board, UVA, or the UVA Foundation – being more attractive places to go than the middle of the street or someone's private property.

Mr. O'Connell noted that these were all choices and alternatives, but ultimately there would be a single route, and the map provided by Rivanna gives the impression that it would be everywhere.

Ms. Galvin agreed that it was important for the public to understand that the map represented multiple options at once.

Ms. Whitaker responded that it didn't show in the mapping very well, but the idea was to provide a single route from the South Rivanna Reservoir to the Ragged Mountain Reservoir – a single pipeline, three feet in diameter, nine miles long, buried at a minimum of four feet deep to the top of the pipe, meaning a total depth of seven to eight feet when considering the pipe depth. She emphasized that the idea was to achieve a single route through the entire corridor, and based on the conversation to date there were some fairly obvious route choices to the north and south – but the questions come with the middle ground.

Mr. O'Connell pointed out that the map shows 12-15 options and they needed to get to 1.

Ms. Whitaker confirmed this.

Mr. O'Connell asked how much of the west end as shown was University property, noting the piece from Ragged Mountain and the pathway across the golf course?

Ms. Whitaker explained that Birdwood was bordered by Foxhaven Farm, which was at a turn point as shown, and the area used for dam construction was just south of the line and was also Foundation property. She stated that the Foundation owned a good chunk of property along Reservoir Road, and as they proceeded north of Ivy Road, the Foundation owned about four or five parcels near St. Anne's Belfield. Ms. Whitaker stated that the immediate conversation was about the golf course, but future discussions would entail siting work for the southern pump station and how the pipeline would get through. She added that UVA Foundation seemed to be a very willing partner to date.

Dr. Palmer asked if it would be helpful to the public if something in the header of the map document stated “alternative routes” or some language to clarify that these were just options.

Ms. Whitaker agreed, stating that the legend references alternative routes.

Ms. Galvin commented that even the dashed lines blur together, and the text says, “alternative route,” singular, not plural, would be helpful.

Ms. Whitaker mentioned that the maps were available in detail on the website and there was also a good description of the whole project, but she would modify the maps to make the information clearer for the public.

Mr. O’Connell asked if the map that went to property owners was just a single page, black and white view.

Mr. Mawyer responded that it was in color.

Ms. Whitaker noted that it was just one line, adding that the maps were intended to help people understand how their properties related to the alignment – with some fairly significant discussions underway with those property owners, particularly around Georgetown Road.

Mr. O’Connell stated that some of those properties were on the original Route 29 Western Bypass route, but he was not clear where they were.

Ms. Whitaker clarified that there was just one parcel, and it was actually a VDOT parcel.

Dr. Palmer commented that those people were under the shadow of the Western Bypass for 37 years and their property values were destroyed.

Ms. Whitaker emphasized that this was an underground pipeline, and the surface impacts would be limited to no permanent construction, with easements intended to be kept open from a vegetative standpoint. She stated that someone had asked her why the map looked so jagged and why the roads weren’t followed exclusively, and she explained that they wanted to follow the property boundaries to minimize impacts on the individual property owners and residual use.

Dr. Palmer asked if there was something in writing to indicate what could be grown on those easements.

Ms. Whitaker responded that they did have a right-of-way policy, and it permitted shrubs as well as small trees only on the outer edges of the easements, with tree growth discouraged for the inner 10 feet on top of the pipeline. She noted that they tried to use species that were less likely to send deep roots towards the pipeline.

Mr. O’Connell asked if two easements were being pursued – one during construction and one permanent – and asked what the widths were.

Ms. Whitaker responded that they were generally planning to use a 40-foot-wide permanent easement, and depending on the geometry of the lot and what was adjacent nearby, there would be an additional 10 feet on each side.

Dr. Palmer commented that since they widened Rio Road, there were some houses within 60 feet of the road and probably closer.

Ms. Whitaker stated that Rivanna's conversations with VDOT have focused on minimizing those impacts.

Mr. Mawyer explained that the letters sent to landowners asked for permission to come on the property and do surveying but did not ask them to sell. He stated that they may need a permit or construction easement if the property was partially in VDOT right of way and partially on private property. He mentioned that Georgetown was a logical location but was a narrow road, with traffic conflicts likely in that location in the event of major pipe construction.

5. ITEMS FROM THE PUBLIC

Mr. Gaffney opened the floor to items from the public.

Mr. John Martin of Free Union stated that he had been regularly attending meetings of the Economic Development Authority over the last several years. Mr. Martin stated that the previous week's EDA meeting included Roger Johnson, the new economic development director for Albemarle County, and that meeting included discussion of a June business appreciation function and the associated guest list. Mr. Martin suggested that it would be useful to EDA Board members and the public to have a joint meeting of both Rivanna boards to discuss water and solid waste in one conversation with EDA Board members. He stated that this should include discussions of the capacity of the system, the status of the water supply system, and the status of solid waste management.

Ms. Galvin commented that there was also a Charlottesville Economic Development Authority and other advisory groups.

Mr. Martin stated that he envisioned this to be an informational meeting to help avoid future misconceptions and misunderstandings and to connect people with water and solid waste contacts.

Mr. Ed Guida of Shepherd's Ridge Road addressed the Board and stated that he was a recent County resident and customer of RWSA. Mr. Guida stated that he was an engineer and former project manager for a large corporation, noting that he was present to give a dissenting opinion on the waterline for Ragged Mountain. He stated that this was a very complex project, and from what he has been able to glean, he was not convinced that it was necessary to spend $100 million now on the project. Mr. Guida commented that he was skeptical of the timing of this expense and from the information he has read, he was not certain that all the assumptions that have gone into this were correct. He suggested that Rivanna have an independent expert tear apart the

assumptions underlying the need for the project at this time, which would help determine if all the plans were appropriate.

City resident Dede Smith addressed the Board and stated that she would appreciate a discussion of the role of the South Fork Rivanna Reservoir now that Ragged Mountain is functioning, and how much of urban ratepayer funds would be invested in a reservoir that may no longer be needed. Ms. Smith stated that she would also like them to contemplate any plans or discussions of what would ultimately happen to the South Fork Reservoir, as it would continue to deteriorate. She stated that there was acknowledgement in the Board's reports that the treatment of it actually contributed to its degradation, and it currently served as the raw water source for the South Fork Treatment Plant, so its deteriorating condition was relevant as opposed to a free-flowing river. Ms. Smith emphasized that it was important from a governmental point of view to provide transparency about any conflicts of interest pertaining to ownership of land in and around the reservoir.

6. RESPONSES TO PUBLIC COMMENTS

Mr. Mawyer stated that Mr. Martin had spoken with him prior to the meeting, and Rivanna would be glad to participate in the meetings as suggested.

Ms. Galvin commented that the challenge of making long-range plans involving infrastructure investments was that they had to be considered many years in advance and based on projections of growth, as well as projections of future debt service payments. She stated that elected officials terms were cyclical and ended every four years – but projects sometimes went beyond those terms – so to make any progress in infrastructure investment, there needed to be continuity in planning. Ms. Galvin stated that when commitments were made to begin executing plans, they should be adhered to. She stated that she was concerned about the debt service picture nationally, given recent changes in the tax structure, and the idea of postponing capital investments until later was problematic to her as it could entail higher debt service costs. Ms. Galvin emphasized that they currently have a plan that had been fully researched for years and discussed in the public arena, and they needed to consider that it would only get more expensive to build infrastructure.

Dr. Palmer stated that expecting a completion date in 2035 was certainly not rushing into a project, and a lot could certainly happen between now and then.

7. CONSENT AGENDA

a. Staff Report on Finance

b. Staff Report on Ongoing Projects

c. Staff Report on Operations

d. Engineering Services – South Rivanna Reservoir To Ragged Mountain Reservoir Water Line Right-Of-Way – Birdwood Golf Course Water Main

Mr. O'Connell moved to approve the Consent Agenda as presented. Mr. Richardson seconded the motion, which passed unanimously (6-0). Mr. Jones was absent from the meeting and the vote.

Mr. O'Connell asked staff if in future months, they could address in their financials the monthly report on the wastewater deficit, as they were getting close to the end of the fiscal year.

8. OTHER BUSINESS

a. Strategic Plan Implementation – Katie McIlwee, Communication Manager, Executive Coordinator and Goal Team Leader

Joint Session with Rivanna Solid Waste Authority - the RSWA reconvened its meeting at 3:02 p.m.

Ms. McIlwee reported that in January, Raftelis Consultants brought the goal teams together for implementation workshops, and she provided the Board with a reminder of the goal teams and their leaders. She explained that at the workshops, each goal team reviewed the strategies and identified the two highest priorities, then developed tactics on how to implement those strategies. Ms. McIlwee noted that considerations were the impact of the strategy, the timing, the sequencing, the ease of implementation, and realization that this was just the first year in a five-year strategic plan.

Ms. McIlwee reported that from six goals and 21 total strategies, they developed 78 tactics. She explained that to achieve success, they needed to prioritize doable, short-term tactics that could be built upon and celebrated in the first year as successful. She stated that they also needed to develop structured reporting and accountability for the tactics, foster organizational involvement, and sustain organizational commitment in order to succeed with the goals. Ms. McIlwee referenced the top 12 strategies developed by the goal teams, realizing that there were 21 total, with the focus on those with the highest priorities throughout the first year.

Ms. McIlwee stated that the workforce development team established a strategy to "develop a comprehensive staffing, classification, and compensation plan," and "conduct a training needs assessment and enhance the training program." She explained that some of their tactics were to implement approved pay-grade schedules, develop a master staffing plan, complete a compensation study (which has been completed), and continue an annual review of staffing needs. Ms. McIlwee stated that the group wants to develop a 12-month training calendar, partner with PVCC to develop a leadership training program, and enhance employee development plans. She noted that for all of these tactics, the group has tactic leaders to track the process.

Ms. McIlwee reported that as an example of operational optimization, the group established a strategy to "continually evaluate, prioritize, and improve key businesses and operational processes" and "protect our workforce and the public through continually growing a culture of safety." She mentioned that they had developed tactics to achieve those strategies. Ms. McIlwee stated that communications and collaboration established a strategy to "create and maintain internal communication platforms" and "create and implement a comprehensive public outreach plan."

Ms. McIlwee reported that the next steps were to begin active implementation and most goal teams had already gotten underway, with a more formalized process now being used. She stated that with Raftelis' help, they would establish a digital strategy model that would help track numbers and progress percentages, with a quarterly progress update to be provided to the Board on each tactic.

Dr. Palmer asked what "increase internal environmental engagement" meant.

Ms. Terry explained that they felt because they had so many departments and so many different pieces of environmental stewardship underway, they needed to start internally and ensure that every employee knew what other employees did – and how each department impacted the environment. She stated that in their goal group meeting, they determined that not everyone knew what was happening in other departments, so they felt they needed to educate staff internally.

Dr. Palmer asked if anyone at Rivanna was already coordinating with staff at the County level on the local climate action program that was being expanded.

Ms. Terry asked what staff of the County in particular was working on that.

Mr. Henry stated that it was him and Andy Lowe.

Ms. Terry stated that she coordinated with David Hannah and John Murphy frequently but would be glad to participate in that as well.

Ms. Galvin asked if that was in partnership with the City.

Dr. Palmer stated that it was.

Mr. Henry asked if the goal was to achieve most of these tactics over the next 12 months.

Ms. Terry responded that the tactics initially developed were 12 to 18-month tactics.

Mr. Henry asked if the consultant would help provide a tracking system for how that was measured.

Ms. McIlwee confirmed that they would, stating that they had a program that allowed them to measure how far a tactic was completed, then calculating it into the overall strategy.

Mr. Henry commented that he would be interested in seeing the tracking system. He stated that the Board of Supervisors had many strategic initiatives that were being tracked and he was interested in seeing how the Raftelis consultant was doing this.

Ms. Galvin noted that she was not certain when the City would receive its next strategic plan update, but she would be interested in this information as well.

Mr. Mawyer mentioned that Rivanna would be providing a quarterly updates to the Board of Supervisors and City Council.

Mr. Henry asked if staff could provide the tactics for all strategy areas, particularly the main categories.

Ms. McIlwee stated that she would send them out.

Mr. O'Connell asked if the plan was to revisit the tactics after 12 to 18 months and reset some of them.

Mr. Maywer clarified that this was the first year of a five-year plan, and they would revisit and possibly change items accordingly.

Mr. O'Connell asked if they envisioned any of these as being over the five-year period.

Ms. McIlwee responded that because all the teams were just starting, she wasn't sure if that had been realized – but the teams would continue to meet throughout the five years and may get into one of the tactics and realize it was much more far reaching than originally planned. She stated that this was a continuing, evolving process, so some of the tactics may drop off and others may be added. Ms. McIlwee noted that there was more work to do with the strategies, and there was a lot of crossover among goal teams.

Mr. Gaffney asked when the RWSA and RSWA boards would receive their next updates.

Mr. Mawyer replied that the updates would be given quarterly, with the next update to the Board being in August, and he anticipated written reports in addition to staff's presentations.

The Rivanna Solid Waste Authority Board adjourned its meeting at 3:18 p.m.

a. Presentation of Phase 2 - RWSA Reservoir Water Quality Management Study – Andrea Terry, Water Resources Manager and Kelly Dinatale, DiNatale Water Consultants

Ms. Terry reported that Rivanna had issued a request for proposals in 2014 for reservoir management services, with the goals of getting advice and direction on how they should be monitoring reservoirs for raw water quality inside the reservoirs, learning more about them with whatever sampling program was implemented, and considering other alternatives to treating reservoirs for algae blooms other than using chemical application.

She explained that Rivanna hired DiNatale Water Consultants, which did a Phase 1 study that was completed in 2016. She stated that at that time, the RWSA Board requested a more user-friendly public document that talked about each of the reservoirs. Ms. Terry noted that this was a very helpful document because it showed that each reservoir had its own unique characteristics. Ms. Terry reported that after Phase 1, the consultant was able to determine that there was sediment and nutrients coming in – as well as some internal loading – and some additional

studies were needed. She stated that Kelly DiNatale was present at the meeting and would discuss the results of the Phase 2 study.

Mr. Kelly DiNatale addressed the Board and stated that it was important for them to understand how the reservoirs worked as a foundation for understanding the recommended management methods. He explained that Rivanna had five reservoirs that all behaved differently but did have some common characteristics. Mr. DiNatale stated that in springtime, nutrients were coming in from streams and groundwater, and as the water comes in it is warmed by sunlight, with nutrients feeding algae growth, and the natural cycle meant that algae would die, sink, and decompose. He explained that in summertime the algae growth continued as the water started getting warmer, the top water started warming up but the bottom stayed cold, causing a thermocline – a temperature barrier that prevented the transfer of oxygen from the surface down to the bottom.

Mr. DiNatale stated there was algae growth continuing, thermocline setting up, and algae decomposition happening that consumed oxygen. He noted that if there was no oxygen in the bottom of the reservoirs, nutrients were also released out of the bottom sediments, which was part of the natural eutrophication cycle. Mr. DiNatale stated that there was no oxygen in the colder water, so fish were forced to come up to warmer, shallower waters. He stated that nutrients were still coming in during the fall, but when the top water became cooler than the bottom water, it sank and caused a mixing. Mr. DiNatale stated that the water during the summertime released nutrients such as iron, manganese, nitrogen, and phosphorous, and that water came up to the surface, leading to algae blooms in the fall and nutrients available for the next spring growth cycle.

Mr. DiNatale presented a photo showing Rivanna staff, stating that the staff had been incredible to work with – and their performing the work saved well over $300,000, doing sampling as well as laboratory analysis. He referenced a piece of equipment shown in the photo, an instrument known as a Kemmerer Tube, stating that it could be dropped down at various water levels and noting that the stopper allowed them to physically bring up water from other depths. Mr. DiNatale stated that a sonde allowed them to measure temperature, dissolved oxygen, nutrients and chlorophyll A, and these were valuable tools now located on Rivanna's sampling boat.

Mr. DiNatale reported that they detected a lot of nutrients in Beaver Creek and wanted to determine whether they were coming from internal or external sources. He stated that they knew a lot were coming externally and wanted to pinpoint them within the watershed. Mr. DiNatale noted that there were some horse properties and orchards in the area, and they wanted to implement best management practices where possible. He stated that they divided the watershed up into 10 sub-basins, and Rivanna staff took samples at both high and low flow times, then analyzed them to determine where the nutrients were coming from. Mr. DiNatale stated that their findings were that nutrients were coming from everywhere in the watershed, and they would need to take a lot of nitrogen out of the creeks – whether raining or dry flow – and take out a lot of phosphorous in the creeks during storms and a little bit in dry weather. He noted that they had a lot of nutrients coming from this watershed, and watershed loadings were difficult to deal with.

Mr. DiNatale stated that they also looked at Totier Creek and studied its watershed soils, as well as visiting the watershed in some of the basins and taking soil samples. He noted that the hatched

areas shown were known as group D soils, which were very prone to erosion during high flows and were very rich in clay. He noted that storms eroded the clay, and once it washed into the creek, the creek ran clear a few days later. Mr. DiNatale stated that clay was made up of very fine particles and once it flowed into the reservoir, it remained suspended there. Mr. DiNatale stated that Totier Creek was turbid because of the clay, which was not a water quality hazard, and he presented a picture of some of the soils in the watershed.

Dr. Palmer asked how the presence of clay affected fish and aquatic life.

Mr. DiNatale responded that it did not really affect fish except for cold-water fish such as trout, which are not found in Totier Creek. He stated that one side benefit of clay was that it limited light penetration, which meant algae may not grow quite as deep, but it was a water treatment challenge. Mr. DiNatale commented that Rivanna had good water treatment and done a very good job of treating water at Totier Creek.

Dr. Palmer asked if water was being taken out of the Totier Creek rather than the reservoir.

Mr. DiNatale responded that they were, adding that the creek cleared up very quickly – so they preferred the creek but also ensured that they could treat water taken from the reservoir. He added that the reservoir was a backup in the event of an extreme drought with the creek not having any flow.

Dr. Palmer asked if the clay was the biggest issue.

Mr. DiNatale responded that there were issues of algae and potential taste and odor issues, and the entire region and state were very nutrient rich. He presented a picture of a slope with some erosion, noting that even with muddy banks, the creek can run fairly clear. Mr. DiNatale noted that post-storm, the reservoir remained muddy with lots of clay suspended, and that took a while to settle out.

Mr. DiNatale reported that they had surveyed some other utilities to determine how they managed their reservoirs, looking at five reservoirs in Virginia and a few out of state. He stated that they surveyed the City of Norfolk, Fairfax, Newport News, Culpeper, and western Virginia, as well as Denver, CO water, the City of Thornton, and American Water – and all were experiencing similar water quality challenges. Mr. DiNatale stated that his team asked what management methods were in use or planned, and out of eight utilities, seven were using algecide – but they were using this as a backup now instead of the primary method.

Mr. DiNatale stated that several were using hypo-limnetic aeration oxygenation, a method that introduced oxygen below the thermocline without breaking the thermal barrier; or aeration destratification mixing, which tried to mix the entire reservoir and was generally used with shallower reservoirs. He noted that one utility used phosphorous inactivation, accomplished by applying alum, the same chemical used in water treatment plants – which bonds phosphorous in sediments and prevents them from coming out. Mr. DiNatale stated that in terms of performance evaluation the utility's rated, algecides had a rating from 10 to 1, with an average of 5. He stated

that hypo-limnetic aeration oxygenation was rated 7 to 9 consistently; aeration destratification mixing received a slightly lower average rating.

Mr. DiNatale reported that Rivanna had current challenges with its reservoirs that were not unique and were typical of the majority of utilities throughout the country. He stated that blue-green algae blooms stimulated by excessive nutrients could cause taste and odor issues; some blue-green algae can produce toxins that cause animal and human health problems, but Rivanna was effective in its management such that there have only been a few minor detections in raw water supply and never anything in the treated water supply. He stated that they had anoxic bottom waters and nutrients in iron and manganese releases. Mr. DiNatale noted that excessive algae could lead to filter clogging, but Rivanna was doing a good job at managing that so it was not a problem at the moment.

Mr. DiNatale stated that there could be impacts to recreation and fisheries, and algae could affect shoreline and on-lake recreation, with low-dissolved oxygen occurring when algae died, possibly leading to fish kills. He stated Rivanna had experienced one year with about $95,000 annual costs, with the past several years averaging $70,000. He noted that there has been some concern among scientists and utilities that a buildup over time could make algae resistant to copper and so it could accumulate in reservoir sediments.

Mr. DiNatale reported that his team's recommendations for an adaptive management approach would be to first try to improve the internal health of the reservoirs, evaluate the feasibility of watershed loads, and try to reduce reliance on algecide treatments as a primary management method – as it could disrupt the natural food chain, did impact the ability of zooplankton grazers to help control algae. He presented a graphic of the cycle of algae, zooplankton – which eat algae, small fish that eat the zooplankton, and larger fish that eat the smaller fish. Mr. DiNatale emphasized that algecide disrupts that natural cycle and should be used as a last resort.

Mr. DiNatale presented a schematic of Beaver Creek Reservoir, stating that the way it was currently functioning meant that if it was full, there was a surface overflow – and you cannot separate out the water going to the water treatment plant from the surface overflow. He stated that if algae was growing in the top waters, it could not be prevented from going to the water treatment plant, posing a challenge to plant operators. Mr. DiNatale stated that his team's recommendations for Beaver Creek were to install a new outlet structure that would allow water plant operators to select the highest quality water, install a hypo-limnetic oxygenation system to introduce oxygen to the bottom areas, and continue investigating measures to reduce nutrients to the inflows – acknowledging that there is no "smoking gun" up in the watershed. He noted that their focus was to adjust nutrients entering at the inlet channels to the reservoir, and to look at potentially enhanced wetlands, which would be a significant challenge.

Dr. Palmer asked if they were able to determine the quantity of elements causing the problems, as the County was soon to implement its new storm water program and considering measures in the rural areas – such as dealing with septic systems.

Mr. DiNatale responded that he did have some specific considerations in that regard, such as targeting phosphorous reductions at Beaver Creek and determining where they were coming

from during dry flow. He noted this would likely reflect differently between septic systems versus storm flows that washed nutrients from pasture land.

Dr. Palmer noted that the County was considering small watershed restoration, and it would be interesting for staff to know where those areas were.

Mr. DiNatale presented an image of Beaver Creek looking down at the reservoir, noting the Watts Creek and Beaver Creek streams and the location of Crozet's watershed. He stated that future intake considered was on the south bank of Beaver Creek Reservoir and they were considering an oxygen diffuser line in the reservoir, evaluating potential wetlands treatment at the two streams coming in. Mr. DiNatale commented that they were recommending doing a feasibility study for that, as there could be challenges in terms of private land, very high flows during storms, access, etc. He presented a picture of a hypo-limnetic oxygen diffuser system, stating that it was floating out and then sinking a diffuser line from the shoreline– either generating oxygen or having it trucked in, with an estimated cost for Beaver Creek of about $1 million installed.

Mr. O'Connell asked it functioned as a big blower pushing oxygen.

Mr. DiNatale responded that it was not like an air compressor, so the system bringing it in was much smaller because pure oxygen was being used and they were not having to compress air. He stated that operating costs were significantly less than if they were using a conventional aeration system.

Dr. Palmer asked how that affected recreation.

Mr. DiNatale responded that it would not affect it at all and would help the fisheries, and hopefully it would reduce surface blooms. He stated that for Beaver Creek, it would allow the water treatment plant to divert higher quality, colder, algae-free water from below the thermocline to the water treatment plant. Mr. DiNatale added that there would just be a few small bubbles along the diffuser line, stating that the tube was filled with water and sunk down, and the system could be floated up to the surface if air were blown into it. He noted that four of the utilities surveyed were using this system.

Mr. DiNatale reported that in terms of South Fork Rivanna, the strategy was to first put in the Beaver Creek system and see how it worked, looking at operational issues, costs, and other issues – as well as benefits. He stated that they would also investigate treating inflows with enhanced wetlands, with high stream flows in the South Fork sometimes completely replacing the entire volume of the reservoir in a matter of days. He stated that they were considering a possible oxygen diffuser line, and the oxygen would travel upstream if the system was turned on early enough. Mr. DiNatale added that they would also look at treating wetlands in the area where sediment had built up.

Mr. DiNatale stated that even though Ragged Mountain had been enlarged, the hypolimnion was going anoxic and was anoxic every year, so they were recommending putting in a hypo-limnetic system – but it wouldn't have to be done right away. He stated that there wasn't much that could

be done cost effectively at Totier currently, given the extent of the clay soils within the watershed, so he would recommend continued current operations with the direct creek withdrawal, using the reservoir as a backup but maintaining the ability to treat the high turbidity water with the treatment plant.

Mr. DiNatale acknowledged Rivanna staff for their work.

b. Hybrid GAC System Review – Bill Mawyer, Executive Director and Dave Tungate, Director of Operations

Mr. Mawyer provided an overview of how the granular activated carbon system worked, stating that there is a GAC facility at each of the five water treatment plants. There are eight contactors at the Rivanna WTP, collectively holding about 320K pounds of GAC material. He stated that they can treat about eight million gallons per day going through Rivanna, two million gallons per day at Observatory, one million at North Rivanna, a quarter-million at Scottsville, and one million at Crozet.

Dr. Palmer asked if they would expand those at Observatory as they expanded the water treatment plant there.

Mr. Mawyer responded that there currently was not a plan to expand, but they could make room. He stated that they would need to discuss it further.

Mr. Mawyer provided the history of the GAC system, noting that it had been selected and approved by a four-party agreement in 2012; and the Rivanna Board approved a GAC hybrid design when offered a choice of 100% of water getting treated all of the time versus a hybrid where most of the water got treated but not necessarily all of it. He stated that the Board approved the hybrid design in 2013 and began construction in 2015, to be completed this month at a cost of $24 million for the three urban water treatment plants and $29 million overall.

Mr. Tungate reported that they first began discussing use of GAC in May of 2012, and now they would be using the equipment to implement the system. He explained that they completed a performance-based analysis of various granular-activated carbon products, going to various vendors and requesting ideas for what they think would work best. Mr. Tungate stated that Rivanna did a third-party analysis and chose two vendors out of that process, with their products being dramatically better than what others offered.

Mr. Tungate stated that Rivanna would balance the water treatment plan production to use 100% of water through the GAC vessels in the urban plants, and would monitor how the carbon reacted and how it was exhausted, balancing it with their replacement plan – which was an evolving process. He stated that they were still using a powder-activated carbon product at all water treatment plants to make the water cleaner as it went into the GAC contactors, to extend the life of the GAC in the contactors.

Mr. O'Connell asked if the strategy was different in the two rural plants – Scottsville and Crozet.

Mr. Tungate responded that it was not, stating that they would treat 100% of the water there with GAC.

Ms. Hildebrand asked how long the GAC lasted and if it varied among the different plants.

Mr. Tungate responded that it would vary and they would know more once they had more field conditions experience.

Mr. O'Connell recalled during their original considerations that the GAC would need to be replaced after six to eight months.

Mr. Mawyer confirmed this, stating that they had chosen a laboratory test to help choose a product that would be most effective and now would get real life experience in Rivanna's contactors and monitor how well they react. He stated that GAC acted as a filter and they would see how long it took to get dirty, then replace it. Mr. Mawyer stated that as long as they were treating less than 8 million gallons at South Rivanna, 2 million at Observatory, and 1 million at North Rivanna, it would be 100% GAC treated water in the Urban System. He noted that it was a day-to-day matter that would go into the operational strategy for water supply, with the goal of saving as much water at Ragged Mountain as possible by using South Rivanna – but they would need to balance that with the desire to use GAC as much as possible, given the 8 million threshold. Mr. Mawyer added that they would come back with recommendations as to when GAC should be replaced and how it should be balanced with the three urban facilities, as well as whether they should increase the scope of Observatory improvements to add GAC.

Mr. Gaffney asked for clarification as to why GAC didn't need to be used as much as Observatory.

Mr. Tungate explained that when they chose two contactors at Observatory, it was more reflective of the production they were putting through Observatory at the time.

Mr. Mawyer stated that if South Rivanna had more turbidity, they may want to use Observatory Plant more to reduce treatment costs – but that would mean using more water out of Ragged and having to balance it with GAC use.

Dr. Palmer commented that there was likely plenty of room at Crozet to add another tank and increase that level to 2 MGD.

Mr. Mawyer responded that it would likely be later, noting that the current plans did not have another GAC vessel included and stating that a capacity of 1 MGD with average daily use of 400 - 500,000 gallons made it likely that they would only exceed capacity on peak days. He stated that they were also evaluating whether organic levels and disinfection byproducts were being created throughout the system, and Rivanna would make treatment adjustments as needed.

Ms. Galvin commented that it was hard to believe that GAC was just a policy decision six years ago, and she asked whether the cost estimates had changed a lot over that time.

Ms. Whitaker explained that the recession had an impact on materials prices, and Rivanna bid the project at an advantageous time.

Dr. Palmer stated that Rivanna had bid the project at $18 million and was criticized at the time for over-estimating it.

Ms. Galvin stated that it was an historic moment with all four bodies in agreement, and she applauded the community for advocating for a less chemical approach.

9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

There were no other items presented.

10. CLOSED MEETING

There was no closed meeting held.

11. ***ADJOURNMENT***

Dr. Palmer moved to adjourn the meeting. Ms. Galvin seconded the motion, which passed unanimously (6-0). Mr. Jones was absent from the meeting and the vote.

The RWSA Board adjourned the meeting at 3:54 p.m.

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 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: **MAY 22, 2018**

Recognitions

SP GOAL: Workforce Development

The professional qualifications of our staff continue to improve and enhance our services. The following employees have successfully completed the requirements for a higher level Waterworks Operating license:

- Water
  - Matt Bussell – Class 1
  - Ted Spangler – Class 2
  - Chris Weigel – Class 3

- Wastewater
  - Steven Minnis, Jr. – Class 2
  - Duane Houchens – Class 4

Water Supply

SP GOAL: Operational Optimization

- Our reservoir storage reached 100% of capacity, and water transfer from Sugar Hollow Reservoir to Ragged Mountain Reservoir was also terminated, on May 17, 2018. All of our five reservoirs are full.

- Our Middle James region of Central Virginia continues to be in a Drought Watch Advisory status from the State.

- Determination of the SRR – RMR water alignment continues. Our consultants will begin fieldwork this week. We plan to have a Community Meeting on June 19, 5:30 pm, in Albemarle High School.

- Crozet Drinking Water Infrastructure Project: We will provide an update on the project to the Crozet Community Advisory Committee on June 20, 7 pm, in the Crozet Library.

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

MEMORANDUM

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

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

SUBJECT: **APRIL MONTHLY FINANCIAL SUMMARY – FY 2018**

DATE: **MAY 22, 2018**

Urban Water flows and rate revenues are 5% under budget estimates for the first ten months of this fiscal year, and Urban Wastewater rate revenues are 11% under budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 5,466,944	$ 5,418,267	$ 1,707,661	$ 12,592,872
Expenses	(5,483,156)	(6,349,652)	(1,629,245)	(13,462,053)
Surplus (deficit)	$ (16,212)	$ (931,385)	$ 78,416	$ (869,181)
Debt Service				
Revenues	$ 4,734,917	$ 6,897,621	$ 701,311	$ 12,333,849
Expenses	(4,685,067)	(6,884,531)	(701,650)	(12,271,248)
Surplus (deficit)	$ 49,850	$ 13,090	$ (339)	$ 62,601
Total				
Revenues	$ 10,201,861	$ 12,315,888	$ 2,408,972	$ 24,926,721
Expenses	(10,168,223)	(13,234,183)	(2,330,895)	(25,733,301)
Surplus (deficit)	$ 33,638	$ (918,295)	$ 78,077	$ (806,580)

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

A. Personnel Costs (Administration, Lab – pages 8, 10) – The GIS coordinator's payroll costs were included in the Engineering department's budget, but that position was moved to the Administration department in April, causing a budget overage for Administration. Lab salaries are over budget due to the August 2017 payment of accumulated leave balances to the lab manager upon his retirement, and due to overlapping salaries in July for the former lab manager and his replacement.

B. Other Services & Charges (Scottsville Water, Urban Wastewater, Administration, Maintenance, Engineering - pages 4, 5, 8, 9, 11) - Urban Wastewater is $206,000 over budget on odor control costs for Crozet Interceptor/Pump Stations, and Utility costs are $170,000 higher than budget estimates. Scottsville Water's Utility costs are also exceeding budgeted estimates, and the Maintenance department made some unbudgeted purchases of needed safety supplies. The Administration department is over budget on strategic planning costs. The Engineering department made the final quarterly payment to ACSA for this year's water and sewer modeling services in April. The total paid this year is just $2,400 more than budgeted for FY 2018, but ACSA's final quarterly billing of $8,400 for FY 2017 services was posted in July and included in this fiscal year's report.

C. Equipment Purchases (Crozet Water, Scottsville Wastewater – pages 3, 7) – Crozet Water and Scottsville Wastewater made some unbudgeted purchases of needed equipment .

D. Professional Services (Urban Water, Crozet Water, Administration – pages 2, 3, 8) – Urban Water is $145,000 over the total budget for the year for professional services, $49,000 for legal fees related to the Observatory plant lease and $96,000 for engineering and technical services. Crozet Water has spent $57,000 on unbudgeted engineering and technical services. Administration is currently $19,500 over the prorated budget for professional services, but is within the annual budget.

E. Operations and Maintenance (Urban Water, Crozet Water, Urban Wastewater, Administration, Maintenance, Lab – pages 2, 3, 5, 8, 9, 10) – Urban Water is over budget in this category due to recent purchases of GAC chemicals. Crozet Water spent $25,000 in March on an urgent repair to the Crozet water main on Three Notch'd Road. Urban Wastewater is $134,000 over the prorated budget for Pipelines and Appurtenances due to emergency repairs. Urban Wastewater is also over budget on chemical purchases and repairs and maintenance. The Administration, Maintenance, and Lab departments are over budget on repairs.

Attached to this memo is an analysis of the Urban Wastewater Deficit for discussion. Additionally, the memo presented at the October 2017 Board meeting concerning year end results is attached to point out information on how deficits and surpluses are managed and the reserve balances. I would be glad to go over this information at the board meeting if there are any questions.

Attachments

Rivanna Water & Sewer Authority
Urban Wastewater Deficit Analysis:

Deficit as of April 30, 2018	*$ 918,295*	
Flows are under budget by 9.3%	$ 520,137	Dry summer and fall of 2017 flows are 266,600,000 gallons below budgeted amounts
Metering errors in July and August	$ 100,000	Recycle meter was over reporting causing billed flow to be under reported
Utility Budget overrun	$ 45,000	Budgeted $750,000 (12 months) vs actual of 794,963 (10 months) New PS, new odor control systems, rate schedule may be in error
Odor control overrun - Crozet Interceptor	$ 116,500	Budgeted $207,000 (annual) vs actual of $323,500 (10 months)
Pipeline - line items overruns	$ 122,142	Several stream bank restorations: Aug: $20,660 Moores Creek Interceptor repair at 5th St. Oct: $116,409 Stream Bank Restoration & repair-Rivanna Int. Dec: $45,266 to Morey Creek Aerial Crossing
Total items identified	**$ 903,779**	

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

Consolidated
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 15,403,127	$ 12,835,939	$ 11,940,660	$ (895,279)	-6.97%
Lease Revenue		64,000	53,333	80,199	26,866	50.37%
Admin., Maint. & Engineering Revenue		410,000	341,667	366,539	24,872	7.28%
Other Revenues		534,630	445,525	457,996	12,471	2.80%
Use of Watershed Management Funds		80,000	66,667	87,047	20,380	30.57%
Interest Allocation		15,000	12,500	26,971	14,471	115.77%
Total Operating Revenues		**$ 16,506,757**	**$ 13,755,631**	**$ 12,959,412**	**$ (796,219)**	**-5.79%**
Expenses						
Personnel Cost	**A**	$ 7,841,522	$ 6,385,966	$ 6,081,144	$ 304,821	4.77%
Professional Services	**D**	590,350	491,958	614,267	(122,308)	-24.86%
Other Services & Charges	**B**	2,552,662	2,127,218	2,383,722	(256,504)	-12.06%
Communications		142,605	118,838	116,964	1,873	1.58%
Information Technology		324,400	270,333	183,621	86,712	32.08%
Supplies		44,970	37,475	33,837	3,638	9.71%
Operations & Maintenance	**E**	3,613,450	3,011,208	3,257,426	(246,218)	-8.18%
Equipment Purchases	**C**	336,300	280,250	273,860	6,390	2.28%
Depreciation		788,000	656,667	656,667	(0)	0.00%
Reserve Transfers		272,500	227,083	227,083	0	0.00%
Total Operating Expenses		**$ 16,506,759**	**$ 13,606,996**	**$ 13,828,592**	**$ (221,595)**	**-1.63%**
Operating Surplus/(Deficit)		**$ (2)**	**$ 148,634**	**$ (869,180)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 13,561,158	$ 11,300,965	$ 11,300,970	$ 5	0.00%
Use of Reserves for 2016 Bond DS		600,000	500,000	500,000	-	0.00%
Septage Receiving Support - County		109,440	91,200	109,441	18,241	20.00%
Buck Mountain Surcharge		84,000	70,000	123,100	53,100	75.86%
Buck Mountain Lease Revenue		1,600	1,333	1,309	(25)	-1.85%
Trust Fund Interest		46,400	38,667	29,947	(8,720)	-22.55%
Reserve Fund Interest		100,500	83,750	269,082	185,332	221.29%
Total Debt Service Revenues		**$ 14,503,098**	**$ 12,085,915**	**$ 12,333,849**	**$ 247,934**	**2.05%**
Debt Service Costs						
Total Principal & Interest		$ 12,370,200	$ 10,308,500	$ 10,308,500	$ -	0.00%
Reserve Additions-Interest		100,500	83,750	269,082	(185,332)	-221.29%
Debt Service Ratio Charge		725,000	604,167	604,167	-	0.00%
Reserve Additions-CIP Growth		1,307,400	1,089,500	1,089,500	-	0.00%
Total Debt Service Costs		**$ 14,503,100**	**$ 12,085,917**	**$ 12,271,249**	**$ (185,332)**	**-1.53%**
Debt Service Surplus/(Deficit)		**$ (2)**	**$ (2)**	**$ 62,600**		

Summary

Total Revenues	$ 31,009,855	$ 25,841,546	$ 25,293,261	$ (548,285)	-2.12%
Total Expenses	31,009,859	25,692,913	26,099,841	(406,928)	-1.58%
Surplus/(Deficit)	**$ (4)**	**$ 148,633**	**$ (806,580)**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Urban Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 6,758,077	$ 5,631,731	$ 5,355,436	$ (276,295)	-4.91%
Lease Revenue		35,000	29,167	56,661	27,494	94.27%
Miscellaneous		7,000	5,833	-	(5,833)	-100.00%
Use of Reserves		40,000	33,333	43,524	10,190	30.57%
Interest Allocation		6,300	5,250	11,324	6,074	115.69%
Total Operating Revenues		**$ 6,846,377**	**$ 5,705,314**	**$ 5,466,944**	**$ (238,370)**	**-4.18%**
Expenses						
Personnel Cost		$ 1,828,852	$ 1,490,963	$ 1,423,182	$ 67,781	4.55%
Professional Services	D	142,450	118,708	287,479	(168,771)	-142.17%
Other Services & Charges		606,100	505,083	353,670	151,413	29.98%
Communications		64,690	53,908	53,425	483	0.90%
Information Technology		65,300	54,417	24,251	30,166	55.43%
Supplies		7,000	5,833	5,852	(18)	-0.32%
Operations & Maintenance	E	1,522,660	1,268,883	1,308,095	(39,212)	-3.09%
Equipment Purchases		106,500	88,750	59,101	29,650	33.41%
Depreciation		260,000	216,667	216,667	(0)	0.00%
Reserve Transfers		250,000	208,333	208,333	0	0.00%
Subtotal Before Allocations		$ 4,853,552	$ 4,011,547	$ 3,940,055	$ 71,492	1.78%
Allocation of Support Departments		1,992,824	1,627,121	1,543,101	84,020	5.16%
Total Operating Expenses		**$ 6,846,377**	**$ 5,638,667**	**$ 5,483,156**	**$ 155,511**	**2.76%**
Operating Surplus/(Deficit)		**$ 0**	**$ 66,647**	**$ (16,212)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 5,345,730	$ 4,454,775	$ 4,454,780	$ 5	0.00%
Trust Fund Interest		18,000	15,000	11,769	(3,231)	-21.54%
Reserve Fund Interest		18,000	15,000	143,959	128,959	859.73%
Buck Mountain Surcharge		84,000	70,000	123,100	53,100	75.86%
Lease Revenue		1,600	1,333	1,309	(25)	-1.85%
Total Debt Service Revenues		**$ 5,467,330**	**$ 4,556,108**	**$ 4,734,917**	**$ 178,808**	**3.92%**
Debt Service Costs						
Total Principal & Interest		$ 4,242,130	$ 3,535,108	$ 3,535,108	$ -	0.00%
Reserve Additions-Interest		18,000	15,000	143,959	(128,959)	-859.73%
Debt Service Ratio Charge		400,000	333,333	333,333	-	0.00%
Reserve Additions-CIP Growth		807,200	672,667	672,667	-	0.00%
Total Debt Service Costs		**$ 5,467,330**	**$ 4,556,108**	**$ 4,685,067**	**$ (128,959)**	**-2.83%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 49,850**		
Rate Center Summary						
Total Revenues		$ 12,313,707	$ 10,261,423	$ 10,201,861	$ (59,562)	-0.58%
Total Expenses		12,313,707	10,194,775	10,168,223	26,552	0.26%
Surplus/(Deficit)		**$ 0**	**$ 66,647**	**$ 33,638**		
Costs per 1000 Gallons		1.99		2.02		
Thousand Gallons Treated		3,432,018	2,860,015	2,719,876	(140,139)	-4.90%
or						
Flow (MGD)		9.403		8.918		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Crozet Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 915,336	$ 762,780	$ 762,780	$ -	0.00%
Lease Revenues		29,000	24,167	23,538	(629)	-2.60%
Use of Reserves		24,000	20,000	29,229	9,229	46.15%
Interest Allocation		900	750	1,701	951	126.80%
Total Operating Revenues		**$ 969,236**	**$ 807,697**	**$ 817,249**	**$ 9,552**	**1.18%**
Expenses						
Personnel Cost		$ 289,212	$ 235,834	$ 223,527	$ 12,307	5.22%
Professional Services	**D**	47,000	39,167	104,081	(64,914)	-165.74%
Other Services & Charges		121,480	101,233	87,576	13,657	13.49%
Communications		4,230	3,525	4,042	(517)	-14.67%
Information Technology		14,200	11,833	509	11,324	95.70%
Supplies		670	558	739	(180)	-32.27%
Operations & Maintenance	**E**	233,630	194,692	205,718	(11,026)	-5.66%
Equipment Purchases	**C**	26,400	22,000	33,955	(11,955)	-54.34%
Depreciation		25,000	20,833	20,833	0	0.00%
Reserve Transfers		20,000	16,667	16,667	(0)	0.00%
Subtotal Before Allocations		$ 781,822	$ 646,342	$ 697,647	$ (51,304)	-7.94%
Allocation of Support Departments		187,417	153,024	145,884	7,140	4.67%
Total Operating Expenses		**$ 969,238**	**$ 799,366**	**$ 843,531**	**$ (44,164)**	**-5.52%**
Operating Surplus/(Deficit)		**$ (2)**	**$ 8,330**	**$ (26,282)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 691,476	$ 576,230	$ 576,230	$ -	0.00%
Trust Fund Interest		1,800	1,500	1,138	(362)	-24.13%
Reserve Fund Interest		2,700	2,250	4,036	1,786	79.39%
Total Debt Service Revenues		**$ 695,976**	**$ 579,980**	**$ 581,404**	**$ 1,424**	**0.25%**
Debt Service Costs						
Total Principal & Interest		$ 426,977	$ 355,814	$ 355,814	$ -	0.00%
Reserve Additions-Interest		2,700	2,250	4,036	(1,786)	-79.39%
Reserve Additions-CIP Growth		266,300	221,917	221,917	-	0.00%
Total Debt Service Costs		**$ 695,977**	**$ 579,981**	**$ 581,767**	**$ (1,786)**	**-0.31%**
Debt Service Surplus/(Deficit)		**$ (1)**	**$ (1)**	**$ (363)**		
Rate Center Summary						
Total Revenues		$ 1,665,212	$ 1,387,677	$ 1,398,653	$ 10,976	0.79%
Total Expenses		1,665,215	1,379,347	1,425,298	(45,951)	-3.33%
Surplus/(Deficit)		**$ (3)**	**$ 8,329**	**$ (26,645)**		
Costs per 1000 Gallons		5.31		5.27		
Thousand Gallons Treated		182,610	152,175	159,947	7,772	5.11%
Flow (MGD)		0.500		0.524		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Scottsville Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 412,236	$ 343,530	$ 343,530	$ -	0.00%
Use of Reserves		16,000	13,333	14,294	961	
Interest Allocation		400	333	704	371	111.28%
Total Operating Revenues		**$ 428,636**	**$ 357,197**	**$ 358,528**	**$ 1,332**	**0.37%**
Expenses						
Personnel Cost		$ 154,467	$ 125,987	$ 117,726	$ 8,261	6.56%
Professional Services		26,000	21,667	17,503	4,164	19.22%
Other Services & Charges	B	19,490	16,242	22,469	(6,227)	-38.34%
Communications		3,210	2,675	2,885	(210)	-7.84%
Information Technology		7,000	5,833	1,131	4,702	80.61%
Supplies		750	625	75	550	88.01%
Operations & Maintenance		66,570	55,475	48,960	6,515	11.74%
Equipment Purchases		14,400	12,000	2,081	9,919	82.66%
Depreciation		17,000	14,167	14,167	(0)	0.00%
Reserve Transfers		2,500	2,083	2,083	0	0.00%
Subtotal Before Allocations		$ 311,387	$ 256,754	$ 229,079	$ 27,674	10.78%
Allocation of Support Departments		117,247	95,747	91,938	3,809	3.98%
Total Operating Expenses		**$ 428,634**	**$ 352,501**	**$ 321,017**	**$ 31,484**	**8.93%**
Operating Surplus/(Deficit)		**$ 2**	**$ 4,696**	**$ 37,511**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 129,448	$ 107,873	$ 107,870	$ (3)	0.00%
Trust Fund Interest		400	333	329	(4)	-1.17%
Reserve Fund Interest		1,500	1,250	2,153	903	72.21%
Total Debt Service Revenues		**$ 131,348**	**$ 109,457**	**$ 110,352**	**$ 895**	**0.82%**
Debt Service Costs						
Total Principal & Interest		$ 129,848	$ 108,207	$ 108,207	$ -	0.00%
Reserve Additions-Interest		1,500	1,250	2,153	(903)	
Reserve Additions-CIP Growth		-	-	-	-	
Total Debt Service Costs		**$ 131,348**	**$ 109,457**	**$ 110,359**	**$ (903)**	**-0.82%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ (7)**		
Rate Center Summary						
Total Revenues		$ 559,984	$ 466,653	$ 468,880	$ 2,227	0.48%
Total Expenses		559,982	461,957	431,376	30,581	6.62%
Surplus/(Deficit)		**$ 2**	**$ 4,696**	**$ 37,504**		
Costs per 1000 Gallons		22.39		23.58		
Thousand Gallons Treated		19,143	15,953	13,613	(2,340)	-14.67%
or						
Flow (MGD)		0.052		0.045		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Urban Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 6,680,446	$ 5,567,038	$ 4,948,054	$ (618,984)	-11.12%
Stone Robinson WWTP		27,630	23,025	17,613	(5,412)	-23.50%
Septage Acceptance		390,000	325,000	352,605	27,605	8.49%
Nutrient Credits		100,000	83,333	87,105	3,772	4.53%
Miscellaneous Revenue		10,000	8,333	673	(7,660)	-91.93%
Interest Allocation		6,800	5,667	12,217	6,550	115.60%
Total Operating Revenues		**$ 7,214,876**	**$ 6,012,397**	**$ 5,418,267**	**$ (594,129)**	**-9.88%**
Expenses						
Personnel Cost		$ 1,230,128	$ 1,002,431	$ 892,739	$ 109,692	10.94%
Professional Services		54,000	45,000	15,357	29,643	65.87%
Other Services & Charges	**B**	1,571,400	1,309,500	1,688,422	(378,922)	-28.94%
Communications		10,430	8,692	9,266	(575)	-6.61%
Information Technology		57,300	47,750	43,401	4,349	9.11%
Supplies		2,700	2,250	872	1,378	61.26%
Operations & Maintenance	**E**	1,390,300	1,158,583	1,402,362	(243,779)	-21.04%
Equipment Purchases		54,000	45,000	45,943	(943)	-2.10%
Depreciation		465,000	387,500	387,500	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 4,835,258	$ 4,006,706	$ 4,485,862	$ (479,157)	-11.96%
Allocation of Support Departments		2,379,618	1,942,963	1,863,790	79,173	4.07%
Total Operating Expenses		**$ 7,214,876**	**$ 5,949,669**	**$ 6,349,652**	**$ (399,984)**	**-6.72%**
Operating Surplus/(Deficit)		**$ 0**	**$ 62,728**	**$ (931,385)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 7,384,689	$ 6,153,908	$ 6,153,910	$ 3	0.00%
Use of Reserves for 2016 Bond DS		600,000	500,000	500,000	-	0.00%
Septage Receiving Support - County		109,440	91,200	109,441	18,241	20.00%
Trust Fund Interest		26,200	21,833	16,681	(5,153)	-23.60%
Reserve Fund Interest		77,300	64,417	117,589	53,172	82.54%
Total Debt Service Revenues		**$ 8,197,629**	**$ 6,831,358**	**$ 6,897,620**	**$ 66,263**	**0.97%**
Debt Service Costs						
Total Principal & Interest		$ 7,561,430	$ 6,301,192	$ 6,301,192	$ -	0.00%
Reserve Additions-Interest		77,300	64,417	117,589	(53,172)	-82.54%
Debt Service Ratio Charge		325,000	270,833	270,833	-	0.00%
Reserve Additions-CIP Growth		233,900	194,917	194,917	-	0.00%
Total Debt Service Costs		**$ 8,197,630**	**$ 6,831,358**	**$ 6,884,531**	**$ (53,172)**	**-0.78%**
Debt Service Surplus/(Deficit)		**$ (1)**	**$ (1)**	**$ 13,090**		
Rate Center Summary						
Total Revenues		$ 15,412,505	$ 12,843,754	$ 12,315,888	$ (527,866)	-4.11%
Total Expenses		15,412,506	12,781,027	13,234,183	(453,156)	-3.55%
Surplus/(Deficit)		**$ (1)**	**$ 62,727**	**$ (918,295)**		
Costs per 1000 Gallons		2.11		2.45		
Thousand Gallons Treated		3,424,639	2,853,866	2,587,265	(266,601)	-9.34%
or						
Flow (MGD)		9.383		8.483		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

	Budget FY 2018	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual					
Notes					
Revenues					
Operations Rate Revenue	$ 352,344	$ 293,620	$ 293,620	$ -	0.00%
Interest Allocation	300	250	566	316	126.54%
Total Operating Revenues	**$ 352,644**	**$ 293,870**	**$ 294,186**	**$ 316**	**0.11%**
Expenses					
Personnel Cost	$ 90,823	$ 74,018	$ 65,823	$ 8,195	11.07%
Professional Services	3,000	2,500	-	2,500	
Other Services & Charges	31,490	26,242	27,580	(1,339)	-5.10%
Communications	2,600	2,167	2,658	(491)	-22.67%
Information Technology	3,500	2,917	119	2,798	95.94%
Supplies	100	83	-	83	100.00%
Operations & Maintenance	121,450	101,208	74,856	26,352	26.04%
Equipment Purchases	3,100	2,583	2,167	417	16.13%
Depreciation	5,000	4,167	4,167	(0)	0.00%
Subtotal Before Allocations	$ 261,063	$ 215,885	$ 177,369	$ 38,516	17.84%
Allocation of Support Departments	91,584	74,816	71,750	3,066	4.10%
Total Operating Expenses	**$ 352,647**	**$ 290,701**	**$ 249,119**	**$ 41,582**	**14.30%**
Operating Surplus/(Deficit)	**$ (3)**	**$ 3,169**	**$ 45,067**		
Debt Service Budget vs. Actual					
Revenues					
Debt Service Rate Revenue	$ 1,582	$ 1,318	$ 1,320	$ 2	0.13%
Trust Fund Interest	-	-	-	-	
Reserve Fund Interest	600	500	807	307	61.45%
Total Debt Service Revenues	**$ 2,182**	**$ 1,818**	**$ 2,127**	**$ 2**	**0.09%**
Debt Service Costs					
Total Principal & Interest	$ 1,582	$ 1,318	$ 1,318	$ -	0.00%
Reserve Additions-Interest	600	500	807	(307)	-61.45%
Total Debt Service Costs	**$ 2,182**	**$ 1,818**	**$ 2,126**	**$ (307)**	**-16.90%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ 2**		

Rate Center Summary					
Total Revenues	$ 354,826	$ 295,688	$ 296,314	$ 625	0.21%
Total Expenses	354,829	292,519	251,245	41,275	14.11%
Surplus/(Deficit)	**$ (3)**	**$ 3,169**	**$ 45,069**		
Costs per 1000 Gallons	8.12		7.31		
Thousand Gallons Treated	43,412	36,177	34,063	(2,114)	**-5.84%**
or					
Flow (MGD)	0.119		0.112		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2018	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 284,688	$ 237,240	$ 237,240	$ -	0.00%
Interest Allocation		300	250	458	208	83.39%
Total Operating Revenues		**$ 284,988**	**$ 237,490**	**$ 237,698**	**$ 208**	**0.09%**
Expenses						
Personnel Cost		$ 90,848	$ 74,039	$ 65,823	$ 8,217	11.10%
Professional Services		2,000	1,667	-	1,667	100.00%
Other Services & Charges		22,900	19,083	20,811	(1,728)	-9.06%
Communications		2,630	2,192	3,423	(1,232)	-56.19%
Information Technology		4,400	3,667	-	3,667	100.00%
Supplies		100	83	-	83	100.00%
Operations & Maintenance		57,850	48,208	15,298	32,910	68.27%
Equipment Purchases	C	3,400	2,833	30,567	(27,733)	-978.82%
Depreciation		16,000	13,333	13,333	0	0.00%
Subtotal Before Allocations		$ 200,128	$ 165,106	$ 149,256	$ 15,850	9.60%
Allocation of Support Departments		84,858	69,320	66,322	2,998	4.32%
Total Operating Expenses		**$ 284,987**	**$ 234,426**	**$ 215,578**	**$ 18,848**	**8.04%**
Operating Surplus/(Deficit)		**$ 1**	**$ 3,064**	**$ 22,120**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 8,233	$ 6,861	$ 6,860	$ (1)	-0.01%
Trust Fund Interest		-	-	30	30	
Reserve Fund Interest		400	333	538	205	61.44%
Total Debt Service Revenues		**$ 8,633**	**$ 7,194**	**$ 7,428**	**$ 234**	**3.25%**
Debt Service Costs						
Total Principal & Interest		$ 8,233	$ 6,861	$ 6,861	$ -	0.00%
Reserve Additions-Interest		400	333	538	(205)	-61.44%
Estimated New Principal & Interest		-	-	-	-	
Total Debt Service Costs		**$ 8,633**	**$ 7,194**	**$ 7,399**	**$ (205)**	**-2.85%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 29**		

Rate Center Summary

Total Revenues	$ 293,621	$ 244,684	$ 245,126	$ 442	0.18%
Total Expenses	293,620	241,620	222,977	18,643	7.72%
Surplus/(Deficit)	**$ 1**	**$ 3,064**	**$ 22,149**		
Costs per 1000 Gallons	14.27		14.42		
Thousand Gallons Treated	19,967	16,639	14,950	(1,689)	**-10.15%**
or					
Flow (MGD)	0.055		0.049		

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Administration

Operating Budget vs. Actual

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 409,000	$ 340,833	$ 340,833	$ (0)	0.00%
Miscellaneous Revenue		1,000	833	5,416	4,583	549.94%
Total Operating Revenues		**$ 410,000**	**$ 341,667**	**$ 346,249**	**$ 4,583**	**1.34%**
Expenses						
Personnel Cost	**A**	$ 1,544,126	$ 1,255,681	$ 1,261,624	$ (5,943)	-0.47%
Professional Services	**D**	171,900	143,250	162,807	(19,557)	-13.65%
Other Services & Charges	**B**	111,940	93,283	109,437	(16,154)	-17.32%
Communications		21,280	17,733	13,111	4,623	26.07%
Information Technology		118,000	98,333	69,566	28,767	29.25%
Supplies		22,000	18,333	19,993	(1,660)	-9.05%
Operations & Maintenance	**E**	36,600	30,500	39,393	(8,893)	-29.16%
Equipment Purchases		8,300	6,917	6,917	(0)	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,034,146**	**$ 1,664,031**	**$ 1,682,848**	**$ (18,817)**	**-1.13%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,624,146)**	**$ (1,322,364)**	**$ (1,336,598)**	**$ 14,234**	**-1.08%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 714,624**	**$ 581,840**	**$ 588,103**	**$ (6,263)**	
Crozet Water	4.00%	**$ 64,966**	**52,895**	**53,464**	**(569)**	
Scottsville Water	2.00%	**$ 32,483**	**26,447**	**26,732**	**(285)**	
Urban Wastewater	48.00%	**$ 779,590**	**634,735**	**641,567**	**(6,832)**	
Glenmore Wastewater	1.00%	**$ 16,241**	**13,224**	**13,366**	**(142)**	
Scottsville Wastewater	1.00%	**$ 16,241**	**13,224**	**13,366**	**(142)**	
	100.00%	**$ 1,624,146**	**$ 1,322,364**	**$ 1,336,598**	**$ (14,234)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Maintenance

Operating Budget vs. Actual

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Miscellaneous Revenue		-	-	4,610	4,610	
Total Operating Revenues		**$ -**	**$ -**	**$ 4,610**	**$ 4,610**	
Expenses						
Personnel Cost		$ 1,150,821	$ 937,279	$ 919,629	$ 17,649	1.88%
Professional Services		-	-	-	-	
Other Services & Charges	**B**	12,300	10,250	16,294	(6,044)	-58.96%
Communications		15,635	13,029	15,493	(2,464)	-18.91%
Information Technology		6,500	5,417	2,328	3,089	57.02%
Supplies		500	417	221	196	47.02%
Operations & Maintenance	**E**	64,450	53,708	62,627	(8,919)	-16.61%
Equipment Purchases		94,850	79,042	73,472	5,570	7.05%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,345,056**	**$ 1,099,141**	**$ 1,090,064**	**$ 9,077**	**0.83%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,345,056)**	**$ (1,099,141)**	**$ (1,085,454)**	**$ (4,467)**	**0.41%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 403,517**	**$ 329,742**	**$ 325,636**	**$ 4,106**	
Crozet Water	3.50%	**47,077**	**38,470**	**37,991**	**479**	
Scottsville Water	3.50%	**47,077**	**38,470**	**37,991**	**479**	
Urban Wastewater	56.50%	**759,957**	**621,015**	**613,281**	**7,734**	
Glenmore Wastewater	3.50%	**47,077**	**38,470**	**37,991**	**479**	
Scottsville Wastewater	3.00%	**40,352**	**32,974**	**32,564**	**411**	
	100.00%	**$ 1,345,056**	**$ 1,099,141**	**$ 1,085,454**	**$ 13,688**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Laboratory

Operating Budget vs. Actual

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
N/A						
Expenses						
Personnel Cost	**A**	$ 293,948	$ 239,196	$ 271,053	$ (31,857)	-13.32%
Professional Services		-	-	-	-	
Other Services & Charges		10,412	8,677	6,774	1,902	21.92%
Communications		600	500	1,068	(568)	
Information Technology		2,200	1,833	270	1,563	85.28%
Supplies		1,650	1,375	2,360	(985)	-71.63%
Operations & Maintenance	**E**	55,000	45,833	53,437	(7,603)	-16.59%
Equipment Purchases		1,500	1,250	833	417	33.34%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 365,310**	**$ 298,665**	**$ 335,795**	**$ (37,131)**	**-12.43%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (365,310)**	**$ (298,665)**	**$ (335,795)**	**$ 37,131**	**-12.43%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 160,736**	**$ 131,413**	**$ 147,750**	**$ (16,337)**	
Crozet Water	4.00%	**14,612**	**11,947**	**13,432**	**(1,485)**	
Scottsville Water	2.00%	**7,306**	**5,973**	**6,716**	**(743)**	
Urban Wastewater	47.00%	**171,696**	**140,372**	**157,824**	**(17,451)**	
Glenmore Wastewater	1.50%	**5,480**	**4,480**	**5,037**	**(557)**	
Scottsville Wastewater	1.50%	**5,480**	**4,480**	**5,037**	**(557)**	
	100.00%	**$ 365,310**	**$ 298,665**	**$ 335,795**	**$ (37,131)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - April 2018

Engineering

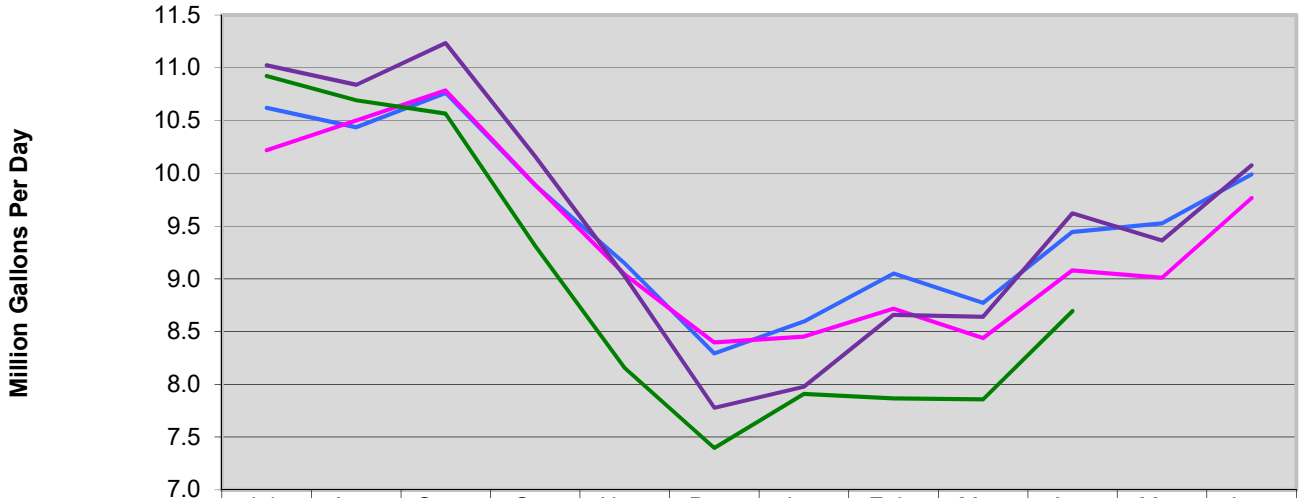
Operating Budget vs. Actual

		Budget FY 2018	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ 15,679	$ 15,679	
Total Operating Revenues		**$ -**	**$ -**	**$ 15,679**	**$ 15,679**	
Expenses						
Personnel Cost		$ 1,168,296	$ 950,537	$ 840,018	$ 110,518	11.63%
Professional Services		144,000	120,000	27,040	92,960	77.47%
Other Services & Charges	**B**	45,150	37,625	50,687	(13,062)	-34.72%
Communications		17,300	14,417	11,593	2,823	19.58%
Information Technology		46,000	38,333	42,047	(3,713)	-9.69%
Supplies		9,500	7,917	3,726	4,191	52.94%
Operations & Maintenance		64,940	54,117	46,680	7,437	13.74%
Equipment Purchases		23,850	19,875	18,825	1,050	5.28%
Depreciation & Capital Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 1,519,036**	**$ 1,242,820**	**$ 1,040,616**	**$ 202,204**	**16.27%**

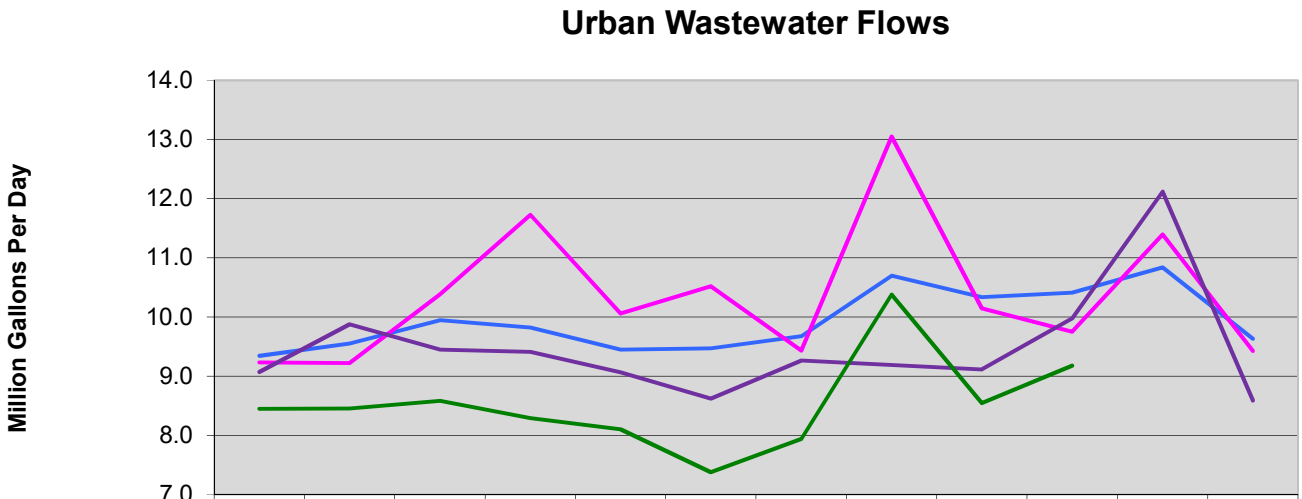
Department Summary

Net Costs Allocable to Rate Centers		**$ (1,519,036)**	**$ (1,242,820)**	**$ (1,024,937)**	**$ (186,525)**	**15.01%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 713,947**	**$ 584,125**	**$ 481,721**	**$ 102,405**	
Crozet Water	4.00%	**60,761**	**49,713**	**40,997**	**8,715**	
Scottsville Water	2.00%	**30,381**	**24,856**	**20,499**	**4,358**	
Urban Wastewater	44.00%	**668,376**	**546,841**	**450,972**	**95,868**	
Glenmore Wastewater	1.50%	**22,786**	**18,642**	**15,374**	**3,268**	
Scottsville Wastewater	1.50%	**22,786**	**18,642**	**15,374**	**3,268**	
	100.00%	**$ 1,519,036**	**$ 1,242,820**	**$ 1,024,937**	**$ 217,883**	

Rivanna Water and Sewer Authority
Flow Graphs



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG.	10.62	10.44	10.76	9.89	9.15	8.29	8.60	9.05	8.77	9.45	9.53	9.99
FY 2016	10.22	10.50	10.79	9.89	9.04	8.40	8.45	8.72	8.44	9.08	9.01	9.77
FY 2017	11.02	10.84	11.23	10.16	9.02	7.78	7.98	8.66	8.64	9.62	9.36	10.07
FY 2018	10.92	10.69	10.57	9.31	8.16	7.40	7.91	7.87	7.86	8.70		



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG	9.34	9.55	9.95	9.82	9.45	9.47	9.67	10.70	10.33	10.41	10.84	9.63
FY 2016	9.23	9.22	10.38	11.73	10.06	10.52	9.43	13.05	10.15	9.75	11.39	9.43
FY 2017	9.07	9.87	9.45	9.41	9.06	8.62	9.26	9.19	9.12	9.97	12.12	8.59
FY 2018	8.45	8.45	8.59	8.29	8.10	7.38	7.94	10.38	8.54	9.18		

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

MEMORANDUM

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

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

SUBJECT: **DISPOSITION OF FY 2017 RATE CENTER RESULTS**

DATE: **OCTOBER 24, 2017**

The Authority ended the previous fiscal year with a cumulative net loss/deficit of roughly $546,000. The Urban Wastewater rate center was the most significant contributor to the deficit this year due to unbudgeted expenses for the clarifier repairs and chemicals for temporary odor control at the Moores Creek Plant. The amount of the deficit for Urban Wastewater was $673,900. Urban Water ended the year with a surplus of $113,700 mainly because revenues did a little better than anticipated. Of the other rate centers, Crozet Water and Glenmore Wastewater had deficits and the two Scottsville Rate Centers had surpluses.

After the completion of the audit, staff performs an analysis of the year ending financial results and the effect on the operating cash liquidity position. This is also done to ensure that rate center results are kept separate from each other. In some years similar to FY 2017, one rate center may have a deficit and others may have a surplus. Therefore, we do not want one rate center's surplus funding another rate center's deficit.

There is only one operating cash account where all transactions originate during the year for all capital and operating activities including inflow from revenues, bond proceeds and outflow for expenses and debt payments. Capital transactions are reconciled and separated at the end of each month, (i.e., no capital funds are in the operations account at the end of each month or at year end). However, all of the rate centers' operating results are comingled until this process of determining the results for the year and making transfers (to or from) the respective rate center reserves to ensure proper segregation.

The operations account has a target working cash balance of 60 days of cash & cash equivalents on hand to meet daily and monthly cash flow needs, which currently is $5,097,000 (based on the FY 2018 budget). This is an increase of $473,000 from the prior year, because the FY 2018 budget was increased significantly from the FY 2017 budget. At year end, this target is compared to actual cash basis results for the fiscal year, and the variance, if any, is brought before the Board for action, which is consistent with the Authority's financial policies.

At year end, operating cash and cash equivalents were as follows:

Cash on hand	$2,903,000
Cash equivalents	$1,648,000
Total	$4,551,000
60 Day Cash Target	$5,097,000
Deficit Operational Cash	($ 546,000)

Cash equivalents are the invoiced amounts mostly due from the City and ACSA net of our current accounts payable due at year end, which is a very conservative measure of working cash. *(Many entities only use actual cash on hand to measure their requirement of working cash.)*

The target amount is underfunded by $546,000 which agrees very closely to the cash basis result on the monthly vs. actual reports to the Board for June. Therefore, the following transfers to the discretionary reserves are recommended for FY 2017 to bring the operations account back to the target balance and properly keep the 6 rate center reserves separated. FY 2016 to FY 2013 transfers are included for comparison:

Transfers to (from) reserves based on ending results for each rate center:

	FY2017	FY2016	FY 2015	FY2014	FY2013
Urban Water	**$ 113,700**	$ 55,983	$ 279,390	$ 298,310	$ 225,400
Urban Wastewater	**(673,900)**	355,437	4,070	1,264,670	1,089,800
Crozet Water	**(18,600)**	17,618	7,630	(37,070)	45,100
Scottsville Water	**30,200**	11,382	8,580	28,880	13,000
Glenmore Wastewater	**(5,300)**	(1,896)	(21,380)	1,920	21,400
Scottsville Wastewater	**7,900**	(6,263)	(20,900)	(6,210)	(7,100)
	$ (546,000)	$ 432,261	$ 257,390	$ 1,550,500	$ 1,387,600

To summarize the year-end process, one of the Authority's financial policies is to keep the operations account, defined here as cash and cash equivalents, financially sound with 60 days of cash for normal operating cash flow needs. That goal will continue to be met and the reserves will continue to provide for the yearly variances in budget versus actual results. The previous years' results are shown for comparison to show how reserves are used and accumulated to maintain a sound operating account. As any given year progresses, the operations account temporarily funds rate center deficits and accumulates surpluses, and a reconciliation of the results to allocate the respective surpluses and deficits is performed annually after the year-end audit is complete. The Board has taken similar action for the previous 12 years.

Attached is a summary of the ending reserves for Fiscal Year 2017.

Board Action Requested:

Board action is requested to transfer funds to/(from) the respective reserves for FY 2017 ending results to or from the operations account as follows:

Urban Water	$ 113,700	Urban Wastewater	$ (673,900)
Crozet Water	$ (18,600)	Glenmore Wastewater	$ (5,300)

Scottsville Water $ 30,200 Scottsville Wastewater $ 7,900

Attachment

Rivanna Water and Sewer Authority
Statement of Reserve Balances
June 2017 Reserves

	June FY 2017 Ending Balance	FROM (TO) OPERATIONS ACCOUNT FY 2017 ending results reserve adjustment proposed Board action needed **	Adjusted FY 2017 Ending Balance
Urban Water			
Discretionary Reserve	$ 11,516,129	$ 113,700	$ 11,629,829
Rate Stabilization Fund	1,000,000		1,000,000
Watershed Management Fund	281,440		281,440
Subtotal	$ 12,797,569		$ 12,911,269
Urban Wastewater			
Discretionary Reserve	$ 10,008,698	(673,900)	$ 9,334,798
Rate Stabilization Fund	1,000,000		1,000,000
Subtotal	$ 11,008,698		$ 10,334,798
Crozet Water			
Discretionary Reserve	$ 490,591	(18,600)	$ 471,991
Scottsville Water			
Discretionary Reserve	$ 203,899	30,200	$ 234,099
Glenmore Wastewater			
Discretionary Reserve	$ 78,368	(5,300)	$ 73,068
Scottsville Wastewater			
Discretionary Reserve	$ 62,608	7,900	$ 70,508
Capital Fund			
Specific Capital Projects	$ 7,409,166		$ 7,409,166
Vehicle Replacement Fund	$ 911,201		$ 911,201
Subtotal Discretionary Reserves	$ 32,962,100	$ (546,000)	$ 32,416,100
Indenture Restricted Minimum	$ 500,000		$ 500,000
Total Reserves *	**$ 33,462,100**		**$ 32,916,100**

*** - Agrees to investment balances - audited.**

**** - Proposed Board action**

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 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: **STATUS REPORT: ONGOING PROJECTS**

DATE: **MAY 22, 2018**

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

Under Construction

1. Wholesale Water Master Metering
2. Crozet Finished Water Pump Station
3. Moores Creek AWRRF Roof Replacements
4. Sugar Hollow Reservoir to Ragged Mountain Reservoir Transfer Flow Meter
5. Piney Mountain Tank Rehabilitation
6. Interceptor Sewer & Manhole Repair
7. Urgent and Emergency Repairs

Design and Bidding

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

Planning and Studies

17. South Rivanna Hydropower Plant Decommissioning
18. Drinking Water Infrastructure Plan – Crozet Area

1. Wholesale Water Master Metering

Design Engineer:	Michael Baker International (Baker)
Construction Contractor:	Linco, Inc.
Construction Start:	January 2016
Percent Complete:	94%
Base Construction Contract + Change Orders to Date = Current Value:	$2,228,254 - $221,177 = $2,007,077
Expected Completion Date:	August 2018
Total Capital Project Budget:	$3,600,000

Current Status:

Three water treatment plant flow meters, and 23 of 25 distribution system flow meters have been completed. Completion of the Rt. 29 site is scheduled for May . The final remaining site located adjacent to Ivy Road, will be completed by Faulconer Construction Co. by August under the existing on-call contract. An administrative plan to manage this program has been completed and forwarded to the ACSA and the City. RWSA terminated the construction contract with Linco, Inc. on April 2, 2018 and will coordinate the remaining work in-house.

History:

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

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

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

2. <u>Crozet Finished Water Pump Station</u>

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction, Inc.
Construction Start:	May 2017
Percent Complete:	80 %
Base Construction Contract + Change Orders to Date = Current Value:	$1,941,000
Expected Completion Date:	September 2018
Total Capital Project Budget:	$2,600,000

<u>Current Status</u>:

Electrical duct banks have been installed to the existing filter building. Pump station metal building construction is complete. Both pumps and motors have been set. Interior piping and controls work is underway. Rough grading for the driveway is complete. Preparations are underway for placement of concrete sidewalk and curb and gutter. Construction of both retaining walls is complete.

<u>History</u>:

Bids were received and opened for the project on March 7, 2017. The apparent low bidder was Anderson Construction, Inc. from Lynchburg, VA. The Board of Directors approved the contract bid award of $1,941,000 at the March 2017 meeting, a Notice of Award was issued on April 10, 2017, and a Notice to Proceed was issued on May 3, 2017.

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

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

station building will be of similar construction as what is being proposed for the GAC facility at Crozet WTP.

3. Moores Creek AWRRF Roof Replacements

Design Engineer:	Hazen and Sawyer
Construction Contractor	Triangle Roofing Services, Inc.
Construction Start:	March 2018
Percent Complete	60%
Base Construction Contract + Change Orders to Date = Current Value:	$818,000
Expected Completion:	September 2018
Total Capital Project Budget:	$1,264,000

Current Status:

Roofing materials for all eight buildings are on site. Replacement of the Moore's Creek Pump Station Building roof is complete and the contractor is approximately 90% complete with Maintenance Buildings 1 and 2 and Sludge Pump Station No. 2. The contractor will proceed to the Sludge Pumping Building next.

History:

Construction bids were received on September 7, 2017 to replace the metal roof on eight buildings and award of the project was approved by the Board at the September Board Meeting. A Notice of Award was provided to Triangle Roofing Services, Inc. on October 10, 2017. Final Contract Documents have been executed.

The majority of the buildings at the Moores Creek Advanced Water Resource Recovery Facility were constructed in 1981 and 1982 during a major expansion of the existing treatment plant. All buildings constructed at that time were built with a metal roof system. In 2014, deficiencies were identified in the roof at the Administration Building and the roof was replaced. The materials of the original roof at the Administration Building are the same as the roof material on the other buildings. Likewise, many of the buildings have started to experience leaks and structural deficiencies. As a result, the purpose of this project is to replace the roof systems at the following buildings at the Moores Creek AWRRF: Blower Building, Moores Creek Pump Station, Sludge Pump Station No. 2, Maintenance Building 1, and Maintenance Building 2. Following additional review of the conditions of various buildings located at the Moores Creek AWRRF, this project also now includes replacement of the roof systems Sludge Pumping Building, the Primary Pump Building, and the Effluent Pump Building.

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

4. Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter

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

Current Status:

This project will require the Sugar Hollow to Ragged Mt. Reservoir transfer line to be out of service and unavailable for approximately 4 weeks. Due to the current refill of Ragged Mountain Reservoir, we are delaying this project until reservoir storage capacities improve and transfers from Sugar Hollow are not needed. In anticipation of that line being out of service this summer, discussions with the contractor have begun to confirm the scope of work and identify a specific construction schedule. In addition, a work authorization has been approved for the purchase of any long lead time material needed in order to expedite the process.

History:

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

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

5. Piney Mountain Tank Rehabilitation

Design Engineer:	Johnson, Mirmiran & Thompson (JMT)
Project Start:	September 2017
Project Status:	Notice of Award Issued
Construction Contractor:	Utility Service Co, Inc.
Construction Start:	April 2019
Completion:	July 2019
Total Capital Project Budget:	$500,000

Current Status:

The Piney Mountain Tank Rehabilitation project will require a shutdown of the tank for over three months. Due to unforeseen complications with an extended tank shutdown and other ongoing construction activities in the North Rivanna Water System, construction of the Piney Mountain Tank repairs have been postponed until spring 2019. Utility Service Co., Inc will remain the general contractor for this project.

History:

The project was advertised for bid on November 28, 2017 and bids were opened on January 9, 2018. At its January meeting, the RWSA Board of Directors approved staff's recommendation of award to Utility Service Co., Inc., the apparent low bidder on the project.

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

6. Interceptor Sewer and Manhole Repair

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

Current Status:

Award of the 2017 Sanitary Sewer Rehabilitation and Repair Contract to IPR Northeast was approved by the Board at the October Board Meeting and a Notice of Award has been provided. Contract Documents have been formally executed, a preconstruction meeting was held with the contractor, and a Notice to Proceed was issued. Frazier Engineering

continues to conduct condition assessment activities and has completed a preliminary review of previous CCTV results. Manhole inspections on various interceptors were completed and a report documenting the results is being developed. An initial work authorization with the contractor to perform additional CCTV investigations has been developed and the contractor has reviewed the work to determine any access issues and a schedule for completion. The work authorization is being updated to account for their field notes and will be finalized this spring.

History:

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

7. Urgent and Emergency Repairs

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

Project No.	Project Description	Approx. Cost
2017-03	Crozet Sewer Force Main Air Release Valve Repair	$100,000
2018-01	Rivanna Interceptor – RVI-MH-32 Erosion Repair	$25,000

- Crozet Sewer Force Main Air Release Valve Repair

  During routine inspections of the sewer force main, the Maintenance Department identified that the saddle for one of the air release valves was loose and needed to be repaired. Due to the profile of the force main however, it is not possible to dewater the force main and take pressure off the pipe at this location without the installation of line stops. As a result, a contractor was contacted to begin development of a method to address the issue and a site meeting was conducted. The contractor has provided estimated pricing and a work authorization is being developed. This repair will be scheduled sequentially with the Rivanna Interceptor manhole repair this summer.

- Rivanna Interceptor – RVI-MH-32 Erosion Repair

  During routine inspections of the Rivanna Interceptor, the Maintenance Department observed some significant erosion around RVI-MH-32. A site meeting was held with the contractor and the City of Charlottesville to confirm the cause of the erosion and determine the preferred method of repair, as the repair will impact a section of the Rivanna Trail. The contractor has provided estimated pricing and a work authorization is being developed. This repair will be scheduled sequentially with the Crozet Sewer Force Main repair this summer.

8. Observatory WTP Expansion

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Project Start:	October 2017
Project Status:	Preliminary Engineering Report
Construction Start:	2019
Completion:	2022
Total Capital Project Budget:	$18,630,000

Current Status:

The PER will be completed by the end of May 2018. Design documents will be completed by May 2019.

History:

This project will consider the design and costs for upgrading the plant systems to achieve a consistent 7 MGD plant capacity, as well as consider the costs involved with upgrading the plant to 10 or 12 MGD capacity.
Much of the Observatory Water Treatment Plant is original to the 1953 construction. In an effort to better understand the needed future improvements, a Condition Assessment Report was completed by SEH in October of 2013. The approved Capital Improvement Plan project was based on the findings from this report. A portion of this project was expedited in order to repair and replace old, existing equipment that was not functional. The flocculator systems have been replaced and upgraded as part of the Drinking Water Activated Carbon and WTP Improvements project (GAC). The second flocculator system was started up in May 2017, and both systems are currently in full service. The contractor needs to address some minor punchlist items in order to reach final completion.

9. South Rivanna Water Treatment Plant Improvements

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	October 2017
Project Status:	Preliminary Engineering Report
Construction Start:	2019
Completion:	2022
Total Capital Project Budget:	$7,500,000

Current Status:

The PER will be completed by the end of May 2018. Design documents will be completed by May 2019.

History:

The South Rivanna Water Treatment Plant is currently undergoing significant upgrades as part of the Granular Activated Carbon Project. Several other significant needs have also been identified and have been assembled into a single project. The projects herein include: expansion of the coagulant storage facilities; installation of additional filters to meet firm

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

10. <u>Crozet WTP Expansion</u>

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	August 2016
Project Status:	80% Design Complete
Construction Start:	September 2018
Completion:	December 2020
Total Capital Project Budget:	$7,000,000

<u>Current Status</u>:

Construction documents will be completed by June 2018. Drawings developed to the 60% complete design stage were submitted and reviewed in March 2018. Permit applications have been submitted to Albemarle County.

<u>History</u>:

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

A new Work Authorization with SEH was executed to perform preliminary and final design documents, as well as construction administration services.

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

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

Design Engineer:	Dewberry Engineers
Project Start:	October 2017
Project Status:	30% Design
Construction Start:	August 2018
Completion:	November 2018
Total Capital Project Budget:	$225,000

Current Status:

A Work Authorization with Dewberry was executed to evaluate several alignment options and to identify the most suitable alignment. Feasible alignments have been submitted and the recommended alignment is being evaluated by RWSA staff. A separate Work Authorization is being written to prepare final design documents.

History:

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

12. Route 29 Pump Station and Pipeline

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2018
Project Status:	Update Existing Design Report
Construction Start:	2019
Completion:	2021
Total Capital Project Budget:	$2,300,000

Current Status:

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

History:

This project will include construction of a 2 mgd drinking water pump station and two 1,000,000 gallon ground water storage tanks, as well as completion of a 24-inch diameter pipeline along the Meeting Street corridor. This project has been identified as a need in the County Comprehensive Plan and RWSA Capital Improvement Plan.
A report and technical memorandum on this project was previously completed in 2008. The future pump station and tanks, along with a new transmission pipeline between the pump station and the South Rivanna Water Treatment Plant, will provide an interconnection between the areas presently served by the South Rivanna WTP and the North Rivanna WTP. The interconnection is needed for redundancy of service in the event of an emergency, during drought conditions, and to adequately serve the growing needs of the Rt. 29 area generally north of Hollymead Town Center and Airport Road.

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

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

Design Engineer:	Michael Baker International (Baker)
Project Start:	October 2017
Project Status:	30 % Complete
Completion:	2021
Total Capital Project Budget:	$2,295,000

Current Status:

The PER will be completed by August 2018. Preliminary design work began in November 2017. Property owners have been contacted to request permission to access properties for topographical surveying. The consultant is in the process of data collection, and review, hydraulic modeling, and field evaluation of alignment options for the Preliminary Engineering Report.

History:

RWSA has negotiated a scope and fee with Michael Baker International for the routing study, preliminary design, plat creation and easement acquisition process.
The approved 50-year Community Water Supply Plan includes the future construction of a raw water line from the South Fork Rivanna Reservoir to the Ragged Mountain Reservoir. This water line will replace the existing Upper Sugar Hollow Pipeline along an alternative alignment to increase raw water transfer capacity in the Urban Water System. The preliminary route for the water line followed the proposed Route 29 Charlottesville Bypass;

however, the Bypass project was suspended by VDOT in 2014, requiring a more detailed routing study for the future water line. This project includes a routing study, preliminary design and preparation of easement documents, as well as acquisition of water line easements along the approved route.

14. Avon to Pantops Water Main

Design Engineer:	Michael Baker International (Baker)
Project Start:	August 2017
Project Status:	60% Preliminary Design Complete
Construction Start:	2020
Completion:	2022
Total Capital Project Budget:	$13,000,000

Current Status:

Route alignment determination, hydraulic modeling, and preliminary design are underway. Route alternatives are being developed for review. Additional modeling is warranted to incorporate several new ACSA and City water projects, and potential upgrades related to VDOT work. Another stakeholder workshop is anticipated by the end of May 2018.

History:

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

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

15. Crozet Interceptor Pump Stations Bypass and Isolation Valves

Design Engineer:	Johnson, Mirmiran & Thompson (JMT)
Project Start:	August 2017
Project Status:	95% Design Complete
Construction Start:	August 2018
Expected Completion Date:	November 2018
Total Capital Project Budget:	$720,000

Current Status:

Final contract document modifications are being made and bidding is anticipated for June with a contract award at the July Board Meeting.

History:

A work authorization with JMT was finalized to provide design, bidding and construction administration related services for this project. Design services began in August.

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

16. Crozet Flow Equalization Tank

Design Engineer:	Schnabel Engineering
Project Start:	October 2016
Project Status:	Siting Study 100% Complete
Construction Start:	2019
Completion:	2020
Total Capital Project Budget:	$3,300,000

Current Status:

Due to procurement requirements, a work authorization with Greeley and Hansen could not be finalized. Schnabel Engineering was a part of the Greeley and Hansen design team, and it was determined that shifting primary contractual responsibilities to Schnabel Engineering was in the best interest of RWSA and the design team. Schnabel Engineering's geotechnical evaluation is a critical component to the tank design, construction and installation process. Greeley and Hansen will still have a significant role in this project as a subconsultant to Schnabel Engineering. A revised work authorization has been submitted to continue the project through construction which has been submitted this month for Board approval.

History:

G&H has submitted a work authorization to continue the project through construction which was approved by the Board during the December meeting. G&H has completed a

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

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

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

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

While the study indicates that capacity should not be an issue until 2025, a flow equalization tank would also provide a significant benefit to the maintenance of the Crozet Pumping Station system which currently lacks system storage necessary to allow adequate time to perform repairs on the pumps and the associated force mains while the system is down. As a result, it is important to progress into the siting study for the flow equalization tank to ensure that it can be constructed in time for the 2025 flow targets but also to facilitate less complicated and more thorough maintenance on the system that has not been possible previously.

17. South Rivanna Hydropower Plant Decommissioning

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

Current Status:

A consultation document has been provided to local regulatory agencies and a meeting has been scheduled for May 21, 2018 with the agencies to discuss the decommissioning process. Following input from local agencies based on the consultation document, a surrender application will be developed for submission to FERC.

History:

Work associated with the first phase of the exemption surrender process with Gomez and Sullivan and Van Ness Feldman was completed confirming with FERC what the next steps in the surrender process would include. A work authorization with Gomez and Sullivan for Phase 2 of the exemption surrender process was finalized in August 2017 and includes tasks to manage the local regulatory agencies consultation process and development of the surrender application and decommissioning plan.

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

18. Drinking Water Infrastructure Plan – Crozet Area

Design Engineer:	Hazen and Sawyer
Project Start:	June 2017
Project Status:	60% Complete
Completion:	Fall 2018
Total Capital Project Budget:	$300,000

Current Status:

Staff met with VDEQ and other State and Federal Agencies on March 12, 2018 to provide a pre-application project overview as well as Safe Yield and Minimum Instream Flow information. Hazen is gathering final information needed to support water supply, treatment, distribution and dam modification plans when we provide an update to the Crozet Community Advisory Committee on June 20, 2018.

History:

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

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

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

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

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 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 APRIL 2018**

DATE: **MAY 7, 2018**

WATER OPERATIONS:

The average daily/monthly total water distributed for April 2018 was as follows:

Water Treatment Plant	***Average Daily Production (MGD)***	***Total Monthly Production (MG)***	***Maximum Daily Production in the Month (MGD)***
Observatory	0.75	22.38	---
South Rivanna	7.62	228.85	---
North Rivanna	0.32	9.68	---
Urban Total	8.69	260.91	9.80 (4/13/18)
Crozet	0.49	14.73	0.752 (4/22/18)
Scottsville	0.042	1.26	0.069 (4/19/18)
RWSA Total	9.22	276.90	---

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

Status of Reservoirs (as of May 16, 2018):

- Urban Reservoirs: 99.6 % of Total Useable Capacity
- Ragged Mountain Reservoir is –0.19 feet (99.3 %)
- 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 the month of April 2018. Performance of the WRRFs in April was as follows compared to the respective VADEQ 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	1.5	10	1.1	22	0.05	7.0
Glenmore	0.131	2.0	15	4.0	30	0.27	NL
Scottsville	0.058	8.3	25	24	30	0.39	NL
Stone Robinson	0.002	NR	30	NR	30	NR	NL

NR = Not Required
NL = No Limit
<QL: Less than analytical method quantitative level (2 ppm for CBOD, and 1 ppm for TSS) is reported as zero.

Nutrient discharges at the Moores Creek AWRRF were as follows for April 2018:

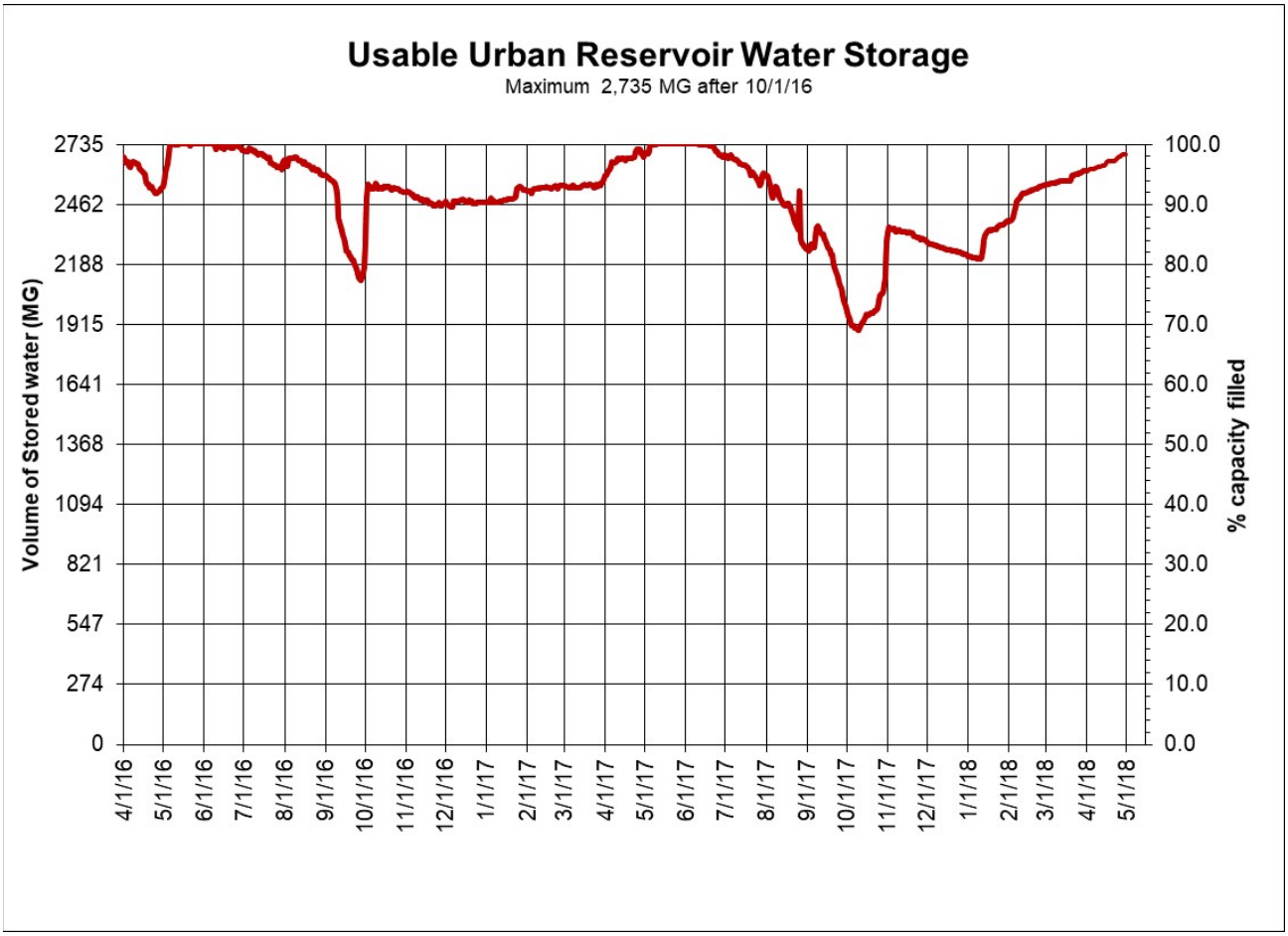
State Annual Allocation (lb./yr.)		*Average Monthly Allocation (lb./mo.)**	*Moores Creek Discharge (lb./mo.)*	*Performance as % of Average Allocation**
Nitrogen	282,994	23,583	11,966	51%
Phosphorous	18,525	1,544	559	36%

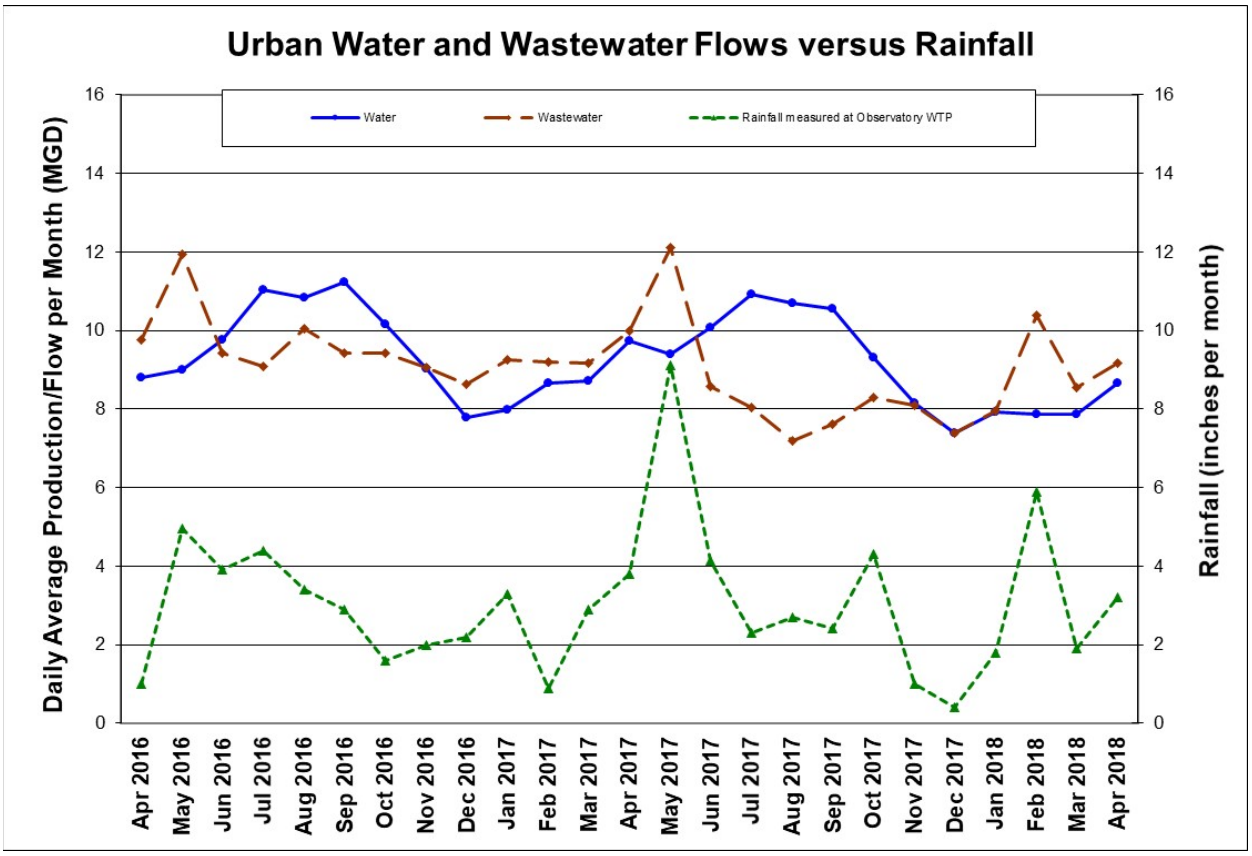
*State allocations are expressed as annual amounts. One-twelfth of that allocation is an internal monthly benchmark for comparative purposes only.

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 2,735 MG after 10/1/16
Volume of Stored water (MG)
% capacity filled
2735
2462
2188
1915
1641
1368
1094
821
547
274
0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
4/1/16
5/1/16
6/1/16
7/1/16
8/1/16
9/1/16
10/1/16
11/1/16
12/1/16
1/1/17
2/1/17
3/1/17
4/1/17
5/1/17
6/1/17
7/1/17
8/1/17
9/1/17
10/1/17
11/1/17
12/1/17
1/1/18
2/1/18
3/1/18
4/1/18
5/1/18


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
Apr 2016
May 2016
Jun 2016
Jul 2016
Aug 2016
Sep 2016
Oct 2016
Nov 2016
Dec 2016
Jan 2017
Feb 2017
Mar 2017
Apr 2017
May 2017
Jun 2017
Jul 2017
Aug 2017
Sep 2017
Oct 2017
Nov 2017
Dec 2017
Jan 2018
Feb 2018
Mar 2018
Apr 2018

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

MEMORANDUM

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

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

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

SUBJECT: **ENGINEERING SERVICES – CROZET FLOW EQUALIZATION TANK AND PUMPING STATION UPGRADE – SCHNABEL ENGINEERING**

DATE: **MAY 22, 2018**

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

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

Staff had negotiated a scope, fee and schedule with Greeley and Hansen to perform preliminary engineering, final design, bidding, and construction administration services for the Crozet Flow Equalization Tank and Pumping Station Upgrade project, but contractual issues prevented us from finalizing that Work Authorization. Schnabel Engineering was a part of the Greeley and Hansen design team and it was determined that shifting primary contractual responsibilities to Schnabel Engineering was in the best interest of RWSA and the design team. Schnabel Engineering's geotechnical evaluation is a critical component to the tank design, construction and installation process. Greeley and Hansen will still have a significant role in this project as a subconsultant to Schnabel Engineering. In addition, the negotiated tasks and associated fees have all remained within the previously approved authorization amount. Should this work authorization with Schnabel Engineering be approved by the Board, it would nullify the previous authorization from December 19, 2017 for Greeley and Hansen for the same services and overall value.

Board Action Requested:

Staff requests that the Board of Directors authorize the Executive Director to execute a work authorization with Schnabel Engineering for preliminary engineering, final design, bidding, and construction administration services for the Crozet Flow Equalization Tank and Pumping Station Upgrade project, for an amount not to exceed $333,318, and any amendments needed to complete the design, bidding, and construction of the improvements identified above, not to exceed 10% of the original contract amount.

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

MEMORANDUM

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

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

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

SUBJECT: **ENGINEERING SERVICES – ASSET MANAGEMENT PLAN – GHD, INC.**

DATE: **MAY 22, 2018**

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 funding 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 is needed 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
- assistance through a full implementation process

As part of this three-phase process, the consultant will also assist RWSA with the procurement of any necessary software to facilitate the overall program.

A Request for Proposals (RFP 18-01) was developed to solicit professional services for this effort and was advertised on February 20, 2018. Proposals were due on March 20, 2018 and RWSA received five proposals. The selection committee interviewed three of the prospective firms on April 3 and 4, 2018 and determined that the consultant "GHD" was the most meritorious candidate.

Staff has established an Engineering Services Agreement with GHD to complete all three phases of this project. A work authorization with GHD for the first phase of services related to development of the Asset Management Plan, as well as development of an Information Technology Master Plan. The scope of work for this phase will include the following:

- Asset management training and best practices review

- A gap assessment which will analyze our current asset management procedures and determine what needs to be added to the process to bring us up to an appropriate industry standard
- Business process improvements and asset management framework initial elements
- Development of information technology (IT) strategies to support asset management
- Development of an implementation roadmap
- Development of an Information Technology Master Plan.

With the information technology components of the Asset Management Plan being integral to RWSA's overall level of information technology infrastructure and capabilities, utilizing GHD to develop an Information Technology Master Plan was in RWSA's best interest in order to provide a seamless and coordinated strategic plan that will map out the overall direction and needs for the Authority's IT infrastructure for the next 10 years.

Board Action Requested:

Staff requests the Board of Directors to authorize the Executive Director to execute the following with GHD, Inc.:

- an Engineering Service Agreement for development of an Asset Management Plan
- a Work Authorization for Phase 1 – Asset Management Strategic Plan, Framework Development, and Information Technology Master Plan, all for an amount not to exceed $212,990
- any amendments to the Work Authorization provided the total amount of all amendments does not exceed 10% of the original Work Authorization amount.

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

MEMORANDUM

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

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

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

SUBJECT: **CONSTRUCTION CONTRACT MODIFICATION – MCAWRRF DIGESTER #2 AND #3 COATINGS, LYTTLE UTILITIES**

DATE: **MAY 22, 2018**

Odor-causing gases emitted from the digester roofs have impacts on safety, odors, and storage of methane. The Digester Coatings project comprises a portion of the overall MCAWRRF Odor Control Improvements Phase 2 budget. This project is intended to seal the interior of the digesters, reducing gas emission as well as protecting the integrity of the existing digester roofs from harmful corrosion.

Short Elliot Hendrickson (SEH) prepared bidding documents for this work and construction bids for the MCAWRRF – Digester Coatings project (RFB No. 334) were opened on August 3, 2017. Three (3) bids were received ranging from $343,225 to $459,674 for the Digester No. 1 base bid and the work was awarded to Lyttle Utilities, Inc. out of Richmond, VA at the Board of Directors meeting in September 2017.

As part of Lyttle's original bid, the contractor was required to provide additional pricing for cleaning out the sludge and coating Digesters No. 2 and No. 3 if additional funding became available. The Capital Improvement Plan Update, as presented today for approval, includes additional funding of approximately $1M to cover these associated construction costs, construction contingency, and engineering construction administration and inspection work.

Board Action Requested:

Contingent upon approval of the increased funding for the MCAWRRF Odor Control Improvements Phase 2 project in the FY19 Capital Improvement Plan, staff recommends the Board of Directors approve a contract modification for the cleaning and coating of Digesters No. 2 and No. 3 for the MCAWRRF – Digester Coatings project in the amount of $847,842, which includes the alternate bids plus associated unit price items. Staff further requests the Board of Directors

authorize the Executive Director to approve any change orders to the contract provided the total amount of all change orders does not exceed 10% of the modified contract price.

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

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

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

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

SUBJECT: **TERM CONTRACT – WATER TREATMENT PLANT ENGINEERING SERVICES – CORNWELL ENGINEERING GROUP**

DATE: **MAY 22, 2018**

Staff is requesting the Board of Directors to authorize the Executive Director to execute a Work Authorization with Cornwell Engineering to complete a corrosion control treatment study. The study will evaluate piping corrosion inhibitor products to optimize our treatment processes at each of the five water treatment plants, and within the water distribution system.

The study will include pipe material and corrosion inhibitor testing, as well as a report on the results to the Virginia Department of Health, Office of Drinking Water. Completion of the laboratory testing and analysis reporting will take about six months, and will cost up to $118,600. This study will complement a recent evaluation of GAC material on our treated water chemistry.

Board Action Requested:

Staff requests the Board of Directors to authorize the Executive Director to execute a Work Authorization totaling up to $118,600 with Cornwell Engineering to complete a corrosion control treatment study and report to VDH.

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **PROPOSED FISCAL YEAR 2018-2019 BUDGET REVIEW, PUBLIC HEARING AND RATE RESOLUTION ADOPTION**

DATE: **MAY 22, 2018**

The proposed FY 2018-2019 Budget for the Rivanna Water & Sewer Authority totals $33,277,000, which includes $17,505,000 for Operating expenses and $15,722,000 for Debt Service charges. This budget and the wholesale water and wastewater rates and charges to the City of Charlottesville and the Albemarle County Service Authority were introduced during the March 27, 2018 meeting of the Board of Directors.

Highlights of the budget include:

1. An increase of $1,000,000 to support existing and planned water and wastewater programs to effectively address the service expectations of our growing community, including:
    a. Strategic Plan Implementation
    b. Reservoir Management
    c. Urban Wastewater Improvements
    d. Technology Systems Planning and Management
    e. Personnel – Workforce Development
        i. Merit pool of 3%
        ii. Health insurance premium increases (10%)
        iii. Three additional positions

2. An increase of $1,269,000 in Debt Service expenses to support our FY 2019-2023 CIP including:
    a. Urban Drinking Water Management
        - Increasing drinking water treatment capacity at the Observatory plant
        - Renewal of our largest water treatment plant at South Rivanna
        - Replacing piping and pumping stations which convey raw water from the Ragged Mountain Reservoir to the Observatory Treatment Plant
        - Acquiring the right-of-way for a pipeline to connect the South Rivanna and Ragged Mountain Reservoirs

- Installing a major water line from Avon Street to the Pantops area

b. Non-Urban Drinking Water Management
    i. Increasing drinking water treatment capacity at the Crozet plant
    ii. Modifying the Beaver Creek Dam to comply with new regulatory requirements

As required by Virginia law, the Public Notice for a Public Hearing for the Proposed Rates was advertised in the local newspaper on May 2 and May 8, 2018 followed by the statutorily-required minimum 14-day period in advance of today's public hearing. No comments have been received from the public during the advertisement period.

The budget has been properly noticed in the newspaper, on our web site, and a notice has been sent to the City of Charlottesville, County of Albemarle, and Town of Scottsville, as prescribed by the Code of Virginia.

Board Action Requested:

It is respectfully recommended that following a public hearing and consideration of public comment, the Board of Directors adopt the attached Rate Resolution setting forth the rates and charges as advertised, and the related Budget for Fiscal Year 2018-2019.

Attachment

695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

RESOLUTION

ADOPTION OF THE RIVANNA WATER AND SEWER AUTHORITY WATER AND WASTEWATER RATE SCHEDULE AND RELATED BUDGET FOR FISCAL YEAR 2019

WHEREAS, the Authority has advertised and held a public hearing on May 22, 2018, on the proposed Fiscal Year 2019 rates in accordance with Section 15.2-5136(G) of the Code of Virginia, as amended;

THEREFORE, BE IT RESOLVED that the Rivanna Water and Sewer Authority Board of Directors hereby adopt the accompanying rate schedule effective July 1, 2018, and approves the related Fiscal Year 2019 Budget as submitted as an attachment with this resolution.

Water Rates & Charges				**Wastewater Rates & Charges**			
Urban Area				**Urban Area**			
City & ACSA	Operating	$2.070	Per 1,000 gallons	City & ACSA	Operating	$2.146	Per 1,000 gallons
City	Debt Service	$181,008	Per month	City	Debt Service	$408,260	Per month
ACSA	Debt Service	$307,598	Per month	ACSA	Debt Service	$246,308	Per month
Crozet Water				**Glenmore Wastewater**			
ACSA	Operating & Debt Service	$162,746	Per month	ACSA	Operating & Debt Service	$31,192	Per Month
Scottsville Water				**Scottsville Wastewater**			
ACSA	Operating & Debt Service	$47,717	Per month	ACSA	Operating & Debt Service	$25,823	Per month

Fiscal Year 2018-2019

Budget

RIVANNA

WATER & SEWER AUTHORITY

Board of Directors

May 22, 2018

RIVANNA WATER & SEWER AUTHORITY
FY 2019 Proposed Budget

Prepared: May 10, 2018
Adopted: Draft 5 BOD Version

Table of Contents

			Page
Budget Highlights			
Narrative			i-ix
Departmental Summary of Revenues and Expenses			1
Summary of Itemized Rates			2
Summary of Charges to Customers			3
	Urban Water:	Summary Sheet	7
		Expense Detail	8-9
	Crozet Water:	Summary Sheet	11
		Expense Detail	12-13
	Scottsville Water:	Summary Sheet	15
		Expense Detail	16-17
Wastewater:	Urban Wastewater:	Summary Sheet	21
		Expense Detail	22-23
	Glenmore Wastewater:	Summary Sheet	25
		Expense Detail	26-27
	Scottsville Wastewater:	Summary Sheet	29
		Expense Detail	30-31
Support Departments:			
	Administration		35-37
	Maintenance		39-41
	Lab		43-45
	Engineering		47-49
Appendices:			
1 - Flow Projections			53
2 - Urban Water Debt Service Rates			54
3 - Urban Wastewater Debt Service Rates			55
4 - Other Rate Centers Debt Service Rates			56
5 - Debt Summary			57
6 - Stone Robinson School WWTP Estimated Charges			58
7 - Detailed Summary of Revenues			59
8 - Detailed Summary of Expenses			60-61
9 - Staffing by Department			62-63
10 - Data for ACSA			64

This page left blank intentionally.

Budget Highlights

- Executive Summary Narrative
Pages i - ix

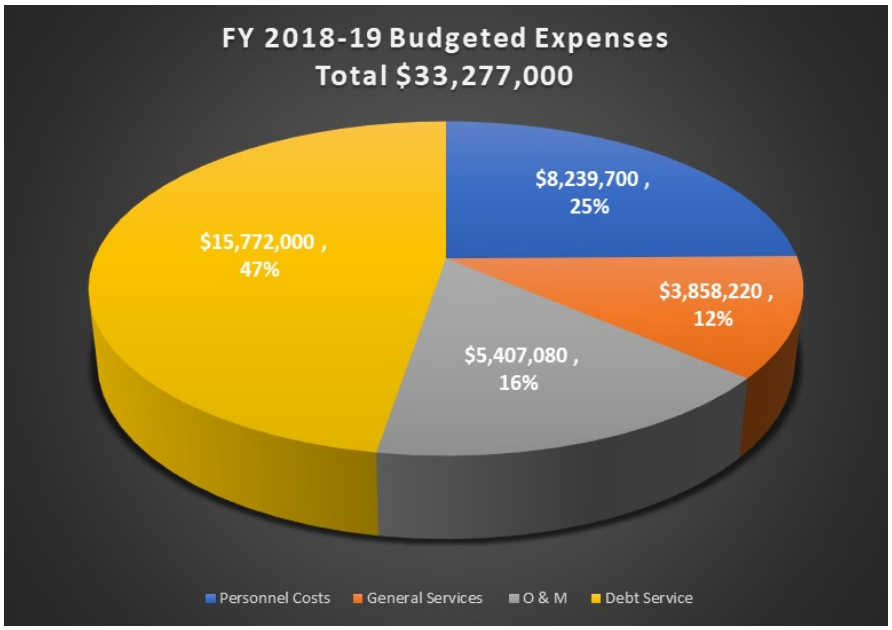
This page left blank intentionally.

Rivanna Water and Sewer Authority
Proposed
FY 2018-2019 Budget

Budget Overview

The Rivanna Water and Sewer Authority provides wholesale water supply, as well as drinking water and wastewater treatment services for the City of Charlottesville and the Albemarle County Service Authority (ACSA). An FY 2018-2019 budget of $33,277,000 is proposed to strategically provide these water and wastewater services in a financially responsible manner for our customers and the community.

The proposed budget includes $17,505,000 for Operating expenses and $15,772,000 for Debt Service charges. Operating expenses include Personnel costs (staff salaries and benefits), General Services costs (professional fees, utilities, insurance, permits, and data and voice communications), and Operation and Maintenance costs (chemicals, building repairs, equipment maintenance, technology and communications). Debt Service charges represent 47% of our budget, and provide funding to construct and renew our major infrastructure including water and wastewater treatment plants, pumping stations, piping systems and reservoir dams.



In the Urban Rate Centers, Operating expenses are proposed to increase:

- $0.101 per 1000 gallons (5.13%) for water
- $0.195 per 1000 gallons (9.99%) for wastewater

Debt Service charges for the City are proposed to increase:

- 13.1 % for water
- 3.92 % for wastewater

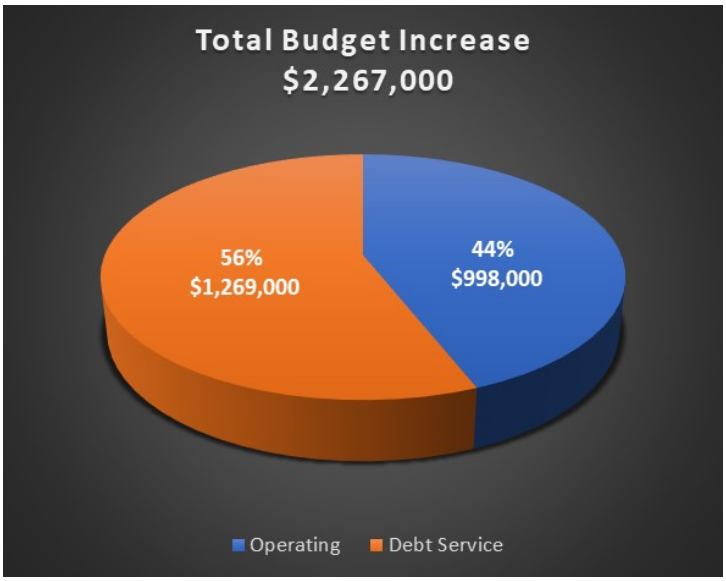
Debt Service charges for the ACSA are proposed to increase:

- 7.76% for water
- 10.68% for wastewater
- a composite Operating and Debt Service increase of 14.82% is proposed for water and wastewater services in the Non-Urban Rate Centers of the ACSA.

Rivanna Water and Sewer Authority
Proposed
FY 2018-2019 Budget

Overall, annual charges for the City are proposed to increase 5.0% ($680,800), and 10.4 % ($1,594,500) for the ACSA. A comparison of the FY 2018-2019 budget with the FY 2017-2018 budget is provided below:

The FY 2018-2019 budget proposes an increase of $1 million in Operating expenses and an increase of $1.3 million in Debt Service charges for a total budget increase of approximately $2.3 million, or 7.4% above the FY 2017-2018 budget, as shown below:



Rivanna Water and Sewer Authority
Proposed
FY 2018-2019 Budget

Highlights

Proposed budget increases will support existing and planned water and wastewater programs to effectively address the service expectations of our growing community. A brief description of those programs follows:

1. **Strategic Plan Implementation**

   Our Strategic Plan has been approved by both Authorities, and staff Goal Teams are developing specific strategies and tactics to achieve prioritized goals for the next year. Support will be required to complete many of the strategies.

2. **Reservoir Management**

   Volume surveys (bathymetric surveys) of the Ragged Mountain and South Fork Rivanna Reservoirs will be completed to evaluate the Safe Yield of our urban water supply system. We continue to monitor reservoir water quality and complete treatments to reduce algae growth, if needed.

3. **Urban Drinking Water Management**

   Water supply, redundancy and reliability will be improved by:

   - Increasing drinking water treatment capacity at the Observatory plant
   - Renewal of our largest water treatment plant at South Rivanna
   - Replacing piping and pumping stations which convey raw water from the Ragged Mountain Reservoir to the Observatory Treatment Plant
   - Acquiring the right-of-way for a pipeline to connect the South Rivanna and Ragged Mountain Reservoirs
   - Installing a major water line from Avon Street to the Pantops area

4. **Non-Urban Drinking Water Management**

   Water supply, redundancy and reliability will be improved by:

   - Increasing drinking water treatment capacity at the Crozet plant
   - Modifying the Beaver Creek Dam to comply with new regulatory requirements

5. **Urban Wastewater Management**

   Additional electric power and maintenance costs will be required to operate the new Rivanna Sewer Pump Station, which has the capacity to pump 53 million gallons of wastewater per day. Support is also included to minimize odors in the piping system which conveys wastewater from Crozet to the Moores Creek Treatment Plant.

6. **Technology Systems Planning and Management**

Use of complex technology systems continues to expand and evolve as we leverage technology to achieve operational efficiencies. Additional support is programmed to complete a Technology Master Plan, which will provide strategic direction as we acquire and implement an Asset Management System and enhance the functionality of other technology systems including Supervisory Control and Data Acquisition, as well as Geographic Information Systems.

Personnel

a. Merit Pool

A 3% merit pool for our employees has been included in the budget, which is generally consistent with local and national trends.

b. Health Insurance

Based on recommendations from our insurance consultant, a 10% increase in health insurance premiums has been included in the FY 2019 budget. We will work with our health insurance provider (Anthem) in April 2018 to find the most cost-effective plan for the Authority and our employees.

c. Additional Positions in Priority Order:

1. Water Plant Operator – Additional licensed Operators are needed to maintain two Operators on every shift at the S. Rivanna and Observatory Water Treatment Plants, as required by the Virginia Department of Health, while also supporting the Crozet, N. Rivanna and Scottsville Water Treatment Plants. This additional position will provide increased reliability for treatment operations, safety for the staff, and security for our facilities.

2. Instrumentation Specialist – An instrumentation position is needed to maintain the large number of sensor devices used to manage and monitor the flows and chemicals in our water and wastewater treatment processes and distribution systems. Water and wastewater metering systems require calibration and maintenance along with many of the instrumentation and metering requirements at the dams, pump stations, storage tanks, and other related facilities. Basic diagnostics and repairs of industrial controls, preventative maintenance specific to metering and industrial control practice, and managing instrument service contractors will be some of the duties of this position.

3. Software Analyst – Current IT personnel are heavily involved in Supervisory, Control and Data Acquisition (SCADA) software, hardware and network communications with a need for more specialized skill set and end user support. The number of technology systems used by the Authority is significant and growing. Better communication and information delivery systems and platforms for employee information networks, asset management systems, front-end enterprise-wide and business systems (largely performed by finance staff), records management systems, and GIS integrations have reached a technical complexity requiring dedicated and specialized skill sets for support.

Rivanna Water and Sewer Authority
Proposed
FY 2018-2019 Budget

Actual Water and Wastewater Flows

Actual water and wastewater wholesale flows are factors used to calculate the Urban Area operation rates and charges. The estimated wholesale flows will decrease for FY 2019 budgeted levels for both Urban Water and Wastewater by 1 % each, which is consistent with the ten-year trend.

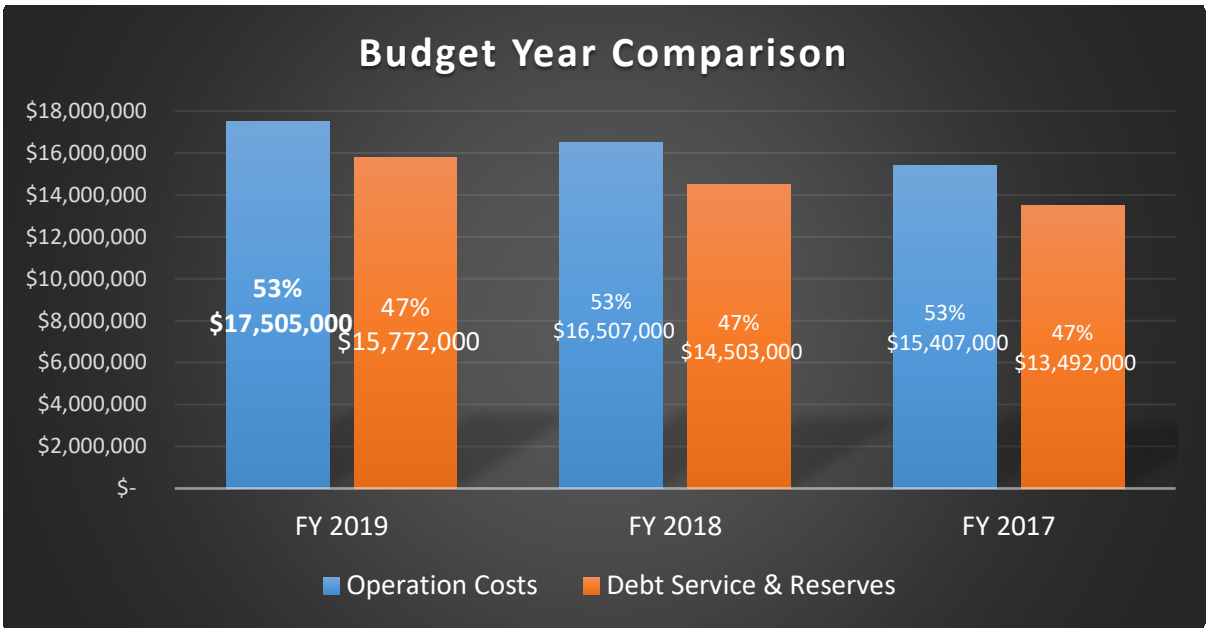
The other impact actual flows have on the charges to our customers is the allocation of wastewater costs between the City and ACSA for the Urban Area. These allocations are computed using retail flows reported by the City and ACSA. Based on FY 2017 actual retail flow data, the allocation for Urban Wastewater flow shifted two percentage points between the two customers, while the allocation for Urban Water flows shifted one percentage point for budget purposes as shown below.

Allocation of flows (based on retail flows):

	FY 2019	**FY 2018**
City Wastewater	51%	53%
ACSA Wastewater	49%	47%
City Water	51%	52%
ACSA Water	49%	48%

Revenues & Expenses

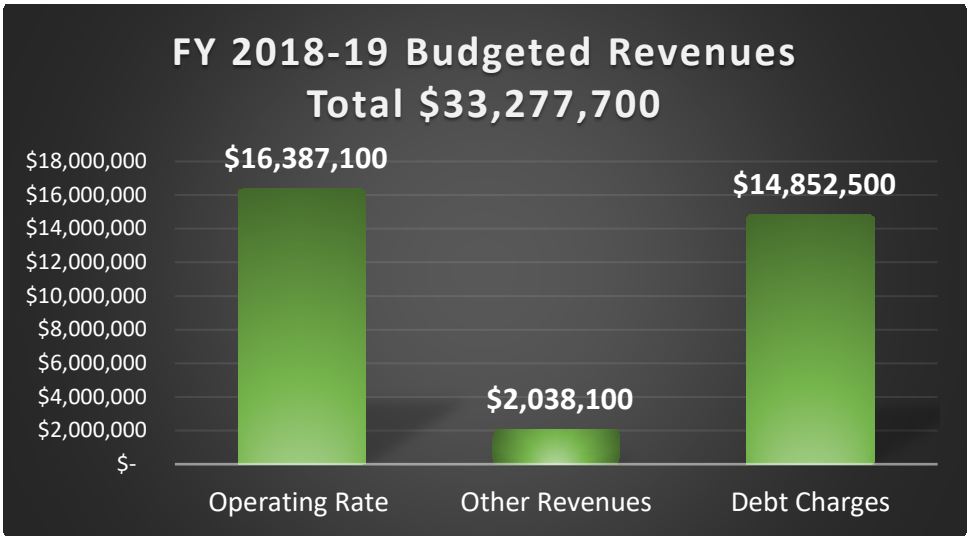
The Authority's overall ratio of Operating expenses and Debt Service costs are similar to last year with Operating expenses representing roughly 53% of the total budget and Debt Service costs being 47% of the total, as shown below:



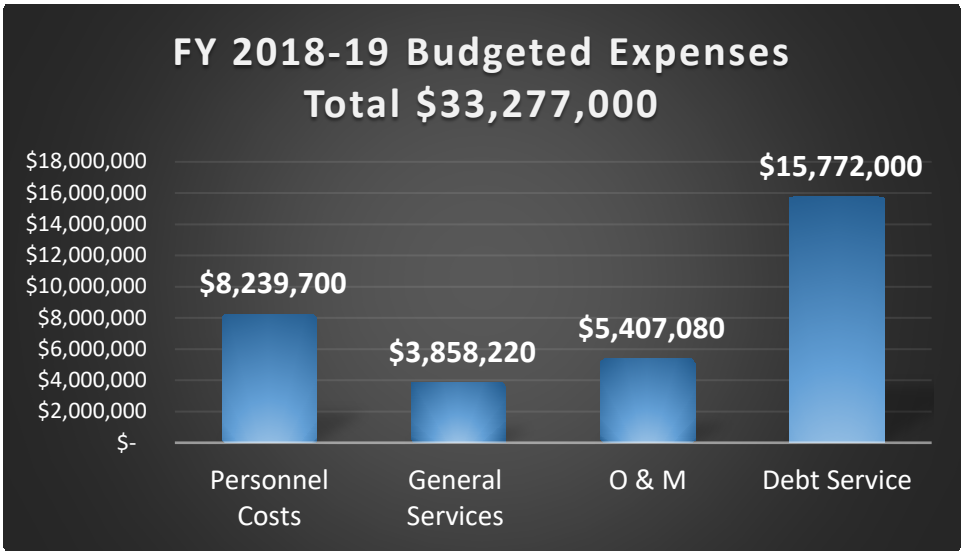
The Authority's annual Debt Service expenses are estimated to increase $1,269,000 over the current year to support recent and future major projects including the Rivanna Sewer Pump Station, Odor Control

Facilities, Water Treatment Plant Upgrades and Water Line Installations. This is following an increase of $1,011,000 in FY 2018 and $701,000 in FY 2017.

Revenues for FY 2019 are driven by Operating Rate revenues of $16,387,100 and Debt Service charges of $14,852,500. Other non-customer revenues are anticipated to generate $2,038,100.



Expenses are largely driven by three major categories. Debt Service costs related to capital expenses are $15,772,000. Personnel and Benefit costs are the second largest expense with $8,239,700 in estimated costs. General Service costs, which includes professional fees, utilities, insurance, permits, and data and voice communications are anticipated to cost $3,858,220. All other costs for Operations and Maintenance, which includes chemicals, building repairs, equipment maintenance, IT/SCADA, supplies and materials will total approximately $5,407,080.



A summary of the major cost changes compared to last year follows, and a detailed line-by-line comparison is provided in **Appendix 8** for the Authority as a whole.

Rivanna Water and Sewer Authority
Proposed
FY 2018-2019 Budget

	Line Item	Notable Items	Budget Change over Prior year
Personnel cost in general			
• Merit of 3.0%	11000		$ 160,800
• Personnel/Position Changes:			
3 new positions (Software Analyst, Water Operator, Instrumentation Tech)	11000		$ 151,000
Intern Program Funding	11000		$ 10,000
Benefit costs related to Personnel Changes	11XXX		$ 55,125
• Overtime & Holiday Pay Increase	11010		$ 49,700
• Health care benefit Premium Renewal 10% increase	12020		$ 96,790
• All other Personnel related changes			$ 38,785
Total change in personnel and benefit costs			**$ 562,200**
General overall changes			
• General Liability/Property Insurance - New facilities added	21100		$ 21,650
• Governance and strategic support (Placeholder) $5,000 each Lab, Maint. Eng. non-Urban $15,000 each Urban Rate Center $50,000 Admin.	21430		$ 115,000
Urban Water			
• Engineering Services - Operational Support GAC	20300	$ 40,000	
Lead and Copper Evaluations	20300	30,000	
RMD / 64 / SHD Inspections	20300	6,250	
Tank Inspections (Avon, Obs, SR, Piney)	20300	33,000	
Bathymetric Study (RM-$75K, SFRR-100K)	20300	175,000	
North Rivanna lagoon evaluation	20300	40,000	
Total FY 2019 Request		324,250	
FY 2018 Budget	20300	(137,450)	
		$ 186,800	$ 186,800
• Water Quality Mgt. - Rivanna Conservation Alliance	21250	$ 15,000	
Monitoring report for mitigation	21250	15,000	
Source water protection	21250	10,000	
Mitigation maintenance	21250	60,000	
Total FY 2019 Request		100,000	
FY 2018 Budget	21250	(75,000)	
		$ 25,000	$ 25,000
• Instrumentation & Metering			
Instrumentation Contract Services	41600	$ 43,800	
Wholesale Metering Calibration	41600	40,000	
Plant Metering Calibrations	41600	8,000	
Total FY 2019 Request		$ 91,800	
FY 2018 Budget	41600	$ (43,800)	
		$ 48,000	$ 48,000

Rivanna Water and Sewer Authority
Proposed
FY 2018-2019 Budget

	Line Item	Notable Items	Budget Change over Prior year
Crozet Water			
• Chemicals - Reservoir treatments	41450		$ 16,520
• General Other Maintenance - Lagoon cleaning	41700		$ 10,000
Urban Wastewater			
• Utilities - trending higher & new P.S.	21400		$ 120,000
• General Other - Crozet Int. costs are trending much higher	21400		$ 100,000
• Building & Grounds - 3 year trend	41100		$ 38,600
• Pipeline/Appurtenances - Clearing and Mowing	41350	$ 45,950	
Flow Meter Replacements	41350	79,200	
Contingency for line breaks	41350	69,850	
Total FY 2019 Request		$ 195,000	
FY 2018 Budget		(215,000)	
		$ (20,000)	$ (20,000)
• Vehicle Replacement Fund (new trailers & spotter truck)	81300		$ 20,500
Administration			
• Financial and Admin Services - Several Studies completed	20200		$ (43,900)
• Eng. and Technical Services - Technology Master Plan	20300		$ 100,000
• IT / SCADA - PLC Version control software	31150		$ 17,500
• Building & Grounds - Office changes and maintenance costs increases	41100		$ 22,500
• Equipment over $5,000 - New UPS Systems main server facility	81250		$ 15,000
• Vehicle Replacement Fund - vehicle count increased	81300		$ 4,200
Maintenance			
• Vehicle Replacement Fund - newer equipment purchased	81300		$ 10,000
Laboratory			
• Equipment over $5,000 - New BOD Incubator and algae monitor	81250		$ 70,000
Engineering			
• Engineering & Technical Services - Office space/sustainable energy study one time costs prior year	20300		$ (100,000)
All other budget changes			**$ (341,077)**
TOTAL INCREASE IN OPERATING COSTS	**Appendix 8**		**$ 998,500**

Rivanna Water and Sewer Authority
Proposed
FY 2018-2019 Budget

Debt Service & Capital

Debt service needs for the Capital Improvement Plan (CIP) are included in the budget request for the coming year. The overall CIP increased $16.8 million compared to last year. There were $38.5 million in completed projects and approximately $55.4 million in new projects or adjustments to existing projects. A more detailed look at the new and adjusted costs can be found in the proposed FY 2019 – FY 2023 CIP, which is a separate document and can be reviewed at http://www.rivanna.org/financials-and-procurement/.

The table below shows the changes in estimated project costs reflected in the CIP:

Project Cost	2017-2021 Adopted CIP	Projects Completed	New or Additional Project Costs	2019-2023 Proposed CIP	Change $	Change %
Urban Water Projects	$ 60,829,500	$ (5,626,000)	$ 33,409,000	$ 88,612,500	$ 27,783,000	46%
Urban Wastewater Projects	58,968,100	(32,359,750)	4,836,800	31,445,150	(27,522,950)	-88%
Non-Urban Projects	16,072,900	(557,500)	17,109,000	32,624,400	16,551,500	51%
Total Project Cost Estimates	**$ 135,870,500**	**$ (38,543,250)**	**$ 55,354,800**	**$ 152,682,050**	**$ 16,811,550**	11%

The Authority has programed into the FY 2019 budget charges that fund the additional debt service anticipated by the proposed CIP. Cumulatively, the Authority has built 38% of future debt service costs into the rates for all rate centers for FY 2019. This is done by using the CIP as a guide for future debt needs to include an average charge increase over that 5 year period. This helps to prevent the large spikes in charges for any given year in which new debt is actually issued - effectively leveling the impact on charges. For example, Urban Water current charges have nearly **37%** of the needed future debt service revenues already built into the charges to cover the total needed for the next five years ($3.8 million in annual debt service is estimated to be needed in the next 5 years, and $1.4 million will already be programmed into the charges). This would require the remaining $2.4 million to be included in a debt service charge increase over the next five years to fund the Water projects within the CIP.

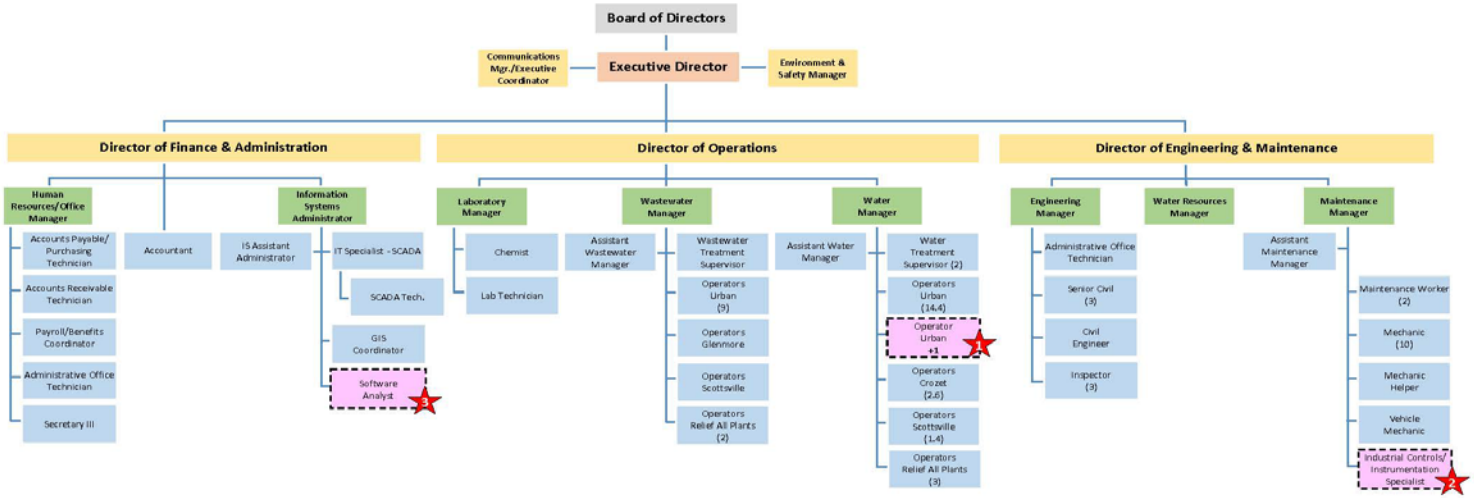
	Next Five Years		
	Annual Estimated NEW Debt Service related to 5-year CIP New Debt	New Debt Service Cost built into FY 2019 Rates	Percentage of Debt Service in proposed FY 2019 Rates
Urban Water	$ 3,827,400	$ 1,410,675	36.9%
Urban Wastewater	1,196,000	426,200	35.6%
Rural Rate Centers	1,791,700	571,300	31.9%
	$ 6,815,100	$ 2,408,175	35.3%

Rivanna Water and Sewer Authority
Proposed
FY 2018-2019 Budget

Proposed FY 2018-2019 Organization Chart

Rivanna Water & Sewer Authority
Organizational Chart

Proposed FY 18-19 Budget
Revision No. 3



FTE Positions by Department

Department	Current FTE	Change	Proposed FTE
Administration	12	0	
IT/SCADA	**4**	**+2**	**6**
Engineering	**12**	**-1**	**11**
Laboratory	3	0	
Maintenance	**16**	**+1**	**17**
Wastewater	16	0	
Water	**25.4**	**+1**	**26.4**
Total	**88.4**	**3**	**91.4**

FY 2019 Proposed FTE Additions

1. *Increase number of Urban Water Operators from 14.4 to 15.4 FTE.*
2. *Industrial Controls/Instrumentation Specialist, added to Maintenance Department.*
3. *Software Analyst, added to Information Systems Department.*

One employee per position unless otherwise noted in parenthesis ( )

Budget Details

Pages 1 - 64

This page left blank intentionally.

Rivanna Water & Sewer Authority
FY 2019 Proposed Budget

Prepared: May 10, 2018
Adopted: Draft 5 BOD Version

Departmental Summary of Revenues and Expenses

Summary of Revenues

	FY 2018	FY 2019	$ Change	% Change
Operations Revenues				
Urban Water	$ 6,846,000	$ 7,117,000	271,000	3.96%
Crozet Water	969,000	989,000	20,000	2.06%
Scottsville Water	429,000	444,000	15,000	3.50%
Urban Wastewater	7,215,000	7,818,000	603,000	8.36%
Glenmore Wastewater	353,000	373,000	20,000	5.67%
Scottsville Wastewater	285,000	302,000	17,000	5.96%
Administration	410,000	462,000	52,000	12.68%
Maintenance	-	-	-	
Lab	-	-	-	
Engineering	-	-	-	
Total	$ 16,507,000	$ 17,505,000	$ 998,000	6.05%
Debt Service Revenues				
Urban Water	$ 5,467,000	$ 6,185,000	718,000	13.13%
Crozet Water	696,000	1,004,000	308,000	44.25%
Scottsville Water	131,000	133,000	2,000	1.53%
Urban Wastewater	8,198,000	8,438,000	240,000	2.93%
Glenmore Wastewater	2,000	3,000	1,000	50.00%
Scottsville Wastewater	9,000	9,000	-	0.00%
Total	$ 14,503,000	$ 15,772,000	$ 1,269,000	8.75%
Total Revenues	**$ 31,010,000**	**$ 33,277,000**	**$ 2,267,000**	**7.31%**

Summary of Expenses

	FY 2018	FY 2019	$ Change	% Change
Operations Expenses				
Urban Water	$ 4,855,000	$ 4,927,000	72,000	1.48%
Crozet Water	782,000	782,000	-	0.00%
Scottsville Water	311,000	314,000	3,000	0.96%
Urban Wastewater	4,835,000	5,177,000	342,000	7.07%
Glenmore Wastewater	261,000	272,000	11,000	4.21%
Scottsville Wastewater	200,000	209,000	9,000	4.50%
Administration	2,034,000	2,433,000	399,000	19.62%
Maintenance	1,345,000	1,518,000	173,000	12.86%
Lab	365,000	446,000	81,000	22.19%
Engineering	1,519,000	1,427,000	(92,000)	-6.06%
Total	$ 16,507,000	$ 17,505,000	$ 998,000	6.05%
Debt Service Expenses				
Urban Water	$ 5,467,000	$ 6,185,000	718,000	13.13%
Crozet Water	696,000	1,004,000	308,000	44.25%
Scottsville Water	131,000	133,000	2,000	1.53%
Urban Wastewater	8,198,000	8,438,000	240,000	2.93%
Glenmore Wastewater	2,000	3,000	1,000	50.00%
Scottsville Wastewater	9,000	9,000	-	0.00%
Total	$ 14,503,000	$ 15,772,000	$ 1,269,000	8.75%
Total Expenses	**$ 31,010,000**	**$ 33,277,000**	**$ 2,267,000**	**7.31%**

Total Budgetary Surplus/ (Deficit)	**$ -**	**$ -**	**$ -**

These figures are rounded from the detail pages of this budget model and some immaterial differences will be present.

Summary of Itemized Rates

URBAN RATE CENTERS		FY 2018	FY 2019	$ Change	% Change
Operating Rates	($ per 1,000 Gallons)				
Operations	**Water**	$ 1.969	$ 2.070	$ 0.101	5.13%
Operations	**Wastewater**	1.951	2.146	0.195	9.99%
Debt Service Charges	($ Monthly Charge)				
Water					
Debt Service	**CITY**	$ 160,039	$ 181,008	$ 20,969	13.10%
Debt Service	**ACSA**	285,439	307,598	22,159	7.76%
Wastewater					
Debt Service	**CITY**	$ 392,841	$ 408,260	$ 15,419	3.92%
Debt Service	**ACSA**	222,550	246,308	23,758	10.68%

OTHER RATE CENTERS (Monthly)	FY 2018	FY 2019	$ Change	% Change
Crozet Water				
Operations	$ 76,278	$ 79,782	$ 3,504	4.59%
Debt Service	57,623	82,964	25,341	43.98%
Scottsville Water				
Operations	$ 34,353	$ 36,944	$ 2,591	7.54%
Debt Service	10,787	10,773	(14)	-0.13%
Water Total	$ 179,041	$ 210,463	$ 31,422	17.55%
Glenmore Wastewater				
Operations	$ 29,362	$ 31,060	$ 1,698	5.78%
Debt Service	132	132	-	0.00%
Scottsville Wastewater				
Operations	$ 23,724	$ 25,156	$ 1,432	6.04%
Debt Service	686	667	(19)	-2.77%
Wastewater Total	$ 53,904	$ 57,015	$ 3,111	5.77%
Total Monthly Other Rate Center Charges - ACSA	**$ 232,945**	**$ 267,478**	**$ 34,533**	**14.82%**

Summary of Charges to Customers

	FY 2018	FY 2019	Change $	Change %
City Charges From RWSA				
Urban Water				
Operating Rate Charges	$ 3,514,200	$ 3,587,700	$ 73,500	2.1%
Debt Service Charges	1,920,500	2,172,100	251,600	13.1%
	$ 5,434,700	$ 5,759,800	$ 325,100	6.0%
Urban Wastewater				
Operating Rate Charges	$ 3,540,600	$ 3,711,300	$ 170,700	4.8%
Debt Service Charges	4,714,100	4,899,100	185,000	3.9%
	$ 8,254,700	$ 8,610,400	$ 355,700	4.3%
Total City Charges	**$ 13,689,400**	**$ 14,370,200**	**$ 680,800**	**5.0%**
ACSA Charges From RWSA				
Urban Water				
Operating Rate Charges	$ 3,243,900	$ 3,447,000	$ 203,100	6.3%
Debt Service Charges	3,425,300	3,691,200	265,900	7.8%
	$ 6,669,200	$ 7,138,200	$ 469,000	7.0%
Urban Wastewater				
Operating Rate Charges	$ 3,139,800	$ 3,565,800	$ 426,000	13.6%
Debt Service Charges	2,670,600	2,955,700	285,100	10.7%
	$ 5,810,400	$ 6,521,500	$ 711,100	12.2%
Other Rate Centers				
Operating Charges	$ 1,964,600	$ 2,075,300	$ 110,700	5.6%
Debt Service Charges	830,700	1,134,400	303,700	36.6%
	$ 2,795,300	$ 3,209,700	$ 414,400	14.8%
Total ACSA Charges	**$ 15,274,900**	**$ 16,869,400**	**$ 1,594,500**	**10.4%**
RWSA Customer Revenue Charges				
Operating Rate Revenue				
Urban Water	$ 6,758,100	$ 7,034,700	$ 276,600	4.1%
Urban Wastwater	6,680,400	7,277,100	596,700	8.9%
Other Rate Centers	1,964,600	2,075,300	110,700	5.6%
	$ 15,403,100	$ 16,387,100	$ 984,000	6.4%
Debt Service Charge Revenues				
Urban Water	$ 5,345,800	$ 5,863,300	$ 517,500	9.7%
Urban Wastewater	7,384,700	7,854,800	470,100	6.4%
Other Rate Centers	830,700	1,134,400	303,700	36.6%
	$ 13,561,200	$ 14,852,500	$ 1,291,300	9.5%
Total RWSA Customer Revenues	**$ 28,964,300**	**$ 31,239,600**	**$ 2,275,300**	**7.9%**

This page left blank intentionally.

Water Rate Centers

Rivanna Water and Sewer Authority

Fiscal Year 2018-2019

This page left blank intentionally.

Rivanna Water & Sewer Authority
FY 2019 Proposed Budget

Urban Water Summary

	FY 2018			FY 2019	
	Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***
Projected Flow (MGD)	9.403			9.309	-1.00%
Operations Budget					
Projected Revenues					
Operations Rate	**$ 1.969**			**$ 2.070**	5.13%
Revenue	$ 6,758,077	$ 3,445,303	$ 6,890,606	$ 7,034,788	4.09%
Lease Revenues	35,000	32,882	65,764	70,000	100.00%
Use of Reserves	40,000	23,156	40,000	-	-100.00%
Miscellaneous	7,000	-	-	-	-100.00%
Interest Allocation	6,300	6,682	13,364	12,000	90.48%
Total Operations Revenues	**$ 6,846,377**	**$ 3,508,023**	**$ 7,009,734**	**$ 7,116,788**	**3.95%**
Projected Expenses					
Personnel Cost	$ 1,828,853	$ 873,898	$ 1,741,422	$ 1,903,778	4.10%
Professional Services	142,450	168,966	397,932	329,250	131.13%
Other Services and Charges	606,100	232,113	554,732	582,700	-3.86%
Communications	64,690	31,953	64,595	64,200	-0.76%
Information Technology	65,300	17,991	64,770	65,300	0.00%
Supplies	7,000	4,289	8,578	5,000	-28.57%
Operations and Maintenance	1,522,660	665,421	1,415,842	1,570,660	3.15%
Equipment Purchases	106,500	23,263	111,526	106,600	0.09%
Depreciation & Reserves	510,000	255,000	510,000	300,000	-41.18%
Subtotal Before Allocations	$ 4,853,553	$ 2,272,894	$ 4,869,397	$ 4,927,488	1.52%
Allocation of Support Departments	1,992,824	963,108	1,959,365	2,189,300	9.86%
Total Operations Expenses	**$ 6,846,377**	**$ 3,236,002**	**$ 6,828,762**	**$ 7,116,788**	**3.95%**
Operations Cost per 1,000 gallons	$1.995			$2.095	5.01%
Debt Service Budget					
Projected Revenue					
Debt Service Rates CITY	**160,039**			**181,008**	13.10%
ACSA	**285,439**			**307,598**	7.76%
Debt Service Rate Revenue - CITY	$ 1,920,463	$ 960,234	$ 1,920,468	$ 2,172,094	13.10%
Debt Service Rate Revenue - ACSA	3,425,267	1,712,634	3,425,268	3,691,177	7.76%
Trust Fund Interest	18,000	14,817	29,634	18,000	0.00%
Reserve Fund Interest	18,000	71,389	142,778	184,000	922.22%
Buck Mtn. Surcharge	84,000	63,200	126,400	118,600	41.19%
Lease Revenue	1,600	1,309	2,618	1,600	0.00%
Total Debt Service Revenue	**$ 5,467,330**	**$ 2,823,583**	**$ 5,647,166**	**$ 6,185,471**	**13.14%**
Principal, Interest & Reserves					
Total Principal & Interest	$ 4,242,130	2,121,065	$ 4,242,130	$ 4,190,796	-1.21%
Reserve Additions - Interest	18,000	71,389	142,778	184,000	922.22%
Debt Service Ratio Charge	400,000	200,000	400,000	400,000	0.00%
Est. New Debt Service - CIP Growth	807,200	403,600	807,200	1,410,675	74.76%
Total Debt Principal and Interest	**$ 5,467,330**	**$ 2,796,054**	**$ 5,592,108**	**$ 6,185,471**	**13.14%**
Rate Center Summary					
Total Revenues	$ 12,313,707	$ 6,331,606	$ 12,656,900	$ 13,302,259	8.03%
Total Expenses	12,313,707	6,032,056	12,420,870	13,302,259	8.03%
Surplus/(Deficit)	**$ -**	**$ 299,550**	**$ 236,030**	**$ -**	

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Urban Water

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 1,198,452	$ 553,605	$ 1,107,210	$ 1,200,800	$ 2,348	0.20%
11010	Overtime & Holiday Pay	90,000	80,519	151,038	120,000	30,000	33.33%
12010	FICA	98,567	47,016	94,032	101,041	2,474	2.51%
12020	Health Insurance	238,792	99,147	198,294	267,140	28,348	11.87%
12026	Employee Assistance Program	300	153	306	300	-	0.00%
12030	Retirement	115,291	52,682	105,364	115,517	226	0.20%
12040	Life Insurance	15,700	6,953	13,906	15,730	30	0.19%
12050	Fitness Program	3,500	1,963	3,926	3,750	250	7.14%
12060	Worker's Comp Insurance	21,601	11,068	22,136	29,000	7,399	34.25%
	Subtotal	$ 1,782,203	$ 853,106	$ 1,696,212	$ 1,853,278	$ 71,075	3.99%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 2,000	$ 776	$ 1,552	$ 2,000	$ -	0.00%
13150	Education & Training	17,850	7,638	15,276	21,700	3,850	21.57%
13200	Travel & Lodging	9,900	1,445	7,390	7,900	(2,000)	-20.20%
13250	Uniforms	15,400	8,589	17,178	15,400	-	0.00%
13325	Recruiting & Medical Testing	1,000	937	1,000	2,000	1,000	100.00%
13350	Other	500	1,407	2,814	1,500	1,000	200.00%
	Subtotal	$ 46,650	$ 20,792	$ 45,210	$ 50,500	$ 3,850	8.25%
	Professional Services						
20100	Legal Fees	$ 5,000	$ 35,535	$ 106,070	$ 5,000	$ -	0.00%
20200	Financial & Admin. Services	-	-	-	-	-	
20250	Bond Issue Costs	-	-	-	-	-	
20300	Engineering & Technical Services	137,450	133,431	291,862	324,250	186,800	135.90%
	Subtotal	$ 142,450	$ 168,966	$ 397,932	$ 329,250	$ 186,800	131.13%
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 30,800	$ 27,702	$ 27,702	$ 40,400	$ 9,600	31.17%
21150	Advertising & Communication	-	-	-	-	-	
21250	Watershed Management	75,000	10,000	110,000	100,000	25,000	33.33%
21252	EMS Programs/Supplies	500	-	500	500	-	0.00%
21253	Safety Programs/Supplies	15,800	10,520	21,040	15,800	-	0.00%
21300	Authority Dues/Permits/Fees	9,000	-	6,000	6,000	(3,000)	-33.33%
21350	Laboratory Analysis	55,000	31,874	63,748	55,000	-	0.00%
21400	Utilities	400,000	139,146	300,000	325,000	(75,000)	-18.75%
21420	General Other Services	20,000	12,871	25,742	25,000	5,000	25.00%
21430	Governance & Strategic Support	-	-	-	15,000	15,000	
21450	Bad Debt	-	-	-	-	-	
	Subtotal	$ 606,100	$ 232,113	$ 554,732	$ 582,700	$ (23,400)	-3.86%
22000	***Communication***						
22100	Radio	$ 4,690	$ 4,311	$ 4,311	$ 4,700	$ 10	0.21%
22150	Telephone & Data Service	52,000	22,840	50,680	50,000	(2,000)	-3.85%
22200	Cell Phones & Pagers	8,000	4,802	9,604	9,500	1,500	18.75%
	Subtotal	$ 64,690	$ 31,953	$ 64,595	$ 64,200	$ (490)	-0.76%
31000	***Information Technology***						
31100	Computer Hardware	$ 7,800	$ 3,635	$ 7,270	$ 7,800	$ -	0.00%
31150	SCADA Maint. & Support	55,000	13,515	55,000	55,000	-	0.00%
31200	Maintenance & Support Services	-	-	-	-	-	
31250	Software Purchases	2,500	841	2,500	2,500	-	0.00%
	Subtotal	$ 65,300	$ 17,991	$ 64,770	$ 65,300	$ -	0.00%
33000	***Supplies***						
33100	Office Supplies	$ 3,000	$ 2,688	$ 5,376	$ 3,000	$ -	0.00%
33150	Subscriptions/Reference Material	1,000	77	154	500	(500)	-50.00%
33350	Postage & Delivery	3,000	1,524	3,048	1,500	(1,500)	-50.00%
	Subtotal	$ 7,000	$ 4,289	$ 8,578	$ 5,000	$ (2,000)	-28.57%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 116,800	$ 123,183	$ 171,366	$ 116,800	$ -	0.00%
41150	Building & Land Lease	32,500	32,313	39,626	32,500	-	0.00%
41200	Pump Station Maintenance	5,000	19,429	38,858	5,000	-	0.00%
41300	Dam Maintenance	93,000	62,491	124,982	93,000	-	0.00%
41350	Pipeline/Appurtenances	146,560	13,787	77,574	146,560	-	0.00%
41400	Materials & Supplies	50,000	30,899	61,798	50,000	-	0.00%
41450	Chemicals	725,000	276,883	553,766	725,000	-	0.00%
41500	Vehicle Maintenance	5,000	5,102	10,204	5,000	-	0.00%
41550	Equipment Maint. & Repair	200,000	80,823	196,646	200,000	-	0.00%
41600	Instrumentation & Metering	43,800	7,407	44,814	91,800	48,000	109.59%
41650	Fuel & Lubricants	15,000	8,966	17,932	15,000	-	0.00%

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Urban Water

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41700	General Other Maintenance	90,000	4,138	78,276	90,000	-	0.00%
	Subtotal	$ 1,522,660	$ 665,421	$ 1,415,842	$ 1,570,660	$ 48,000	3.15%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 19,000	$ 14,583	$ 29,166	$ 19,000	$ -	0.00%
81200	Rental & Leases	2,500	1,180	2,360	2,500	-	0.00%
81250	Equipment (over $5000)	70,000	-	65,000	70,000	-	0.00%
81300	Vehicle Replacement Fund	15,000	7,500	15,000	15,100	100	0.67%
	Subtotal	$ 106,500	$ 23,263	$ 111,526	$ 106,600	$ 100	0.09%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ 714,625	$ 362,379	$ 746,035	$ 867,157	$ 152,532	21.34%
95300	Engineering Allocation	713,946	303,758	627,285	670,478	(43,468)	-6.09%
95150	Maintenance Allocation	403,517	201,050	393,261	455,257	51,740	12.82%
95200	Laboratory Allocation	160,736	95,921	192,784	196,408	35,672	22.19%
	Subtotal	$ 1,992,824	$ 963,108	$ 1,959,365	$ 2,189,300	$ 196,476	9.86%
	Reserve Transfers-GAC Carbon	$ 250,000	$ 125,000	$ 250,000	$ -	$ (250,000)	-100.00%
	Depreciation	260,000	130,000	260,000	300,000	40,000	15.38%
	Subtotal	$ 510,000	$ 255,000	$ 510,000	$ 300,000	$ (210,000)	-41.18%
	Total	**$ 6,846,377**	**$ 3,236,002**	**$ 6,828,762**	**$ 7,116,788**	**$ 270,411**	**3.95%**

This page left blank intentionally.

Rivanna Water & Sewer Authority
FY 2019 Proposed Budget

Crozet Water Summary

	FY 2018			FY 2019	
	Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***
Projected Flow (MGD)	0.521			0.540	3.65%
Operations Budget					
Projected Revenues					
Operations Rate (monthly)	**$ 76,278**			**$ 79,782**	4.59%
Revenue	$ 915,336	$ 457,668	$ 915,336	$ 957,384	4.59%
Leases	29,000	13,646	27,292	30,000	3.45%
Use of Reserves	24,000	17,009	24,000	-	
Interest Allocation	900	1,005	2,010	1,700	88.89%
Total Operations Revenues	**$ 969,236**	**$ 489,328**	**$ 968,638**	**$ 989,084**	**2.05%**
Projected Expenses					
Personnel Cost	$ 289,212	$ 137,177	$ 274,354	$ 288,389	-0.28%
Professional Services	47,000	67,150	154,300	30,000	-36.17%
Other Services and Charges	121,480	49,546	98,812	126,960	4.51%
Communications	4,230	2,418	4,444	4,450	5.20%
Information Technology	14,200	509	13,458	14,200	0.00%
Supplies	670	689	1,378	620	-7.46%
Operations and Maintenance	233,630	115,811	251,554	261,150	11.78%
Equipment Purchases	26,400	20,694	41,388	26,450	0.19%
Depreciation	45,000	22,500	45,000	30,000	-33.33%
Subtotal Before Allocations	$ 781,822	$ 416,494	$ 884,688	$ 782,219	0.05%
Allocations of Support Departments	187,416	90,972	184,613	206,862	10.38%
Total Operations Expenses	**$ 969,238**	**$ 507,466**	**$ 1,069,301**	**$ 989,081**	**2.05%**
Operations Cost per 1,000 gallons	$5.097			$5.018	-1.55%
Debt Service Budget					
Projected Revenue					
Debt Service Rates (monthly)	**$ 57,623**			**$ 82,964**	43.98%
Debt Service Rate Revenue - ACSA	$ 691,476	$ 345,738	$ 691,476	$ 995,568	43.98%
Trust Fund Interest	1,800	1,433	2,866	1,800	0.00%
Reserve Fund Interest	2,700	2,002	4,004	6,700	148.15%
Total Debt Service Revenue	**$ 695,976**	**$ 349,173**	**$ 698,346**	**$ 1,004,068**	**44.27%**
Principal, Interest & Reserves					
Total Principal & Interest - Existing	$ 426,977	$ 213,489	$ 426,978	$ 426,071	-0.21%
Estimated New Principal & Interest	266,300	133,150	266,300	571,300	114.53%
Reserve Additions - Interest	2,700	2,002	4,004	6,700	148.15%
Total Debt Principal and Interest	**$ 695,977**	**$ 348,641**	**$ 697,282**	**$ 1,004,071**	**44.27%**
Rate Center Summary					
Total Revenues	$ 1,665,212	$ 838,501	$ 1,666,984	$ 1,993,152	19.69%
Total Expenses	1,665,215	856,107	1,766,583	1,993,152	19.69%
Surplus/(Deficit)	**$ (3)**	**$ (17,606)**	**$ (99,599)**	**$ -**	
Rates - (Monthly)					
ACSA	**$ 133,901**			**$ 162,746**	**21.54%**

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Crozet Water

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 187,500	$ 86,563	$ 173,126	$ 181,100	$ (6,400)	-3.41%
11010	Overtime & Holiday Pay	18,000	12,935	25,870	20,000	2,000	11.11%
12010	FICA	15,721	7,381	14,762	15,384	(337)	-2.14%
12020	Health Insurance	37,907	15,761	31,522	40,891	2,984	7.87%
12026	Employee Assistance Program	50	24	48	50	-	0.00%
12030	Retirement	18,038	8,226	16,452	17,422	(616)	-3.42%
12040	Life Insurance	2,456	1,087	2,174	2,372	(84)	-3.42%
12050	Fitness Program	600	306	612	600	-	0.00%
12060	Worker's Comp Insurance	3,400	1,769	3,538	4,250	850	25.00%
	Subtotal	$ 283,672	$ 134,052	$ 268,104	$ 282,069	$ (1,603)	-0.57%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 250	$ 105	$ 210	$ 250	$ -	0.00%
13150	Education & Training	2,900	1,196	2,392	2,900	-	0.00%
13200	Travel & Lodging	1,000	167	334	670	(330)	-33.00%
13250	Uniforms	1,300	1,376	2,752	2,000	700	53.85%
13325	Recruiting & Medical Testing	40	150	300	350	310	775.00%
13350	Other	50	131	262	150	100	200.00%
	Subtotal	$ 5,540	$ 3,125	$ 6,250	$ 6,320	$ 780	14.08%
	Professional Services						
20100	Legal Fees	$ -	$ -	$ -	$ -	$ -	
20200	Financial & Admin. Services	-	-	-	-	-	
20250	Bond Issue Costs	-	-	-	-	-	
20300	Engineering & Technical Services	47,000	67,150	154,300	30,000	(17,000)	-36.17%
	Subtotal	$ 47,000	$ 67,150	$ 154,300	$ 30,000	$ (17,000)	
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 1,900	$ 1,780	$ 1,780	$ 2,960	$ 1,060	55.79%
21150	Advertising & Communication	-	-	-	-	-	
21250	Watershed Management	25,000	-	-	25,000	-	0.00%
21252	EMS Programs/Supplies	-	-	-	-	-	
21253	Safety Programs/Supplies	2,280	481	962	1,500	(780)	-34.21%
21300	Authority Dues/Permits/Fees	2,500	-	1,000	1,000	(1,500)	-60.00%
21350	Laboratory Analysis	26,000	13,641	27,282	30,000	4,000	15.38%
21400	Utilities	60,000	33,644	67,288	61,000	1,000	1.67%
21420	General Other Services	3,800	-	500	500	(3,300)	-86.84%
21430	Governance & Strategic Support	-	-	-	5,000	5,000	
21450	Bad Debt	-	-	-		-	
	Subtotal	$ 121,480	$ 49,546	$ 98,812	$ 126,960	$ 5,480	4.51%
22000	***Communication***						
22100	Radio	$ 430	$ 392	$ 392	$ 450	$ 20	4.65%
22150	Telephone & Data Service	2,900	1,474	2,948	3,000	100	3.45%
22200	Cell Phones & Pagers	900	552	1,104	1,000	100	11.11%
	Subtotal	$ 4,230	$ 2,418	$ 4,444	$ 4,450	$ 220	5.20%
31000	***Information Technology***						
31100	Computer Hardware	$ 1,000	$ -	$ 1,000	$ 1,000	$ -	0.00%
31150	SCADA Maint. & Support	12,400	480	12,400	12,400	-	0.00%
31200	Maintenance & Support Services	-	-	-	-	-	
31250	Software Purchases	800	29	58	800	-	0.00%
	Subtotal	$ 14,200	$ 509	$ 13,458	$ 14,200	$ -	0.00%
33000	***Supplies***						
33100	Office Supplies	$ 400	$ -	$ -	$ 100	$ (300)	-75.00%
33150	Subscriptions/Reference Material	10	12	24	20	10	100.00%
33350	Postage & Delivery	260	677	1,354	500	240	92.31%
	Subtotal	$ 670	$ 689	$ 1,378	$ 620	$ (50)	-7.46%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 35,000	$ 23,498	$ 36,996	$ 35,000	$ -	0.00%
41150	Building & Land Lease	-	-	-	-	-	
41200	Pump Station Maintenance	-	-	-	-	-	
41300	Dam Maintenance	5,000	-	5,000	5,000	-	

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Crozet Water

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41350	Pipeline/Appurtenances	5,000	-	-	5,000	-	0.00%
41400	Materials & Supplies	5,000	2,624	5,248	5,000	-	0.00%
41450	Chemicals	117,480	74,498	148,996	134,000	16,520	14.06%
41500	Vehicle Maintenance	1,000	578	1,156	1,000	-	0.00%
41550	Equipment Maint. & Repair	40,000	8,503	32,006	40,000	-	0.00%
41600	Instrumentation & Metering	8,150	5,175	10,350	8,150	-	0.00%
41650	Fuel & Lubricants	7,000	901	1,802	7,000	-	0.00%
41700	General Other Maintenance	10,000	34	10,000	21,000	11,000	110.00%
	Subtotal	$ 233,630	$ 115,811	$ 251,554	$ 261,150	$ 27,520	11.78%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 4,000	$ 10,519	$ 21,038	$ 4,000	$ -	0.00%
81200	Rental & Leases	-	-	-	-	-	
81250	Equipment (over $5000)	20,000	8,975	17,950	20,000	-	0.00%
81300	Vehicle Replacement Fund	2,400	1,200	2,400	2,450	50	2.08%
	Subtotal	$ 26,400	$ 20,694	$ 41,388	$ 26,450	$ 50	0.19%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ 64,966	$ 32,944	$ 67,821	$ 78,832	$ 13,866	21.34%
95300	Engineering Allocation	60,761	25,852	53,386	57,062	(3,699)	-6.09%
95150	Maintenance Allocation	47,077	23,456	45,880	53,113	6,036	12.82%
95200	Laboratory Allocation	14,612	8,720	17,526	17,855	3,243	22.19%
	Subtotal	$ 187,416	$ 90,972	$ 184,613	$ 206,862	$ 19,446	10.38%
	Reserve Transfers-GAC Carbon	$ 20,000	$ 10,000	$ 20,000	$ -	$ (20,000)	-100.00%
	Depreciation	25,000	12,500	25,000	30,000	5,000	20.00%
	Subtotal	$ 45,000	$ 22,500	$ 45,000	$ 30,000	$ (15,000)	-33.33%
	Total	**$ 969,238**	**$ 507,466**	**$ 1,069,301**	**$ 989,081**	**$ 19,843**	**2.05%**

This page left blank intentionally.

Rivanna Water & Sewer Authority
FY 2019 Proposed Budget

Scottsville Water Summary

	FY 2018			FY 2019	
	Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***
Projected Flow (MGD)	0.051			0.051	0.00%
Operations Budget					
Projected Revenues					
Operations Rate (monthly)	**$ 34,353**			**$ 36,944**	7.54%
Revenue	$ 412,236	$ 206,118	$ 412,236	$ 443,328	7.54%
Use of reserves	16,000	6,147	16,000	-	
Interest Allocation	400	417	834	750	87.50%
Total Operations Revenues	**$ 428,636**	**$ 212,682**	**$ 429,070**	**$ 444,078**	**3.60%**
Projected Expenses					
Personnel Cost	$ 154,467	$ 72,263	$ 144,526	$ 153,885	-0.38%
Professional Services	26,000	8,891	22,782	20,000	-23.08%
Other Services and Charges	19,490	10,180	20,666	28,680	47.15%
Communications	3,210	1,897	3,402	3,210	0.00%
Information Technology	7,000	1,130	6,838	7,000	0.00%
Supplies	750	74	148	750	0.00%
Operations and Maintenance	66,570	12,339	38,178	66,570	0.00%
Equipment Purchases	14,400	1,514	11,028	14,000	-2.78%
Depreciation	19,500	9,750	19,500	20,000	2.56%
Subtotal Before Allocations	$ 311,387	$ 118,038	$ 267,068	$ 314,095	0.87%
Allocations of Support Departments	117,247	57,214	115,247	129,988	10.87%
Total Operations Expenses	**$ 428,634**	**$ 175,252**	**$ 382,315**	**$ 444,083**	**3.60%**
Operations Cost per 1,000 gallons	$23.026			$23.856	3.60%
Debt Service Budget					
Projected Revenue					
Debt Service Rates - Monthly	**$ 10,787**			**$ 10,773**	-0.13%
Debt Service Rate Revenue - ACSA	$ 129,448	$ 64,722	$ 129,444	$ 129,280	-0.13%
Trust Fund Interest	400	415	830	400	0.00%
Reserve Fund Interest	1,500	1,068	2,136	3,300	120.00%
Total Debt Service Revenue	**$ 131,348**	**$ 66,205**	**$ 132,410**	**$ 132,980**	**1.24%**
Principal, Interest & Reserves					
Total Principal & Interest	$ 129,848	$ 64,924	$ 129,848	$ 129,680	-0.13%
Estimated New Principal & Interest	-	-	-	-	
Reserve Additions-Interest	1,500	1,068	2,136	3,300	120.00%
Total Debt Principal and Interest	**$ 131,348**	**$ 65,992**	**$ 131,984**	**$ 132,980**	**1.24%**
Rate Center Summary					
Total Revenues	$ 559,984	$ 278,887	$ 561,480	$ 577,058	3.05%
Total Expenses	559,982	241,244	514,299	577,063	3.05%
Surplus/ (Deficit)	**$ 2**	**$ 37,643**	**$ 47,181**	**$ (5)**	
Rates - Monthly					
ACSA	**$ 45,140**			**$ 47,717**	**5.71%**

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Scottsville Water

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 99,108	$ 45,557	$ 91,114	$ 95,900	$ (3,208)	-3.24%
11010	Overtime & Holiday Pay	10,000	6,819	13,638	11,000	1,000	10.00%
12010	FICA	8,347	3,886	7,772	8,178	(169)	-2.02%
12020	Health Insurance	20,055	8,303	16,606	21,670	1,615	8.05%
12026	Employee Assistance Program	25	13	26	25	-	0.00%
12030	Retirement	9,534	4,329	8,658	9,226	(308)	-3.23%
12040	Life Insurance	1,298	572	1,144	1,256	(42)	-3.24%
12050	Fitness Program	320	161	322	300	(20)	-6.25%
12060	Worker's Comp Insurance	1,800	979	1,958	2,350	550	30.56%
	Subtotal	$ 150,487	$ 70,619	$ 141,238	$ 149,905	$ (582)	-0.39%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 180	$ 55	$ 110	$ 180	$ -	0.00%
13150	Education & Training	1,950	630	1,260	1,950	-	0.00%
13200	Travel & Lodging	500	86	172	500	-	0.00%
13250	Uniforms	1,200	725	1,450	1,200	-	0.00%
13325	Recruiting & Medical Testing	100	79	158	100	-	0.00%
13350	Other	50	69	138	50	-	0.00%
	Subtotal	$ 3,980	$ 1,644	$ 3,288	$ 3,980	$ -	0.00%
	Professional Services						
20100	Legal Fees	$ -	$ -	$ -	$ -	$ -	
20200	Financial & Admin. Services	-	-	-	-	-	
20250	Bond Issue Costs	-	-	-	-	-	
20300	Engineering & Technical Services	26,000	8,891	22,782	20,000	(6,000)	-23.08%
	Subtotal	$ 26,000	$ 8,891	$ 22,782	$ 20,000	$ (6,000)	
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 700	$ 694	$ 694	$ 760	$ 60	8.57%
21150	Advertising & Communication	-	-	-	-	-	
21250	Watershed Management	-	-	-	-	-	
21252	EMS Programs/Supplies	-	-	-	-	-	
21253	Safety Programs/Supplies	1,990	548	1,096	1,990	-	0.00%
21300	Authority Dues/Permits/Fees	1,000	-	1,000	1,000	-	0.00%
21350	Laboratory Analysis	6,000	2,295	4,590	8,730	2,730	45.50%
21400	Utilities	9,600	6,643	13,286	11,000	1,400	14.58%
21420	General Other Services	200	-	-	200	-	0.00%
21430	Governance & Strategic Support	-	-	-	5,000	5,000	
21450	Bad Debt	-	-	-	-	-	
	Subtotal	$ 19,490	$ 10,180	$ 20,666	$ 28,680	$ 9,190	47.15%
22000	***Communication***						
22100	Radio	$ 430	$ 392	$ 392	$ 430	$ -	0.00%
22150	Telephone & Data Service	2,000	1,036	2,072	2,000	-	0.00%
22200	Cell Phones & Pagers	780	469	938	780	-	0.00%
	Subtotal	$ 3,210	$ 1,897	$ 3,402	$ 3,210	$ -	0.00%
31000	***Information Technology***						
31100	Computer Hardware	$ 600	$ -	$ 600	$ 600	$ -	0.00%
31150	SCADA Maint. & Support	6,200	1,111	6,200	6,200	-	0.00%
31200	Maintenance & Support Services	-	-	-	-	-	
31250	Software Purchases	200	19	38	200	-	0.00%
	Subtotal	$ 7,000	$ 1,130	$ 6,838	$ 7,000	$ -	0.00%
33000	***Supplies***						
33100	Office Supplies	$ 300	$ -	$ -	$ 300	$ -	0.00%
33150	Subscriptions/Reference Material	100	6	12	100	-	0.00%
33350	Postage & Delivery	350	68	136	350	-	0.00%
	Subtotal	$ 750	$ 74	$ 148	$ 750	$ -	0.00%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 12,000	$ 1,311	$ 2,622	$ 12,000	$ -	0.00%
41150	Building & Land Lease	-	-	-	-	-	
41200	Pump Station Maintenance	-	-	-	-	-	
41300	Dam Maintenance	1,500	-	1,500	1,500	-	0.00%
41350	Pipeline/Appurtenances	100	-	-	100	-	0.00%

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Scottsville Water

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41400	Materials & Supplies	3,000	524	1,048	3,000	-	0.00%
41450	Chemicals	13,700	3,982	7,964	13,700	-	0.00%
41500	Vehicle Maintenance	700	305	610	700	-	0.00%
41550	Equipment Maint. & Repair	15,000	316	10,632	15,000	-	0.00%
41600	Instrumentation & Metering	7,170	-	2,000	7,170	-	0.00%
41650	Fuel & Lubricants	1,400	357	714	1,400	-	0.00%
41700	General Other Maintenance	12,000	5,544	11,088	12,000	-	0.00%
	Subtotal	$ 66,570	$ 12,339	$ 38,178	$ 66,570	$ -	0.00%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 200	$ 664	$ 1,328	$ 200	$ -	0.00%
81200	Rental & Leases	500	-	-	500	-	0.00%
81250	Equipment (over $5000)	12,000	-	8,000	12,000	-	0.00%
81300	Vehicle Replacement Fund	1,700	850	1,700	1,300	(400)	-23.53%
	Subtotal	$ 14,400	$ 1,514	$ 11,028	$ 14,000	$ (400)	-2.78%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ 32,483	$ 16,472	$ 33,911	$ 39,416	$ 6,933	21.34%
95300	Engineering Allocation	30,381	12,926	26,693	28,531	(1,850)	-6.09%
95150	Maintenance Allocation	47,077	23,456	45,880	53,113	6,036	12.82%
95200	Laboratory Allocation	7,306	4,360	8,763	8,928	1,622	22.20%
	Subtotal	$ 117,247	$ 57,214	$ 115,247	$ 129,988	$ 12,741	10.87%
	Reserve Transfers-GAC Carbon	$ 2,500	$ 1,250	$ 2,500	$ -	(2,500)	-100.00%
	Depreciation	17,000	8,500	17,000	20,000	3,000	17.65%
	Subtotal	$ 19,500	$ 9,750	$ 19,500	$ 20,000	$ 500	2.56%
	Total	**$ 428,634**	**$ 175,252**	**$ 382,315**	**$ 444,083**	**$ 15,449**	**3.60%**

This page left blank intentionally.

Wastewater Rate Centers

Rivanna Water and Sewer Authority

Fiscal Year 2018-2019

This page left blank intentionally.

Rivanna Water & Sewer Authority
FY 2019 Proposed Budget

Urban Wastewater Summary

		FY 2018			FY 2019	
		Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***
Projected Flow (MGD)		9.383			9.289	-1.00%
Operations Budget						
Projected Revenues						
Operations Rate		**$ 1.951**			**$ 2.146**	9.99%
Revenue		$ 6,680,446	$ 2,846,835	$ 5,693,670	$ 7,277,082	8.93%
Stone Robinson WWTP		27,630	10,612	21,224	28,084	1.64%
Septage Acceptance		390,000	216,305	415,000	410,000	5.13%
Nutrient Credits		100,000	87,105	87,105	90,000	-10.00%
Miscellaneous Revenue		10,000	-	-	-	-100.00%
Interest Allocation		6,800	7,211	14,422	12,500	83.82%
Total Operations Revenues		**$ 7,214,876**	**$ 3,168,068**	**$ 6,231,421**	**$ 7,817,666**	**8.35%**
Projected Expenses						
Personnel Cost		$ 1,230,127	$ 535,622	$ 1,116,244	$ 1,282,792	4.28%
Professional Services		54,000	10,700	36,400	54,000	0.00%
Other Services and Charges		1,571,400	978,006	1,885,764	1,816,225	15.58%
Communications		10,430	6,779	10,031	10,430	0.00%
Information Technology		57,300	13,086	53,816	57,250	-0.09%
Supplies		2,700	649	1,298	2,700	0.00%
Operations and Maintenance		1,390,300	834,911	1,489,544	1,408,900	1.34%
Equipment Purchases		54,000	25,935	51,870	74,500	37.96%
Depreciation & Reserves		465,000	232,500	465,000	470,000	1.08%
Subtotal before allocations		$ 4,835,257	$ 2,638,188	$ 5,109,967	$ 5,176,797	7.06%
Allocations of Support Departments		2,379,619	1,160,797	2,347,672	2,640,869	10.98%
Total Operations Expenses		**$ 7,214,876**	**$ 3,798,985**	**$ 7,457,639**	**$ 7,817,666**	**8.35%**
Operations Cost per 1,000 gallons		$2.107			$2.306	9.44%
Debt Service Budget						
Projected Revenue						
Debt Service Rate	CITY	**392,841**			**408,260**	**3.92%**
	ACSA	**222,550**			**246,308**	**10.68%**
Debt Service Rate Revenue - CITY		$ 4,714,093	$ 2,357,046	$ 4,714,092	$ 4,899,122	3.93%
Debt Service Rate Revenue - ACSA		2,670,596	1,335,300	2,670,600	2,955,698	10.68%
Use of Reserves for 2016 Bond DS		600,000	300,000	600,000	300,000	-50.00%
County MOU - Septage		109,440	109,441	109,441	109,440	0.00%
Trust Fund Interest		26,200	21,001	42,002	26,200	0.00%
Reserve Fund Interest		77,300	58,312	116,624	148,000	91.46%
Total Debt Service Revenue		**$ 8,197,629**	**$ 4,181,100**	**$ 8,252,759**	**$ 8,438,460**	2.94%
Principal, Interest & Reserves						
Total Principal & Interest		$ 7,561,430	$ 3,780,715	$ 7,561,430	$ 7,539,261	-0.29%
Reserve Additions - Interest		77,300	58,312	116,624	148,000	91.46%
Debt Service Ratio Charge		325,000	162,500	325,000	325,000	0.00%
Est. New Debt Service - CIP Growth		233,900	116,950	233,900	426,200	82.21%
Total Debt Principal and Interest		**$ 8,197,630**	**$ 4,118,477**	**$ 8,236,954**	**$ 8,438,461**	2.94%
Rate Center Summary						
Total Revenues		$ 15,412,505	$ 7,349,168	$ 14,484,180	$ 16,256,126	5.47%
Total Expenses		15,412,506	7,917,462	15,694,593	16,256,127	5.47%
Surplus/(Deficit)		**$ (1)**	**$ (568,294)**	**$ (1,210,413)**	**$ (1)**	

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Urban Wastewater

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 821,502	$ 343,653	$ 732,306	$ 837,300	$ 15,798	1.92%
11010	Overtime & Holiday Pay	55,000	44,196	88,392	65,000	10,000	18.18%
12010	FICA	67,052	28,697	57,394	69,026	1,974	2.94%
12020	Health Insurance	163,633	67,509	135,018	180,849	17,216	10.52%
12026	Employee Assistance Program	220	93	186	200	(20)	-9.09%
12030	Retirement	79,028	31,302	62,604	80,548	1,520	1.92%
12040	Life Insurance	10,762	4,171	8,342	10,969	207	1.92%
12050	Fitness Program	1,500	339	678	700	(800)	-53.33%
12060	Worker's Comp Insurance	8,200	4,498	8,996	10,800	2,600	31.71%
	Subtotal	$ 1,206,897	$ 524,458	$ 1,093,916	$ 1,255,392	$ 48,495	4.02%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 2,800	$ 393	$ 786	$ 2,800	$ -	0.00%
13150	Education & Training	6,830	3,463	6,926	10,900	4,070	59.59%
13200	Travel & Lodging	5,200	2,342	4,684	5,300	100	1.92%
13250	Uniforms	6,900	3,210	6,420	6,900	-	0.00%
13325	Recruiting & Medical Testing	1,000	1,020	2,040	1,000	-	0.00%
13350	Other	500	736	1,472	500	-	0.00%
	Subtotal	$ 23,230	$ 11,164	$ 22,328	$ 27,400	$ 4,170	17.95%
	Professional Services						
20100	Legal Fees	$ 4,000	$ -	$ -	$ 4,000	$ -	0.00%
20200	Financial & Admin. Services	-	-	-	-	-	
20250	Bond Issue Costs	-	-	-	-	-	
20300	Engineering & Technical Services	50,000	10,700	36,400	50,000	-	0.00%
	Subtotal	$ 54,000	$ 10,700	$ 36,400	$ 54,000	$ -	
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 63,400	$ 58,882	$ 58,882	$ 74,800	$ 11,400	17.98%
21150	Advertising & Communication	-	225	450	225	225	
21250	Watershed Management	-	-	-	-	-	
21252	EMS Programs/Supplies	-	-	-	-	-	
21253	Safety Programs/Supplies	8,100	3,699	7,398	8,100	-	0.00%
21300	Authority Dues/Permits/Fees	37,000	25,131	40,262	35,200	(1,800)	-4.86%
21350	Laboratory Analysis	6,500	153	306	6,500	-	0.00%
21400	Utilities	750,000	459,678	919,356	870,000	120,000	16.00%
21420	General Other Services	704,400	428,555	857,110	804,400	100,000	14.20%
21430	Governance & Strategic Support	2,000	1,683	2,000	17,000	15,000	750.00%
21450	Bad Debt		-	-	-	-	
	Subtotal	$ 1,571,400	$ 978,006	$ 1,885,764	$ 1,816,225	$ 244,825	15.58%
22000	***Communication***						
22100	Radio	$ 3,830	$ 3,527	$ 3,527	$ 3,830	$ -	0.00%
22150	Telephone & Data Service	1,800	962	1,924	1,800	-	0.00%
22200	Cell Phones & Pagers	4,800	2,290	4,580	4,800	-	0.00%
	Subtotal	$ 10,430	$ 6,779	$ 10,031	$ 10,430	$ -	0.00%
31000	***Information Technology***						
31100	Computer Hardware	$ 6,500	$ 6,596	$ 6,700	$ 6,500	$ -	0.00%
31150	SCADA Maint. & Support	50,000	6,432	47,000	50,000	-	0.00%
31200	Maintenance & Support Services	-	-	-	-	-	
31250	Software Purchases	800	58	116	750	(50)	-6.25%
	Subtotal	$ 57,300	$ 13,086	$ 53,816	$ 57,250	$ (50)	-0.09%
33000	***Supplies***						
33100	Office Supplies	$ 2,500	$ 228	$ 456	$ 2,500	$ -	0.00%
33150	Subscriptions/Reference Material	-	-	-	-	-	
33350	Postage & Delivery	200	421	842	200	-	0.00%
	Subtotal	$ 2,700	$ 649	$ 1,298	$ 2,700	$ -	0.00%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 31,400	$ 56,261	$ 92,522	$ 70,000	$ 38,600	122.93%
41150	Building & Land Lease	-	-	-	-	-	
41200	Pump Station Maintenance	78,000	37,589	75,178	78,000	-	0.00%
41300	Dam Maintenance	-	-	-	-		
41350	Pipeline/Appurtenances	215,000	276,639	325,000	195,000	(20,000)	-9.30%
41400	Materials & Supplies	28,000	11,399	22,798	28,000	-	0.00%
41450	Chemicals	669,200	305,273	625,546	669,200	-	0.00%
41500	Vehicle Maintenance	10,000	3,433	6,866	10,000	-	0.00%
41550	Equipment Maint. & Repair	300,000	138,563	277,126	300,000	-	0.00%
41600	Instrumentation & Metering	58,700	15,130	68,260	58,700	-	0.00%
41650	Fuel & Lubricants	38,000	8,865	32,730	38,000	-	0.00%

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Urban Wastewater

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41700	General Other Maintenance	(38,000)	(18,241)	(36,482)	(38,000)	-	0.00%
	Subtotal	$ 1,390,300	$ 834,911	$ 1,489,544	$ 1,408,900	$ 18,600	1.34%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 7,500	$ 3,379	$ 6,758	$ 7,500	$ -	0.00%
81200	Rental & Leases	10,000	4,306	8,612	10,000	-	0.00%
81250	Equipment (over $5000)	-	-	-	-	-	
81300	Vehicle Replacement Fund	36,500	18,250	36,500	57,000	20,500	56.16%
	Subtotal	$ 54,000	$ 25,935	$ 51,870	$ 74,500	$ 20,500	37.96%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ 779,591	$ 395,322	$ 813,856	$ 945,989	$ 166,398	21.34%
95300	Engineering Allocation	668,375	284,369	587,246	627,681	(40,694)	-6.09%
95150	Maintenance Allocation	759,957	378,645	740,642	857,400	97,443	12.82%
95200	Laboratory Allocation	171,696	102,461	205,928	209,799	38,103	22.19%
	Subtotal	$ 2,379,619	$ 1,160,797	$ 2,347,672	$ 2,640,869	$ 261,250	10.98%
	Reserve Transfers	$ -	$ -	$ -	$ -	$ -	
	Depreciation	465,000	232,500	465,000	470,000	5,000	1.08%
	Subtotal	$ 465,000	$ 232,500	$ 465,000	$ 470,000	$ 5,000	1.08%
	Total	**$ 7,214,876**	**$ 3,798,985**	**$ 7,457,639**	**$ 7,817,666**	**$ 602,790**	**8.35%**

This page left blank intentionally.

Rivanna Water & Sewer Authority
FY 2019 Proposed Budget

Glenmore Wastewater Summary

	FY 2018			FY 2019	
	Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***
Projected Flow (MGD)	0.113			0.119	
Operations Budget					
Projected Revenues					
Operations Rate (monthly)	**$ 29,362**			**$ 31,060**	5.78%
Revenue	$ 352,344	$ 176,172	$ 352,344	$ 372,720	5.78%
Interest Allocation	300	334	668	600	100.00%
Total Operations Revenues	**$ 352,644**	**$ 176,506**	**$ 353,012**	**$ 373,320**	**5.86%**
Projected Expenses					
Personnel Cost	$ 90,824	$ 39,420	$ 83,840	$ 94,490	4.04%
Professional Services	3,000	-	-	3,000	0.00%
Other Services and Charges	31,490	16,991	30,545	39,510	25.47%
Communications	2,600	1,762	3,132	2,600	0.00%
Information Technology	3,500	-	4,200	3,350	-4.29%
Supplies	100	-	-	100	0.00%
Operations and Maintenance	121,450	41,201	91,902	121,450	0.00%
Equipment Purchases	3,100	1,300	2,600	2,900	-6.45%
Depreciation	5,000	2,500	5,000	5,000	0.00%
Subtotal before allocations	$ 261,064	$ 103,174	$ 221,219	$ 272,400	4.34%
Allocations of Support Departments	91,584	44,656	89,427	100,915	10.19%
Total Operations Expenses	**$ 352,648**	**$ 147,830**	**$ 310,646**	**$ 373,315**	**5.86%**
Operations Cost per 1,000 gallons	$8.550			$8.595	
Debt Service Budget					
Projected Revenue					
Debt Service Rate (monthly)	**$ 132**			**$ 132**	0.00%
Debt Service Rate Revenue - ACSA	$ 1,582	$ 792	$ 1,584	$ 1,586	0.25%
Trust Fund Interest	-		-	-	
Reserve Fund Interest	600	400	800	1,000	66.67%
Total Debt Service Revenue	**$ 2,182**	**$ 1,192**	**$ 2,384**	**$ 2,586**	**18.52%**
Principal, Interest & Reserves					
Total Principal & Interest	$ 1,582	$ 791	$ 1,582	$ 1,586	0.25%
Reserve Additions - Interest	600	400	800	1,000	66.67%
Total Debt Principal and Interest	**$ 2,182**	**$ 1,191**	**$ 2,382**	**$ 2,586**	**18.52%**
Rate Center Summary					
Total Revenues	$ 354,826	$ 177,698	$ 355,396	$ 375,906	5.94%
Total Expenses	354,830	149,021	313,028	375,901	5.94%
Surplus/(Deficit)	**$ (4)**	**$ 28,677**	**$ 42,368**	**$ 5**	
Rates (Monthly)					
ACSA	**$ 29,494**			**$ 31,192**	**5.76%**

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Glenmore Wastewater

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 60,422	$ 25,106	$ 55,212	$ 61,600	$ 1,178	1.95%
11010	Overtime & Holiday Pay	4,000	3,390	6,780	4,500	500	12.50%
12010	FICA	4,928	2,111	4,222	5,057	129	2.62%
12020	Health Insurance	12,324	5,090	10,180	13,620	1,296	10.52%
12026	Employee Assistance Program	15	7	14	15	-	0.00%
12030	Retirement	5,813	2,276	4,552	5,926	113	1.94%
12040	Life Insurance	792	304	608	807	15	1.89%
12050	Fitness Program	100	21	42	50	(50)	-50.00%
12060	Worker's Comp Insurance	600	325	650	800	200	33.33%
	Subtotal	$ 88,994	$ 38,630	$ 82,260	$ 92,375	$ 3,381	3.80%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 230	$ 19	$ 38	$ 230	$ -	0.00%
13150	Education & Training	490	249	498	775	285	58.16%
13200	Travel & Lodging	375	146	292	375	-	0.00%
13250	Uniforms	600	244	488	600	-	0.00%
13325	Recruiting & Medical Testing	100	78	156	100	-	0.00%
13350	Other	35	54	108	35	-	0.00%
	Subtotal	$ 1,830	$ 790	$ 1,580	$ 2,115	$ 285	15.57%
	Professional Services						
20100	Legal Fees	$ -	$ -	$ -	$ -	$ -	
20200	Financial & Admin. Services	-	-	-	-	-	
20250	Bond Issue Costs	-	-	-	-	-	
20300	Engineering & Technical Services	3,000	-	-	3,000	-	0.00%
	Subtotal	$ 3,000	$ -	$ -	$ 3,000	$ -	
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 300	$ 315	$ 315	$ 300	$ -	0.00%
21150	Advertising & Communication	-	-	-	-	-	
21250	Watershed Management	-	-	-	-	-	
21252	EMS Programs/Supplies	-	-	-	-	-	
21253	Safety Programs/Supplies	800	210	420	800	-	0.00%
21300	Authority Dues/Permits/Fees	280	3,311	3,500	3,300	3,020	1078.57%
21350	Laboratory Analysis	1,500	31	62	1,500	-	
21400	Utilities	28,500	13,124	26,248	28,500	-	0.00%
21420	General Other Services	110	-	-	110	-	
21430	Governance & Strategic Support	-	-	-	5,000	5,000	
21450	Bad Debt	-	-	-	-	-	
	Subtotal	$ 31,490	$ 16,991	$ 30,545	$ 39,510	$ 8,020	25.47%
22000	***Communication***						
22100	Radio	$ 400	$ 392	$ 392	$ 400	$ -	0.00%
22150	Telephone & Data Service	1,700	1,069	2,138	1,700	-	0.00%
22200	Cell Phones & Pagers	500	301	602	500	-	0.00%
	Subtotal	$ 2,600	$ 1,762	$ 3,132	$ 2,600	$ -	0.00%
31000	***Information Technology***						
31100	Computer Hardware	$ 800	$ -	$ -	$ 650	$ (150)	-18.75%
31150	SCADA Maint. & Support	2,500	-	4,200	2,500	-	0.00%
31200	Maintenance & Support Services	-	-	-	-	-	
31250	Software Purchases	200	-	-	200	-	0.00%
	Subtotal	$ 3,500	$ -	$ 4,200	$ 3,350	$ (150)	-4.29%
33000	***Supplies***						
33100	Office Supplies	$ 100	$ -	$ -	$ 100	$ -	0.00%
33150	Subscriptions/Reference Material	-	-	-	-	-	
33350	Postage & Delivery	-	-	-	-	-	
	Subtotal	$ 100	$ -	$ -	$ 100	$ -	0.00%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 8,500	$ -	$ 4,000	$ 8,500	$ -	0.00%
41150	Building & Land Lease	-	-	-	-	-	
41200	Pump Station Maintenance	9,000	1,510	3,020	9,000	-	0.00%
41300	Dam Maintenance	-	-	-	-	-	
41350	Pipeline/Appurtenances	500	-	-	500	-	0.00%

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Glenmore Wastewater

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41400	Materials & Supplies	2,000	3,595	7,190	2,000	-	0.00%
41450	Chemicals	4,000	883	1,766	4,000	-	
41500	Vehicle Maintenance	750	248	496	750	-	0.00%
41550	Equipment Maint. & Repair	18,000	2,351	8,202	18,000	-	0.00%
41600	Instrumentation & Metering	5,100	-	2,000	5,100	-	0.00%
41650	Fuel & Lubricants	3,600	579	1,158	3,600	-	0.00%
41700	General Other Maintenance	70,000	32,035	64,070	70,000	-	0.00%
	Subtotal	$ 121,450	$ 41,201	$ 91,902	$ 121,450	$ -	0.00%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 500	$ -	$ -	$ 500	$ -	0.00%
81200	Rental & Leases	-	-	-	-	-	
81250	Equipment (over $5000)	-	-	-	-	-	
81300	Vehicle Replacement Fund	2,600	1,300	2,600	2,400	(200)	-7.69%
	Subtotal	$ 3,100	$ 1,300	$ 2,600	$ 2,900	$ (200)	-6.45%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ 16,241	$ 8,236	$ 16,955	$ 19,708	$ 3,467	21.35%
95300	Engineering Allocation	22,786	9,694	20,020	21,398	(1,388)	-6.09%
95150	Maintenance Allocation	47,077	23,456	45,880	53,113	6,036	12.82%
95200	Laboratory Allocation	5,480	3,270	6,572	6,696	1,216	22.19%
	Subtotal	$ 91,584	$ 44,656	$ 89,427	$ 100,915	$ 9,331	10.19%
	Capital Reserve Transfers	$ -	$ -	$ -	$ -	$ -	
	Depreciation	5,000	2,500	5,000	5,000	-	0.00%
	Subtotal	$ 5,000	$ 2,500	$ 5,000	$ 5,000	$ -	0.00%
	Total	**$ 352,648**	**$ 147,830**	**$ 310,646**	**$ 373,315**	**$ 20,667**	**5.86%**

This page left blank intentionally.

Rivanna Water & Sewer Authority
FY 2019 Proposed Budget

Scottsville Wastewater Summary

	FY 2018			FY 2019	
	Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***
Projected Flow (MGD)	0.058			0.055	
Operations Budget					
Projected Revenues					
Operations Rate (monthly)	**$ 23,724**			**$ 25,156**	6.04%
Revenue	$ 284,688	$ 142,344	$ 284,688	$ 301,872	6.04%
Interest Allocation	300	271	542	500	66.67%
Total Operations Revenues	**$ 284,988**	**$ 142,615**	**$ 285,230**	**$ 302,372**	**6.10%**
Projected Expenses					
Personnel Cost	$ 90,849	$ 39,420	$ 83,840	$ 94,515	4.04%
Professional Services	2,000	-	-	2,000	
Other Services and Charges	22,900	14,233	24,682	28,400	24.02%
Communications	2,630	2,046	3,701	2,630	0.00%
Information Technology	4,400	-	3,000	2,350	-46.59%
Supplies	100	-	-	100	0.00%
Operations and Maintenance	57,850	9,568	31,650	57,850	0.00%
Equipment Purchases	3,400	1,300	2,600	3,200	-5.88%
Depreciation	16,000	8,000	16,000	18,000	12.50%
Subtotal before allocations	$ 200,129	$ 74,567	$ 165,473	$ 209,045	4.46%
Allocations of Support Departments	84,859	41,305	82,873	93,328	9.98%
Total Operations Expenses	**$ 284,988**	**$ 115,872**	**$ 248,346**	**$ 302,373**	**6.10%**
Operations Cost per 1,000 gallons	$13.462			$15.062	111.89%
Debt Service Budget					
Projected Revenue					
Debt Service Rate (monthly)	**$ 686**			**$ 667**	-2.77%
Debt Service Rate Revenue - ACSA	$ 8,233	$ 4,116	$ 8,232	$ 8,006	-2.76%
Trust Fund Interest	-	38	76	-	
Reserve Fund Interest	400	297	594	1,000	150.00%
Total Debt Service Revenue	**$ 8,633**	**$ 4,451**	**$ 8,902**	**$ 9,006**	**4.32%**
Principal, Interest & Reserves					
Total Principal & Interest	$ 8,233	$ 4,117	$ 8,234	$ 8,006	-2.76%
Estimated New Principal & Interest	-	-	-	-	
Reserve Additions - Interest	400	297	594	1,000	150.00%
Total Debt Principal and Interest	**$ 8,633**	**$ 4,414**	**$ 8,828**	**$ 9,006**	**4.32%**

Rate Center Summary					
Total Revenues	$ 293,621	$ 147,066	$ 294,132	$ 311,378	6.05%
Total Expenses	293,621	120,286	257,174	311,379	6.05%
Surplus/(Deficit)	**$ -**	**$ 26,780**	**$ 36,958**	**$ (1)**	
Rates (Monthly)					
ACSA	**$ 24,410**			**$ 25,823**	**5.79%**

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Scottsville Wastewater

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 60,422	$ 25,106	$ 55,212	$ 61,600	$ 1,178	1.95%
11010	Overtime & Holiday Pay	4,000	3,390	6,780	4,500	500	12.50%
12010	FICA	4,928	2,111	4,222	5,057	129	2.62%
12020	Health Insurance	12,324	5,090	10,180	13,620	1,296	10.52%
12026	Employee Assistance Program	15	7	14	15	-	0.00%
12030	Retirement	5,813	2,276	4,552	5,926	113	1.94%
12040	Life Insurance	792	304	608	807	15	1.89%
12050	Fitness Program	100	21	42	50	(50)	-50.00%
12060	Worker's Comp Insurance	600	325	650	800	200	33.33%
	Subtotal	$ 88,994	$ 38,630	$ 82,260	$ 92,375	$ 3,381	3.80%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 230	$ 19	$ 38	$ 230	$ -	0.00%
13150	Education & Training	490	249	498	775	285	58.16%
13200	Travel & Lodging	375	146	292	375	-	0.00%
13250	Uniforms	600	244	488	600	-	0.00%
13325	Recruiting & Medical Testing	100	78	156	100	-	
13350	Other	60	54	108	60	-	0.00%
	Subtotal	$ 1,855	$ 790	$ 1,580	$ 2,140	$ 285	15.36%
	Professional Services						
20100	Legal Fees	$ -	$ -	$ -	$ -	$ -	
20200	Financial & Admin. Services	-	-	-	-	-	
20250	Bond Issue Costs	-	-	-	-	-	
20300	Engineering & Technical Services	2,000	-	-	2,000	-	
	Subtotal	$ 2,000	$ -	$ -	$ 2,000	$ -	
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 700	$ 662	$ 662	$ 700	$ -	0.00%
21150	Advertising & Communication	-	-	-	-	-	
21250	Watershed Management	-	-	-	-	-	
21252	EMS Programs/Supplies	-	-	-	-	-	
21253	Safety Programs/Supplies	400	252	504	400	-	0.00%
21300	Authority Dues/Permits/Fees	2,800	3,311	3,500	3,300	500	17.86%
21350	Laboratory Analysis	4,000	190	380	4,000	-	0.00%
21400	Utilities	15,000	9,818	19,636	15,000	-	0.00%
21420	General Other Services	-	-	-	-	-	
21430	Governance & Strategic Support	-	-	-	5,000	5,000	
21450	Bad Debt	-	-	-	-	-	
	Subtotal	$ 22,900	$ 14,233	$ 24,682	$ 28,400	$ 5,500	24.02%
22000	***Communication***						
22100	Radio	$ 430	$ 391	$ 391	$ 430	$ -	0.00%
22150	Telephone & Data Service	1,700	1,354	2,708	1,700	-	0.00%
22200	Cell Phones & Pagers	500	301	602	500	-	0.00%
	Subtotal	$ 2,630	$ 2,046	$ 3,701	$ 2,630	$ -	0.00%
31000	***Information Technology***						
31100	Computer Hardware	$ 700	$ -	$ 700	$ 650	$ (50)	-7.14%
31150	SCADA Maint. & Support	3,500	-	2,300	1,500	(2,000)	-57.14%
31200	Maintenance & Support Services	-	-	-	-	-	
31250	Software Purchases	200	-	-	200	-	0.00%
	Subtotal	$ 4,400	$ -	$ 3,000	$ 2,350	$ (2,050)	-46.59%
33000	***Supplies***						
33100	Office Supplies	$ 100	$ -	$ -	$ 100	$ -	0.00%
33150	Subscriptions/Reference Material	-	-	-	-	-	
33350	Postage & Delivery	-	-	-	-	-	
	Subtotal	$ 100	$ -	$ -	$ 100	$ -	0.00%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 4,800	$ 1,405	$ 2,810	$ 4,800	$ -	0.00%
41150	Building & Land Lease	-	-	-	-	-	
41200	Pump Station Maintenance	10,500	845	1,690	10,500	-	0.00%
41300	Dam Maintenance	-	-	-	-		
41350	Pipeline/Appurtenances	500	-	-	500	-	0.00%
41400	Materials & Supplies	1,500	-	-	1,500	-	0.00%

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Rate Center: Scottsville Wastewater

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41450	Chemicals	4,000	-	-	4,000	-	0.00%
41500	Vehicle Maintenance	750	248	496	750	-	0.00%
41550	Equipment Maint. & Repair	16,000	2,059	15,000	16,000	-	0.00%
41600	Instrumentation & Metering	10,000	684	3,000	10,000	-	0.00%
41650	Fuel & Lubricants	800	386	772	800	-	0.00%
41700	General Other Maintenance	9,000	3,941	7,882	9,000	-	0.00%
	Subtotal	$ 57,850	$ 9,568	$ 31,650	$ 57,850	$ -	0.00%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 500	$ -	$ -	$ 500	$ -	0.00%
81200	Rental & Leases	300	-	-	300	-	
81250	Equipment (over $5000)	-	-	-	-	-	
81300	Vehicle Replacement Fund	2,600	1,300	2,600	2,400	(200)	-7.69%
	Subtotal	$ 3,400	$ 1,300	$ 2,600	$ 3,200	$ (200)	-5.88%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ 16,241	$ 8,236	$ 16,955	$ 19,708	$ 3,467	21.35%
95300	Engineering Allocation	22,786	9,694	20,020	21,398	(1,388)	-6.09%
95150	Maintenance Allocation	40,352	20,105	39,326	45,526	5,174	12.82%
95200	Laboratory Allocation	5,480	3,270	6,572	6,696	1,216	22.19%
	Subtotal	$ 84,859	$ 41,305	$ 82,873	$ 93,328	$ 8,469	9.98%
	Capital Reserve Transfers	$ -	$ -	$ -	$ -	$ -	
	Depreciation	16,000	8,000	16,000	18,000	2,000	12.50%
	Subtotal	$ 16,000	$ 8,000	$ 16,000	$ 18,000	$ 2,000	12.50%
	Total	**$ 284,988**	**$ 115,872**	**$ 248,346**	**$ 302,373**	**$ 17,385**	**6.10%**

This page left blank intentionally.

Support Departments

Fiscal Year 2018-2019

Rivanna Water and Sewer Authority

This page left blank intentionally.

Administration

	FY 2018			FY 2019	
	Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***
Operations Budget					
Projected Revenues & Sources					
Payment for Services SWA	$ 409,000	$ 204,500	$ 409,000	$ 460,000	12.47%
Bond Proceeds Used for Closing Costs	-	-	-	-	
Miscellaneous Revenue	1,000	4,284	8,568	2,000	100.00%
Total Operations Revenues	**$ 410,000**	**$ 208,784**	**$ 417,568**	**$ 462,000**	**12.68%**
Projected Expenses					
Personnel Cost	$ 1,544,127	$ 773,399	$ 1,544,798	$ 1,796,151	16.32%
Professional Services	171,900	81,223	162,446	228,000	32.64%
Other Services and Charges	111,940	89,121	182,058	140,980	25.94%
Communications	21,280	7,895	14,614	20,280	-4.70%
Information Technology	118,000	36,932	118,832	138,500	17.37%
Supplies	22,000	10,720	21,440	21,000	-4.55%
Operations and Maintenance	36,600	28,932	60,614	60,400	65.03%
Equipment Purchases	8,300	4,150	8,300	27,500	231.33%
Depreciation	-	-	-	-	
Total Operations Expenses	**$ 2,034,147**	**$ 1,032,372**	**$ 2,113,102**	**$ 2,432,811**	**19.60%**

Department Summary						
Total Revenues		$ 410,000	$ 208,784	$ 417,568	$ 462,000	12.68%
Total Expenses		2,034,147	1,032,372	2,113,102	2,432,811	19.60%
Net Costs Allocable to Rate Centers		**$ (1,624,147)**	**$ (823,588)**	**$ (1,695,534)**	**$ (1,970,811)**	21.34%
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 714,625**	**$ 362,379**	**$ 746,035**	**$ 867,157**	
Crozet Water	4.00%	**64,966**	**32,944**	**67,821**	**78,832**	
Scottsville Water	2.00%	**32,483**	**16,472**	**33,911**	**39,416**	
Urban Wastewater	48.00%	**779,591**	**395,322**	**813,856**	**945,989**	
Glenmore Wastewater	1.00%	**16,241**	**8,236**	**16,955**	**19,708**	
Scottsville Wastewater	1.00%	**16,241**	**8,236**	**16,955**	**19,708**	
	100.00%	**$ 1,624,147**	**$ 823,589**	**$ 1,695,533**	**$ 1,970,810**	

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Department: Administration

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 1,126,390	$ 566,627	$ 1,133,254	$ 1,298,900	$ 172,510	15.32%
11010	Overtime & Holiday Pay	800	553	1,106	1,500	700	87.50%
12010	FICA	86,230	37,753	75,506	99,481	13,251	15.37%
12020	Health Insurance	165,292	90,286	170,572	210,000	44,708	27.05%
12026	Employee Assistance Program	200	117	234	200	-	0.00%
12030	Retirement	108,359	54,621	109,242	124,954	16,595	15.31%
12040	Life Insurance	14,756	7,263	14,526	17,016	2,260	15.32%
12050	Fitness Program	2,800	1,168	2,336	2,700	(100)	-3.57%
12060	Worker's Comp Insurance	4,300	1,966	3,932	4,700	400	9.30%
	Subtotal	$ 1,509,127	$ 760,354	$ 1,510,708	$ 1,759,451	$ 250,324	16.59%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 2,500	$ 255	$ 510	$ 2,000	$ (500)	-20.00%
13150	Education & Training	17,000	5,842	16,684	19,000	2,000	11.76%
13200	Travel & Lodging	6,200	1,373	5,746	5,000	(1,200)	-19.35%
13250	Uniforms	800	125	250	1,500	700	87.50%
13325	Recruiting & Medical Testing	1,000	477	954	1,200	200	20.00%
13350	Other	7,500	4,973	9,946	8,000	500	6.67%
	Subtotal	$ 35,000	$ 13,045	$ 34,090	$ 36,700	$ 1,700	4.86%
	Professional Services						
20100	Legal Fees	$ 60,000	$ 30,329	$ 60,658	$ 60,000	$ -	0.00%
20200	Financial & Admin. Services	111,900	50,894	101,788	68,000	(43,900)	-39.23%
20250	Bond Issue Costs	-	-	-	-	-	0.00%
20300	Engineering & Technical Services	-	-	-	100,000	100,000	0.00%
	Subtotal	$ 171,900	$ 81,223	$ 162,446	$ 228,000	$ 56,100	32.64%
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 12,600	$ 11,184	$ 11,184	$ 11,900	$ (700)	-5.56%
21150	Advertising & Communication	15,000	6,166	12,332	15,000	-	0.00%
21250	Watershed Management	-	-	-	-	-	
21252	EMS Programs/Supplies	-	433	866	500	500	
21253	Safety Programs/Supplies	5,000	2,046	4,092	5,000	-	0.00%
21300	Authority Dues/Permits/Fees	33,250	20,948	41,896	35,000	1,750	5.26%
21350	Laboratory Analysis	-	-	-	-	-	
21400	Utilities	890	632	1,264	900	10	1.12%
21420	General Other Services	2,200	895	1,790	3,000	800	36.36%
21430	Governance & Strategic Support	38,000	46,817	103,634	64,680	26,680	70.21%
21450	Bad Debt	5,000	-	5,000	5,000	-	
	Subtotal	$ 111,940	$ 89,121	$ 182,058	$ 140,980	$ 29,040	25.94%
22000	***Communication***						
22100	Radio	$ 1,280	$ 1,176	$ 1,176	$ 1,280	$ -	0.00%
22150	Telephone & Data Service	14,000	3,210	6,420	12,000	(2,000)	-14.29%
22200	Cell Phones & Pagers	6,000	3,509	7,018	7,000	1,000	16.67%
	Subtotal	$ 21,280	$ 7,895	$ 14,614	$ 20,280	$ (1,000)	-4.70%
31000	***Information Technology***						
31100	Computer Hardware	$ 22,000	$ 12,916	$ 25,832	$ 20,000	$ (2,000)	-9.09%
31150	SCADA Maint. & Support	25,000	2,805	25,000	42,500	17,500	
31200	Maintenance & Support Services	58,000	18,289	58,000	63,000	5,000	8.62%
31250	Software Purchases	13,000	2,922	10,000	13,000	-	0.00%
	Subtotal	$ 118,000	$ 36,932	$ 118,832	$ 138,500	$ 20,500	17.37%
33000	***Supplies***						
33100	Office Supplies	$ 15,000	$ 7,167	$ 14,334	$ 15,000	$ -	0.00%
33150	Subscriptions/Reference Material	1,000	695	1,390	1,000	-	0.00%
33350	Postage & Delivery	6,000	2,858	5,716	5,000	(1,000)	-16.67%
	Subtotal	$ 22,000	$ 10,720	$ 21,440	$ 21,000	$ (1,000)	-4.55%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 30,500	$ 26,976	$ 53,952	$ 53,000	$ 22,500	73.77%
41150	Building & Land Lease	-	-	-	-	-	
41200	Pump Station Maintenance	-	-	-	-	-	
41300	Dam Maintenance	-	-	-	-	-	
41350	Pipeline/Appurtenances	-	-	-	-	-	
41400	Materials & Supplies	400	(10)	230	400	-	0.00%
41450	Chemicals	-	-	-	-	-	

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Department: Administration

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41500	Vehicle Maintenance	3,000	143	2,786	3,000	-	0.00%
41550	Equipment Maint. & Repair	-	-	-		-	
41600	Instrumentation & Metering	-	-	-		-	
41650	Fuel & Lubricants	2,700	1,823	3,646	4,000	1,300	48.15%
41700	General Other Maintenance	-	-	-		-	
	Subtotal	$ 36,600	$ 28,932	$ 60,614	$ 60,400	$ 23,800	65.03%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ -	$ -	$ -	$ -	$ -	
81200	Rental & Leases	-	-	-		-	
81250	Equipment (over $5000)	-	-	-	15,000	15,000	
81300	Vehicle Replacement Fund	8,300	4,150	8,300	12,500	4,200	50.60%
	Subtotal	$ 8,300	$ 4,150	$ 8,300	$ 27,500	$ 19,200	231.33%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ -	$ -	$ -	$ -	$ -	
95300	Engineering Allocation	-	-	-	-	-	
95150	Maintenance Allocation	-	-	-	-	-	
95200	Laboratory Allocation	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Capital Reserve Transfers	$ -	$ -	$ -	$ -	$ -	
	Depreciation	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Total	**$ 2,034,147**	**$ 1,032,372**	**$ 2,113,102**	**$ 2,432,811**	**$ 398,664**	**19.60%**

This page left blank intentionally.

Maintenance

	FY 2018			FY 2019	
	Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***
Operations Budget					
Projected Revenues					
Miscellaneous Revenue	$ -	$ 4,610	$ 9,220	$ -	
Total Operations Revenues	**$ -**	**$ 4,610**	**$ 9,220**	**$ -**	
Projected Expenses					
Personnel Cost	$ 1,150,821	$ 564,297	$ 1,128,594	$ 1,304,247	13.33%
Professional Services	-	-	-	-	
Other Services and Charges	12,300	11,105	15,375	17,500	42.28%
Communications	15,635	12,315	1,000	17,325	10.81%
Information Technology	6,500	2,328	6,156	6,500	0.00%
Supplies	500	95	190	2,000	300.00%
Operations and Maintenance	64,450	42,148	78,796	64,300	-0.23%
Equipment Purchases	94,850	42,490	89,980	105,650	11.39%
Depreciation	-	-	-	-	
Total Operations Expenses	**$ 1,345,056**	**$ 674,778**	**$ 1,320,091**	**$ 1,517,522**	**12.82%**

Department Summary					
Total Revenues		$ -	$ 4,610	$ 9,220	$ -
Total Expenses		1,345,056	674,778	1,320,091	1,517,522
Net Costs Allocable to Rate Centers		**$ (1,345,056)**	**$ (670,168)**	**$ (1,310,871)**	**$ (1,517,522)**
Allocations to the Rate Centers					
Urban Water	30.00%	**$ 403,517**	**$ 201,050**	**$ 393,261**	**$ 455,257**
Crozet Water	3.50%	**47,077**	**23,456**	**45,880**	**53,113**
Scottsville Water	3.50%	**47,077**	**23,456**	**45,880**	**53,113**
		-		**-**	
Urban Wastewater	56.50%	**759,957**	**378,645**	**740,642**	**857,400**
Glenmore Wastewater	3.50%	**47,077**	**23,456**	**45,880**	**53,113**
Scottsville Wastewater	3.00%	**40,352**	**20,105**	**39,326**	**45,526**
	100.00%	**$ 1,345,057**	**$ 670,168**	**$ 1,310,869**	**$ 1,517,522**

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Department: Maintenance

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 787,559	$ 382,724	$ 765,448	$ 880,100	$ 92,541	11.75%
11010	Overtime & Holiday Pay	5,000	798	1,596	6,000	1,000	20.00%
12010	FICA	60,631	27,820	55,640	67,787	7,156	11.80%
12020	Health Insurance	176,311	93,195	186,390	210,000	33,689	19.11%
12026	Employee Assistance Program	250	118	236	250	-	0.00%
12030	Retirement	75,763	37,175	74,350	84,666	8,903	11.75%
12040	Life Insurance	10,317	4,930	9,860	11,529	1,212	11.75%
12050	Fitness Program	400	-	-	-	(400)	-100.00%
12060	Worker's Comp Insurance	14,300	7,473	14,946	17,000	2,700	18.88%
	Subtotal	$ 1,130,531	$ 554,233	$ 1,108,466	$ 1,277,332	$ 146,801	12.99%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ -	$ 160	$ 320	$ 500	$ 500	
13150	Education & Training	6,000	3,920	7,840	11,000	5,000	83.33%
13200	Travel & Lodging	500	-	-	500	-	
13250	Uniforms	13,790	4,906	9,812	13,915	125	0.91%
13325	Recruiting & Medical Testing	-	610	1,220	500	500	
13350	Other	-	468	936	500	500	
	Subtotal	$ 20,290	$ 10,064	$ 20,128	$ 26,915	$ 6,625	32.65%
	Professional Services						
20100	Legal Fees	$ -	$ -	$ -	$ -	$ -	
20200	Financial & Admin. Services	-	-	-	-	-	
20250	Bond Issue Costs	-	-	-	-	-	
20300	Engineering & Technical Services	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 7,300	$ 6,835	$ 6,835	$ 7,500	$ 200	2.74%
21150	Advertising & Communication	-	-	-	-	-	
21250	Watershed Management	-	-	-	-	-	
21252	EMS Programs/Supplies	-	-	-		-	
21253	Safety Programs/Supplies	2,500	4,150	8,300	2,500	-	0.00%
21300	Authority Dues/Permits/Fees	-	-	-	-	-	
21350	Laboratory Analysis	-	-	-	-	-	
21400	Utilities	-	-	-	-	-	
21420	General Other Services	2,500	120	240	2,500	-	0.00%
21430	Governance & Strategic Support	-	-	-	5,000	5,000	
21450	Bad Debt	-	-	-	-	-	
	Subtotal	$ 12,300	$ 11,105	$ 15,375	$ 17,500	$ 5,200	42.28%
22000	***Communication***						
22100	Radio	$ 6,810	$ 6,696	$ 6,696	$ 6,900	$ 90	1.32%
22150	Telephone & Data Service	825	288	576	825	-	0.00%
22200	Cell Phones & Pagers	8,000	5,331	10,662	9,600	1,600	20.00%
	Subtotal	$ 15,635	$ 12,315	$ 17,934	$ 17,325	$ 1,690	10.81%
31000	***Information Technology***						
31100	Computer Hardware	$ 2,000	$ -	$ 1,500	$ 2,000	$ -	0.00%
31150	SCADA Maint. & Support	-	-	-	-	-	
31200	Maintenance & Support Services	2,500	2,250	4,500	2,500	-	0.00%
31250	Software Purchases	2,000	78	156	2,000	-	0.00%
	Subtotal	$ 6,500	$ 2,328	$ 6,156	$ 6,500	$ -	0.00%
33000	***Supplies***						
33100	Office Supplies	$ 500	$ 95	$ 190	$ 2,000	$ 1,500	300.00%
33150	Subscriptions/Reference Material	-	-	-	-	-	
33350	Postage & Delivery	-	-	-	-	-	
	Subtotal	$ 500	$ 95	$ 190	$ 2,000	$ 1,500	300.00%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 9,300	$ 9,352	$ 14,704	$ 9,300	$ -	0.00%
41150	Building & Land Lease	-	-	-	-	-	
41200	Pump Station Maintenance	-	-	-	-	-	
41300	Dam Maintenance	-	-	-	-	-	
41350	Pipeline/Appurtenances	2,500	-	1,000	2,500	-	0.00%
41400	Materials & Supplies	8,000	4,376	8,752	8,000	-	0.00%
41450	Chemicals	-	-	-	-	-	
41500	Vehicle Maintenance	11,150	16,489	27,978	11,000	(150)	-1.35%
41550	Equipment Maint. & Repair	13,500	4,427	8,854	13,500	-	0.00%
41600	Instrumentation & Metering	1,500	684	1,368	1,500	-	0.00%
41650	Fuel & Lubricants	18,500	6,820	16,140	18,500	-	0.00%
41700	General Other Maintenance	-	-	-	-	-	

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Department: Maintenance

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
	Subtotal	$ 64,450	$ 42,148	$ 78,796	$ 64,300	$ (150)	-0.23%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 12,850	$ 6,028	$ 12,056	$ 12,850	$ -	0.00%
81200	Rental & Leases	1,000	462	924	1,000	-	0.00%
81250	Equipment (over $5000)	9,000	-	5,000	9,800	800	8.89%
81300	Vehicle Replacement Fund	72,000	36,000	72,000	82,000	10,000	13.89%
	Subtotal	$ 94,850	$ 42,490	$ 89,980	$ 105,650	$ 10,800	11.39%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ -	$ -	$ -	$ -	$ -	
95300	Engineering Allocation	-	-	-	-	-	
95150	Maintenance Allocation	-	-	-	-	-	
95200	Laboratory Allocation	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Capital Reserve Transfers	$ -	$ -	$ -	$ -	$ -	
	Depreciation	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Total	**$ 1,345,056**	**$ 674,778**	**$ 1,337,025**	**$ 1,517,522**	**$ 172,466**	**12.82%**

This page left blank intentionally.

Laboratory Summary

	FY 2018			FY 2019	
	Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***

Operations Budget

Projected Revenues

N/A

Projected Expenses

Personnel Cost	$ 293,948	$ 182,123	$ 364,246	$ 301,101	2.43%
Professional Services	-	-	-	-	
Other Services and Charges	10,412	4,650	11,513	14,230	36.67%
Communications	600	500	-	800	33.33%
Information Technology	2,200	269	1,438	2,500	13.64%
Supplies	1,650	1,176	2,378	2,150	30.30%
Operations and Maintenance	55,000	28,785	57,570	53,500	-2.73%
Equipment Purchases	1,500	500	1,000	72,100	4706.67%
Depreciation	-	-	-	-	
Total Operations Expenses	**$ 365,310**	**$ 218,003**	**$ 438,145**	**$ 446,381**	**22.19%**

Department Summary						
Total Revenues		$ -	$ -	$ -	$ -	
Total Expenses		365,310	218,003	438,145	446,381	22.19%
Net Costs Allocable to Rate Centers		**$ (365,310)**	**$ (218,003)**	**$ (438,145)**	**$ (446,381)**	
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 160,736**	**$ 95,921**	**$ 192,784**	**$ 196,408**	
Crozet Water	4.00%	**14,612**	**8,720**	**17,526**	**17,855**	
Scottsville Water	2.00%	**7,306**	**4,360**	**8,763**	**8,928**	
		-	**-**	**-**		
Urban Wastewater	47.00%	**171,696**	**102,461**	**205,928**	**209,799**	
Glenmore Wastewater	1.50%	**5,480**	**3,270**	**6,572**	**6,696**	
Scottsville Wastewater	1.50%	**5,480**	**3,270**	**6,572**	**6,696**	
	100.00%	**$ 365,310**	**$ 218,002**	**$ 438,145**	**$ 446,382**	

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Department: Laboratory

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 208,684	$ 133,397	$ 266,794	$ 204,800	$ (3,884)	-1.86%
11010	Overtime & Holiday Pay	5,000	4,668	9,336	9,000	4,000	80.00%
12010	FICA	16,347	10,155	20,310	16,356	9	0.06%
12020	Health Insurance	33,058	14,724	29,448	36,400	3,342	10.11%
12026	Employee Assistance Program	50	25	50	50	-	0.00%
12030	Retirement	20,075	9,862	19,724	19,702	(373)	-1.86%
12040	Life Insurance	2,734	1,297	2,594	2,683	(51)	-1.87%
12050	Fitness Program	500	260	520	500	-	
12060	Worker's Comp Insurance	3,600	1,866	3,732	4,500	900	25.00%
	Subtotal	$ 290,048	$ 176,254	$ 352,508	$ 293,991	$ 3,943	1.36%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 500	$ 275	$ 550	$ 500	$ -	0.00%
13150	Education & Training	1,500	2,300	4,600	1,680	180	12.00%
13200	Travel & Lodging	500	2,136	4,272	1,930	1,430	286.00%
13250	Uniforms	1,000	202	404	2,000	1,000	100.00%
13325	Recruiting & Medical Testing		283	566	600	600	0.00%
13350	Other	400	673	1,346	400	-	0.00%
	Subtotal	$ 3,900	$ 5,869	$ 11,738	$ 7,110	$ 3,210	82.31%
	Professional Services						
20100	Legal Fees	$ -	$ -	$ -	$ -	$ -	
20200	Financial & Admin. Services	-	-	-	-	-	
20250	Bond Issue Costs	-	-	-	-	-	
20300	Engineering & Technical Services	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 500	$ 481	$ 481	$ 530	$ 30	6.00%
21150	Advertising & Communication	-	-	-	-	-	
21250	Watershed Management	-	-	-	-	-	
21252	EMS Programs/Supplies	-	-	-	-	-	
21253	Safety Programs/Supplies	662	4	8	700	38	5.74%
21300	Authority Dues/Permits/Fees	3,000	3	2,700	3,000	-	0.00%
21350	Laboratory Analysis	750	4,162	8,324	4,500	3,750	500.00%
21400	Utilities	5,000	-	-	-	(5,000)	-100.00%
21420	General Other Services	500	-	-	500	-	0.00%
21430	Governance & Strategic Support		-	-	5,000	5,000	
21450	Bad Debt		-	-	-	-	
	Subtotal	$ 10,412	$ 4,650	$ 11,513	$ 14,230	$ 3,818	36.67%
22000	***Communication***						
22100	Radio	$ -	$ -	$ -	$ -	$ -	
22150	Telephone & Data Service	-	-	-	-	-	
22200	Cell Phones & Pagers	600	500	1,000	800	200	33.33%
	Subtotal	$ 600	$ 500	$ 1,000	$ 800	$ 200	
31000	***Information Technology***						
31100	Computer Hardware	$ 1,200	$ 50	$ 1,000	$ 1,500	$ 300	25.00%
31150	SCADA Maint. & Support	-	-	-	-	-	
31200	Maintenance & Support Services	800	200	400	800	-	0.00%
31250	Software Purchases	200	19	38	200	-	0.00%
	Subtotal	$ 2,200	$ 269	$ 1,438	$ 2,500	$ 300	13.64%
33000	***Supplies***						
33100	Office Supplies	$ 1,500	$ 417	$ 1,200	$ 1,500	$ -	0.00%
33150	Subscriptions/Reference Material	-	420	500	300	300	
33350	Postage & Delivery	150	339	678	350	200	133.33%
	Subtotal	$ 1,650	$ 1,176	$ 2,378	$ 2,150	$ 500	30.30%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ -	$ -	$ -	$ -	$ -	
41150	Building & Land Lease	-	-	-	-	-	
41200	Pump Station Maintenance	-	-	-	-	-	
41300	Dam Maintenance	-	-	-	-	-	
41350	Pipeline/Appurtenances	-	-	-	-	-	
41400	Materials & Supplies	30,000	18,007	36,014	30,000	-	0.00%

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Department: Laboratory

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41450	Chemicals	15,000	9,215	18,430	15,000	-	0.00%
41500	Vehicle Maintenance	-	-	-	-	-	
41550	Equipment Maint. & Repair	10,000	1,223	2,446	6,000	(4,000)	-40.00%
41600	Instrumentation & Metering	-	-	-	2,000	2,000	
41650	Fuel & Lubricants	-	340	680	500	500	
41700	General Other Maintenance	-	-	-	-	-	
	Subtotal	$ 55,000	$ 28,785	$ 57,570	$ 53,500	$ (1,500)	-2.73%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 500	$ -	$ -	$ 500	$ -	0.00%
81200	Rental & Leases	-	-	-		-	
81250	Equipment (over $5000)	-	-	-	70,000	70,000	
81300	Vehicle Replacement Fund	1,000	500	1,000	1,600	600	60.00%
	Subtotal	$ 1,500	$ 500	$ 1,000	$ 72,100	$ 70,600	4706.67%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ -	$ -	$ -	$ -	$ -	
95300	Engineering Allocation	-	-	-	-	-	
95150	Maintenance Allocation	-	-	-	-		
95200	Laboratory Allocation	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Capital Reserve Transfers	$ -	$ -	$ -	$ -	$ -	
	Depreciation	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Total	**$ 365,310**	**$ 218,003**	**$ 439,145**	**$ 446,381**	**$ 81,071**	**22.19%**

This page left blank intentionally.

Engineering Summary

	FY 2018			FY 2019	
	Budgeted FY 2018	Actual for 6 months	Projected 12 months	***Proposed Budget***	***Budget % Change***
Operations Budget					
Projected Revenues					
Payment for Services SWA	$ -	$ 3,117	$ 6,234	$ -	
Total Operations Revenues	**$ -**	**$ 3,117**	**$ 6,234**	**$ -**	
Projected Expenses					
Personnel Cost	$ 1,168,295	$ 519,591	$ 1,039,182	$ 1,210,438	3.61%
Professional Services	144,000	4,907	59,814	44,000	-69.44%
Other Services and Charges	45,150	32,498	61,370	19,550	-56.70%
Communications	17,300	8,732	13,153	17,180	-0.69%
Information Technology	46,000	34,346	68,692	44,500	-3.26%
Supplies	9,500	3,167	6,334	9,500	0.00%
Operations and Maintenance	64,940	34,460	68,920	54,880	-15.49%
Equipment Purchases	23,850	11,709	23,418	26,500	11.11%
Depreciation	-	-	-	-	
Total Operations Expenses	**$ 1,519,035**	**$ 649,410**	**$ 1,340,883**	**$ 1,426,548**	**-6.09%**

Department Summary						
Total Revenues		$ -	$ 3,117	$ 6,234	$ -	
Total Expenses		1,519,035	649,410	1,340,883	1,426,548	-6.09%
Net Costs Allocable to Rate Centers		**$ (1,519,035)**	**$ (646,293)**	**$ (1,334,649)**	**$ (1,426,548)**	
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 713,946**	**$ 303,758**	**$ 627,285**	**$ 670,478**	
Crozet Water	4.00%	**60,761**	**25,852**	**53,386**	**57,062**	
Scottsville Water	2.00%	**30,381**	**12,926**	**26,693**	**28,531**	
Urban Wastewater	44.00%	**668,375**	**284,369**	**587,246**	**627,681**	
Glenmore Wastewater	1.50%	**22,786**	**9,694**	**20,020**	**21,398**	
Scottsville Wastewater	1.50%	**22,786**	**9,694**	**20,020**	**21,398**	
	100.00%	**$ 1,519,035**	**$ 646,293**	**$ 1,334,650**	**$ 1,426,548**	

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Department: Engineering

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 834,815	$ 382,162	$ 764,324	$ 861,350	$ 26,535	3.18%
11010	Overtime & Holiday Pay	6,000	2,040	4,080	6,000	-	0.00%
12010	FICA	64,322	28,578	57,156	66,352	2,030	3.16%
12020	Health Insurance	132,233	44,099	88,198	134,700	2,467	1.87%
12026	Employee Assistance Program	140	72	144	140	-	0.00%
12030	Retirement	80,309	35,612	71,224	82,862	2,553	3.18%
12040	Life Insurance	10,936	4,735	9,470	11,284	348	3.18%
12050	Fitness Program	2,000	1,038	2,076	2,000	-	0.00%
12060	Worker's Comp Insurance	15,740	7,865	15,730	18,800	3,060	19.44%
	Subtotal	$ 1,146,495	$ 506,201	$ 1,012,402	$ 1,183,488	$ 36,993	3.23%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 1,800	$ 1,509	$ 3,018	$ 2,200	$ 400	22.22%
13150	Education & Training	7,500	7,146	14,292	8,450	950	12.67%
13200	Travel & Lodging	7,500	2,193	4,386	11,300	3,800	50.67%
13250	Uniforms	3,500	830	1,660	3,500	-	0.00%
13325	Recruiting & Medical Testing	500	1,373	2,746	500	-	0.00%
13350	Other	1,000	339	678	1,000	-	0.00%
	Subtotal	$ 21,800	$ 13,390	$ 26,780	$ 26,950	$ 5,150	23.62%
	Professional Services						
20100	Legal Fees	$ 25,000	$ 3,243	$ 6,486	$ 25,000	$ -	0.00%
20200	Financial & Admin. Services	4,000	-	-	4,000	-	0.00%
20250	Bond Issue Costs	-	-	-	-	-	
20300	Engineering & Technical Services	115,000	1,664	53,328	15,000	(100,000)	-86.96%
	Subtotal	$ 144,000	$ 4,907	$ 59,814	$ 44,000	$ (100,000)	-69.44%
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 4,900	$ 3,626	$ 3,626	$ 4,900	$ -	0.00%
21150	Advertising & Communication	200	-	-	200	-	0.00%
21250	Watershed Management	-	-	-	-	-	
21252	EMS Programs/Supplies	-	-	-	-	-	
21253	Safety Programs/Supplies	4,000	630	1,260	4,000	-	0.00%
21300	Authority Dues/Permits/Fees	1,500	1,215	2,430	1,500	-	0.00%
21350	Laboratory Analysis	250	-	-	250	-	0.00%
21400	Utilities	300	171	342	300	-	0.00%
21420	General Other Services	34,000	26,856	53,712	3,400	(30,600)	-90.00%
21430	Governance & Strategic Support	-	-	-	5,000	5,000	
21450	Bad Debt	-	-	-	-	-	
	Subtotal	$ 45,150	$ 32,498	$ 61,370	$ 19,550	$ (25,600)	-56.70%
22000	***Communication***						
22100	Radio	$ 8,000	$ 4,311	$ 4,311	$ 8,000	$ -	0.00%
22150	Telephone & Data Service	1,500	629	1,258	1,500	-	0.00%
22200	Cell Phones & Pagers	7,800	3,792	7,584	7,680	(120)	-1.54%
	Subtotal	$ 17,300	$ 8,732	$ 13,153	$ 17,180	$ (120)	-0.69%
31000	***Information Technology***						
31100	Computer Hardware	$ 9,000	$ 7,725	$ 15,450	$ 7,000	$ (2,000)	-22.22%
31150	SCADA Maint. & Support	-	-	-	-	-	
31200	Maintenance & Support Services	34,000	26,485	52,970	34,500	500	1.47%
31250	Software Purchases	3,000	136	272	3,000	-	0.00%
	Subtotal	$ 46,000	$ 34,346	$ 68,692	$ 44,500	$ (1,500)	-3.26%
33000	***Supplies***						
33100	Office Supplies	$ 5,000	$ 2,815	$ 5,630	$ 5,000	$ -	0.00%
33150	Subscriptions/Reference Material	4,000	119	238	4,000	-	0.00%
33350	Postage & Delivery	500	233	466	500	-	0.00%
	Subtotal	$ 9,500	$ 3,167	$ 6,334	$ 9,500	$ -	0.00%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 33,940	$ 10,862	$ 31,724	$ 18,940	$ (15,000)	-44.20%
41150	Building & Land Lease	-	-	-	-	-	
41200	Pump Station Maintenance	-	-	-	-	-	
41300	Dam Maintenance	-	-	-	-		
41350	Pipeline/Appurtenances	15,000	5,519	11,038	19,690	4,690	31.27%
41400	Materials & Supplies	4,000	1,968	3,936	4,250	250	6.25%

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Department: Engineering

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41450	Chemicals	-	-	-	-	-	
41500	Vehicle Maintenance	6,000	13,646	17,292	6,000	-	0.00%
41550	Equipment Maint. & Repair	1,000	74	148	1,000	-	0.00%
41600	Instrumentation & Metering	-	-	-	-	-	
41650	Fuel & Lubricants	5,000	2,391	4,782	5,000	-	0.00%
41700	General Other Maintenance	-	-	-	-	-	
	Subtotal	$ 64,940	$ 34,460	$ 68,920	$ 54,880	$ (10,060)	-15.49%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 2,500	$ 1,034	$ 2,068	$ 8,000	$ 5,500	220.00%
81200	Rental & Leases	-	-	-	-	-	
81250	Equipment (over $5000)	-	-	-	-	-	
81300	Vehicle Replacement Fund	21,350	10,675	21,350	18,500	(2,850)	-13.35%
	Subtotal	$ 23,850	$ 11,709	$ 23,418	$ 26,500	$ 2,650	11.11%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ -	$ -	$ -	$ -	$ -	
95300	Engineering Allocation	-	-	-	-	-	
95150	Maintenance Allocation	-	-	-	-	-	
95200	Laboratory Allocation	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Capital Reserve Transfers	$ -	$ -	$ -	$ -	$ -	
	Depreciation	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Total	**$ 1,519,035**	**$ 649,410**	**$ 1,340,883**	**$ 1,426,548**	**$ (92,487)**	**-6.09%**

This page left blank intentionally.

APPENDICES

Rivanna Water and Sewer Authority

Fiscal Year 2018-2019

This page left blank intentionally.

Flow Projections

	(1,000 GALLONS)			(MILLION GALLONS PER DAY)		
	FY 2018	***FY 2019***	***% Change***	***FY 2018***	***FY 2019***	***% Change***
Water						
Urban	3,432,018	3,397,700	-1.00%	9.403	9.309	-1.00%
Crozet	190,066	196,946	3.62%	0.521	0.540	3.65%
Scottsville	18,629	18,738	0.59%	0.051	0.051	0.00%
Total	3,640,713	3,613,384	-0.75%	9.9750	9.9000	-0.75%
Wastewater						
Urban	3,424,639	3,390,400	-1.00%	9.383	9.289	-1.00%
Glenmore	41,088	43,412	5.66%	0.113	0.119	5.31%
Scottsville	21,335	19,966	-6.42%	0.058	0.055	-5.17%
Total	3,487,062	3,453,778	-0.95%	9.5540	9.4630	-0.95%

Allocation (Urban Area Only)	***FY 2018***	***FY 2019***	***% Change***
Water			
City	52%	51%	-1.92%
ACSA	48%	49%	2.08%
Wastewater			
City	53%	51%	-3.77%
ACSA	47%	49%	4.26%

FY 2019 allocations are based on FY 2017 retail flows reported by the City and ACSA.

	(1,000 GALLONS)			(MILLION GALLONS PER DAY)		
Allocation (Urban Area Only)	***FY 2018***	***FY 2019***	***% Change***	***FY 2018***	***FY 2019***	***% Change***
Water						
City	1,784,649	1,732,827	-2.90%	4.889	4.747	-2.90%
ACSA	1,647,369	1,664,873	1.06%	4.513	4.561	1.06%
	3,432,018	3,397,700				
Wastewater						
City	1,815,059	1,729,104	-4.74%	4.973	4.737	-4.75%
ACSA	1,609,580	1,661,296	3.21%	4.410	4.551	3.20%
	3,424,639	3,390,400				

URBAN WATER DEBT SERVICE COSTS

Summary of Debt Service Budget to be included in Monthly Charges

City Allocation of Debt Service Costs	Estimated Debt Service Budget FY 2019	City %	City Amount	Annual Total
ALLOCATION BASED ON FLOWS				
Regional Water System Projects:				
47% of 2012A Refunding Bond	171,075	51.00%	87,248	
14.20% of 2015B Bond - New Projects	239,878	51.00%	122,338	**209,586**
Revenues that offset Debt Service				
Trust Fund Interest	(18,000)	51.00%	(9,180)	
Buck Mountain Surcharge	(118,600)	FIXED	(28,300)	
Lease Revenues	(1,600)	51.00%	(816)	**(38,296)**
RATES BASED ON FIXED AGREEMENTS				
2003 & 2012 Urban Water Agreement				
Water Supply Expansion (15%/85%)				
100% of 2012B Revenue Bond	1,337,656	15.00%	200,648	
9.00% of 2015B Bond - Refunding	142,745	15.00%	21,412	
Non-Water Supply - Other Projects (48%/52%)				
47.40% of 2015B Bond - Refunding	751,791	48.00%	360,860	
77.80% of 2015B Bond - New Projects	1,314,261	48.00%	630,845	
South Rivanna Expansion of 1999				
10.30% of 2015B Bond - Refunding	163,364	0.00%	-	**1,213,765**
Southern Loop Water Line, West Branch				
3.9% of 2012A Refunding Bond	14,184	24.51%	3,476	**3,476**
South Rivanna Connector Main				
15.3% of 2012A Refunding Bond	55,842	52.00%	29,038	**29,038**
DEBT SERVICE PROJECTED FROM 5-YEAR CIP				
CIP Growth Rate from 2016-2020 CIP	1,410,675	FIXED	606,525	**606,525**
Debt Service Coverage Ratio / Policy Charge	400,000	37.00%	148,000	**148,000**
Total Debt Service For Rate Computation	**$ 5,863,271**		**$ 2,172,094**	**$ 2,172,094**

ACSA Allocation of Debt Service Costs	Estimated Debt Service Budget FY 2019	ACSA %	ACSA Amount	Annual Total
ALLOCATION BASED ON FLOWS				
Regional Water System Projects:				
47% of 2012A Refunding Bond	171,075	49.00%	83,827	
14.20% of 2015B Bond - New Projects	239,878	49.00%	117,540	**201,367**
Revenues that offset Debt Service				
Trust Fund Interest	(18,000)	49.00%	(8,820)	
Buck Mountain Surcharge	(118,600)	FIXED	(90,300)	
Lease Revenues	(1,600)	49.00%	(784)	**(99,904)**
RATES BASED ON FIXED AGREEMENTS				
2003 & 2012 Urban Water Agreement				
Water Supply Expansion (15%/85%)				
100% of 2012B Revenue Bond	1,337,656	85.00%	1,137,008	
9.00% of 2015B Bond - Refunding	142,745	85.00%	121,333	
Non-Water Supply - Other Projects (48%/52%)				
47.40% of 2015B Bond - Refunding	751,791	52.00%	390,931	
77.80% of 2015B Bond - New Projects	1,314,261	52.00%	683,416	
South Rivanna Expansion of 1999				
10.30% of 2015B Bond - Refunding	163,364	100.00%	163,364	**2,496,052**
Southern Loop Water Line, West Branch				
3.9% of 2012A Refunding Bond	14,184	75.49%	10,708	**10,708**
South Rivanna Connector Main				
15.3% of 2012A Refunding Bond	55,842	48.00%	26,804	**26,804**
DEBT SERVICE PROJECTED FROM 5-YEAR CIP				
CIP Growth Rate from 2016-2020 CIP	1,410,675	FIXED	804,150	**804,150**
Debt Service Coverage Ratio / Policy Charge	400,000	63.00%	252,000	**252,000**
Total Debt Service For Rate Computation	**$ 5,863,271**		**$ 3,691,177**	**$ 3,691,177**

SUMMARY OF DEBT SERVICE REVENUES:		
CITY SHARE OF TOTAL DEBT SERVICE	**$ 2,172,094**	**37%**
ACSA SHARE OF TOTAL DEBT SERVICE	**3,691,177**	**63%**
	$ 5,863,271	**100%**

URBAN WASTEWATER DEBT SERVICE COSTS
Summary of Debt Service Budget to be Included in Charges

City Allocation of Debt Service Costs		Estimated Debt Service Budget FY 2019	City %	City Amount	
ALLOCATION BASED ON FLOWS					
System Projects Rate					
	22.9% of 2015B Bond Refunding	363,207	51%	185,236	
	100% 2005A Bond VRA/VRLF	159,339	51%	81,263	
	88.5% of 2009A Bond VRA/VRLF	1,419,716	51%	724,055	
	37.9% of 2011 A,B Bond VRA/RLF	192,130	51%	97,986	
	30.6% of 2012A Bond (new money)	369,811	51%	188,604	
	100% of 2016 Bond	626,924	51%	319,731	**1,596,875**
Revenues/Reserves that offset Debt Service					
	County MOU - Septage	(109,440)	51%	(55,814)	
	Use of reserves for 2016 Bond DS	(300,000)	51%	(153,000)	
	Trust Fund Interest	(26,200)	51%	(13,362)	**(222,176)**
ALLOCATION BASED ON FIXED AGREEMENTS					
2014 Wastewater Agreement					
Meadowcreek	**97.9% of 2010A, and 13.6% of 2012A Bonds**	1,107,062	Segments	920,044	
Wet Weather MCWWTP	**11.5% of 2009A, and 62.1% of 2011 A/B Bonds**	499,293	Segments	332,808	
Moores Creek Pump Stn.	**100% of 2011 D/E Bond**	296,944	Segments	190,926	
Rivanna Pump Stn. & F.M.	**7.2% of 2012A Bond & 100% of 2014A Bond**	1,969,350	Segments	1,286,637	
Albemarle Berkley Pump Stn.	**4.2% of 2012A Bond**	50,758	0%	-	
Crozet Interceptor	**2.9% of 2012A Bond**	35,047	0%	-	
Schenks Branch Agreement	**20.0% of 2012A, 2.1% of 2010A Bonds and 100% of 2015A**	332,119	100%	332,119	**3,062,534**
Four Party Rate					
Regional System Projects	**19.6% of 2012A Refunding Bond**	71,370	N/A	24,429	
Crozet Interceptor	**3.9% of 2012A Refunding Bond**	14,221	N/A	4,868	
Facilities Purchase	**7.2% of 2012A Refunding Bond**	26,047	N/A	8,915	**38,212**
Moores Creek Relief IS, Pt 1	**1.6% of 2012A Refunding Bond**	5,923	30%	1,777	**1,777**
DEBT SERVICE PROJECTED FROM 5-YEAR CIP					
CIP Growth Charge from 2016-2020 CIP		426,200	Fixed	220,400	**220,400**
Debt Service Coverage Ratio / Policy Charge		325,000	62%	201,500	**201,500**
	Total	**$ 7,854,821**		**$ 4,899,122**	**$ 4,899,122**

ACSA Allocation of Debt Service Costs		Estimated Debt Service Budget FY 2019	ACSA %	ACSA Amount	
ALLOCATION BASED ON FLOWS					
System Projects Rate					
	22.9% of 2015B Bond Refunding	363,207	49%	177,971	
	100% 2005A Bond VRA/VRLF	159,339	49%	78,076	
	88.5% of 2009A Bond VRA/VRLF	1,419,716	49%	695,661	
	37.9% of 2011 A,B Bond VRA/RLF	192,130	49%	94,144	
	30.6% of 2012A Bond (new money)	369,811	49%	181,207	
	100% of 2016 Bond	626,924	49%	307,193	**1,534,252**
Revenues that offset Debt Service					
	County MOU - Septage	(109,440)	49%	(53,626)	
	Use of reserves for 2016 Bond DS	(300,000)	49%	(147,000)	
	Trust Fund Interest	(26,200)	49%	(12,838)	**(213,464)**
ALLOCATION BASED ON FIXED AGREEMENTS					
2014 Wastewater Agreement					
Meadowcreek	**97.9% of 2010A, and 13.6% of 2012A Bonds**	1,107,062	Segments	187,018	
Wet Weather MCWWTP	**11.5% of 2009A, and 62.1% of 2011 A/B Bonds**	499,293	Segments	166,484	
Moores Creek Pump Stn.	**100% of 2011 D/E Bond**	296,944	Segments	106,018	
Rivanna Pump Stn. & F.M.	**7.2% of 2012A Bond**	1,969,350	Segments	682,713	
Albemarle Berkley Pump Stn.	**4.2% of 2012A Bond**	50,758	100%	50,758	
Crozet Interceptor	**2.9% of 2012A Bond**	35,047	100%	35,047	
Schenks Branch Agreement	**20.0% of 2012A, 2.1% of 2010A Bonds and 100% of 2015A**	332,119	0%	-	**1,228,038**
Four Party Rate					
Regional System Projects	**19.6% of 2012A Refunding Bond**	71,370	N/A	46,941	
Crozet Interceptor	**3.9% of 2012A Refunding Bond**	14,221	N/A	9,353	
Facilities Purchase	**7.2% of 2012A Refunding Bond**	26,047	N/A	17,132	**73,426**
Moores Creek Relief IS, Pt 1	**1.6% of 2012A Refunding Bond**	5,923	70%	4,146	**4,146**
DEBT SERVICE PROJECTED FROM 5-YEAR CIP					
CIP Growth Charge from 2016-2020 CIP		426,200	Fixed	205,800	**205,800**
Debt Service Coverage Ratio / Policy Charge		325,000	38%	123,500	**123,500**
	Total	**$ 7,854,821**		**$ 2,955,698**	**$ 2,955,698**

SUMMARY OF DEBT SERVICE REVENUES:		
CITY SHARE OF TOTAL DEBT SERVICE	**$ 4,899,122**	**62%**
ACSA SHARE OF TOTAL DEBT SERVICE	**2,955,698**	**38%**
	$ 7,854,820	**100%**

OTHER RATE CENTERS DEBT SERVICE RATES

Summary of Debt Service Payments Due

	Existing Estimated Debt Service Budget FY 2019	Estimated New Debt Service	Total Annual Debt Service	ACSA Monthly Rate
WATER				
Crozet Water				
System Upgrades				
1.0% of 2012A Refunding Bond	$ 3,585			
17.0% of 2012A Bond (new money)	205,450			
7.4% of 2015B Bond Refunding	117,368			
5.9% of 2015B Bond New Projects	99,668			
Estimated DS - CIP Growth in Rate	266,300	**$ 305,000**		
Revenues that offset Debt Service				
Trust Fund Interest	(1,800)			
	$ 690,571	$ 305,000	**$ 995,571**	**$ 82,964**
Scottsville Water				
System Upgrades				
0.2% of 2012A Refunding Bond	$ 623			
4.2% of 2012A Bond (new money)	50,758			
2.7% of 2015B Bond Refunding	42,824			
2.1% of 2015B Bond New Projects	35,475			
Estimated DS - CIP Growth in Rate		**-**		
Revenues that offset Debt Service				
Trust Fund Interest	(400)			
	$ 129,280	$ -	**$ 129,280**	**$ 10,773**
WASTEWATER				
Glenmore Wastewater				
System Upgrades				
0.10% of 2015B Bond Refunding	$ 1,586			
Revenues that offset Debt Service				
Trust Fund Interest	-			
	1,586	**-**	**$ 1,586**	**$ 132**
Scottsville Wastewater				
Facilities Purchase				
0.3% of 2012A Refunding Bond	$ 1,208			
System Upgrades				
0.3% of 2012A Bond (new money)	3,626			
0.20% of 2015B Bond Refunding	3,172			
Estimated DS - CIP Growth in Rate		**-**		
Revenues that offset Debt Service				
Trust Fund Interest	-			
	$ 8,006	$ -	**$ 8,006**	**$ 667**
TOTAL	**$ 829,443**	**$ 305,000**	**$ 1,134,443**	**$ 94,536**

DEBT SUMMARY

	Total Revenue Bond Debt	Total FY 2019 Debt Service
CURRENT EXISTING DEBT		
DEBT BY BOND ISSUE		
2005 A Bond VRA/VRLF	1,187,686	159,339
2009A Bond	16,974,889	1,604,199
2010A Bond	10,566,205	962,521
2011A Bond	5,540,057	443,608
2011B Bond	743,565	63,331
2011D,E Bond	3,597,969	296,944
2012A Bond (refunding & new money)	19,070,000	1,572,609
2012B Bond	23,345,000	1,337,656
2014A Bond	27,265,527	1,882,336
2015A Bond	1,109,956	70,593
2015B Bond (refunding & new money)	41,870,000	3,275,338
2016 Bond	9,604,000	626,924
	$ 160,874,854	**$ 12,295,398**

PRINCIPAL AND INTEREST PAYMENTS BY CENTER - Annual	
Urban Water	4,190,796
Crozet Water	426,071
Scottsville Water	129,680
Urban Wastewater	7,539,261
Glenmore Wastewater	1,586
Scottsville Wastewater	8,006
	$ 12,295,398

Stone Robinson School WWTP Estimated Charges

	Total	Monthly
Expenses		
Fixed Costs		
Wages	$ 10,023	
Benefits	3,943	
Mileage	1,837	
Subtotal	$ 15,803	
Overhead at 35%	5,531	
Total Fixed Charge	$ 21,334	
Variable Costs		
Repairs, Maintenance, Other	$ 5,000	
Overhead at 35%	1,750	
Total Variable Charge	$ 6,750	
Total Annual Charge Estimate	$ 28,084	$ 2,340

All Rate Centers

Detailed Summary of Revenues

	FY 2018	*FY 2019*	*$ Change*	*% Change*
OPERATIONS				
Operations Rate Revenues	$ 15,403,127	$ 16,387,174	$ 984,047	6.39%
Other Operations Revenues				
Interest Allocation	$ 15,000	$ 28,050	$ 13,050	87.00%
Stone Robinson WWTP	27,630	28,084	454	1.64%
Septage/Sludge Acceptance	390,000	410,000	20,000	5.13%
Leases	64,000	100,000	36,000	56.25%
Administration	410,000	462,000	52,000	12.68%
Nutrient Credits	100,000	90,000	(10,000)	-10.00%
Use of Reserves	80,000	-	(80,000)	0.00%
Miscellaneous	17,000	-	(17,000)	-100.00%
	$ 1,103,630	$ 1,118,134	$ 14,504	1.31%
Total Operations Revenues	$ 16,506,757	$ 17,505,308	$ 998,551	6.05%
DEBT SERVICE				
Debt Service Rate Revenues				
City	$ 6,634,556	$ 7,071,216	$ 436,660	6.58%
ACSA	6,926,602	7,781,315	854,713	12.34%
	$ 13,561,158	$ 14,852,531	$ 1,291,373	9.52%
Other Debt Service Revenues				
Interest	146,900	390,400	243,500	165.76%
Urban WW Reserves used	600,000	300,000	(300,000)	
County MOU - Septage	109,440	109,440	-	0.00%
Buck Mountain Surcharge	84,000	118,600	34,600	41.19%
Leases	1,600	1,600	-	0.00%
	$ 941,940	$ 920,040	$ (21,900)	-2.32%
Total Debt Service Revenues	$ 14,503,098	$ 15,772,571	$ 1,269,473	8.75%
Total Revenues	$ 31,009,855	$ 33,277,879	$ 2,268,024	7.31%

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Authority as a Whole

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
10000	***Salaries & Benefits***						
11000	Salaries	$ 5,384,854	$ 2,544,500	$ 5,144,000	$ 5,683,450	$ 298,596	5.55%
11010	Overtime Pay	197,800	159,308	308,616	247,500	49,700	25.13%
12010	FICA	427,073	195,508	391,016	453,719	26,646	6.24%
12020	Health Insurance	991,929	443,204	876,408	1,128,890	136,961	13.81%
12026	Employee Assistance Program	1,265	629	1,258	1,245	(20)	-1.58%
12030	Retirement	518,023	238,361	476,722	546,749	28,726	5.55%
12040	Life Insurance	70,543	31,616	63,232	74,453	3,910	5.54%
12050	Fitness Program	11,820	5,277	10,554	10,650	(1,170)	-9.90%
12060	Worker's Comp Insurance	74,141	38,134	76,268	93,000	18,859	25.44%
	Subtotal	$ 7,677,448	$ 3,656,537	$ 7,348,074	$ 8,239,656	$ 562,208	7.32%
13000	***Other Personnel Costs***						
13100	Employee Dues & Licenses	$ 10,490	$ 3,566	$ 7,132	$ 10,890	$ 400	3.81%
13150	Education & Training	62,510	32,633	70,266	79,130	16,620	26.59%
13200	Travel & Lodging	32,050	10,034	27,568	33,850	1,800	5.62%
13250	Uniforms	45,090	20,451	40,902	47,615	2,525	5.60%
13325	Recruiting & Medical Testing	3,840	5,085	9,296	6,450	2,610	67.97%
13350	Other	10,095	8,904	17,808	12,195	2,100	20.80%
	Subtotal	$ 164,075	$ 80,673	$ 172,972	$ 190,130	$ 26,055	15.88%
	Professional Services						
20100	Legal Fees	$ 94,000	$ 69,107	$ 173,214	$ 94,000	$ -	0.00%
20200	Financial & Admin. Services	115,900	50,894	101,788	72,000	(43,900)	-37.88%
20250	Bond Issue Costs	-	-	-	-	-	0.00%
20300	Engineering & Technical Services	380,450	221,836	558,672	544,250	163,800	43.05%
	Subtotal	$ 590,350	$ 341,837	$ 833,674	$ 710,250	$ 119,900	20.31%
	Other Services and Charges						
21100	General Liability/Property Ins.	$ 123,100	$ 112,161	$ 112,161	$ 144,750	$ 21,650	17.59%
21150	Advertising & Communication	15,200	6,391	12,782	15,425	225	1.48%
21250	Watershed Management	100,000	10,000	110,000	125,000	25,000	25.00%
21252	EMS Programs/Supplies	500	433	1,366	1,000	500	100.00%
21253	Safety Programs/Supplies	41,532	22,540	45,080	40,790	(742)	-1.79%
21300	Authority Dues/Permits/Fees	90,330	53,919	102,288	89,300	(1,030)	-1.14%
21350	Laboratory Analysis	100,000	52,346	104,692	110,480	10,480	10.48%
21400	Utilities	1,269,290	662,856	1,347,420	1,311,700	42,410	3.34%
21420	General Other Services	767,710	469,297	939,094	839,610	71,900	9.37%
21430	Governance & Strategic Support	40,000	48,500	105,634	131,680	91,680	229.20%
21450	Bad Debt	5,000	-	5,000	5,000	-	
	Subtotal	$ 2,552,662	$ 1,438,443	$ 2,885,517	$ 2,814,735	$ 262,073	10.27%
22000	***Communication***						
22100	Radio	$ 26,300	$ 21,588	$ 21,588	$ 26,420	$ 120	0.46%
22150	Telephone & Data Service	78,425	32,862	70,724	74,525	(3,900)	-4.97%
22200	Cell Phones & Pagers	37,880	21,847	43,694	42,160	4,280	11.30%
	Subtotal	$ 142,605	$ 76,297	$ 136,006	$ 143,105	$ 500	0.35%
31000	***Information Technology***						
31100	Computer Hardware	$ 51,600	$ 30,922	$ 60,052	$ 47,700	$ (3,900)	-7.56%
31150	SCADA Maint. & Support	154,600	24,343	152,100	170,100	15,500	10.03%
31200	Maintenance & Support Services	95,300	47,224	115,870	100,800	5,500	5.77%
31250	Software Purchases	22,900	4,102	13,178	22,850	(50)	-0.22%
	Subtotal	$ 324,400	$ 106,591	$ 341,200	$ 341,450	$ 17,050	5.26%
33000	***Supplies***						
33100	Office Supplies	$ 28,400	$ 13,410	$ 27,186	$ 29,600	$ 1,200	4.23%
33150	Subscriptions/Reference Material	6,110	1,329	2,318	5,920	(190)	-3.11%
33350	Postage & Delivery	10,460	6,120	12,240	8,400	(2,060)	-19.69%
	Subtotal	$ 44,970	$ 20,859	$ 41,744	$ 43,920	$ (1,050)	-2.33%
41000	***Operation & Maintenance***						
41100	Building & Grounds	$ 282,240	$ 252,848	$ 410,696	$ 328,340	$ 46,100	16.33%
41150	Building & Land Lease	32,500	32,313	39,626	32,500	-	0.00%
41200	Pump Station Maintenance	102,500	59,373	118,746	102,500	-	0.00%
41300	Dam Maintenance	99,500	62,491	131,482	99,500	-	0.00%
41350	Pipeline/Appurtenances	385,160	295,945	414,612	369,850	(15,310)	-3.97%
41400	Materials & Supplies	131,900	73,382	147,014	132,150	250	0.19%
41450	Chemicals	1,548,380	670,734	1,356,468	1,564,900	16,520	1.07%
41500	Vehicle Maintenance	38,350	40,192	67,884	38,200	(150)	-0.39%

Rivanna Water and Sewer Authority
Fiscal Year 2018-2019 Proposed Budget
Expense Detail

Authority as a Whole

Object Code	Line Item	Adopted Budget FY 2017-2018	Current Year Activity: Six Month Actual 12/31/2017	Current Year Activity: Projected Year end 6/30/2018	Proposed Budget FY 2018-2019	2018 vs. 2019 Variance $	2018 vs. 2019 Variance %
41550	Equipment Maint. & Repair	613,500	238,339	551,060	609,500	(4,000)	-0.65%
41600	Instrumentation	134,420	29,080	131,792	184,420	50,000	37.20%
41650	Fuel & Lubricants	92,000	31,428	80,356	93,800	1,800	1.96%
41700	General Other Maintenance	153,000	27,451	134,834	164,000	11,000	7.19%
	Subtotal	$ 3,613,450	$ 1,813,576	$ 3,584,570	$ 3,719,660	$ 106,210	2.94%
81000	***Equipment Purchases***						
81100	Small Equipment & Tools	$ 47,550	$ 36,207	$ 72,414	$ 53,050	$ 5,500	11.57%
81200	Rental & Leases	14,300	5,948	11,896	14,300	-	0.00%
81250	Equipment (over $5000)	111,000	8,975	95,950	196,800	85,800	77.30%
81300	Vehicle Replacement Fund	163,450	81,725	163,450	195,250	31,800	19.46%
	Subtotal	$ 336,300	$ 132,855	$ 343,710	$ 459,400	$ 123,100	36.60%
95000	***Allocations from Departments***						
95100	Administrative Allocation	$ -	$ -	$ -	$ -	$ -	
95300	Engineering Allocation	-	-	-	-	-	
95150	Maintenance Allocation	-	-	-	-	-	
95200	Laboratory Allocation	-	-	-	-	-	
	Subtotal	$ -	$ -	$ -	$ -	$ -	
	Reserve Transfers-GAC Carbon	$ 272,500	$ 136,250	$ 272,500	$ -	$ (272,500)	-100.00%
	Depreciation	788,000	394,000	788,000	843,000	55,000	6.98%
	Subtotal	$ 1,060,500	$ 530,250	$ 1,060,500	$ 843,000	$ (217,500)	-20.51%
	Total	**$ 16,506,760**	**$ 8,197,918**	**$ 16,747,967**	**$ 17,505,306**	**$ 998,546**	**6.05%**

Audit Check	
Less revenue allocation in Admin.	(462,000)
Less revenue allocation in Maint.	-
Less revenue allocation in Eng.	-
Detail Check on Expenses	$ 17,043,306
Total Summary Sheet Rate Center Only	$ 17,043,306

RWSA Staffing by Department

OPERATIONS	*Approved Positions FY 2018*	*Changes*	*Postions FY 2019*
Engineering & Maintenance			
Director of Engineering & Maintenance	1		1
Engineering Department			
Senior Civil, Civil Engineers	5		5
Water Resources Manager (moved from Water)	1		1
Engineering Technician/Inspector/GIS	3		3
GIS Coordinator (moved to Admin)	0		0
Administrative Office Technician	1		1
(Director FTE included) Subtotal	11	0	11
Maintenance Department			
Maintenance Manager	1		1
Maintenance Supervisor	1		1
Mechanics	10		10
Industrial Controls/Instrumentation Specialist	0	1	1
Vehicle Equipment Mechanic	1		1
Mechanic Helper	1		1
Maintenance Workers	2		2
Subtotal	16	1	17
Operations			
Director of Operations	1		1
Laboratory			
Laboratory Manager	1		1
Chemist	1		1
Lab Technician	1		1
Subtotal	3		3
Wastewater Department			
Wastewater Manager	1		1
Wastewater Assistant Manager	1		1
Treatment Supervisor	1		1
Plant Operators (14 total)			
Operators - Relief Shift Differential all plants	2		2
Operators - Urban	9		9
Operator - Glenmore	1		1
Operator - Scottsville	1		1
Subtotal	16		16
Water Department			
Water Manager	1		1
Water Assistant Manager	1		1
Water Quality Specialist	1		1
Water Treatment Plant Supervisor	2		2

RWSA Staffing by Department

OPERATIONS	***Approved Positions FY 2018***	***Changes***	***Postions FY 2019***	FTE Split RWSA	FTE Split SWA	
Plant Operators						
Operators - Relief Shift Differential all plants	3		3			
Operators - Urban	13.4	1	14.4			
Operators - Crozet	2.6		2.6			
Operators - Scottsville	1.4		1.4			
Subtotal	25.4	1	26.4			
Subtotal	72.4	2	74.4			
Joint Administrative Staff						
Executive Director	1		1	0.85	0.15	1.00
Communications Manager/Executive Coordinator	1		1	0.65	0.35	1.00
Director of Finance & Administration	1		1	0.85	0.15	1.00
Office/HR Manager	1		1	0.85	0.15	1.00
Accountant	1		1	0.75	0.25	1.00
Payroll & Benefits Coordinator	1		1	0.75	0.25	1.00
Accounts Payable/Purchasing Technician	1		1	0.90	0.10	1.00
Accounts Receivable Technician	1		1	0.30	0.70	1.00
Reception/Secretary III	1		1	0.85	0.15	1.00
Administrative Office Technician	1		1	0.60	0.40	1.00
Environmental & Safety Manager	1		1	0.50	0.50	1.00
IT/SCADA						
Information Systems Administrator	1		1	0.80	0.20	1.00
Information Systems Asst. Administrator	1		1	0.60	0.40	1.00
GIS Coordinator (moved from Engineering)	1		1	1.00	0.00	1.00
Software Analyst	0	1	1	0.80	0.20	1.00
IT Specialist - SCADA	1		1	1.00	0.00	1.00
SCADA Technician	1		1	1.00	0.00	1.00
Administration and allocation with RSWA	16	1	17	13.05	3.95	
Total all positions	88.40	3.00	91.40			
FTE Position Allocated to RSWA	-3.5		-3.95			
Total Adjusted FTEs	84.90		87.45			

Data for ACSA

		FY 2018	FY 2019	Change
Total RWSA Expenses				
Water		$ 14,539,000	$ 15,872,000	$ 1,333,000
Wastewater		16,061,000	16,943,000	882,000
Add Administration revenue allocation		410,000	462,000	52,000
Add Maintenance revenue allocation		-	-	-
Add Engineering revenue allocation		-	-	-
				-
	Total	$ 31,010,000	$ 33,277,000	$ 2,267,000

RWSA Rate Charges Allocated to ACSA, by Service Area

Water

Urban		$ 6,669,144	$ 7,138,223	$ 469,079
Crozet		1,606,812	1,952,952	346,140
Scottsville		541,684	572,608	30,924
	Total	$ 8,817,640	$ 9,663,783	$ 846,143

Wastewater

Urban		$ 5,810,406	$ 6,521,468	$ 711,062
Scottsville		292,921	309,878	16,957
Stone Robinson School		27,630	28,084	454
Glenmore		353,926	374,306	20,380
				-
	Total	$ 6,484,883	$ 7,233,736	$ 748,853

Total for ACSA	**$ 15,302,523**	**$ 16,897,519**	**$ 1,594,996**

Capital Improvement Plan

Fiscal Years 2019 – 2023

May 2018

RIVANNA
WATER & SEWER AUTHORITY

Rivanna Water & Sewer Authority

695 Moores Creek Lane, Charlottesville, Virginia 22902

I. INTRODUCTION 2

II. FINANCIAL SUMMARY BY CATEGORY 4

III. PROJECT DETAILS 7

Completed Projects 8

Urban Water
Community Water Supply Plan 12

Observatory WTP and Ragged Mountain/Sugar Hollow
Reservoir System 15

Finished Water Storage/Transmission 18

South Rivanna Water System 23

Non-Urban Water
Crozet Water System 25

Scottsville Water System 29

Urban Wastewater
Wastewater Interceptors/Pumping Stations 31

Moores Creek Advanced Water Resource Recovery Facility 35

Non-Urban Wastewater
Scottsville Wastewater System 40

Glenmore Wastewater System 42

All Systems 44

IV. APPENDIXES

CIP Financial Summary 47

Water System Summary 51

Wastewater System Summary 52

Introduction

The Capital Improvement Plan (CIP) for Fiscal Years 2019-2023 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 very near completion or are no longer needed, and as such are being removed from the 2019-2023 CIP. These projects account for approximately $38.5 million or 28.3% of FY 17-21 CIP. These projects include:

- Ragged Mountain Reservoir to Observatory WTP Pipeline Condition Assessment
- Stillhouse Tank Repairs and System Improvements
- Rt. 29 Pipeline – VDOT Betterment (Rt. 29 & Berkmar)
- South Rivanna WTP Leaf Screen
- South Rivanna WTP Filter Press Rehabilitation
- Scottsville WTP High Service Pump Station Upgrade
- Rivanna Pump Station and Tunnel
- Crozet Interceptor Pump Station Automatic Bar Screens
- Moores Creek AWRRF Administration Building Repairs

The total 5-year 2019-2023 CIP is approximately $153.9 million, with the previous expenditures on active projects totaling approximately $34.0 million, leaving a net proposed 5-year projected expenditure of $119.9 million.

There are several new projects added to the CIP this year, with a total estimated expenditures of $23.31 million from 2019-2023, including:

- Ragged Mountain Reservoir to Observatory WTP Raw Water Line ($4.1 million)
- Ragged Mountain Reservoir to Observatory WTP Pump Station ($2.4 million)
- Water Demand Projection and Safe Yield Study ($0.1 million)
- South Fork Rivanna River Crossing and North Rivanna Transmission Main ($5.3 million)
- Rt. 29 Pump Station ($2.3 million)
- Urban Finished Water System Master Plan ($0.15 million)

- Maury Hill Branch Sewer Upgrade ($0.29 million)
- Crozet Interceptor Pump Station Rehabilitation ($0.53 million)
- Engineering and Administration Building ($3.0 million)
- MCAWRRRF Digester Sludge Storage Improvements ($0.265 million)
- MCAWRRF Aluminum Slide Gate Replacement ($0.470 million)
- Moores Creek AWRRF Facility Master Plan ($0.1 million)
- Moores Creek AWRRF Mechanical Thickeners ($1.2 million)
- Scottsville WRRF Grinder and Air Control Improvements ($0.1 million)
- Glenmore WRRF Secondary Clarifier Coating ($0.05 million)
- Information Technology Enhancement for Asset Management ($0.5 million)
- Security Enhancements ($2.4 million)

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

- Observatory WTP Improvements ($10.0 million existing / $18.63 million proposed)
- Interconnect Lower Sugar Hollow and Ragged Mountain Raw Water Mains ($0.225 million existing / $0.331 million proposed)
- Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter ($0.150 million existing / $0.315 million proposed)
- Wholesale Water Master Metering ($3.6 million existing / $3.2 million proposed)
- Avon to Pantops Water Main ($5.5 million existing / $13.2 million proposed)
- South Rivanna Hydropower Plant Decommissioning ($1.0 million existing / $0.4 million proposed)
- South Rivanna WTP Improvements ($5.43 million existing / $7.5 million proposed)
- Beaver Creek Dam Alteration ($6.07 million existing / $14.93 million proposed)
- Crozet WTP Expansion ($0.25 million existing / $6.9 million proposed)
- Interceptor and Manhole Repair ($1.34 million existing / $1.94 million proposed)
- Crozet Flow Equalization Tank ($3.75 million existing / $3.3 million proposed)
- Moores Creek AWRRF Odor Control Phase 2 ($10.1 million existing / $11.1 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 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress**
Urban Water (UW)										
Community Water Supply Plan	$2,432,558	$6,398,442	$565,249	$275,000	$870,000	$1,420,751	$1,853,000	$3,847,000	$8,831,000	$25,249
Observatory WTP & Ragged Mountain/Sugar Hollow Reservoir System	$11,315,000	$8,901,000	$1,479,198	$1,870,000	$4,128,000	$8,871,000	$3,867,802		$20,216,000	$1,042,198
Finished Water Storage/Distribution	$36,245,494	$15,190,000	$30,050,494	$1,670,000	$2,001,000	$8,167,000	$8,830,000	$717,000	$51,435,494	$21,028,805
South & North Fork Rivanna Water System	$6,430,442	$1,469,558	$302,332	$691,668	$2,411,000	$4,398,000	$97,000		$7,900,000	$82,332
Security & Technology		$1,450,000	$25,000	$210,000	$660,000	$555,000			$1,450,000	
Subtotal (UW)	$56,423,494	$33,409,000	$32,422,273	$4,716,668	$10,070,000	$23,411,751	$14,647,802	$4,564,000	$89,832,494	$22,178,584
Non-Urban Water (NUW)										
Crozet Water System	$13,839,390	$15,509,000	$7,058,095	$4,084,000	$5,056,181	$2,307,000	$8,584,000	$2,259,114	$29,348,390	$3,285,369
Scottsville Water System	$1,615,000		$1,615,000						$1,615,000	$1,216,510
Subtotal (NUW)	$15,454,390	$15,509,000	$8,673,095	$4,084,000	$5,056,181	$2,307,000	$8,584,000	$2,259,114	$30,963,390	$4,501,879

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 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress**
Urban Wastewater (UWW)										
Wasterwater Interceptors and Pumping Stations	$13,095,324	($1,214,324)	$1,610,945	$2,187,000	$3,053,385	$3,672,670	$822,000	$535,000	$11,881,000	$342,401
Moores Creek AWRRF	$13,513,000	$6,051,151	$13,513,000	$1,751,151	$215,000	$1,210,000	$1,375,000	$1,500,000	$19,564,151	$6,944,485
Security & Technology		$1,450,000	$25,000	$210,000	$660,000	$555,000			$1,450,000	
Subtotal (UWW)	$26,608,324	$6,286,827	$15,148,945	$4,148,151	$3,928,385	$5,437,670	$2,197,000	$2,035,000	$32,895,151	$7,286,886
Non-Urban Wastewater (NUWW)										
Scottsville WRRF		$100,000			$30,000	$70,000			$100,000	
Glenmore WRRF	$61,000	$50,000		$25,000	$25,000	$61,000			$111,000	
Subtotal (NUWW)	$61,000	$150,000		$25,000	$55,000	$131,000			$211,000	
WASTEWATER TOTAL	$26,669,324	$6,436,827	$15,148,945	$4,173,151	$3,983,385	$5,568,670	$2,197,000	$2,035,000	$33,106,151	$7,286,886
TOTAL	$98,547,208	$55,354,827	$56,244,313	$12,973,819	$19,109,566	$31,287,421	$25,428,802	$8,858,114	$153,902,035	$33,967,349

PROJECT DETAILS

Page	8	**Completed Projects**
Page	12	**Urban Water**
Page	25	**Non-Urban Water**
Page	31	**Urban Wastewater**
Page	40	**Non-Urban Wastewater**
Page	44	**All Systems**

Completed Projects

During fiscal years 2017 and 2018, 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 twelve (12) 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 $1.8 million.

4. Ragged Mountain Reservoir to Observatory Water Treatment Plant Pipeline Condition Assessment: The 18-inch Ragged Mountain and Lower Sugar Hollow raw water pipelines run in parallel to each other from the Ragged Mountain Reservoir to the Observatory Water Treatment Plant. These pipelines are constructed mostly of cast iron and are 109 and 71 years old, respectively. Originally an assessment was planned to update information on the condition of these pipelines and aid in planning for future conveyance of raw water from Ragged Mountain to the urban areas. This project included using non-destructive acoustic technologies to identify existing leaks and remaining pipe wall thickness as well as to determine the remaining service of these pipelines. Due to the addition of replacement pipe in the CIP, this project is no longer required.

11. Stillhouse Tank Repairs and System Improvements: The Stillhouse Mountain pressure zone currently has one ground storage tank with a capacity of 0.70 million gallons. This project focused on structural improvements and interior painting, consisting of removal and replacement of the tank roof rafters, repainting of the tank interior, and other ancillary items. The project budget included design, bid-phase services, construction, and construction administration and inspection services. Construction of the tank improvements were completed fall of 2016.

14. Rt. 29 Pipeline – VDOT Betterment (Rt. 29 & Berkmar): The VDOT Rt. 29 Solutions projects include widening of Rt. 29 (Seminole Trail) from a four-lane divided highway to a six-lane divided highway from Polo Grounds to Town Center Drive at Hollymead Town Center. Improvement of this 1.8-mile-long section required relocation of RWSA's existing 12-inch cast iron water main for the entire length of the project. RWSA had previously identified through master planning that a 24-inch water main will be needed from the South Rivanna Water Treatment Plant to Hollymead Town Center to meet future water demands. This project included the betterment cost to have VDOT and its Design-Build Contractor relocate the existing 12-inch water main as a 24-inch water main as well as funds to construct a section of 24-inch waterline adjacent to the new Berkmar Drive Extension for future use. Construction began in December 2016 and was completed in summer 2017. This project also includes funding for an update to the Airport Zone Study report by Michael Baker International to reassess future water system needs and update cost estimates for the North Rivanna Service Area.

17. South Fork Water Treatment Plant Leaf Screen: At the South Rivanna Water Treatment Plant, the raw water pump station and intake are integral to the dam and abutments. Water flows through a bar screen and then a mechanical band screen (leaf screen) into the raw water

pump station wet well. The existing leaf screen was original to the 1964-1965 construction. Historically, the mechanical screen has been quite reliable, but recently had allowed significant debris to enter and damage the raw water pumps. An evaluation of the leaf screen determined that it has reached the end of its service life and needed to be replaced. Likewise, a detailed alternative analysis determined that the most cost-effective approach is to fabricate and install a replacement mechanical band screen. Design of a replacement leaf screen began in June 2016 and construction was completed in July 2017.

18. South Fork Water Treatment Plant Filter Press Rehabilitation: The South Rivanna Water Treatment Plant belt press is used to dewater sludge removed from the water treatment train. The current belt press has been in continuous operation since 1992. This project was to perform a complete factory overhaul to ensure reliable service and to preempt potential future mechanical failures. The project was completed in June 2017.

23. Crozet Ground Storage Tank Repairs and Upgrades: 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. A routine inspection of the Crozet Tank in April of 2012 revealed several deformed roof rafters, indicating the potential for structural deficiency. An in-depth structural inspection was performed in January 2013 and a list of recommended roof repairs provided. In addition to the structural repairs and other ancillary work, the project also included repainting of the tank interior and installation of an active mixing system to improve system-wide water quality by increasing circulation and minimizing tank stratification. The project budget included consultant services for design and bidding of necessary roof repairs and other ancillary items, as well as construction, construction administration, and inspection services. Construction of the tank improvements began in the spring of 2016 and was completed in the summer of 2016.

24. Crozet Water Treatment Plant - Miscellaneous Repairs: Staff identified several repairs needed within the Crozet water system within the next two years. These items have been consolidated into a single project and include new stem guides, valves and trash racks at the raw water pump station, a new backwash supply pump, a new overflow pipe for the backwash tank, and new walkways and handrails. The work anticipated within this project has been combined into the Crozet WTP upgrade project and therefore is no longer needed as a separate project.

29. Scottsville High Service Pump Station Upgrades: Currently, the high service pumps at the Scottsville water treatment plant pump water to the RWSA Scottsville Storage Tank and then an ACSA booster station pumps water to the ACSA tank, which serves the majority of the Scottsville service area. This project was to evaluate and replace the high service pumps at the Scottsville WTP so that water can be pumped directly from the WTP to the ACSA tank, eliminating the need for the ACSA booster pump station and the RWSA Scottsville Storage Tank. Based on preliminary feedback from ACSA, this project has been eliminated from further consideration and the correct configuration will remain.

31. Rivanna Pump Station and Tunnel: Pumping capacity between the Rivanna Interceptor in Riverview Park and the Moores Creek Advanced Water Resource Recovery Facility required expansion for wet weather peak flow, from a capacity of 24.5 mgd to a firm capacity of 53

mgd in accordance with RWSA's DEQ Consent Order. Following a lengthy public process and study of alternatives, the RWSA Board selected to move forward with a final design in December 2011. The project included construction of approximately 1,620 linear feet of a tunnel with a tunnel-boring machine which will connect the existing Rivanna Interceptor in Riverview Park to a new pump station located on the RWSA MCAWRRF property. The final design included pumps capable of delivering a peak pumping rate equivalent to 53 mgd, electrical gear, influent grinders, self-cleaning wet well, air collection for odor control, back-up power generation, SCADA control and integration, tie-ins to the existing systems, site and permitting work, storage building demolition and electrical relocation work, as well as architectural, structural and mechanical systems. The existing pump station at the entrance to Riverview Park was demolished once the new pump station and tunnel were complete and in service. Construction began in March 2014 and was completed in late summer 2017.

35. Crozet Interceptor Pump Station Automatic Bar Screens: There are currently two automatic bar screens at Crozet Pump Station No. 4. These units were original to the pump station which was constructed in the mid-1980s. Prior to 2014, one of the units was operational, with the second unit no longer serviceable. The first screen was replaced as part of the CIP in 2014. This project involved replacement of the second unit in summer 2017.

38. Moores Creek AWRRF Administration Building Repairs: The RWSA Administration Building was constructed in 1978 as part of the Moores Creek wastewater treatment facility, with the addition of an elevator and office space in 1995. Over the past several years there have been several significant building maintenance issues. As a result, in October 2012, staff commissioned an architectural, mechanical, electrical, and plumbing evaluation of the building, which identified several near, mid, and long-term repair needs. This project included the replacement of the entire roof with a standing seem aluminum material, gutter and downspout replacement, electrical circuit mapping and rewiring, window replacement, and building exterior painting which have been capitalized via completed projects.

Completed Projects

		Five-Year Capital Program			
No.	**Project Description**	**Adopted Budget 3/2017**	**Previous Expenditures (7/1/2017)**	**Final Projected Costs**	**Savings**
4	Ragged Mountain Reservoir to Observatory Water Treatment Plant Pipeline Condition	$285,000			$285,000
11	Stillhouse Tank Repairs and System Improvements	$600,000	$51,397	$362,466	$237,534
14	Rt. 29 Pipeline - VDOT Betterment (Rt. 29 & Berkmar)	$2,900,000	$1,714,749	$2,600,000	$300,000
17	South Fork Water Treatment Plant Leaf Screen	$471,000		$432,086	$38,914
18	South Fork Water Treatment Plant Filter Press Rehabilitation	$150,000		$165,242	($15,242)
23	Crozet Ground Storage Tank Repairs and Upgrades	$351,610	$30,922	$315,739	$35,871
24	Crozet Water Treatment Plant Miscellaneous Repairs	$105,890			$105,890
29	Scottsville High Service Pump Station Upgrades	$100,000			$100,000
31	Rivanna Pump Station and Tunnel	$32,200,000	$30,040,496	$31,500,000	$700,000
35	Crozet Interceptor Pump Station Automatic Bar Screens	$75,000		$75,000	
38	Moores Creek AWRRF Administration Building Repairs	$84,746		$38,591	$46,155
	TOTAL	$37,323,246	$31,837,564	$35,489,124	$1,834,122

CIP 17-21 Total	**CIP 17-21 Completed**	**CIP 19-23 Remaining**	**CIP 19-23 New Funding**	**CIP 19-23 New Total**
$135,870,454	($37,323,246)	$98,547,208	$55,354,827	$153,902,035

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 preliminary route for the pipeline 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 pipeline. This project includes a routing study, preliminary design and preparation of easement documents, and acquisition of water line easements along the approved route. Prior expenditures covered a 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 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 amend or cancel the project.

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 10-12 million gallons per day (mgd). The new pipeline is expected to be constructed of 36-inch ductile iron and will be on the order of 14,000 feet in length. The opportunity to integrate the Observatory WTP raw water supply line with the proposed South Rivanna Reservoir to RMR raw water main project is currently being investigated as part of the approved 50-year Community Water Supply Plan.

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. Integration of the new pump station with the planned South Rivanna Reservoir (SRR) to RMR pipeline is being considered in the interest of improved operational and cost efficiencies. An integrated pump station would 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 recommended as part of the SRR to RMR raw water main preliminary engineering study, which is currently under way.

Community Water Supply Plan

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
1	South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way	$2,295,000		$565,249	$275,000	$870,000	$584,751			$2,295,000	$25,249
2	Rivanna Reservoir Dredging	$137,558	($127,558)				$10,000			$10,000	
3	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line		$4,116,000				$426,000	$1,453,000	$2,237,000	$4,116,000	
4	Ragged Mountain Reservoir to Observatory Raw Water Pump Station		$2,410,000				$400,000	$400,000	$1,610,000	$2,410,000	
	TOTAL	$2,432,558	$6,398,442	$565,249	$275,000	$870,000	$1,420,751	$1,853,000	$3,847,000	$8,831,000	$25,249

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 1.5 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 is the oldest of the three urban plants. Early planning for the Community Water Supply envisioned that the plant would undergo a wholesale upgrade. This upgrade will concentrate on specific improvements to critical elements, identified by a Needs Assessment Study as improvements to the flocculators, filters, sedimentation basins, 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 repair or possible replacement. Also, old piping control valves will be replaced and modernized, as well as upgrading electrical and SCADA control systems.

   The Observatory Water Treatment Plant was originally constructed in the mid-1950s. Since that time very little has been replaced or upgraded at the facility. The sixty-year-old facility has much of the original equipment that is inefficient, prone to unexpected failure, and does not have readily accessible replacement parts. A portion of the project was completed in the 2016-2017 fiscal year. The flocculator systems were completely upgraded with new mechanical and electrical equipment, including variable speed motor drives for optimum efficiency. The upgraded flocculators have been in service since May 2017.

   In addition to providing needed equipment upgrades, the existing plant will also be considered for an upgrade in capacity. Upgrading the plant capacity during the proposed construction project may be economically feasible and beneficial. In order to determine the feasibility of a capacity upgrade, it will be necessary to thoroughly study all aspects of the treatment plant process, including raw water and finished water conveyance to and from the plant. This analysis will be performed in a detailed Preliminary Engineering Report (PER) as part of the

initial engineering for the project. Current funding assumes a future 10 million gallon a day capacity.

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. Prior to construction of the remaining improvements, the terms of a new lease may be needed with RWSA and the University as participants. The new lease is currently under negotiation.

6. Interconnect Lower Sugar Hollow and Ragged Mountain Raw Water Mains: The two 18-inch water mains that supply water from Ragged Mountain Reservoir to Observatory Water Treatment Plant are 72 and 110 years old, respectively. The mains are interconnected at the top of the Ragged Mountain Dam, with one serving the 1920's Royal Pump Station and the other serving the more modern Stadium Road Pump Station. Both pump stations provide water to the Observatory Water Treatment Plant. This project will interconnect the two raw water lines near the Rt. 29/Fontaine Avenue interchange, which will provide improved reliability and operability during raw water line maintenance or repairs prior to the anticipated construction and completion of the new replacement line.

7. Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter: The Sugar Hollow raw waterline is an 18-inch diameter cast iron pipeline which conveys water from Sugar Hollow Reservoir to Ragged Mountain Reservoir. The pipe discharges directly into the Ragged Mountain Reservoir is used to supplement inflow. Currently, the control valve to regulate flow between the two reservoirs is located near the old Gatekeeper's House at Sugar Hollow dam. The valve is a manual gate valve which requires RWSA staff to travel to the Sugar Hollow dam in order to operate it. In addition, there is currently no flow meter equipment in place to monitor and record flow transferred between the two reservoirs. This project proposes to install a new 18-inch flow meter, a modulating control valve, and new power and SCADA control wiring, to provide the means to regulate the flow between the two reservoirs. The new equipment will allow remote operation via SCADA from the RWSA water treatment plants. This project will allow RWSA staff to efficiently and remotely maintain the two reservoirs at optimal levels. In addition to this work, an old 18-inch diameter gate valve will be replaced or repaired, two abandoned out-buildings and a house will be demolished and removed.

8. Sugar Hollow Dam – Rubber Crest Gate Replacement & 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 will be inspected and evaluated. Recommended repairs may include issues relating to 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						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
5	Observatory Water Treatment Plant Improvements	$10,000,000	$8,630,000	$1,207,198	$1,441,000	$3,655,000	$8,459,000	$3,867,802		$18,630,000	
6	Interconnect Lower Sugar Hollow and Ragged Mountain Raw Water	$225,000	$106,000	$91,000	$240,000					$331,000	
7	Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter	$150,000	$165,000	$181,000	$134,000					$315,000	
8	Sugar Hollow Dam - Rubber Crest Gate Replacement & Intake	$940,000			$55,000	$473,000	$412,000			$940,000	
	TOTAL	$11,315,000	$8,901,000	$1,479,198	$1,870,000	$4,128,000	$8,871,000	$3,867,802	$0	$20,216,000	$0

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 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:

9. Rt. 29 Pump Station Site Acquisition: This project provided site acquisition for a new Rt. 29 Pump Station and Storage Tank to be built at a later time in the general area south of Airport Road and north of Hollymead Towncenter on TMP No. 32-41 as identified in the Albemarle County Comprehensive Plan. The future pump station and tank, along with a new transmission pipeline between the proposed pump station and the South Rivanna Water Treatment Plant, will provide an interconnection between the areas presently served by the South Rivanna Water Treatment Plant and the North Rivanna Water Treatment Plant. The interconnection is needed for redundancy of service in the event of an emergency, during drought conditions, and to adequately serve the growing needs of the 29 area generally north of the Forest Lakes subdivision. Multiple meetings and negotiations took place with the property's land owner in an effort to acquire the needed property. The negotiations were not successful, and the property was acquired through condemnation proceedings authorized at the May 2017 RWSA Board Meeting. Final legal proceedings are anticipated to be completed by the end of FY 2018.

10. 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 review results from an ongoing valve exercising and condition assessment program. his project will replace the highest-priority valves that are identified during the condition assessment as not operable and not repairable.

11. Urban Water Granular Activated Carbon and Water Treatment Improvements: The U.S. Environmental Protection Agency (EPA) regulates maximum contaminant levels (MCL) for total trihalomethanes (THMs) and haloacetic acids (HAAs) in drinking water under the Disinfectant/Disinfection Byproducts Rule (D/DBPR). In the early 1990s Stage 1 of the rule was implemented and RWSA, ACSA and the City of Charlottesville are in compliance with Stage 1. Stage 2 of the D/DBPR was to be effective for the Urban distribution system in October 2012, but the three agencies obtained a two-year extension that shifted the implementation to October 2014. The Stage 2 D/DBPR involved a major change in how THM and HAA levels are calculated and is more stringent than the Stage 1 requirements. A study concluded that complete compliance with the Stage 2 D/DBPR cannot be met consistently with minor modification of existing processes but would instead require significant capital improvements.

In July 2012, the Board decided to pursue the installation of Granular Activated Carbon (GAC) contactors to achieve Stage 2 D/DBPR compliance in the Urban System. The GAC will adsorb

organic matter from the water, thereby reducing the precursors to THMs and HAAs. As decided by the Board in December 2013, the GAC systems have been sized at a lower capacity than the current rated plant capacities (the "Hybrid GAC" approach). The GAC contactors are expected to be on-line and operational by the end of 2017, after the EPA-mandated compliance date. For the interim, a Risk Reduction Plan was developed, outlining interim methods to reduce trace natural organic matter from the source water thereby reducing DBPs. This project budget includes $631,000 to fund the capital needs of the Risk Reduction Plan. The plan includes installation of Powder Activated Carbon (PAC) feed systems at various treatment plants. The PAC treatment is adequate treatment for the new regulations in the interim time period before GAC completion. The PAC systems were completed in 2015, and are currently in operation as needed.

Also included in the Urban Water GAC project are various improvements at the South Rivanna WTP including construction of additional clearwell storage, replacement of the lime feed system, upgrades to the filter underdrains and backwash system, replacement of the filter media, sound attenuation and ventilation improvements for the high service pump station, installation of a variable frequency drive for the raw water pump station, installation of a new raw water flow meter and several improvements to the residuals management facilities. Included in the Urban Water GAC project are various improvements at the North Rivanna WTP including new filter control valves, new pump control valves, new filter sludge removal equipment, new electrical system upgrades throughout the plant, and the installation of a surge relief mechanism. The final site included in this project is the Observatory WTP with various improvements such as a new chlorine contact tank, improved potable water service piping to the filter building and upgraded finished water discharge piping. Construction of the projects started in late 2015 and will be complete mid-2018.

12. Wholesale Water Master Metering: The January 2012 Water Cost Allocation Agreement designated how the City of Charlottesville (City) and ACSA share in the financing of the New Ragged Mountain Dam project. Within the agreement is a general provision developed by the ACSA and City to enhance measurement of the water usage by each of the distribution agencies. In an effort to meet this obligation, the RWSA Board of Directors authorized staff in August of 2012 to complete an engineering study on metering plan alternatives. The study identified several alternatives for a metering plan based on combinations of metering and estimating methodologies. A Jurisdictional Approach was recommended which included installation of water meters at locations at the City/county corporate boundary plus one meter at each of the three urban water treatment plants. At its September 2013 meeting the Board directed that staff proceed with the Jurisdictional Coverage Approach. The final design includes 25 remote meter locations plus the three finished water flow meters at the water treatment plants. This project budget includes preliminary and final project design, right-of-way acquisition and negotiations, legal fees and permitting, bid-phase services, construction, and construction administration and inspection services. Construction of the 25 remote meter locations began in early 2016 and is expected to be completed in mid-2018. The three finished water flow meters were installed in 2015 as part of the Urban Water Granular Activated Carbon Project.

13. 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 includes consultant services for design and bidding of necessary roof repairs and other ancillary items, as well as construction, construction administration, and inspection services. Long term plans for the Rt. 29 service area include the modification or elimination of this facility. The current recommended improvements are needed to maintain the existing tank in service for at least the next 10 years.

14. Avon to Pantops Water Main: 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 is to prepare an updated routing study and Preliminary Engineering Report to identify the scope, phasing, route and cost of the project, and a consultant has been selected for this work to begin in fall 2017. Additional funding is to perform design, easement acquisition and to begin construction.

15. 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 are currently funded in the FY2019 O&M Budget. Subsequent to collecting the reservoir survey data, 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.

16. South Rivanna River Crossing and North Rivanna Transmission Main: RWSA has previously identified through master planning that a 24-inch water main will be needed from the South Rivanna Water Treatment Plant (SRWTP) to Hollymead Town Center to meet future water demands. Two segments of this water main were constructed as part of the VDOT Rt. 29 Solutions projects, including approximately 10,000 LF of 24-inch water main along Rt. 29 and 600 LF of 24-inch water main along the new Berkmar Drive Extension, behind the Kohl's department store. To complete the connection between the SRWTP and the Airport Road Pump Station Site, RWSA plans to construct a new river crossing at the South Fork Rivanna River and two "gap" sections of 24-inch water main between the already completed sections. Much of the new water main route is within VDOT right-of-way; however, acquisition of right-of-way will be required at the river crossing and on the Kohl's Property at Hollymead Town

Center. This project includes funding for construction as well as engineering design, easement acquisition, bid-phase services, and construction administration and inspection services.

17. Rt. 29 Pump Station: 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 is currently being updated to reflect the changes in the system and demands since 2007. This project, along with project 15 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.

18. Finished Water System Master Plan: As identified in the 2107 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 projects are in design or construction. As such, staff have identified a need to develop a current and ongoing finished water master plan.

Finished Water Storage/Transmission – Urban System

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
9	Rt. 29 Pump Station Site Acquisition	$1,220,000		$1,220,000						$1,220,000	$466,416
10	Valve Repair - Replacement (Phase 2)	$500,000		$250,000	$250,000					$500,000	
11	Urban Water GAC and Water Treatment Plant Improvements	$24,925,494		$24,925,494						$24,925,494	$18,292,018
12	Wholesale Water Master Metering	$3,600,000	($400,000)	$3,200,000						$3,200,000	$2,270,371
13	Piney Mountain Tank Rehabilitation	$500,000		$280,000	$220,000					$500,000	
14	Avon to Pantops Water Main	$5,500,000	$7,700,000	$175,000	$1,200,000	$1,800,000	$5,400,000	$4,625,000		$13,200,000	
15	Water Demand Projection and Safe Yield Study		$100,000		$100,000					$100,000	
16	South Fork Rivanna River Crossing and North Rivanna Transmission		$5,340,000				$843,000	$3,930,000	$567,000	$5,340,000	
17	Rt. 29 Pump Station		$2,300,000			$201,000	$1,824,000	$275,000		$2,300,000	
18	Finished Water System Master Plan		$150,000						$150,000	$150,000	
	TOTAL	$36,245,494	$15,190,000	$30,050,494	$1,770,000	$2,001,000	$8,067,000	$8,830,000	$717,000	$51,435,494	$21,028,805

South Rivanna Water System

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).

Project Descriptions:

19. 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, sealing the penstock and the turbine.

20. South Rivanna Water Treatment Plant Improvements: The South Rivanna Water Treatment Plant is currently undergoing significant upgrades as part of the Urban Granular Activated Carbon project. Several other significant needs have also been identified and have been assembled into a single project within this Capital Plan. The projects identified herein include an 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, and improvements to storm sewers to accept allowable WTP discharges. Currently this facility operates at 80-90% of capacity and the identified upgrades will improve reliability and resiliency, particularly at higher flow rates.

South Rivanna Water System

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
19	South Rivanna Hydropower Plant Decommissioning	$1,000,000	($600,000)	$167,332	$232,668					$400,000	$82,332
20	South Rivanna Water Treatment Plan Improvements	$5,430,442	$2,069,558	$135,000	$459,000	$2,411,000	$4,398,000	$97,000		$7,500,000	
	TOTAL	$6,430,442	$1,469,558	$302,332	$691,668	$2,411,000	$4,398,000	$97,000	$0	$7,900,000	$82,332

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 was 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:

21. Beaver Creek Dam Alteration: From 2008-2014 the Virginia Department of Conservation and Recreation (DCR) adopted revised *Impounding Structures Regulation* which imposed new, more rigorous, evaluations of dams within the Commonwealth. As a result, the Beaver Creek Dam has been reclassified as a high hazard dam, thereby requiring a higher spillway design storm criteria. The higher design storm cannot be accommodated with the existing structure, and will require future modifications. Subsequently the Virginia Soil and Water Conservation Board adopted a new Probable Maximum Precipitation (PMP) Study on December 9, 2015. In March 2016, DCR published guidance documents on implementing the new PMP Study. This project includes investigation, preliminary design, public outreach, permitting, easement acquisition, final design, and construction of the anticipated modifications. Also included in this project are a new relocated raw water pump station, intake and oxygenation system. A revised Preliminary Engineering Report is due to DCR by June 2018.

22. Buck's Elbow & Crozet Waterball Tank Painting: The two million-gallon Bucks 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. Routine inspections of these tanks in 2012 indicated that the tanks would require recoating by 2020. The project includes recoating the interior and top-coating the exterior of both tanks as well as installation of an active mixing system at the Bucks Elbow Tank to decrease stratification and improve overall water quality in the Crozet area. Minor repairs and improvements to both tanks will also be included in this work. This project includes consultant services for design of project specifications, as well as construction, construction administration, and inspection services. Construction of the tank improvements are expected to begin in the spring of 2020.

23. Crozet Water Granular Activated Carbon and Water Treatment Improvements: The U.S. Environmental Protection Agency regulates maximum contaminant levels (MCL) for total trihalomethanes (THMs) and haloacetic acids (HAAs) in drinking water under the Disinfectant/Disinfection Byproducts Rule (D/DBPR). In the early 1990s Stage 1 of the rule was implemented and RWSA and ACSA are in compliance with Stage 1. Stage 2 of the D/DBPR would normally be effective for the Crozet distribution system in November 2014; however, a two-year extension was granted by Virginia Department of Health and Stage 2 became effective for Crozet in November 2016. The Stage 2 D/DBPR involved a major change in how THM and HAA levels are calculated and is more stringent than the Stage 1

requirements. A study concluded that complete compliance with the Stage 2 D/DBPR cannot be continuously met with minor modification of existing processes (water production facilities combined with ASCA distribution system) but would instead require significant capital improvements.

For the Crozet water system, installation of granular activated carbon (GAC) contactor units was selected due to the start/stop operation of the water treatment plant and the relatively higher water age in the distribution system. The GAC will adsorb organic matter from the water, thereby reducing the precursors to THMs and HAAs. Included in the Crozet WTP GAC project are various improvements including upgrade of the chlorine feed system to a modern hypochlorite feed system, as well as replacing the existing fluoride and corrosion inhibitor chemical feed systems. The new chemical feed systems will be housed in additional rooms in the proposed GAC contactor building. This new location will also allow for shorter chemical feed lines. Construction of the project started in 2016.

24. Crozet Water Treatment Plant Expansion: The Crozet water treatment system is currently permitted and rated to supply up to 1.0 million gallons per day (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. The current lease agreement with ACSA for land at this facility stipulates that a 5-year notice must be given prior to altering or terminating the lease. As such, it is imperative that RWSA begin evaluating how a future plant expansion would be accomplished and any impacts on the ACSA lease. 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 would require a new Virginia Department of Environmental Quality Water Withdrawal Permit, and could include possible stream release requirements. In order to fully analyze all aspects of the design required for this project, and honor plant upgrade notification requirements to ACSA, select elements of the preliminary design have been completed. These elements include a Preliminary Engineering Report (PER), plant field testing, and preliminary permitting work and coordination with pertinent regulators. The results of the PER state 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. Upgrading the system within the existing plant footprint would not impact the existing ACSA lease at the property. Proposed work will include preliminary/final design, bidding and construction of several upgraded treatment plant systems including 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.

25. Crozet Water Treatment Plant Finished Water Pump Station: As noted in the above project description, the Crozet water treatment facilities will require an expansion to secure future needs of the Crozet community. The Finished Water Pump Station is the final step in the treatment and conveyance process. The Crozet Pump Station is original to the plant and has numerous design and operational impediments or challenges that severely limit its operational reliability. A new pump station at the site is required for both current and future service needs.

The project includes evaluation, permitting, design, construction and construction management.

26. Drinking Water Infrastructure Plan: The Crozet drinking water service area continues to see expanded growth, and recent discussions with Albemarle County and Albemarle County Service Authority (ACSA) personnel have confirmed that recent growth trends indicate that water use demands in Crozet are on the rise. While some projects are currently underway to address the immediate needs in Crozet, RWSA staff has concluded that it is pertinent to develop a comprehensive mid and long-range plan for the entire water system, including analysis of water supply, treatment, distribution, storage and raw water conveyance. The project will evaluate and analyze all of these parameters, and develop a Drinking Water Infrastructure Plan for the Crozet Service Area's water supply and distribution needs and recommended improvements for the next 50-year design period (Year 2070).

Crozet Water System

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
28	Upper Schenks Branch Interceptor	$6,667,935	($2,182,935)	$20,000		$128,000	$3,515,000	$822,000		$4,485,000	
29	Interceptor Sewer and Manhole Repair	$1,337,389	$603,611	$496,330	$592,000	$695,000	$157,670			$1,941,000	$124,330
30	Crozet Interceptor Sewer and Manhole Repairs	$625,000		$252,615	$142,000	$230,385				$625,000	$180,715
31	Crozet Flow Equalization Tank	$3,745,000	($445,000)	$238,000	$1,062,000	$2,000,000				$3,300,000	$37,356
32	Crozet Interceptor Pump Stations Bypass Isolation Valves	$720,000		$604,000	$116,000					$720,000	
33	Maury Hill Branch Sewer Replacement		$285,000						$285,000	$285,000	
34	Crozet Interceptor Pump Station Rehabilitation		$525,000		$275,000				$250,000	$525,000	
	TOTAL	$13,095,324	($1,214,324)	$1,610,945	$2,187,000	$3,053,385	$3,672,670	$822,000	$535,000	$11,881,000	$342,401

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:

27. Scottsville Water Granular Activated Carbon: The U.S. Environmental Protection Agency regulates maximum contaminant levels (MCL) for total trihalomethanes (THMs) and haloacetic acids (HAAs) in drinking water under the Disinfectant/Disinfection Byproducts Rule (D/DBPR). In the early 1990s Stage 1 of the rule was implemented and RWSA and ACSA are in compliance with Stage 1. Stage 2 of the D/DBPR was effective for the Scottsville distribution system in November 2014. The Stage 2 D/DBPR involved a major change in how THM and HAA levels are calculated and are more stringent than the Stage 1 requirements. After a study, it was concluded that complete compliance with the Stage 2 D/DBPR cannot consistently be met with minor modification of existing processes (water production facilities combined with ASCA distribution system) but would instead require significant capital improvements.

    For the Scottsville water system, installation of granular activated carbon (GAC) contactor units was selected due to the start/stop operation of the water treatment plant and the higher water age in the distribution system. The GAC will adsorb organic matter from the water, thereby reducing the precursors to THMs and HAAs. Construction on the project started in 2016.

Scottsville Water System

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
27	Scottsville Water Granular Activated Carbon	$1,615,000		$1,615,000						$1,615,000	$1,216,510
	TOTAL	$1,615,000	$0	$1,615,000	$0	$0	$0	$0	$0	$1,615,000	$1,216,510

Wastewater Interceptors/Pumping Stations

The RWSA wastewater interceptors and pumping stations serve to 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:

28. 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). Project costs include design, permitting, easement acquisition, construction, construction observation/administration by the engineering consultant; and project contingencies.

29. Interceptor Sewer and Manhole Repair: This project is used to conduct assessment of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Planned projects include condition assessments and assumed rehabilitation of the Morey Creek Interceptor and Powell Creek Interceptor as well as rehabilitation efforts identified for the Moores Creek Interceptor and the Moores Creek Relief Interceptor that have been identified from previous condition assessment efforts. A sewer rehabilitation contract has been developed under this project as well which will procure a dedicated contractor for all rehabilitation work. This project will also provide an allowance in budgeted funds to carry out future repairs. The intent of this project is to complete a condition assessment of all RWSA interceptors (except those replaced during the period with new pipe) and perform as-needed rehabilitation work by the end of 2020. Such periodic assessments 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.

30. Crozet Interceptor Sewer and Manhole Repairs: 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 aggressively 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 condition assessment work and assumed rehabilitation needs for the lower portions of the interceptor. 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.

31. Crozet Flow Equalization Tank: Rehabilitation work in the RWSA and ACSA sewer systems is on-going to meet the 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 will took into account recent flow monitoring data that had been collected following previous I/I reduction efforts. Based on those results, a preliminary engineering evaluation of a flow equalization tank upstream of Crozet Pump Station No. 4 has begun. Progressing into the preliminary engineering phase of the flow equalization tank is necessary to ensure that the facility can be sited, designed, permitted, constructed and ready for operation by 2020 in order to meet the two-year storm flow targets. The budget for this project includes estimates for the preliminary engineering, final design, property acquisition, legal assistance, construction costs and construction management services.

32. Crozet Interceptor Pump Station Bypass Isolation Valves: There are four pump stations located in the Crozet Interceptor system that help convey the flow from the Crozet area into the Morey Creek Interceptor and the rest of the urban collection system. These pump stations were constructed in the 1980s and provided no means of isolating each pump station from its downstream force main. This condition complicates maintenance-related activities as each time a pump station component needs to be serviced or replaced, the volume of wastewater within the force main must be addressed at the pump station as it drains back to the wet well. In addition, the Crozet Interceptor Pump Stations also have limited storage within their wet wells, and any reduction of down time as a result of dealing with the impacts of no isolation valves, decreases the amount of time available to work on the equipment. In order to alleviate this condition, temporary valves called “line stops” will be temporarily installed on the force mains downstream of the pump stations to allow enough time for a new isolation valve to be installed. This isolation valve location will provide the maximum amount of down time available based on current system conditions for future pump station maintenance activities. While line stops are in place, bypass connections will also be provided at each pump station. These will allow staff the option of bringing in bypass pumps for more significant pump station shutdowns required for maintenance activities or repairs that the isolation valves alone cannot account for. Design services for this project were initiated in August 2017 with completion of construction anticipated for summer 2018.

33. Maury Hill Branch Sewer Upgrade: Based on the sewer study performed by Greeley and Hansen in 2016, the Maury Hill Branch Sewer was targeted for capacity upgrades around 2020. This project would include an upgrade from 8-inch diameter sewer to 12-inch diameter sewer

along with all new manholes. Moving forward with this project would supersede other anticipated rehabilitation work on this interceptor that would be necessary otherwise.

34. Crozet Interceptor Pump Station Rehabilitation: The Crozet Interceptor Pump Stations were constructed in the 1980's and many of the components are still original. This project would include 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 would also include roof replacements at all four pump stations, siding replacement for the wet well enclosure at Pump Station 3, and installation of a new water well at Pump Station 3.

Urban Wastewater Interceptors/Pumping Stations

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
28	Upper Schenks Branch Interceptor	$6,667,935	($2,182,935)	$20,000		$128,000	$3,515,000	$822,000		$4,485,000	
29	Interceptor Sewer and Manhole Repair	$1,337,389	$603,611	$496,330	$592,000	$695,000	$157,670			$1,941,000	$124,330
30	Crozet Interceptor Sewer and Manhole Repairs	$625,000		$252,615	$142,000	$230,385				$625,000	$180,715
31	Crozet Flow Equalization Tank	$3,745,000	($445,000)	$238,000	$1,062,000	$2,000,000				$3,300,000	$37,356
32	Crozet Interceptor Pump Stations Bypass Isolation Valves	$720,000		$604,000	$116,000					$720,000	
33	Maury Hill Branch Sewer Replacement		$285,000						$285,000	$285,000	
34	Crozet Interceptor Pump Station Rehabilitation		$525,000		$275,000				$250,000	$525,000	
	TOTAL	$13,095,324	($1,214,324)	$1,610,945	$2,187,000	$3,053,385	$3,672,670	$822,000	$535,000	$11,881,000	$342,401

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:

35. Bridge Repairs: The bridge crossing Moores Creek located at the Advanced Water Resource Recovery Facility was constructed in the early 1980s. In late 2011, staff commissioned a detailed inspection of the bridge. The inspection results indicated that the bridge was in good condition, but required maintenance repairs to assure continued safe operation. This work includes sealing the expansion joints, scupper installation to drain the bridge deck, repairs to the steel plate girders and their bearings, catwalk and steel corrosion repair and repainting, and minor concrete repair. This work will be completed by the spring of 2018 in conjunction with the Moores Creek Odor Control Improvements project.

36. 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 for $9.33M was approved at the January 2015 Meeting. The budget was later increased to $9.85M. 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, hauling and storage of bio solids, cleaning the equalization basins and holding ponds, and coating the interior of the digesters. The design for the Odor Control Improvements Project was completed in November 2015. An award of construction contract and associated engineering construction administration and inspection occurred in April 2016. Construction of the Odor Control project has been very challenging with many change orders needed to address unforeseen circumstances, and therefore, additional funding has been requested for contingency funding. Final project completion is expected in spring 2018. The digester coating project was bid in August 2017 and the bids were much higher than anticipated, accounting for an additional project need in excess of $1M. The basin cleaning project will be managed by RWSA staff through a separate contract anticipated in summer 2018.

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

the roof was replaced. The materials of the original roof at the Administration Building are the same as the roof material on the other buildings. Likewise, many of the buildings have started to experience leaks and structural deficiencies. As a result, the purpose of this project is to replace the roof systems at the following buildings at the Moores Creek AWRRF: Blower Building, Moores Creek Pump Station, Sludge Pump Station No. 2, Maintenance Building 1, and Maintenance Building 2, Sludge Pumping Building, Primary Pump Building, and the Effluent Pump Building. Design of these improvements began in March 2017 with completion of construction anticipated for May 2018.

38. Second Centrifuge: The Moores Creek AWRRF currently operates a high-speed centrifuge to process and dewater digested bio solids from the treatment process. The centrifuge was constructed during the 2009-2012 Nutrient Upgrade project and served to replace an older plate and frame filter press operation (which was removed during installation of the centrifuge), with a second plate and frame press serving as backup. An evaluation of the remaining filter press concluded that extensive repairs would be required to maintain this as a backup dewatering system and the repairs would not be cost-effective as purchasing a second centrifuge. Without the utility of the second press the facility does not have a redundant process, and thus during planned or emergency outages a portable back-up unit must be rented or leased. A second centrifuge will allow for continued bio solids dewatering during planned or emergency repairs to one of the two centrifuges, for higher-rate processing by operating both units simultaneously during other periods (thus saving on staff time), and for better maintenance of proper solids flow through the plant.

39. 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. Staff is procuring a consultant to perform a space needs analysis and provide recommendations on how to address future building needs.

40. Digester Sludge Storage Improvements: With the second centrifuge installation almost complete, 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 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.

41. 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 Ultraviolent disinfection facility that leak water, causing a reduced capacity of the facility. Replacement of these gates will restore the process to full capacity.

42. 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 develop 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 2107 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.

43. 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.

44. 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 expected to reach the end of its service life in 2018. 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. The project will take 24 months to complete and will be completed in Fiscal Year 2018. 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 programing upgrades to its fleet of stationary, mobile, and portable radios.

Moores Creek Advanced Water Resource Recovery Facility

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
35	Bridge Repairs	$330,000		$330,000						$330,000	$37,391
36	Odor Control Phase 2	$10,108,000	$1,016,151	$10,108,000	$1,016,151					$11,124,151	$6,669,061
37	Roof Replacements	$1,264,000		$1,264,000						$1,264,000	$61,492
38	Second Centrifuge	$1,290,000		$1,290,000						$1,290,000	$172,974
39	Engineering and Administration Building		$3,000,000			$65,000	$60,000	$1,375,000	$1,500,000	$3,000,000	
40	Digester Sludge Storage Improvements		$265,000		$265,000					$265,000	
41	Aluminum Slide Gate Replacements		$470,000		$470,000					$470,000	
42	Moores Creek AWRRF Master Plan		$100,000			$50,000	$50,000			$100,000	
43	Mechanical Thickener		$1,200,000			$100,000	$1,100,000			$1,200,000	
44	Radio Upgrades	$521,000		$521,000						$521,000	$3,567
	TOTAL	$13,513,000	$6,051,151	$13,513,000	$1,751,151	$215,000	$1,210,000	$1,375,000	$1,500,000	$19,564,151	$6,944,485

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:

45. Grinder and Air Control Improvements: Currently the influent raw water pump station does not have a means to prevent large material from impacting the pumps, resulting in frequent clogging and maintenance. The space within the pump station is very limited and therefore does not allow for screening. This project will design and install an inline grinder within the influent pump channel. In addition, 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.

Scottsville Water Resource Recovery Facility

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
45	Grinder and Air Control Improvements		$100,000			$30,000	$70,000			$100,000	
	TOTAL	$0	$100,000	$0	$0	$30,000	$70,000	$0	$0	$100,000	$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:

46. 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.

47. 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 abrashion and mechanical wear. Based on observations by operations staff, the coating system is in need of replacement to prevent deterioration and failure of the underlying metal superstructure. This project includes the cleaning and full coating of the clarifier.

Glenmore Water Resource Recovery Facility

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
46	Influent Pump & VFD Addition	$61,000					$61,000			$61,000	
47	Secondary Clarifier Coating		$50,000		$25,000	$25,000				$50,000	
	TOTAL	$61,000	$50,000	$0	$25,000	$25,000	$61,000	$0	$0	$111,000	$0

All Systems

Project Descriptions:

48. Information Technology Enhancement (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 money necessary to perform those activities is available. The Rivanna Water and Sewer Authority (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 will be 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.

49. Security Enhancements: As required by the federal Bioterrorism Act of 2002, water utilities must conduct vulnerability assessments (VA) and have emergency response plans. Rivanna Water and Sewer Authority (RWSA) recently completed a VA of our water system in collaboration with other regional partners and identified a number of security improvements that could be applied to both our water system and our wastewater system. 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.

All Systems

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
48	Information Technology Enhancement (Asset Management)		$500,000	$50,000	$250,000	$200,000				$500,000	
49	Security Enhancements		$2,400,000		$170,000	$1,120,000	$1,110,000			$2,400,000	
	TOTAL	$0	$2,900,000	$50,000	$420,000	$1,320,000	$1,110,000	$0	$0	$2,900,000	$0

APPENDICES

CIP Financial Summary

Water System Summary

Wastewater System Summary

CIP Financial Summary

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	Project Description	Current CIP Adopted 3/2017	Proposed Changes	Current Capital Budget	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2017)
1	South Rivanna Reservoir to Ragged Mountain Reservoir	$2,295,000		$565,249	$275,000	$870,000	$584,751			$2,295,000	$25,249
2	Rivanna Reservoir Dredging	$137,558	($127,558)				$10,000			$10,000	
3	Ragged Mountain Reservoir to Observatory Water		$4,116,000				$426,000	$1,453,000	$2,237,000	$4,116,000	
4	Ragged Mountain Reservoir to Observatory Raw Water		$2,410,000				$400,000	$400,000	$1,610,000	$2,410,000	
5	Observatory Water Treatment Plant Improvements	$10,000,000	$8,630,000	$1,207,198	$1,441,000	$3,655,000	$8,459,000	$3,867,802		$18,630,000	
6	Interconnect Lower Sugar Hollow and Ragged Mountain Raw	$225,000	$106,000	$91,000	$240,000					$331,000	
7	Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter	$150,000	$165,000	$181,000	$134,000					$315,000	
8	Sugar Hollow Dam - Rubber Crest Gate Replacement & Intake	$940,000			$55,000	$473,000	$412,000			$940,000	
9	Rt. 29 Pump Station Site Acquisition	$1,220,000		$1,220,000						$1,220,000	$466,416
10	Valve Repair - Replacement (Phase 2)	$500,000		$250,000	$250,000					$500,000	
11	Urban Water Granular Activated Carbon and Water Treatment	$24,925,494		$24,925,494						$24,925,494	$18,292,018
12	Wholesale Water Master Metering	$3,600,000	($400,000)	$3,200,000						$3,200,000	$2,270,371
13	Piney Mountain Tank Rehabilitation	$500,000		$280,000	$220,000					$500,000	

CIP Financial Summary
(Continued)

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	**Project Description**	**Current CIP Adopted 3/2017**	**Proposed Changes**	**Current Capital Budget**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2017)**
14	Avon to Pantops Water Main	$5,500,000	$7,700,000	$175,000	$1,200,000	$1,800,000	$5,400,000	$4,625,000		$13,200,000	
15	Water Demand Projection and Safe Yield Study		$100,000		$100,000					$100,000	
16	South Fork Rivanna River Crossing and North Rivanna		$5,340,000				$843,000	$3,930,000	$567,000	$5,340,000	
17	Rt. 29 / Airport Road Pump Station		$2,300,000			$201,000	$1,824,000	$275,000		$2,300,000	
18	Finished Water System Master Plan		$150,000						$150,000	$150,000	
19	South Fork Rivanna Hydropower Plant Decommissioning	$1,000,000	($600,000)	$167,332	$232,668					$400,000	$82,332
20	South Fork Water Treatment Plan Improvements	$5,430,442	$2,069,558	$135,000	$459,000	$2,411,000	$4,398,000	$97,000		$7,500,000	
21	Beaver Creek Dam Alteration	$6,071,000	$8,859,000	$294,886	$660,000	$970,000	$2,162,000	$8,584,000	$2,259,114	$14,930,000	$133,886
22	Buck's Elbow Tank & Crozet Waterball Painting	$1,200,000			$60,000	$995,000	$145,000			$1,200,000	
23	Crozet Water GAC and Water Treatment Improvements	$3,418,390		$3,418,390						$3,418,390	$2,665,401
24	Crozet Water Treatment Plant Expansion	$250,000	$6,650,000	$528,819	$3,280,000	$3,091,181				$6,900,000	$90,419
25	Crozet Water Treatment Plant Finished Water Pump Station	$2,600,000		$2,542,000	$58,000					$2,600,000	$395,663

CIP Financial Summary
(Continued)

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	Project Description	Current CIP Adopted 3/2017	Proposed Changes	Current Capital Budget	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2017)
26	Drinking Water Infrastructure Plan	$300,000		$274,000	$26,000					$300,000	
27	Scottsville Water Granular Activated Carbon	1,615,000		1,615,000						1,615,000	1,216,510
28	Upper Schenks Branch Interceptor	$6,667,935	($2,182,935)	$20,000		$128,000	$3,515,000	$822,000		$4,485,000	
29	Interceptor Sewer and Manhole Repair	$1,337,389	$603,611	$496,330	$592,000	$695,000	$157,670			$1,941,000	$124,330
30	Crozet Interceptor Sewer and Manhole Repairs	$625,000		$252,615	$142,000	$230,385				$625,000	$180,715
31	Crozet Flow Equalization Tank	$3,745,000	($445,000)	$238,000	$1,062,000	$2,000,000				$3,300,000	$37,356
32	Crozet Interceptor Pump Station Bypass Isolation Valves	$720,000		$604,000	$116,000					$720,000	
33	Maury Hill Branch Sewer Replacement		$285,000						$285,000	$285,000	
34	Crozet Interceptor Pump Station Rebuilds		$525,000		$275,000				$250,000	$525,000	
35	Bridge Repairs	$330,000		$330,000						$330,000	$37,391
36	Moores Creek AWRRF Odor Control Phase 2	$10,108,000	$1,016,151	$10,108,000	$1,016,151					$11,124,151	$6,669,061
37	Moores Creek AWRRF Roof Replacements	$1,264,000		$1,264,000						$1,264,000	$61,492

CIP Financial Summary
(Continued)

		Five-Year Capital Program			Projected Future Expenses by Year						
Proj. No.	Project Description	Current CIP Adopted 3/2017	Proposed Changes	Current Capital Budget	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Recommended CIP	Work-in-Progress (Prev. Expenses 6/30/2017)
38	Moores Creek AWRRF Second Centrifuge	$1,290,000		$1,290,000						$1,290,000	$172,974
39	Engineering and Administration Building		$3,000,000			$65,000	$60,000	$1,375,000	$1,500,000	$3,000,000	
40	Digester Sludge Improvements		$265,000		$265,000					$265,000	
41	Aluminum Slide Gate Replacements		$470,000		$470,000					$470,000	
42	MCAWRRF Master Plan		$100,000			$50,000	$50,000			$100,000	
43	Mechanical Thickener		$1,200,000			$100,000	$1,100,000			$1,200,000	
44	Radio Upgrades	$521,000		$521,000						$521,000	$3,567
45	Grinder and Air Control Improvements		$100,000			$30,000	$70,000			$100,000	
46	Influent Pump & VFD Addition	$61,000					$61,000			$61,000	
47	Secondary Clarifier Coating		$50,000		$25,000	$25,000				$50,000	
48	Information Technology Enhancement (Asset Management)		$500,000	$50,000	$250,000	$200,000				$500,000	
49	Security Enhancements		$2,400,000		$170,000	$1,120,000	$1,110,000			$2,400,000	
	Total	$98,547,208	$55,354,827	$56,244,313	$12,973,819	$19,109,566	$31,287,421	$25,428,802	$8,858,114	$153,902,035	$33,967,349

Water System Summary

Urban Water System	Summary Current CIP	Summary Proposed Changes	Current Capital Budget	Projected Future Expenses by Year FY19	FY20	FY21	FY22	FY23	Recommended CIP	Work-in - Progress
PROJECT COSTS										
Community Water Supply Plan	$ 2,432,558	$ 6,398,442	$ 565,249	$ 275,000	$ 870,000	$ 1,420,751	$ 1,853,000	$ 3,847,000	$ 8,831,000	$ 25,249
Observatory WTP/Ragged Mtn/Sugar Hollow Systems	11,600,000	8,616,000	1,479,198	1,870,000	4,128,000	8,871,000	3,867,802	-	20,216,000	1,042,198
Finished Water Storage/Distribution - Urban System	39,745,494	11,690,000	30,050,494	1,670,000	2,001,000	8,167,000	8,830,000	717,000	51,435,494	21,028,805
South & North Fork Rivanna WTP and Reservoir System	7,051,442	848,558	302,332	691,668	2,411,000	4,398,000	97,000	-	7,900,000	82,332
Security & Asset Management	-	1,450,000	25,000	210,000	660,000	555,000	-	-	1,450,000	-
Total Projects Urban Water Systems	**$ 60,829,494**	**$ 29,003,000**	**$ 32,422,273**	**$ 4,716,668**	**$ 10,070,000**	**$ 23,411,751**	**$ 14,647,802**	**$ 4,564,000**	**$ 89,832,494**	**$ 22,178,584**
Completed or Closed Projects	$ (4,406,000)	$ (4,406,000)								
Adjusted	**$ 56,423,494**	**$ 33,409,000**								
FUNDING SOURCES URBAN SYSTEM - TO DATE										
Work-in-Progress			$ 22,178,584	$ -	$ -	$ -	$ -	$ -	$ 22,178,584	
Debt Proceeds Available 2015B			6,363,105		-	-	-	-	6,363,105	
Capital Cash Fund Designated			3,880,584	-	-	-	-	-	3,880,584	
SUBTOTAL			32,422,273	-	-	-	-	-	32,422,273	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash reserve transfer to Capital Fund				$ 1,000,000	$ 1,000,000	$ 250,000	$ -	$ -	$ 2,250,000	
New Debt Needed			-	3,716,668	9,070,000	23,161,751	14,647,802	4,564,000	55,160,221	
SUBTOTAL			-	4,716,668	10,070,000	23,411,751	14,647,802	4,564,000	57,410,221	
TOTAL URBAN WATER FUNDING			**$ 32,422,273**	**$ 4,716,668**	**$ 10,070,000**	**$ 23,411,751**	**$ 14,647,802**	**$ 4,564,000**	**$ 89,832,494**	
									$89,832,494	
Estimated Bond Issues					**$12,786,700**		**$42,373,600**			

Non-Urban Water System	Summary Current CIP	Summary Proposed Changes	Current Capital Budget	Projected Future Expenses by Year FY19	FY20	FY21	FY22	FY23	Recommended CIP	Work-in - Progress
PROJECT COSTS										
Crozet Water System	$ 14,296,890	$ 15,051,500	$ 7,058,095	$ 4,084,000	$ 5,056,181	$ 2,307,000	$ 8,584,000	$ 2,259,114	$ 29,348,390	$ 3,285,369
Scottsville Water System	1,715,000	(100,000)	1,615,000	-	-	-	-	-	1,615,000	1,216,510
Total Rural Water Systems	**$ 16,011,890**	**$ 14,951,500**	**$ 8,673,095**	**$ 4,084,000**	**$ 5,056,181**	**$ 2,307,000**	**$ 8,584,000**	**$ 2,259,114**	**$ 30,963,390**	**$ 4,501,879**
Completed or Closed Projects	$ (557,500)	$ (557,500)								
Adjusted Current CIP	**$ 15,454,390**	**$ 15,509,000**								
Non-URBAN FUNDING SOURCES										
Work in Progress			$ 4,502,000	$ -	$ -	$ -	$ -	$ -	$ 4,502,000	
Debt Proceeds 2012A/2015A Bond			1,269,200	-	-	-	-	-	1,269,200	
Future Cash reserve transfer to Capital Fund			-	400,000	-	-	-	-	400,000	
New Debt Needed			2,901,895	3,684,000	5,056,181	2,307,000	8,584,000	2,259,114	24,792,190	
TOTAL NON-URBAN WATER FUNDING			**$ 8,673,095**	**$ 4,084,000**	**$ 5,056,181**	**$ 2,307,000**	**$ 8,584,000**	**$ 2,259,114**	**$ 30,963,390**	
									$ 30,963,390	
Estimated Bond Issues				**$11,642,100**			**$13,150,100**			

Wastewater System Summary

Urban Wastewater System	Summary: Current CIP	Summary: Proposed Changes	Current Capital Budget	Projected Future Expenses by Year: FY19	FY20	FY21	FY22	FY23	Recommended CIP	Work-in - Progress
PROJECT COSTS										
Wastewater Interceptor/Pumping Stations	$ 45,370,324	$ (33,489,324)	$ 1,610,945	$ 2,187,000	$ 3,053,385	$ 3,672,670	$ 822,000	$ 535,000	$ 11,881,000	$ 342,401
Moores Creek WWTP	13,597,746	5,966,405	13,513,000	1,751,151	215,000	1,210,000	1,375,000	1,500,000	19,564,151	6,944,485
Security & Asset Management	-	1,450,000	25,000	210,000	660,000	555,000	-	-	1,450,000	-
Total Urban Wastewater Systems	**$ 58,968,070**	**$ (26,072,919)**	**$15,148,945**	**$4,148,151**	**$3,928,385**	**$5,437,670**	**$2,197,000**	**$2,035,000**	**$32,895,151**	**$7,286,886**
Completed or Closed Projects	$ (32,359,746)	$ (32,359,746)								
Adjusted Current CIP	**$ 26,608,324**	**$6,286,827**								
FUNDING SOURCES URBAN SYSTEM - IN PLACEA										
Work-in-Progress			$ 7,286,886	$ -	$ -	$ -	$ -	$ -	$ 7,286,886	
Debt Proceeds - 2016			3,598,000	-	-	-	-		3,598,000	
Capital Cash on hand			3,822,000	-	-	-	-	-	3,822,000	
SUBTOTAL			14,706,886	-	-	-	-	-	14,706,886	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash Reserves			$ -	$ 750,000	$ 500,000	$ -	$ -	$ -	$ 1,250,000	
New Debt Needed			442,059	$3,398,151	3,428,385	5,437,670	2,197,000	2,035,000	16,938,265	
SUBTOTAL			442,059	$4,148,151	3,928,385	5,437,670	2,197,000	2,035,000	18,188,265	
TOTAL URBAN WASTEWATER FUNDING			**$ 15,148,945**	**$ 4,148,151**	**$ 3,928,385**	**$ 5,437,670**	**$ 2,197,000**	**$ 2,035,000**	**$ 32,895,151**	
Estimated Bond Issues					**$ 7,268,600**		**$ 9,669,700**			

Non-Urban Wastewater System	Summary: Current CIP	Summary: Proposed Changes	Current Capital Budget	Projected Future Expenses by Year: FY19	FY20	FY21	FY22	FY23	Recommended CIP	Work-in - Progress
PROJECT COSTS										
Glenmore WWTP	$ 61,000	$ 50,000	$ -	$ 25,000	$ 25,000	$ 61,000	$ -	$ -	$ 111,000	$ -
Scottsville WWTP	-	100,000	-	-	30,000	70,000	-	-	100,000	-
Total Rural Wastewater Systems	**$61,000**	**$150,000**	**$ -**	**$ 25,000**	**$ 55,000**	**$ 131,000**	**$ -**	**$ -**	**$ 211,000**	**$ -**
FUNDING SOURCES RURAL SYSTEM - NEEDS										
Future Cash Reserve			$ -	$ 25,000	$ 55,000	131,000			211,000	
TOTAL RURAL WASTEWATER FUNDING			**$ -**	**$ 25,000**	**$ 55,000**	**$ 131,000**	**$ -**	**$ -**	**$ 211,000**	
Estimated Bond Issues			$ -		$ -					

Rivanna Water and Sewer Authority
CIP 2019-2023
Summary Information - Proposed5/16/2018

	2019 - 2023 Proposed CIP	2017-2021 Adopted CIP	Change $
Project Cost			
Urban Water Projects	$ 89,832,485	$ 60,829,494	$ 29,002,991
Urban Wastewater Projects	32,895,150	58,968,070	(26,072,920)
Non-Urban Projects	31,174,400	16,072,890	15,101,510
Total Project Cost Estimates	**$ 153,902,035**	**$ 135,870,454**	**$ 18,031,581**
Funding in place			
Work-in-Progress (paid for)	$ 33,967,484	$ 37,841,713	(3,874,229)
Debt Proceeds Used	11,230,305	41,251,626	(30,021,321)
Cash-Capital Available	7,702,584	9,682,421	(1,979,837)
	$ 52,900,373	$ 88,775,760	$ (35,875,387)
Financing Needs			
Possible Future Reserves	$ 4,111,000	7,830,344	(3,719,344)
New Debt	96,890,662	39,264,350	57,626,312
	$ 101,001,662	$ 47,094,694	$ 53,906,968
Total Funding	**$ 153,902,035**	**$ 135,870,454**	**$ 18,031,581**
Percentage of funding in place	34.4%	65.3%	
Ratio of debt to expense	92.3%	87.1%	
Ratio of cash to expense	7.7%	12.9%	

Rivanna Water and Sewer Authority
CIP 2019-2023
Summary Information - Proposed5/16/2018

Detail by Major Systems	Total Proposed 1/31/2018 CIP	Urban Water Projects	Urban Wastewater Projects	Water Non-Urban Projects	Wastewater Non-Urban Projects
Project Cost					
Urban Water Projects	$ 89,832,485	$ 89,832,485	$ -	$ -	$ -
Urban Wastewater Projects	32,895,150	-	32,895,150	-	-
Non-Urban Projects	31,174,400	-	-	30,963,400	211,000
Total Project Cost Estimates	**$ 153,902,035**	**$ 89,832,485**	**$ 32,895,150**	**$ 30,963,400**	**$ 211,000**
Funding in place					
Work-in-Progress (paid for)	$ 33,967,484	$ 22,178,584	$ 7,286,900	$ 4,502,000	$ -
Debt Proceeds available	11,230,305	6,363,105	3,598,000	1,269,200	-
Cash-Capital Available	7,702,584	3,880,584	3,822,000	-	-
	$ 52,900,373	$ 32,422,273	$ 14,706,900	$ 5,771,200	$ -
Financing Needs					
Possible Future Reserves	$ 4,111,000	2,250,000	1,250,000	400,000	211,000
New Debt	96,890,662	55,160,212	16,938,250	24,792,200	-
	$ 101,001,662	$ 57,410,212	$ 18,188,250	$ 25,192,200	$ 211,000
Total Funding	**$ 153,902,035**	**$ 89,832,485**	**$ 32,895,150**	**$ 30,963,400**	**$ 211,000**
Percentage of funding in place	34.4%	36.1%	44.7%	18.6%	0.0%
Ratio of debt to expense	92.3%	68.5%	62.4%	84.2%	0.0%
Ratio of cash to expense	7.7%	6.8%	15.4%	1.3%	100.0%

	Urban Water	Urban Wastewater	Non-Urban	Total
Current Adopted CIP 2017 - 2021	$ 60,829,494	$ 58,968,070	$ 16,072,890	$ 135,870,454
Changes:				
Completed or Closed Projects	(4,406,000)	(32,359,746)	(557,500)	(37,323,246)
Adjustments on existing Projects	17,543,000	(1,008,173)	15,509,000	32,043,827
New Projects	15,866,000	5,845,000	1,600,000	23,311,000
Total Changes	29,003,000	(27,522,919)	16,551,500	18,031,581
Total Proposed CIP 2019 - 2023	$ 89,832,494	$ 31,445,151	$ 32,624,390	$ 153,902,050

Rivanna Water and Sewer Authority
CIP 2019-2023
Summary Information - Proposed5/9/2018

PROPOSED 5-YEAR CIP
CHARGE ANALYSIS ESTIMATES

Note - this fixed rate (charge) analysis is intended to show the effect of the draft CIP on the current adopted debt service charges. It is meant to provide a comparison of the next five years. It is not setting fixed rates for the next 5 years.

	Annual Debt Service FY 2018	Current Charge Debt Service FY 2018 Per Month	FY 2019 Per Month	FY 2020 Per Month	FY 2021 Per Month	FY 2022 Per Month	FY 2023 Per Month	Total Per Month
URBAN WATER								
CITY								
Urban Water - Current Adopted	1,920,500	$ 160,039						
Monthly DS Growth Charge (additional)			$ 20,969	$ 22,375	$ 22,375	$ 22,375	$ 22,375	$ 110,469
New Charge estimate			$ 181,008	$ 203,383	$ 225,758	$ 248,133	$ 270,508	$ 270,508
Annual percentage change			13.1%	12.4%	11.0%	9.9%	9.0%	
Total percentage change								69.0%
ACSA								
Urban Water - Current Adopted	3,425,300	$ 285,439						
Monthly DS Growth Charge (additional)			$ 22,159	$ 28,000	$ 28,000	$ 28,000	$ 28,000	$ 134,159
New Rate estimate			$ 307,598	$ 335,598	$ 363,598	$ 391,598	$ 419,598	$ 419,598
Annual percentage change			7.8%	9.1%	8.3%	7.7%	7.2%	
Total percentage change								47.0%
URBAN WASTEWATER								
CITY								
Urban WWater - Current Adopted	4,714,100	$ 392,841						
Monthly DS Growth Charge (additional)			$ 15,420	$ 20,790	$ 12,460	$ 12,460	$ 12,460	$ 73,590
New Rate estimate			$ 408,261	$ 429,051	$ 441,511	$ 453,971	$ 466,431	$ 466,431
Annual percentage change			3.9%	5.1%	2.9%	2.8%	2.7%	
Total percentage change								18.7%
ACSA								
Urban WWater - Current Adopted	2,670,600	$ 222,550						
Monthly DS Growth Charge (additional)			$ 23,760	$ 20,240	$ 10,340	$ 10,340	$ 10,340	$ 75,020
New Rate estimate			$ 246,308	$ 266,548	$ 276,888	$ 287,228	$ 297,568	$ 297,570
Annual percentage change			10.7%	8.2%	3.9%	3.7%	3.6%	
Total percentage change								33.7%

		FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
City of Charlottesville								
Urban Water								
Operating Rate	Per 1000 gal.	1.833	1.969	2.070	2.174	2.282	2.396	2.516
	% Change		7.4%	5.1%	5.0%	5.0%	5.0%	5.0%
Debt Service Charge	Per month	$ 162,968	$ 160,039	181,008	203,383	225,758	248,133	270,508
			-1.8%	13.1%	12.4%	11.0%	9.9%	9.0%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,270,700	$ 3,514,200	$ 3,590,700	$ 3,770,235	$ 3,958,747	$ 4,156,684	$ 4,364,518
Debt Service Revenues	Annual	1,955,600	1,920,500	2,172,100	2,440,596	2,709,096	2,977,596	3,246,096
Total		**$ 5,226,300**	**$ 5,434,700**	**$ 5,762,800**	**$ 6,210,831**	**$ 6,667,843**	**$ 7,134,280**	**$ 7,610,614**
	$ Change		**$ 208,400**	**$ 328,100**	**$ 448,031**	**$ 457,012**	**$ 466,437**	**$ 476,334**
	% Change		**4.0%**	**6.0%**	**7.8%**	**7.4%**	**7.0%**	**6.7%**
Urban Wastewater								
Operating Rate	Per 1000 gal.	1.835	1.951	2.146	2.253	2.366	2.484	2.608
	% Change		6.3%	10.0%	5.0%	5.0%	5.0%	5.0%
Debt Service Charge	Per month	$ 369,037	$ 392,841	408,261	429,051	441,511	453,971	466,431
			6.5%	3.9%	5.1%	2.9%	2.8%	2.7%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,267,300	$ 3,540,600	$ 3,678,900	$ 3,862,845	$ 4,055,987	$ 4,258,787	$ 4,471,726
Debt Service Revenues	Annual	4,428,400	4,714,100	4,899,100	5,148,612	5,298,132	5,447,652	5,597,172
Total		**$ 7,695,700**	**$ 8,254,700**	**$ 8,578,000**	**$ 9,011,457**	**$ 9,354,119**	**$ 9,706,439**	**$ 10,068,898**
	$ Change		**$ 559,000**	**$ 323,300**	**$ 433,457**	**$ 342,662**	**$ 352,319**	**$ 362,459**
	% Change		**7.3%**	**3.9%**	**5.1%**	**3.8%**	**3.8%**	**3.7%**
Total City All Revenues		**$ 12,922,000**	**$ 13,689,400**	**$ 14,340,800**	**$ 15,222,288**	**$ 16,021,962**	**$ 16,840,719**	**$ 17,679,512**
	$ Change		**$ 767,400**	**$ 651,400**	**$ 881,488**	**$ 799,674**	**$ 818,757**	**$ 838,794**
	% Change		**5.9%**	**4.8%**	**6.1%**	**5.3%**	**5.1%**	**5.0%**

		FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
ACSA Charges From RWSA								
Urban Water								
Operating Rate	Per 1000 gal.	1.833	1.969	2.070	2.174	2.282	2.396	2.516
	% Change		7.4%	5.1%	5.0%	5.0%	5.0%	5.0%
Debt Service Charge	Per month	$ 284,031	$ 285,439	307,598	335,598	363,598	391,598	419,598
			0.5%	7.8%	9.1%	8.3%	7.7%	7.2%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,019,100	$ 3,243,900	$ 3,449,900	$ 3,622,395	$ 3,803,515	$ 3,993,690	$ 4,193,375
Debt Service Revenues	Annual	3,408,400	3,425,300	3,691,200	4,027,180	4,363,180	4,699,180	5,035,180
Total		**$ 6,427,500**	**$ 6,669,200**	**$ 7,141,100**	**$ 7,649,575**	**$ 8,166,695**	**$ 8,692,870**	**$ 9,228,555**
	$ Change		**$ 241,700**	**$ 471,900**	**$ 508,475**	**$ 517,120**	**$ 526,176**	**$ 535,685**
	% Change		**3.8%**	**7.1%**	**7.1%**	**6.8%**	**6.4%**	**6.2%**
Urban Wastewater								
Operating Rate	Per 1000 gal.	1.835	1.951	2.146	2.253	2.366	2.484	2.608
	% Change		6.3%	10.0%	5.0%	5.0%	5.0%	5.0%
Debt Service Charge	Per month	$ 222,280	$ 222,550	246,308	266,548	276,888	287,228	297,568
			0.1%	10.7%	8.2%	3.9%	3.7%	3.6%
Revenue Requirements:								
Operating Rate Revenue	Annual	$ 3,015,900	$ 3,139,800	$ 3,534,600	$ 3,711,330	$ 3,896,897	$ 4,091,741	$ 4,296,328
Debt Service Revenues	Annual	2,667,400	2,670,600	2,955,700	3,198,580	3,322,660	3,446,740	3,570,820
Total		$ 5,683,300	$ 5,810,400	$ 6,490,300	$ 6,909,910	$ 7,219,557	$ 7,538,481	$ 7,867,148
	$ Change		**$ 127,100**	**$ 679,900**	**$ 419,610**	**$ 309,647**	**$ 318,925**	**$ 328,667**
	% Change		**2.2%**	**11.7%**	**6.5%**	**4.5%**	**4.4%**	**4.4%**
Non-Urban Rate Centers								
Operating Rate Revenue	Annual	$ 1,877,100	$ 1,964,600	2,066,200	2,169,510	2,277,986	2,391,885	2,511,479
Debt Service Revenues	Annual	716,900	830,700	1,134,400	1,429,400	1,724,400	2,019,400	2,314,400
Total		**$ 2,594,000**	**$ 2,795,300**	**$ 3,200,600**	**$ 3,598,910**	**$ 4,002,386**	**$ 4,411,285**	**$ 4,825,879**
				$ 405,300	**$ 398,310**	**$ 403,476**	**$ 408,899**	**$ 414,594**
				14.5%	**12.4%**	**11.2%**	**10.2%**	**9.4%**
Total ACSA All Revenues		**$ 14,704,800**	**$ 15,274,900**	**$ 16,832,000**	**$ 18,158,395**	**$ 19,388,637**	**$ 20,642,637**	**$ 21,921,582**
	$ Change		**$ 570,100**	**$ 1,557,100**	**$ 1,326,395**	**$ 1,230,242**	**$ 1,254,000**	**$ 1,278,946**
	% Change		**3.9%**	**10.2%**	**7.9%**	**6.8%**	**6.5%**	**6.2%**

Rivanna Water and Sewer Authority
CIP 2017-2021
Summary Information - Adopted 3/28/17

Non-Urban Rate Impacts

(all rates are monthly)

		Current Charges	Monthly Increase						
		FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total	5-Year Avg. Annual Increase
Crozet Water	Operations	$ 76,278							
	Debt Service	57,623							
		$ 133,901	$ 25,768	$ 25,768	$ 25,768	$ 25,768	$ 25,768	$ 128,840	**$ 25,768**
			19.2%	19.2%	19.2%	19.2%	19.2%	96.2%	
Scottsville Water	Operations	34,353							
	Debt Service	10,787							
		$ 45,140	143	143	144	144	145	$ 719	**$ 144**
			0.3%	0.3%	0.3%	0.3%	0.3%	1.6%	
Glenmore Wastewater	Operations	29,362							
	Debt Service	132							
		$ 29,494	122	$ 122	$ 123	$ 123	$ 123	$ 613	**$ 123**
			0.4%	0.1%	0.1%	0.1%	0.1%	0.5%	
Scottsville Wastewater	Operations	23,724							
	Debt Service	686							
		$ 24,410	99	$ 99	$ 100	$ 100	$ 100	$ 498	**$ 100**
			0.4%	0.4%	0.4%	0.4%	0.4%	2.0%	
All Non-Urban Rate Centers Monthly		**$ 163,717**							
		$ 69,228							
		$ 232,945	**$ 26,132**	**$ 26,132**	**$ 26,135**	**$ 26,135**	**$ 26,136**	**$ 130,670**	**$ 26,134**
			11.2%	**11.2%**	**11.2%**	**11.2%**	**11.2%**	**56.1%**	**11.2%**

Summary of Charges - Annually		FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	Total
Current FY2018	**$ 2,795,340**						
Annual Additional Revenue Needs		**$ 313,588**	**$ 313,584**	**$ 313,620**	**$ 313,620**	**$ 313,632**	**$ 1,568,044**
Total Annual Charge for Debt Service		$ 3,108,928	$ 3,422,512	$ 3,736,132	$ 4,049,752	$ 4,363,384	$ 4,363,384
		11.2%	10.1%	9.2%	8.4%	7.7%	56.1%

Budget

Fiscal Year 2018 – 2019

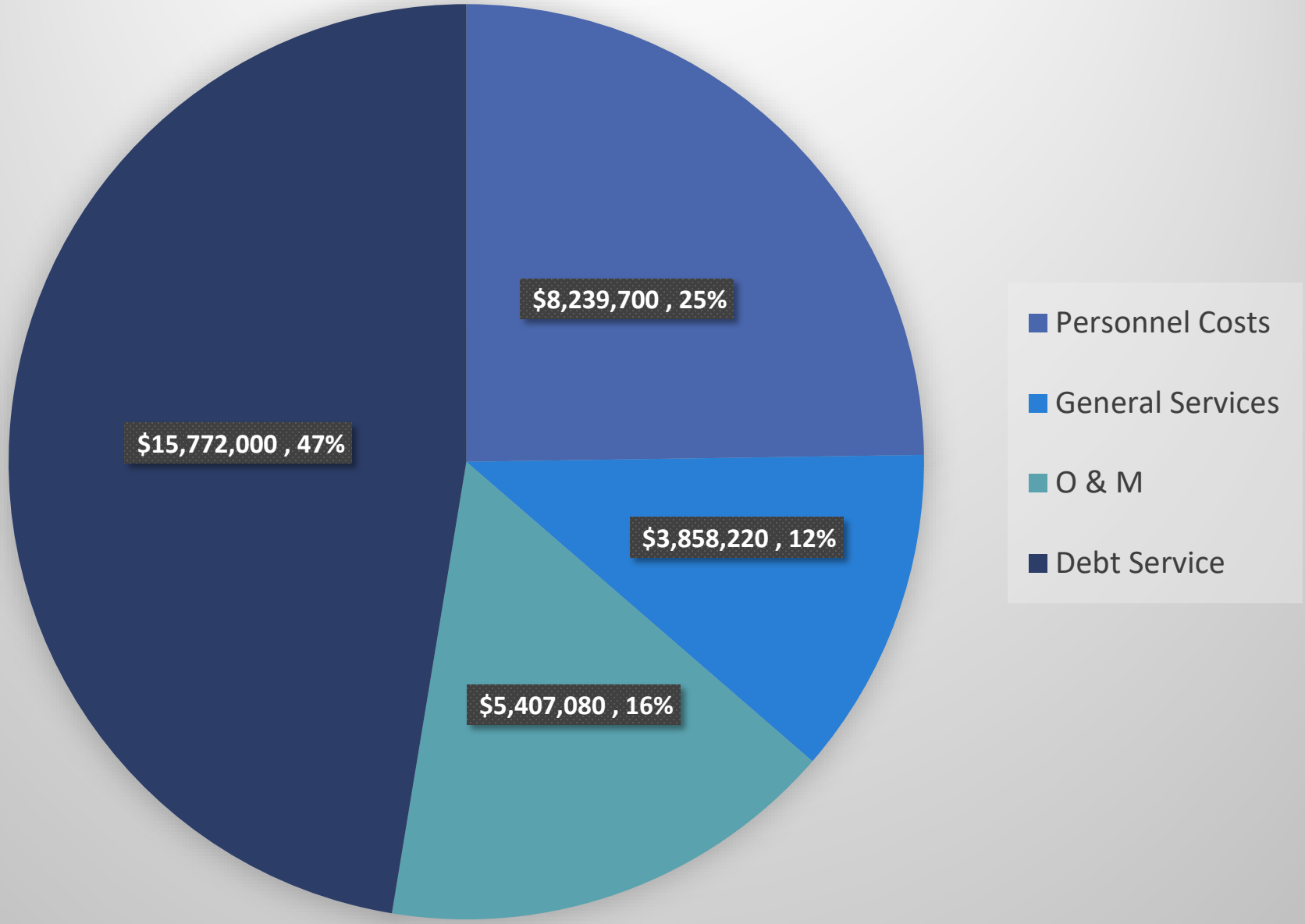
RIVANNA
WATER & SEWER AUTHORITY

Presented by:

Bill Mawyer, Executive Director

May 22, 2018

FY 2018-19 Budgeted Expenses
Total $33,277,000



FY 2018 – 2019 Budget Summary

• $33,277,000	$2.3 M Increase	7.3%
• Operating	$1 M Increase	6.1%
• Debt Service	$1.3 M Increase	8.8%
• City Charges	$14.3 M	
• Increase	$681 K	5.0%
• ACSA Charges	$16.9 M	
• Increase	$1.6 M	10.4%

Operating Increase: $1 M

- Personnel
  - Merit Pool, 3% $160 K
  - Additional Positions (3) $200 K
    - Water Operator
    - Instrumentation Specialist
    - Software Analyst
  - Health Insurance, 10% $97 K

  ➢ *SPG: Workforce Development*

- Reservoir Management $175 K
  - Bathymetric studies: RMR, SRR

  ➢ *SPG: Environmental Stewardship*

- Urban Wastewater $220 K
  - Rivanna SPS Utilities & Maintenance
  - Crozet Odor Control

  ➢ *SPG: Operational Optimization*

- Technology Systems
  - Master Plan $100 K

  ➢ *SPG: Operational Optimization*
  ➢ *SPG: Infrastructure and Master Planning*

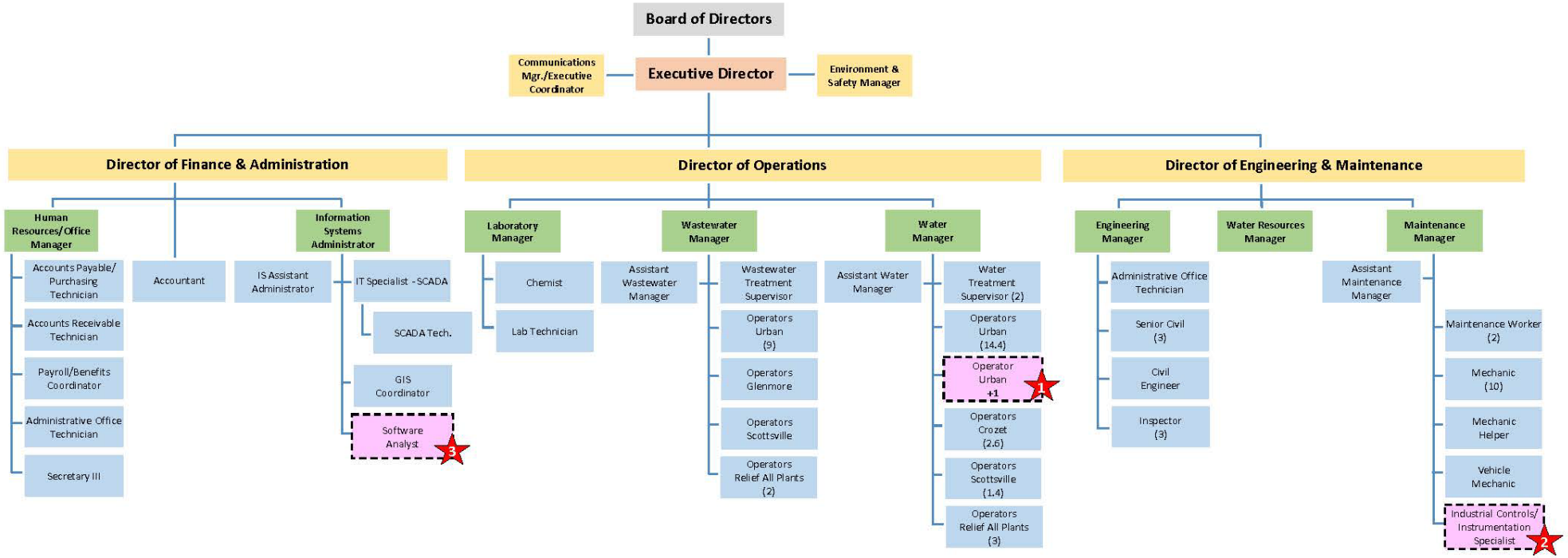
- Strategic Plan Implementation $115 K

Rivanna Water & Sewer Authority

Organizational Chart

Proposed FY 18-19 Budget

Revision No. 3



FTE Positions by Department

Department	Current FTE	Change	Proposed FTE
Administration	12	0	
IT/SCADA	**4**	**+2**	**6**
Engineering	**12**	**-1**	**11**
Laboratory	3	0	
Maintenance	**16**	**+1**	**17**
Wastewater	16	0	
Water	**25.4**	**+1**	**26.4**
Total	**88.4**	**3**	**91.4**

FY 2019 Proposed FTE Additions

1. *Increase number of Urban Water Operators from 14.4 to 15.4 FTE.*
2. *Industrial Controls/Instrumentation Specialist, added to Maintenance Department.*
3. *Software Analyst, added to Information Systems Department.*

One employee per position unless otherwise noted in parenthesis ( )

Debt Service Increase: $1.3 M

- Urban Water
  - Observatory WTP Upgrade
  - South Rivanna WTP Renovation
  - Avon – Pantops Water Line
  - RMR – OWTP Pipe and Pump Station Replacements
- Crozet Water
  - Finished Water Pump Station Replacement
  - Water Treatment Plant Upgrade
  - Beaver Creek Dam Modifications
- Urban Wastewater
  - Rivanna Sewer Pump Station and Tunnel
  - Odor Control Facilities

FY 2019 Budget Proposal

	FY 2019	FY 2018	Increase	%
Total Budget	**$33,277,000**	**$31,010,000**	**$2,267,000**	**7.31%**
Operating	$17,505,000	$16,507,000	$998,000	6.05%
Debt Service	$15,722,000	$14,503,000	$1,269,000	8.75%
Total	**$33,277,000**	**$31,010,000**		
Water	$16,095,500	$14,743,400	$1,352,100	9.17%
Wastewater	$17,181,000	$16,266,600	$914,400	5.62%
Total	**$33,277,000**	**$31,010,000**		

Urban Rates & Charges

	FY 2019	FY 2018	Increase	%
Urban Operating Rates per 1,000 gallons:				
Water	$2.070	$1.969	$0.101	5.13%
Wastewater	$2.146	$1.951	$0.195	9.99%
Urban Debt Service Charges per Month:				
City				
Water	$181,008	$160,039	$20,969	13.10%
Wastewater	$408,260	$392,841	$15,419	3.92%
Total City	**$589,268**	**$522,880**		
ACSA				
Water	$307,598	$285,439	$22,159	7.76%
Wastewater	$246,308	$222,550	$23,758	10.68%
Total ACSA	**$553,906**	**$507,989**		

RESOLUTION

PRELIMINARY RATE SCHEDULE

WHEREAS, the Rivanna Water and Sewer Authority Board of Directors has reviewed the proposed budget and associated rate changes for Fiscal Year 2019; and

WHEREAS, Section 15.2-5136 (G) of the Code of Virginia requires the adoption of the preliminary rate schedule for notification of a public hearing prior to fixing rates for water and sewer charges; of which there is at least a 14 day requirement between the date of the last of two public notices and the actual date fixed for the public hearing;

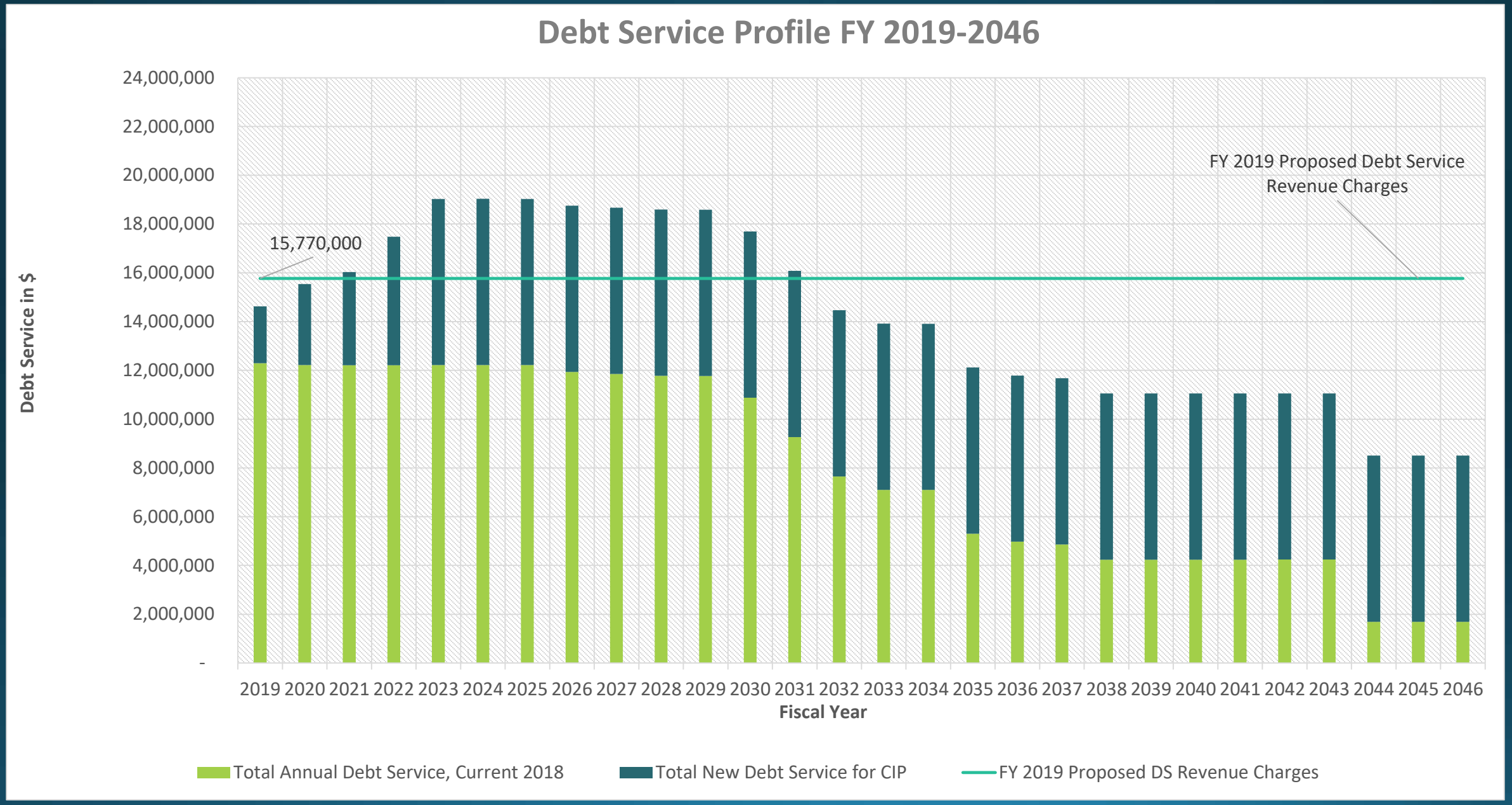
NOW, THEREFORE, BE IT RESOLVED that the Rivanna Water and Sewer Authority hereby approves the preliminary rate schedule for purposes of notification of a public hearing to be held on May 22, 2018 at 2:15 p.m. during the regularly scheduled Board of Directors meeting.

Water Rates & Charges				**Wastewater Rates & Charges**			
Urban Area				**Urban Area**			
City & ACSA	Operating	$2.070	Per 1,000 gallons	City & ACSA	Operating	$2.146	Per 1,000 gallons
City	Debt Service	$181,008	Per month	City	Debt Service	$408,260	Per month
ACSA	Debt Service	$307,598	Per month	ACSA	Debt Service	$246,308	Per month
Crozet Water				**Glenmore Wastewater**			
ACSA	Operating & Debt Service	$162,746	Per month	ACSA	Operating & Debt Service	$31,192	Per Month
Scottsville Water				**Scottsville Wastewater**			
ACSA	Operating & Debt Service	$47,717	Per month	ACSA	Operating & Debt Service	$25,823	Per month

Questions?

- Public Hearing
- Rate Resolution Adoption

Current Debt Profile



RIVANNA WATER & SEWER AUTHORITY
695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

MEMORANDUM

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

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

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

SUBJECT: **BEAVER CREEK DAM UGRADE ALTERNATIVES**

DATE: **MAY 22, 2018**

The Beaver Creek Dam and Reservoir were constructed in 1963 to serve as the sole raw water supply for the Crozet Area. The dam and reservoir also serve as a public recreational area managed by Albemarle County Parks and Recreation. Browns Gap Turnpike (Route 810) runs along the crest of the Beaver Creek Dam and across the Emergency Spillway.

In 2011, Schnabel Engineering, LLC (Schnabel) prepared a Dam Breach Analysis Report for the Beaver Creek Dam to comply with recent changes to the Virginia Department of Conservation and Recreation (DCR) *Impounding Structures Regulations*. The analysis revealed that a reclassification of the dam from "significant" to "high hazard" would be required, and the spillway capacity of the dam would need to be increased. Schnabel performed a preliminary site investigation and alternatives analysis in 2012 and identified three possible spillway configurations and dam modifications which, when fully designed and constructed, would bring the dam and spillway into compliance with DCR requirements. Further design work was put on hold at that time to allow DCR to complete a new Probable Maximum Precipitation (PMP) Study for Virginia. The report was released in November of 2015, and identified a lower PMP could be used for the design of the Beaver Creek Dam Upgrades.

In February 2018, Schnabel began work on a revised alternatives analysis to update the previous three spillway modification alternatives using the new design storm and to develop one additional design alternative at RWSA's request. At this time, the hydraulic analysis and spillway modification alternatives have been updated, traffic detour concepts have been developed and reviewed with the Virginia Department of Transportation, and preliminary cost information has been compiled for each alternative. Jennifer Whitaker will present the revised alternatives for upgrading the spillway capacity of the Beaver Creek Dam.

Board Action Requested:

None requested.

Beaver Creek Dam Upgrade Alternatives Analysis

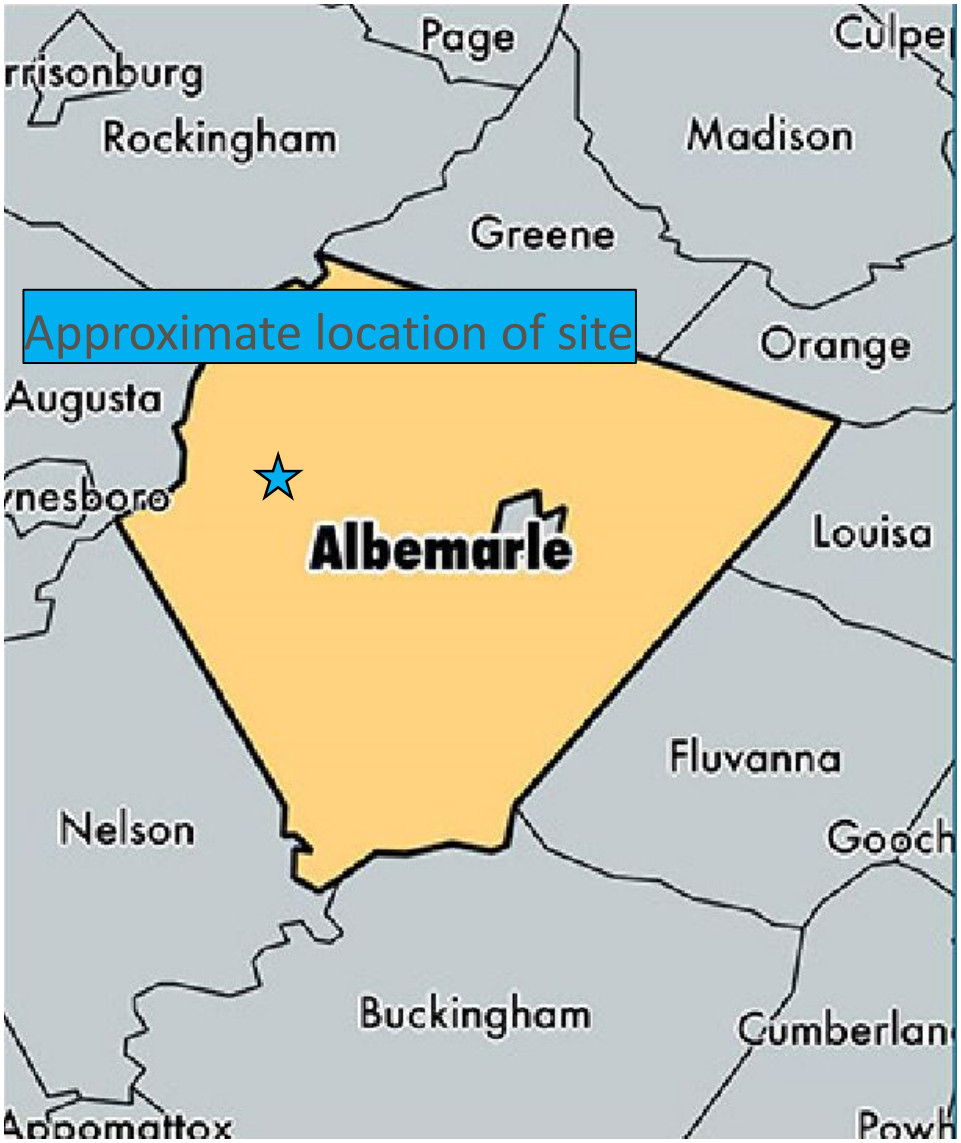
Rivanna Water and Sewer Authority

Jennifer Whitaker, P.E.

May 22, 2018

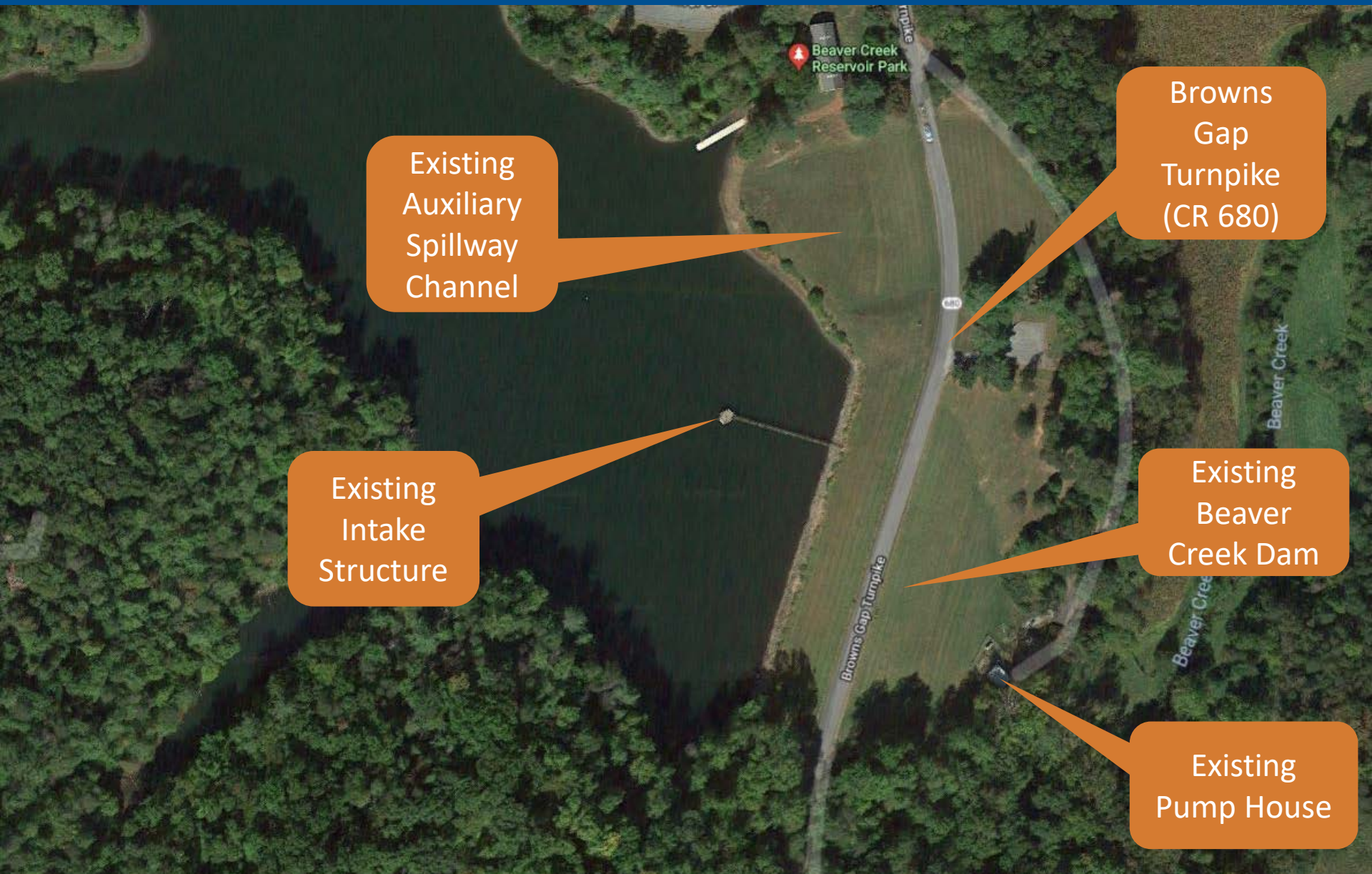
RIVANNA
WATER & SEWER AUTHORITY

Beaver Creek Project Timeline



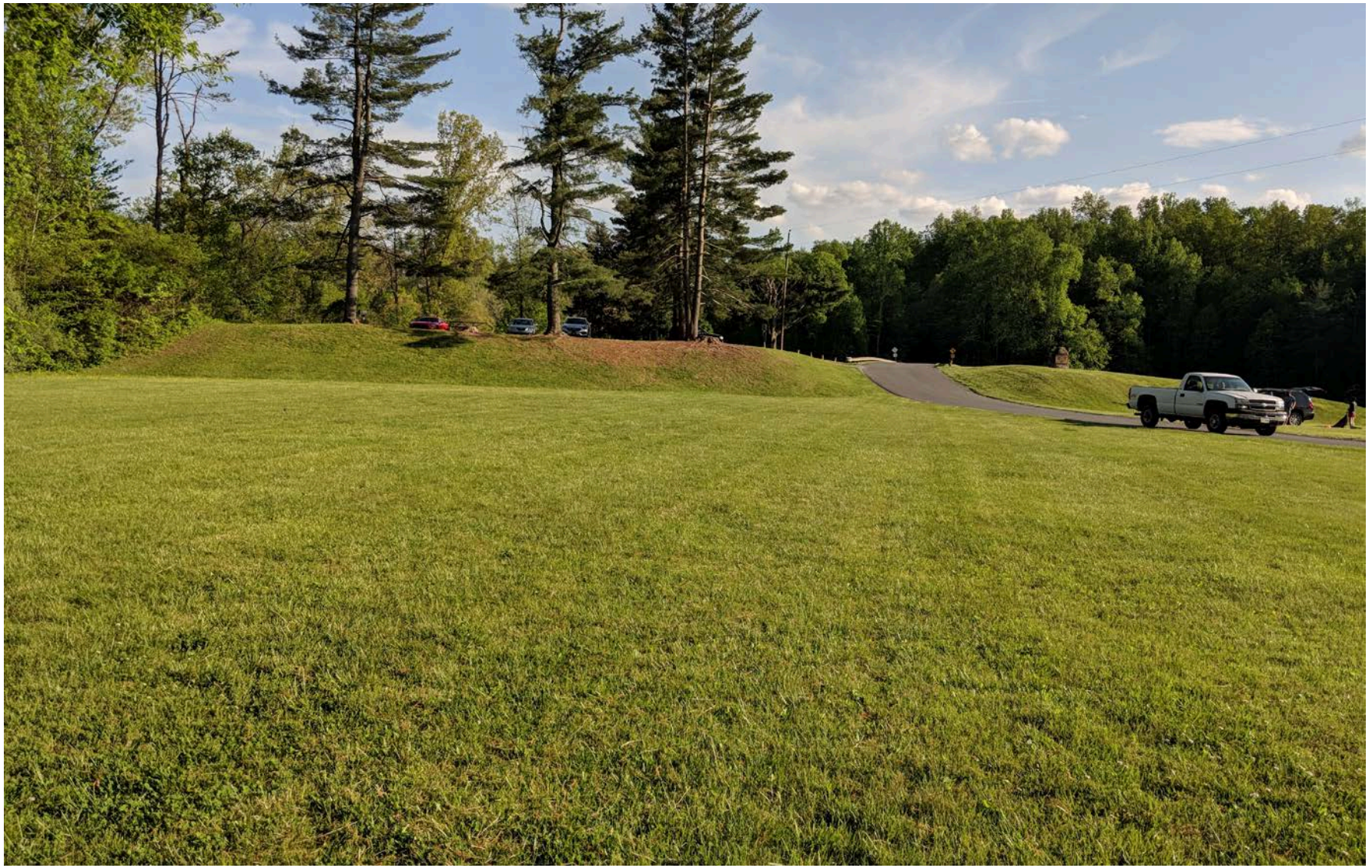
- 1963 – Dam Constructed
- 2008 – DCR Regulation Change
- 2009-2012 – Schnabel Engineering:
  - Dam Break Inundation Study (H&H)
  - Preliminary Alternatives Analysis
- 2012-2015 – DCR suspends regulations & updates rainfall (PMP) study
- 2016 – DCR Issues new Regulations
  - Reduced rainfall during design storm from 35.8” to 31.3” in 24 hours
- 2017-2018 – RWSA Updates H&H Study, Alternatives Analysis
  - Peak inflows reduced by 25%
  - One new alternative added

Beaver Creek Dam – Existing Layout



Beaver Creek – Principal Spillway

Beaver Creek – Auxiliary Spillway



Typical Labyrinth Spillway

Typical RCC “Stepped” Spillway

Typical RCC “Stepped” Spillway

Typical Parapet

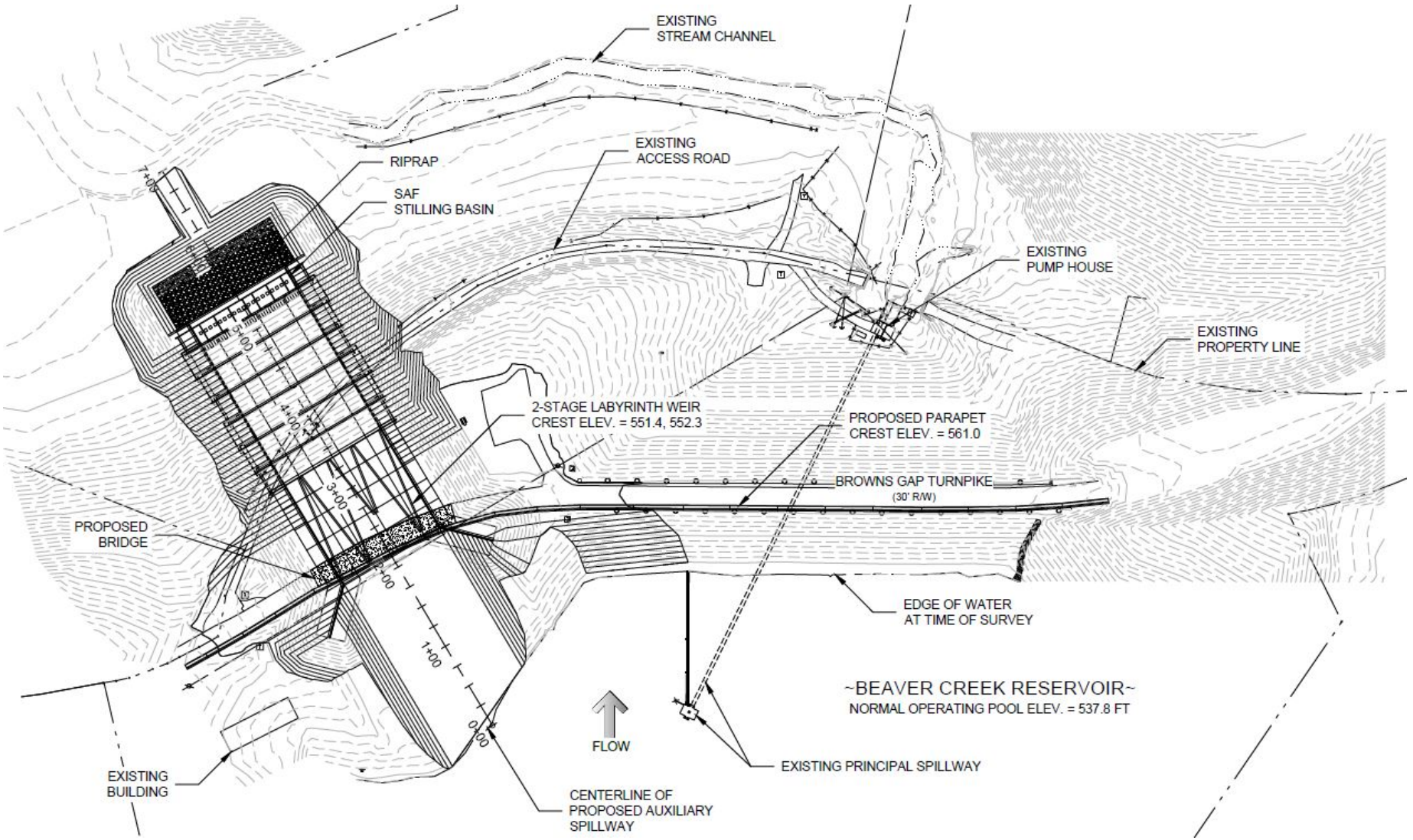
Summary of Alternatives

Alternative Designation	Description	Height of Parapet Wall (ft)	Estimated Construction Cost	Estimated Total CIP Budget
1A	3-1/2 cycle labyrinth-crested chute spillway (through existing spillway)	1	$13.8M	$23.1M
1B	2 cycle labyrinth-crested chute spillway (through existing spillway)	5	$11.2M	$20.5M
2	RCC overtopping protection	1	$13.4M	$22.7M
3	RCC spillway armoring	5	$7.9M	$17.2M
4	2-1/2 cycle labyrinth-crested chute spillway (through dam)	2	$11.3M	$20.6M

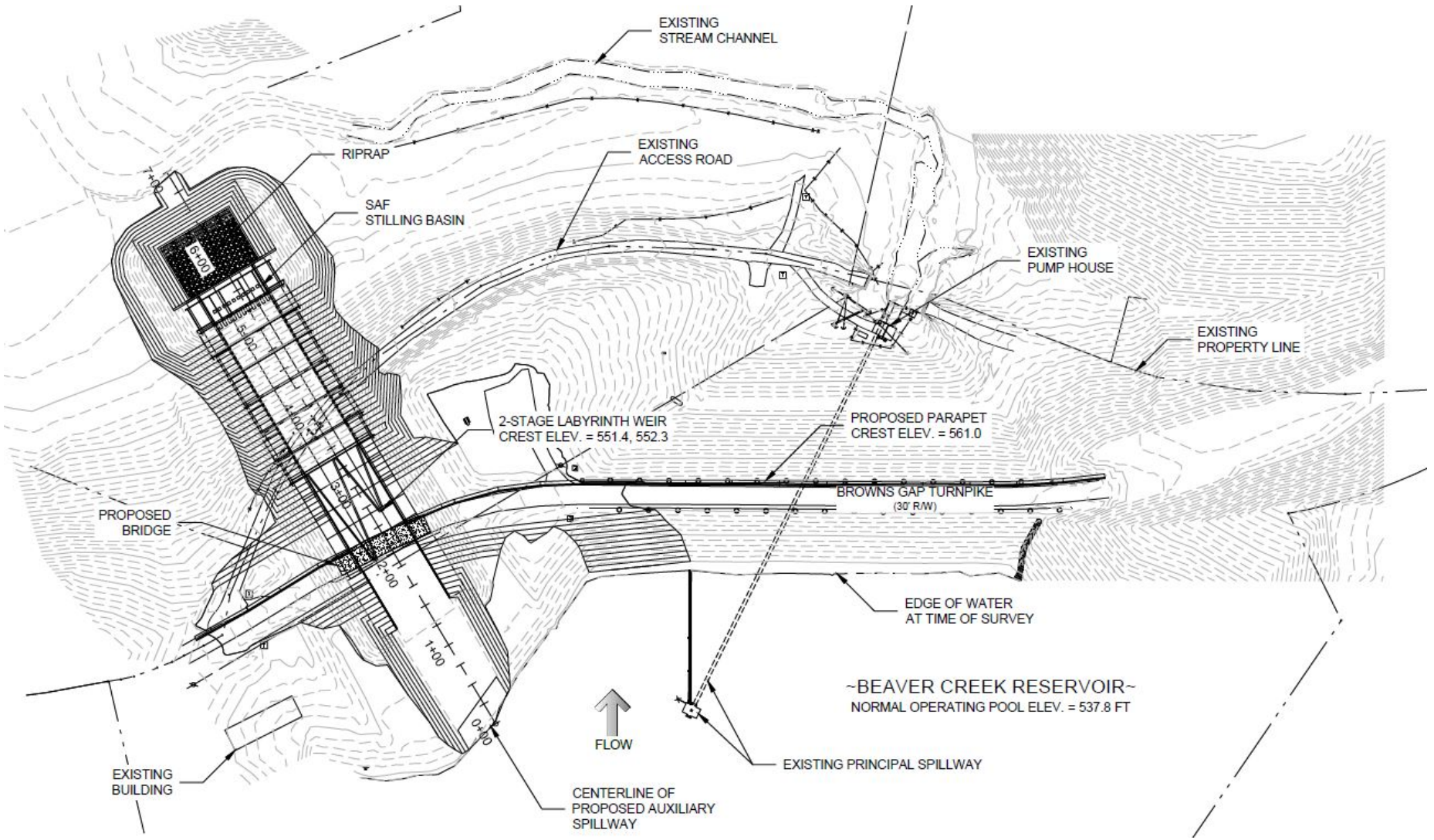
Summary of Alternatives

Alternative Designation	Description	Height of Parapet Wall (ft)	Estimated Construction Cost	Estimated Total CIP Budget
1A	3-1/2 cycle labyrinth-crested chute spillway (through existing spillway)	1	$13.8M	$23.1M
1B	2 cycle labyrinth-crested chute spillway (through existing spillway)	5	$11.2M	$20.5M
2	RCC overtopping protection	1	$13.4M	$22.7M
3	RCC spillway armoring	5	$7.9M	$17.2M
4	2-1/2 cycle labyrinth-crested chute spillway (through dam)	2	$11.3M	$20.6M

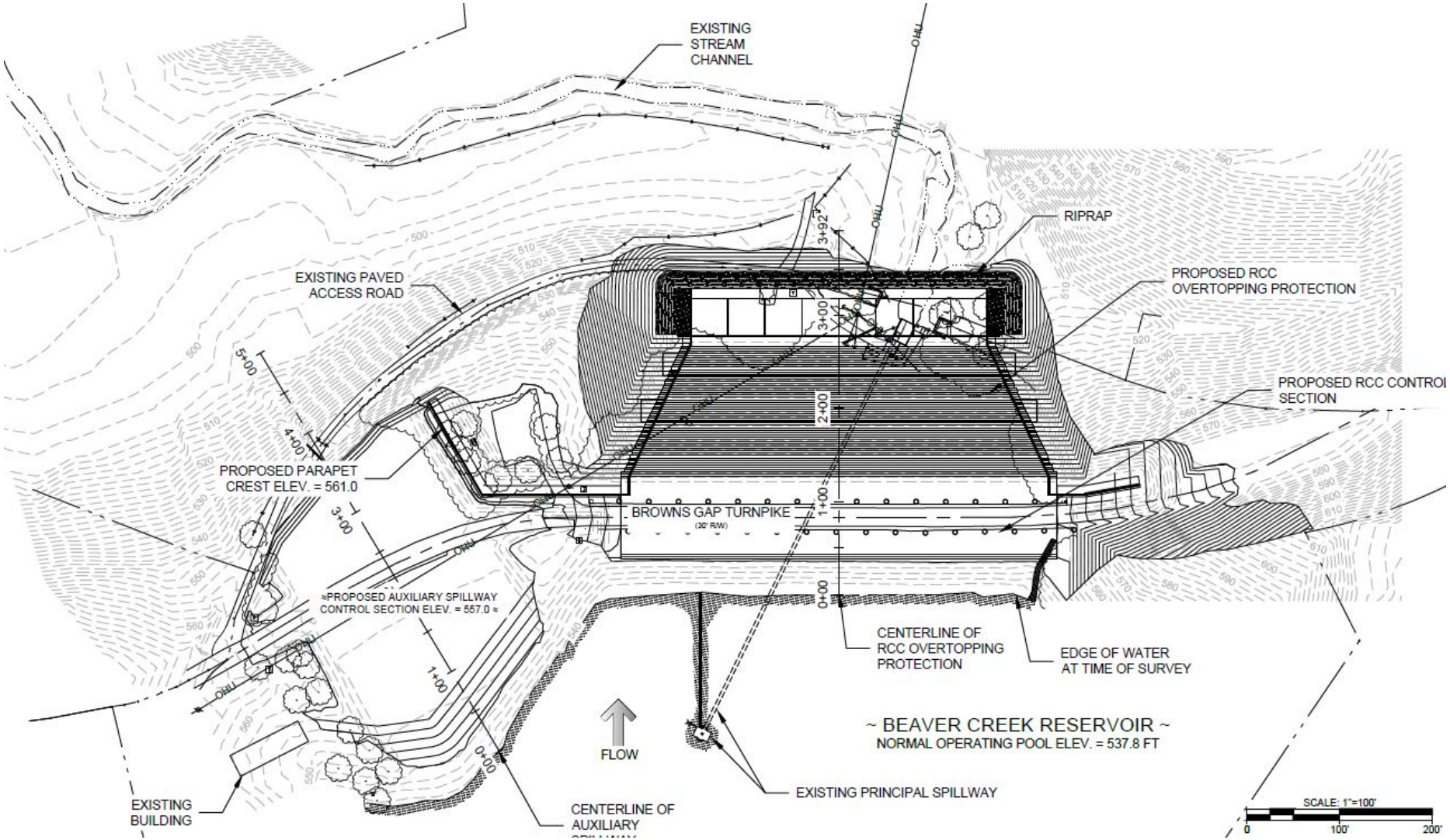
Alternative 1A: 3-1/2 Cycle Labyrinth and Chute (Through Spillway) with 1 ft Parapet Wall



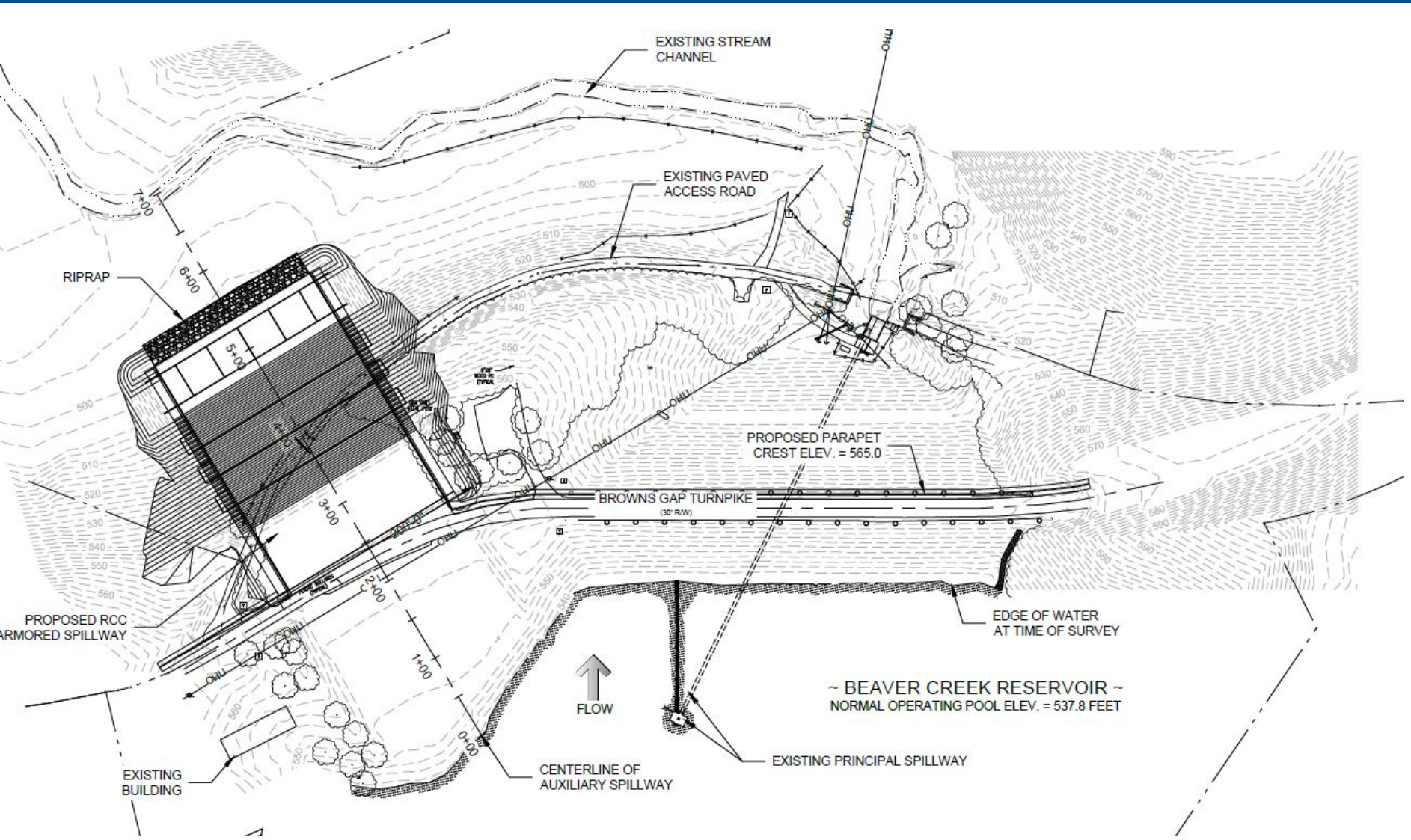
Alternative 1B: 2 Cycle Labyrinth and Chute (Through Spillway) with 5 ft Parapet Wall



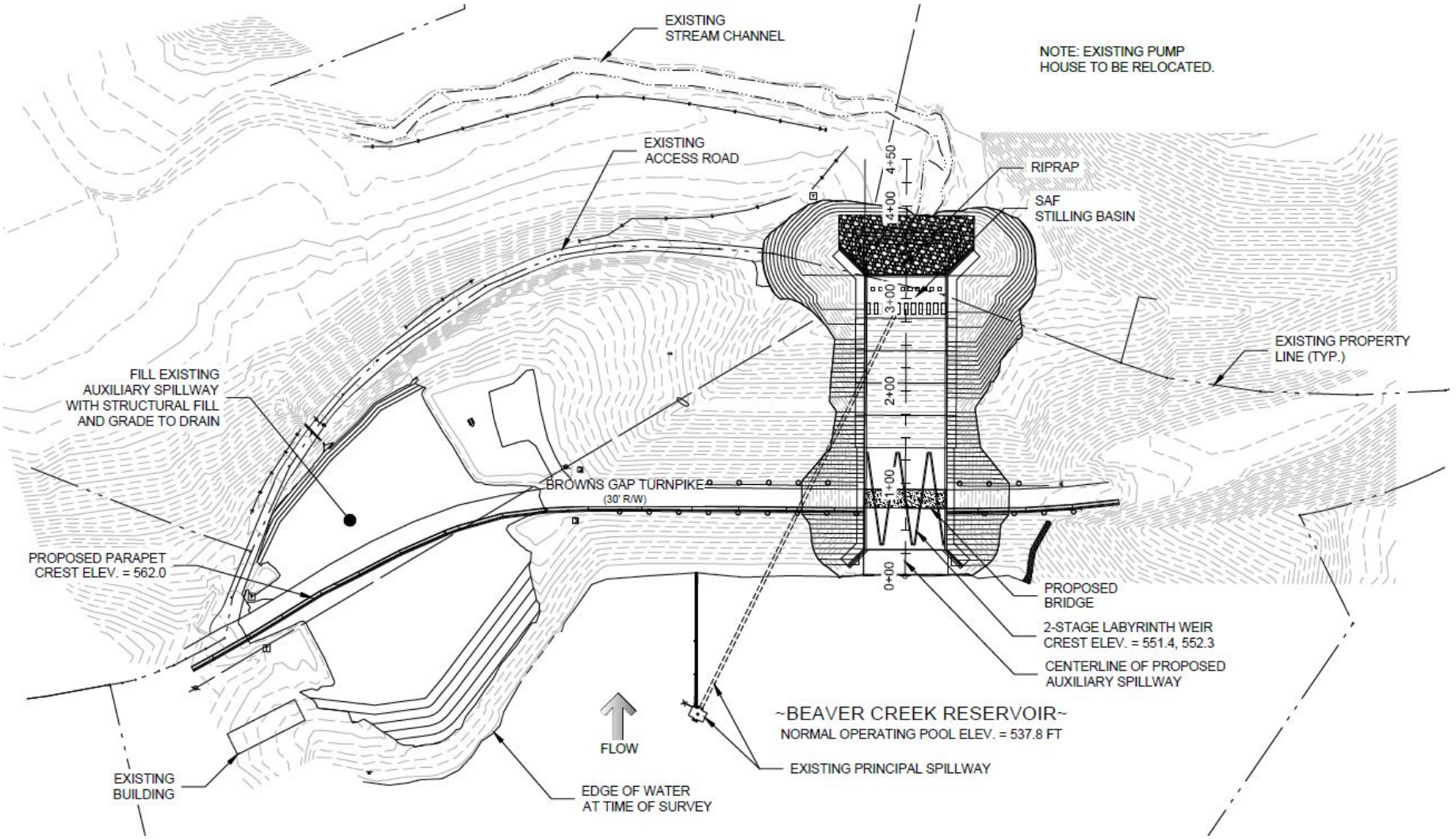
Alternative 2: RCC Overtopping Protection with 1 ft Parapet Wall



Alternative 3: RCC Spillway Armoring with 5 ft Parapet Wall



Alternative 4: 2-1/2 cycle Labyrinth and Chute (Through Dam) with 2 ft Parapet Wall



CIP Project Budget

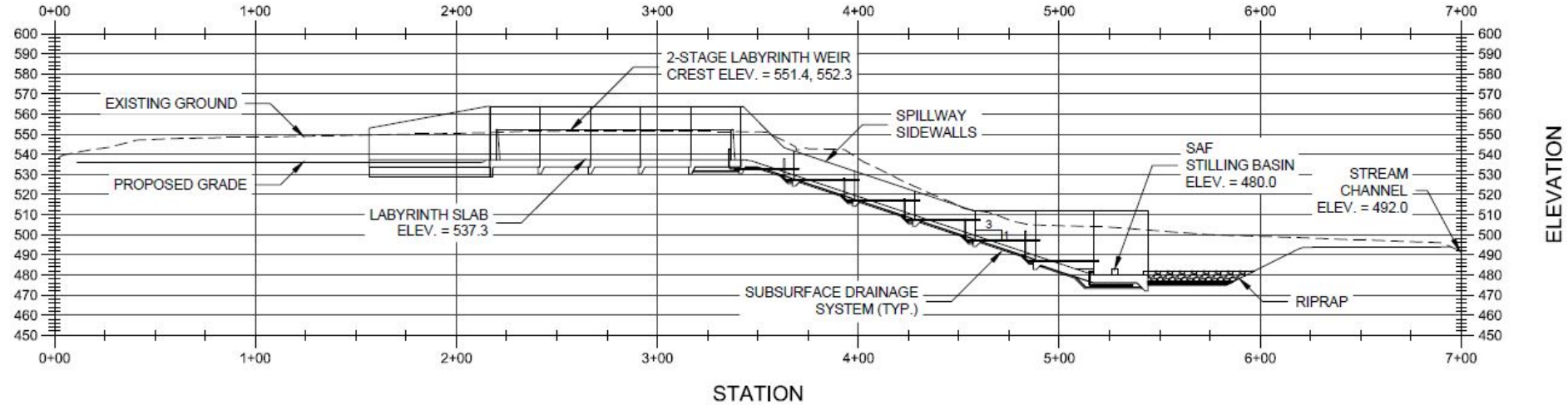
- The 2019-2023 CIP includes a Budget of $14.9M for Beaver Creek Dam Alterations
- Project includes the following components:
  - $8.8M for Beaver Creek Dam Upgrades
    - $5.6M for Construction
    - $3.2M for Engineering, Permitting, Easements, etc.
  - $5.0M for a New Relocated Raw Water Pump Station and Intake
  - $1.1M for Hypolimnetic Oxygenation System
- Following Selection of Alternative, Revised CIP Budget will increase to $17.2M - $23.1M

CIP Project Schedule & Next Steps

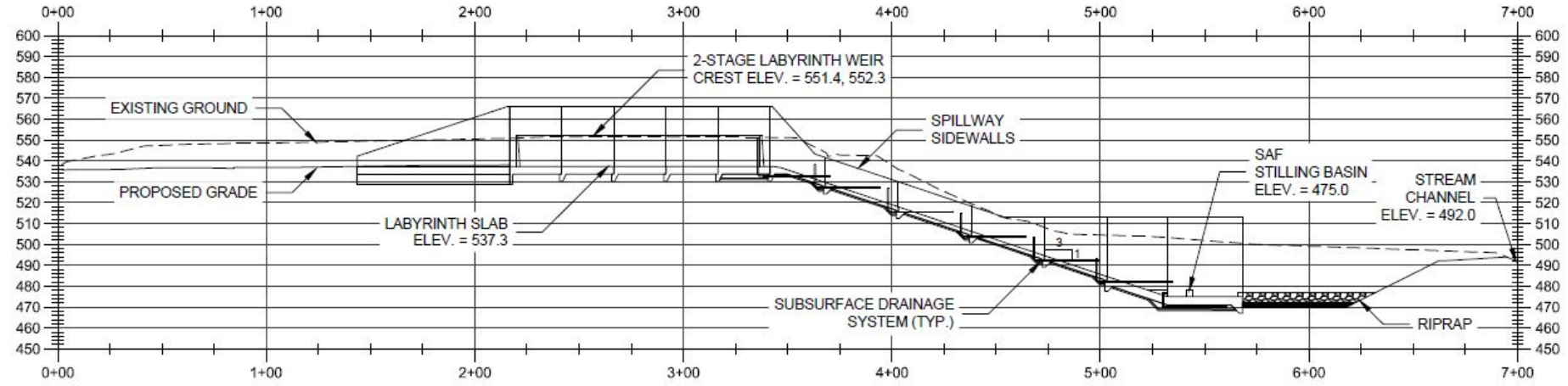
- Current CIP Project Schedule:
  - Community Outreach & Preliminary Design (May - December 2018)
  - Final Design (January – December 2019)
  - Permitting & Easements (October 2019 – March 2021)
  - Construction (January 2021 – December 2022)
  - Completion in Early 2022
- Next Steps:
  - CCAC Meeting June 20, 2018
  - Meeting with Albemarle County Parks & Recreation
  - Preliminary Engineering Report due to DCR this summer

Questions?

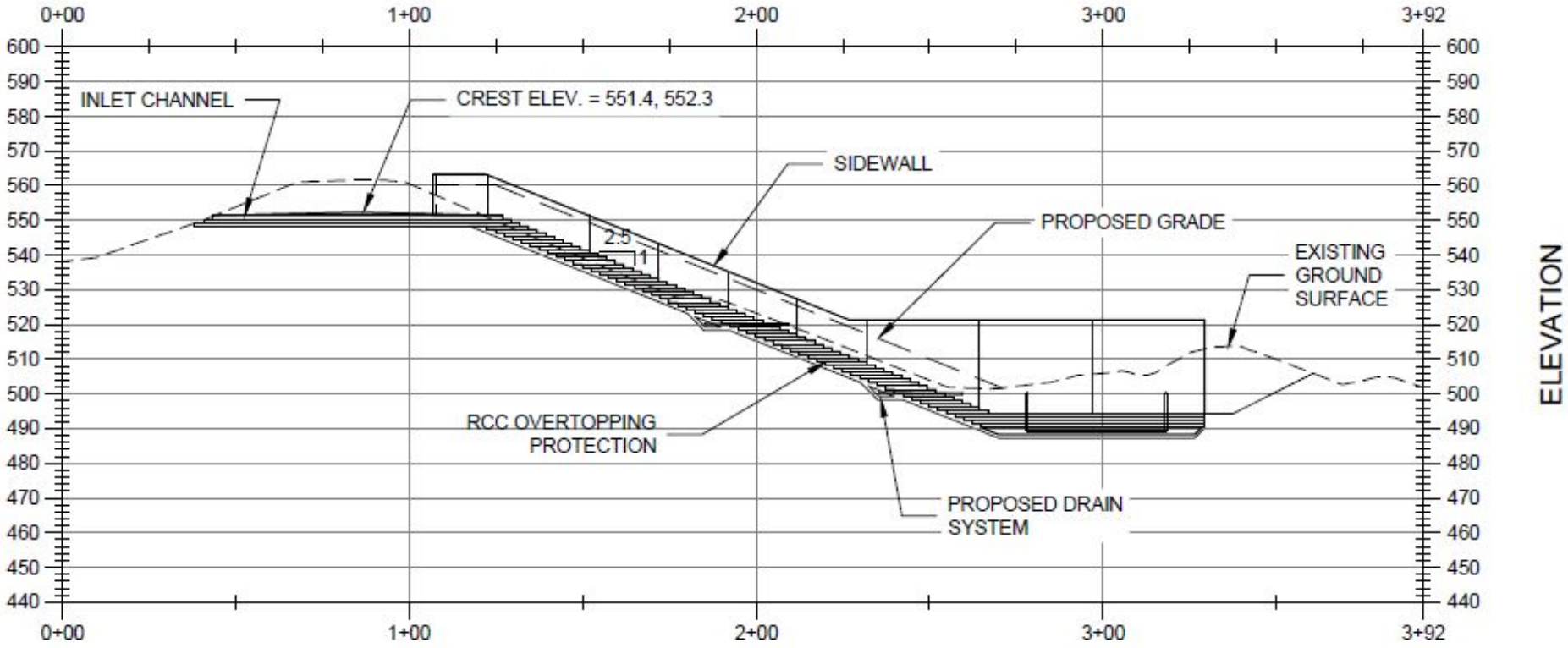
Alternative 1A: 3-1/2 Cycle Labyrinth and Chute (Through Spillway)



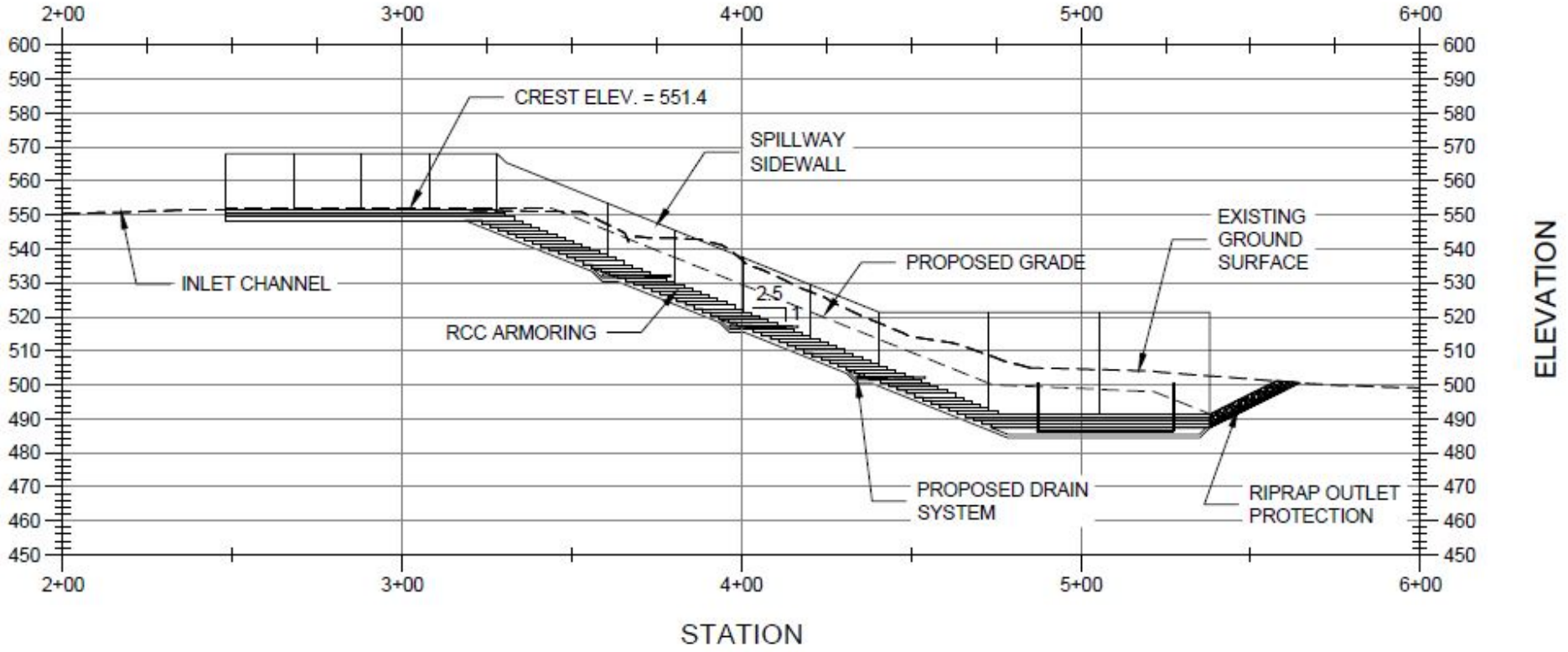
Alternative 1B: 2 Cycle Labyrinth and Chute (Through Spillway)



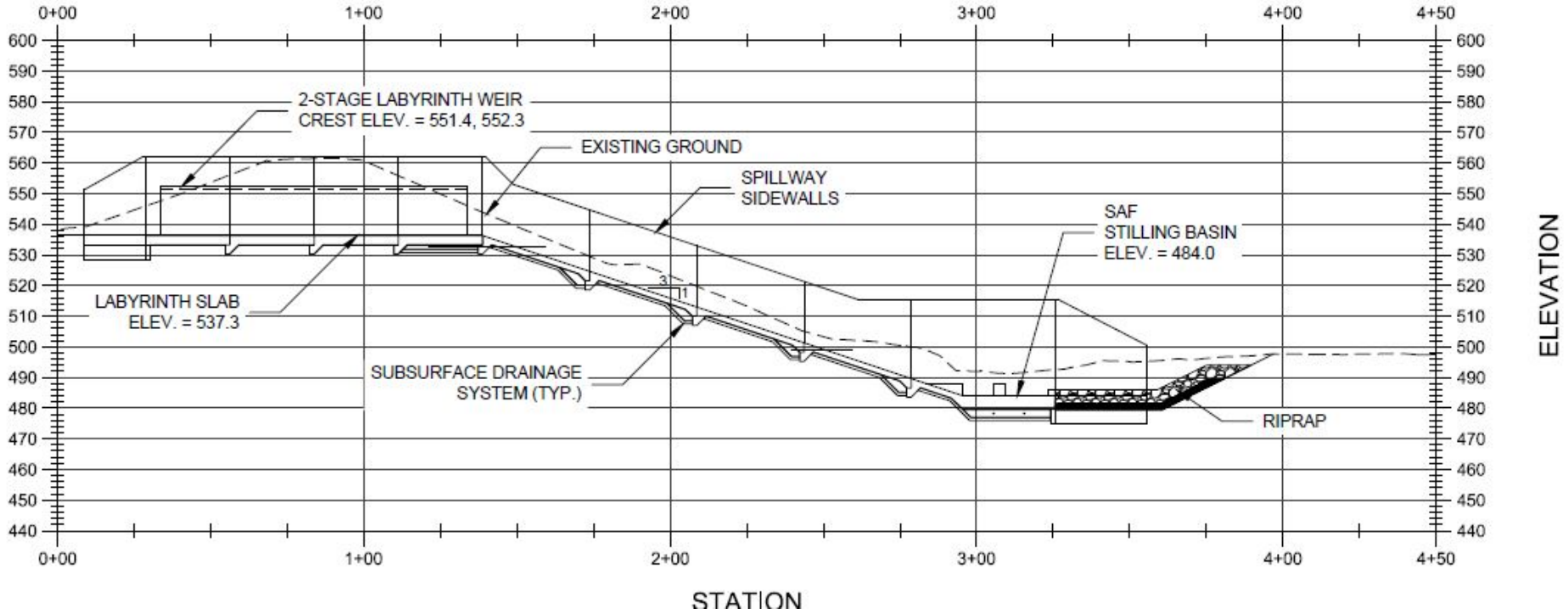
Alternative 2: RCC Overtopping Protection



Alternative 3: RCC Spillway Armoring

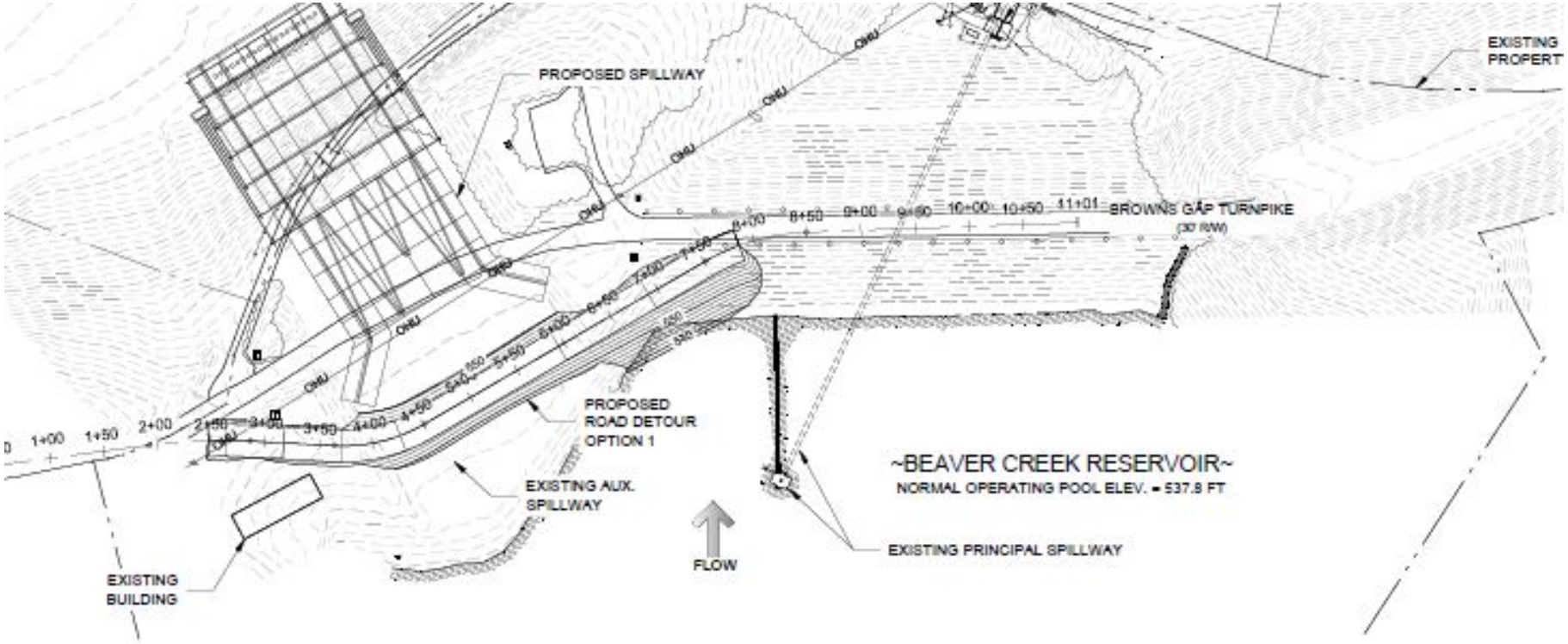


Alternative 4: 2-1/2 cycle Labyrinth and Chute (Through Dam)



Traffic Control Considerations During Construction

- Detour Option 1:



Traffic Control Considerations During Construction

- Detour Option 2: