RIVANNA
WATER & SEWER AUTHORITY

Board of Directors Meeting

February 27, 2024

2:15pm

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

BOARD OF DIRECTORS

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

DATE: **FEBRUARY 27, 2024**

LOCATION: **Rivanna Administration Building (2nd Floor Conference Room), 695 Moores Creek Lane, Charlottesville, VA 22902**

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

AGENDA

1. ***CALL TO ORDER***

2. ***AGENDA APPROVAL***

3. ***MINUTES OF PREVIOUS BOARD MEETING ON JANUARY 23, 2024***

4. ***RECOGNITION***
   a. *Resolution of Appreciation for Konrad Zeller*
   b. *Resolution of Appreciation for Wayne Barnes*

5. ***EXECUTIVE DIRECTOR'S REPORT***

6. ***ITEMS FROM THE PUBLIC***
   Matters Not Listed for Public Hearing on the Agenda

7. ***RESPONSES TO PUBLIC COMMENTS***

8. ***CONSENT AGENDA***

   a. *Staff Report on Finance*

   b. *Staff Report on Operations*

   c. *Staff Report on CIP Projects*

   d. *Staff Report on Administration and Communications*

   e. *Staff Report on Wholesale Metering*

   f. *Staff Report on Drought Monitoring*

g. *Award Professional Engineering Services Agreement – Moores Creek Building Upfits and Gravity Thickener Improvements Project– Short Elliot Hendrickson Inc.*

h. *Approval of Term Contract for Professional Wastewater Treatment Plant Engineering Services - Hazen and Sawyer, Short Elliot Hendrickson, Wiley Wilson, and Whitman, Requardt & Associates*

9. OTHER BUSINESS

a. *Presentation: Rivanna Pump Station Update*
Bill Mawyer, P.E., Executive Director

b. *Presentation: Organizational Agreements of the RWSA*
Bill Mawyer, P.E., Executive Director

c. *Presentation: Introduction of FY 25 – 29 CIP*
Jennifer Whitaker, P.E., Director of Engineering and Maintenance

10. OTHER ITEMS FROM BOARD/STAFF NOT ON THE AGENDA

11. CLOSED MEETING

12. ADJOURNMENT

GUIDELINES FOR PUBLIC COMMENT AT RIVANNA BOARD OF DIRECTORS MEETINGS

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

Members of the public requesting to speak will be recognized during the specific time designated on the meeting agenda for "Items From The Public, Matters Not Listed for Public Hearing on the Agenda." 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 comments 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/RSWA Administration office upon request or can be viewed on the Rivanna website.

Rev. September 7, 2022

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

RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
January 23, 2024

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, January 23, 2024 at 2:15 p.m. at Rivanna Administrative Building, (2nd Floor Conference Room), 695 Moores Creek Lane, Charlottesville, VA 22902.

Board Members Present: Mike Gaffney (participating remotely), Jeff Richardson, Lauren Hildebrand, Gary O'Connell, Ann Mallek, Brian Pinkston, Samuel Sanders.

Board Members Absent: None.

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Jennifer Whitaker, David Tungate, Betsy Nemeth, Andrea Bowles, Jacob Woodson, Deborah Anama, Leah Beard, George Cheape.

Attorney(s) Present: Valerie Long (participating remotely).

1. *CALL TO ORDER*
Mr. Sanders called the January 23, 2024, regular meeting of the Rivanna Water and Sewer Authority to order at 2:39 p.m.

Mr. Pinkston moved to allow Mr. Gaffney to remotely participate in the meeting. The motion was seconded by Mr. Richardson and passed 6-0-1, with Mr. Gaffney abstaining from the vote.

Mr. Gaffney stated that he could not attend the meeting since he was located in Cape Coral, Florida.

2. *AGENDA APPROVAL*

Mr. Pinkston moved to approve the agenda. The motion was seconded by Mr. O'Connell and passed unanimously (7-0).

3. *MINUTES OF PREVIOUS BOARD MEETING*
a. Minutes of Regular Board Meeting on December 12, 2023

Mr. Pinkston moved the Board to approve the minutes of the December 12, 2023 meeting. The motion was seconded by Mr. Richardson and passed unanimously (7-0).

4. RECOGNITIONS
There were no recognitions.

5. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer stated he was pleased to introduce their new Human Resources Manager, Leah Beard. He stated that Ms. Beard came to them from the UVA Credit Union and held a master's degree in public administration from Old Dominion University. He stated that they were thrilled to have Leah join their team as the Human Resources Manager.

Mr. Mawyer stated that he would also introduce George Cheape. He stated that Mr. Cheape had been with Rivanna for five and a half years as an Engineering Construction Inspector, and was recently promoted to be the Safety Manager. He stated that the previous safety manager left to join the Virginia Health Department, and Mr. Cheape was selected as the new Safety Manager through a competitive interview process. He stated that Mr. Cheape would serve both the Water and Sewer and the Solid Waste Authorities. He stated that Mr. Cheape was an elected official in Nelson County, serving on the school board.

Mr. Mawyer stated that they celebrated the holidays in December with a team-building lunch event. He stated that several of their water treatment facilities received the Water Fluoridation Quality Award from the Virginia Department of Health's Office of Drinking Water. He stated that they received an award for the Crozet, North Rivanna, Observatory, and Scottsville Water Treatment Plants for meeting the criteria set by the health department.

Mr. Mawyer stated that three operators obtained higher state licenses. He stated that Daniel Hunter passed his Class 2 Wastewater Operator License, Schuyler Deal passed his Class 3 Wastewater Operator License, and Seth Marshall passed his Class 1 Water Operator License, which was the highest level for a Water Operator in the state. He stated that they congratulated all three individuals for their achievements.

Mr. Mawyer stated that the State Water Control Board was considering new regional water supply regions across the state, and proposed to include Albemarle and Charlottesville in a region with Louisa, Greene, Buckingham and Fluvanna Counties. He stated that the current water supply plan was approved in 2018 for Albemarle County, Charlottesville, the Albemarle Service Authority and town of Scottsville.

Mr. Pinkston asked if they had considered the potential implications of this for the organization.

Mr. Mawyer stated that the Board was provided a presentation on long-range planning in June 2023, which suggested that regionalism might become a topic in the future. He stated that he was unaware of the reason for this proposed change to the water supply regions. He stated that they did not know what the State Water Control Board had in mind regarding regionalism. He stated that their community water supply plan included reservoirs and pipelines to support only the Albemarle/Charlottesville/Scottsville community. He stated that he could not imagine a major shift away from this approach. He stated that when discussing the future with others, he referred to the "big box" approach where smaller localities need to connect with larger ones to afford utilities such as water and wastewater services. He stated that whether this approach would be emphasized in regionalism remains to be seen.

Mr. O'Connell stated that he would assume this was happening all around the state.

Mr. Mawyer stated yes.

Mr. O'Connell asked if the connection between localities was related to their watershed locations.

Ms. Whitaker stated that the plans were moderately connected to watersheds.

Mr. Mawyer stated that the budget schedule was approaching. He stated they had met with the Board subcommittee, which included Mr. O'Connell and Ms. Hildebrand, to discuss the proposed FY 25 - 29 capital improvement plan. He stated that next month, they would meet with the subcommittee again to review the proposed operating budget. He stated that in February, they would present the capital improvement plan to the Board, and in March, they would present the operating budget. He stated that a public hearing would be held in May when the total budget would be considered for approval.

Mr. Mawyer stated that although drought was not a significant issue at present, rainfall levels were about 35% below normal in 2023. He stated that over the three-year period of 2021, 2022, and 2023, they were about 16% below normal. He stated that recent rainfall had been substantial.

Mr. Mawyer stated that all reservoirs were now 100% full except for Ragged Mountain and Sugar Hollow. He stated that Ragged Mountain was approximately 96% full. He stated that they had been transferring water from Sugar Hollow Reservoir to Ragged Mtn Reservoir since December 9. He stated that by summer, they planned to have all reservoirs filled. He stated that Sugar Hollow Reservoir was not full because a pneumatic connector malfunction caused the dam bladder to deflate last week and allowed about 5 feet of water to be released from the reservoir. He stated that the bladder was re-inflated on the same day it deflated, which occurred on January 17, 2024.

Mr. O'Connell asked if the deflation happened immediately. Mr. Mawyer stated that the deflation occurred within about 45 minutes.

Mr. Mawyer stated that they had concluded their collaboration with the City and the Albemarle County Service Authority for the Imagine a Day Without Water program, and had received many interesting artworks from local students. He stated that the theme was to "tell us your action to save water".

Mr. Mawyer stated that he would report on the Rivanna wastewater pump station issues that occurred on January 9. He stated that they had a media release and had informed the Board of the situation, but he would provide more information. He stated that there were two large pump stations at Moores Creek, which were the Moores Creek Pump Station and the Rivanna Pump Station. He stated that the yellow area shown on the map represented the norther areas of the City and County served by the Rivanna Pump Station, which was their largest wastewater pumping station, serving approximately 60% of the urban area.

Mr. Mawyer stated that the Rivanna Pump Station was built in 2017. He stated that it had a capacity to pump 53 million gallons per day and served the primary purpose of lifting

wastewater about 100 feet vertically to the headworks and the beginning of the treatment process facilities. Mr. Mawyer stated that the pump station did not perform treatment; instead, it transferred wastewater from lower to higher levels. He stated that by observing the bird's-eye view of the site, he pointed out that there was a wet well in the center of the pump station. He stated that water entered the facility from the north through a 60 inch pipe arrow and flowed into the wet well before passing under the pumping area of the two dry pumping rooms. He stated that the 2 pump rooms were designed to be dry.

Mr. Mawyer stated that on January 9, there was a failure that caused the dry areas to become submerged, and they remained so to this day as they attempted to pump them out. He stated that they had to maintain service as approximately 6 million gallons of wastewater arrived at the station on an average day; however, during rainfall, this amount increased significantly. He stated that regarding the flow control gates in the wet well, a picture from 2017 was provided to show what the gates and wet well covers looked like when they were built. He stated that the series of gates could be seen in the image provided.

Mr. Mawyer stated that there were three channels at the bottom of the wet well that enabled them to control flow. He stated that it entered through a 60-inch pipe. He stated that at the top of the page, there was a flow gate that was designed to control flow into the wet well. He stated that one of the issues they discovered was that when they realized the station was taking on water and attempted to close that gate, it would not fully close. He stated that this had been part of their challenge as they were unable to stop the incoming flow.

Mr. Mawyer stated that another image from 2017 showed what the pump rooms normally look like. He stated that the spaces were tall, and the pipes extended vertically in the space to lift wastewater from its initial elevation to a higher elevation at the headworks. He stated that next was a view of the pump room again, displaying the vertical piping because they were going to show the water level where it currently was on that piping.

Mr. Mawyer stated that they had two pump rooms, each containing three wastewater pumps. He stated that two of the pumps were capable of pumping 13 million gallons a day individually, and the smaller one pumped 7 million gallons. He stated that the different pumping capacities served a purpose, which was that if there was low flow in the pump station, the smaller pump operated, and the larger pumps would activate if the flow in the pump station increased. He stated that they had variable frequency drives on these pumps, allowing them to operate at different speeds to pump differing volumes of wastewater.

Mr. Mawyer stated that as more wastewater entered the station, the pumps increased their speed. He stated that when the smaller pump reached its capacity, it stopped, and the larger one took over. He stated that if the flow increased further, up to 13 million gallons, additional pumps in series were activated based on the water inflow. He stated that their supervisory control and data acquisition (SCADA) system provided an elaborate computer-controlled orchestration of which pump was active and at what capacity.

Mr. Mawyer stated that they had six pumps in total, and after the submergence event, they could see the vertical piping and the pumps were submerged. He stated that in one of the pump rooms,

the wastewater had risen to such an extent that their consultant used a camera on a pole to capture the image. He stated that the red and white dots shown in the photo indicated the gates' position. He stated that water should not have reached that height in the wet well; however, by January 10, it had. He stated that the station was filled with wastewater.

Mr. Mawyer stated that to address this issue, they decided to build a temporary bypass system. He stated that they initially utilized the equipment they had immediately available and installed a smaller system with the pumping capacity of about 10 million gallons per day. He stated that on the trailer in the photo, they could see temporary piping being transported by trucks and tractors to facilitate its installation. He stated that they excavated on the entrance side of the building where a large wastewater pipe exited the pump station. He stated that part of the bypass involved placing a pump in the wet well and running a pipe around the building before connecting it to the permanent piping that exits the structure.

Mr. Mawyer stated that on January 13, they brought in the manifold for installation. He stated that to tie into that pipe, they disassembled it, raised it to ground elevation, and added a connector at ground level. He stated that their staff, along with various contractors, worked around-the-clock in the harsh cold to build this connection. He stated that they had already made progress on the project. He stated that there were two temporary pipes connected from the wet well to the permanent underground piping leading to the headworks.

Mr. Mawyer stated that they could not handle 50 million gallons initially with this system, and could only manage around 10 to 15 million gallons per day. He stated that larger temporary pumps were brought in by a contractor, Godwin Pumps, along with the necessary controls for these pumps. He stated that staff was assembling temporary bypass piping in the snow and cold conditions, requiring a crane to handle the large pumps which were lowered into the wet well. He stated that the large pipes emerging from the wet well indicated the scale of this equipment.

Mr. Mawyer stated that a photograph taken on January 19 showed the vertical chimney pipe connected to a temporary pump placed within the wet well. He stated that the initial challenge involved removing the channel covers in the wet well to allow installation of larger pumps below the covers. He stated that the large pipes to the right of the pump station were 36 inches in diameter. He stated that water was pumped out through the system.

Mr. Mawyer stated that the water flowed via a pipe located to the right of the pump station, which consisted of 36-inch pipes. He stated that to reach the manifold at the bypass connection point, a larger connector must be installed. He stated that wastewater was pumped into the backwash basin, a circular structure, and then flowed to the Moores Creek Pump Station. He stated that from there, it was pumped to the headworks.

Mr. Mawyer stated that previously, water was introduced into the permanent force main and the backwash basin, ultimately reaching the Moores Creek Pumping Station. He stated that unfortunately, for approximately one day, water had to be pumped into Moores Creek near that location to facilitate sufficient wastewater removal from the pump station to enable the installation of larger pumps. He stated that it was specifically from January 18 at 11:59 a.m. until 2:00 p.m. the following day, January 19. He stated that approximately 6.2 million gallons were

pumped into Moores Creek during this 26-hour period.

Mr. Mawyer stated that it was unfortunate, and they maintained full contact with DEQ, keeping them informed, as well as the Health Department. He stated that they contacted Fluvanna County downstream and Lake Monticello. He stated that Moores Creek flowed to the Rivanna River which flowed to the James River, and was the water supply for Lake Monticello. He stated that although 6 million gallons of wastewater may be significant, at this time there were about 420 million gallons flowing in the Rivanna River at the Palmyra gauge, and about 4.5 billion gallons flowing in the James River.

Mr. Mawyer stated that to emphasize the significance of their discharge into Moores Creek without minimizing the importance, he stated that such situations are relative. He stated that when considering the City of Richmond's response to large storms, they released hundreds of millions of gallons of wastewater into the James River due to their combined sewer system. He stated that this system combined rainwater and sewage in a single pipe, overwhelming their wastewater treatment plant during heavy precipitation. He stated that the City was currently addressing this issue with a multi-billion dollar program, receiving assistance from the state.

Mr. Pinkston asked if it was correct that roughly 6 million gallons were released in the course of the day.

Mr. Mawyer stated yes, it was 6.2 million gallons over a 26-hour period.

Mr. Pinkston asked if that was the total number of gallons.

Mr. Mawyer answered yes. He stated that as of yesterday, they still had water in the dry pump spaces. He stated that the vertical piping, some of which could be seen in the pump rooms, still had water. He stated that they needed to get the larger pumps installed as part of their ongoing efforts. He stated that then, they could drain the entire facility and complete a thorough investigation into the root causes of the submergence.

Mr. Mawyer stated that they must determine if the piping had ruptured in the pump room allowing water to enter. He stated that they knew that one gate malfunctioned, but it did not fully explain how water reached the dry area. He stated that they did not know if there was a pipe break or if the controls were ineffective, causing pumps to operate improperly.

Mr. Mawyer stated that they suspected the Rivanna River contributed to the excess water by flowing into manholes in Riverview Park. He stated that as soon as they could access the pump rooms for inspection, they would have a clearer understanding of the situation and identify necessary repairs. He stated that they could not determine in the pump room whether the pumps were blown out or if the piping had ruptured. He stated there were anecdotal stories regarding this issue.

Mr. Mawyer stated that the pumps were not intended to be submerged in water, but some of them operated for several days, at least intermittently after that, which was remarkable. He stated that they had one that would run, and it created a large swirl in the visible wastewater, which led

them to believe there might be a leak in the piping. He stated that it appeared as if the water was either recirculating or coming directly out of the pipe. He stated this was anecdotal information; they did not know for certain yet. He stated that once the pump station could be dewatered and inspected, they would have a clearer understanding of what happened.

Mr. Pinkston asked if water from the river entered the manholes and contributed to overwhelming the system.

Mr. Mawyer stated that there was a large 60-inch sewer line that went into the Rivanna Pump Station, and this line followed the Rivanna River through Riverview Park. He stated that on the map displayed, the white area between the green park was where the tunnel was located. He stated that between the pump station and the tunnel, the system proceeded through Riverview Park and continued northward to Darden Towe Park. He stated that it then followed the yellow area shown earlier, almost reaching Greene County.

Mr. Mawyer stated that numerous connections linked these areas together. He stated that the major interceptor passed through this region as well, and each round yellow symbol represented a sewer manhole. He stated that in the center image on Riverview Park, water from the river could be seen on the walking path. He stated that their manholes were situated near that path. He stated that they had data indicating that the river level rose by 18 feet.

Ms. Whitaker stated that the river was measured at the South Rivanna gauge. She stated that at the time the photograph was taken, the height was 8 feet. She stated that they knew the South Rivanna River was 10 feet higher than what was shown in the photograph. She stated that the normal flow was typically three to five feet.

Mr. Mawyer stated that the photograph on the far right, featuring a star, depicted their sewer manhole. He stated that it had been surcharging and overflowing. He stated that when flow was restricted at the pump station, it caused backups in the pipe, leading to discharge from the manholes. He stated that alternatively, if the infiltration north of the manhole was excessive, this could also result in overflow. He stated that river or other streams might infiltrate or inflow into the sewer system, causing surcharges and overflows.

Mr. Mawyer stated that these issues were still occurring at least for a certain period and that there were instances of overflow happening. He stated that during future large flows entering the pump station, intermittent overflow might occur from the manhole in Riverview Park. He stated that the temporary bypass system was implemented to maintain the process treatment as wastewater continued to arrive every minute. He stated they aimed to keep the process moving forward and address any backflow.

Mr. Mawyer stated that they had five reported overflow locations. He stated that these instances were reported to the Virginia Department of Environmental Quality. He stated that it was unfortunate that there was flooding in the parks, but that was what happened when a sewer system was overwhelmed. He stated that designing a single system large enough for both rainwater and wastewater would be challenging.

Mr. Sanders asked if Parks and Recreation had been notified.

Mr. Mawyer stated yes, both Parks and Rec and the Utilities Department worked to put up barriers so people would avoid the flooded trails in Riverview Park. He stated that their media release also indicated there had been overflows in the parks. He stated that they expected the 10 million gallon per day system to be completed and operational by the end of the week. He stated that towards the end of the following week, specifically on February 4 or thereabouts, they aimed to have the 50 MGD system in place.

Mr. Mawyer stated that if a significant rainstorm occurred and washed them out, it might impact their progress. He stated that nevertheless, it was their hope and plan until they could restore the pump station. He stated that once they had the spaces in the pump station dewatered and completed the 50 MGD bypass system, they would be able to assess the situation inside the pump station and initiate the restoration process. He stated that following the assessment, in February and March, they would focus on testing equipment, inspecting for damages, and identifying any non-damaged components.

Mr. Mawyer stated that they anticipated that all the pump motors, as electrical equipment that had been underwater, would have to be replaced. He stated that the pumps themselves may or may not need to be replaced. He stated that the controls or electrical equipment would likely have to be replaced. He stated that after the process of ordering and repurchasing the correct equipment, they would install it. He stated that they hoped to be fully restored by the end of this calendar year.

Mr. Gaffney asked if Mr. Mawyer could provide an understanding of how their insurance coverage may assist them in this situation, even if they did not know the exact cause.

Mr. Mawyer stated that they did possess property insurance, and Mr. Wood had been involved with the company. He stated that an adjuster had visited the site and assessed it with Mr. Wood. He stated that the property coverage totaled $100 million for boilers and machinery. He stated that similar to other insurance claims, they must navigate the evaluation process to determine if there was a suitable claim. He stated that they were optimistic that costs would be eligible for recovery.

Mr. Mawyer stated that if there was an equipment failure, they had coverage. He stated that there was a possibility of an act of God where a massive storm occurred and overwhelmed the system, and this was where insurance eligibility faced challenges. He stated that on that day, they experienced three inches of rain, which was a significant amount, but not excessive. He stated that they suspected something went wrong or malfunctioned with the equipment and controls.

Mr. Mawyer stated that they knew one gate did not function properly, and whether the controls were sending incorrect messages to the pumps, or a pump or pipe within the pump room failed and allowed water to flow in would be investigated. He stated there was a heating-cooling duct; however, it was only about one foot by two feet in size, and the water rose high enough that it flowed into the dry side from the wet side through the HVAC duct. He stated that the design engineer from Hazen engineers, who originally designed the system, had been on site.

Mr. Mawyer stated that to address the crucial question of what went wrong, they had not yet determined the exact cause. He stated that they had several theories and approaches, such as whether the pipe failed, the pump failed, or if the controls failed to provide proper directions to their equipment. He stated that they would be able to ascertain the issue more accurately once they drained the wastewater and gained access to the equipment and so that they could inspect it thoroughly. He stated that they were currently coordinating with their insurance provider, VRSA. He stated that an unfortunate event occurred, and they apologized for it.

Mr. Mawyer stated that they were responding as quickly and effectively as possible to the situation. He stated that their engineering, maintenance, operator staff and information technology team had been working virtually around the clock, particularly during the first week, to establish a bypass system. He stated that the design engineer had been on-site frequently, and they had also recruited numerous contractors who provided valuable assistance in acquiring temporary pumps from various locations across the country.

Mr. Mawyer stated that the crane was challenging to secure, but everyone had been helpful. He stated that they would like to acknowledge Woolen Mills, their neighbors, for their accommodating nature as the restoration team accessed the site through a back gate and had equipment stacked and parked there on property owned by Woolen Mills as part of their easement. He stated that they posted an emergency procurement on January 9 to grant them the authority to contract with these companies and compensate them for their assistance.

Mr. Pinkston asked how much wastewater was in the Rivanna River. He stated that he assumed it was not safe to drink.

Mr. Mawyer stated that they understood that the Rivanna River Company was having a nighttime sauna and river cooling program, so people would get in the river after being in the sauna. He stated that they called the River Company to advise them against holding the program during this time due to their location between Darden Towe and Riverview Parks.

Mr. Pinkston asked if most of the water coming out of the pump station was ending up in the river.

Mr. Mawyer stated no, all of the wastewater was coming through and around the pump station and into the treatment system. But if the system became overloaded with wastewater water due to a storm, there could be an overflow in the park.

Mr. Pinkston stated that he must have misunderstood. He asked Mr. Mawyer to explain the Rivanna service area depicted in yellow on the wastewater map.

Mr. Mawyer stated that it was the sewer shed.

Mr. Pinkston stated that the water from that area went down to the pump station, which was 100 feet below where it needed to go in the headworks. He asked how the water got where it needed to go if the pump station was not operational.

Mr. Mawyer stated that the temporary pumps would achieve that. He stated that they placed a hose in the wet well of the permanent pump station. He stated that as displayed on the slide, there was a crooked pipe emerging from the wet well, and they were looking down into it. He stated that at the base of the pipe, there was a single pump. He stated that to the right of the lower corner, there was another pump, which was submerged but pumped water out of the wet well and around the building into the drainage basin, a round circular basin. He stated that they also could pump wastewater into the manifold with two pipes, leading it into the permanent pipe and to the headworks for treatment.

Mr. O'Connell asked if there was a separate pipe system in the dry wells to pull that out.

Mr. Mawyer stated no, not yet. He stated that they were going to do the same thing with the 50 MGD system. He stated that it would involve larger pumps and pipes to facilitate moving more water from the wet well and the dry pumping areas.

Ms. Mallek asked if it was correct that at 2 p.m. the next day, the leak had stopped because they had activated the bypass.

Mr. Mawyer stated that they had activated the bypass, but it was insufficient to bring down the water level in the pump station. He stated that the wastewater system experienced what was known as the diurnal effect. He stated that this occurred at 6 p.m. when people returned home and engaged in activities such as bathing and washing dishes. He stated that consequently, a high volume of wastewater was typically generated at this time of day.

Mr. Mawyer stated that the phenomenon repeated itself around 6 a.m. in the morning. These were the diurnal surges they encountered. He stated that at the pump station, water flow rates could be doubled or tripled during these peak flow periods. He stated that they faced their greatest challenges with the smaller 10 mgd bypass system during those surges. He stated that when they completed the 50 million gallon per day pumping system, they would be able to manage all surges up to 50 MGD.

Mr. Mawyer stated that on an average day, approximately 6 million gallons passed through that pump station. He stated that all of the recent wastewater was directed into the treatment process and treated, except for the 26 hours during which some was intentionally discharged to the creek to lower the water level in the pump station. He stated that this discharge allowed them to access the covers above the gates and replace them with larger pumps as they transitioned into completion of the 50 MGD pumping system.

Mr. Pinkston asked if the 26 hours was potentially impacting the water quality level in the stream.

Mr. Mawyer stated that it did during the discharge period, but high flows in the stream washed it away. He stated that Mr. Tungate walked along the stream today all the way to the river to check if there was any debris hanging in the trees and so on, and he saw very little; only one five-gallon bucket of debris was collected.

Mr. O'Connell asked how much time it took for the pumping to reach a point where they could access the pump levels and begin to determine what had occurred with regard to the gates and pumps.

Mr. Mawyer stated that in early February, approximately two weeks from now, they anticipated being able to begin assessing the situation. He stated that the 50 million gallon per day system was expected to be operational by February 4, and this would enable them to lower the water level sufficiently to investigate. He stated they must sanitize and clean the spaces prior to getting anyone in there.

Ms. Mallek stated that after addressing the emergency, they could then consider how to redesign infrastructure based on the lessons learned from water flows and climate change over the past eight years.

Mr. Mawyer stated that he would also like to discuss an issue at the Sugar Hollow Reservoir. He stated that on the slide was a picture of the reservoir, which the City owned. He stated that when it was built, there were steel crest gates on top of the concrete dam. He stated that in 1999, a significant storm caused debris to wash against the gates, rendering them ineffective. He stated that as a result, the reservoir manager had to walk down the walkway and attempt to open those gates to release water during large storms. He stated that it was not a safe or efficient system.

Mr. Mawyer stated that in 1999, an automated inflatable bladder was installed to replace the steel gates. The bladder was replaced approximately two years ago as it had reached the end of its service life. He stated that this bladder inflates to a height of five feet, serving as an alternative to gates for holding back five feet of water in the reservoir, thus increasing water storage capacity. He stated if there was excessive pressure from water attempting to rise over the bladder due to storms or heavy rainfall, it could gradually deflate to reduce the pressure from the water on the concrete dam.

Mr. Mawyer stated that on that particular day, the bladder deflated suddenly because a pipe connection came apart which was part of the pneumatic system responsible for pumping air into and keeping the bladder inflated. He stated that those connectors were flexible due to significant heat and cold changes throughout the year. He stated that for example, on the day it happened, it was 12 or 13 degrees, and this may have contributed to the connector failure.

Mr. Mawyer stated that the fix was implemented the same day; their mechanics reconnected the pneumatic piping and restored the inflation system. He stated they also installed a post support beneath the pneumatic piping to stabilize it as they believed that it might have swayed horizontally and contributed to the connector's separation.

Mr. Mawyer stated that their engineering group had devised a plan for the system manufacturer and design consultant to conduct a thorough review and provide recommendations. He stated that they aimed to prevent such occurrences in the future. He stated that yesterday, their crew inspected the Mormons River below the dam for any potential damage. He stated that VDOT promptly inspected the roads and bridges affected by the event to ensure their integrity. He stated

they also had added another device to the connector to prevent horizontal movement.

Ms. Mallek stated that she was glad to hear the description of the bladder taking the place of the gates, as there were concerns among neighbors. She stated that some people would have liked to have commented today if they had the availability for online public comment. She stated it had become more of a water retention and less of a give-and-take with the river than it was presented to the neighbors back in the 1990s. She stated that they would have more conversations about that going forward, because the upset to the community was that judging by where the new leaves and things were directly east of the pool, they could see how high the water level rose.

Ms. Mallek stated that it was a miracle no one was on that first bridge. She stated that some may recall Carlton Frasier and Paige Reins who were the ones who crawled along that gate and opened those things by hand in 1995. She stated that it was about to take out the whole dam. She stated that even the vibration of standing on the dam on a good day meant it was no surprise that something would wiggle off the underside.

6. ITEMS FROM THE PUBLIC

Mr. Bill Emory stated that he resided at 1604 East Market Street in the Woolen Mills neighborhood. He stated that he had resided next to the Moores Creek facility for 36 years. He stated that serving on this Board, they were already aware of the high degree of engineering and administrative excellence within their organization. He stated that the RWSA was exceptional. He stated that he was interested in the Chesapeake Bay, having participated in the public process back in 2010 that created the Total Maximum Daily Load (TMDL).

Mr. Emory stated that their goal was to restore the bay by 2025, meaning that he would be able to see his feet when standing waist-deep in water. He stated that back in the 1600s, they could see anywhere in the bay regardless of the depth. He stated that the remaining pollutants in the Chesapeake Bay were nitrogen, phosphorus, and sediment. He stated that Rivanna did an excellent job removing these contaminants.

Mr. Emory stated that he was unsure about which regulatory agency, the DEQ or the EPA, set the allocations for nitrogen and phosphorous; however, Rivanna typically came in at less than half of what they were permitted to discharge. He stated that he had not planned to address the group today, but the City Council received a written report last night and the ongoing strategic plan update, so it seemed like good timing.

Mr. Emory stated that the Rivanna Pump Station went online in 2017, and it was remarkable how the connection between the pump station and Moores Creek had been facilitated by this facility. He stated that the interceptor pipe was created using a tunnel boring machine. He stated that Mr. Richardson was not on the Board at that time, but many of them were involved, and an impressive machine was used to create the pipe with a diameter that removed 6,000 cubic yards of rock.

Mr. Emory stated that the pump station was capable of pumping 53 million gallons a day during rain events. He stated that water made its way into sanitary sewers via inflow and infiltration. He

stated that as Mr. Mawyer mentioned, from a City Council point of view, it might be a good time to provide Ms. Hildebrand with additional funds to address this. He stated that they had a sanitary sewer and an MS-4 stormwater sewer; however, more attention needed to be given to the sanitary sewer to help homeowners.

Mr. Emory stated that he recently replaced the terracotta in his yard with 300 feet of hand-dug trenches but there was still a significant amount of terracotta used in the County to drain fields, which overwhelmed the RWSA. He stated that it was unclear how much of this terracotta came from the County and how much came from the City, but it would be helpful to calculate it. He stated that perhaps they could look into it further.

Mr. Emory stated that on January 9, they experienced three inches of rain for the first time since the completion of the Rivanna Pump Station six years ago. He stated that during this event, the four-foot diameter vertical access pipe on the right bank of the Rivanna, just upstream from the Rivanna River, became surcharged and detached. He stated that then, the Rivanna Pump Station would not function.

Mr. Emory stated that as the pressure was sufficient to dislodge the 57-inch diameter concrete cap that was on the pipe. He stated he had a video on YouTube where one could see it in action, with water discharging. He stated that he had a few questions regarding this situation since he had not seen any media information about it. He stated that he had written to Tim Gate and to Mr. Mawyer, who responded, but they were quite busy attending to various issues down there.

Mr. Emory stated that there was not much news coverage about the facility, which was a 40 million dollar investment. He asked about the protocol in the event of a sanitary sewer overflow. He asked what the standard operating procedure was for an overflow. He asked if the overflow was monitored during the incident. He stated that considering billions of gallons of fluid were involved, he was not an engineer, but much of the wastewater scoured the area once the river level went down and flowed north, undermining the trail and causing damage to the bank of the river.

Mr. Emory stated that this was not a minor issue and he wanted to know if the overflow was estimated in terms of gallons discharged. He asked whether the weights of discharged nitrogen and phosphorus were also calculated. He stated that he would ask if they informed the DEQ about these incidents, but he believed Mr. Mawyer had addressed this matter previously. He asked if an incident report was provided and if this information was available to the public. He stated that that a key value in the strategic framework was integrity.

Mr. Emory stated that RWSA possessed integrity and strived for openness and transparency. He stated that in the future, in the event of a problem, he requested updates because people genuinely cared about this agency. He stated that he had appreciation for Ms. Whitaker's expertise, as they had worked with her for years. He stated that in this case, it seemed like there was a lack of information being shared, which made the situation feel somewhat hidden. He stated that moving forward, he believed clearer communication would be beneficial.

7. RESPONSES TO PUBLIC COMMENT

There were none.

8. CONSENT AGENDA

a. Staff Report on Finance

b. Staff Report on Operations

c. Staff Report on CIP Projects

d. Staff Report on Administration and Communications

e. Staff Report on Wholesale Metering

f. Staff Report on Drought Monitoring

g. Approval of Engineering Services – Modifications to Reach Additional Pool Level, Ragged Mountain Reservoir – Schnabel Engineering

h. Approval to Increase Construction Contingency and Amend Capital Improvement Plan – South Rivanna Hydropower Plant Decommissioning Project – English Construction Company, Inc.

i. Approval of Engineering Services – North Rivanna Water Treatment Plant Decommissioning – Short Elliott Hendrickson Inc.

Mr. Richardson moved that the Board approve the Consent Agenda. Ms. Mallek seconded the motion, which passed unanimously (7-0).

9. OTHER BUSINESS

(reconvene RSWA for a JOINT SESSION with the RWSA)

a. Presentation: Employee Healthcare and retirement Benefits Overview
Betsy Nemeth, Director of Administration and Communications

Ms. Nemeth stated that she would provide an overview of employee healthcare and retirement benefits. She stated that they worked with an insurance broker named One Digital from Charlottesville. She stated that they handled their medical, dental, and vision providers. She stated that they also collaborated with their medical providers when issuing requests for proposals. She stated that One Digital reworked these proposals based on previous experiences.

Ms. Nemeth stated that the company also assisted them with additional health care benefits such as flexible spending accounts, health reimbursement accounts, and the administrators for their COBRA program, which was required by law. She stated that for health care, specifically

medical insurance, they used Anthem. She stated that they had been using Anthem for about eight years. She stated that there were two plans, which were HealthKeepers Health Savings Account plan and HealthKeepers Point of Service (POS) plan.

Ms. Nemeth stated that the first plan was a high deductible one with deductibles of $3,000 for employee-only coverage, $6,000 for employee, spouse, employee, and children, and $6,000 for employee and family. She stated that the second POS plan had lower deductibles, which were $1,000 for employee-only coverage and $2,000 for employee plus whomever their dependents were. She stated that a health savings account was provided to all employees participating in the HSA plan, and Rivanna contributed to employees' accounts each July.

Ms. Nemeth stated that the contributions depended on the type of coverage; an employee received $1,000, while an employee and spouse received $1,500. She stated that in addition to the health savings account plan, which had a high deductible, there was a health reimbursement arrangement on the back end. She stated that this arrangement was only provided for employee-only participants due to IRS requirements. She stated that when reaching their deductible amount, she stated they would reimburse employees up to $1,000, covering the range from $2,000 to $3,000 in total expenses.

Ms. Nemeth stated that unfortunately, the IRS did not allow them to provide this arrangement for employees with dependents on the plan. She stated that they offered Flexible Spending Accounts for participants in the HealthKeepers POS plan. She stated that a Flexible Spending Account allowed an employee to make a pre-tax deduction into the account, which could be used to pay for healthcare expenses. She stated that this fiscal year, RWSA would contribute about $1.4M and RSWA about $0.3M for employee health insurance.

Ms. Nemeth stated that they got a renewal in the month of March, and she expected premiums to go up. She stated that they provided dental and vision insurance through Ameritas. She stated that the cost of dental coverage depended on the number of individuals being covered, such as employee-only or employee with spouse/family. She stated that Rivanna offered complimentary vision benefits for all employees and their dependents, should they have any. She stated that presented on the next slide were their medical insurance costs.

Ms. Nemeth stated that in the first column it showed what employees paid per month based on their chosen plan and coverage. She stated that the second column displayed the contributions made by Rivanna, followed by the total premiums. She stated that the information on the next slide presented Albemarle County's two plans, City of Charlottesville's three plans, and their own. She stated that all these entities fell within a similar range regarding employee costs.

She stated that the Rivanna Authorities participated in the Virginia Retirement System, which was a mandatory requirement for all employees working there. Ms. Nemeth stated that employees could not opt out of participation. She stated that the mandatory contribution was 5% of their credible contribution, calculated as hourly rate multiplied by 40 hours per week and 52 weeks per year. She stated that Rivanna Water and Sewer currently contributed 8.39% to each employee's credible contribution in the Virginia Retirement System, while the Solid Waste Authority contributed 4.86%. She stated that those numbers changed every two years, and she

was slightly surprised that she did not have an update on her desk at the moment.

Ms. Nemeth stated that the change would be effective as of July 1, and they hoped to receive notification regarding the change this month. She stated that the Authorities are also required to provide VRS participants life insurance equal to two times each employee's annual salary. She stated that the funding was provided by the Rivanna Authority. She explained that VRS had three distinct plans: one for participants who began before July 1, 2010, and had at least five years of service prior to January 1, 2013; a second plan for those with less than five years of service by January 1, 2013; and a third hybrid plan she would explain in more detail later.

Ms. Nemeth stated that approximately 30% of their employees currently participate in Plan 1. She stated that Plan 1 was a defined benefit plan or pension plan. She stated that when they retired, they began receiving their pension. She stated that the pension was determined by years of service, the average of their highest 36 consecutive months of compensation, and a retirement multiplier of 1.7. She stated that if an employee retired after 30 years of service, they would receive approximately 51% of their average salary during those 36 months.

Ms. Nemeth stated that anyone who joined VRS between July 1, 2010, and December 31, 2013, or if they were hired before July 1, 2010, but did not have five years of service as of January 1, 2013, participated in Plan 2. She stated that only 6% of their employees were part of Plan 2, so the eligibility window was quite narrow. She stated that similar to Plan 1, it was a defined benefit plan, which meant it was a pension plan. She stated that the pension was based on years of service as well.

Ms. Nemeth stated that they extended the period from three years to five years and implemented a retirement multiplier of 1.65. She stated that consequently, an individual with 30 years of service retiring would receive a pension equivalent to 49.5% of their average salary during their highest-five-year period. She stated that the hybrid plan was introduced by the Virginia Retirement System on July 1, 2014.

Ms. Nemeth stated that this plan was more complex than the other two options, but 64% of their employees were participating in it. She stated that the plan combines a defined benefit plan, which was a pension, and a defined contribution plan, where employees contribute to a 401(a) account. She stated that the pension was based on years of service, the average of an employee's highest 60 consecutive months of compensation, and a retirement multiplier of 1%. She stated that previously, individuals retiring after 30 years of service received a pension equal to 30% of their highest five-year salary average.

Ms. Nemeth stated that in addition, they were eligible to save an extra 4% of their credible compensation in a hybrid 457 retirement account. She stated that the hybrid retirement plan also required that the Rivanna Authorities pay for short term and long-term disability insurance. She stated that VaCo served as their short-term disability insurance company for this purpose, and the program was administered through Anthem Life. She stated that the same organization handled the employees' medical insurance needs.

Mr. Mawyer stated that over time, all of their employees would be a part of the hybrid plan,

unless VRS changed the structure.

Ms. Nemeth stated that most people retiring were out of Plan 1, but it depended on the date of when someone joined the VRS.

Mr. Stewart stated that there was a significant difference between the Rivanna Solid Waste Authority employees and Water and Sewer Authority employees regarding their employer's contributions to the VRS. He stated that the disparity amounted to approximately 4%. He asked what the driver behind this was.

Ms. Nemeth stated that it was because they had hired a large number of employees, which led to increased investments.

Mr. Mawyer stated that VRS set those premiums.

Mr. Wood stated that in the early 2000s, the Solid Waste Authority had 20 to 30 employees. He stated that over time, the employee base decreased, so that employer liability on the retirement side went down. He stated that as new employees were added, the investment base increased. He stated that right now, Rivanna Solid Waste Authority was unique because they had a net investment balance rather than a net liability. He stated that this indicates a positive net asset value. He stated that almost every other political subdivision had a net pension liability.

Mr. Andrews stated that on the employee's side, it was primarily determined by years of service and date of employment.

Mr. Mawyer stated that the choice was how much the Authority funded for the health insurance. He stated that he was unsure of what the Authority used to do, but when he started there in 2016, the family plan cost $800 per month. He stated that he declined to join it and stayed on his wife's insurance through Henrico County. He stated that they had shifted some of that cost from the employee to the employer, so that premium was about $400 for the family plan. He stated that although that amount still remained higher than the City or the County, it was much better than $800. He stated that they held rates for their employees that even if Anthem raised a premium, Rivanna would absorb the increase and would not ask an employee to pay more.

Mr. Andrews asked if they had considered spousal employers for coverage and have to certify it.

Ms. Nemeth stated that they did not require them, and they could still take a spouse on their plan even if the spouse could get coverage through their employer.

Ms. Mallek asked if they had an interval in which they put out the RFP for Anthem.

Ms. Nemeth stated that they did it every four years unless they believed they could get better rates. She stated that they would be notified of the new rates for the next fiscal year in March, and if they felt the numbers were too high, they could go on the market. She stated that the issue was that if they went to market, they had to share those high numbers, so she would likely not receive great proposals in return. She stated that if she declined to share those numbers, the other

entities would assume the renewal was terrible and propose increased rates anyway.

Mr. Wood stated that the Authority was different from the City in the County in this way. He stated that the City and County were self-insured, which allowed them to have control over their claims data. He stated that in contrast, the Authority did not have control over their data. He stated that during the last bidding process, they only received one bid because only one company had access to the necessary data.

Mr. Richardson asked how many people were covered by their plan.

Ms. Nemeth stated that it was most of the employee population, amounting to 110 individuals.

Mr. Richardson asked if dependents were in addition to that.

Ms. Nemeth stated yes, in that case it would be over 200 people.

Mr. Mawyer stated that family plans were where the significant expenses were.

Ms. Nemeth stated that there were 14 families on the HSA plan and 7 on the POS plan, so 21 family plans in total. She stated that in comparison, the monthly cost for an employee on the family high-deductible HSA plan was $360, while it was $454 for the POS plan. She stated that 70 employees were enrolled in the employee only health plan option. She stated she was comfortable suggesting that this difference in cost may be a factor in the employees' decision, and this had a benefit for the organization.

Mr. Mawyer asked what the monthly payment amount was.

Ms. Nemeth stated that for the HSA plan, the payment was $5 per month, and on the POS plan, they paid $35 per month.

Ms. Mallek stated that the family would not be covered in that instance. She stated that it was a significant advantage for employees with families to have the insurance.

Ms. Nemeth stated that in some cases, she suspected that family coverage at other employers might be higher than the one provided by the current employer. She stated that if a spouse was insured under another employer's plan, it could potentially be more expensive. She stated that insurance could be challenging.

b. Presentation: Strategic Plan Update
Betsy Nemeth, Director of Administration and Communications

Ms. Nemeth stated that their vision is to serve the community as a recognized leader in environmental stewardship by providing exceptional water and solid waste services. She stated that their mission is their knowledgeable and professional team serving the Charlottesville, Albemarle, and UVA communities by providing high-quality water and wastewater treatment, refuse, and recycling services in a financially responsible and sustainable manner.

Ms. Nemeth stated that she wanted to share this information but would not read it aloud. She stated that their values were defined during their new strategic plan. She stated that prior to the 2023 plan, they had integrity, teamwork, respect, and equality. She stated that there were five priorities: communications and collaboration, environmental stewardship, workforce development, optimization and resiliency, and planning and infrastructure.

Ms. Nemeth stated that she would provide an update on communications and collaboration. Employee volunteering had been a focus since the approval of volunteer time off as a benefit for employees last July. She stated that they were pleased to report that many individuals participated in various community service events this year, such as Toy Lift. She stated that their goal was to continue driving these efforts during the current calendar year.

Ms. Nemeth stated that regarding education, as depicted in the picture, she knew Mr. Mawyer had mentioned that a group of students would be visiting the Ivy facility tomorrow. She stated that on the slide was a picture of the kindergarteners who visited them a couple of months ago. She stated that community awareness campaigns, such as Imagine a Day Without Water, often emphasized the importance of various resources, such as water. She stated that the winners had been announced for that contest, and they were currently planning the next event, "Fix a Leak."

Ms. Nemeth stated that regarding communications, they added a page on the website dedicated to PFAS, as they felt it was essential for people to understand this topic that has gained significant attention recently. She stated that the web page was approximately three pages long and provided a comprehensive layperson's overview of PFAS.

Ms. Nemeth stated that their environmental stewardship efforts were evident when visitors came to their location for meetings; the “no mow” sign indicated that they had a diverse wildlife population. In the picture, she pointed out a turkey, which was one example of the local fauna. She stated that she was unsure if there were any baby turkeys present at the time, but there were now adult turkeys in the area.

Ms. Nemeth stated that community partnerships played an essential role in their work, such as the collaboration with Virginia Commonwealth University for their oyster shell reseeding program in the Chesapeake Bay. She stated that they had successfully increased engagement hours this year and were planning a new Environmental Education Center, currently in the planning phase. She stated that she believed it would be quite impressive once it was completed, and she was eager for them to see it.

Ms. Nemeth stated that resource conservation had been a recent focus for their construction projects. She stated that the value engineering program had proven beneficial in terms of environmental stewardship. She stated that during the meeting for the new administrative building, they discussed resource conservation methods, such as incorporating solar panels and other sustainable practices into their buildings.

Ms. Nemeth stated that regarding workforce development, implementation of their learning management system through Paychex had been successful in providing HR training and safety training. She stated that their leadership development program had concluded with directors, and

now they were planning phase two. She stated that professional development was a crucial aspect of their organization, and she was quite proud of the team's efforts in this regard. She stated one of their mechanics, David Jeffries, who was attending school at Valley Vocational Tech, had received multiple certifications.

Ms. Nemeth stated that the certificates with transcripts were astonishing and impressive, as they attended these classes on their own time after work once or twice a week as part of sponsored apprenticeship programs. She stated that part of completing the apprenticeship involved attending school, and last semester, at least half of their mechanics were going to school. She stated that they also had a staffing master plan, which was updated every five years and continued to expand their staff.

Ms. Nemeth stated that she would next discuss optimization and resiliency. She stated that they had implemented several measures resulting in cost savings. She stated that at Moores Creek, the sodium hydroxide dosing monitoring with SCADA had saved them $70,000 over a period of 84 days. She stated that in the water department, they introduced a Zeta meter that optimized alum use and had saved them $26,000 in 2023.

Ms. Nemeth stated that for safety optimization, they were now making lockout tagout documents accessible to teams through CityWorks. She stated that this allowed maintenance personnel working on equipment to easily access the necessary documentation for lockout tagout procedures instead of searching for a physical paper copy.

Ms. Nemeth stated that the Moores Creek permit had been modified to eliminate weekend work in the lab downstairs, which would save approximately $93,000 annually in overtime pay. She stated that regarding planning and infrastructure, in asset management, CityWorks had been fully implemented, with the system running at 100%. She stated that all work order requests were being processed through CityWorks and completed successfully.

Ms. Nemeth stated that they had completed some preliminary assessments regarding critical infrastructure in order to reduce disruptions. They are focusing on knowledge sharing and they had finished all dam safety training, and the necessary documents are available for easy access via DocLink. She stated that in knowledge acquisition, over the last six months, they had been tracking and documenting non-HR or safety-related training to establish a baseline. She stated that their initial baseline was 500 total hours, which would be adjusted as time progressed.

Ms. Mallek asked if they had been able to use the learning management system for onboarding purposes.

Ms. Nemeth stated that they had just begun to do so last Friday. She stated that Paychex has an application system and onboarding system. She stated that they had posted jobs on Paychex so that when someone went to the Rivanna website, there were links, as well as on Indeed. She stated that when they hired a person through Paychex, all documents would now go to their email to be electronically signed. She stated that they would likely do onboarding videos in person, as there were some videos that warranted discussion, such as workplace expectations.

10. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

Mr. Pinkston stated that regarding Mr. Emory's earlier public comment, he would like to know if Mr. Emory thought there was more that could have been done or should be done in regard to the pump station situation. He stated that as he had learned more about it today, he was less concerned, but it was complicated to explain and the focus had been on fixing it, so he was unsure about what the narrative in the public had been.

Mr. Mawyer stated that there was a media release about a week later. He stated that he acknowledged they likely took too long to do that.

Mr. Pinkston stated that he felt that the more that could be shared would be beneficial.

Mr. Mawyer stated that he agreed. He stated that they were staffing the new Administration and Communication division of the organization to do so.

Ms. Mallek stated that the more direct and prepared with the information they could be, it would result in a better story.

Mr. Mawyer stated that he understood; there initially was a mistake regarding the flow rate of the pump station in the press and Ms. Nemeth had to contact them to remedy it.

(Adjournment of RSWA Board)

11. CLOSED MEETING

There was no reason for a closed meeting.

12. ADJOURNMENT

At 4:08 p.m., Ms. Mallek moved to adjourn the meeting of the Rivanna Water and Sewer Authority. The motion was seconded by Ms. Hildebrand and passed unanimously (7-0).

RIVANNA WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS

Resolution of Appreciation for Konrad Zeller

WHEREAS, Mr. Zeller has served in several positions in the Water Department since July 1999 for the Rivanna Water and Sewer Authority, most notably as a Class 1 Water Treatment Plant Supervisor at the South Rivanna Water Treatment Plant; and

WHEREAS, over the same period of nearly 25 years, Mr. Zeller has demonstrated leadership in his field and has been a valuable resource to the Authority and its employees; and

WHEREAS Mr. Zeller's knowledge and understanding of the water treatment operation as well as his dedication and loyalty have positively impacted the Authority; and

WHEREAS, the Board of Directors is most grateful for the professional and personal contributions Mr. Zeller has provided to the Rivanna Water and Sewer Authority and to its customers and its employees; and

NOW, THEREFORE, BE IT RESOLVED that the Rivanna Water and Sewer Authority Board of Directors recognizes, thanks, and commends Mr. Zeller for his distinguished service, efforts, and achievements as a member of the Rivanna Water and Sewer Authority, and presents this Resolution as a token of esteem, with its best wishes in his retirement.

BE IT FURTHER RESOLVED that this Resolution be entered upon the permanent Minutes of the Rivanna Water and Sewer Authority.

Michael Gaffney, Chairman
Lauren Hildebrand
Ann Mallek
Gary O'Connell
Brian Pinkston
Jeff Richardson
Sam Sanders

RIVANNA WATER AND SEWER AUTHORITY
BOARD OF DIRECTORS

Resolution of Appreciation for Wayne Barnes

WHEREAS, Mr. Barnes has served in a number of positions in the Water Department since March 1979 for the Rivanna Water and Sewer Authority, most recently as the Assistant Manager of the South Rivanna Water Treatment Plant; and

WHEREAS, over the same period of 45 years, Mr. Barnes has demonstrated leadership in his field and has been a valuable resource to the Authority and its employees; and

WHEREAS Mr. Barnes' knowledge and understanding of the Water Department's operation as well as his enduring dedication and loyalty have positively impacted the Authority; and

WHEREAS, the Board of Directors is most grateful for the professional and personal contributions Mr. Barnes has provided to the Rivanna Water and Sewer Authority and to its customers and its employees; and

NOW, THEREFORE, BE IT RESOLVED that the Rivanna Water and Sewer Authority Board of Directors recognizes, thanks, and commends Mr. Barnes for his distinguished service, efforts and achievements as a long-standing member of the Rivanna Water and Sewer Authority, and presents this Resolution as a token of esteem, with its best wishes in his retirement.

BE IT FURTHER RESOLVED that this Resolution be entered upon the permanent Minutes of the Rivanna Water and Sewer Authority.

Michael Gaffney, Chairman
Lauren Hildebrand
Ann Mallek
Gary O'Connell
Brian Pinkston
Jeff Richardson
Sam Sanders

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

MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **EXECUTIVE DIRECTOR'S REPORT**

DATE: **FEBRUARY 27, 2024**

STRATEGIC PLAN PRIORITY: EMPLOYEE DEVELOPMENT

Team Members Promotions

We were pleased to recently promote:

- Joshua Bowen - Construction Inspection Supervisor, Engineering Division
- Bradley Puffenbarger - Water Department Assistant Manager, Operations Division

National Engineers Week

We acknowledge and celebrate our hard-working engineers. National Engineers Week, February 17th – 24th, recognizes engineering professionals and the vital role they play daily in our lives.

Team Building Event

Rivanna Authorities held its quarterly Team Building event on February 8th with a *Super Bowl Chili Cook-off* and potluck. Staff enjoyed and appreciated the delicious chili entries, homemade side dishes and desserts. We had six chili entries competing for top honors as Chili Champion. Congratulations to Brenda Clifford on her winning recipe of Chicken Taco Chili!

STRATEGIC PLAN PRIORITY: COMMUNICATION AND COLLABORATION

Sugar Hollow Community Meeting

On February 1st, our staff met with Sugar Hollow community members to discuss the bladder deflation that happened at the Sugar Hollow dam on January 17th. We have a follow up community meeting scheduled for March 14th.

STRATEGIC PLAN PRIORITY: OPTIMIZATION AND RESILIENCY

South Rivanna Water Treatment Plant Liquid Lime Slurry Release

As reported to the Board in November 2023, a liquid lime slurry was released from the SRWTP on November 2, 2023 due to an operational noncompliance. The slurry flowed through our storm water system to the South Fork Rivanna River below the dam. We immediately coordinated corrective actions with the Virginia Department of Environmental Quality (VDEQ). We have implemented measures to prevent future occurrences including staff training, instructional signs and lockout – tagout devices, and are coordinating with the VDEQ to complete a compliance and remediation process requested by a Notice of Violation received from the VDEQ in January 2024.

STRATEGIC PLAN PRIORITY: ENVIRONMENTAL STEWARDSHIP

Drought Monitoring

Our reservoirs are full, including Ragged Mountain, which must be filled by transfers from Sugar Hollow Reservoir.

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

MEMORANDUM

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

FROM: **LONNIE WOOD, DIRECTOR OF FINANCE AND INFORMATION TECHNOLOGY**

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **DECEMBER MONTHLY FINANCIAL SUMMARY – FY 2024**

DATE: **FEBRUARY 27, 2024**

Financial Snapshot

The Authority has an overall net surplus of $635,600 for the first six months of this fiscal year due to operating rate revenue being above average and the receipt of the annual septage support from the County in July. Total revenues are $1,107,900 over budget estimates and total expenses are $472,400 under budget. Urban Water flows and operations rate revenue are 4.7% above budget estimates, and Urban Wastewater flows and operations rate revenue are 3.4% above budget estimates. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 5,415,874	$ 5,537,332	$ 1,425,554	$ 12,378,760
Expenses	(5,375,761)	(5,175,095)	(1,364,003)	(11,914,859)
Surplus (deficit)	$ 40,113	$ 362,237	$ 61,551	$ 463,901
Debt Service				
Revenues	$ 5,573,032	$ 5,252,170	$ 1,353,112	$ 12,178,314
Expenses	(5,522,047)	(5,141,507)	(1,343,096)	(12,006,650)
Surplus (deficit)	$ 50,985	$ 110,663	$ 10,016	$ 171,664
Total				
Revenues	$ 10,988,906	$ 10,789,502	$ 2,778,666	$ 24,557,074
Expenses	(10,897,808)	(10,316,602)	(2,707,099)	(23,921,509)
Surplus (deficit)	$ 91,098	$ 472,900	$ 71,567	$ 635,565

A more detailed financial analysis is in the following monthly report and reviews more closely actual financial performance compared to budgeted estimates. There are comments listed that will reference the applicable line items in the financial statement for each rate center and each support department in the following pages. Please refer to the Budget vs Actual financial statements when reviewing these comments.

Detailed Financials

The Authority's total operating revenues through December are $574,500 over the prorated annual budget estimates, and operating expenses are over budget by $110,600 resulting in a net operating surplus of $463,900. The following comments explain most of the other budget vs. actual variances.

A. Annual and Quarterly Transactions - Some revenues and expenses are over the prorated year-to-date budget due to one-time receipts of revenues for the year and quarterly or annual payments of expenses. These transactions appear to have significant impacts on the budget vs. actual monthly comparisons but usually even out as the year progresses. Septage receiving support revenue of $109,440 is billed to the County annually in July. Annual payments are made in the first quarter for certain maintenance agreements and for employer contributions to employees' health savings accounts. The annual payment of $175,000 to UVA for the Observatory lease was made in September. Insurance premiums are paid at the beginning of each quarter.
B. Personnel Costs (Urban Water, Urban Wastewater – pages 2, 5) – Urban Water and Urban Wastewater salaries are higher than budgeted due to pay increases for plant operators who achieved higher licenses.
C. Other Services & Charges (Urban Water, Crozet Water, Urban Wastewater – pages 2, 3, 5) – Utility costs are running higher than originally estimated for Urban Water and Urban Wastewater. Urban Water, Crozet Water, and Urban Wastewater paid unbudgeted annual DEQ permit application fees of $25,000, $15,000, and $10,650, respectively.
D. Equipment Purchases (Urban Water – page 2) Urban Water incurred $10,500 unbudgeted equipment rental costs.
E. Communications (Administration – page 8) – Telephone and data service costs for the Administration department are currently over budget.

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023
Fiscal Year 2024

Consolidated Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2024*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 22,727,003	$ 11,363,502	$ 11,767,705	$ 404,203	3.56%
Lease Revenue		124,000	62,000	70,061	8,061	13.00%
Admin., Maint. & Engineering Revenue		781,000	390,500	399,047	8,547	2.19%
Other Revenues		647,267	323,634	375,063	51,429	15.89%
Use of Reserves (Water Resources Fund)		80,000	40,000	80,000	40,000	100.00%
Interest Allocation		47,250	23,625	85,931	62,306	263.73%
Total Operating Revenues		**$ 24,406,520**	**$ 12,203,260**	**$ 12,777,807**	**$ 574,547**	**4.71%**
Expenses						
Personnel Cost	**B**	$ 11,625,091	$ 5,812,546	$ 5,765,592	$ 46,954	0.81%
Professional Services		467,850	233,925	169,656	64,269	27.47%
Other Services & Charges	**A, C**	3,479,955	1,739,978	2,188,910	(448,933)	-25.80%
Communications	**E**	221,440	110,720	137,340	(26,620)	-24.04%
Information Technology		1,269,575	634,788	504,633	130,155	20.50%
Supplies		46,300	23,150	22,225	925	4.00%
Operations & Maintenance	**A**	6,035,808	3,017,904	2,915,737	102,167	3.39%
Equipment Purchases	**D**	345,500	172,750	152,311	20,439	11.83%
Depreciation		915,000	457,500	457,500	-	0.00%
Total Operating Expenses		**$ 24,406,519**	**$ 12,203,260**	**$ 12,313,905**	**$ (110,645)**	**-0.91%**
Operating Surplus/(Deficit)		**$ 1**	**$ 0**	**$ 463,902**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 22,119,060	$ 11,059,530	$ 11,059,536	$ 6	0.00%
Septage Receiving Support - County		109,440	54,720	109,440	54,720	100.00%
Buck Mountain Lease Revenue		1,600	800	1,884	1,084	135.45%
Trust Fund Interest		179,830	89,915	205,777	115,862	128.86%
Reserve Fund Interest		879,900	439,950	801,679	361,729	82.22%
Total Debt Service Revenues		**$ 23,289,830**	**$ 11,644,915**	**$ 12,178,315**	**$ 533,400**	**4.58%**
Debt Service Costs						
Total Principal & Interest		$ 16,168,944	$ 8,084,472	$ 8,084,472	$ -	0.00%
Reserve Additions-Interest		879,900	439,950	801,679	(361,729)	-82.22%
Debt Service Ratio Charge		725,000	362,500	362,500	-	0.00%
Reserve Additions-CIP Growth		5,516,000	2,758,000	2,758,000	-	0.00%
Total Debt Service Costs		**$ 23,289,844**	**$ 11,644,922**	**$ 12,006,651**	**$ (361,729)**	**-3.11%**
Debt Service Surplus/(Deficit)		**$ (14)**	**$ (7)**	**$ 171,664**		

Summary

Total Revenues	$ 47,696,350	$ 23,848,175	$ 24,956,122	$ 1,107,947	4.65%
Total Expenses	47,696,363	23,848,182	24,320,555	(472,374)	-1.98%
Surplus/(Deficit)	**$ (13)**	**$ (7)**	**$ 635,566**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Urban Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2024*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 10,021,362	$ 5,010,681	$ 5,245,531	$ 234,850	4.69%
Lease Revenue		94,000	47,000	53,651	6,651	14.15%
Miscellaneous		-	-	-	-	
Use of Reserves (Water Resources Fund)		80,000	40,000	80,000	40,000	100.00%
Interest Allocation		34,200	17,100	36,693	19,593	114.58%
Total Operating Revenues		**$ 10,229,562**	**$ 5,114,781**	**$ 5,415,874**	**$ 301,093**	**5.89%**
Expenses						
Personnel Cost	**B**	$ 2,384,332	$ 1,192,166	$ 1,250,227	$ (58,061)	-4.87%
Professional Services		178,500	89,250	72,025	17,225	19.30%
Other Services & Charges	**A, C**	769,233	384,617	639,217	(254,600)	-66.20%
Communications		103,200	51,600	47,219	4,381	8.49%
Information Technology		127,650	63,825	48,367	15,458	24.22%
Supplies		7,000	3,500	7,504	(4,004)	-114.40%
Operations & Maintenance	**A**	2,905,068	1,452,534	1,567,629	(115,095)	-7.92%
Equipment Purchases	**D**	20,100	10,050	20,531	(10,481)	-104.28%
Depreciation		300,000	150,000	150,000	-	0.00%
Subtotal Before Allocations		$ 6,795,083	$ 3,397,542	$ 3,802,719	$ (405,177)	-11.93%
Allocation of Support Departments		3,434,478	1,717,239	1,573,042	144,197	8.40%
Total Operating Expenses		**$ 10,229,561**	**$ 5,114,781**	**$ 5,375,761**	**$ (260,980)**	**-5.10%**
Operating Surplus/(Deficit)		**$ 1**	**$ 0**	**$ 40,114**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 10,193,779	$ 5,096,890	$ 5,096,892	$ 3	0.00%
Trust Fund Interest		77,500	38,750	88,649	49,899	128.77%
Reserve Fund Interest		423,100	211,550	385,608	174,058	82.28%
Lease Revenue		1,600	800	1,884	1,084	135.45%
Total Debt Service Revenues		**$ 10,695,979**	**$ 5,347,990**	**$ 5,573,032**	**$ 225,042**	**4.21%**
Debt Service Costs						
Total Principal & Interest		$ 6,964,779	$ 3,482,390	$ 3,482,390	$ -	0.00%
Reserve Additions-Interest		423,100	211,550	385,608	(174,058)	-82.28%
Debt Service Ratio Charge		400,000	200,000	200,000	-	0.00%
Est. New Debt Service - CIP Growth		2,908,100	1,454,050	1,454,050	-	0.00%
Total Debt Service Costs		**$ 10,695,979**	**$ 5,347,990**	**$ 5,522,047**	**$ (174,058)**	**-3.25%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 50,985**		

Rate Center Summary

Total Revenues	$ 20,925,541	$ 10,462,771	$ 10,988,906	$ 526,136	5.03%
Total Expenses	20,925,540	10,462,770	10,897,808	(435,037)	-4.16%
Surplus/(Deficit)	**$ 1**	**$ 0**	**$ 91,098**		
Costs per 1000 Gallons	$ 3.01		$ 3.02		
Operating and DS	$ 6.16		$ 6.13		
Thousand Gallons Treated	3,397,700	1,698,850	1,778,749	79,899	4.70%
or					
Flow (MGD)	9.309		9.667		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Crozet Water Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2024	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 1,234,752	$ 617,376	$ 617,376	$ -	0.00%
Lease Revenues		30,000	15,000	16,410	1,410	9.40%
Interest Allocation		4,600	2,300	4,898	2,598	112.96%
Total Operating Revenues		**$ 1,269,352**	**$ 634,676**	**$ 638,684**	**$ 4,008**	**0.63%**
Expenses						
Personnel Cost		$ 341,691	$ 170,845	$ 175,296	$ (4,450)	-2.60%
Professional Services		22,900	11,450	-	11,450	100.00%
Other Services & Charges	C	133,426	66,713	90,818	(24,105)	-36.13%
Communications		17,600	8,800	8,392	408	4.64%
Information Technology		32,400	16,200	9,873	6,327	39.06%
Supplies		1,500	750	738	12	1.56%
Operations & Maintenance		335,700	167,850	148,216	19,634	11.70%
Equipment Purchases		3,200	1,600	2,330	(730)	-45.61%
Depreciation		60,000	30,000	30,000	-	0.00%
Subtotal Before Allocations		$ 948,417	$ 474,208	$ 465,662	$ 8,546	1.80%
Allocation of Support Departments		320,940	160,470	146,803	13,667	8.52%
Total Operating Expenses		**$ 1,269,357**	**$ 634,678**	**$ 612,465**	**$ 22,213**	**3.50%**
Operating Surplus/(Deficit)		**$ (5)**	**$ (2)**	**$ 26,219**		

Debt Service Budget vs. Actual

	Budget FY 2024	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 2,385,720	$ 1,192,860	$ 1,192,860	$ -	0.00%
Trust Fund Interest	13,500	6,750	15,495	8,745	129.56%
Reserve Fund Interest	34,500	17,250	31,265	14,015	81.25%
Total Debt Service Revenues	**$ 2,433,720**	**$ 1,216,860**	**$ 1,239,620**	**$ 22,760**	**1.87%**
Debt Service Costs					
Total Principal & Interest	$ 1,216,725	$ 608,363	$ 608,363	$ -	0.00%
Reserve Additions-Interest	34,500	17,250	31,265	(14,015)	-81.25%
Estimated New Principal & Interest	1,182,500	591,250	591,250	-	0.00%
Total Debt Service Costs	**$ 2,433,725**	**$ 1,216,863**	**$ 1,230,878**	**$ (14,015)**	**-1.15%**
Debt Service Surplus/(Deficit)	**$ (5)**	**$ (3)**	**$ 8,742**		

Rate Center Summary

	Budget FY 2024	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 3,703,072	$ 1,851,536	$ 1,878,305	$ 26,769	1.45%
Total Expenses	3,703,082	1,851,541	1,843,343	8,198	0.44%
Surplus/(Deficit)	**$ (10)**	**$ (5)**	**$ 34,962**		
Costs per 1000 Gallons	$ 6.26		$ 5.08		
Operating and DS	$ 18.27		$ 15.28		
Thousand Gallons Treated	202,697	101,349	120,643	19,295	19.04%
Flow (MGD)	0.555		0.656		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Scottsville Water Rate Center
Revenues and Expenses Summary

	Budget FY 2024	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual					
Notes					
Revenues					
Operations Rate Revenue	$ 656,460	$ 328,230	$ 328,230	$ -	0.00%
Interest Allocation	2,150	1,075	2,320	1,245	115.83%
Total Operating Revenues	**$ 658,610**	**$ 329,305**	**$ 330,550**	**$ 1,245**	**0.38%**
Expenses					
Personnel Cost	$ 223,641	$ 111,821	$ 116,404	$ (4,583)	-4.10%
Professional Services	5,000	2,500	2,205	295	11.79%
Other Services & Charges	31,800	15,900	22,381	(6,481)	-40.76%
Communications	6,750	3,375	3,989	(614)	-18.20%
Information Technology	19,700	9,850	4,600	5,250	53.30%
Supplies	100	50	181	(131)	-261.98%
Operations & Maintenance	134,800	67,400	54,348	13,052	19.36%
Equipment Purchases	2,000	1,000	1,601	(601)	-60.06%
Depreciation	40,000	20,000	20,000	0	0.00%
Subtotal Before Allocations	$ 463,791	$ 231,896	$ 225,709	$ 6,187	2.67%
Allocation of Support Departments	194,815	97,407	88,838	8,570	8.80%
Total Operating Expenses	**$ 658,606**	**$ 329,303**	**$ 314,547**	**$ 14,757**	**4.48%**
Operating Surplus/(Deficit)	**$ 4**	**$ 2**	**$ 16,004**		
Debt Service Budget vs. Actual					
Revenues					
Debt Service Rate Revenue	$ 158,736	$ 79,368	$ 79,368	$ -	0.00%
Trust Fund Interest	1,650	825	1,893	1,068	129.48%
Reserve Fund Interest	10,300	5,150	9,620	4,470	86.80%
Total Debt Service Revenues	**$ 170,686**	**$ 85,343**	**$ 90,881**	**$ 5,538**	**6.49%**
Debt Service Costs					
Total Principal & Interest	$ 148,991	$ 74,496	$ 74,496	$ -	0.00%
Reserve Additions-Interest	10,300	5,150	9,620	(4,470)	-86.80%
Estimated New Principal & Interest	11,400	5,700	5,700	-	0.00%
Total Debt Service Costs	**$ 170,691**	**$ 85,346**	**$ 89,816**	**$ (4,470)**	**-5.24%**
Debt Service Surplus/(Deficit)	**$ (5)**	**$ (3)**	**$ 1,066**		

Rate Center Summary

Total Revenues	$ 829,296	$ 414,648	$ 421,431	$ 6,783	1.64%
Total Expenses	829,297	414,649	404,362	10,286	2.48%
Surplus/(Deficit)	**$ (1)**	**$ (1)**	**$ 17,069**		
Costs per 1000 Gallons	$ 38.22		$ 32.85		
Operating and DS	$ 48.13		$ 42.24		
Thousand Gallons Treated	17,230	8,615	9,574	959	11.13%
or					
Flow (MGD)	0.047		0.052		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Urban Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2024*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 9,908,321	$ 4,954,161	$ 5,123,514	$ 169,353	3.42%
Stone Robinson WWTP		17,267	8,634	8,411	(222)	-2.57%
Septage Acceptance		550,000	275,000	312,376	37,376	13.59%
Nutrient Credits		80,000	40,000	49,915	9,915	24.79%
Miscellaneous Revenue		-	-	4,360	4,360	
Interest Allocation		3,300	1,650	38,755	37,105	2248.78%
Total Operating Revenues		**$ 10,558,888**	**$ 5,279,444**	**$ 5,537,332**	**$ 257,888**	**4.88%**
Expenses						
Personnel Cost	**B**	$ 1,458,300	$ 729,150	$ 751,418	$ (22,268)	-3.05%
Professional Services		40,000	20,000	18,874	1,126	5.63%
Other Services & Charges	**C**	2,271,556	1,135,778	1,295,012	(159,234)	-14.02%
Communications		11,600	5,800	8,530	(2,730)	-47.08%
Information Technology		110,600	55,300	32,166	23,134	41.83%
Supplies		1,200	600	1,908	(1,308)	-217.93%
Operations & Maintenance		2,086,800	1,043,400	949,610	93,790	8.99%
Equipment Purchases		73,500	36,750	39,911	(3,161)	-8.60%
Depreciation		470,000	235,000	235,000	(0)	0.00%
Subtotal Before Allocations		$ 6,523,556	$ 3,261,778	$ 3,332,430	$ (70,652)	-2.17%
Allocation of Support Departments		4,035,331	2,017,665	1,842,665	175,000	8.67%
Total Operating Expenses		**$ 10,558,887**	**$ 5,279,444**	**$ 5,175,095**	**$ 104,348**	**1.98%**
Operating Surplus/(Deficit)		**$ 1**	**$ 0**	**$ 362,236**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 9,339,509	$ 4,669,755	$ 4,669,758	$ 4	0.00%
Septage Receiving Support - County	**A**	109,440	54,720	109,440	54,720	100.00%
Trust Fund Interest		86,900	43,450	99,390	55,940	128.75%
Reserve Fund Interest		410,200	205,100	373,582	168,482	82.15%
Total Debt Service Revenues		**$ 9,946,049**	**$ 4,973,025**	**$ 5,252,170**	**$ 279,146**	**5.61%**
Debt Service Costs						
Total Principal & Interest		$ 7,812,249	$ 3,906,125	$ 3,906,125	$ -	0.00%
Reserve Additions-Interest		410,200	205,100	373,582	(168,482)	-82.15%
Debt Service Ratio Charge		325,000	162,500	162,500	-	0.00%
Est. New Debt Service - CIP Growth		1,398,600	699,300	699,300	-	0.00%
Total Debt Service Costs		**$ 9,946,049**	**$ 4,973,025**	**$ 5,141,507**	**$ (168,482)**	**-3.39%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 110,664**		
Rate Center Summary						
Total Revenues		$ 20,504,937	$ 10,252,469	$ 10,789,502	$ 537,033	5.24%
Total Expenses		20,504,936	10,252,468	10,316,602	(64,134)	-0.63%
Surplus/(Deficit)		**$ 1**	**$ 0**	**$ 472,900**		
Costs per 1000 Gallons		$ 3.11		$ 2.95		
Operating and DS		$ 6.05		$ 5.88		
Thousand Gallons Treated		3,390,400	1,695,200	1,753,427	58,227	3.43%
or						
Flow (MGD)		9.289		9.529		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

	Budget FY 2024	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual					
Notes					
Revenues					
Operations Rate Revenue	$ 521,916	$ 260,958	$ 260,958	$ -	0.00%
Interest Allocation	1,700	850	1,805	955	112.30%
Total Operating Revenues	**$ 523,616**	**$ 261,808**	**$ 262,763**	**$ 955**	**0.36%**
Expenses					
Personnel Cost	$ 127,879	$ 63,939	$ 66,225	$ (2,286)	-3.58%
Professional Services	25,000	12,500	11,686	814	6.52%
Other Services & Charges	35,400	17,700	21,643	(3,943)	-22.28%
Communications	3,450	1,725	1,652	73	4.22%
Information Technology	13,000	6,500	14,789	(8,289)	-127.52%
Supplies	-	-	-	-	
Operations & Maintenance	143,550	71,775	57,103	14,672	20.44%
Equipment Purchases	3,800	1,900	1,900	(0)	0.00%
Depreciation	25,000	12,500	12,500	0	0.00%
Subtotal Before Allocations	$ 377,079	$ 188,539	$ 187,499	$ 1,041	0.55%
Allocation of Support Departments	146,534	73,267	66,697	6,570	8.97%
Total Operating Expenses	**$ 523,613**	**$ 261,806**	**$ 254,196**	**$ 7,611**	**2.91%**
Operating Surplus/(Deficit)	**$ 3**	**$ 2**	**$ 8,567**		
Debt Service Budget vs. Actual					
Revenues					
Debt Service Rate Revenue	$ 22,680	$ 11,340	$ 11,340	$ -	0.00%
Trust Fund Interest	200	100	247	147	146.92%
Reserve Fund Interest	-	-	-	-	
Total Debt Service Revenues	**$ 22,880**	**$ 11,440**	**$ 11,587**	**$ 147**	**1.28%**
Debt Service Costs					
Total Principal & Interest	$ 18,729	$ 9,365	$ 9,365	$ -	0.00%
Estimated New Principal & Interest	4,150	2,075	2,075	-	0.00%
Reserve Additions-Interest	-	-	-	-	
Total Debt Service Costs	**$ 22,879**	**$ 11,440**	**$ 11,440**	**$ -**	**0.00%**
Debt Service Surplus/(Deficit)	**$ 1**	**$ 1**	**$ 147**		

Rate Center Summary					
Total Revenues	$ 546,496	$ 273,248	$ 274,349	$ 1,101	0.40%
Total Expenses	546,492	273,246	265,635	7,611	2.79%
Surplus/(Deficit)	**$ 4**	**$ 2**	**$ 8,714**		
Costs per 1000 Gallons	$ 12.65		$ 10.68		
Operating and DS	$ 13.20		$ 11.16		
Thousand Gallons Treated	41,401	20,701	23,797	3,097	**14.96%**
or					
Flow (MGD)	0.113		0.129		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

	Budget FY 2024	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual					
Notes					
Revenues					
Operations Rate Revenue	$ 384,192	$ 192,096	$ 192,096	$ -	0.00%
Interest Allocation	1,300	650	1,461	811	124.75%
Total Operating Revenues	**$ 385,492**	**$ 192,746**	**$ 193,557**	**$ 811**	**0.42%**
Expenses					
Personnel Cost	$ 127,949	$ 63,974	$ 66,225	$ (2,251)	-3.52%
Professional Services	5,000	2,500	-	2,500	100.00%
Other Services & Charges	24,800	12,400	17,595	(5,195)	-41.89%
Communications	3,800	1,900	5,878	(3,978)	-209.34%
Information Technology	14,025	7,013	413	6,600	94.11%
Supplies	-	-	615	(615)	
Operations & Maintenance	49,500	24,750	17,933	6,817	27.54%
Equipment Purchases	3,700	1,850	1,850	0	0.00%
Depreciation	20,000	10,000	10,000	(0)	0.00%
Subtotal Before Allocations	$ 248,774	$ 124,387	$ 120,508	$ 3,879	3.12%
Allocation of Support Departments	136,722	68,361	62,287	6,074	8.89%
Total Operating Expenses	**$ 385,495**	**$ 192,748**	**$ 182,795**	**$ 9,953**	**5.16%**
Operating Surplus/(Deficit)	**$ (3)**	**$ (2)**	**$ 10,762**		
Debt Service Budget vs. Actual					
Revenues					
Debt Service Rate Revenue	$ 18,636	$ 9,318	$ 9,318	$ -	0.00%
Trust Fund Interest	80	40	103	63	157.18%
Reserve Fund Interest	1,800	900	1,603	703	78.15%
Total Debt Service Revenues	**$ 20,516**	**$ 10,258**	**$ 11,024**	**$ 766**	**7.47%**
Debt Service Costs					
Total Principal & Interest	$ 7,471	$ 3,736	$ 3,736	$ -	0.00%
Reserve Additions-Interest	1,800	900	1,603	(703)	-78.15%
Estimated New Principal & Interest	11,250	5,625	5,625	-	0.00%
Total Debt Service Costs	**$ 20,521**	**$ 10,261**	**$ 10,964**	**$ (703)**	**-6.86%**
Debt Service Surplus/(Deficit)	**$ (5)**	**$ (3)**	**$ 60**		
Rate Center Summary					
Total Revenues	$ 406,008	$ 203,004	$ 204,581	$ 1,577	0.78%
Total Expenses	406,016	203,008	193,759	9,249	4.56%
Surplus/(Deficit)	**$ (8)**	**$ (4)**	**$ 10,822**		
Costs per 1000 Gallons	$ 16.30		$ 18.80		
Operating and DS	$ 17.17		$ 19.93		
Thousand Gallons Treated	23,643	11,822	9,724	(2,098)	**-17.74%**
or					
Flow (MGD)	0.065		0.053		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Administration

Operating Budget vs. Actual

	Notes	*Budget FY 2024*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 781,000	$ 390,500	$ 390,500	$ 0	0.00%
Bond Proceeeds Funding Bond Issuance Costs		-	-	-	-	
Miscellaneous Revenue		-	-	5,996	5,996	
Total Operating Revenues		**$ 781,000**	**$ 390,500**	**$ 396,496**	**$ 5,996**	**1.54%**
Expenses						
Personnel Cost		$ 2,930,008	$ 1,465,004	$ 1,374,908	$ 90,096	6.15%
Professional Services		136,450	68,225	59,060	9,165	13.43%
Other Services & Charges	**A**	140,760	70,380	85,505	(15,125)	-21.49%
Communications	**E**	42,800	21,400	41,238	(19,838)	-92.70%
Information Technology		778,800	389,400	327,760	61,640	15.83%
Supplies		22,800	11,400	9,258	2,142	18.79%
Operations & Maintenance		64,200	32,100	21,001	11,099	34.58%
Equipment Purchases		15,000	7,500	7,589	(89)	-1.19%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 4,130,818**	**$ 2,065,409**	**$ 1,926,319**	**$ 139,091**	**6.73%**

Department Summary

Net Costs Allocable to Rate Centers	**$ (3,349,818)**	**$ (1,674,909)**	**$ (1,529,822)**	**$ (145,087)**	**8.66%**
Allocations to the Rate Centers					
Urban Water	44.00% **$ 1,473,920**	**$ 736,960**	**$ 673,122**	**$ 63,838**	
Crozet Water	4.00% **$ 133,993**	**66,996**	**61,193**	**5,803**	
Scottsville Water	2.00% **$ 66,996**	**33,498**	**30,596**	**2,902**	
Urban Wastewater	48.00% **$ 1,607,913**	**803,956**	**734,315**	**69,642**	
Glenmore Wastewater	1.00% **$ 33,498**	**16,749**	**15,298**	**1,451**	
Scottsville Wastewater	1.00% **$ 33,498**	**16,749**	**15,298**	**1,451**	
	100.00% **$ 3,349,818**	**$ 1,674,909**	**$ 1,529,822**	**$ 145,087**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Maintenance

Operating Budget vs. Actual

[redacted] **Notes**

	Budget FY 2024	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues					
Payment for Services SWA	$ -	$ -	$ -	$ -	
Miscellaneous Revenue	-	-	1,067	1,067	
Total Operating Revenues	**$ -**	**$ -**	**$ 1,067**	**$ 1,067**	
Expenses					
Personnel Cost	$ 1,553,212	$ 776,606	$ 744,660	$ 31,946	4.11%
Professional Services	25,000	12,500	-	12,500	100.00%
Other Services & Charges	36,400	18,200	10,615	7,585	41.67%
Communications	11,300	5,650	12,261	(6,611)	-117.01%
Information Technology	17,500	8,750	505	8,245	94.23%
Supplies	4,000	2,000	-	2,000	100.00%
Operations & Maintenance	114,150	57,075	50,089	6,986	12.24%
Equipment Purchases	201,000	100,500	65,000	35,500	35.32%
Depreciation	-	-	-	-	
Total Operating Expenses	**$ 1,962,562**	**$ 981,281**	**$ 883,130**	**$ 98,151**	**10.00%**

Department Summary

Net Costs Allocable to Rate Centers	**$ (1,962,562)**	**$ (981,281)**	**$ (882,063)**	**$ (97,083)**	**9.89%**
Allocations to the Rate Centers					
Urban Water 30.00%	**$ 588,768**	**$ 294,384**	**$ 264,619**	**$ 29,765**	
Crozet Water 3.50%	**68,690**	**34,345**	**30,872**	**3,473**	
Scottsville Water 3.50%	**68,690**	**34,345**	**30,872**	**3,473**	
Urban Wastewater 56.50%	**1,108,847**	**554,424**	**498,365**	**56,058**	
Glenmore Wastewater 3.50%	**68,690**	**34,345**	**30,872**	**3,473**	
Scottsville Wastewater 3.00%	**58,877**	**29,438**	**26,462**	**2,977**	
100.00%	**$ 1,962,562**	**$ 981,281**	**$ 882,063**	**$ 99,218**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Laboratory

Operating Budget vs. Actual

	Notes	*Budget FY 2024*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
N/A						
Expenses						
Personnel Cost		$ 456,056	$ 228,028	$ 229,057	$ (1,029)	-0.45%
Professional Services		-	-	-	-	
Other Services & Charges		14,580	7,290	674	6,616	90.76%
Communications		1,400	700	351	349	49.87%
Information Technology		1,000	500	-	500	100.00%
Supplies		1,200	600	351	249	41.42%
Operations & Maintenance		115,300	57,650	31,004	26,646	46.22%
Equipment Purchases		1,700	850	850	(0)	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 591,236**	**$ 295,618**	**$ 262,287**	**$ 33,331**	**11.28%**

Department Summary

Net Costs Allocable to Rate Centers	**$ (591,236)**	**$ (295,618)**	**$ (262,287)**	**$ (33,331)**	**11.28%**
Allocations to the Rate Centers					
Urban Water 44.00%	**$ 260,144**	**$ 130,072**	**$ 115,406**	**$ 14,666**	
Crozet Water 4.00%	**23,649**	**11,825**	**10,491**	**1,333**	
Scottsville Water 2.00%	**11,825**	**5,912**	**5,246**	**667**	
Urban Wastewater 47.00%	**277,881**	**138,940**	**123,275**	**15,666**	
Glenmore Wastewater 1.50%	**8,869**	**4,434**	**3,934**	**500**	
Scottsville Wastewater 1.50%	**8,869**	**4,434**	**3,934**	**500**	
100.00%	**$ 591,236**	**$ 295,618**	**$ 262,287**	**$ 33,331**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2023

Engineering

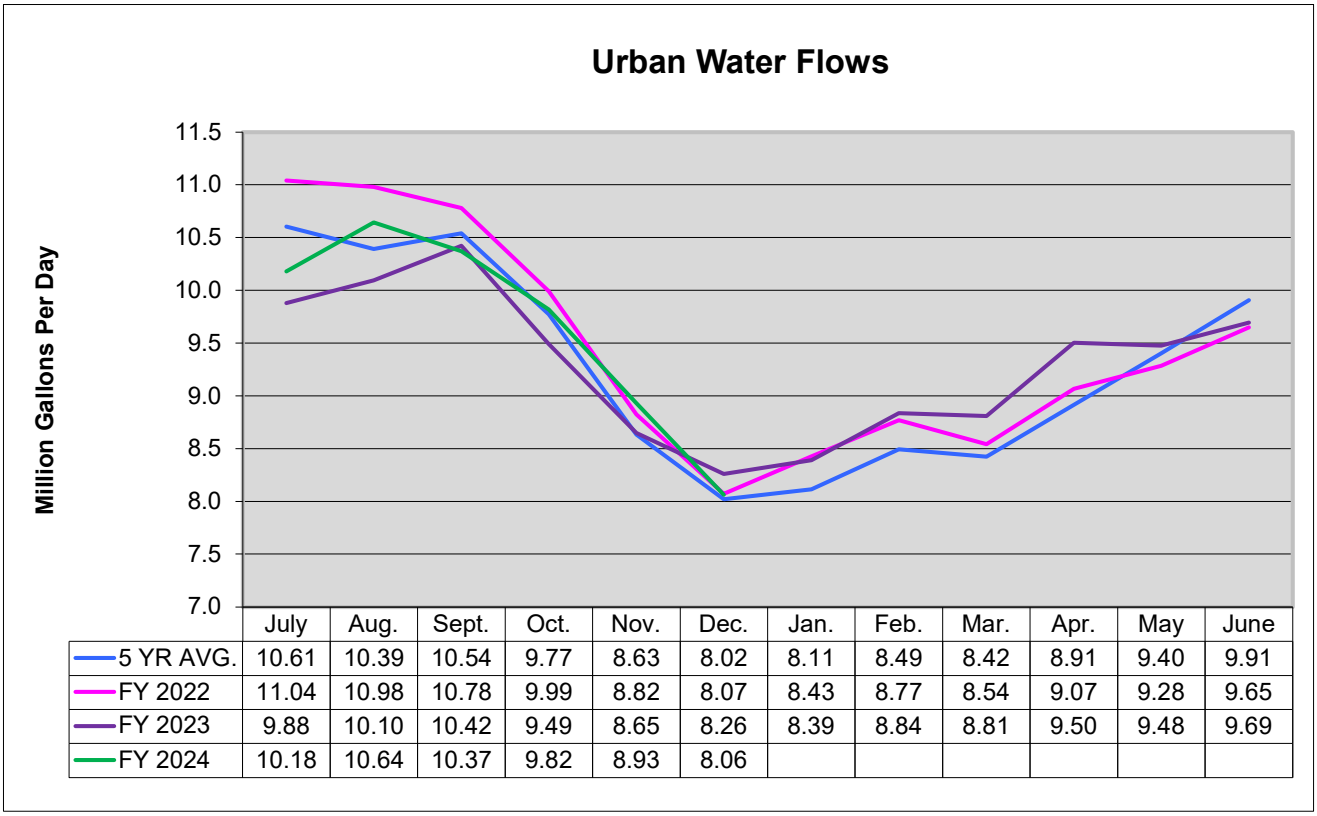
Operating Budget vs. Actual

	Notes	*Budget FY 2024*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ 1,483	$ 1,483	
Total Operating Revenues		**$ -**	**$ -**	**$ 1,483**	**$ 1,483**	
Expenses						
Personnel Cost		$ 2,022,024	$ 1,011,012	$ 991,172	$ 19,840	1.96%
Professional Services		30,000	15,000	5,806	9,194	61.29%
Other Services & Charges		22,000	11,000	5,450	5,550	50.46%
Communications		19,540	9,770	7,830	1,940	19.85%
Information Technology		154,900	77,450	66,161	11,289	14.58%
Supplies		8,500	4,250	1,671	2,579	60.69%
Operations & Maintenance		86,740	43,370	18,803	24,567	56.65%
Equipment Purchases		21,500	10,750	10,750	0	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,365,204**	**$ 1,182,602**	**$ 1,107,643**	**$ 74,959**	**6.34%**

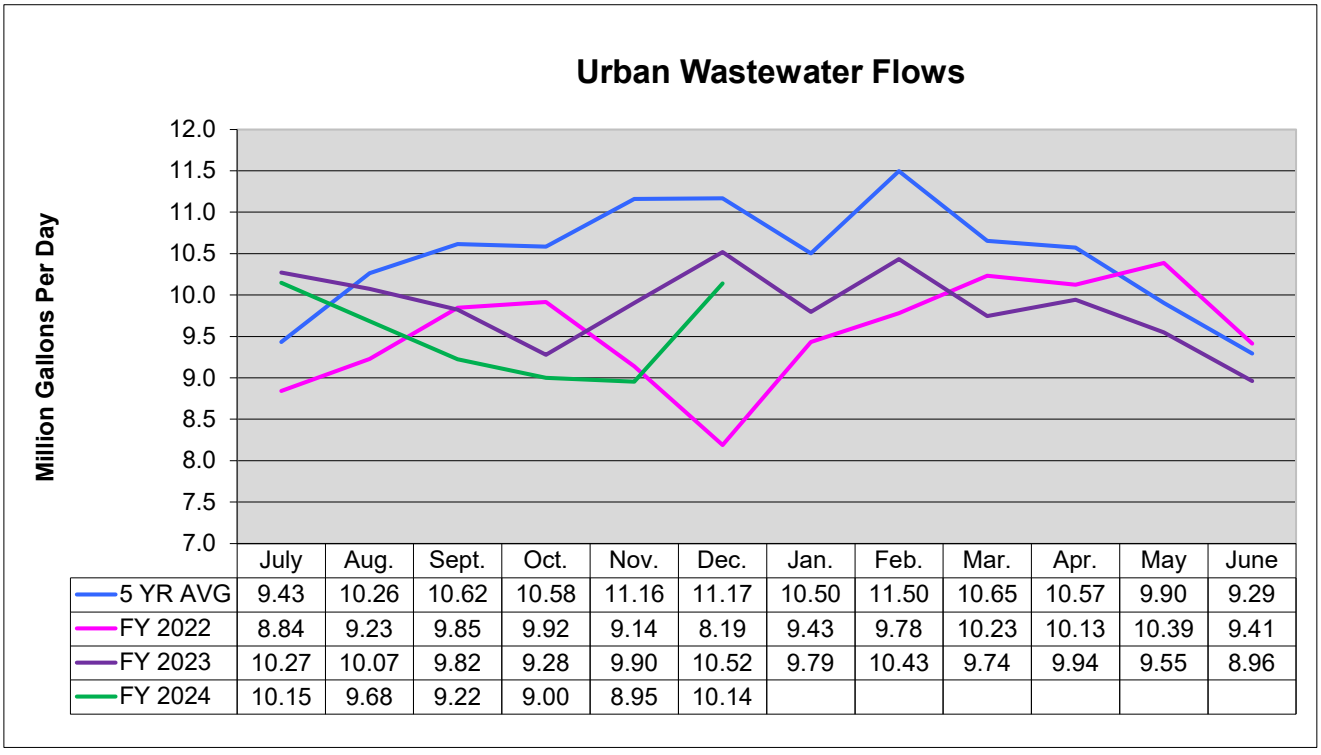
Department Summary

Net Costs Allocable to Rate Centers		**$ (2,365,204)**	**$ (1,182,602)**	**$ (1,106,160)**	**$ (73,476)**	**6.21%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 1,111,646**	**$ 555,823**	**$ 519,895**	**$ 35,928**	
Crozet Water	4.00%	**94,608**	**47,304**	**44,246**	**3,058**	
Scottsville Water	2.00%	**47,304**	**23,652**	**22,123**	**1,529**	
Urban Wastewater	44.00%	**1,040,690**	**520,345**	**486,710**	**33,635**	
Glenmore Wastewater	1.50%	**35,478**	**17,739**	**16,592**	**1,147**	
Scottsville Wastewater	1.50%	**35,478**	**17,739**	**16,592**	**1,147**	
	100.00%	**$ 2,365,204**	**$ 1,182,602**	**$ 1,106,160**	**$ 76,442**	

Rivanna Water and Sewer Authority
Flow Graphs



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG.	10.61	10.39	10.54	9.77	8.63	8.02	8.11	8.49	8.42	8.91	9.40	9.91
FY 2022	11.04	10.98	10.78	9.99	8.82	8.07	8.43	8.77	8.54	9.07	9.28	9.65
FY 2023	9.88	10.10	10.42	9.49	8.65	8.26	8.39	8.84	8.81	9.50	9.48	9.69
FY 2024	10.18	10.64	10.37	9.82	8.93	8.06						



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG	9.43	10.26	10.62	10.58	11.16	11.17	10.50	11.50	10.65	10.57	9.90	9.29
FY 2022	8.84	9.23	9.85	9.92	9.14	8.19	9.43	9.78	10.23	10.13	10.39	9.41
FY 2023	10.27	10.07	9.82	9.28	9.90	10.52	9.79	10.43	9.74	9.94	9.55	8.96
FY 2024	10.15	9.68	9.22	9.00	8.95	10.14						

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

MEMORANDUM

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

FROM: **DAVE TUNGATE, DIRECTOR OF OPERATIONS & ENVIRONMENTAL SERVICES**

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

SUBJECT: **OPERATIONS REPORT FOR JANUARY 2024**

DATE: **FEBRUARY 27, 2024**

WATER OPERATIONS:

The average and maximum daily water volumes produced in January 2024 were as follows:

Water Treatment Plant	***Average Daily Production (MGD)***	***Maximum Daily Production in the Month (MGD)***
South Rivanna	7.52	8.86 (1/22/2024)
Observatory	0.48	1.65 (1/18/2024)
North Rivanna	0.44	0.87 (1/25/2024)
Urban Total	8.44	9.72 (1/25/2024)
Crozet	0.55	0.65 (1/3/2024)
Scottsville	0.05	0.066 (1/19/2024)
Red Hill	0.0019	0.003 (1/29/2024)
RWSA Total	9.04	-

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

Status of Reservoirs (as of February 16, 2024):

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

WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during January 2024. There was a reported wastewater discharge from MCAWRRF into Moores Creek on 1/18/24 and 1/19/2024. Performance of the WRRFs in January was as follows compared to the respective VDEQ permit limits:

WRRF	*Average Daily Effluent Flow (MGD)*	*Average $CBOD_5$ (ppm)*		*Average Total Suspended Solids (ppm)*		*Average Ammonia (ppm)*	
		RESULT	*LIMIT*	*RESULT*	*LIMIT*	*RESULT*	*LIMIT*
Moores Creek	11.9	<QL	9	0.51	22	0.35	2.2
Glenmore	0.160	3.8	15	6.6	30	NR	NL
Scottsville	0.09	3.4	25	12.0	30	NR	NL
Stone Robinson	0.001	NR	30	NR	30	NR	NL

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

Nutrient discharges at the Moores Creek AWRRF were as follows for January 2024.

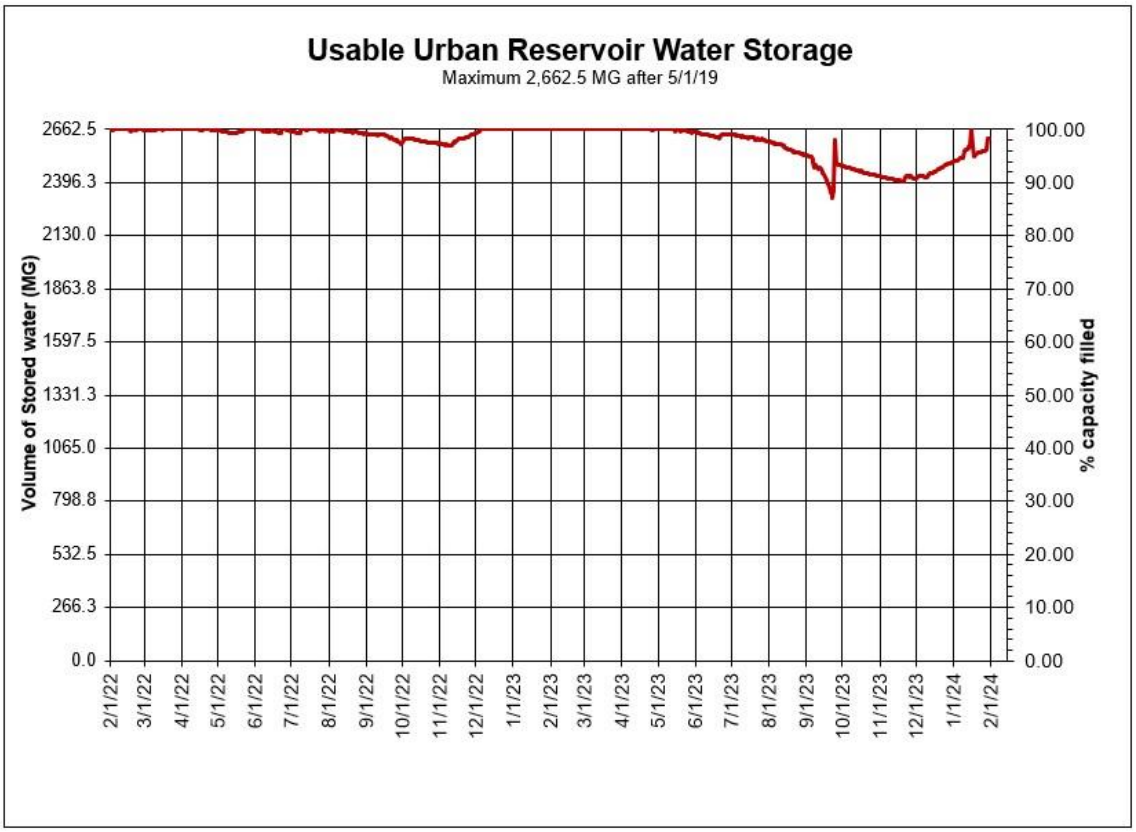
State Annual Allocation (lb./yr.) Permit		*Average Monthly Allocation (lb./mo.) **	*Moores Creek Discharge January (lb./mo.)*	*Performance as % of monthly average Allocation**	*Year to Date Performance as % of annual allocation*
Nitrogen	282,994	23,583	16,453	70%	6%
Phosphorous	18,525	1,636	165	10%	1%

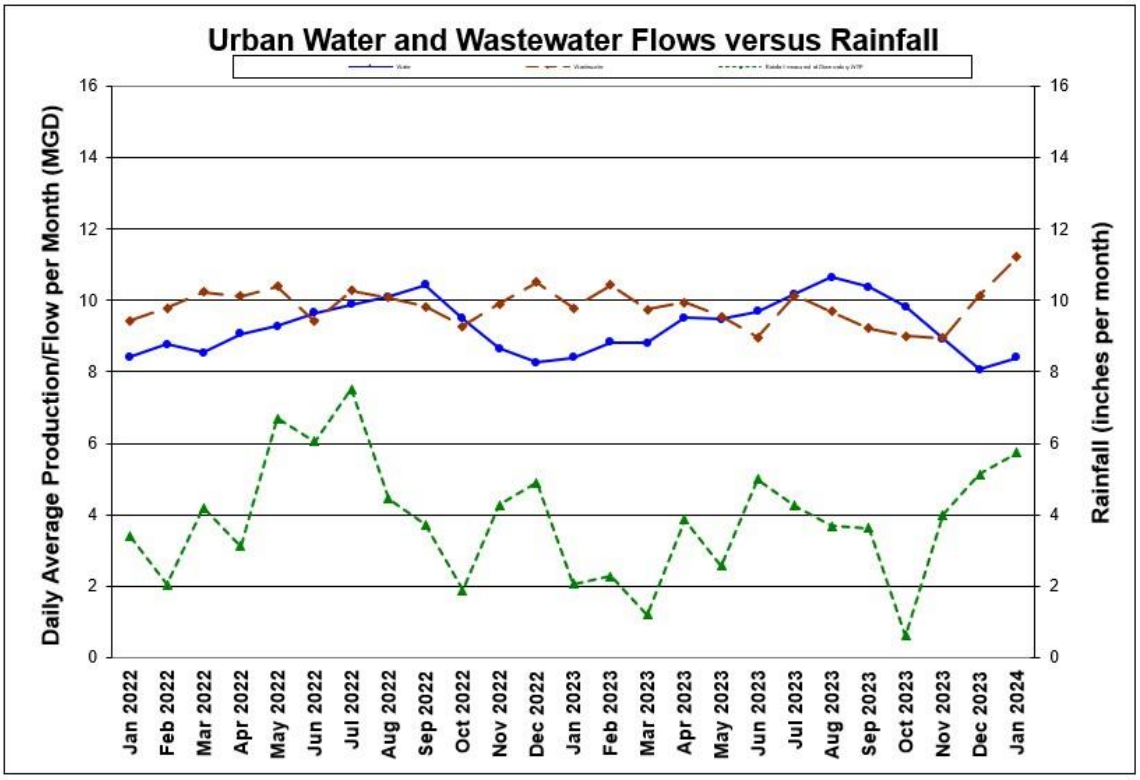
*State allocations are expressed as annual amounts. One-twelfth of that allocation is an internal monthly benchmark for comparative purposes only.

WATER AND WASTEWATER DATA:

The following graphs are provided for review:

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


Usable Urban Reservoir Water Storage
Maximum 2,662.5 MG after 5/1/19
Volume of Stored water (MG)
2662.5
2396.3
2130.0
1863.8
1597.5
1331.3
1065.0
798.8
532.5
266.3
0.0
% capacity filled
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
2/1/22
3/1/22
4/1/22
5/1/22
6/1/22
7/1/22
8/1/22
9/1/22
10/1/22
11/1/22
12/1/22
1/1/23
2/1/23
3/1/23
4/1/23
5/1/23
6/1/23
7/1/23
8/1/23
9/1/23
10/1/23
11/1/23
12/1/23
1/1/24
2/1/24


Urban Water and Wastewater Flows versus Rainfall
Daily Average Production/Flow per Month (MGD)
Rainfall (inches per month)
16
14
12
10
8
6
4
2
0
Jan 2022
Feb 2022
Mar 2022
Apr 2022
May 2022
Jun 2022
Jul 2022
Aug 2022
Sep 2022
Oct 2022
Nov 2022
Dec 2022
Jan 2023
Feb 2023
Mar 2023
Apr 2023
May 2023
Jun 2023
Jul 2023
Aug 2023
Sep 2023
Oct 2023
Nov 2023
Dec 2023
Jan 2024

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

MEMORANDUM

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

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

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

SUBJECT: **CIP PROJECTS REPORT**

DATE: **FEBRUARY 27, 2024**

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

For the current CIP and additional project information, please visit: https://www.rivanna.org/wp-content/uploads/2023/06/2024-2028-CIP-FINAL-DRAFT-1.pdf

Summary

	Project	Construction Start Date	Construction Completion Date
1	SRWTP and OBWTP Renovations	May 2020	July 2024
2	Airport Rd. Water Pump Station and Piping	December 2021	September 2024
3	MC 5kV Electrical System Upgrades	May 2022	December 2024
4	South Fork Rivanna River Crossing	August 2024	June 2026
5	Red Hill Water Treatment Plant Upgrades	June 2024	December 2025
6	Central Water Line	December 2024	December 2028
7	Scottsville WRRF Whole Plant Generator and ATS	TBD	TBD
8	MC Administration Building Renovation and Addition	April 2025	December 2027
9	RMR to OBWTP Raw Water Line and Pump Station	September 2024	December 2028
10	MC Building Upfits and Gravity Thickener Improvements	August 2024	August 2026
11	Emmet Street Water Line Betterment	October 2024	October 2026
12	MC Structural and Concrete Rehabilitation	September 2024	December 2026
13	Crozet Pump Stations Rehabilitation	January 2025	December 2026
14	Crozet WTP GAC Expansion – Phase I	April 2025	October 2026
15	Beaver Creek Dam, Pump Station and Piping	April 2026	January 2029
16	SFRR to RMR Pipeline, Intake, and Facilities	June 2025	December 2030
17	Upper Schenks Branch Interceptor, Phase II	TBD	TBD
18	North Rivanna Water Treatment Plant Decommissioning	September 2025	March 2027

Under Construction

1. South Rivanna and Observatory Water Treatment Plant Renovations
2. Airport Road Water Pump Station and Piping
3. MC 5kV Electrical System Upgrades

Design and Bidding

4. South Fork Rivanna River Crossing
5. Red Hill Water Treatment Plant Upgrades
6. Central Water Line
7. Scottsville WRRF Whole Plant Generator and ATS
8. MC Administration Building Renovation and Addition
9. RMR to OBWTP Raw Water Line and Pump Station
10. MC Building Upfits and Gravity Thickener Improvements
11. Emmet Street Water Line Betterment
12. MC Structural and Concrete Rehabilitation
13. Crozet Pump Stations Rehabilitation
14. Crozet WTP GAC Expansion – Phase I
15. Beaver Creek Dam, Pump Station, and Piping
16. SFRR to RMR Pipeline, Intake, and Facilities
17. Upper Schenks Branch Interceptor, Phase II
18. North Rivanna Water Treatment Plant Decommissioning

Planning and Studies

19. Asset Management Plan
20. MCAWRRF Biogas Upgrades

Other Significant Projects

21. Urgent and Emergency Repairs
22. Security Enhancements

Under Construction

1. South Rivanna and Observatory Water Treatment Plant Renovations

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Construction Contractor:	English Construction Company (Lynchburg, VA)
Construction Start:	May 2020
Percent Complete:	96%
Base Construction Contract + Change Orders to Date = Current Value:	$36,748,500 + $1,329,762 = $38,078,262
Completion:	July 2024
Budget:	$43,000,000

Current Status: Improvements continue at the OBWTP including completion of the new Chemical Building and general site improvements. At the SRWTP, sludge pump improvements and final instrumentation programming work continues.

2. Airport Road Water Pump Station and Piping

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction, Inc. (ACI) (Lynchburg, VA)
Construction Start:	December 2021
Percent Complete:	85%
Base Construction Contract + Change Order to Date = Current Value:	$8,520,312 + $205,908 = $8,726,221
Completion:	September 2024
Budget:	$10,000,000

Current Status: Water line installation is substantially complete. All sections of the waterline have passed pressure testing with flushing and disinfection approximately 50% complete. Paving of Berkmar Drive is proceeding but is weather dependent. Pump station startup and testing can begin once electric power, water, and fiber installations to the site are completed in February. The roof installation is complete. Plumbers and electricians are completing their work inside the pump station.

3. MCAWRRF 5kV Electrical System Upgrades

Design Engineer:	Hazen and Sawyer (Hazen)
Construction Contractor:	Pyramid Electrical Contractors (Richmond, VA)
Construction Start:	May 2022
Percent Complete:	31%
Base Construction Contract + Change Order to Date = Current Value:	$5,180,000 - $848,368 = $4,331,632
Completion:	December 2024
Budget:	$5,635,000

Current Status: All major site-related work, including underground electrical ductbank, equipment pads, and curb and gutter replacements, is complete. Small electrical equipment for this project continues to arrive at the site, with the larger equipment scheduled to arrive later this Winter through early Spring.

Design and Bidding

4. South Fork Rivanna River Crossing

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2020
Project Status:	90% Design
Construction Start:	August 2024
Completion:	June 2026
Budget:	$7,300,000

Current Status: Easement acquisition work is on-going. A required easement on the south side of the river is on a remnant property from the VDOT Berkmar Bridge project, and we cannot finalize that easement until the property transfer back to the original property owner is complete. We had a meeting with VDOT to move this acquisition forward. Another outstanding easement is on a Virginia Dominion Power parcel for which we completed a Phase 1 Environmental Survey because Virginia Dominion Power prefers that we purchase the small parcel instead of acquiring an easement. A purchase agreement package will go to Dominion this month. The final outstanding easement is with Albemarle County across the Brookhill Park property along Rio Mills Rd for which a final draft is pending.

5. Red Hill Water Treatment Plant Upgrades

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	July 2022
Project Status:	Bidding
Construction Start:	June 2024
Completion:	December2025
Budget:	$2,000,000

Current Status: Review of bid costs and potential changes are ongoing with the contractor and Rivanna personnel. This is being done to ensure all operational needs are met while incorporating cost savings measures where feasible. This project received partial grant funding from Albemarle County.

6. Central Water Line

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2021
Project Status:	75% Design
Construction Start:	December 2024
Completion:	December 2028
Budget:	$47,000,000

Current Status: Completion of 90% construction documents is anticipated this month with a stakeholder's workshop to follow. Easement acquisitions are being initiated with our real estate consultant. Soil borings and utility test pits along the alignment are complete. Railroad permits will be submitted this month.

7. Scottsville WRRF Whole Plant Generator and ATS

Design Engineer:	Wiley|Wilson
Project Start:	December 2021
Project Status	100% Design
Construction Start:	TBD
Completion:	TBD
Budget:	$520,000

Current Status: An update from VDEM indicated that the grant approval and funding process may continue until Summer 2024. As a result, the overall project schedule is uncertain.

8. Moores Creek Administration Building Renovation and Addition

Design Engineer:	SEH
Project Start:	October 2022
Project Status:	60% Design
Construction Start:	April 2025
Completion:	December 2027
Budget:	$20,000,000

Current Status: Value Engineering recommendations are under review. Site planning for the temporary trailers is being incorporated. The education exhibit design will be incorporated into the 90% documents.

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

Design Engineer:	Kimley-Horn
Project Start:	August 2018
Project Status:	87% Design
Construction Start:	September 2024
Completion:	December 2028
Budget:	$46,000,000

Current Status: Design of the pump station is 75% complete, and design of the waterline is 90% complete. Comments from the County on the Water Protection Ordinance permitting documents are being incorporated. Staff are meeting with UVA this month to discuss the final easement needed. An information meeting with contractors will be scheduled.

10. MCAWRRF Building Upfits and Gravity Thickener Improvements

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	March 2023
Project Status:	5% Design
Construction Start:	August 2024
Completion:	August 2026
Budget:	$7,500,000

Current Status: A work authorization for design, bidding and construction administration services is being submitted this month for Board approval with design kickoff anticipated for early March.

11. Emmet Street Water Line Betterment

Design Engineer:	Whitman, Requardt & Associates (WRA)
Project Start:	September 2021
Project Status:	Ivy Corridor Public Realm – Complete Contemplative Commons – Complete Emmet Streetscape –70% Design Hydraulic/29 – Preliminary Design

Completion:	2024 - 2026, Phase I
Budget:	$2,900,000

Current Status: WRA has completed 70% construction documents for the water main. Permitting efforts are underway. RWSA is coordinating with City Utilities for construction of a 24-30" water main in Emmet Street from Ivy Road to Arlington Boulevard as part of the City's Emmet Streetscape Phase I project. A Betterment Agreement and costs are under review by City Utilities.

An analysis of possible water main alignments along the Emmet Street Corridor was completed for the section between Morton Drive and Hydraulic Road. The report detailing this analysis was completed in December 2023.

12. MCAWRRF Structural and Concrete Rehabilitation

Design Engineer:	Hazen and Sawyer (Hazen)
Project Start:	April 2023
Project Status:	Preliminary Engineering
Construction Start:	September 2024
Completion:	December 2026
Budget:	$11,300,000

Current Status: Revisions are underway to the draft PER Report to include additional information and associated costs for the digester alternatives. Design documents are progressing for all the other structural rehabilitation and repair elements towards a 90% deliverable within the next month.

13. Crozet Pump Stations Rehabilitation

Design Engineer:	Wiley | Wilson
Project Start:	July 2023
Project Status:	60% Design
Construction Start:	January 2025
Completion:	December 2026
Budget:	$10,350,000

Current Status: 60% design documents have been completed and a review workshop was held in January. Preparations are underway for a value engineering workshop.

14. Crozet GAC Expansion – Phase I

Design Engineer:	SEH
Project Start:	July 2023
Project Status:	Preliminary Engineering
Construction Start:	April 2025
Completion:	October 2026
Budget:	$6,550,000

Current Status: The Preliminary Engineering Report will be completed in February.

15. Beaver Creek Dam, Pump Station and Piping Improvements

Design Engineer:	Schnabel Engineering (Dam)
Design Engineer:	Hazen & Sawyer (Pump Station)
Project Start:	February 2018
Project Status:	10% Design
Construction Start:	April 2026
Completion:	January 2029
Budget:	$47,000,000

Current Status: Design work is underway by Hazen for the new raw water pump station, intake, raw water main, and hypolimnetic oxygenation system, and by Schnabel Engineering for final design of the dam spillway upgrades, temporary detour, and spillway bridge. Site survey work for the pump station will be completed in March 2024.

16. SFRR to RMR Pipeline, Intake, and Facilities

Design Engineer:	Kimley Horn/SEH
Project Start:	July 2023
Project Status:	11% Design
Construction Start:	June 2025
Completion:	December 2030
Budget:	$80,000,000

Current Status: Boundary survey of the watermain alignment in VDOT right-of-way and the geotechnical investigation will be completed this month. Modifications to the Ragged Mtn Reservoir intake tower and perimeter clearing to allow for the 12-foot pool raise will be included in this overall project. A short section of the 36" raw water main is being constructed with the Victorian Heights housing development on Woodburn Road and will be completed in March 2024.

17. Upper Schenks Branch Interceptor, Phase II

Design Engineer:	CHA Consulting
Project Start:	July 2021
Project Status:	Design
Construction Start:	TBD
Completion:	TBD
Budget:	$4,725,000

Current Status: The design team has provided additional information to assist the County with easement acquisition considerations.

18. North Rivanna Water Treatment Plant Decommissioning

Design Engineer:	SEH
Project Start:	July 2019
Project Status:	5% Design
Construction Start:	September 2025
Completion:	March 2027
Budget:	$2,425,000

Current Status: Design is underway for decommissioning of the North Rivanna Water Treatment Plant. Staff are pursuing funding and administrative assistance for removal of the North Fork Rivanna low head dam from the U.S. Fish and Wildlife Service (USFWS) through their Partners for Fish and Wildlife Program. River survey work requested by USFWS is expected to be completed this month.

Planning and Studies

19. Asset Management Plan

Design Engineer:	GHD, Inc.
Project Start:	July 2018
Project Status:	AMP Implementation – 80% Complete
Completion:	AMP Implementation – 2024
Budget:	$1,180,000

Current Status: Work continues to fully implement the Asset Management program across all applicable Authority facilities with refinement of a linear asset Excel model and planning associated with performing condition assessments on critical RWSA assets.

20. MCAWRRF Biogas Upgrades

Design Engineer:	SEH
Project Start:	October 2021
Project Status:	Preliminary Engineering/Study (99%)
Completion:	December 2024
Budget:	$2,145,000

Current Status: This project now includes the Methane Sphere Rehabilitation, in addition to possible Cogeneration upgrades. RWSA and City staff continue to discuss all available options to reuse the biogas, with further investigation and analysis ongoing.

Other Significant Projects

21. Urgent and Emergency Repairs

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

Project No.	Project Description	Approx. Cost
2023-01	Finished Water System ARV Repairs	$150,000
2024-01	Rivanna Wastewater Pumping Station Flood	TBD
2024-02	North Rivanna Waterline Break Near Camelot	$15,000

- RWSA Finished Water ARV Repairs: RWSA Engineering staff recently met with Maintenance staff to identify a list of Air Release Valves (ARVs) that need to be repaired, replaced, or

abandoned. Several of these locations will require assistance from RWSA On-Call Maintenance Contractors, due to the complexity of the sites (proximity to roadways, depth, etc.). The initial round will include six (6) sites, all along the South Rivanna Waterline, and will be completed starting in March 2024.

- Rivanna WWPS Flood: As discussed in the January Board of Directors Meeting and in this month's board packet, the Rivanna Wastewater Pump Station experienced a significant flooding event on the evening of January 9th, 2024, that has rendered the facility inoperable. Work continues on the 53-MGD bypass pumping installation, with completion anticipated over the next several weeks. In addition, staff continues investigation into the root cause of the event on the dry well side of the facility and has also begun analyzing procurement needs for long-lead equipment items.
- North Rivanna Waterline Break Near Camelot Subdivision: At around 1:45 PM on January 25th, the North Rivanna Waterline experienced a catastrophic failure, between its crossing of the North Fork of the Rivanna River and Camelot Drive. RWSA crews mobilized quickly and were able to isolate the leak, which helped to restore overall system pressures. Repair efforts began around 5:30 PM once the Virginia Miss Utility Ticket cleared, and the watermain was placed back into service around 1:00 AM the following morning.

22. Security Enhancements

Design Engineer:	Hazen & Sawyer
Construction Contractor:	Security 101 (Richmond, VA)
Construction Start:	March 2020
Percent Complete:	10% (WA9), 0% (WA10)
Based Construction Contract + Change Orders to Date = Current Value:	$718,428 (WA1) + $834,742 (WA2-10)
Completion:	June 2024 (WA9), August 2024 (WA10)
Budget:	$2,810,000

Current Status: WA9 will include installation of card access on all exterior doors at the South Rivanna WTP. Work began during the week of January 29th. WA10 will include installation of card access on the exterior doors of the finished water pump station and 795 tank buildings in Scottsville, as part of the recent transfer in ownership of these facilities to RWSA. Materials are currently being procured for this work. Design of MCAWRRF entrance modifications with Hazen & Sawyer also continues, with discussions with Dominion Energy also ongoing, as relocation of existing electrical infrastructure will be required. This relocation process will need to be finalized prior to the project proceeding to the bidding phase. Relocation of existing electrical infrastructure will require coordination with the adjacent landowner, as the infrastructure must be completely relocated from the entrance area. As these discussions are ongoing, staff has submitted appropriate permitting documents with Albemarle County.

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

MEMORANDUM

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

FROM: **BETSY NEMETH, DIRECTOR OF ADMINISTATION AND COMMUNICATIONS**

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

SUBJECT: **ADMINISTRATION AND COMMUNICATIONS REPORT**

DATE: **FEBRUARY 27, 2024**

Human Resources

Annual turnover for the Rivanna Water and Sewer Authority, for the fiscal year beginning on July 1, 2023, is 9.0% through January, under our Strategic Plan goal of 10%.

Two of our long-time Water Department employees will be retiring at the end of February. Wayne Barnes, our Water Department Assistant Manager has been with us since 1979 and Konrad Zeller, one of our Class 1 Water Operators has been with us since 1999. We appreciate their many years of service to our community and wish them well with all of their future endeavors.

We are pleased to announce that two of our employees have been promoted. Joshua Bowen is our new Construction Inspection Supervisor and Bradley Puffenbarger is our new Water Department Assistant Manager.

Safety

Our Safety Manager continues to work with our team and contractors at the Rivanna Pump Station to ensure that all work is being done safely. We recently had the Albemarle County Fire and Rescue team spend time at the site to work through confined space entry into the pump station.

Community Outreach

The Rivanna Water & Sewer Authority will begin sponsoring tours of our facilities for the public. The first tour will be at the Moores Creek Advance Water Resource Recovery Facility in March. Up to 10 people will be able to sign up on our website for a guided tour with our Wastewater Department team.

We have added a new page to our website which updates the public on the progress at the Rivanna Pump Station.

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

MEMORANDUM

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

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

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

SUBJECT: **WHOLESALE METERING REPORT FOR JANUARY 2024**

DATE: **FEBRUARY 27, 2024**

The monthly and average daily Urban water system usages by the City and the ACSA for January 2024 were as follows:

		Month	***Daily Average***	
City Usage (gal)		124,904,593	4,029,180	**47.9%**
ACSA Usage (gal)		135,698,388	4,377,367	**52.1%**
Total (gal)		**260,602,981**	**8,406,548**	

The *RWSA Wholesale Metering Administrative and Implementation Policy* requires that water use be measured based upon the annual average daily water demand of the City and ACSA over the trailing twelve (12) consecutive month period. The *Water Cost Allocation Agreement (2012)* established a maximum water allocation for each party. If the annual average water usage of either party exceeds this value, a financial true-up would be required for the debt service charges related to the Ragged Mountain Dam and the SRR-RMR Pipeline projects. Below are graphs showing the calculated monthly water usage by each party, the trailing twelve-month average (extended back to February 2023), and that usage relative to the maximum allocation for each party (6.71 MGD for the City and 11.99 MGD for ACSA). Completed in 2019 for a cost of about $3.2 M, our Wholesale Metering Program consists of 25 remote meter locations around the City boundary and 3 finished water flow meters at treatment plants.

Figure 1: City of Charlottesville Monthly Water Usage and Allocation

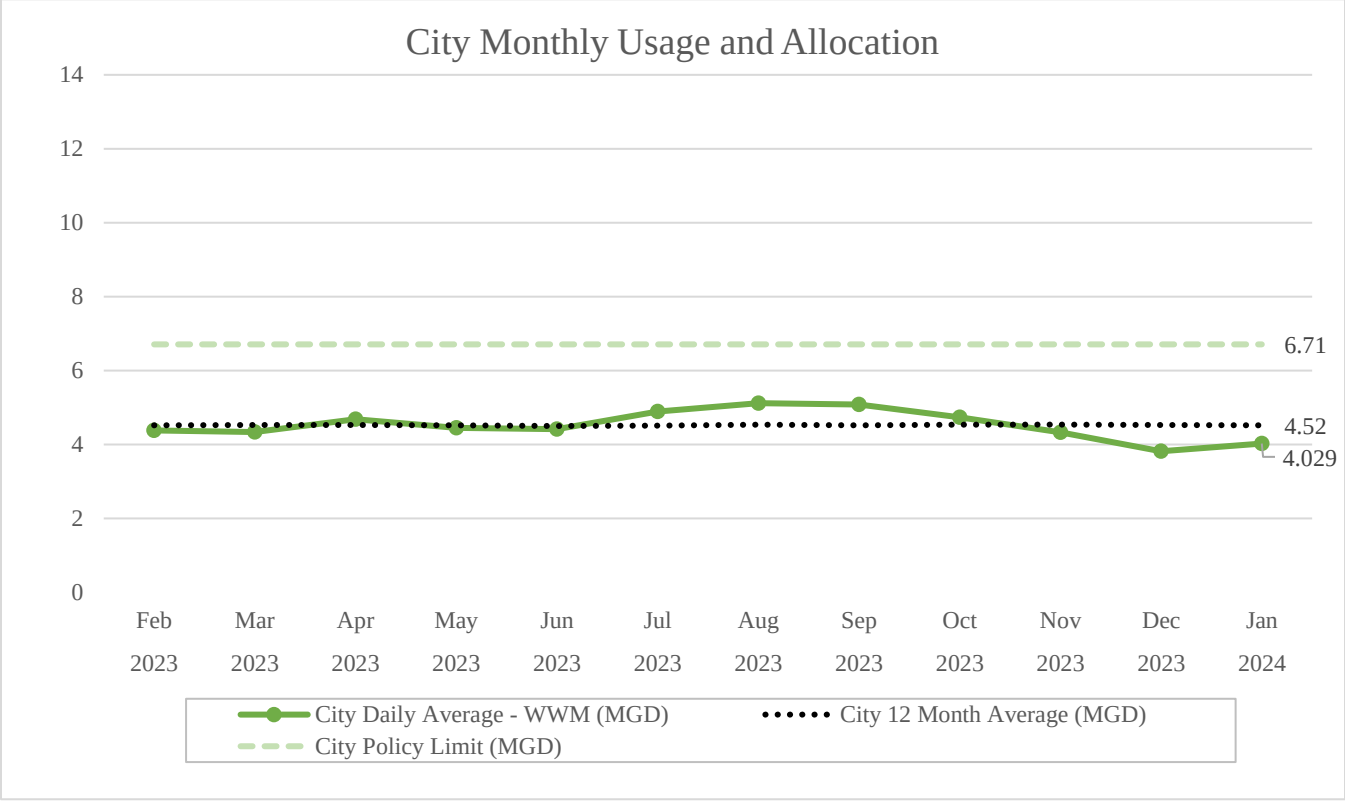
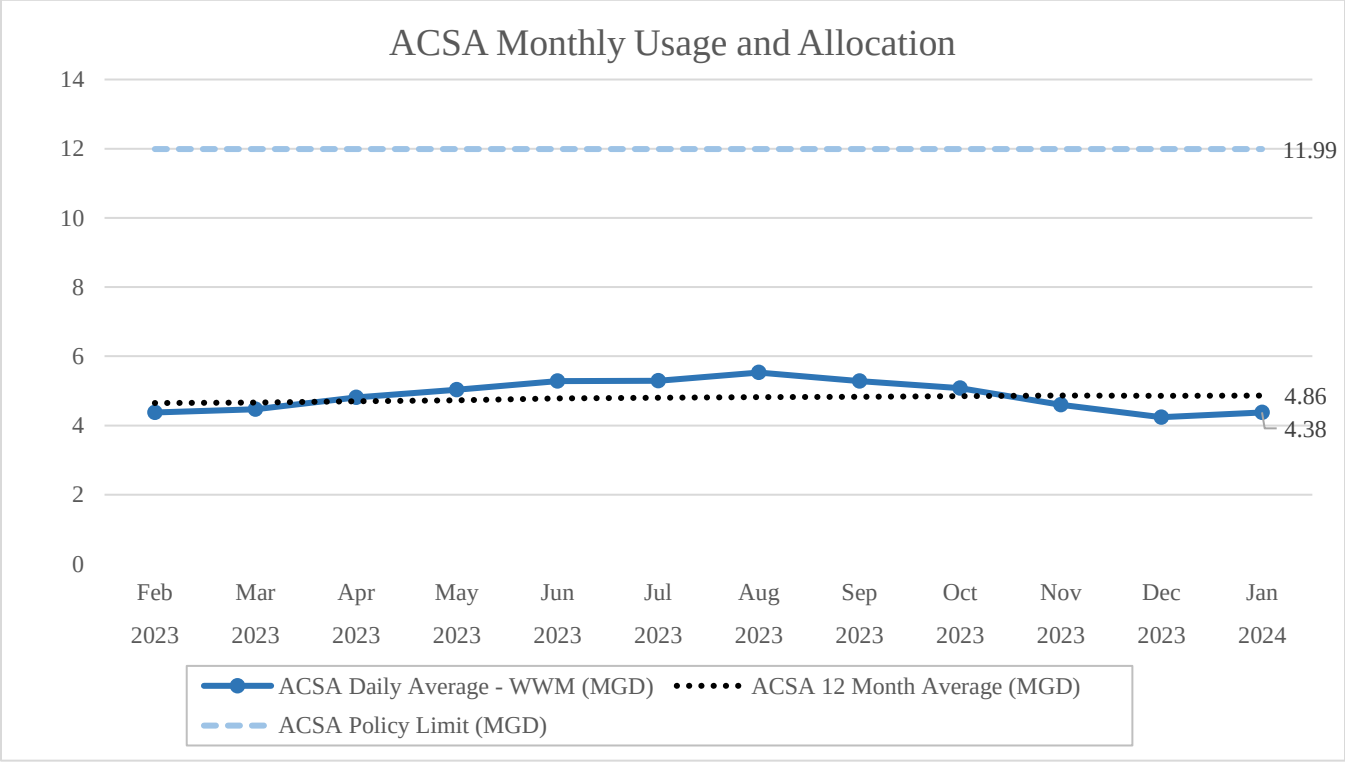


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation



Meter Locations for the Wholesale Water Metering Project

695 Moores Creek Lane | Charlottesville, Virginia 22902
434.977.2970
434.293.8858
www.rivanna.org

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

FROM: **ANDREA BOWLES, WATER RESOURCES MANAGER**
JENNIFER WHITAKER, DIRECTOR OF ENGINEERING & MAINTENANCE

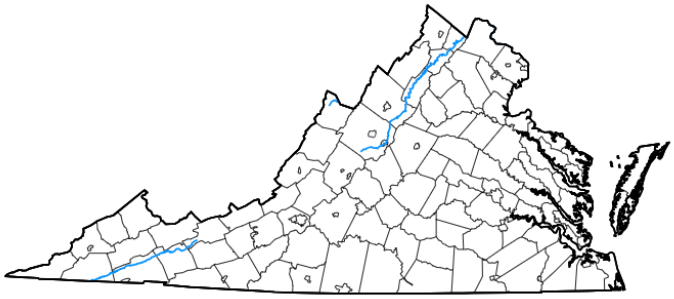
REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **DROUGHT MONITORING REPORT**

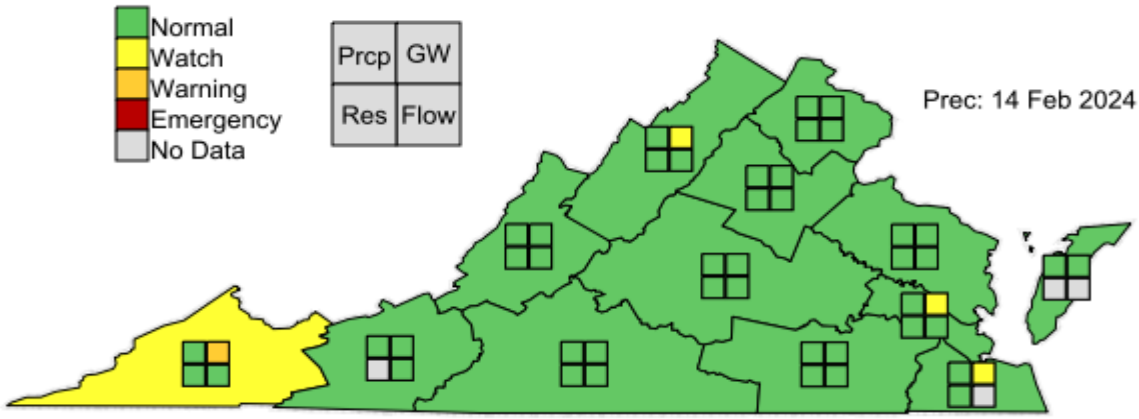
DATE: **FEBRUARY 27, 2024**

State and Federal Drought Monitoring, as of February 15, 2024:

- U.S. Drought Monitoring Report: Indicates there are no drought conditions in Albemarle County or Virginia.



- VDEQ Drought Status Report: Our region is listed as being in a "Normal" level for all indicators.



Precipitation & Stream Flows

Charlottesville Precipitation					
Year	Month	Observed (in.)	Normal (in.)	Departure (in.)	Comparison to Normal (%)
2021	Jan - Dec	33.82	41.61	-7.79	-19
2022	Jan - Dec	43.53	41.61	+1.92	+5
2023	Jan – Dec	26.95	41.61	-15.98	-35
2024	Jan	5.88	3.04	+2.84	+52

Source: National Weather Service, National Climatic Data Center, Climate Summary for Charlottesville, Charlottesville Albemarle Airport station

USGS Stream Gaging Station Near the Urban Area (February 8-February 14)				
Gage Name	Rolling 7-day Avg. Stream Flow		Median Daily Streamflow	
	cfs	mgd	cfs	mgd
Mechums River	110.7	71.6	100	64.6
Moormans River	102.5	66.3	81	52.4
NF Rivanna River	118.9	76.8	122	78.9
SF Rivanna River	265.1	171.4	253	163.5

Median daily flow: February 14 for the period of record (approx. 30 - 80 years)

Status of Reservoirs (as of February 15, 2024)

- Urban Reservoirs are 100% of Total Useable Capacity
- Beaver Creek Reservoir (Crozet) is 100% of Total Useable Capacity
- Totier Creek Reservoir (Scottsville) is 100% of Total Useable Capacity

Drought History in Central Virginia

- Severe: 1930, 1966, 1982, 2002
- Longest: May 2007 - April 2009 = 103 weeks
- Significant: every 10 -15 years
- Drought of Record: 2001- 2002; 18 months

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

MEMORANDUM

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

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

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **APPROVAL OF ENGINEERING SERVICES - MOORES CREEK BUILDING UPFITS AND GRAVITY THICKENER IMPROVEMENTS PROJECT– SHORT ELLIOT HENDRICKSON INC.**

DATE: **FEBRUARY 27, 2024**

This request is to authorize the Executive Director to execute a Work Authorization with Short Elliot Hendrickson Inc. (SEH) totaling $824,073 to provide full design and construction administration services to complete the MCAWWRF Building Upfits and Gravity Thickener Improvements project.

Background

The RWSA owns and operates the Moores Creek Advanced Water Resource Recovery Facility (MCAWRRF) and is proposing renovations and upgrades to the Operations and Maintenance buildings and improvements to select treatment processes. For the first part of the project, the scope is to renovate and upgrade two existing Operations Buildings (Blower Building and Sludge Pumping Building) and the existing Maintenance Shop and Vehicle Maintenance Buildings. These four buildings are located at the west end of the south side of Moores Creek, west of the existing Administration Building. The existing buildings are single story structures, with existing mezzanine space located in the Maintenance Shop Building. The renovations and upgrades to the Operations and Maintenance buildings will improve furnishings and address current and future space needs.

The second part of the project involves treatment process improvements located near the building renovations and includes:

· Electronic Actuators for six secondary clarifier slide gates
· Gravity thickener chemical feed system
· Gravity thickener polymer delivery
· Thickened sludge system

Under this contract, SEH would provide Professional Engineering Services for this project to include detailed design, permitting, bidding, construction administration and part-time field

inspection services. A preliminary engineering effort has been completed that included a programming review of space needs and personnel locations, schematic conceptual design to confirm floor plan options and site layout, initial finishes, and construction cost estimate.

Engineering staff have negotiated an initial scope of work to include:

- Site survey and geotechnical investigation
- Detailed design and regulatory permitting
- Site plan development and assistance through Albemarle County approval process
- Development of construction documents and bidding assistance
- Construction administration services

Board Action Requested:

Authorize the Executive Director to execute a Work Authorization totaling $824,073 with Short Elliot Hendrickson Inc. for professional engineering services to complete the MCAWWRF Building Upfits and Gravity Thickener Improvements project, and any amendments needed to complete the tasks identified above, not to exceed 25% of the original contract amount, provided the resulting total cost is within the approved CIP project budget.

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

MEMORANDUM

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

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

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

SUBJECT: **APPROVAL OF TERM CONTRACT FOR PROFESSIONAL WASTEWATER TREATMENT PLANT ENGINEERING SERVICES**

DATE: **FEBRUARY 27, 2024**

This request is to authorize award of Term Engineering Services Agreements with Hazen and Sawyer (Hazen), Short Elliot Hendrickson (SEH), Wiley Wilson, and Whitman Requardt & Associates (WR&A) to provide Professional Wastewater Treatment Plant Engineering Services and future work authorizations less than $200,000 under the conditions of the Term Agreement. Fees for each work authorization will be negotiated based on the services required and hourly rates from the consultant which have been approved by staff. The term of the contract will be for one year, with the option for three one-year renewals.

Background

RWSA has maintained a wastewater treatment plant engineering services contract for the last ten years. Over the course of those contracts, access to different consulting firms with varying skills, capabilities and resources has been invaluable as treatment plant needs continue to change and advance. As the current contracts are expiring, RWSA needed to procure these services again to handle services related to various studies, evaluations, operation and maintenance projects, capital improvement projects, and other upgrades or improvements to any of the wastewater treatment plants for on-going and future projects.

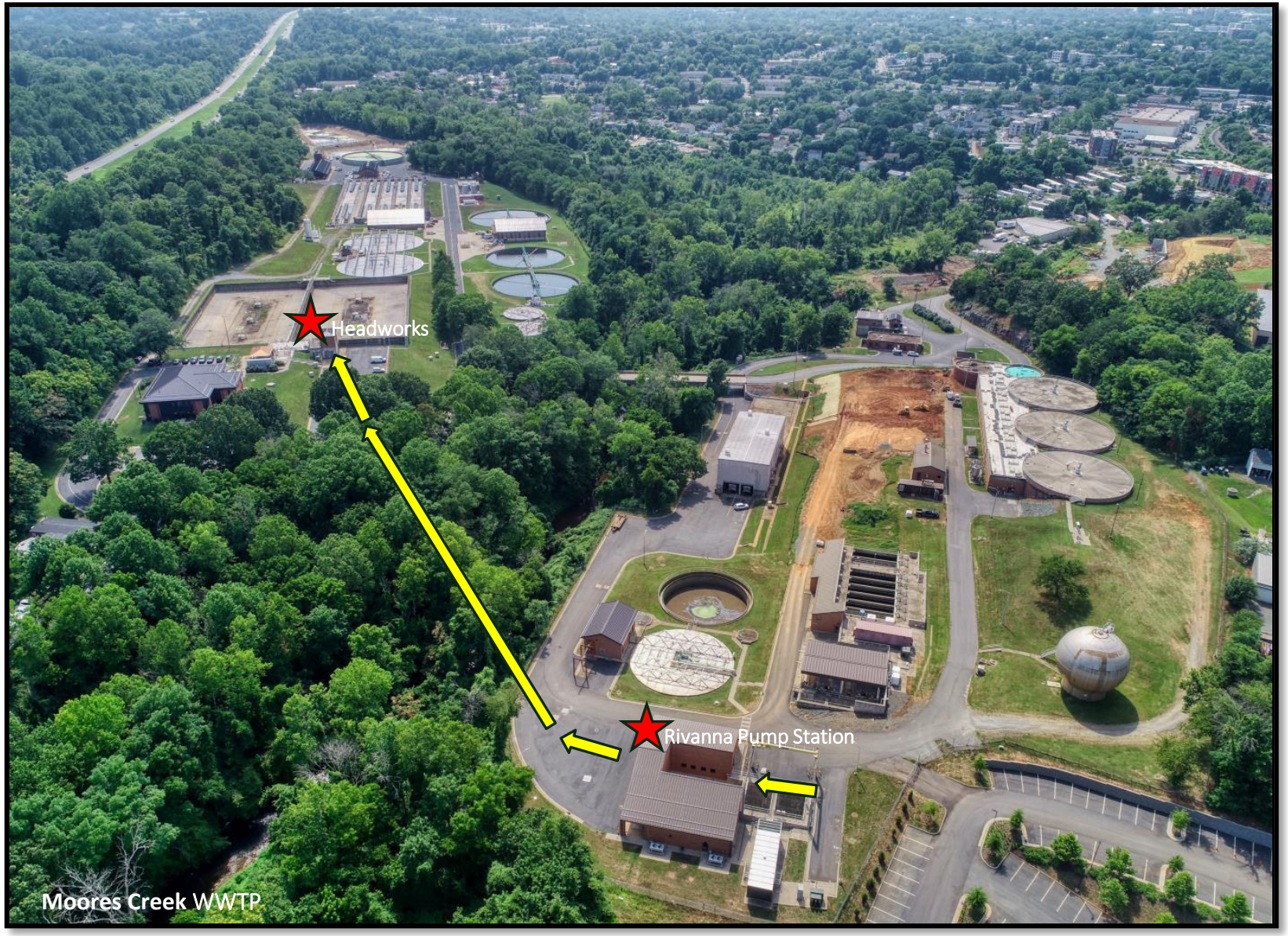
A Request for Proposals (RFP 23-04) for a new term contract was developed and advertised on December 7, 2023. Seven proposals were received on January 4, 2024. Based on the qualifications of the firms, the RFP selection committee short-listed and scheduled interviews with five firms. Interviews were conducted on January 31 and February 1, 2024, and the committee determined that four firms were best qualified to provide these services. All four firms have offices in Virginia and have extensive experience working under similar municipal term contracts, with Hazen, SEH, and Wiley Wilson all having provided these services for RWSA under the previous contract.

Board Action Requested:
Authorize the Executive Director to execute Professional Engineering Services Term Agreements with Hazen and Sawyer, Short Elliot Hendrickson, Wiley Wilson, and Whitman, Requardt & Associates for Professional Wastewater Treatment Plant Engineering Services.

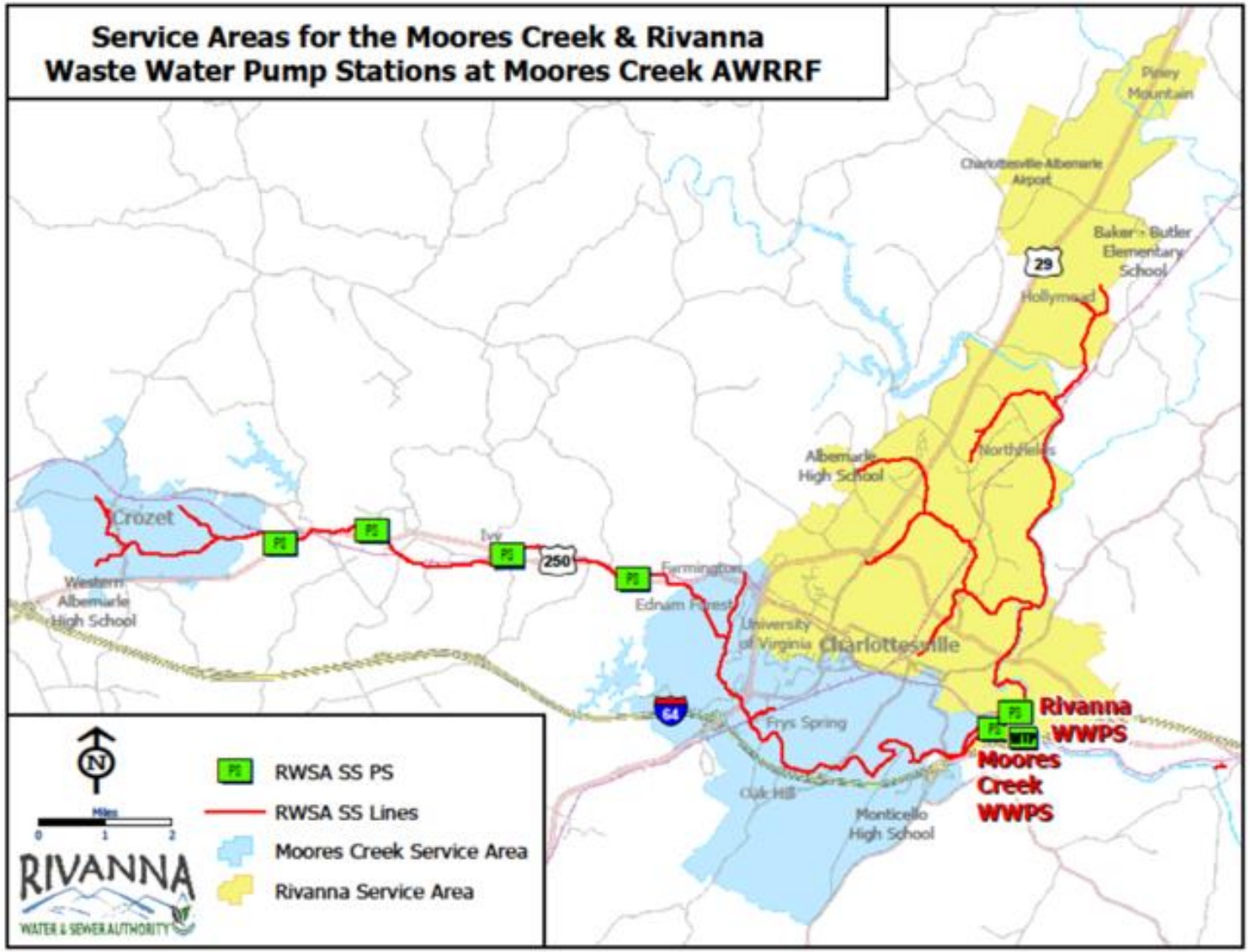
Rivanna Wastewater Pumping Station Update

Jan 9 - Feb 21, 2024

RIVANNA
WATER & SEWER AUTHORITY



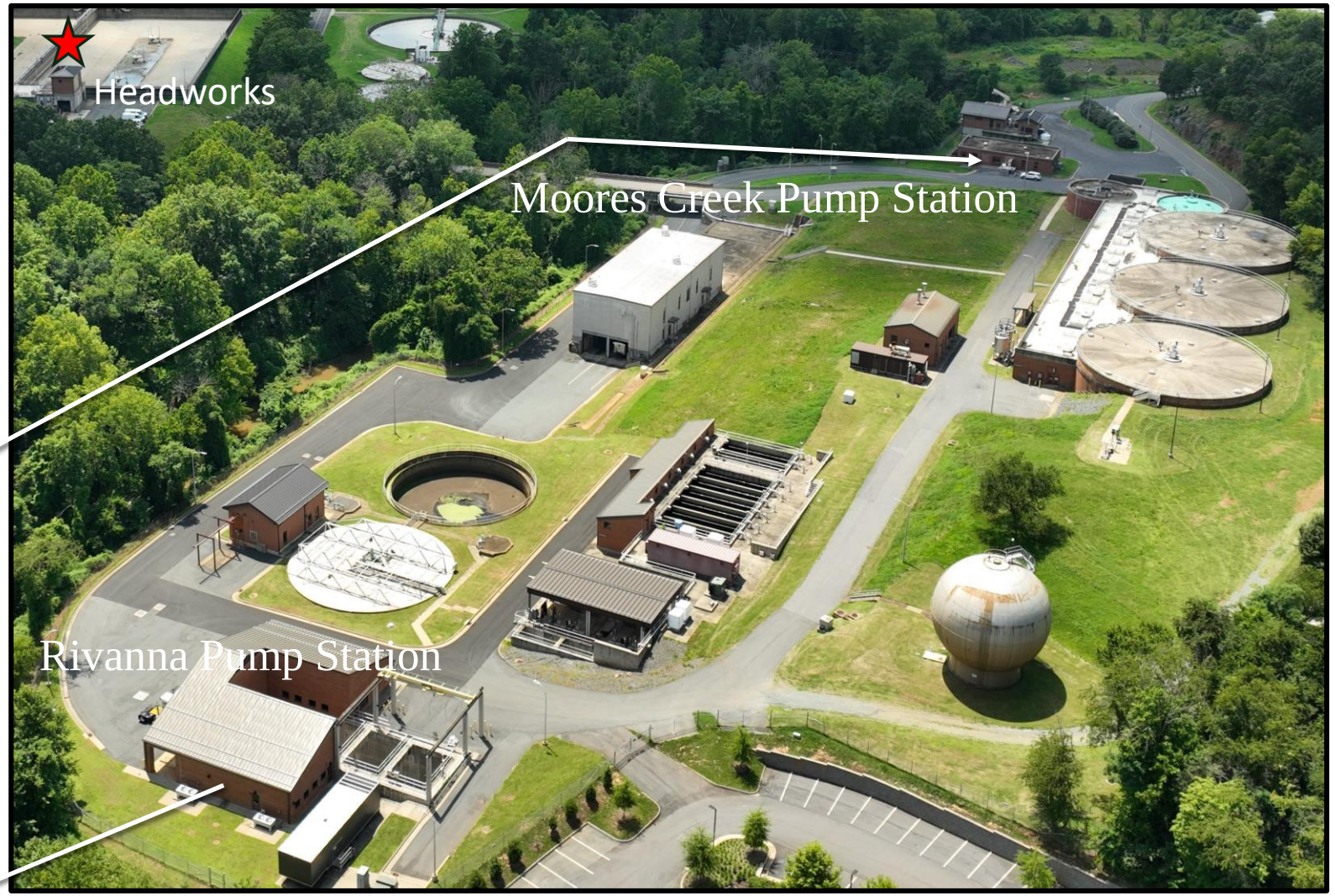
Presented to the Board of Directors
By Bill Mawyer, Executive Director
February 27, 2024



Service Area of the Rivanna Wastewater Pump Station

- Largest pump station
- Serves about 60% of the Urban wastewater system

Sewer Pump Stations at Moores Creek



Rivanna Wastewater Pump Station:

- Constructed 2017
- 53 million gallons per day pumping capacity
- Lifts wastewater about 110 feet to the headworks for treatment


Dry Pumping Room
Wet Well
Dry Pumping Room

Flow Control Gates and Channel Covers in the Wet Well ~2017

7 – 17 feet of wastewater below the covers

Dry Pump Room
Under Construction
~2016

Two Pump Rooms each with 3 Pumps

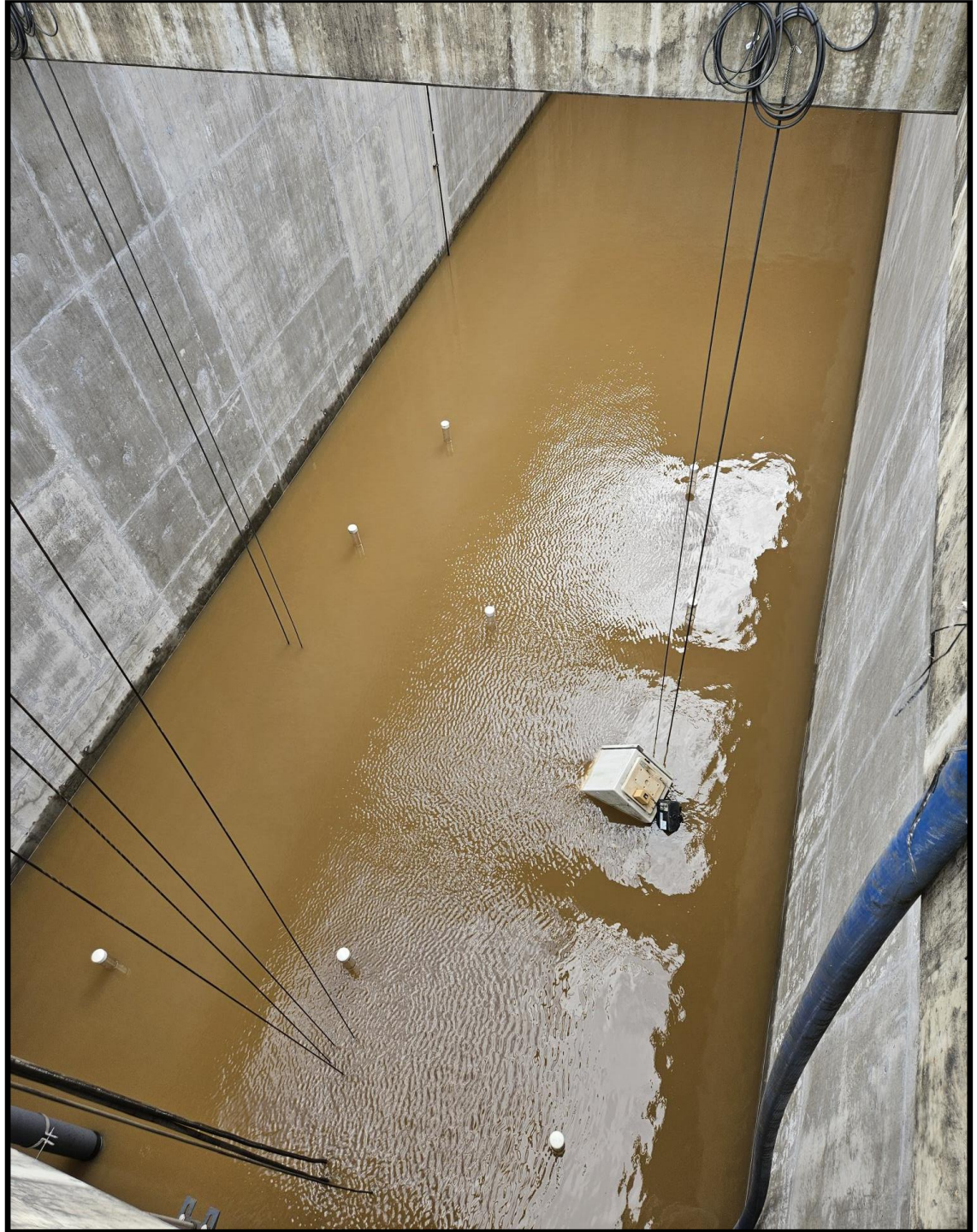
- Four 13 mgd pumps
- Two 7 mgd pumps

~2017

Submerged Pump Room on Jan 10, 2024

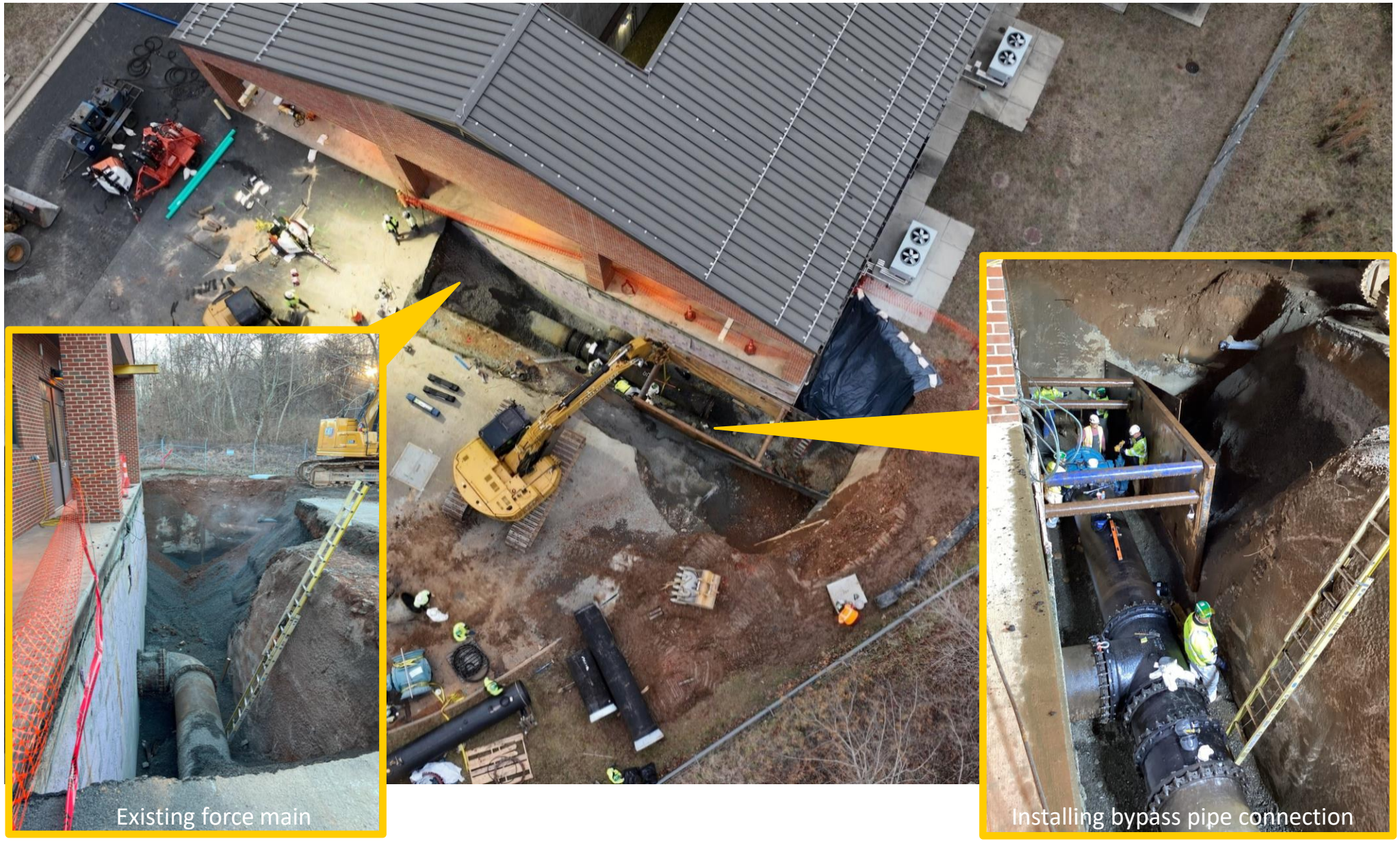
Wet Well Submerged to Top of Gates

Jan 10 , 2024



Excavating to Construct Bypass Piping Connection

Jan 11-13, 2024



Existing force main

Installing bypass pipe connection

10 MGD bypass piping assembly in wet well

- boat required

Jan 11, 2024

10 MGD Bypass Piping Connection

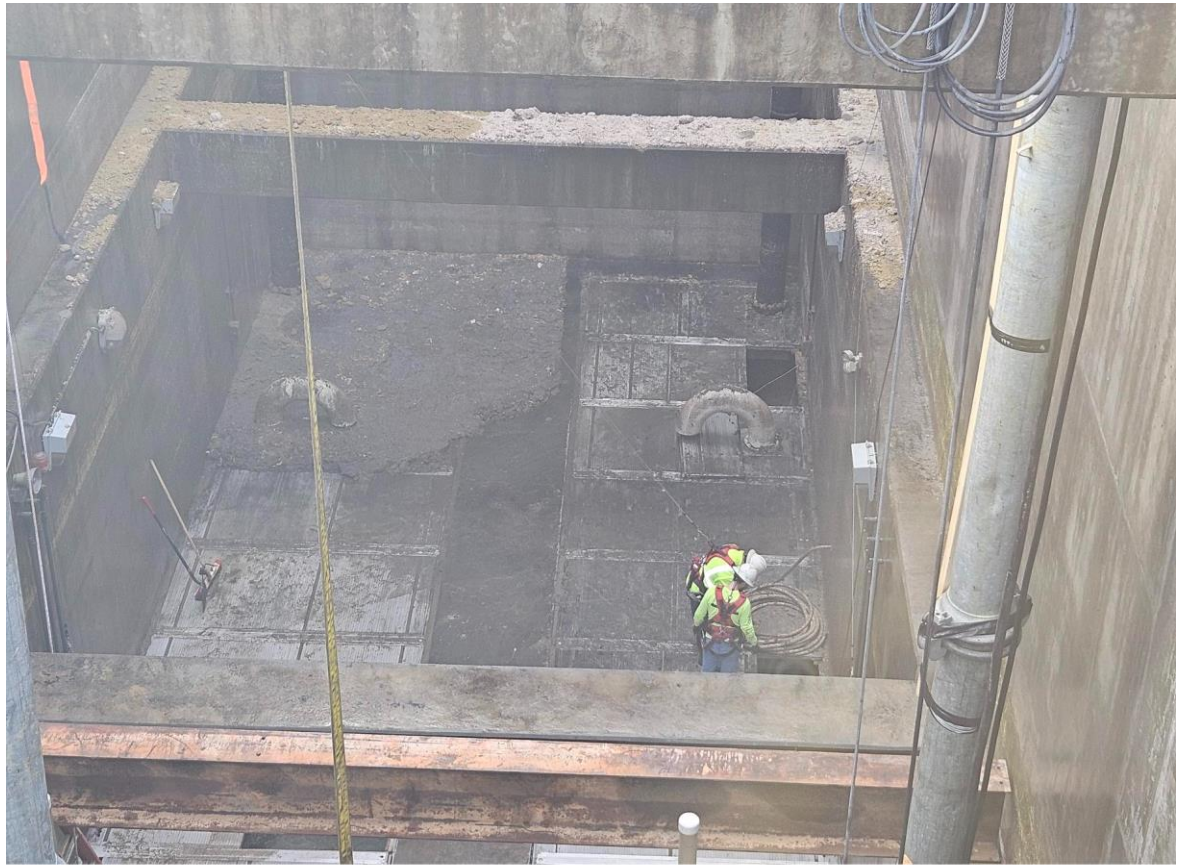
Jan 13, 2024

Temporary Bypass Piping

Jan 18, 2024

Wet well covers off

Jan 19, 2024

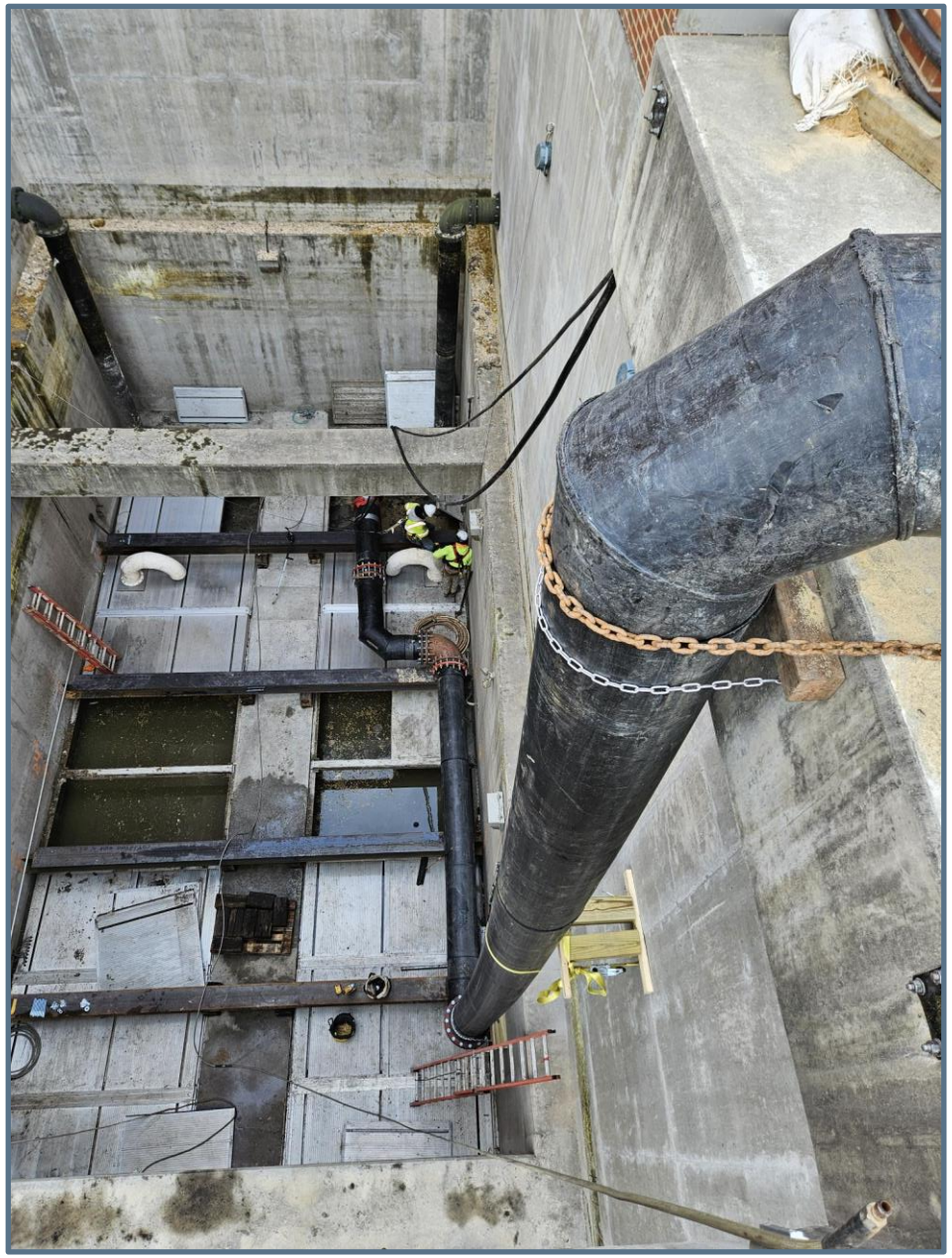


Hot Water Steam Cleaning of Wet Well and Fall Protection Installation

Installation of 4 Mid-Level Support Steel Beams

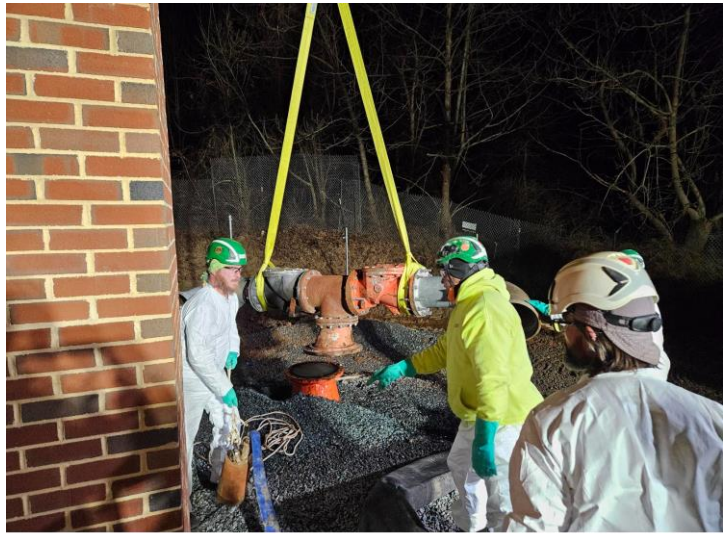
13 MGD Temporary Pump

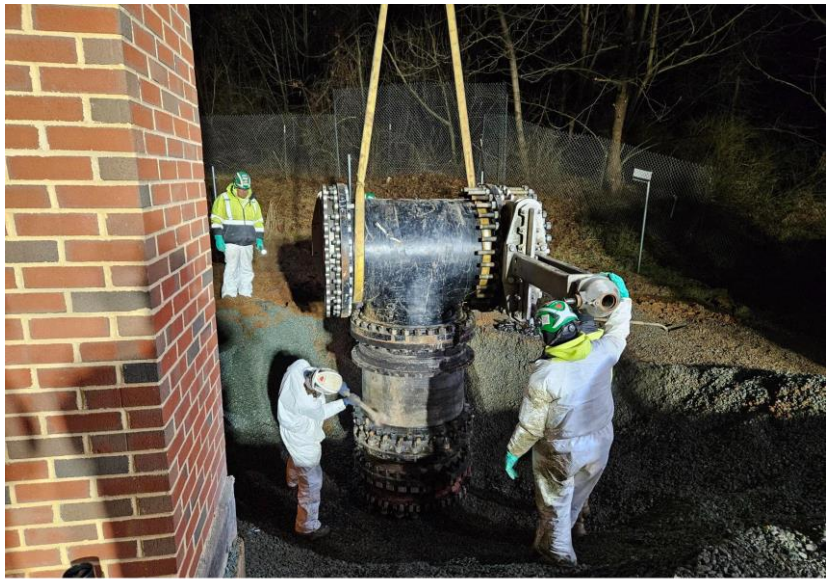
Feb 8, 2024



Date: 1/30/24

Installation of 7 pumps and piping for the 53 MGD bypass in deep section (17 feet) of wet well





Date: 1/31/24

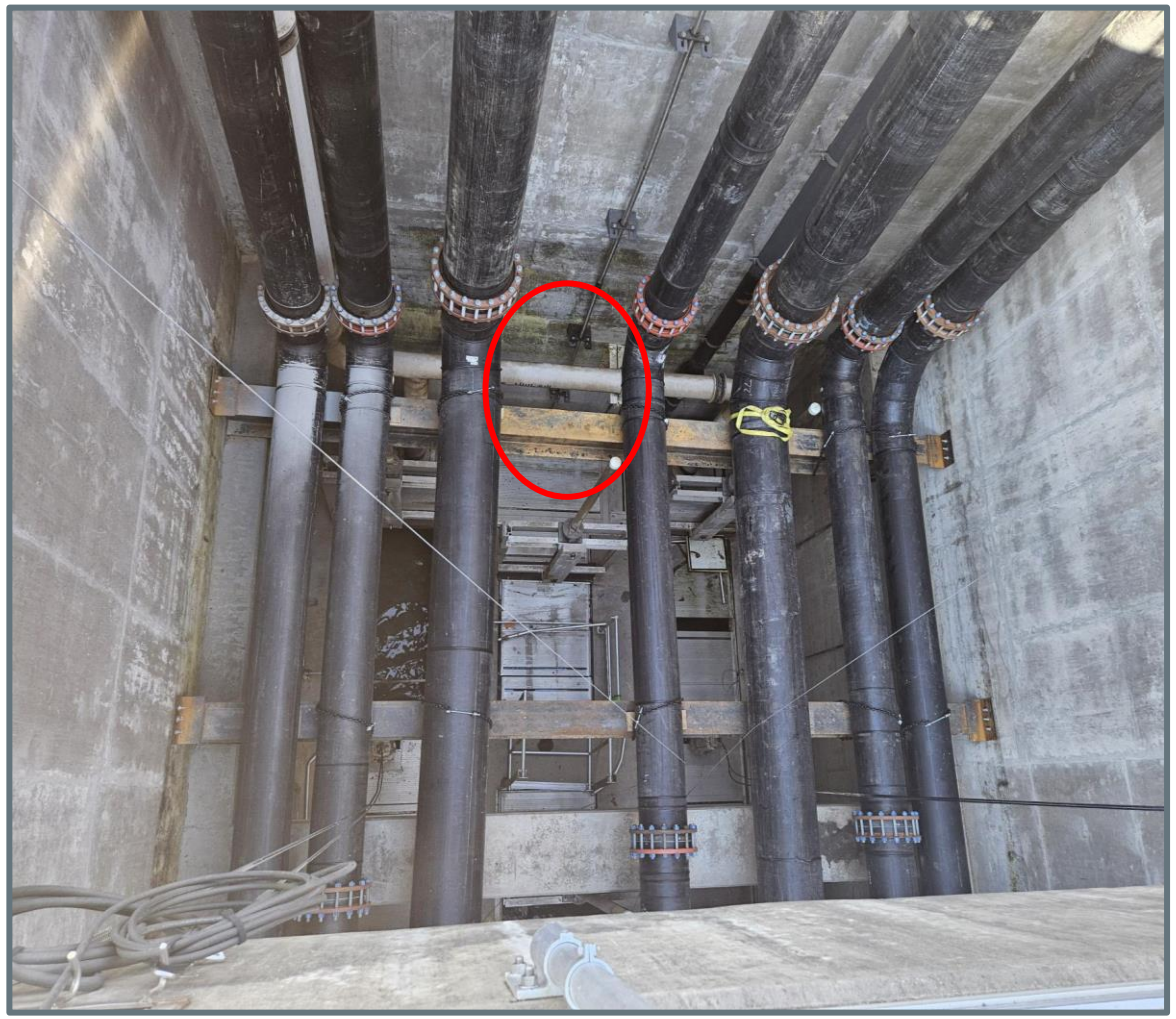
Overnight Installation of the 53 MGD Emergency Pumping Connection

Date: 1/31/24

Overnight Installation of the 53 MGD Emergency Pumping Connection

53 MGD Bypass Pumps and Piping in the Wet Well

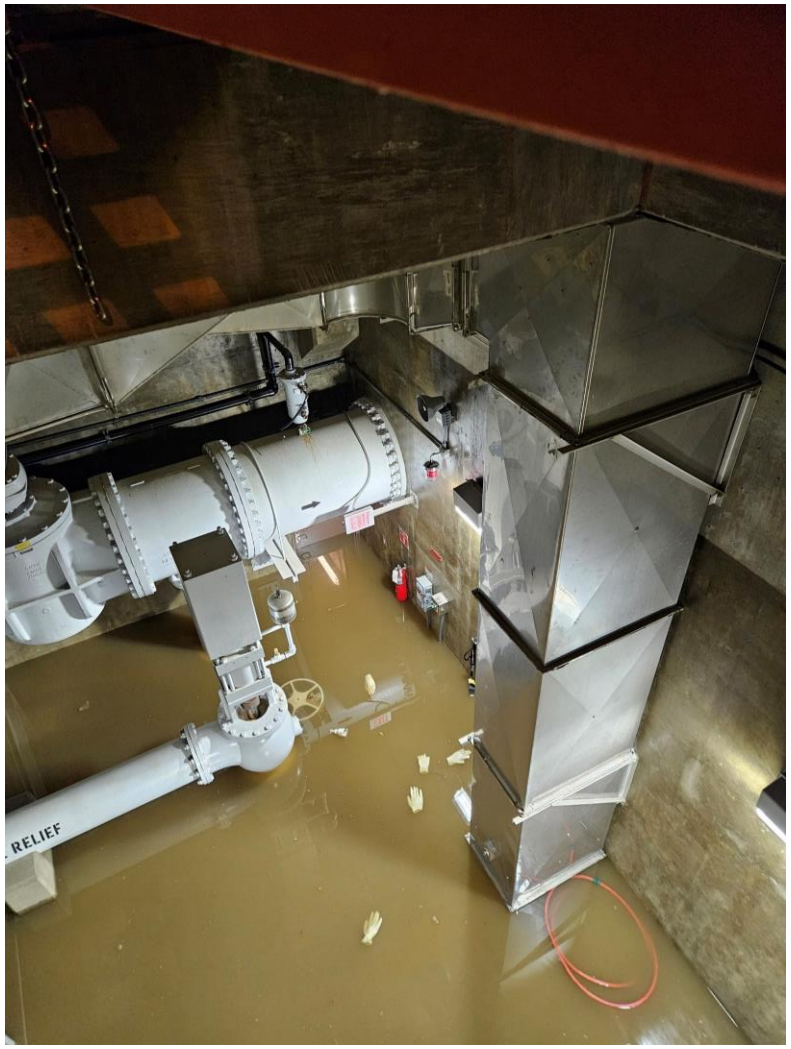
Feb 14, 2024



Influent Flow Control Gate

Damaged Wet Well Access Door

Jan 11, 2024



HVAC Wall Penetrations

Jan 9, 2024


53 MGD
Bypass System
Feb 16, 2024

Preparing to Inspect the Pump Rooms

Feb 8-14, 2024

Pump Room after water was removed

Feb 21, 2024

Plan Forward

Phase 1 – Completed 10 MGD Bypass System Jan 26

Phase 2 – Completed 53 MGD Bypass System Feb 14

Phase 3 – Dewater, Test and Inspect Equipment Feb – March

- Contractor accessed Pump Rooms and began testing pipes, valves and pumps. No defects were apparent. Feb 8 - 14

Phase 4 – Sanitize Spaces and Restore Pumping System April – Dec

- Cleaning contractor on site - Feb 20 -29

Estimated Cost of Restoration

1. Temporary Pumping and Piping System thru Dec 2024	$ 6 M
2. Construction to Restore the Pump Station	$15 M
3. Engineering Support Services	$1.5 M
	$20 - 25 M

Summary

- 7 temporary pumps and pipes installed by Feb 14 to provide 53 MGD capacity
- Contractor inspecting and testing existing equipment that was submerged
- Hazen Engineers investigating, planning and estimating replacement requirements
- SEH Engineers completing an independent review
- Cleaning company (Belfor) to sanitize pump rooms Feb 20 – 29
- Coordinating with insurance company (VRSA) and its engineer (Lynnhaven Engineering, Va Beach)
- No wastewater discharge or overflow since Jan 18
- Restoration cost may be $20 – 25 M

Questions ?

Organizational Agreements of the RWSA


Moores Creek WWTP

PRESENTED TO THE BOARD OF DIRECTORS

BY BILL MAWYER, EXECUTIVE DIRECTOR

FEBRUARY 27, 2024

RIVANNA WATER & SEWER AUTHORITY

Foundation Documents

1. Articles of Incorporation, 1972:

- The State Water Control Board notified the City and County about the availability of $13 M in Federal and State grants conditioned that the City and County must designate a single political entity to represent both localities.
- By Concurrent Resolution of City Council and the Albemarle Board of Supervisors, the Rivanna Water Sewer Authority was created pursuant to the Virginia Water and Sewer Authorities Act on June 7, 1972 for the purpose of acquiring, financing, constructing and maintaining facilities for a potable water supply and for abatement of pollution resulting from sewage from the City and the County.
- 5 Board Members: 2 from City, 2 from County and 1 jointly appointed.
- Prohibited RWSA from contracting with any other party in the City or County for water or sewer services.
- The City and County approved a Concurrent Resolution to reauthorize the RWSA for another 50 years in 2022.

2. Service Agreement, 1973 (aka "Four Party Agreement") City, County, ACSA and RWSA, included:

- Acquisition of existing water and wastewater facilities from the City and ACSA by RWSA.
- Design, construct and issue bonds for new facilities.
- RWSA to be sole producer of potable water and treatment of wastewater.
- Rates and Charges
  - RWSA water rates shall be uniform for the Urban area.
  - Wastewater rates shall not be uniform. Wastewater operation and maintenance costs shall be uniform, but the City Utilities will pay one-half the debt service costs as the ACSA.
- Term: June 30, 2012, or until bonds have been paid, with 2 years written notice of termination.

3. By-Laws of RWSA, 1973

Revisions to the Articles of Incorporation


SR WTP


MC WWTP

4. Amended and Restated Articles of Incorporation, 1985:

- Limited RWSA to serve only the City and ACSA for the treatment and transmission of potable water and the treatment and disposal of sewage.

5. Second Restated Articles of Incorporation, 1986:

- Placed the Executive Director of the ACSA, or such Albemarle County Department Head as the Board of Supervisors may appoint, on the Board of the RWSA in lieu of the County Engineer of Albemarle County.

6. Third Restated Articles of Incorporation, 2009:

- Increased the number of members of the RWSA Board from 5 to 7 through the addition of 1 member of City Council and 1 member of the Albemarle Board of Supervisors.

7. Forth Restated Articles of Incorporation, 2017:

- Placed the City Director of Utilities, or such Department Head as City Council may appoint, on the Board of the RWSA in lieu of the City Director of Public Works.

Revisions to the By – Laws


Mike Gaffney
Chair


Sam Sanders
Vice-Chair


Jeff Richardson
Secretary-Treasurer


Lauren Hildebrand


Gary O'Connell


Brian Pinkston


Ann Mallek

RWSA Board of Directors

8. **By- Laws, 1973;** Amendments:

- 1975: Established the Officers of the Board of Directors, an Executive Director position, schedule of meetings (3rd Monday at 403 Eighth St), agenda order of business for public Board meetings, all members must be present to amend the By-Laws.
- 1983: Allowed a designated Alternate to attend meetings, but not vote.
- 1986: Changed meetings from third Monday to fourth Monday.
- 2010: Included a requirement to have a Board of Directors; changed meetings from 4th Monday to 4th Tuesday.
- 2014: Allowed Board members to participate remotely in Board meetings through electronic communications, a quorum (4) must be physically present at the meeting.
- 2016: Authorized the Executive Director to sign contracts ≤ $100k.
- 2020 : Authorized Executive Director to sign contracts ≤ $200k.
- 2022: Adopted a "Remote Participation Policy" which also allows virtual Board meetings and remote participation by Board members.

Major Facilities


SR Reservoir


Buck Mtn

9. Working Agreement on Urban Area Wholesale Flow Allocation and Billing Methodology, 1983:

- Water and Wastewater treatment charges determined by applying RWSA rates to the total amount of water produced, with the total cost proportionally allocated to City Utilities and ACSA based on their usage as obtained from their customer meter readings.

10. Joint Resolution, 1983:

- Purchased Buck Mtn property (1314 acres) for a drinking water supply reservoir; created Buck Mtn Surcharge on new public water connections in the City and County.

11. Southern Loop Agreement, 1987:

- Plan and cost allocation for water lines and storage tanks from OBWTP to Avon St (Western Branch; completed), and from Avon St to E. High St. (Eastern Branch; replanned in 2022 to a southern/Cherry Ave corridor closer to the center of the City; “Central Water Line”).

12. Moore’s Creek Relief Sewer Project, 1990:

- New sewer line to parallel the existing Moore’s Creek Interceptor Line from Quarry Road to the MCAWRRF.

13. Urban Water Line, 1993:

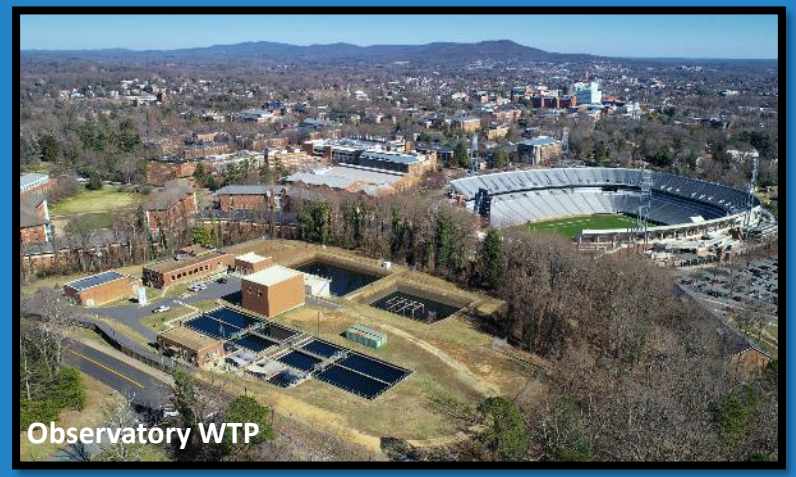
- Funding formula for a water line along Berkmar Drive (52% City Utilities/48% ACSA).

14. South Rivanna WTP Expansion Agreement, 2003:

- Allocated capacity and cost of 4 mgd expansion of SRWTP: 100% ACSA
- Allocated non-capacity CIP costs for Urban Water System: 48% City Utilities / 52% ACSA.
- Allocated Urban plants capacity and South Fork Rivanna Reservoir safe yield.

Major Facilities


Ragged Mtn Reservoir


Observatory WTP

15. Ragged Mtn Dam Project Agreement, 2012:

- RWSA to design and build new Ragged Mtn Dam and pipeline from SRR to RMR.
- Water Supply and Demand studies every decade beginning 2020.
- Wholesale Meter system to be constructed, maintained and reported monthly.
- RMR leased from City for 40 years (2052).

16. Water Cost Allocation Agreement, 2012:

- Allocated cost of RMR dam (85% ACSA/15% City) and pipeline (80% ACSA/20% City Utilities).
- Allocated Urban Water System supply (safe yield), to be monitored by Wholesale Meter System.

17. Wastewater Projects Cost Agreement, 2014:

- Allocated cost of new Rivanna Pump Station and future capacity and non-capacity wastewater CIP projects, based on actual wastewater flows updated every 5 years.

18. Amendment to the "4 Party Agreement", 2015:

- Debt service charges to be computed as a monthly charge, rather than included in the Water and Wastewater Rates.

19. Joint Resolution, 2019:

- Ended the Buck Mtn surcharge.

20. Observatory WTP, Raw Water Pumping and Piping Upgrade Cost Allocation Agreement, 2020:

- Allocated costs for additional capacity in these facilities.
- Commitment to construct the Central Water Line centrally thru the City.

21. Observatory WTP Ground Lease; 2020:

- 49-year lease with UVA. $175k / year with annual CPI-U increase updated every 10 years.

22. Northern Area Drinking Water Projects Agreement; 2022:

- Allocated costs to the ACSA for new drinking water facilities to be constructed north of the South Fork Rivanna River.

23. First Amendment to the Ragged Mountain Dam Project Agreement; 2023

- Authorized RWSA to increase the community's water supply by adding 700 MG to Ragged Mtn Reservoir

Summary

- Foundation documents of the RWSA include the Articles of Incorporation, 4 Party Agreement, and By-Laws.
- Since RWSA was created 51 years ago, a large number of Agreements have been established to allocate water supply and costs.
- Staff must accurately administer these Agreements to properly manage our resources, budgets, and charges to City Utilities and ACSA.

Questions?

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

MEMORANDUM

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

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

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **INTRODUCTION OF THE FY 2025-2029 CAPITAL IMPROVEMENT PLAN**

DATE: **FEBRUARY 27, 2024**

We are pleased to present the proposed FY 2025 – 2029 Capital Improvement Plan (CIP) totaling $371 M for your consideration. We continue to strategically balance the needs of the community with inflationary pressures, while meeting or exceeding regulations. This CIP will serve to fund completion of the community's Water Supply Plan by 2030, an overhaul of Crozet Raw Water infrastructure, as well as critical finished water transmission projects. Combined, these projects provide the reliability and resiliency needed to address the growing impacts of climate change. Additionally, we continue to expand our abilities to address emerging contaminants and greenhouse gas emissions. Lastly, we have endeavored to strategically renew critical assets throughout our systems to ensure we meet the quantity, quality, and reliability expectations of the public drinking water and wastewater customers in our community.

During this five-year period, the CIP will strengthen our drinking water systems with expenditures of $223.4 M for essential projects including:

- ***Community Water Supply Plan Components*** - the South Fork Rivanna Reservoir to Ragged Mtn Reservoir Water Pipe and Pumping Project; the Ragged Mountain to Observatory Water Pipe and Pumping Project; Raising the Normal Pool at Ragged Mountain Reservoir and adding aeration and Oxygenation Systems to the reservoirs.
- ***Critical Finished Water Transmission projects*** – Completion of the Airport Road Pump Station; the Central Water Line; Additional Crossings of the South and North Fork Rivanna River, Crozet and Scottsville AC Pipe Replacement, Emmett St., and Berkmar Drive Ext Waterline Betterments, and Decommissioning of the North Rivanna WTP.
- ***Enhancements of our Abilities to Address Emerging Contaminants*** - Additional Granular Activated Carbon Water Filtering Facilities at the Crozet and Red Hill Water Treatment Plants
- ***Crozet Water Supply Projects*** - Modifications to the Beaver Creek Reservoir Dam, Construction of a New Pump Station, and Raw Water Piping

We will also complete significant improvements to our wastewater treatment and collection facilities to ensure regulatory compliance and environmental protection. The proposed CIP includes $58.2M for essential wastewater projects including:

- ***Renovations and Repairs to Wastewater Facilities*** - Moores Creek, Scottsville, Glenmore, Crozet Pump Stations, and the Albemarle Berkley Pump Station
- ***Repairs and Replacement of Wastewater Piping and Manholes*** - Crozet, Albemarle-Berkley, Powell Creek, Moores Creek, Upper Rivanna Interceptors; Upper Schenks Branch Phase 2
- ***Power System Upgrades*** – Scottsville WRRF Whole Plant Generator and Moores Creek AWRRF 5kV Electrical System

Board Action Requested:
The FY 25-29 CIP totaling $371 M is provided for review by the Board of Directors. Adoption of the CIP will be requested during the Board's regular meeting on May 28, 2024.

Capital Improvement Plan

Fiscal Years 2025-2029

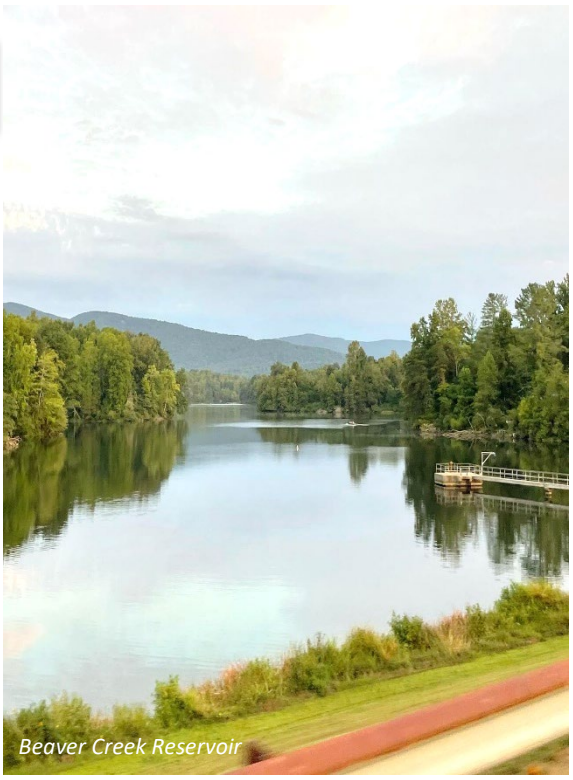
Draft February 2024


Moores Creek Administration Building


Moores Creek AWRRF

OUR MISSION

Our knowledgeable and professional team serves the Charlottesville, Albemarle, and UVA community by providing high-quality water and wastewater treatment, refuse, and recycling services in a financially responsible and sustainable manner.


Beaver Creek Reservoir


Airport Road Pump Station


Ragged Mountain Reservoir

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

RIVANNA WATER & SEWER AUTHORITY

Introduction

The Capital Improvement Plan (CIP) for Fiscal Years 2025-2029 has been prepared as a strategic and financially responsible plan for the Rivanna Water and Sewer Authority (RWSA) to complete major infrastructure construction projects. The projects included in the CIP are necessary to achieve the RWSA's core mission of providing safe, high-quality drinking water and environmentally responsible wastewater treatment services for the City of Charlottesville and the Albemarle County Service Authority (ACSA). The CIP is a 5-year planning document which provides an estimated budget and schedule for projects as they advance through the design and construction process.

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

During the past year, several capital projects were completed or are nearing the end of multi-year construction and as such are being removed from the 2025-2029 CIP. These projects account for approximately $43.9 million or 13.5% of the FY 2024-2028 CIP. These projects include:

- 1 South Rivanna Reservoir to Ragged Mountain Reservoir Right-of-Way
- 7 Observatory Water Treatment Plant Improvements
- 18 South Rivanna Hydro Decommissioning
- 19 South Rivanna Water Treatment Plant Improvements
- 52 Asset Management
- 53 Security Enhancements
- 54 IT Infrastructure

The total 5-year 2025-2029 CIP is approximately $371 million, with the previous expenditures on active projects totaling $14.4 million, leaving a net proposed 5-year projected expenditure of $311.7 million.

There are seven (7) new projects added to the CIP this year. The total estimated expenditures for the projects equal $2.7 million and include:

- 6 South Rivanna Water Treatment Plants – Hypo Tank Replacements
- 13 Dam Concrete and Steel Repairs
- 15 Buck Mountain Property Dam Remediation
- 51 Moores Creek AWRRF Blower Building Ventilation Improvements
- 62 Radio Upgrades
- 63 IT Equipment Secure Cabinets
- 64 eV Charging Infrastructure

There were no projects with mid-year cost additions.

There were four (4) projects that rolled in to the 5-Year CIP totaling $0.79 million:

- 11 South Rivanna Water Treatment Plant – Main Plant Generator Replacement
- 24 SCADA Panel Relocations
- 32 Crozet Ground Tank Painting
- 61 Climate Change Flood Resilience

There was one (1) project whose timeline was accelerated totaling $13.62 million:

- 3 SFRR to RMR Pipeline, Intake & Facilities

There were thirty-nine (39) projects that were subject to inflation and scope progression resulting in a total proposed increase of $25.1 million. Below are those projects showing the existing amount and the recommended total CIP amount:

- 1 Ragged Mountain Reservoir to Observatory WTP Raw Water Line ($33 million existing / $33.5 million proposed)
- 2 Ragged Mountain Reservoir to Observatory WTP Raw Water Pump Station ($11.3 million existing / $12.3 million proposed)
- 3 SFRR to RMR Pipeline, Intake & Facilities ($39.6 existing / $75.3 proposed)
- 4 SFRR Aeration & RMR HLOS Systems ($1.4 million existing / $6.6 million proposed)
- 7 Observatory WTP – Improvements ($2 million existing / $2 million proposed)
- 9 South Rivanna WTP – Improvements ($1.9 million existing / $1.9 million proposed)
- 10 Urban WTP's – GAC Building Dehumidification ($0.2 million existing / $2.2 proposed)
- 12 North Rivanna WTP – Decomissioning ($2.7 million existing / $2.9 million proposed)
- 16 Central Water Line ($41 million existing / $47 million proposed)
- 17 South Fork Rivanna River Crossing ($6.9 million existing / $7.3 million proposed)
- 19 Avon, Pantops and Observatory Tank Painting ($2.2 million existing / $10 million proposed)
- 21 Emmet Street Betterment ($10.6 million existing / $9.2 million proposed)
- 22 Berkmar Drive Ext. Waterline – Phase 2 ($1.4 million existing / $1.4 million proposed)
- 23 Urban Storage Evaluation and Tank(s) Addition ($0.87 million existing / $2.9 million proposed)
- 25 Beaver Creek Dam Alteration ($22.7 million existing / $23.7 million proposed)
- 26 Beaver Creek New Raw Water Pump Station & Intake ($20.2 million existing / $23.4 million proposed)
- 27 Buck's Elbow Tank and Waterball painting ($1.1 million existing / $1.7 million proposed)
- 28 Crozet WTP – GAC Building Dehumidification ($0.05 million existing / $0.65 million proposed)
- 31 Crozet Finished Water Greyrock Pump Station ($0.18 million existing / $1.5 million proposed)
- 34 Red Hill WTP – Upgrades & GAC Addition ($0.74 million existing / $0.8 million proposed)
- 35 Scottsville AC Pipe Replacement ($0.08 million existing / $0.275 million proposed)

- 36 Scottsville WTP – GAC Building Dehumidification ($0.05 million existing / $0.66 proposed)
- 37 Upper Schenks Branch Interceptor ($5.3 million existing / $5.9 million proposed)
- 39 Crozet Pump Station 1, 2, 3 Rehabilitation ($10.3 million existing / $10.9 million proposed)
- 40 Albemarle Berkeley Pump Station Upgrade ($0.115 million existing / $0.84 million proposed)
- 41 Interceptor Sewer and Manhole Repair – Phase 2 ($1.2 million existing / $1.4 million proposed)
- 42 Interceptor Sewer and Manhole Repair – Phase 2 ($0.6 million existing / $1.7 million proposed)
- 43 Moores Creek AWWRF Engineering and Administration Building ($10.5 million existing / $20 million proposed)
- 44 Moores Creek AWWRF Biogas Upgrades ($3.6 million existing / $5.6 million proposed)
- 45 Moores Creek AWWRF Building Upfits and Gravity Thickener Improvements ($4.5 million existing / $5.1 million proposed)
- 46 Moores Creek AWWRF Meter and Valve Replacements ($0.775 million existing / $0.475 million proposed)
- 47 Moores Creek AWRRF 5kV Electrical System Upgrade ($5.6 million existing / $6.2 million proposed)
- 48 Moores Creek AWRRF Yard Piping Upgrades ($0.315 million existing / $0.8 million proposed)
- 53 Scottsville WRRF Lagoon Outfall Rehabilitation ($0.025 million existing / $0.3 million proposed)
- 54 Scottsville WRRF Polymer Feed Addition ($0.026 million existing / $0.27 million proposed)
- 55 Glenmore WRRF Polymer Feed Addition ($0.003 million existing / $0.03 million proposed)
- 56 Glenmore WRRF Upgrade ($0 million existing / $1.3 million proposed)
- 59 IT Infrastructure ($0.37 million existing / $0.6 million proposed)
- 60 ACM Remediation ($0.094 million existing / $0.71 million proposed)

In summary, the FY 25-29 CIP is largely driven by an increase in project costs and accelerated projects. The impact of all cost factors can be seen in Table 1 below:

Table 1

FY Line Item	Cost
24-28 Capital Improvement Plan	$326,125,000
Mid-Year Additions	$ 0
FY 29 Projects	$ 47,391,000
Inflation and Scope Additions	$ 25,082,750
New Projects	$ 2,685,988
Accelerated Projects	$ 13,620,000
Completed Projects	$(43,904,302)
Total	**$371,000,436**

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 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress**
Urban Water (UW)										
Community Water Supply Plan	$85,365,000	$42,410,000	$10,855,000	$10,955,000	$28,215,000	$28,250,000	$24,860,000	$24,640,000	$127,775,000	$1,079,491
Urban Water Treatment Plants & Reservoirs	$7,925,000	$5,095,000	$4,445,000	$945,000	$3,930,000	$325,000	$600,000	$2,775,000	$13,020,000	$76,110
Finished Water Storage/Distribution	$73,050,000	$9,546,000	$22,515,000	$9,670,000	$14,130,000	$12,800,000	$14,715,000	$8,766,000	$82,596,000	$8,252,084
Subtotal (UW)	$166,340,000	$57,051,000	$37,815,000	$21,570,000	$46,275,000	$41,375,000	$40,175,000	$36,181,000	$223,391,000	$9,407,685
Non-Urban Water (NUW)										
Crozet Water System	$51,310,000	$7,490,000	$9,575,000	$85,000	$14,865,000	$14,185,000	$16,895,000	$3,195,000	$58,800,000	$1,578,889
Scottsville Water System	$1,420,000	$1,680,000	$511,000	$299,000	$0	$0	$695,000	$1,595,000	$3,100,000	$42,486
Subtotal (NUW)	$52,730,000	$9,170,000	$10,086,000	$384,000	$14,865,000	$14,185,000	$17,590,000	$4,790,000	$61,900,000	$1,621,375
WATER TOTAL	$219,070,000	$66,221,000	$47,901,000	$21,954,000	$61,140,000	$55,560,000	$57,765,000	$40,971,000	$285,291,000	$11,029,060

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 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress**
Urban Wastewater (UWW)										
Wastewater Interceptors and Pumping Stations	$17,945,000	$4,865,000	$6,840,000	$2,180,000	$6,530,000	$2,675,000	$1,095,000	$3,490,000	$22,810,000	$286,477
Moores Creek AWRRF	$40,275,000	$13,500,000	$19,860,000	$13,525,000	$19,105,000	$515,000	$390,000	$380,000	$53,775,000	$1,751,403
Subtotal (UWW)	$58,220,000	$18,365,000	$26,700,000	$15,705,000	$25,635,000	$3,190,000	$1,485,000	$3,870,000	$76,585,000	$2,037,880
Non-Urban Wastewater (NUWW)										
Scottsville WRRF	$571,000	$519,000	$495,000	$25,000	$0	$0	$60,000	$510,000	$1,090,000	$65,940
Glenmore WRRF	$30,000	$1,615,000	$0	$75,000	$750,000	$60,000	$40,000	$720,000	$1,645,000	$0
Subtotal (NUWW)	$601,000	$2,134,000	$495,000	$100,000	$750,000	$60,000	$100,000	$1,230,000	$2,735,000	$65,940
WASTEWATER TOTAL	$58,821,000	$20,499,000	$27,195,000	$15,805,000	$26,385,000	$3,250,000	$1,585,000	$5,100,000	$79,320,000	$2,103,820
All Systems Security & Technology	$4,329,698	$2,059,738	$3,915,698	$787,738	$155,000	$80,000	$131,000	$1,320,000	$6,389,436	$1,229,368
TOTAL	$282,220,698	$88,779,738	$79,011,698	$38,546,738	$87,680,000	$58,890,000	$59,481,000	$47,391,000	$371,000,436	$14,362,248

PROJECT DETAILS

Completed Projects

During fiscal year 2024, several capital improvement projects were completed, were advanced to the final phases of close-out, or were largely completed. Presented in the table below are the seven (7) completed projects, pertinent information on the adopted budgets, as well as the projected final costs and any anticipated savings. There was a total completed project cost savings of $0.5 million.

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

7. Observatory Water Treatment Plant Improvements: The Observatory Water Treatment Plant was originally constructed in the mid-1950s, and prior to this project, much of the original equipment remained. As a result, that equipment was inefficient, prone to unexpected failure, and did not have readily accessible replacement parts. Based on a Needs Assessment Study, the plant is undergoing a wholesale upgrade including improvements to the flocculators, sedimentation basins, filters, and chemical feed facilities to enhance future reliability. In addition, the existing reinforced concrete flume, which conveys treated water from the sedimentation basins to the filters, is being replaced, filter control valves and piping are being replaced, and electrical and SCADA control systems are being upgraded. A portion of this project was previously completed during the Granular Activated Carbon (GAC) project, where the flocculator systems were upgraded with new mechanical and electrical equipment, including variable speed drives for optimal efficiency. In addition to providing needed equipment upgrades, these improvements will increase the plant's capacity from 7.7 million gallons per day to 10 million gallons per day to provide needed reliability and redundancy in the Urban System. As part of this capacity increase, the plant's GAC treatment capacity is being increased as well, with the addition of four GAC contactors. A large portion of this project has been completed with only final startup and testing of the new chemical systems, final instrumentation and SCADA programming efforts and punch list items remaining.

18. South Rivanna Hydro Decommissioning: The South Fork Hydropower Plant was a small hydroelectric generating facility constructed in 1987. The plant had historically operated intermittently, as river flows allowed. The generated power was 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 filed the Surrender Application with FERC. The application was approved in 2020 and the decommissioning of the facility, which includes removing defunct electrical components, abandoning components of the turbine, replacement of the 72" sluice gate and re-establishment of the penstock as a reservoir drain. All the work has been completed minus the replacement of the sluice gate which is delayed based on factory lead time. The gate replacement is expected in August of 2024.

19. South Rivanna Water Treatment Plant Improvements: The South Rivanna Water Treatment Plant previously completed limited upgrades as part of the Urban Granular Activated Carbon project. Over the course of that project, several other significant needs were identified and assembled into this single improvement project. Under this project the following improvements are being made: a new alum and fluoride storage facility; installation of two additional filters to meet firm capacity needs and new filter control panels; building around the lime storage facilities; the addition of a second variable frequency drive at the Raw Water Pump Station as well as other general pump station improvements; the relocation for the electrical gear from a subterranean location at the Sludge Pumping Station to a new aboveground enclosure; a new administration building on site for additional office, meeting, and storage space; high service pump improvements and the addition of variable frequency drives to three of the pumps; sedimentation basin improvements; replacement of filter inlet valves and actuators; remodeling of the existing filter building for better lab and control space and painting throughout; new clarifier drives; and incoming electrical system improvements for the facility. These upgrades will improve the reliability and resiliency of the plant, particularly at higher flow rates. The majority of this work is complete with only completion of sludge pumping improvements, a new IT data center in the Dewatering Building and punch list items remaining.

52. Asset Management: Asset management is the practice of managing infrastructure to minimize the total cost of owning and operating assets while providing desired levels of service. By doing so, asset management ensures planned maintenance activities occur and that capital assets are replaced, repaired, or upgraded at the right time, while guaranteeing the necessary resources are available to perform these activities. When the project began, RWSA had some components of an asset management program in place (i.e. GIS and a work order system), but through the Strategic Planning process identified the need to further develop the program. To fully realize the program, a consultant was procured to assist with a four-phase implementation process. Phase one included facilitation and development of an asset management strategic plan; phase two included development and management of a pilot study where the results of the strategic plan were applied to a specific facility; phase three included procurement and implementation of software (Cityworks) to facilitate the overall program; and phase 4 includes assistance through full implementation of the complete asset management program. With phases one through three

complete, RWSA is focusing its efforts on completing phase four, full asset management implementation.

53. Security Enhancements: Water utilities are required by federal law to conduct vulnerability assessments (VA) and have emergency response plans. RWSA completed an update of its VA for the water system in collaboration with other regional partners and identified a number of security improvements that could be applied to both its water and wastewater systems. The purpose of this project was to install security improvements at RWSA facilities, with the initial focus on an enhanced access control program. Other improvements will include: industrial strength door and window components, security gate and fencing modifications, an improved lock and key program, facility signage, closed circuit television (CCTV) enhancements, intrusion detection systems (IDS), additional security lighting, mass emergency notification systems, and emergency call stations/panic buttons. In addition, upgrades will be made to the entrance of MCAWRRF, to better secure the facility and vet individuals as they enter. In order to implement an access control system at Authority-owned facilities, staff procured an Implementer to finalize system design/requirements, procure all necessary equipment, and install the chosen system. Access control system implementation is nearly complete across all RWSA facilities; however, work continues to finalize this process. As such, the budget is being partially capitalized.

54. IT Infrastructure: Systematic Network upgrades and standardization for aging switches and other infrastructure. SCADA asset inventory assessment and management policy to help establish plans for PLC and other IO asset maintenance. New business process implementations are ongoing – the general ledge/accounting systems currently in use will most likely need replacing as the current system will have an end of life in the late 2020's.

Completed Projects

			Five-Year Capital Program			
Line No.	**Proj. No.**	**Project Description**	**Adopted Budget 5/2023**	**Previous Expenditures (6/30/2023)**	**Final Projected Costs/Close Out**	**Savings**
1	20.01	South Rivanna Reservoir to Ragged Mountain Reservoir Right of Way	$2,740,000	$1,946,353	$2,740,000	$0
7	20.06	Observatory Water Treatment Plant Improvements - Partial Captitlization FY 24	$70,000,000	$17,404,211	$20,000,000	$0
18	20.15	South Rivanna Hydropower Plant Decommissioning	$1,010,000	$511,588	$14,000,000	$0
19	20.16	South Rivanna Water Treatment Plant Improvements - Partial Capitilization FY 24	$19,500,000	$18,952,244	$19,500,000	$0
52	20.45	Asset Management - Partial Capitilization FY 23	$427,552	$427,552	$427,552	$0
53	20.46	Security Enhancements - Partial Capitilization FY 24	$2,227,552	$1,076,034	$2,227,552	$0
54	20.47	IT Infrastructure - Partial Captilization FY 23	$226,750	$226,750	$226,750	$0
		TOTAL	$96,131,854	$40,544,732	$59,121,854	$0

CIP 24-28 Total	**CIP 24-28 Completed or Removed**	**CIP 24-28 Remaining**	**CIP 25-29 New Funding**	**CIP 25-29 New Total**
$326,125	$43,904,302	$282,220,698	$88,779,738	$371,000,436

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. This 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. The Ragged Mountain Dam Agreement was amended in late 2023 and authorized the implementation and modifications for the additional 12 feet of storage at the Ragged Mountain Reservoir.

Project Descriptions:

1. 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 (OBWTP) by way of two 18-inch cast iron water lines which have been in service for more than 110 and 70 years, respectively. In addition to the need to increase transfer capacity between the RMR and OBWTP, increased frequency of emergency repairs and expanded maintenance requirements necessitates replacement of these water lines with a single, new raw water main. This new raw water main is expected to be constructed of 36-inch ductile iron pipe and will span a distance of approximately 21,400 linear feet, including the connection of the proposed RMR raw water pump station with the Southern terminus of the SRR-RMR raw water line constructed on the Birdwood Golf Course that was completed in 2019.

2. Ragged Mountain Reservoir to Observatory Water Treatment Plan Raw Water Pump Station: The Ragged Mountain Reservoir (RMR) to Observatory Water Treatment Plant (OBWTP) raw water pump station is planned to replace the existing Stadium Road and Royal Pump Stations, which have exceeded their design lives and would require significant upgrades to reliably meet the upgraded capacity of the Observatory WTP. The pump station will be designed initially to pump up to 10 million gallons per day (MGD) to the expanded Observatory WTP and will be integrated with the planned South Fork Rivanna Reservoir (SFRR) to RMR pipeline for

improved operational flexibility and cost efficiencies. This integrated pump station will include the capacity to transfer up to 16 MGD of raw water from RMR back to the South Rivanna WTP, as well as boost water from SFRR up to RMR and OBWTP. The pump station property was purchased as part of the SFRR to RMR raw water main preliminary design and right of way acquisition project.

3. South Fork Rivanna Reservoir to Ragged Mountain Pipeline, Intake and Facilities: The South Fork Rivanna Reservoir (SFRR) to Ragged Mountain Reservoir (RMR) Pipeline is a part of the approved and permitted Community Water Supply Plan. The pipeline and associated facilities will give RWSA the ability to move water between the two reservoirs, further enhancing the management capabilities of the Urban System water supply. The SFRR to RMR Pipeline, Intake, and Facilities Project will include construction of a 36" raw water pipeline, connecting SFRR and RMR, a new raw water intake and pump station at SFRR to bring total withdrawal capacity from SFRR to 41 MGD, and a discharge pipe at RMR to enable placement of the transferred water at the appropriate depth. Design and construction of approximately 380 LF of piping along the alignment, as a betterment opportunity through the Victorian Heights development, located on Woodburn Road, is also included in the work. Construction of the new intake and pump station will permanently close the existing boat ramp on RWSA property at SFRR to the public.

   In addition, this project will also include raising of the RMR pool an additional 12', to bring the normal pool of the reservoir to the full design elevation of 683'. This portion of the project will include all clearing and grading work necessary to facilitate the raise, along with a geotechnical evaluation of the existing dam, and coordination with all community stakeholders impacted by the work. Prior to the completion of the SFRR-RMR pipeline, filling will take place as conditions allow via the existing Sugar Hollow Raw Waterline.

4. South Fork Rivanna Reservoir Aeration & Ragged Mountain Reservoir Hypolimnetic Oxygenation Systems: Through RWSA's ongoing Reservoir Water Quality Monitoring Program and the South Fork Rivanna Reservoir (SFRR) to Ragged Mountain Reservoir (RMR) Pretreatment Evaluation Study, water quality benefits for an Aeration System at SFRR and a Hypolimnetic Oxygenation System at RMR have been identified. While these systems would be configured differently for each reservoir, the purpose of each system is to inject Oxygen into the depths of each reservoir. Iron and manganese concentrations are reduced, thus improving water quality within the reservoir and for downstream treatment processes.

Community Water Supply Plan

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
1	20.03	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line	$33,000,000	$500,000	$3,900,000	$6,290,000	$9,110,000	$9,100,000	$5,100,000		$33,500,000	$436,775
2	20.04	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pump Station	$11,300,000	$1,050,000	$2,175,000	$2,065,000	$3,170,000	$3,170,000	$1,770,000		$12,350,000	$346,983
3	20.48 20.49	South Fork Rivanna Reservoir to Ragged Mountain Pipeline, Intake & Facilities	$39,665,000	$35,660,000	$4,780,000	$2,600,000	$15,935,000	$15,980,000	$16,490,000	$19,540,000	$75,325,000	$295,733
4	23.02	South Fork Rivanna Reservoir Aeration and Ragged Mountain Reservoir HLOS Systems	$1,400,000	$5,200,000					$1,500,000	$5,100,000	$6,600,000	
		TOTAL	$85,365,000	$42,410,000	$10,855,000	$10,955,000	$28,215,000	$28,250,000	$24,860,000	$24,640,000	$127,775,000	$1,079,491

Urban Water Treatment Plants and Reservoirs

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

It also includes the South Rivanna Water System which 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) with a raw water storage capacity of 1,248 MG of which 885MG is useable. The Dam is co-located with the raw water intake and pump station, as well as a small hydroelectric generation facility. The source water from the South Rivanna Reservoir is treated at the South Rivanna treatment plant (12-mgd rated capacity).

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

Project Descriptions:

5. Observatory Water Treatment Plant Improvements: The Observatory Water Treatment Plant was originally constructed in the mid-1950s, and prior to this project, much of the original equipment remained. As a result, that equipment was inefficient, prone to unexpected failure, and did not have readily accessible replacement parts. Based on a Needs Assessment Study, the plant is undergoing a wholesale upgrade including improvements to the flocculators, sedimentation basins, filters, and chemical feed facilities to enhance future reliability. In addition, the existing reinforced concrete flume, which conveys treated water from the sedimentation basins to the filters, is being replaced, filter control valves and piping are being replaced, and electrical and SCADA control systems are being upgraded. A portion of this project was previously completed during the Granular Activated Carbon (GAC) project, where the flocculator systems were

upgraded with new mechanical and electrical equipment, including variable speed drives for optimal efficiency. In addition to providing needed equipment upgrades, these improvements will increase the plant's capacity from 7.7 million gallons per day to 10 million gallons per day to provide needed reliability and redundancy in the Urban System. As part of this capacity increase, the plant's GAC treatment capacity is being increased as well, with the addition of four GAC contactors. A large portion of this project has been completed with only final startup and testing of the new chemical systems, final instrumentation and SCADA programming efforts and punch list items remaining.

6. Observatory Water Treatment Plant – Hypo Tank Replacements: Sodium hypochlorite is fed at the OBWTP for disinfection of the treated water and maintenance of a free chlorine residual in the distribution system. The chemical is stored in two 12,000 gallon fiberglass reinforced plastic (FRP) tanks in a separate building at the plant which was constructed in 1999. One of the existing tanks is original to the building and the second tank was installed in 2005. Due to the age of the tanks and the critical nature of this chemical usage at the plant, the intent of this project is to replace the two existing tanks with new 12,000-gallon FRP tanks. In addition to the tanks themselves, this project would include the replacement of access ladders, platforms, piping connections and tank tie-downs.

7. Observatory Water Treatment Plant – Backwash Basin Sludge Removal and Inspection: The concrete backwash basins were built in the 1920's and 1950's as part of the original water treatment plant to be used as open storage for the filtered water. They are currently used to settle solids out of the backwash water before it is decanted to the sanitary sewer system. This project involves removal of the settled sludge and a complete inspection of the basins to determine the extent of concrete repairs needed to extend their useful life.

8. South Rivanna Water Treatment Plant Improvements: The South Rivanna Water Treatment Plant previously completed limited upgrades as part of the Urban Granular Activated Carbon project. Over the course of that project, several other significant needs were identified and assembled into this single improvement project. Under this project the following improvements are being made: a new alum and fluoride storage facility; installation of two additional filters to meet firm capacity needs and new filter control panels; building around the lime storage facilities; the addition of a second variable frequency drive at the Raw Water Pump Station as well as other general pump station improvements; the relocation for the electrical gear from a subterranean location at the Sludge Pumping Station to a new aboveground enclosure; a new administration building on site for additional office, meeting, and storage space; high service pump improvements and the addition of variable frequency drives to three of the pumps; sedimentation basin improvements; replacement of filter inlet valves and actuators; remodeling of the existing filter building for better lab and control space and painting throughout; new clarifier drives; and incoming electrical system improvements for the facility. These upgrades will improve the reliability and resiliency of the plant, particularly at higher flow rates. The majority of this work is complete with only completion of sludge pumping improvements, a new IT data center in the Dewatering Building and punch list items remaining.

9. South Rivanna Water Treatment Plant – Sanitary Sewer Connection: Residual liquids and solids produced during the water treatment process at the South Rivanna Water Treatment Plant are

routed through an equalization basin to two residuals clarifiers. Sludge is pumped to a belt filter press in the Solids Handling Facility, and clarified water is discharged to the South Fork Rivanna River under a VPDES permit issued by the Virginia DEQ. In the future, anticipated increases in solids processing will necessitate an alternative means of disposing of sludge from the treatment process. This project includes preliminary and final design of a new sewer connection to convey sludge to the sanitary sewer system, as well as right of way acquisition, permitting, and construction costs.

10. Urban Water Treatment Plants – GAC Building Dehumidification: Granular Activated Carbon (GAC) treatment was installed at the Urban water treatment plants (South Rivanna and Observatory) in 2018. The buildings constructed around the GAC vessels were not conditioned and only included unit heaters and portable dehumidifiers. As a result of the large GAC vessels in these buildings, the humidity levels in the area tend to promote condensation which can then lead to corrosion of the equipment and general degradation. While the portable dehumidifiers were beneficial, they tended to be unreliable and insufficient to maintain lower humidity levels in the buildings. As a result, the purpose of this project is to install permanent industrial dehumidification systems in the GAC buildings associated with the Urban water treatment plants. This project would include the dehumidification units as well as the necessary ductwork, electrical improvements, and architectural modifications required for a complete installation.

11. South Rivanna Water Treatment Plant – Main Plant Generator Replacement: During recent treatment plant upgrades, the condition of the existing main plant generator was evaluated, and it was determined that while the generator was capable of meeting our current needs at the plant, we should plan for a future replacement. This replacement would help ensure the appropriate level of electrical service resiliency for the plant and would include a new prime rated generator, automatic transfer switch, associated electrical switchgear, feeder cables and other appurtenances necessary to allow this replacement to take place while still providing the plant with backup power during the construction process.

12. North Rivanna Water Treatment Plant Decommissioning: The North Rivanna Water Treatment Plant (NRWTP) has been in use since the 1970's with minimal upgrades aside from the addition of Granular Activated Carbon in 2018. A Needs Assessment was performed that identified additional improvements that would be required for the plant to continue to reliably provide drinking water to the North Rivanna Pressure Zone. Due to the anticipated expense of these proposed improvements, a feasibility study was performed to determine if the NRWTP should be upgraded or decommissioned. The study concluded that the plant should be decommissioned, and expenses saved could be better applied to other improvements throughout the Urban Water System. As a result, this project includes demolition of the plant facilities, removal of the low head dam on the North Fork Rivanna River and returning the property to its pre-existing conditions.

13. Dam Concrete and Steel Repairs: RWSA operates several dams for water supply and sediment storage. These include concrete gravity dams and earthen embankment dams, ranging in age from 10 to over 80 years. Over time, normal wear and tear from water passage and weather can cause degradation of concrete and steel structures. To ensure continued safe operation of these dams into the future, it is imperative to complete periodic maintenance and repairs. This project

includes funding for the evaluation, design, and construction of concrete and steel repairs at the Lickinghole Creek Dam, Totier Creek Dam, South Rivanna Dam, and Sugar Hollow Dam. Repairs are expected to include injection grouting of voids in concrete structures, concrete surface repairs, recoating steel hoist beams, and installation of new hoist trolleys, among others.

14. South Rivanna Water Treatment Plant – PAC Upgrades: The SRWTP currently utilizes a repurposed lime silo reconfigured to feed powdered activated carbon (PAC). PAC is fed in the mixing basin where it is mixed with the raw water prior to entering the rapid mix basins. The PAC storage silo and feed system has reached the end of its useful life and requires frequent maintenance attention to maintain operations. The purpose of this project is to replace the existing PAC system with a new modern PAC storage and slurry feed system similar to the one installed at the Crozet WTP and the one under construction at the Observatory WTP. This project would include demolition of the existing PAC silo and feed pumps, site work and grading required for the new PAC silo location and installation of a new PAC storage and slurry feed system complete with all necessary dry feed equipment, metering pumps, HVAC equipment and electrical and control equipment.

15. Buck Mountain Property Dam Remediation: The RWSA Buck Mountain Property in Free Union includes a small pond dam acquired as part of the property acquisition in the early 1980's. Based on the height of the dam and volume of water impounded in the pond, the dam is considered a low-hazard impounding structure subject to Virginia Dam Safety Regulations. Recent evaluations by Schnabel Engineering revealed defects in the dam consistent with age and wear that should be addressed in order to comply with state regulations. This CIP project includes funds to dewater the pond and temporarily modify the dam for safety purposes until funding is allocated for the repair, modification, or removal of the dam, currently planned for 2030 or later.

Urban Water Treatment Plants and Reservoirs

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
5	20.06	Observatory Water Treatment Plant - Improvements	$2,000,000		$2,000,000						$2,000,000	
6	25.05	Observatory Water Treatment Plants - Hypo Tank Replacements		$300,000		$35,000	$105,000	$160,000			$300,000	
7	23.05	Observatory Water Treatment Plant - Backwash Basin Sludge Removal and Inspection	$50,000	$515,000					$80,000	$485,000	$565,000	
8	20.16	South Rivanna Water Treatment Plant - Improvements	$1,900,000		$1,900,000						$1,900,000	
9	23.11	South Rivanna Water Treatment Plant - Sanitary Sewer Connection		$750,000				$165,000	$285,000	$300,000	$750,000	
10	23.04 23.09	Urban Water Treatment Plants - GAC Building Dehumidification	$200,000	$1,975,000					$235,000	$1,940,000	$2,175,000	
11	22.08	South Rivanna Water Treatment Plant - Main Plant Generator Replacement		$50,000						$50,000	$50,000	
12	20.18	North Rivanna Water Treatment Plant - Decommissioning	$2,675,000	$265,000	$485,000	$195,000	$2,260,000				$2,940,000	$76,110
13	25.01	Dam Concrete and Steel Repairs		$1,190,000		$415,000	$775,000				$1,190,000	
14	24.01	South Rivanna Water Treatment Plant - PAC Upgrades	$1,100,000		$60,000	$250,000	$790,000				$1,100,000	
15	25.04	Buck Mountain Property Dam Remediation		$50,000		$50,000					$50,000	
		TOTAL	$7,925,000	$5,095,000	$4,445,000	$945,000	$3,930,000	$325,000	$600,000	$2,775,000	$13,020,000	$76,110

Finished Water Storage/Transmission – Urban System

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

Project Descriptions:

16. Central Water Line: The southern half of the Urban Area water system is currently served by the Avon Street and Pantops storage tanks. The Avon Street tank is hydraulically well connected to the Observatory Water Treatment Plant while the Pantops tank is well connected to the South Rivanna Water Treatment Plant. The hydraulic connectivity between the two tanks, however, is less than desired, creating operational challenges and reducing system flexibility. In 1987, the City and ACSA developed the Southern Loop Agreement, outlining project phasing and cost allocations, as envisioned at the time. The first two phases of the project were constructed shortly thereafter. The third phase, known as the "Eastern Branch" is the subject of the current project. The initial funding for this project was used for route alignment determination, hydraulic modeling, and preliminary design. Due to the complicated nature of our finished water systems, it was decided at the August 2018 Board meeting that a more comprehensive approach was warranted and we should complete the Finished Water Master Plan prior to moving forward with final design and construction of the Avon to Pantops Water Main. The Finished Water Master plan was completed in 2021 and the Central Water Line project was prioritized for design and construction in coordination with the City and ACSA. The project will consist of approximately 5 miles of new 24-inch and 30-inch through the City to connect the Observatory Water Treatment Plant to an existing RWSA transmission main at East High and Long St. to ensure the increased hydraulic capacity of 10 MGD from the water treatment plant upgrades can be utilized. As part of this project, several City water mains will be replaced where co-located with the Central Water Line and the City will reimburse RWSA for that work.

17. South Fork Rivanna River Crossing: RWSA has previously identified through master planning that a 24-inch water main will be needed from the South Rivanna Water Treatment Plant (SRWTP) to Hollymead Town Center to meet future water demands. Two segments of this water main were constructed as part of the VDOT Rt. 29 Solutions projects, including approximately 10,000 linear feet (lf) of 24-inch water main along Rt. 29 and 600 lf of 24-inch water main along the new Berkmar Drive Extension, behind the Kohl's department store. To complete the connection between the SRWTP and the new 24-inch water main in Rt. 29, there is a need to construct a new river crossing at the South Fork Rivanna River. The selected alternative will include a 1,200 lf trenchless river crossing to minimize environmental impacts. Acquisition of right-of-way is required for the river crossing and along Rio Mills Road.

18. Airport Rd. Pump Station and North Rivanna Transmission Main: The Rt. 29 Pipeline and Pump Station master plan was developed in 2007 and originally envisioned a multi-faceted

project that reliably connected the North and South Rivanna pressure bands, reduced excessive operating pressures, and developed a new Airport pressure zone to serve the highest elevations near the Airport and Hollymead Town Center. The master plan was updated in 2018 to reflect the changes in the system and demands since 2007. This project, along with the South Rivanna River Crossing project, will provide a reliable and redundant finished water supply to the North Rivanna area. Once the North Rivanna Water Treatment Plant is abandoned, the Airport Road Pump Station will be the primary means to supply water to the North Zone. 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 a future phase implementation which will include a storage tank and the creation of the Airport pressure zone. To complete the connection between the new 24-inch water main in Rt. 29 and the pump station, construction will include two "gap" sections of 24-inch water main between the already completed sections in the vicinity of Kohl's. Much of the new water main route is within VDOT right-of-way; however, acquisition of right-of-way was required on the Kohl's Property at Hollymead Town Center.

19. Avon, Pantops, and Observatory Tank Painting: The Avon, Pantops and Observatory Ground Storage Tanks have volumes of 2-million, 3-million, and 5-million gallons respectively, and each of the tanks are located within the Urban Pressure Band of RWSA's Finished water Distribution System. The Urban Pressure Band services most of the City and ACSA critical customers (UVA, UVA/MJ Hospital, Senior Living Facilities, Defense Contractors, etc.). Each of the tanks plat a pivotal role in maintaining system pressures and providing increased flows during fires and other system emergencies.

    RWSA inspects its tanks on a regular basis and following recent inspections of the interior and exterior of each of the three tanks it was determined that these tanks are due for rehabilitation and necessary repairs. Each tank is slated to have its interior and exterior coatings rehabilitated, taken out of service, in turn, in order to complete repairs. While each tank is offline, roofing/structural repairs and safety enhancements will be made as appropriate to further protect the integrity of the tank.

20. Second N. Rivanna River Crossing & Select Pipe Replacement: The North Rivanna water distribution system has a 12-inch water line crossing of the North Rivanna River which is difficult to access and vulnerable to erosion and washout. The Finished Water Master Plan recommended we install a second redundant river crossing to ensure water can be conveyed north of the river to the Piney Mountain Tank from the new Airport Road Pump Station once the North Rivanna Water Treatment Plant is decommissioned. Approximately 1.2 miles of cast iron water line which has the highest system pressures and has experienced numerous emergency line breaks will be replaced as part of this project to improve system resiliency.

21. Emmet Street Betterment: The Urban Finished Water Master Plan identified several necessary upgrades to the urban water distribution system to improve system performance and reliability. One of the identified improvements is an upgrade and extension of the existing RWSA water main along the Emmet Street corridor from the UVA Dell Pond to Hydraulic Road. This project will utilize planned road, streetscape, utility, and development projects along the Emmet Street corridor to complete portions of the Emmet Street water main improvements as betterment, with the goal of completing the approximately 2-mile-long water main by 2030. The project scope

includes planning and coordination between RWSA, UVA, the City of Charlottesville, and VDOT, design services for the betterment and "gap" sections of water line, construction funding, and construction management services. Current identified projects with betterment opportunities include: the UVA Ivy Corridor Redevelopment, UVA Contemplative Commons, the City of Charlottesville Emmet Streetscape Projects (multiple phases), and intersection improvements at Barracks Road, and the US-250/Emmet Street Interchange.

22. Berkmar Drive Ext. Waterline Phase 2: This water line project will be completed as betterment with the construction of the last section of the VDOT Berkmar Drive Extended project. VDOT has begun preliminary design, however, the construction is not anticipated for several years. This betterment will include approximately 1,000 feet of 16-inch waterline which will connect the new Airport Road Pump Station to an RWSA main in Airport Road. This second feed out of the new pump station will provide more redundancy to supply the North Zone once the North Rivanna Water Treatment Plant is decommissioned.

23. Urban Storage Evaluation and Tank(s) Addition: The Finished Water Master Plan outlined the need to evaluate our water storage system for fire suppression, to address frequent tank cycling, and to evaluate alternatives for realizing more useable volume in each tank. Once an evaluation is completed, this project will determine the best pressure bands to add storage to ease operational constraints. This project envisions the addition of two more water storage tanks which may be at existing tank locations or new ones.

24. SCADA Panel Relocations: At many remote water storage tank sites, control panels and PLCs associated with operation and monitoring of the tanks are located in valve vaults. These locations are a concern based on limited access to the electrical and instrumentation components as well as the condition of the space and the associated impact to the longevity of the devices. This project includes installation of new control panels and PLCs aboveground in weatherproof enclosures under a self-supporting canopy that would protect staff from direct weather impacts during operation or maintenance activities at seven water storage tank sites throughout the RWSA water distribution system. The components located in the valve vaults would be demolished after the new components were installed to minimize monitoring downtime.

Finished Water Storage/Transmission – Urban System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
16	20.10	Central Water Line	$41,000,000	$6,000,000	$4,300,000	$7,250,000	$10,350,000	$10,350,000	$10,350,000	$4,400,000	$47,000,000	$1,040,961
17	20.12	South Fork Rivanna River Crossing	$6,900,000	$400,000	$5,500,000	$400,000	$1,400,000				$7,300,000	$307,143
18	20.13	Airport Rd. Pump Station and North Rivanna Transmission Main	$10,000,000		$10,000,000						$10,000,000	$5,792,592
19	20.50 20.51 20.64	Avon, Pantops and Observatory Tank Painting	$2,200,000	$1,745,000				$245,000	$2,100,000	$1,600,000	$3,945,000	
20	20.58	Second North Rivanna River Crossing and Select Pipe Replacement	$30,000	$620,000					$30,000	$620,000	$650,000	
21	23.06	Emmet Street Betterment	$10,650,000	($1,415,000)	$2,495,000	$2,020,000	$2,225,000	$1,250,000	$1,245,000		$9,235,000	$1,111,388
22	24.09	Berkmar Drive Ext. Waterline - Phase 2	$1,400,000	$40,000	$220,000		$100,000	$650,000	$470,000		$1,440,000	
23	24.12	Urban Storage Evaluation and Tank(s) Addition	$870,000	$2,110,000			$55,000	$305,000	$520,000	$2,100,000	$2,980,000	
24	24.13	SCADA Panel Relocations		$46,000						$46,000	$46,000	
		TOTAL	$73,050,000	$9,546,000	$22,515,000	$9,670,000	$14,130,000	$12,800,000	$14,715,000	$8,766,000	$82,596,000	$8,252,084

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 Beaver Creek (Garnett) Dam which were built in 1964 with a current useable storage capacity of 521 million gallons. Raw water is treated at the Crozet Water Treatment Plant (2.0 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:

25. Beaver Creek Dam Alteration: RWSA operates the Beaver Creek Dam and reservoir as the sole raw water supply for the Crozet Area. In 2011, an analysis of the Dam Breach inundation areas and changes to the Virginia Department of Conservation and Recreation (DCR) Impounding Structures Regulations prompted a change in hazard classification of the dam from Significant to High Hazard. This change in hazard classification requires that the capacity of the spillway be increased. Following the completion of a planning study in 2023, staff will proceed with final design and construction of a labyrinth spillway and chute with a bridge to allow Browns Gap Turnpike to cross over the new spillway. Work for this project will be coordinated with the new relocated raw water pump station and intake. Federal funding through the Natural Resources Conservation Service (NRCS) is being pursued to cover a portion of the design and construction costs.

26. Beaver Creek New Raw Water Pump Station & Intake: The existing Raw Water Pump Station and Intake at the Beaver Creek Reservoir was constructed in 1964 and is located at the foot of the Beaver Creek Dam. Obligatory dam safety upgrades to the Beaver Creek Dam spillway necessitate moving the pump station away from its current location downstream of the dam. Additionally, the Drinking Water Infrastructure Plan for the Crozet water service area recommends installation of a new Raw Water Pump Station and Intake to meet new minimum instream flow requirements and provide adequate raw water pumping capacity to serve the growing Crozet community for the next 50 years. The new pump station will be constructed adjacent to the dam on the Beaver Creek Reservoir. The new intake structure will include enhanced controls as well as a Hypolimnetic Oxygenation System to enhance water quality within the reservoir.

27. Buck's Elbow Tank and Waterball Painting: The 2,000,000-gallon Buck's Elbow Ground Storage Tank provides finished water storage for the Crozet Area while the 50,000-gallon Crozet Waterball Tank serves as filter backwash storage at the Crozet Water Treatment Plant (CZWTP). Routine inspections of these tanks in 2012 indicated that the tanks would require recoating by 2020. The current coating system has lasted beyond this initial prediction and as such was moved to 2028. The project includes recoating the interior and top-coating the exterior of both tanks to prevent corrosion. Minor repairs and improvements to both tanks, such as foundation repairs and safety enhancements, will precede the painting work due to necessity of repairs.

28. Crozet Water Treatment Plant – GAC Building Dehumidification: Granular Activated Carbon (GAC) treatment was installed at the Crozet Water Treatment Plant in 2018. The building constructed around the GAC vessels was not conditioned and only included unit heaters and portable dehumidifiers. As a result of the large GAC vessels in this building, the humidity levels in the area tend to promote condensation which can then lead to corrosion of the equipment and general degradation. While the portable dehumidifiers were beneficial, they tended to be unreliable and insufficient to maintain lower humidity levels in the building. As a result, the purpose of this project is to install a permanent industrial dehumidification system in the GAC building. This project would include the dehumidification units as well as the necessary ductwork, electrical improvements, and architectural modifications required for a complete installation.

29. Crozet AC Pipe Replacement: This project includes the installation of approximately 5,000 linear feet of new 18-inch ductile iron water line along Three Notched Road in Crozet. It will replace the final remaining section of 12-inch RWSA transite (asbestos cement) pipe built in the 1970's which is difficult to repair due to health and safety hazards. The new water line will connect the new Crozet Finished Water Pump Station at the Water Treatment Plant to the end of the previous transite replacement project at the entrance to Western Ridge and will provide more reliable service to carry the capacity of the recent water treatment plant upgrades.

30. Crozet Water Treatment Plant – Full GAC Treatment: In order to enhance RWSA's resiliency and commitment to long term finished water quality, the Authority has committed to expanding the Granular Activated Carbon (GAC) capacity at the Crozet WTP to match the current plant capacity. GAC has been identified as a leading best management practice to remove disinfection by product pre-cursers and similar potential contaminants from source water and can be used to manage removal of other emerging contaminants and compounds that are under consideration for regulation in the future. As a result, GAC treatment capacity will provide the Crozet WTP with the flexibility to provide high quality drinking water under various future conditions. This project includes an expansion of the existing GAC building, additional GAC vessels and the necessary pumps, piping, and electrical components to connect the expanded facility to the existing treatment plant.

31. Crozet Finished Water Greyrock Pump Station: RWSA's Bucks Elbow Ground Storage Tank (BET) currently can only be cycled as low as 26-feet (11-feet below overflow), due to the high elevation of several homes in the Greyrock area of Crozet. This results in about 0.6 million gallons (MG) of the total 2 MG being available for use. As a part of the proposed improvements, a small booster station will be installed near the tank site with a series of pressure reducing valves in order to allow the tank to cycle as low as 18-feet, making an additional 0.4 MG of water inside BET available for use. This will allow RWSA staff to cycle the tank lower, reducing water age and improving overall water quality in this area of the distribution system.

32. Crozet Ground Tank Painting: The 500,000-gallon Crozet Ground Storage Tank provides Chlorine Contact Time at the Crozet Water Treatment Plant (CZWTP) and serves as a clearwell for the Crozet Finished Water Pump Station. Inspections of this tank in 2018 and 2022 indicated that the tank's exterior will require top-coating by 2028 to prevent corrosion. The

project includes design, construction, and bid-phase services for top-coating of the tank exterior plus minor repairs and safety improvements as needed.

Crozet Water System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
25	20.19	Beaver Creek Dam Alteration	$22,700,000	$1,000,000	$3,975,000		$5,825,000	$6,900,000	$7,000,000		$23,700,000	$987,079
26	20.20 21.15	Beaver Creek New Raw Water Pump Station & Intake	$20,200,000	$3,200,000	$4,150,000		$5,150,000	$6,000,000	$8,100,000		$23,400,000	$591,810
27	21.01	Buck's Elbow Tank and Waterball Painting	$1,180,000	$520,000		$85,000		$75,000	$1,100,000	$440,000	$1,700,000	
28	23.10	Crozet Water Treatment Plant - GAC Building Dehumidification	$50,000	$615,000					$60,000	$605,000	$665,000	
29	23.13	Crozet AC Pipe Replacement	$450,000	$725,000					$450,000	$725,000	$1,175,000	
30	23.14	Crozet Water Treatment Plant - Full GAC Treatment	$6,550,000		$1,450,000		$3,890,000	$1,210,000			$6,550,000	
31	23.30	Crozet Finished Water Greyrock Pump Station	$180,000	$1,405,000					$185,000	$1,400,000	$1,585,000	
32	20.55	Crozet Ground Tank Painting		$25,000						$25,000	$25,000	
		TOTAL	$51,310,000	$7,490,000	$9,575,000	$85,000	$14,865,000	$14,185,000	$16,895,000	$3,195,000	$58,800,000	$1,578,889

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). In 2023 ACSA conveyed to RWSA the Scottsville Finished Water Pump Station on James River Road, the Rt. 795 Tank (0.7 MG) and the piping in between.

Project Description:

33. Scottsville Water Treatment Plant – Upgrade: The Scottsville Water Treatment Plant was originally constructed in 1967, and other then the addition of Granular Activated Carbon (GAC) treatment and interior finished water piping improvements, much of the original plant, including process and electrical equipment, remains in service. As a result, a needs assessment for the plant was completed that identified a number of additional improvements required to maintain a high level of treatment and water quality for the Scottsville community. Improvements include upgrades to the raw water pump stations, general electrical system upgrades, construction of a building addition to allow for more effective chemical storage and other general space needs, rehabilitation of the existing lab space, and other treatment process-based upgrades.

34. Red Hill Water Treatment Plant – Upgrades & GAC Addition: The Red Hill Water Treatment Plant was constructed in a joint effort of ACSA and RWSA in 2009 and consists of a well, pneumatic tank and pump house that provides treated water to the Red Hill Elementary School and adjoining neighborhood. Originally the facility was operated primarily as a well head and pump house. More recently the facility has operated as a water treatment facility with a well as source water. As such, there have been several chemical process additions, automation, online monitoring and an increase in operator wet chemistry testing. The current building is well beyond its physical capacity and this project will serve to expand the building and improve the configuration of the process and laboratory needs of the WTP.

    Furthermore, to enhance RWSA's resiliency and commitment to long term finished water quality, the Authority has committed to adding Granular Activated Carbon (GAC) treatment at the Red Hill WTP, sized to match the current plant capacity. GAC has been identified as a leading best management practice to remove disinfection by product pre-cursers and similar potential contaminants from source water and can be used to manage removal of other emerging contaminants and compounds that are under consideration for regulation in the future. As a result, full GAC treatment capacity will provide the Red Hill WTP with the flexibility to provide high quality drinking water under various future conditions. This project includes a building expansion to independently house sodium hypochlorite, fluoride and GAC treatment as well as piping, valves and pumping improvements necessary to incorporate these components into the existing treatment plant.

35. Scottsville Asbestos-Cement Pipeline Replacement: This project is intended to replace all remaining RWSA waterline in Scottsville that is currently constructed of asbestos-cement not included under ACSA's Phase 4 Waterline Replacement Project. The scope of the project generally includes approximately 500 linear feet of raw waterline replacement between the filter building and Totier Creek intake behind Scottsville WTP. The proposed budget includes design for the new water main, as well as bid/quote package assistance.

36. Scottsville Water Treatment Plant – GAC Building Dehumidification: Granular Activated Carbon (GAC) treatment was installed at the Scottsville Water Treatment Plant in 2018. The building constructed around the GAC vessels was not conditioned and only included unit heaters and portable dehumidifiers. As a result of the large GAC vessels in this building, the humidity levels in the area tend to promote condensation which can then lead to corrosion of the equipment and general degradation. While the portable dehumidifiers were beneficial, they tended to be unreliable and insufficient to maintain lower humidity levels in the building. As a result, the purpose of this project is to install a permanent industrial dehumidification system in the GAC building. This project would include the dehumidification units as well as the necessary ductwork, electrical improvements, and architectural modifications required for a complete installation.

Scottsville Water System

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
33	22.06	Scottsville Water Treatment Plant - Upgrade	$550,000	$800,000					$550,000	$800,000	$1,350,000	
34	22.07 23.17	Red Hill Water Treatment Plant - Upgrades & GAC Addition	$740,000	$70,000	$511,000	$299,000					$810,000	$42,486
35	23.16	Scottsville AC Pipe Replacement	$80,000	$195,000					$85,000	$190,000	$275,000	
36	23.18	Scottsville Water Treatment Plant - GAC Building Dehumidification	$50,000	$615,000					$60,000	$605,000	$665,000	
		TOTAL	$1,420,000	$1,680,000	$511,000	$299,000	$0	$0	$695,000	$1,595,000	$3,100,000	$42,486

Wastewater Interceptors/Pumping Stations

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

Project Descriptions:

37. 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 as easement negotiations with Albemarle County are completed.

38. Maury Hill Branch Sewer Replacement: The Maury Hill Branch Sewer is an 8-inch diameter clay sewer constructed in the 1970's. It ties into the Morey Creek Interceptor and primarily collects wastewater from the UVA Fontaine Research Park and a small portion of the adjacent City of Charlottesville neighborhoods. As a result of growth at the research park and increasing wastewater flows, the sewer line will need to be upsized to 12-inch diameter ductile iron pipe to properly convey flows for current and future needs. Since the existing pipe is also a clay sewer, the system has experienced a significant amount of inflow and infiltration (I&I). Installing a new ductile iron pipe and concrete manholes will reduce the I&I in the system and have a positive impact on the capacity of downstream sewers as well. Staff continues to coordinate with UVA staff on the upcoming expansion of the Fontaine Research Park, so flows in the existing sewer can be monitored accordingly.

39. Crozet Pump Station 1, 2, and 3 Rehabilitation: The Crozet Interceptor Pump Stations were constructed in the 1980's and many of the components are original. This project initially included the replacement of pumps and valves at Pump Station 2 in order to improve pumping capabilities at this location and provide spare parts for the pumps at Pump Station 1. It also included roof replacements at all four pump stations, siding replacement for the wet well enclosure at Pump Station 3, and installation of new wells at Pump Stations 3 and 4. The pump station improvements now also include new electrical motor control centers as they are obsolete and past their useful life, generators, power transfer switches, pumps and valves at all pump stations.

40. Albemarle Berkley Pump Station Upgrade: The Albemarle-Berkeley Pump Station was constructed in 1975 and conveys flows from several Albemarle County Public Schools (ACPS) and other ACSA customers into RWSA's gravity Albemarle-Berkeley Interceptor. Recently, the pump station's run times have increased, with the pumps running nearly continuously for some periods. It is anticipated that much of the pumping infrastructure has reached or exceeded its expected lifespan, and that the equipment may be in need of replacement.

    A Capacity Analysis of the existing pump station has been completed, utilizing present flow rates, area-specific population projections, and known development projects on and adjacent to the ACPS campus in order to provide pump station buildout sizing to serve the area for the next 50 years. With the Capacity Analysis complete, this Pump Station Upgrade Project will utilize consultant assistance in order to formulate a set of bidding documents that will include the construction of a new pumping station that is sized to meet the current and future flows as determined by the Capacity Analysis, along with all equipment necessary for staff to safely remove individual pumps from service for maintenance purposes or temporarily bypass the station entirely as needed. Once the new pump station has been constructed and is in service, the existing pump station will be demolished, with that portion of the site returned to pre-existing conditions. This project is also being coordinated with the ongoing ACPS Master Planning Process.

39. Interceptor Sewer and Manhole Repair - Phase 2: This project is used to conduct assessments of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Phase 1 of the Interceptor Sewer and Manhole Repair Project included completion of the baseline evaluation of all RWSA interceptors (except the 42/48" Upper Rivanna Interceptor & those replaced with new pipe), as well as completion of rehabilitation on the Upper Morey Creek Interceptor and high-priority rehabilitation on the Powell Creek and Woodbrook Interceptors. Planned projects for Phase 2 include completion of the baseline evaluation by performing closed-circuit television inspections of the Upper Rivanna Interceptor. In addition, the force mains on the Crozet and Albemarle-Berkely Interceptors will be inspected, as well as inverted siphons on the Powell Creek and Moores Creek Interceptors. These inspections will require specialty equipment to complete due to the vastly different flow conditions in these portions of the interceptors. Additional high-priority rehabilitation, possibly on the Maury Hills Branch Interceptor and other sewers, will be completed under this phase as funds allow, with additional rehabilitation efforts to take place under Phase 3. Sanitary sewer evaluation includes identification of inflow & infiltration (I & I), as well as structural defects and other maintenance issues to enable overall program planning and future rehabilitation scoping. Rehabilitation of existing sanitary sewer pipe and manholes reduces Inflow & Infiltration (I & I) in the system, thus reducing the chance for sanitary sewer overflows (SSOs) during high flow events and protecting downstream treatment processes.

40. Interceptor Sewer and Manhole Repair - Phase 3: This project is used to conduct assessments of various interceptors as well as rehabilitation of interceptors that do not have a separate CIP project. Phase 2 of the Interceptor Sewer and Manhole Repair Project, which is currently underway, includes completion of the baseline evaluation of all RWSA interceptors, including the 42-48" Upper Rivanna Interceptor, gravity portions of the Crozet Interceptor (downstream of Crozet Pump Station No. 4), force mains on the Crozet and Albemarle-Berkeley

Interceptors, as well as inverted siphons on the Powell Creek and Moores Creek Interceptors. Phase 3 of this project will take data from the previous two phases and utilize that to perform rehabilitation on RWSA's largest interceptors, including the Moores Creek Interceptor, Upper Rivanna Interceptor, Crozet Interceptor, and others. Rehabilitation is anticipated to include continued usage of cured in place piping (CIPP) and point replacements of pipe as necessary, as well as cementitious manhole coatings and frame and cover replacements.

Urban Wastewater Interceptors/Pumping Stations

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
37	20.25	Upper Schenks Branch Interceptor	$5,300,000	$600,000	$4,725,000		$400,000	$775,000			$5,900,000	$50,787
38	20.29	Maury Hill Branch Sewer Replacement	$350,000	$1,650,000					$350,000	$1,650,000	$2,000,000	
39	20.30	Crozet Pump Station 1, 2, 3 Rehabilitation	$10,350,000	$550,000	$1,105,000	$2,100,000	$5,795,000	$1,900,000			$10,900,000	$42,267
40	20.31	Albemarle Berkley Pump Station Upgrade	$115,000	$725,000					$130,000	$710,000	$840,000	
41	21.07	Interceptor Sewer and Manhole Repair (Phase 2)	$1,230,000	$195,000	$1,010,000	$80,000	$335,000				$1,425,000	$193,423
42	24.02	Interceptor Sewer and Manhole Repair (Phase 3)	$600,000	$1,145,000					$615,000	$1,130,000	$1,745,000	
		TOTAL	$17,945,000	$4,865,000	$6,840,000	$2,180,000	$6,530,000	$2,675,000	$1,095,000	$3,490,000	$22,810,000	$286,477

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 again 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:

43. Moores Creek AWRRF 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 late 1970's and houses offices, IT server space, meeting space and a full-service laboratory. The second building is a series of four trailers installed between 2003-2010 that house the Engineering department. There is currently a need to house additional staff; increase office and meeting space; plan for the replacement of the trailers; increase available parking; bring the IT server workrooms to modern standards; and provide classroom space for education outreach. This project was coordinated with the recent MCAWRRF Master Plan and expansion of the building will take place primarily in the lower parking lot adjacent to the existing building.

44. Moores Creek AWRRF Biogas Upgrades: The MCAWRRF has an existing cogeneration facility that was constructed in 2011. The purpose of the facility was to provide a beneficial purpose for using the gas produced by the digester process at the plant, and in doing so provide both process heating fluid to the digester tanks and electrical energy to the plant's electrical distribution system. Unfortunately, the existing cogeneration facility requires expensive recurring maintenance services, has proprietary equipment which further complicates servicing needs, and has had a number of operational issues that have impeded the benefit this facility was intended to provide. As a result, a Cogeneration System Analysis was performed to determine a recommended approach for proceeding with improvements to the existing facility, installation of a new cogeneration facility without the issues of the previous facility or removing the cogeneration facility altogether and providing a backup boiler. Following this analysis and the initial decision to proceed with replacement of the cogeneration facility, a State of the Industry study was performed, which found that many of the aforementioned issues are common across almost all cogeneration installations. This prompted staff to perform a wider study of the industry as a whole in which it was found that many facilities are transitioning to treating the digester gas produced and transferring the gas into local natural gas pipelines so it can be reused by residential and commercial consumers. While this is still being examined by RWSA and the City of Charlottesville, whom operates the gas utility in this area, the current project budget assumes implementation of this type of system. In addition to the gas conditioning system, this project also includes rehabilitation of the existing Methane Sphere at MCAWRRF, in order to extend its service life in accordance with the MCAWRRF Master Plan.

As the preliminary biogas evaluation is completed and a method to beneficially reuse the gas is finalized, staff will utilize consultant assistance to design and bid a project that not only allows the chosen technology to be implemented, but also performs critical spot and coating repairs to the existing gas sphere that was constructed in the 1980s. The work will also include adjustments as appropriate to the biogas processing system.

45. Moores Creek AWRRF Building Upfits and Gravity Thickener Improvements: This project will address the renovation needs of the current Maintenance and Operations building space requirements, improvements to the existing gravity thickener system, and installation of actuators on the secondary clarifier influent gate valves. The Moores Creek Maintenance and Operations Department facilities are over 40 years old, no longer meeting current staffing and operational needs. In accordance with the Moores Creek Master Plan, this project will increase and update personnel spaces such as offices, lunchrooms, labs, and locker rooms in the Maintenance, Blower, and Sludge Pumping Buildings to meet needs over an interim timeframe of approximately 15 years. Additionally, the project will construct increased oil and grease storage that will meet all current best practices for safety and address the need for additional parts storage. As part of the existing gravity thickener system, RWSA added temporary provisions to dose polymer to improve settling and thickening performance, which has proved to be effective and increased operational performance. The current polymer feed system consists of a bulk polymer tote stored on grade adjacent to the gravity thickener rapid mix and splitter structure. The current system is uncovered and manually operated with totes being moved as needed for chemical feed. This project will allow for a permanent polymer feed system with proper provisions for chemical deliveries and weather protection, including additional space for sodium hypochlorite chemical storage and feed as part of the gravity thickener odor control system. The relocation of the sodium hypochlorite storage and feed will also allocate spacing needs as part of the previously discussed operational building renovations in the existing Sludge Pumping Building. Furthermore, access points will be installed on the thickener effluent line feeding the existing sludge pumps to allow for flushing, cleaning and inspection efforts to occur. Finally, the current secondary clarifier influent gate valves are manually operated, which can be time consuming, and during a wet weather event, the clarifiers need to be placed in service as quickly and safely as possible. The use of SCADA controlled actuators would streamline the process immensely. This work includes the installation of eight (8) new actuators on the influent gates of the secondary clarifiers.

46. Moores Creek AWRRF Meter and Valve Replacements: As part of the 2018 Odor Control Phase II Project, the post digestion clarifiers were eliminated from use and the gravity thickener overflow was diverted through existing piping directly to the Moores Creek Pump Station at the head of the treatment facility. This resulted in less odor generation, however, the gravity thickener overflow lost its metering location at the post digestion clarifiers. A new metering manhole location was installed near the Moores Creek Pump Station where several plant recycle flows come together. Unfortunately, this meter location has been problematic and is subject to backwater flows from the pump station and meter fouling from grease and solids. This project includes evaluation and implementation of alternatives for installation of individual meters on each recycle flow line at locations that will provide less operation and maintenance problems.

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

47. Moores Creek AWRRF 5kV Electrical System Upgrade: After discussions through the Moores Creek Facilities Master Plan, it was identified that several areas of the MCAWRRF, including the Blower Building, Sludge Pumping Building, Grit Removal Building, Moores Creek Pumping Station, and the Administration Building are all still connected to the original 5kV switchgear in the Blower Building. This equipment, including the associated cabling, switchgear, transformers, and motor control centers (MCCs), has a useful life expectancy of 20-30 years. Most of this equipment was installed around 1980. With the equipment having well exceeded its useful life expectancy at this point, safety is a concern given the large electric loads that the cabling and other equipment are handling on a day-to-day basis. Failure of the existing 5kV infrastructure could also result in temporary outages of certain treatment processes, and repairs could take weeks to months given the lead times associated with equipment of this age. In July 2020, staff recommended that a CIP Project be started as soon as possible to encompass replacement of the original 1980s-vintage 5kV cables, switchgear, transformers, and MCCs. Construction is underway, although severe lead time issues have been experienced on the new electrical equipment being installed under the project. All work has been coordinated with the Moores Creek Facilities Master Plan.

48. Moores Creek AWRRF Yard Piping Upgrades: The original 36-inch Rivanna Pump Station force main was constructed around 1980 and carried flow from the original 25 MGD pump station in Riverview Park. Now that the pump station has been relocated to MCAWRRF and upsized to 53 MGD, it is desirable to install a second force main based on the age of the pipe and for redundancy. This work will include construction of a second parallel 36-inch force main from the Rivanna Pump Station, across Moores Creek, and up to the headworks. A routing study will be completed prior to completion of the new Administration Building to minimize potential conflicts with future force main construction.

49. Moores Creek AWRRF Structural and Concrete Rehabilitation: This project comprises rehabilitation, repair and installation of multiple structural components throughout the MCAWRRF facility, to include concrete repairs in both the equalization basins and holding ponds, rehabilitation to the existing primary clarifiers and associated influent splitter box, installation of a bridge crane over the aeration basins for NRCY pump removal, improved access to the elevated valves and associated actuators in the Rivanna pump station, and rehabilitation to both the digester complex and compost shed roof and drainage system.

    The existing holding ponds and equalization basins were constructed in 1977 and are showing signs of degradation. With now completed condition assessment inspections and subsequent recommendations, this project includes crack repair, spalling repair, joint repair, and coating of miscellaneous metals and valves associated with these critical structures.

Inspections performed on the two existing primary clarifiers and associated influent splitter box noted several deficiencies including structural and mechanical components, concrete degradation and corrosion around pipe penetrations in need of repair or replacement, and due to advanced corrosion of metal components within the clarifiers, coatings were recommended to avoid additional deterioration. This project will provide for the rehabilitation, replacement and/ or coatings of these previously identified components within the primary clarifiers and influent splitter box.

The aeration basins located at Moores Creek are a series of chambers that each have uniquely controlled oxygen and nutrient loading conditions. Mid-way thru the basins is ten nutrient recycle (NRCY) pumps. When maintenance or replacement of these pumps are required, staff must currently hire a long boom crane, which can be costly and disruptive to operations, especially in emergency conditions. This project will provide for the permanent means to remove and reinstall existing NRCY pumps.

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

Moores Creek AWRRF has five digester vessels. The two smaller digesters were part of the original 1958 plant construction. The three larger digesters were part of the 1979 plant upgrades following construction of the bridge over Moores Creek and the south side of the plant. Although numerous upgrades have been constructed at the digester complex over the last 11 years (including heating, mixing, gas compression, and roof repairs), the overall condition of the concrete and complex is reaching its useful life. This project includes addressing remaining repairs to the existing digester complex, including safety repairs, to extend the useful life approximately 10-15 years while RWSA plans, designs, and constructs a new digester complex at another location on the Moores Creek site.

Finally, in the early 1980's a large metal-framed roof was constructed to house the biosolids composting operations, which has subsequently ceased operation. The area was repurposed as a covered equipment maintenance yard, solids handling facility and material storage lock-up. The roof system is exhibiting signs of rafter deterioration and ongoing drainage and leakage issues. This project will evaluate and perform remediation needs at this facility.

50. Moores Creek AWRRF MCPS Slide Gates, Valves and Bypass & Septage Receiving Upgrades: Through separate procurements, previous inspections of the large aluminum slide gates at the influent side of the Moores Creek Pump Station have been conducted to determine the extent of repairs needed to stop them from leaking. Results of these investigations will be used to design the repair of the existing slide gates and add new gates so staff can have the flexibility to stop or divert flow to perform maintenance activities. In addition, this project will include the repair of 3 control valves within the pump station and provide permanent

bypass connections so the entire pump station can be bypassed more efficiently in the future when needed. To reduce odors and address maintenance concerns at the existing north septage receiving station, the project will enclose the leachate discharge pit, provide for better containment of discharged materials, and install rock traps and grinders with all associated process piping to prevent downstream blockages at the Moores Creek Pump Station.

51. Moores Creek AWRRF Blower Building Ventilation Improvements: The existing blower building at the MCAWWRF currently experiences issues related to high temperatures occurring within the building. The original building was designed for aeration blowers and a plant generator and was retrofitted to remove all this equipment and now houses upgraded blowers for the plant aeration treatment system. However, the heat generation from the newer equipment has been creating intermittent issues with high ambient temperatures causing blower equipment to fault out in warmer months due to current ventilation not being adequate. This project will look to evaluate and upgrade the ventilation system to ensure reliability for critical process operation and eliminate the excessive heat generation issues.

Moores Creek Advanced Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
43	20.34	Moores Creek AWRRF Engineering and Administration Building	$10,500,000	$9,500,000	$1,200,000	$8,300,000	$10,500,000				$20,000,000	$246,592
44	20.40 20.67	Moores Creek AWRRF Biogas Upgrades	$3,595,000	$2,055,000	$3,365,000		$1,770,000	$515,000			$5,650,000	$61,484
45	20.68	Moores Creek AWRRF Building Upfits and Gravity Thickener Improvements	$4,555,000	$595,000	$1,265,000	$2,990,000	$895,000				$5,150,000	$17,011
46	21.11 21.17	Moores Creek AWWRF Meter and Valve Replacements	$775,000	($300,000)	$775,000	($300,000)					$475,000	$163,254
47	21.18	Moores Creek AWRRF 5kV Electrical System Upgrade	$5,635,000	$565,000	$5,830,000	$370,000					$6,200,000	$1,245,490
48	22.10	Moores Creek AWRRF Yard Piping Upgrades	$315,000	$485,000		$30,000			$390,000	$380,000	$800,000	
49	20.39 20.67 22.11 22.12 24.07	Moores Creek AWRRF Structural and Concrete Rehabilitation	$11,300,000		$7,095,000		$4,205,000				$11,300,000	$17,572
50	24.08 21.19	Moores Creek AWRRF MCPS Slide Gates, Valves, Bypass and Septage Receiving Upgrades	$3,600,000		$330,000	$2,055,000	$1,215,000				$3,600,000	
51	25.07	Moores Creek AWRRF Blower Building Ventilation Improvements		$600,000		$80,000	$520,000				$600,000	
		TOTAL	$40,275,000	$13,500,000	$19,860,000	$13,525,000	$19,105,000	$515,000	$390,000	$380,000	$53,775,000	$1,751,403

Scottsville Wastewater System

The Scottsville Wastewater System includes the influent pumping station, the Water Resource Recovery Facility (WRRF) 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:

52. Scottsville WRRF Whole Plant Generator and ATS: The current back-up power generator at the Scottsville Water Resource Recovery Facility does not power the entire plant. It serves only the facilities needed to send flow to the lagoon for storage and UV disinfection. This project will provide back-up power for the entire plant and influent pump station and will offer greater treatment flexibility and monitoring capability for the operations staff, particularly when the plant is unmanned and monitored remotely.

53. Scottsville Lagoon Outfall Rehabilitation: The Scottsville Wastewater Lagoon outfall is original to the wastewater plant from its construction. The overflow tower was recently inspected in 2021 by Bander Smith and repairs were recommended. The concrete tower has four intakes, and the fourth intake is currently buried under debris. The tower is in fair condition and could use some general concrete repairs. All valves are recommended for replacement and removal of 2-3 feet of material is recommended from around the outflow tower.

54. Scottsville WRRF Polymer Feed Addition: The Scottsville WRRF Polymer Feed system has reached the end of its useful life and needs replacement. This project will focus on constructing a new polymer feed system and an enclosure to house the chemicals for the plant.

Scottsville Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
52	21.12	Scottsville WRRF Whole Plant Generator and ATS	$520,000		$495,000	$25,000					$520,000	$65,940
53	23.24	Scottsville WRRF Lagoon Outfall Rehabilitation	$25,000	$275,000					$30,000	$270,000	$300,000	
54	23.25	Scottsville WRRF Polymer Feed Addition	$26,000	$244,000					$30,000	$240,000	$270,000	
		TOTAL	$571,000	$519,000	$495,000	$25,000	$0	$0	$60,000	$510,000	$1,090,000	$65,940

Glenmore Wastewater System

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

Project Descriptions:

55. Glenmore WRRF - Polymer Feed Addition: The Glenmore WRRF currently has two existing automated chemical feed systems, one of which includes polymer. The polymer system is primarily used to feed polymer to the WAS as a settling aid for the sludge holding tank. The current systems are near the end of their useful life and are in need of replacement. The new polymer feed system will consist of drums or totes and chemical feed pumps to dose polymer to the WAS to improve sludge settling in the digester.

56. Glenmore WRRF - Upgrade: The Glenmore WRRF was originally constructed in 1993 and much of the original facility remains in service. As a result of the age several needs assessment for the facility were completed that identified a number of additional improvements required to maintain quality service for the Glenmore community. The most recent needs assessment included improvements to the influent pump station coarse screen, influent pump station dry well ventilation, aeration blower, aeration basin, RAS/WAS pump station, chemical feed system, flocculator paddle, UV disinfection channel, non-potable water system, emergency generator, and capital equipment replacement or rehabilitation.

Glenmore Water Resource Recovery Facility

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
55	23.26	Glenmore WRRF Polymer Feed Addition	$30,000	$280,000					$40,000	$270,000	$310,000	
56	24.14	Glenmore WRRF Upgrade		$1,335,000		$75,000	$750,000	$60,000		$450,000	$1,335,000	
		TOTAL	$30,000	$1,615,000	$0	$75,000	$750,000	$60,000	$40,000	$720,000	$1,645,000	$0

All Systems

Project Descriptions:

57. Asset Management: Asset management is the practice of managing infrastructure to minimize the total cost of owning and operating assets while providing desired levels of service. By doing so, asset management ensures planned maintenance activities occur and that capital assets are replaced, repaired, or upgraded at the right time, while guaranteeing the necessary resources are available to perform these activities. When the project began, RWSA had some components of an asset management program in place (i.e. GIS and a work order system), but through the Strategic Planning process identified the need to further develop the program. To fully realize the program, a consultant was procured to assist with a four-phase implementation process. Phase one included facilitation and development of an asset management strategic plan; phase two included development and management of a pilot study where the results of the strategic plan were applied to a specific facility; phase three included procurement and implementation of software (Cityworks) to facilitate the overall program; and phase 4 includes assistance through full implementation of the complete asset management program. With phases one through three complete, RWSA is focusing its efforts on completing phase four, full asset management implementation.

58. Security Enhancements: Water utilities are required by federal law to conduct vulnerability assessments (VA) and have emergency response plans. RWSA completed an update of its VA for the water system in collaboration with other regional partners and identified a number of security improvements that could be applied to both its water and wastewater systems. The purpose of this project was to install security improvements at RWSA facilities, with the initial focus on an enhanced access control program. Other improvements will include: industrial strength door and window components, security gate and fencing modifications, an improved lock and key program, facility signage, closed circuit television (CCTV) enhancements, intrusion detection systems (IDS), additional security lighting, mass emergency notification systems, and emergency call stations/panic buttons. In addition, upgrades will be made to the entrance of MCAWRRF, to better secure the facility and vet individuals as they enter. In order to implement an access control system at Authority-owned facilities, staff procured an Implementer to finalize system design/requirements, procure all necessary equipment, and install the chosen system. Access control system implementation is nearly complete across all RWSA facilities; however, work continues to finalize this process. As such, the budget is being partially capitalized.

59. IT Infrastructure: At many remote water storage tank sites, control panels and PLCs associated with operation and monitoring of the tanks are located in valve vaults. These locations are a concern based on limited access to the electrical and instrumentation components as well as the condition of the space and the associated impact to the longevity of the devices. This project includes installation of new control panels and PLCs aboveground in weatherproof enclosures under a self-supporting canopy that would protect staff from direct weather impacts during operation or maintenance activities at seven water storage tank sites throughout the RWSA water distribution system. The components located in the valve vaults would be demolished after the new components were installed to minimize monitoring downtime.

60. ACM Remediation: Based on the age of many RWSA facilities, the potential for the presence of Asbestos-Containing Materials (ACM) in various buildings has been assumed. A 2005 Workplace Assessment that evaluated the presence of ACM at the Moores Creek Advanced Water Resource Recovery Facility (MCAWRRF) was performed and then many facilities had individual assessments prior to construction projects where the ACM needed to be disposed of properly before refurbishment of the existing building or as a part of a larger demolition process. In order to confirm the presence of any ACM at all remaining RWSA facilities, an asbestos survey was completed in 2022. Based on this report, additional abatement procedures were identified for seven buildings at the MCAWRRF that had not been remediated previously and the filter building at the Scottsville Water Treatment Plant. This project includes proper removal and disposal of these ACM and refurbishment of the associated building components required as a result.

61. Climate Change Flood Resilience Enhancements: RWSA owns and operates a number of water and wastewater facilities that may be at risk of future flooding. One of the ways climate change is expected to manifest itself in Central Virginia is via more frequent and intense rainfall and flooding events. While RWSA facilities were generally designed to perform during 100-year flood level conditions, future flooding could result in higher water levels that would require facility improvements to ensure continued operation during these events. This project includes installation of flood mitigation measures at vulnerable assets/facilities throughout the RWSA system that are likely to be impacted by these potential higher flood levels. Necessary improvements have been identified at six separate facilities and multiple structures and buildings at many of the sites. Improvements include raising electrical and control equipment to higher levels, replacement of existing pumps with submersible style/rated pumps, raising HVAC intakes and exhausts to higher elevations, and dry floodproofing structures when feasible to minimize floodwater intrusion.

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

63. IT Equipment Secure Cabinets: As part of our overall Cyber Security initiatives, specifically physical security, we are in the process of making sure all of our facilities have a locked network cabinet/rack or a locked closet for all IT networking equipment. This also includes all of our remote Tanks, and Pump Stations. Currently we are over 50% complete. Any new or current capital improvement projects at all locations, we are securing the network cabinets

and when appropriate, separating the network equipment in an environmentally controlled closet.

64. eV Charging Infrastructure: This project will investigate and implement eV charging infrastructure for staff and visitor vehicles as well as RWSA feet vehicles and rolling stock. Initially charging facilities will be predominantly at Moores Creek AWRRF, where staff and visitor density is the highest. This will allow for greater utilization of the charging facilities. As the eV fleet expands, additional charging locations will be added. This project will be performed in concert with building renovations and fleet conversion to hybrid and electric vehicles.

All Systems

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
57	20.45	Asset Management	$752,448		$717,448	$35,000					$752,448	$3,884
58	20.46	Security Enhancements	$2,980,000		$2,695,000	$285,000					$2,980,000	$1,225,484
59	20.47	IT Infrastructure	$373,250	$226,750	$373,250	$226,750					$600,000	
60	23.27	ACM Remediation	$94,000	$617,000					$96,000	$615,000	$711,000	
61	24.06	Climate Change Flood Resiliance	$130,000	$670,000	$130,000					$670,000	$800,000	
62	25.10	Radio Upgrades		$210,988		$210,988					$210,988	
63	25.08	IT Equipment Secure Cabinets		$200,000			$120,000	$80,000			$200,000	
64	25.09	eV Charging Infrastructure		$135,000		$30,000	$35,000		$35,000	$35,000	$135,000	
		TOTAL	$4,329,698	$2,059,738	$3,915,698	$787,738	$155,000	$80,000	$131,000	$1,320,000	$6,389,436	$1,229,368

APPENDICES

CIP Financial Summary

Water System Summary

Wastewater System Summary

All Systems Summary

CIP Financial Summary

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
1	20.03	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line	$33,000,000	$500,000	$3,900,000	$6,290,000	$9,110,000	$9,100,000	$5,100,000	$0	$33,500,000	$436,775
2	20.04	Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Pump Station	$11,300,000	$1,050,000	$2,175,000	$2,065,000	$3,170,000	$3,170,000	$1,770,000	$0	$12,350,000	$346,983
3	20.48	South Rivanna Reservoir to Ragged Mountain Pipeline, Intake & Facilities	$39,665,000	$35,660,000	$4,780,000	$2,600,000	$15,935,000	$15,980,000	$16,490,000	$19,540,000	$75,325,000	$295,733
4	23.02	South Rivanna Reservoir Aeration and Ragged Mountain Reservoir HLOS Sytems	$1,400,000	$5,200,000	$0	$0	$0	$0	$1,500,000	$5,100,000	$6,600,000	$0
5	20.06	Observatory Water Treatment Plant - Improvements	$2,000,000		$2,000,000						$2,000,000	
6	25.05	Observatory Water Treatment Plants - Hypo Tank Replacements		$300,000		$35,000	$105,000	$160,000			$300,000	
7	23.05	Observatory Water Treatment Plant - Backwash Basin Sludge Removal and Inspection	$50,000	$515,000	$0	$0	$0	$0	$80,000	$485,000	$565,000	$0
8	20.16	South Rivanna Water Treatment Plant - Improvements	$1,900,000		$1,900,000						$1,900,000	
9	23.11	South Rivanna Water Treatment Plant - Sanitary Sewer Connection		$750,000				$165,000	$285,000	$300,000	$750,000	
10	23.04 23.09	Urban Water Treatment Plants - GAC Building Dehumidification	$200,000	$1,975,000					$235,000	$1,940,000	$2,175,000	

CIP Financial Summary

(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
11	22.08	South Rivanna Water Treatment Plant - Main Plant Generator Replacement		$50,000						$50,000	$50,000	
12	20.18	North Rivanna Water Treatment Plant - Decommissioning	$2,675,000	$265,000	$485,000	$195,000	$2,260,000				$2,940,000	$76,110
13	25.01	Dam Concrete and Steel Repairs		$1,190,000		$415,000	$775,000				$1,190,000	
14	24.01	South Rivanna Water Treatment Plant - PAC Upgrades	$1,100,000		$60,000	$250,000	$790,000				$1,100,000	
15	25.04	Buck Mountain Property Dam Remediation	$0	$50,000	$0	$50,000	$0	$0	$0	$0	$50,000	$0
16	20.10	Central Water Line	$41,000,000	$6,000,000	$4,300,000	$7,250,000	$10,350,000	$10,350,000	$10,350,000	$4,400,000	$47,000,000	$1,040,961
17	20.12	South Fork Rivanna River Crossing	$6,900,000	$400,000	$5,500,000	$400,000	$1,400,000	$0	$0	$0	$7,300,000	$307,143
18	20.13	Airport Rd. Pump Station and North Rivanna Transmission Main	$10,000,000	$0	$10,000,000	$0	$0	$0	$0	$0	$10,000,000	$5,792,592
19	20.50	Avon, Pantops and Observatory Tank Painting	$2,200,000	$1,745,000	$0	$0	$0	$245,000	$2,100,000	$1,600,000	$3,945,000	$0
20	20.58	Second North Rivanna River Crossing and Select Pipe Replacement	$30,000	$620,000	$0	$0	$0	$0	$30,000	$620,000	$650,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
21	23.06	Emmet Street Betterment	$10,650,000	($1,415,000)	$2,495,000	$2,020,000	$2,225,000	$1,250,000	$1,245,000	$0	$9,235,000	$1,111,388
22	24.09	Berkmar Drive Ext. Waterline - Phase 2	$1,400,000	$40,000	$220,000	$0	$100,000	$650,000	$470,000	$0	$1,440,000	$0
23	24.12	Urban Storage Evaluation and Tank(s) Addition	$870,000	$2,110,000	$0	$0	$55,000	$305,000	$520,000	$2,100,000	$2,980,000	$0
24	24.13	SCADA Panel Relocations	$0	$46,000	$0	$0		$0	$0	$46,000	$46,000	$0
25	20.19	Beaver Creek Dam Alteration	$22,700,000	$1,000,000	$3,975,000	$0	$5,825,000	$6,900,000	$7,000,000	$0	$23,700,000	$987,079
26	20.20 21.15	Beaver Creek New Raw Water Pump Station & Intake	$20,200,000	$3,200,000	$4,150,000	$0	$5,150,000	$6,000,000	$8,100,000	$0	$23,400,000	$591,810
27	21.01	Buck's Elbow Tank and Waterball Painting	$1,180,000	$520,000	$0	$85,000	$0	$75,000	$1,100,000	$440,000	$1,700,000	$0
28	23.10	Crozet Water Treatment Plant - GAC Building Dehumidification	$50,000	$615,000	$0	$0	$0	$0	$60,000	$605,000	$665,000	$0
29	23.13	Crozet AC Pipe Replacement	$450,000	$725,000	$0	$0	$0	$0	$450,000	$725,000	$1,175,000	$0
30	23.14	Crozet Water Treatment Plant - Full GAC Treatment	$6,550,000	$0	$1,450,000	$0	$3,890,000	$1,210,000	$0	$0	$6,550,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
31	23.30	Crozet Finished Water Greyrock Pump Station	$180,000	$1,405,000	$0	$0	$0	$0	$185,000	$1,400,000	$1,585,000	$0
32	20.55	Crozet Ground Tank Painting	$0	$25,000	$0	$0	$0	$0	$0	$25,000	$25,000	$0
33	22.06	Scottsville Water Treatment Plant - Upgrade	$550,000	$800,000	$0	$0	$0	$0	$550,000	$800,000	$1,350,000	$0
34	22.07 23.17	Red Hill Water Treatment Plant - Upgrades & GAC Addition	$740,000	$70,000	$511,000	$299,000	$0	$0	$0	$0	$810,000	$42,486
35	23.16	Scottsville AC Pipe Replacement	$80,000	$195,000	$0	$0	$0	$0	$85,000	$190,000	$275,000	$0
36	23.18	Scottsville Water Treatment Plant - GAC Building Dehumidification	$50,000	$615,000	$0	$0	$0	$0	$60,000	$605,000	$665,000	$0
37	20.25	Upper Schenks Branch Interceptor	$5,300,000	$600,000	$4,725,000	$0	$400,000	$775,000	$0	$0	$5,900,000	$50,787
38	20.29	Maury Hill Branch Sewer Replacement	$350,000	$1,650,000	$0	$0	$0	$0	$350,000	$1,650,000	$2,000,000	$0
39	20.30	Crozet Pump Station 1, 2, 3 Rehabilitation	$10,350,000	$550,000	$1,105,000	$2,100,000	$5,795,000	$1,900,000	$0	$0	$10,900,000	$42,267
40	20.31	Albemarle Berkley Pump Station Upgrade	$115,000	$725,000	$0	$0	$0	$0	$130,000	$710,000	$840,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
41	21.07	Interceptor Sewer and Manhole Repair (Phase 2)	$1,230,000	$195,000	$1,010,000	$80,000	$335,000	$0	$0	$0	$1,425,000	$193,423
42	24.02	Interceptor Sewer and Manhole Repair (Phase 3)	$600,000	$1,145,000	$0	$0	$0	$0	$615,000	$1,130,000	$1,745,000	$0
43	20.34	Moores Creek AWRRF Engineering and Administration Building	$10,500,000	$9,500,000	$1,200,000	$8,300,000	$10,500,000	$0			$20,000,000	$246,592
44	20.67	Moores Creek AWRRF Biogas Upgrades	$3,595,000	$2,055,000	$3,365,000	$0	$1,770,000	$515,000	$0	$0	$5,650,000	$61,484
45	20.68	Moores Creek AWRRF Building Upfits and Gravity Thickener Improvements	$4,555,000	$595,000	$1,265,000	$2,990,000	$895,000	$0	$0	$0	$5,150,000	$17,011
46	21.11	Moores Creek AWWRF Meter and Valve Replacements	$775,000	($300,000)	$775,000	($300,000)	$0	$0	$0	$0	$475,000	$163,254
47	21.18	Moores Creek AWWRF 5kV Electrical System Upgrade	$5,635,000	$565,000	$5,830,000	$370,000	$0				$6,200,000	$1,245,490
48	22.10	Moores Creek AWRRF Yard Piping Upgrades	$315,000	$485,000	$0	$30,000	$0	$0	$390,000	$380,000	$800,000	$0
49	22.12	Moores Creek AWRRF Structural and Concrete Rehabilitation	$11,300,000	$0	$7,095,000	$0	$4,205,000	$0	$0	$0	$11,300,000	$17,572
50	24.08	Moores Creek AWRRF MCPS Slide Gates, Valves, Bypass and Septage Receiving Upgrades	$3,600,000	$0	$330,000	$2,055,000	$1,215,000	$0	$0	$0	$3,600,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
51	25.07	Moores Creek AWRRF Blower Building Ventilation Improvements	$0	$600,000	$0	$80,000	$520,000	$0	$0	$0	$600,000	$0
52	21.12	Scottsville WRRF Whole Plant Generator and ATS	$520,000	$0	$495,000	$25,000	$0	$0	$0	$0	$520,000	$65,940
53	23.24	Scottsville WRRF Lagoon Outfall Rehabilitation	$25,000	$275,000	$0	$0	$0	$0	$30,000	$270,000	$300,000	$0
54	23.25	Scottsville WRRF Polymer Feed Addition	$26,000	$244,000	$0	$0	$0	$0	$30,000	$240,000	$270,000	$0
55	20.42	Glenmore WRRF Polymer Feed Addition	$30,000	$280,000	$0	$0	$0	$0	$40,000	$270,000	$310,000	$0
56	24.14	Glenmore WRRF Upgrade	$0	$1,335,000	$0	$75,000	$750,000	$60,000	$0	$450,000	$1,335,000	$0
57	20.45	Asset Management	$752,448	$0	$717,448	$35,000	$0				$752,448	$3,884
58	20.46	Security Enhancements	$2,980,000	$0	$2,695,000	$285,000	$0				$2,980,000	$1,225,484
59	20.47	IT Infrastructure	$373,250	$226,750	$373,250	$226,750					$600,000	
60	23.27	ACM Remediation	$94,000	$617,000	$0	$0	$0	$0	$96,000	$615,000	$711,000	$0

CIP Financial Summary
(Continued)

			Five-Year Capital Program			Projected Future Expenses by Year						
Line No.	**Proj. No.**	**Project Description**	**Current CIP Adopted 5/2023**	**Proposed Changes**	**Current Capital Budget**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**	**Recommended CIP**	**Work-in-Progress (Prev. Expenses 6/30/2023)**
61	24.06	Climate Change Flood Resiliance	$130,000	$670,000	$130,000	$0	$0	$0	$0	$670,000	$800,000	$0
62	25.10	Radio Upgrades	$0	$210,988	$0	$210,988	$0	$0	$0	$0	$210,988	$0
63	25.08	IT Equipment Secure Cabinets	$0	$200,000	$0	$0	$120,000	$80,000	$0	$0	$200,000	$0
64	25.09	eV Charging Infrastructure	$0	$135,000	$0	$30,000	$35,000	$0	$35,000	$35,000	$135,000	$0
		Total	$282,220,698	$88,779,738	$79,011,698	$38,546,738	$87,680,000	$58,890,000	$59,481,000	$47,391,000	$371,000,436	$14,362,248

Water System Summary

Urban Water System	Summary Current CIP	Summary Changes	Current Capital Budget	Projected Future Expenses by Year FY25	FY26	FY27	FY28	FY29	Recommended CIP	Work-in -Progress
PROJECT COSTS										
Community Water Supply Plan	$ 85,365,000	$ 42,410,000	$ 10,855,000	$ 10,955,000	$ 28,215,000	$ 28,250,000	$ 24,860,000	$ 24,640,000	$ 127,775,000	$ 1,079,491
Urban Water Treatement and Reservoir	4,025,000	5,095,000	4,445,000	945,000	3,930,000	325,000	600,000	2,775,000	13,020,000	76,110
Finished Water Storage/Distribution - Urban System	73,050,000	9,546,000	22,515,000	9,670,000	14,130,000	12,800,000	14,715,000	8,766,000	82,596,000	8,252,084
Total Projects Urban Water Systems	**$ 162,440,000**	**$ 57,051,000**	**$ 37,815,000**	**$ 21,570,000**	**$ 46,275,000**	**$ 41,375,000**	**$ 40,175,000**	**$ 36,181,000**	**$ 223,391,000**	**$ 9,407,685**
FUNDING SOURCES URBAN SYSTEM - TO DATE										
Work-in-Progress			$ 9,407,700	$ -	$ -	$ -	$ -	$ -	$ 9,407,700	
Debt Proceeds - 2018 & 2021Bond			4,216,100	-	-	-	-	-	4,216,100	
Capital Funds Available			-	-	-	-	-	-	-	
SUBTOTAL			13,623,800	-	-	-	-	-	13,623,800	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash reserve transfer to Capital Fund				$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 500,000	$ 500,000	$ 4,000,000	
Grants				$ 500,000	$ 1,000,000	$ 1,500,000	$ 1,000,000		4,000,000	
New Debt Needed			20,291,200	20,070,000	44,275,000	38,875,000	38,675,000	35,681,000	197,867,200	
SUBTOTAL			20,291,200	21,570,000	46,275,000	41,375,000	40,175,000	36,181,000	205,867,200	
TOTAL URBAN WATER FUNDING			**$ 33,915,000**	**$ 21,570,000**	**$ 46,275,000**	**$ 41,375,000**	**$ 40,175,000**	**$ 36,181,000**	**$ 219,491,000**	
									$219,491,000	
Estimated Bond Issues					**$84,636,200**		**$113,231,000**		**$197,867,200**	

Non-Urban Water System	Summary Current CIP	Summary Proposed Changes	Current Capital Budget	Projected Future Expenses by Year FY25	FY26	FY27	FY28	FY29	Recommended CIP	Work-in -Progress
PROJECT COSTS										
Crozet Water System	$ 51,310,000	$ 7,490,000	$ 9,575,000	$ 85,000	$ 14,865,000	$ 14,185,000	$ 16,895,000	$ 3,195,000	$ 58,800,000	$ 1,578,890
Scottsville Water System	1,420,000	1,680,000	511,000	299,000	-	-	695,000	1,595,000	3,100,000	42,486
Total Rural Water Systems	**$ 52,730,000**	**$ 9,170,000**	**$ 10,086,000**	**$ 384,000**	**$ 14,865,000**	**$ 14,185,000**	**$ 17,590,000**	**$ 4,790,000**	**$ 61,900,000**	**$ 1,621,376**
Non-URBAN FUNDING SOURCES										
Work in Progress			$ 1,621,400	$ -	$ -	$ -	$ -	$ -	$ 1,621,400	
Grants				46,890	6,451,410	7,086,770	7,332,430		20,917,500	
Capital Funds Available			-						-	
Debt Proceeds - 2018 & 2021Bond			-	-	-	-	-	-	-	
Future Cash reserve transfer to Capital Fund			-	450,000	250,000	100,000	-	-	800,000	
New Debt Needed			8,464,600	(112,890)	8,163,590	6,998,230	10,257,570	4,790,000	38,561,100	
TOTAL NON-URBAN WATER FUNDING			**$ 10,086,000**	**$ 384,000**	**$ 14,865,000**	**$ 14,185,000**	**$ 17,590,000**	**$ 4,790,000**	**$ 61,900,000**	
Estimated Bond Issues				**$16,515,300**			**22,045,800**		**$38,561,100**	

Wastewater System Summary

	Summary			Projected Future Expenses by Year						
Urban Wastewater System	**Current CIP**	**Changes**	**Current Capital Budget**	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Wastewater Interceptor/Pumping Stations	$ 17,945,000	$ 4,865,000	$ 6,840,000	$ 2,180,000	$ 6,530,000	$ 2,675,000	$ 1,095,000	$ 3,490,000	$ 22,810,000	$ 286,477
Moores Creek WWTP	40,275,000	13,500,000	19,860,000	13,525,000	19,105,000	515,000	390,000	380,000	53,775,000	1,751,403
Total Urban Wastewater Systems	**$ 58,220,000**	**$ 18,365,000**	**$26,700,000**	**$15,705,000**	**$25,635,000**	**$3,190,000**	**$1,485,000**	**$3,870,000**	**$76,585,000**	**$2,037,880**
FUNDING SOURCES URBAN SYSTEM - IN PLACEA										
Work-in-Progress			$ 2,037,800	$ -	$ -	$ -	$ -	$ -	$ 2,037,800	
Debt Proceeds - 2018 & 2021Bond			1,237,800	-	-	-	-		1,237,800	
Capital Funds Available			1,300,000	-	-	-	-	-	1,300,000	
SUBTOTAL			4,575,600	-	-	-	-	-	4,575,600	
FUNDING SOURCES URBAN SYSTEM - NEEDS										
Future Cash Reserves			$ -	$ 1,500,000	$ 1,500,000	$ 1,500,000	$ -	$ 1,500,000	$ 6,000,000	
New Debt Needed			22,124,400	14,205,000	24,135,000	1,690,000	1,485,000	2,370,000	66,009,400	
SUBTOTAL			22,124,400	$15,705,000	25,635,000	3,190,000	1,485,000	3,870,000	72,009,400	
TOTAL URBAN WASTEWATER FUNDING			**$ 26,700,000**	**$ 15,705,000**	**$ 25,635,000**	**$ 3,190,000**	**$ 1,485,000**	**$ 3,870,000**	**$ 76,585,000**	
Estimated Bond Issues					**$ 60,464,400**		**$ 5,545,000**		**$ 66,009,400**	

	Summary			Projected Future Expenses by Year						
Non-Urban Wastewater System	**Current CIP**	**Proposed Changes**	**Current Capital Budget**	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Glenmore WWTP	$ 30,000	$ 1,615,000	$ -	$ 75,000	$ 750,000	$ 60,000	$ 40,000	$ 720,000	$ 1,645,000	$ -
Scottsville WWTP	571,000	519,000	495,000	25,000	-	-	60,000	510,000	1,090,000	65,940
Total Rural Wastewater Systems	**$601,000**	**$2,134,000**	**$ 495,000**	**$ 100,000**	**$ 750,000**	**$ 60,000**	**$ 100,000**	**$ 1,230,000**	**$ 2,735,000**	**$ 65,940**
FUNDING SOURCES RURAL SYSTEM - NEEDS										
Work in Progress			$ 65,940	$ -	$ -	$ -	$ -	$ -	$ 65,940	
Debt Proceeds - 2018 & 2021Bond			$ -	$ -					-	
Future Cash Reserve			-	-	-	-			-	
New Debt Needed			429,060	100,000	750,000	60,000	100,000	1,230,000	2,669,060	
TOTAL RURAL WASTEWATER FUNDING			**$ 495,000**	**$ 100,000**	**$ 750,000**	**$ 60,000**	**$ 100,000**	**$ 1,230,000**	**$ 2,735,000**	
Estimated Bond Issues					**$ 1,339,060**					

All Systems Summary

	Summary			Projected Future Expenses by Year						
Shared Projects - All Rate Centers	**Current CIP**	**Changes**	**Current Capital Budget**	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**Recommended CIP**	**Work-in - Progress**
PROJECT COSTS										
Authority Wide Projects	$ 4,329,698	$ 2,059,738	$ 3,915,698	$ 787,738	$ 155,000	$ 80,000	$ 131,000	$ 1,320,000	$ 6,389,436	$ 1,229,368
Total Projects Urban Water Systems	**$ 4,329,698**	**$ 2,059,738**	**$ 3,915,698**	**$ 787,738**	**$ 155,000**	**$ 80,000**	**$ 131,000**	**$ 1,320,000**	**$ 6,389,436**	**$ 1,229,368**
FUNDING SOURCES										
Work in Progress			$ 1,229,400						$ 1,229,400	
Possible Future Reserves			$ 1,000,000	$ 500,000	$0			$500,000	$ 2,000,000	
New Debt Needed			$ 1,686,298	$ 287,738	$ 155,000	$ 80,000	$ 131,000	$ 820,000	$ 3,160,036	
									-	
TOTAL URBAN WATER FUNDING			**$ 3,915,698**	**$ 787,738**	**$ 155,000**	**$ 80,000**	**$ 131,000**	**$ 1,320,000**	**$ 6,389,436**	
Estimated Bond Issues					**$3,160,036**					

Summary Information

	2025 - 2029 Draft CIP	2024 - 2028 Adopted CIP	Change $
Project Cost			
Urban Water Projects	$ 223,391,000	$ 209,590,000	$ 13,801,000
Urban Wastewater Projects	76,585,000	58,220,000	18,365,000
Non-Urban Projects & Shared	71,024,400	58,315,000	12,709,400
Total Project Cost Estimates	**$ 371,000,400**	**$ 326,125,000**	**$ 44,875,400**
Funding in place			
Work-in-Progress (paid for)	$ 14,362,040	$ 35,570,900	(21,208,860)
Debt Proceeds Available	9,353,800	25,472,300	(16,118,500)
Cash-Capital Available	1,300,000	2,000,000	(700,000)
	$ 25,015,840	$ 63,043,200	$ (38,027,360)
Financing Needs			
Possible Future Reserves	$ 12,800,000	$ 10,435,000	2,365,000
Grants	24,917,500	20,560,000	4,357,500
New Debt	308,267,060	232,086,800	76,180,260
	$ 345,984,560	$ 263,081,800	$ 82,902,760
Total Funding	**$ 371,000,400**	**$ 326,125,000**	**$ 44,875,400**

Percentage of funding in place	6.7%	19.3%
Ratio of debt to expense	89.5%	89.9%
Ratio of grant to expense	6.7%	6.3%
Ratio of cash to expense	3.8%	3.8%

Summary Information

Detail by Major Systems	Total CIP	Urban Water Projects	Urban Wastewater Projects	Shared Projects	Water Non-Urban Projects	Wastewater Non-Urban Projects
Project Cost						
Urban Water Projects	$ 223,391,000	$ 223,391,000	$ -		$ -	$ -
Urban Wastewater Projects	76,585,000	-	76,585,000		-	-
Non-Urban Projects & Shared	71,024,400	-	-	6,389,400	61,900,000	2,735,000
Total Project Cost Estimates	**$ 371,000,400**	**$ 223,391,000**	**$ 76,585,000**	**$ 6,389,400**	**$ 61,900,000**	**$ 2,735,000**
Funding in place						
Work-in-Progress (paid for)	$ 14,362,040	$ 9,407,500	$ 2,037,800	$ 1,229,400	$ 1,621,400	$ 65,940
Debt Proceeds available	9,353,800	8,116,000	1,237,800	-	-	-
Cash-Capital Available	1,300,000	-	1,300,000	-	-	-
Subtotal	$ 25,015,840	$ 17,523,500	$ 4,575,600	$ 1,229,400	$ 1,621,400	$ 65,940
Financing Needs						
Possible Future Reserves	$ 12,800,000	4,000,000	6,000,000	2,000,000	800,000	-
Grants	24,917,500	4,000,000	-	-	20,917,500	
New Debt	308,267,060	197,867,500	66,009,400	3,160,000	38,561,100	2,669,060
Subtotal	$ 345,984,560	$ 205,867,500	$ 72,009,400	$ 5,160,000	$ 60,278,600	$ 2,669,060
Total Funding	**$ 371,000,400**	**$ 223,391,000**	**$ 76,585,000**	**$ 6,389,400**	**$ 61,900,000**	**$ 2,735,000**
Percentage of funding in place	6.7%	7.8%	6.0%	19.2%	2.6%	2.4%
Ratio of debt to expense	89.5%	92.2%	87.8%	49.5%	62.3%	97.6%
Ratio of cash to expense	3.8%	1.8%	9.5%	31.3%	1.3%	0.0%

Summary Information

	Urban Water	Urban Wastewater	Non-Urban	Shared	Total	Current Adopted
Adopted CIP 2024 - 2028	$ 209,590,000	$ 58,220,000	$ 57,714,000	$ 601,000	$ 326,125,000	
Completed or closed projects	(47,150,000)	-	-	(654,302)	(47,804,302)	
Adopted - Adusted	162,440,000	58,220,000	57,714,000	(53,302)	278,320,698	
Changes:						
Rollover for FY 2029 (roughly)	36,631,000	3,870,000	6,020,000	128,500	46,649,500	
Adjustments on existing projects or new projects	20,420,000	14,495,000	901,000	6,314,238	42,130,238	
Total Changes	**57,051,000**	**18,365,000**	**6,921,000**	**6,442,738**	**88,779,738**	
Total Proposed CIP 2025 - 2029	$ 219,491,000	$ 76,585,000	$ 64,635,000	$ 6,389,436	$ 367,100,436	326,125,000
Years 6 - 10 (FY 2030-34)					$ 104,093,000	218,641,755
Years 11 - 15 (FY 2035-39)					$ 107,318,000	165,880,000
		TOTAL 15 YEAR CIP			**$ 578,511,436**	**$ 710,646,755**
						(47,804,302) Completed
						$ 662,842,453 Net CIP

Summary Information

Draft 2

		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
City of Charlottesville Charges													
Urban Water													
Operating Rate	Per 1000 gal.	$ 2.653	$ 2.949	$ 3.363	$ 3.699	$ 4.069	$ 4.476	$ 4.924	$ 5.219	$ 5.532	$ 5.864	$ 6.216	$ 6.589
	% Change	13.1%	11.2%	14.0%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	249,497	307,200	376,226	448,561	508,606	576,011	643,652					
		1.3%	23.1%	22.5%	19.2%	13.4%	13.3%	11.7%					
Revenue Requirements:				16.38%									
Operating Rate Revenue	Annual	$ 4,417,300	$ 4,810,300	$ 5,598,400	$ 6,158,240	$ 6,774,064	$ 7,451,470	$ 8,196,617	$ 8,688,414	$ 9,209,719	$ 9,762,303	$ 10,348,041	$ 10,968,923
Debt Service Revenues	Annual	2,994,000	3,686,400	4,514,700	5,382,736	6,103,269	6,912,128	7,723,818	-	-	-	-	-
Total		**$ 7,411,300**	**$ 8,496,700**	**$ 10,113,100**	**$ 11,540,976**	**$ 12,877,333**	**$ 14,363,598**	**$ 15,920,435**	**$ 8,688,414**	**$ 9,209,719**	**$ 9,762,303**	**$ 10,348,041**	**$ 10,968,923**
	$ Change		**$ 1,085,400**	**$ 1,616,400**	**$ 1,427,876**	**$ 1,336,357**	**$ 1,486,265**	**$ 1,556,837**	**$ 491,797**	**$ 521,305**	**$ 552,583**	**$ 585,738**	**$ 620,882**
	% Change		**14.6%**	**19.0%**	**14.1%**	**11.6%**	**11.5%**	**10.8%**					
Urban Wastewater													
Operating Rate	Per 1000 gal.	2.664	2.922	3.247	3.572	3.929	4.322	4.754	5.039	5.341	5.662	6.002	6.362
	% Change	5.8%	9.7%	11.1%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	384,637	$ 394,890	415,446	436,712	455,092	473,672	494,962					
		2.3%	2.7%	5.2%	5.1%	4.2%	4.1%	4.5%					
Revenue Requirements:				13.51%									
Operating Rate Revenue	Annual	$ 4,245,800	$ 4,557,800	$ 5,173,500	$ 5,690,850	$ 6,259,935	$ 6,885,929	$ 7,574,521	$ 8,028,993	$ 8,510,732	$ 9,021,376	$ 9,562,659	$ 10,136,418
Debt Service Revenues	Annual	4,615,644	4,738,800	4,985,500	5,240,540	5,461,100	5,684,060	5,939,540	-	-	-	-	-
Total		**$ 8,861,444**	**$ 9,296,600**	**$ 10,159,000**	**$ 10,931,390**	**$ 11,721,035**	**$ 12,569,989**	**$ 13,514,061**	**$ 8,028,993**	**$ 8,510,732**	**$ 9,021,376**	**$ 9,562,659**	**$ 10,136,418**
	$ Change		**$ 435,156**	**$ 862,400**	**$ 772,390**	**$ 789,645**	**$ 848,954**	**$ 944,073**	**$ 454,471**	**$ 481,740**	**$ 510,644**	**$ 541,283**	**$ 573,760**
	% Change		**4.9%**	**9.3%**	**7.6%**	**7.2%**	**7.2%**	**7.5%**					
Total all Rate Centers													
Operating Rate Revenue		**$ 8,663,100**	**$ 9,368,100**	**$ 10,771,900**	**$ 11,849,090**	**$ 13,033,999**	**$ 14,337,399**	**$ 15,771,139**	**$ 16,717,407**	**$ 17,720,452**	**$ 18,783,679**	**$ 19,910,699**	**$ 21,105,341**
Debt Service Revenues		**7,609,644**	**8,425,200**	**9,500,200**	**10,623,276**	**11,564,369**	**12,596,188**	**13,663,358**	**13,663,358**	**13,663,358**	**13,663,358**	**13,663,358**	**13,663,358**
Total City All Revenues		**$ 16,272,744**	**$ 17,793,300**	**$ 20,272,100**	**$ 22,472,366**	**$ 24,598,368**	**$ 26,933,587**	**$ 29,434,497**	**$ 30,380,765**	**$ 31,383,810**	**$ 32,447,037**	**$ 33,574,057**	**$ 34,768,699**
	$ Change		**$ 1,520,556**	**$ 2,478,800**	**$ 2,200,266**	**$ 2,126,002**	**$ 2,335,219**	**$ 2,500,910**	**$ 946,268**	**$ 1,003,044**	**$ 1,063,227**	**$ 1,127,021**	**$ 1,194,642**
	% Change		**9.3%**	**13.9%**	**10.9%**	**9.5%**	**9.5%**	**9.3%**					
									168,474	**(311,563)**	**(341,983)**	**162,642**	**406,622**
10-Year CIP Debt Service					**101,766**	**280,429**	**584,969**	**1,010,777**	**1,179,251**	**867,688**	**525,705**	**688,347**	**1,094,969**
Total Estimated Charge		**$ 16,272,744**	**$ 17,793,300**	**$ 20,272,100**	**$ 22,574,132**	**$ 24,878,797**	**$ 27,518,556**	**$ 30,445,274**	**$ 31,560,016**	**$ 32,251,498**	**$ 32,972,742**	**$ 34,262,404**	**$ 35,863,668**
% Change			**$ 0**	**13.9%**	**11.4%**	**10.2%**	**10.6%**	**10.6%**	**3.7%**	**2.2%**	**2.2%**	**3.9%**	**4.7%**
	Additional Annual Revenues			***$ 2,478,800***	***$ 2,302,032***	***$ 2,304,665***	***$ 2,639,759***	***$ 2,926,718***	***$ 1,114,742***	***$ 691,481***	***$ 721,244***	***$ 1,289,663***	***$ 1,601,264***
				13.9%	***11.4%***	***10.2%***	***10.6%***	***10.6%***	***3.7%***	***2.2%***	***2.2%***	***3.9%***	***4.7%***

Summary Information

		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
ACSA Charges													
Urban Water													
Operating Rate	Per 1000 gal.	2.653	2.949	3.363	3.699	4.069	4.476	4.924	5.219	5.532	5.864	6.216	6.589
	% Change	0.0%	11.2%	14.0%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 442,355	$ 542,282	673,264	810,644	935,905	1,068,138	1,201,275					
		8.1%	22.6%	24.2%	20.4%	15.5%	14.1%	12.5%					
Revenue Requirements:				11.82%	10.00%	10.00%	10.00%	10.00%					
Operating Rate Revenue	Annual	$ 4,597,600	$ 5,211,100	$ 5,826,900	$ 6,409,590	$ 7,050,549	$ 7,755,604	$ 8,531,164	$ 9,043,034	$ 9,585,616	$ 10,160,753	$ 10,770,398	$ 11,416,622
Debt Service Revenues	Annual	5,308,200	6,507,400	8,079,200	9,727,722	11,230,860	12,817,652	14,415,304	-	-	-	-	-
Total		**$ 9,905,800**	**$ 11,718,500**	**$ 13,906,100**	**$ 16,137,312**	**$ 18,281,409**	**$ 20,573,256**	**$ 22,946,468**	**$ 9,043,034**	**$ 9,585,616**	**$ 10,160,753**	**$ 10,770,398**	**$ 11,416,622**
	$ Change		**$ 1,812,700**	**$ 2,187,600**	**$ 2,231,212**	**$ 2,144,097**	**$ 2,291,847**	**$ 2,373,212**	**$ 511,870**	**$ 542,582**	**$ 575,137**	**$ 609,645**	**$ 646,224**
	% Change		**$ 0**	**18.7%**	**16.0%**	**13.3%**	**12.5%**	**11.5%**					
Urban Wastewater													
Operating Rate	Per 1000 gal.	2.664	2.922	3.247	3.572	3.929	4.322	4.754	5.039	5.341	5.662	6.002	6.362
	% Change	5.8%	9.7%	11.1%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 355,205	$ 383,403	412,149	458,802	497,712	536,622	575,532					
		5.1%	0.0%	7.5%	11.3%	8.5%	7.8%	7.3%					
Revenue Requirements:				9.04%	10.00%	10.00%	10.00%	10.00%					
Operating Rate Revenue	Annual	$ 4,787,800	$ 5,350,500	$ 5,834,000	$ 6,417,400	$ 7,059,140	$ 7,765,054	$ 8,541,559	$ 9,054,053	$ 9,597,296	$ 10,173,134	$ 10,783,522	$ 11,430,533
Debt Service Revenues	Annual	4,262,460	4,600,800	4,945,800	5,505,625	5,972,545	6,439,465	6,906,385	-	-	-	-	-
Total		$ 9,050,260	$ 9,951,300	$ 10,779,800	$ 11,923,025	$ 13,031,685	$ 14,204,519	$ 15,447,944	$ 9,054,053	$ 9,597,296	$ 10,173,134	$ 10,783,522	$ 11,430,533
	$ Change		**$ 901,040**	**$ 828,500**	**$ 1,143,225**	**$ 1,108,660**	**$ 1,172,834**	**$ 1,243,425**	**$ 512,494**	**$ 543,243**	**$ 575,838**	**$ 610,388**	**$ 647,011**
	% Change		**10.0%**	**8.3%**	**10.6%**	**9.3%**	**9.0%**	**8.8%**					
Non-Urban Rate Centers				10.86%	10.00%	10.00%	10.00%	10.00%					
Operating Rate Revenue	Annual	$ 2,565,900	$ 2,797,300	3,101,200	3,411,320	3,752,452	4,127,697	4,540,467	4,812,895	5,101,669	5,407,769	5,732,235	6,076,169
Debt Service Revenues	Annual	2,342,600	2,585,800	2,862,100	3,245,900	3,629,700	4,013,500	4,397,300	-				
Total		**$ 4,908,500**	**$ 5,383,100**	**$ 5,963,300**	**$ 6,657,220**	**$ 7,382,152**	**$ 8,141,197**	**$ 8,937,767**	**$ 4,812,895**	**$ 5,101,669**	**$ 5,407,769**	**$ 5,732,235**	**$ 6,076,169**
			$ 474,600	**$ 580,200**	**$ 693,920**	**$ 724,932**	**$ 759,045**	**$ 796,570**	**$ 272,428**	**$ 288,774**	**$ 306,100**	**$ 324,466**	**$ 343,934**
			9.7%	**10.8%**	**11.6%**	**10.9%**	**10.3%**	**9.8%**					
Total all Rate Centers													
Operating Rate Revenue		**$ 11,951,300**	**$ 13,358,900**	**$ 14,762,100**	**$ 16,238,310**	**$ 17,862,141**	**$ 19,648,355**	**$ 21,613,191**	**$ 22,909,982**	**$ 24,284,581**	**$ 25,741,656**	**$ 27,286,155**	**$ 28,923,324**
Debt Service Revenues		**11,913,260**	**13,694,000**	**15,887,100**	**18,479,247**	**20,833,105**	**23,270,617**	**25,718,989**	**25,718,989**	**25,718,989**	**25,718,989**	**25,718,989**	**25,718,989**
Total ACSA All Revenues		**$ 23,864,560**	**$ 27,052,900**	**$ 30,649,200**	**$ 34,717,557**	**$ 38,695,246**	**$ 42,918,972**	**$ 47,332,180**	**$ 48,628,971**	**$ 50,003,570**	**$ 51,460,645**	**$ 53,005,144**	**$ 54,642,313**
	$ Change		**$ 3,188,340**	**$ 3,596,300**	**$ 4,068,357**	**$ 3,977,689**	**$ 4,223,726**	**$ 4,413,208**	**$ 1,296,791**	**$ 1,374,599**	**$ 1,457,075**	**$ 1,544,499**	**$ 1,637,169**
	% Change		**13.4%**	**13.3%**	**13.3%**	**11.5%**	**10.9%**	**10.3%**					
10-Year CIP Debt Service					**347,458**	**929,234**	**1,649,343**	**2,490,682**	**2,857,773**	**2,660,491**	**2,345,940**	**2,562,393**	**3,003,685**
Total Estimated Charge		**$ 23,864,560**	**$ 27,052,900**	**$ 30,649,200**	**$ 35,065,015**	**$ 39,624,480**	**$ 44,568,315**	**$ 49,822,862**	**$ 51,486,744**	**$ 52,664,061**	**$ 53,806,585**	**$ 55,567,537**	**$ 57,645,999**
% Change			**$ 0**	**13.3%**	**14.4%**	**13.0%**	**12.5%**	**11.8%**	**3.3%**	**2.3%**	**2.2%**	**3.3%**	**3.7%**
	Additional Annual Revenues			***$ 3,596,300***	***$ 4,415,815***	***$ 4,559,465***	***$ 4,943,835***	***$ 5,254,547***	***$ 1,663,882***	***$ 1,177,317***	***$ 1,142,524***	***$ 1,760,952***	***$ 2,078,461***
				13.3%	***14.4%***	***13.0%***	***12.5%***	***11.8%***	***3.3%***	***2.3%***	***2.2%***	***3.3%***	***3.7%***

Summary Information

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
RWSA												
Operations Revenues												
Urban Water	$ 9,014,900	$ 10,021,400	$ 11,425,300	$ 12,567,830	$ 13,824,613	$ 15,207,074	$ 16,727,782	$ 17,731,449	$ 18,795,336	$ 19,923,056	$ 21,118,439	$ 22,385,545
Urban Wastewater	9,033,600	9,908,300	11,007,500	12,108,250	13,319,075	14,650,983	16,116,081	17,083,046	18,108,028	19,194,510	20,346,181	21,566,951
Other Rate Centers	2,565,900	2,797,300	3,101,200	3,411,320	3,752,452	4,127,697	4,540,467	4,812,895	5,101,669	5,407,769	5,732,235	6,076,169
Total	$ 20,614,400	$ 22,727,000	$ 25,534,000	$ 28,087,400	$ 30,896,140	$ 33,985,754	$ 37,384,329	$ 39,627,389	$ 42,005,033	$ 44,525,334	$ 47,196,855	$ 50,028,666
Change $		2,112,600	2,807,000	2,553,400	2,808,740	3,089,614	3,398,575	2,243,060	2,377,643	2,520,302	2,671,520	2,831,811
Change %		10.2%	12.4%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge Revenues												
Urban Water	8,302,200	10,193,800	12,593,900	15,110,458	17,334,129	19,729,780	22,139,122					
Urban Wastewater	8,878,104	9,339,600	9,931,300	10,746,165	11,433,645	12,123,525	12,845,925					
Other Rate Centers	2,342,600	2,585,800	2,862,100	3,245,900	3,629,700	4,013,500	4,397,300					
	$ 19,522,904	$ 22,119,200	$ 25,387,300	$ 29,102,523	$ 32,397,474	$ 35,866,805	$ 39,382,347	$ 39,382,347	$ 39,382,347	$ 39,382,347	$ 39,382,347	$ 39,382,347
Change $		2,596,296	3,268,100	3,715,223	3,294,951	3,469,331	3,515,542					
Change %		13.3%	14.8%	14.6%	11.3%	10.7%	9.8%					
Total RWSA Customer Revenues	**$ 40,137,304**	**$ 44,846,200**	**$ 50,921,300**	**$ 57,189,923**	**$ 63,293,614**	**$ 69,852,559**	**$ 76,766,676**	**$ 79,009,736**	**$ 81,387,380**	**$ 83,907,681**	**$ 86,579,202**	**$ 89,411,013**
Change $		**$ 4,708,896**	**$ 6,075,100**	**$ 6,268,623**	**$ 6,103,691**	**$ 6,558,945**	**$ 6,914,117**	**$ 2,243,060**	**$ 2,377,643**	**$ 2,520,302**	**$ 2,671,520**	**$ 2,831,811**
Change %		**11.7%**	**13.5%**	**12.3%**	**10.7%**	**10.4%**	**9.9%**	**2.9%**	**3.0%**	**3.1%**	**3.2%**	**3.3%**
Additional for 10-Year CIP				**449,224**	**1,209,663**	**2,234,312**	**3,501,459**	**4,037,024**	**3,528,179**	**2,871,645**	**3,250,740**	**4,098,654**
Total Estimated Charge	**$ 40,137,304**	**$ 44,846,200**	**$ 50,921,300**	**$ 57,639,147**	**$ 64,503,277**	**$ 72,086,871**	**$ 80,268,135**	**$ 83,046,760**	**$ 84,915,558**	**$ 86,779,327**	**$ 89,829,942**	**$ 93,509,666**
% Change		**0.0%**	**13.5%**	**13.2%**	**11.9%**	**11.8%**	**11.3%**	**3.5%**	**2.3%**	**2.2%**	**3.5%**	**4.1%**
			$ 50,921,300	***$ 57,639,147***	***$ 64,503,277***	***$ 72,086,871***	***$ 80,268,135***	***$ 83,046,760***	***$ 84,915,558***	***$ 86,779,327***	***$ 89,829,942***	***$ 93,509,666***
	Additional Annual Revenues		***$ 6,075,100***	***$ 6,717,847***	***$ 6,864,130***	***$ 7,583,594***	***$ 8,181,264***	***$ 2,778,625***	***$ 1,868,798***	***$ 1,863,769***	***$ 3,050,615***	***$ 3,679,725***
			13.5%	***13.2%***	***11.9%***	***11.8%***	***11.3%***	***3.5%***	***2.3%***	***2.2%***	***3.5%***	***4.1%***

Proposed FY 25-29 Capital Improvement Program


Ragged Mountain Reservoir

RWSA BOARD OF DIRECTORS

FEBRUARY 27, 2024

DIRECTOR OF ENGINEERING & MAINTENANCE

JENNIFER WHITAKER

Goals of the FY 25 – 29 CIP

1. *Maintain our drinking water and wastewater infrastructure to provide reliable services which comply with or exceed regulatory requirements.*
2. *In preparation for the uncertainties of climate change, enhance the capacity, reliability and resilience of our community's drinking water supply by completing the Rivanna to Ragged Pipeline and Pumping project as soon as possible (by 2030 rather than 2033); completing the Ragged Mountain to Observatory Pipeline and Pumping Project, and raising the Ragged Mtn. Reservoir normal pool and begin filling by 2026 (as rainfall patterns allow).*
3. *Install critical drinking water infrastructure to reliably meet the needs of the entire service area now and in the future by constructing the Airport Road Pumping Station, the second South and North Fork Rivanna River crossings, the Central Waterline, and decommissioning of the North Fork WTP.*
4. *Continue to enhance our abilities to address emerging contaminants at both the water and wastewater facilities. Provide additional GAC filtering capacity at Red Hill and Crozet WTPs using grant funding from Albemarle County ($400k) and VDH ($3.4 M).*
5. *Leverage partnerships with City Utilities, UVA, and VDOT to reduce costs and disruption of piping projects in key roadways such as the Emmet Street and High Street corridors.*
6. *Complete the CIP in an environmentally protective and financially responsible manner.*

FY 25 – 29
Capital Improvement Program

64 Projects, $371 M

Urban Water	Urban Wastewater	Non-Urban Projects & Shared	Total
$223.4 M	$76.6 M	$71 M	$371 M

Funding & Financing

Already Paid For	Ex. Debt Proceeds	Cash Reserves	Grants	New Debt	Total
$14.4 M	$9.4 M	$14.1 M	$24.9 M	$308.3 M	$371 M

FY 25 – 29
Capital Improvement Program

Line Item	Cost
FY 24-28 Capital Improvement Plan	$326,125,000
Completed Projects	($43,904,302)
FY 29 Projects	$47,391,000
New Projects (7)	$2,685,988
Accelerated Projects (1)	$13,620,000
Inflation and & Scope Additions	$25,082,750
Total	**$371,000,436**

Major Programs and Projects

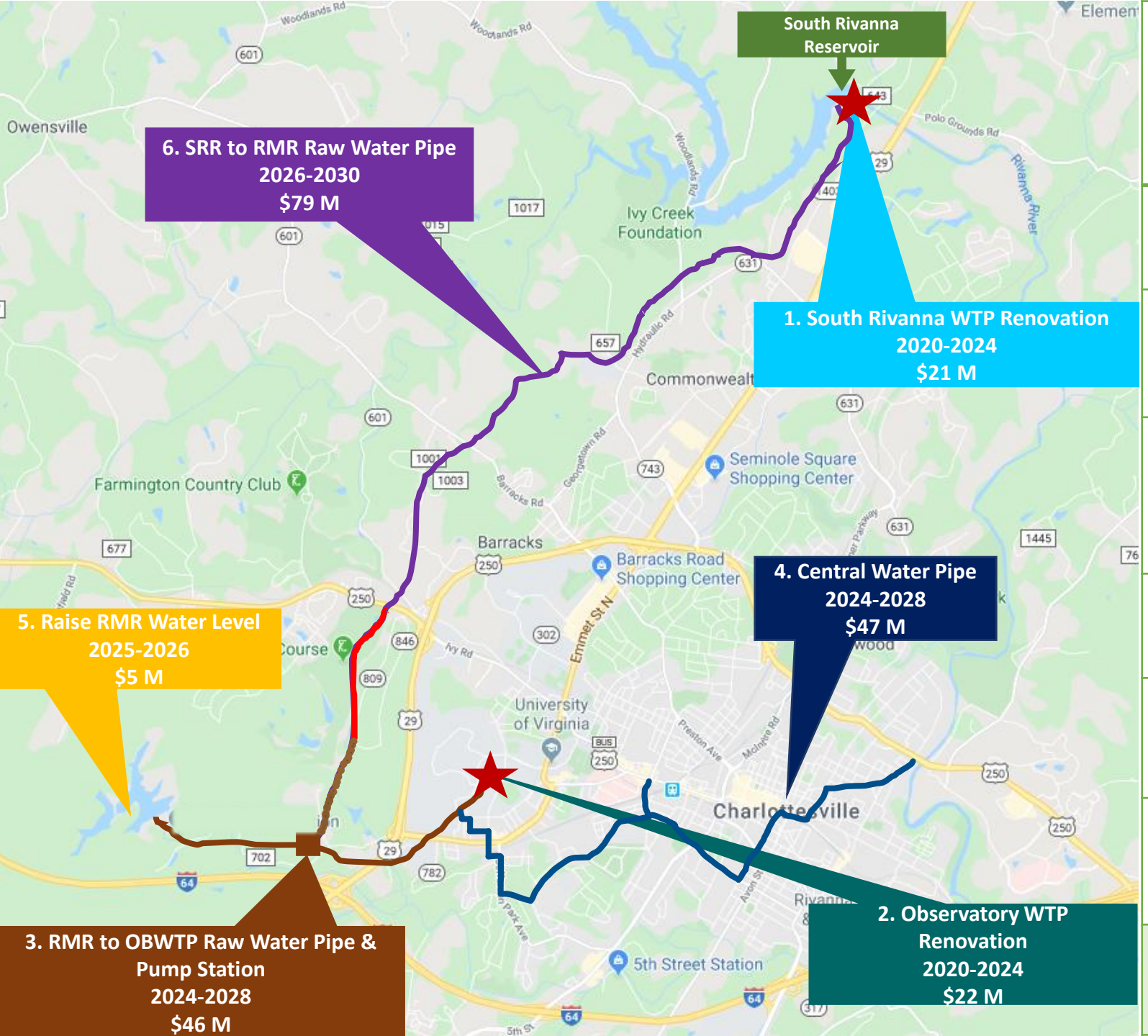
- **Water Treatment Plants: $18 M**
  - GAC Facility Dehumidification
  - South Rivanna PAC Upgrades
  - Observatory Hypo Tank Replacements
  - Observatory Back Wash Tank
  - South Rivanna Main Plant Generator Replacement
  - Crozet GAC Filters
  - Scottsville & Red Hill Upgrade & GAC Addition
  - SRWTP & OBWTP Improvements

- **Capacity: $122 M**
  - Airport Rd Water Pump Station and Piping
  - Admin Building Renovation & Addition
  - SRR to RMR Raw Water Piping
  - Emmet St. Water Piping
  - Berkmar Ext. Waterline Phs. 2
  - Maury Hill Sewer Replacement
  - Glenmore WRRF Upgrade

- **Operations and Maintenance / Safety: $63 M**
  - Dam Concrete and Steel Repairs
  - Security Enhancements
  - WW Piping and MH Repairs
  - MC Biogas Upgrades
  - MC Maintenance, Blower, Pumping Building Repairs
  - MC Concrete and Steel Repairs
  - Tank Painting and Rehabilitation
  - Crozet WW Pump Station Rehabilitations
  - SRR and RMR HLOS and Aeration
  - Crozet Greyrock Pump Station
  - MCPS and Septage Receiving Upgrades
  - ACM Remediation

- **Regulatory: $50 M**
  - Beaver Creek Dam, Pump Station and Piping
  - Buck Mtn. Property Dam Remediation
  - North Rivanna WTP Decommissioning

- **Reliability / Redundancy : $117 M**
  - RMR to OBWTP Piping and Pumping
  - Central Water Line
  - MC 5kv Electrical System Upgrade
  - South Fork Rivanna River Crossing
  - Scottsville WWTP Emergency Generator
  - Upper Schenks Branch Interceptor
  - AC Pipe Replacement
  - North Fork Rivanna River Crossing
  - Flood Resilience Enhancements
  - IT Infrastructure
  - Asset Management



Water Supply Projects

(February 2, 2024)

1. SRWTP Renovation 2020-2024	$21 M
2. OBWTP Renovation 2020-2024	$22 M
3. RMR to OBWTP Raw Water Pipe & Pump Station 2024-2028	$46 M
4. Central Water Line 2024-2028	$47 M
5. Raise RMR Water Level 2025-2026	$5 M
6. SRR to RMR Raw Water Pipe 2026-2030	$79 M
City Utilities: $80 M ACSA: $140 M	**$220 M**

15 Year CIP Planning

• FY 25-29	$371 M*
• FY 30-34	$104 M
• FY 35-39	$107 M
	$582 M*

** Anticipating at least $20 M in grants, which will reduce debt funding needs*

FY 25 – 29 Charge Increases (%)

	FY 25	FY 26	FY 27	FY 28	FY 29
City Utilities	13.9	11.4	10.2	10.6	10.6
ACSA	13.3	14.4	13.0	12.5	11.8
RWSA Overall	13.5	13.2	11.9	11.8	11.3

Charges include:

1. Albemarle County grants totaling $750,000
2. City Utilities Reimbursement on Central Water Line $4 M
3. VDH BIL grant for Crozet GAC Filters ($3.18 M, FY 23 and $0.26, FY 24)
4. NRCS grant for BCR Planning & Design $1.7 M
5. NRCS grant for BCR ($17.7 M); *ACSA charges will increase about 1% if grant is not received.*
6. Annual increases in Operating expenses
7. 1% Flow Shift from ACSA to City Utilities

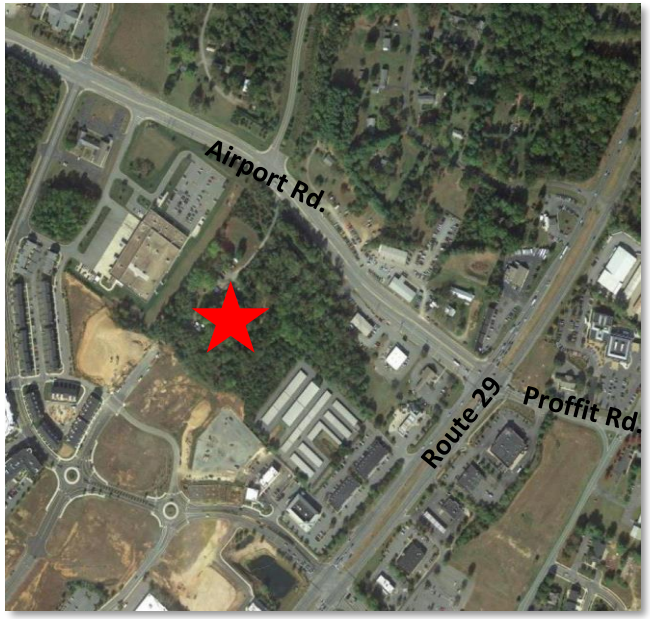
Note: Additional grants totaling $50.65 M have been requested for CWL, SVWRRF Generator, Flood Protection Study

Project Highlights

CIP FY 25-29

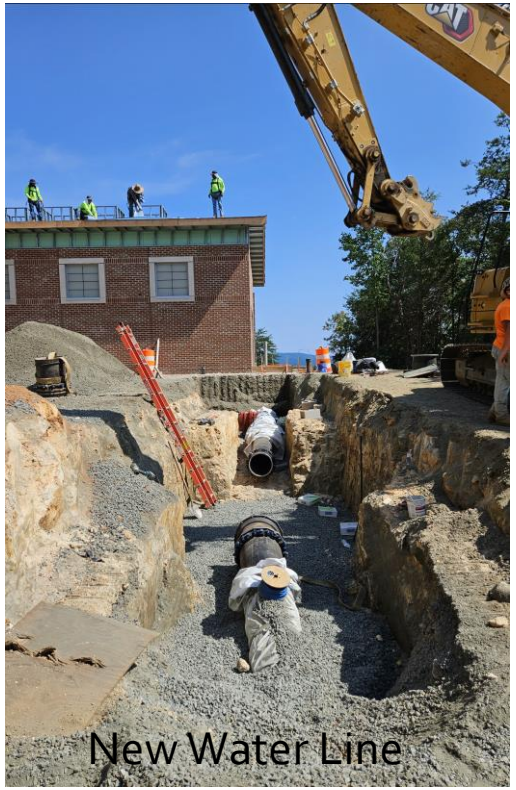
Airport Road Water Pump Station and Piping

- Connects Piney Mountain and Urban pressure zones to improve reliability and capacity
- Will supply the Piney Mountain Tank and be part of future Airport pressure zone
- Completion: Fall 2024
- Budget: $10 M
- 100% ACSA




New Pump Station


Outgoing Finished Water


New Water Line

MC 5kv Electrical System Upgrade

- Replace major electrical cables and equipment installed in the 1980's to maintain reliability
- Includes motor control centers, transformers, and switchgear building
- Completion: December 2024
- Budget: $6.2 M
- 48% City Utilities/ 52% ACSA


Concrete Pad for Motor Control Center

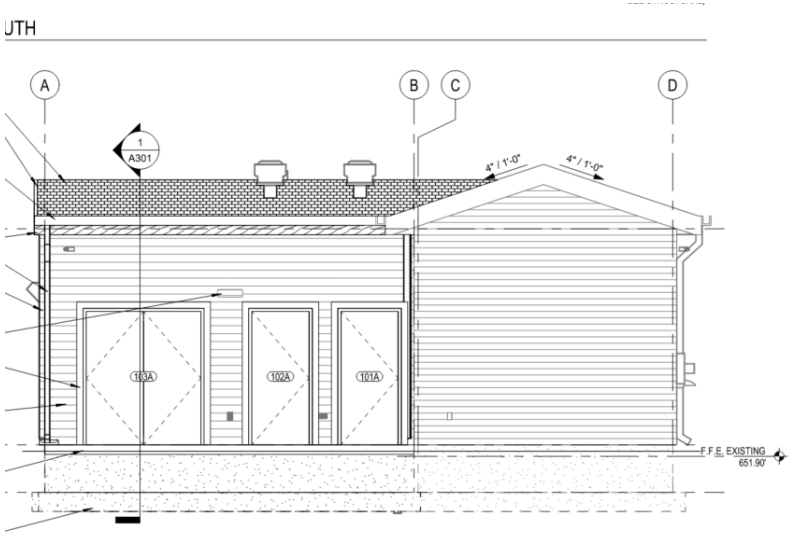

New Conduit


Switch Gear

Red Hill WTP Upgrades

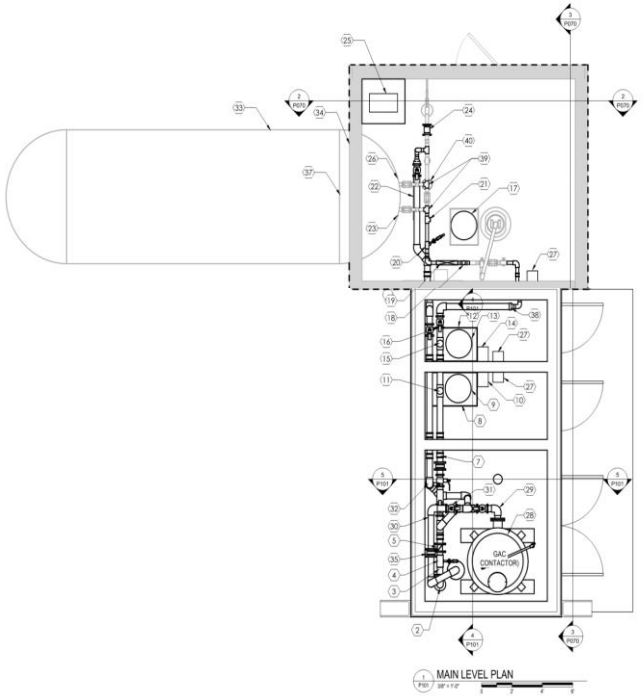
- Operated as a water treatment facility as opposed to a well system
- Will provide space for additional chemical storage, monitoring and automation
- GAC treatment was added during design
- Completion:
  June 2024- Dec 2025
- Budget: $2 M; 100% ACSA ($400k in funding from Albemarle County)


Current Red Hill WTP



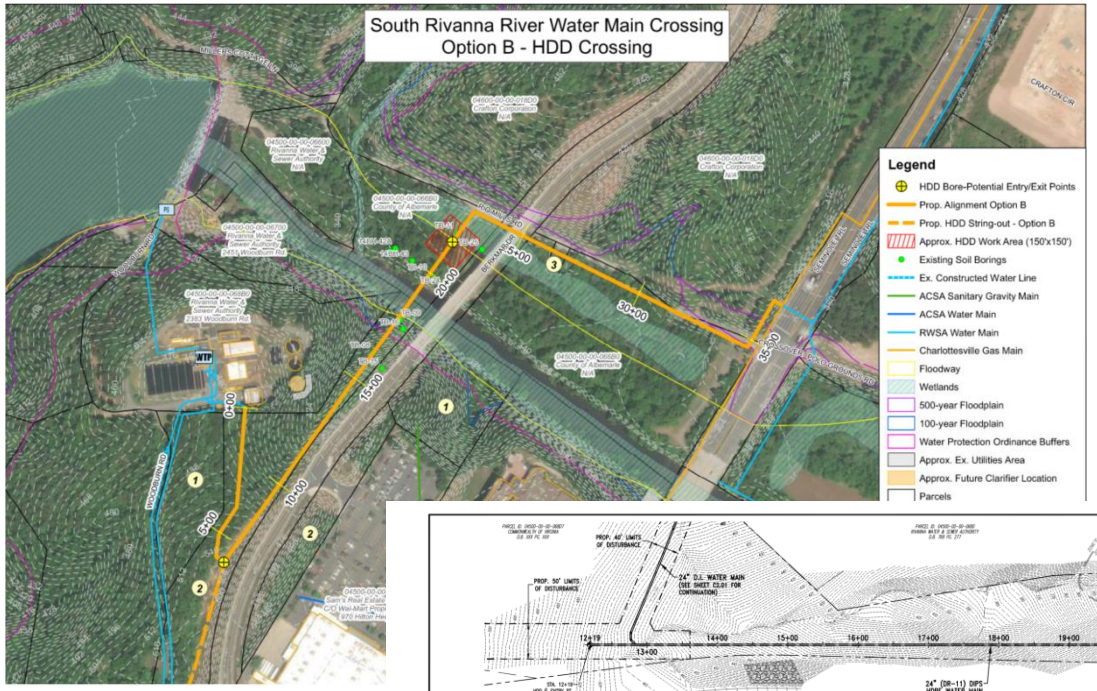
Proposed Building Addition

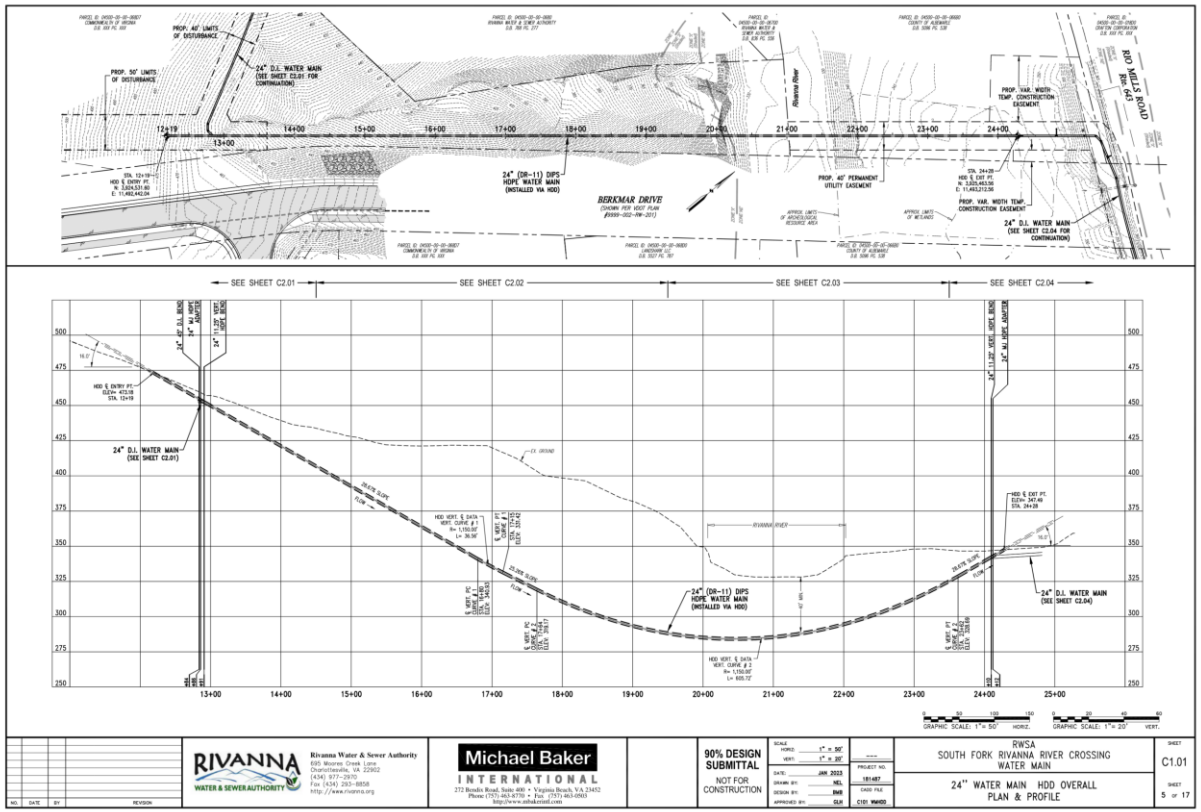

Lack of Space



South Rivanna River Crossing

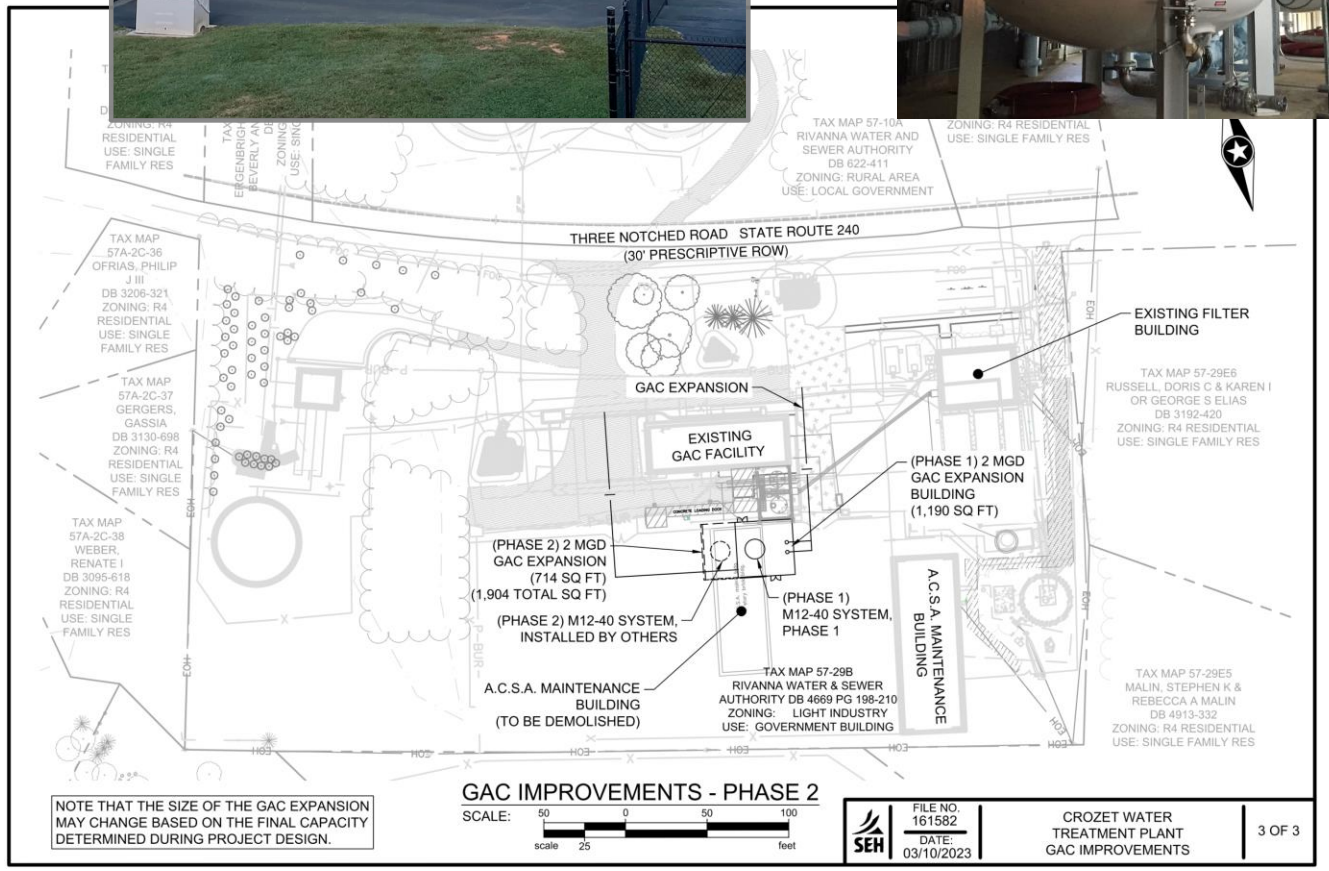
- Second pipe to be installed 40 feet beneath the river to improve capacity, reliability and resiliency in the northern area of the Urban Water System
- Construction: August 2024 – June 2026
- Budget: $7.3 M
- 100% ACSA





Crozet WTP GAC Expansion Phase 1

- Provides for full GAC treatment up to 2 MGD
- GAC is a leading best management practice to remove DBP pre-cursers and can be used to manage removal of other emerging contaminants
- Receiving $3.43M in grant funding from VDH ($3.17M FY22 BIL and $0.26M FY23 BIL)
- Finalizing GAC media evaluation and beginning preliminary design work
- Completion: 2025 - 2026
- Budget: $6.6 M; 100% ACSA



MC Renovation & Addition Administration Building

- Additional office and meeting/ educational outreach spaces.
- Eliminate 15-year-old “temporary” Engineering trailers
- Modernize IT & laboratory spaces
- Completion: 2025 – 2027
- Budget: $20 M

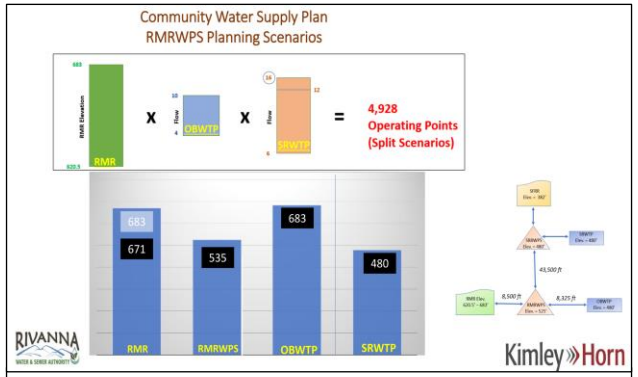

Administration Building

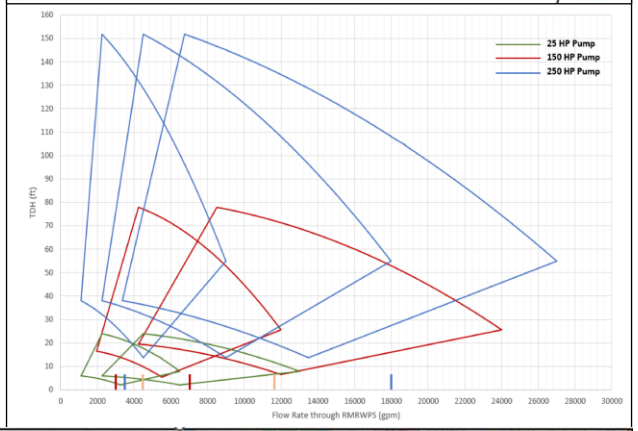

Engineering Trailers

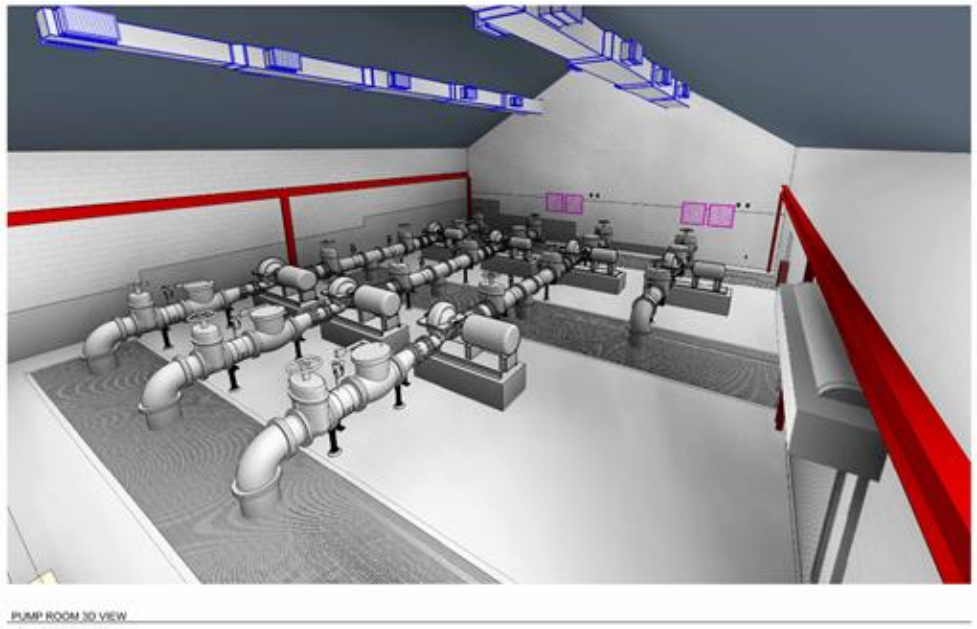

Laboratory

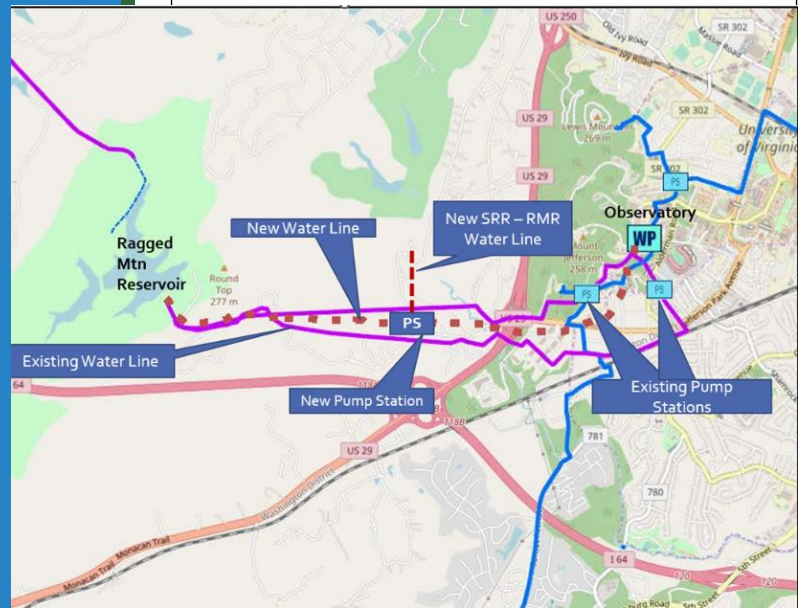
RMR to OBWTP – Pump Station and Water Line

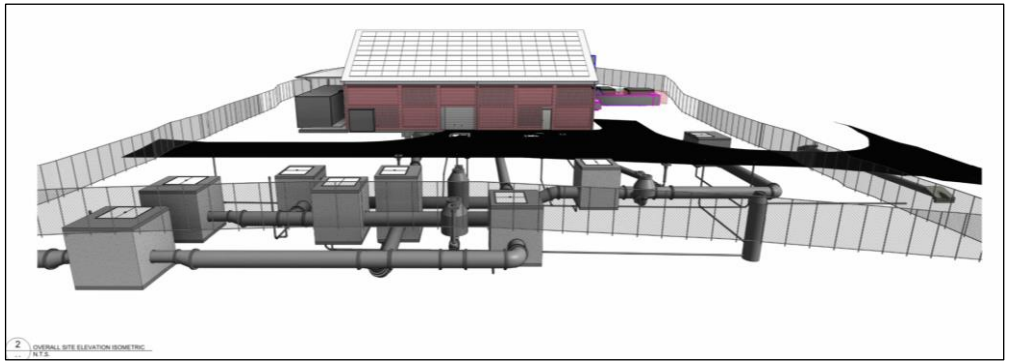
- Improves raw water conveyance capacity to OBWTP
- Replaces outdated infrastructure: 40- and 70-year-old pump stations and 70 and 110-year-old water lines
- All easements and property acquisitions are complete other than final UVA easement
- VE workshop on 60% design
- Completion: Fall 2024 –2028
- Budget $46 M
  - Piping 48% City Utilities / 52% ACSA
  - PS 28% City Utilities/ 72% ACSA





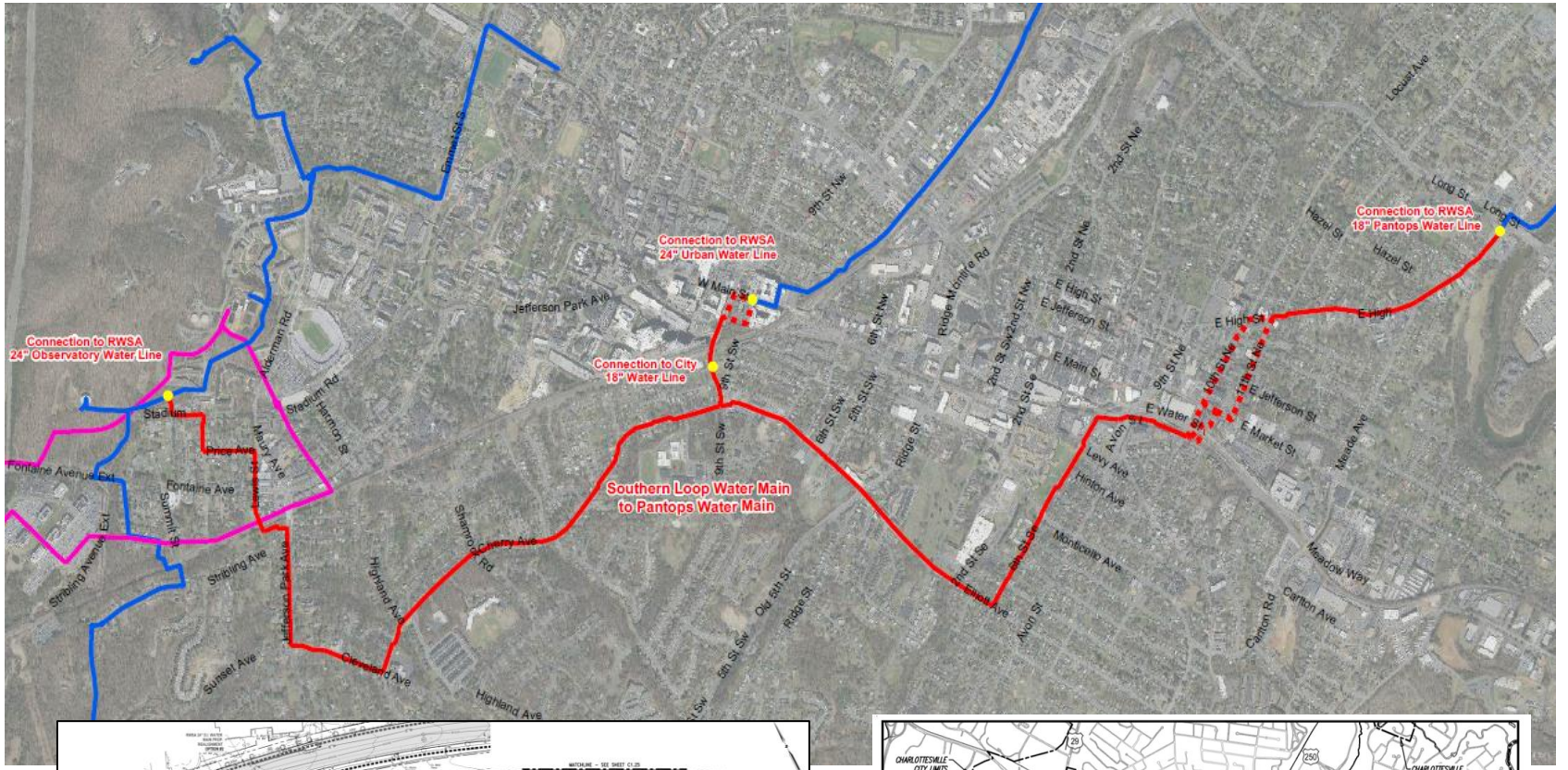


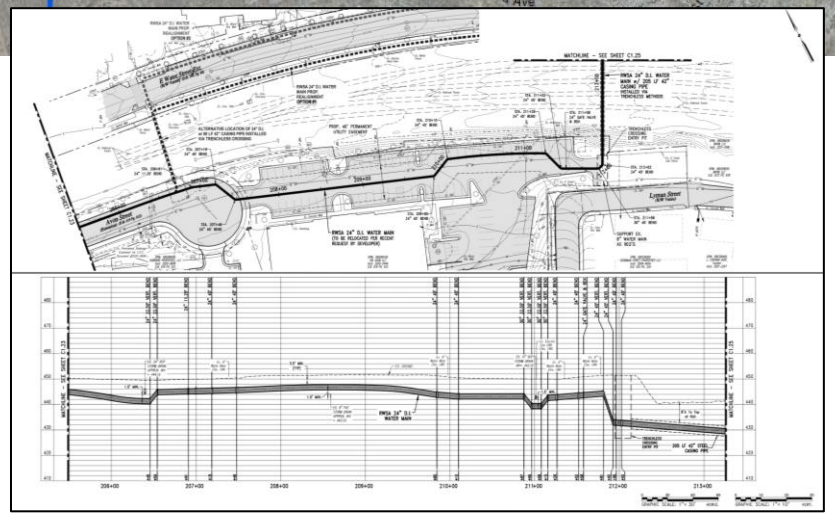


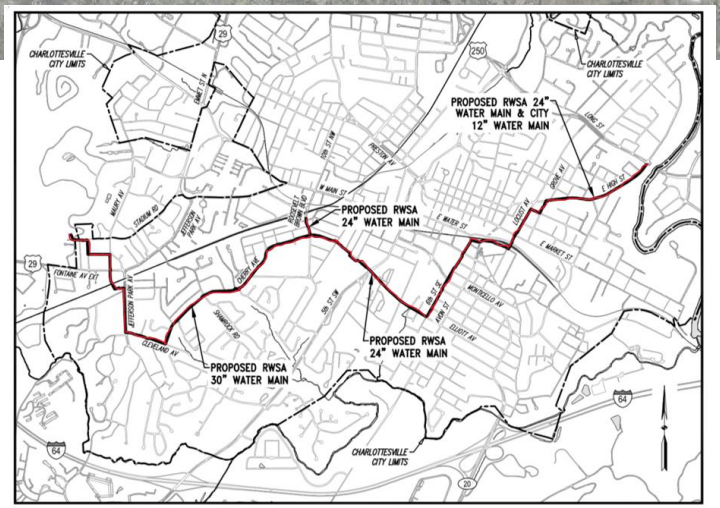


Central Water Line

- Will more efficiently convey drinking water, improve redundancy, and generally strengthen the Urban Area Drinking Water System for the benefit of both the City and the ACSA
- 60% Design Complete
- Completion: Dec 2024- Dec 2028
- Budget: $47 M
  Betterment for City Utilities = $4 M
  Remaining = $43 M
  48% City Utilities / 52% ACSA

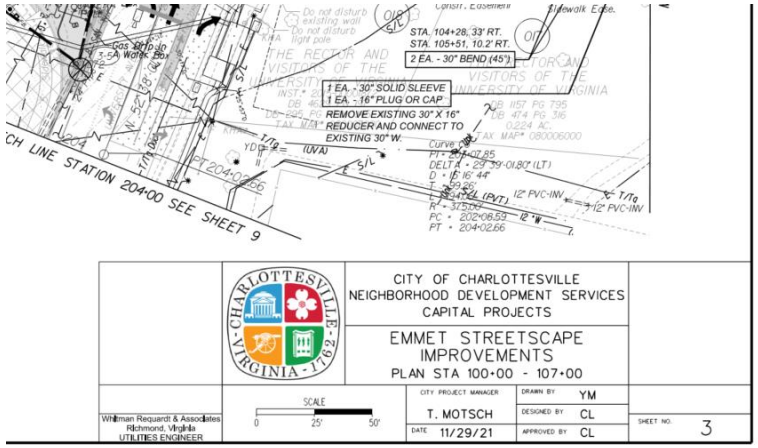


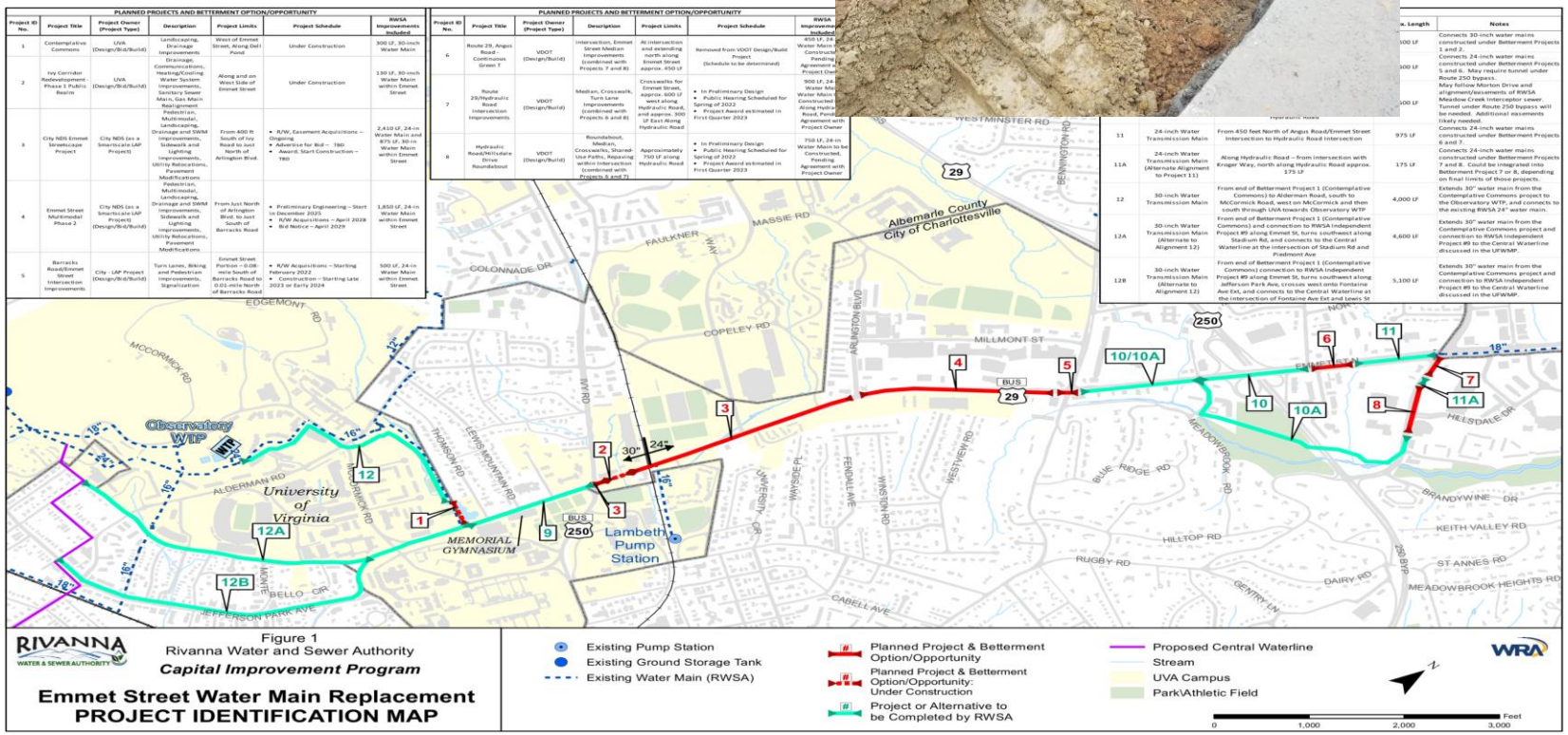




Emmet Street Water Line Betterment

- Upgrade and extension of water line along Emmet was identified in the Urban Finished Water Master Plan – UVA Dell Pond to Hydraulic Road
- Utilizes other planned projects in area to minimize cost and disturbance
- UVA Contemplative Commons, City of Charlottesville Streetscape Projects (multiple phases), VDOT projects
- Working with City Utilities on streetscape design and VDOT around Hydraulic Road
- Completion: 2024 - 2026 (Phase 1)
- Budget $2.9 M

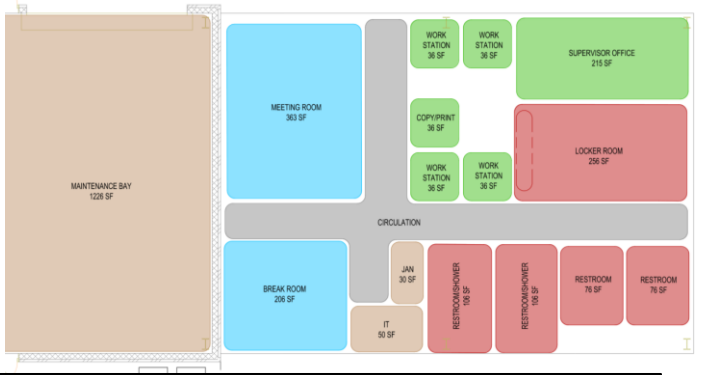


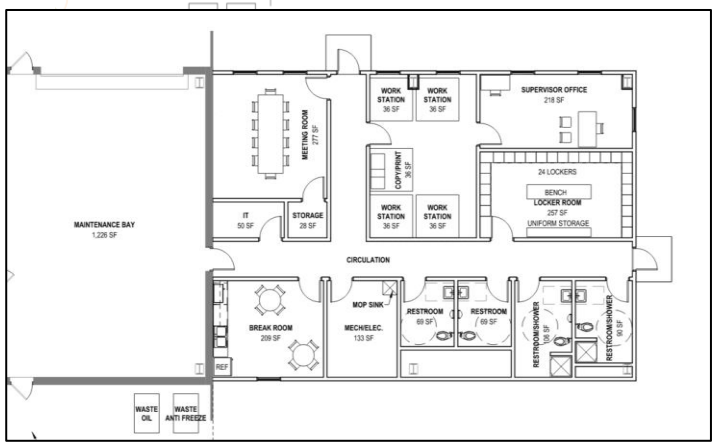


MC Building Upfits and Gravity Thickener Improvements

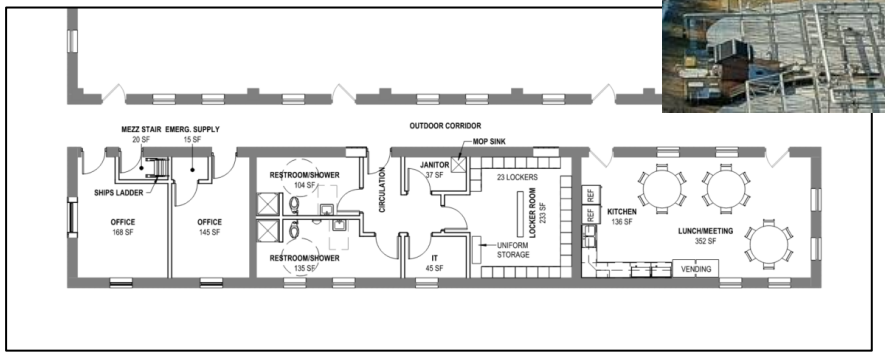
- Renovation of current Operations and Maintenance building
- Original structures are 40 years old and no longer meet current staffing and operational needs
- Includes gravity thickener improvements – chemical feed and sludge line clean-outs
- Finalizing needs assessment and concept plans
- Completion: Aug 2024 – Aug 2026
- Budget $5.15 M

Maintenance and Vehicle Shops



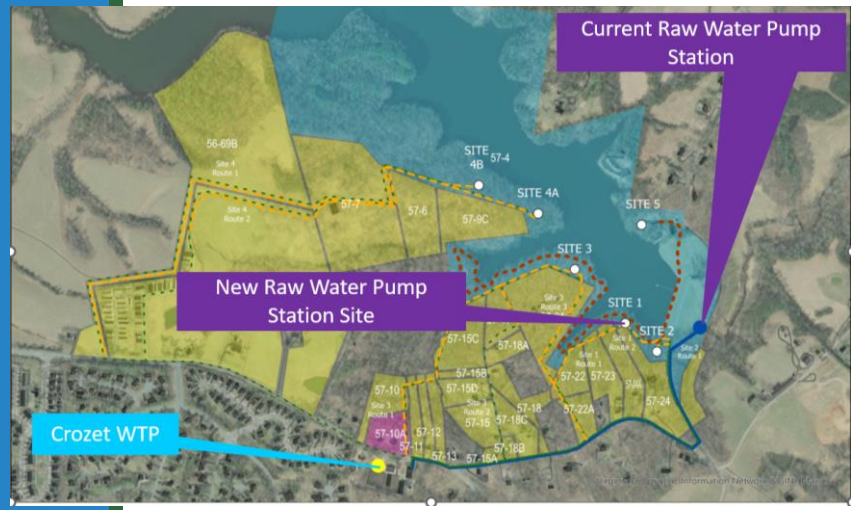


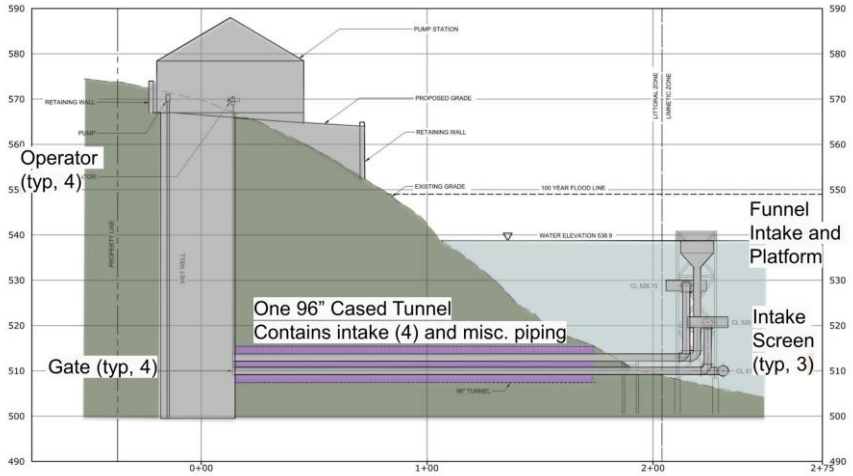
MC Operations Buildings

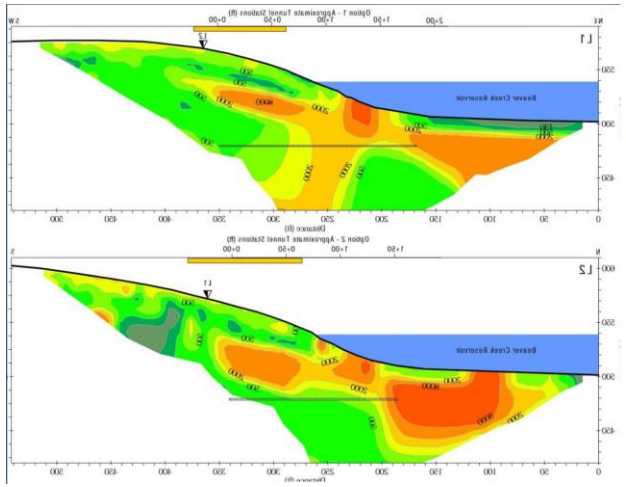


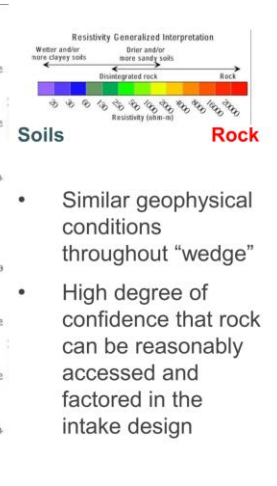
Beaver Creek Dam, Pump Station & Piping Modifications

- Replace spillway to meet VDCR Dam Safety standards
- Replace the raw water pump station, intake, and pipe to the Crozet WTP
- Completion: 2026 – 2029
- Budget: $47.1 M
  - 100% ACSA
  - Requesting Federal Funding ($17 M)





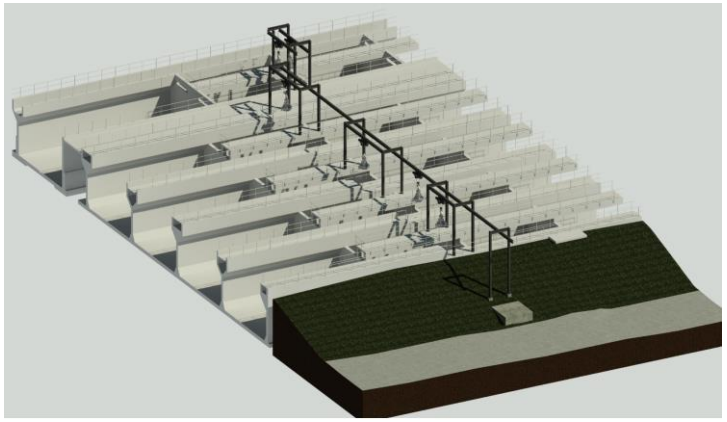


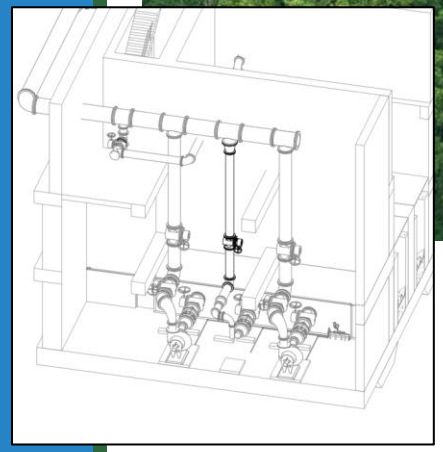


- Similar geophysical conditions throughout "wedge"
- High degree of confidence that rock can be reasonably accessed and factored in the intake design

MC Structural and Concrete Rehabilitation

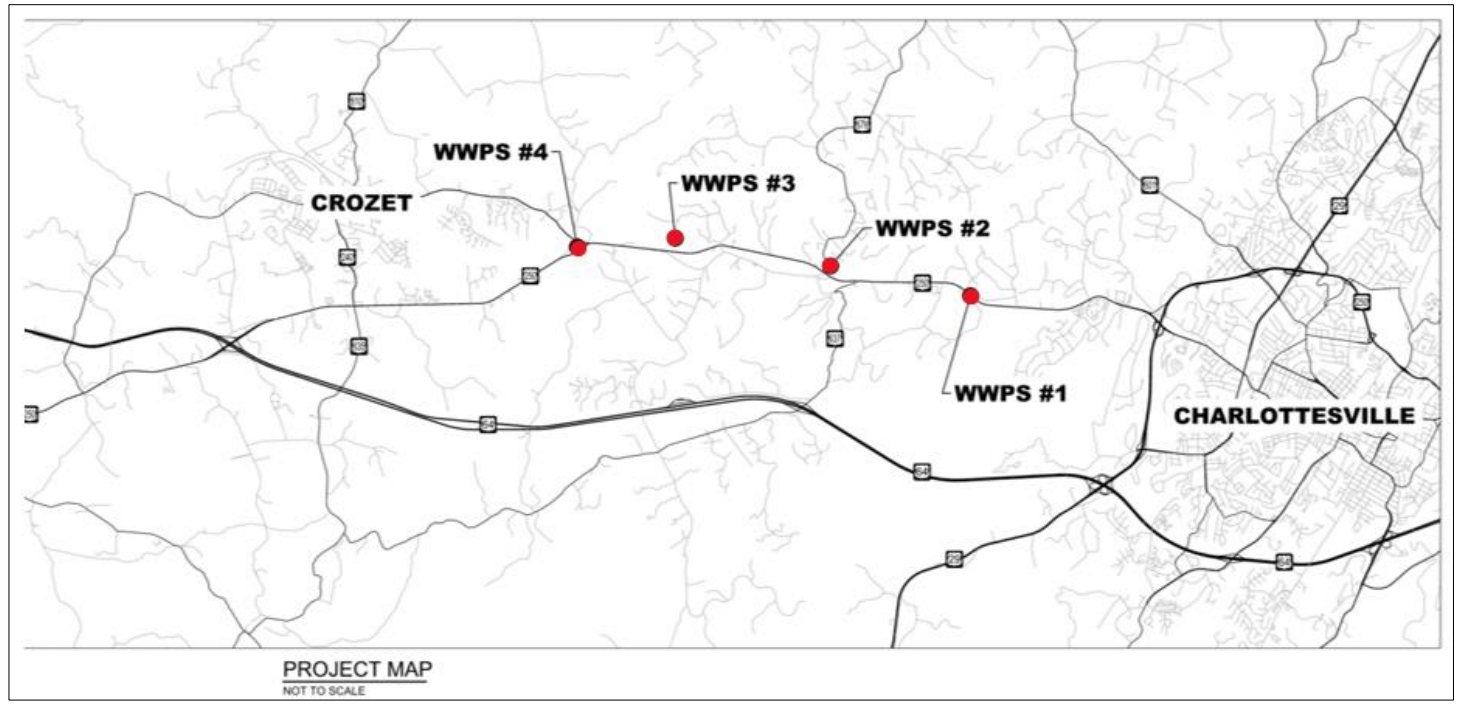
- Includes various repairs and rehabs throughout plant
- Repairs pumps, holding ponds, EQ basin concrete, primary clarifiers, valve access, digesters, compost shed roof and drainage
- Currently in Preliminary design
- Completion: Sept 2024 – 2026
- Budget $11.3 M





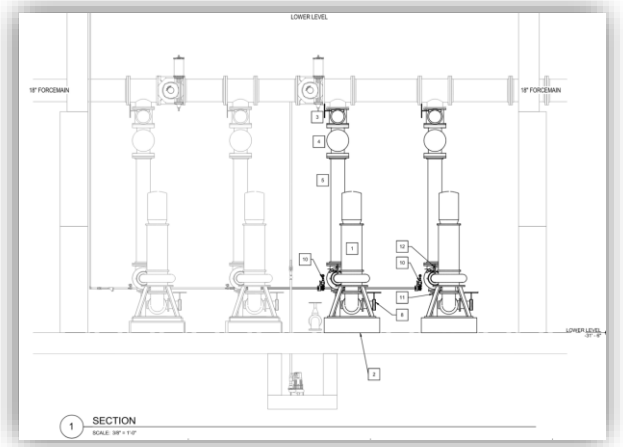
Crozet Pump Stations Rehabilitation

- Series of 4 pump stations constructed in 1980's
- Includes replacement of pumps and valves, roofs, motor control centers, generators, automatic transfer switches, and other architectural improvements
- 30% design stage
- Construction: 2025 – 2026
- Budget $10.9 M



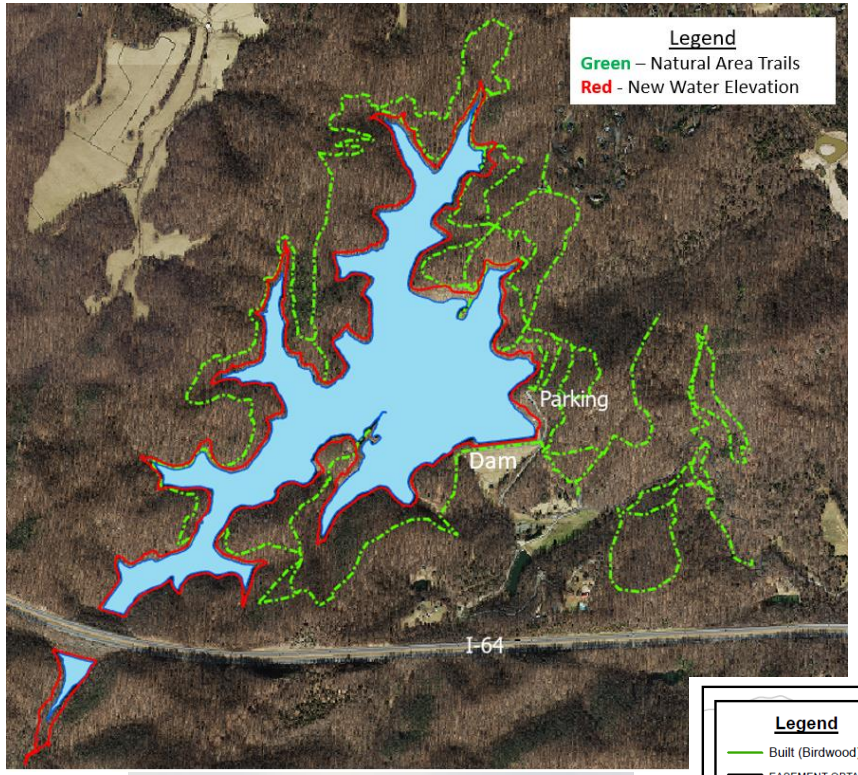
PROJECT MAP
NOT TO SCALE

1 EXISTING CONDITIONS PHOTO FRONT OF PS4



SFRR to RMR Pipeline, Intake, and Facilities

- 36-in Transfer pipeline from Foxhaven Farm to SFRR (includes Birdwood to Old Garth section); 25mgd Capacity
- Raw water pump station and intake on SFRR
- Clearing vegetation around RMR; modifications to Intake Tower
- Easements have been obtained
- Completion: 2025 – 2030
- Budget $84 M
  ACSA 80%, City Utilities 20%



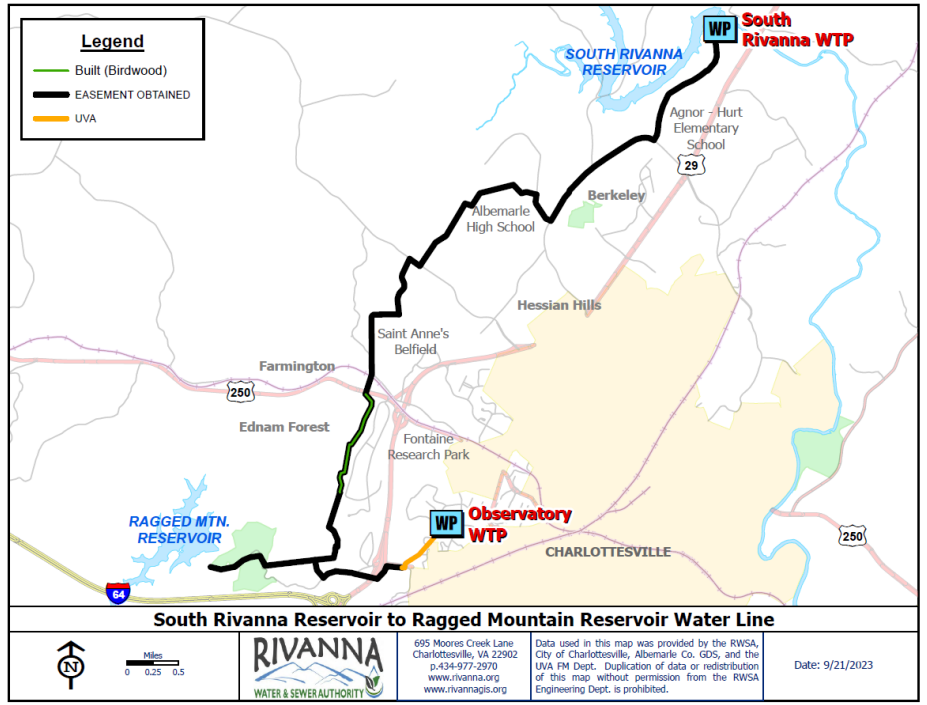


Table 1 - Summary Information

Summary Information

	2025 - 2029 Draft CIP	2024 - 2028 Adopted CIP	Change $
Project Cost			
Urban Water Projects	$ 223,391,000	$ 209,590,000	$ 13,801,000
Urban Wastewater Projects	76,585,000	58,220,000	18,365,000
Non-Urban Projects & Shared	71,024,400	58,315,000	12,709,400
Total Project Cost Estimates	**$ 371,000,400**	**$ 326,125,000**	**$ 44,875,400**
Funding in place			
Work-in-Progress (paid for)	$ 14,362,040	$ 35,570,900	(21,208,860)
Debt Proceeds Available	9,353,800	25,472,300	(16,118,500)
Cash-Capital Available	1,300,000	2,000,000	(700,000)
	$ 25,015,840	$ 63,043,200	$ (38,027,360)
Financing Needs			
Possible Future Reserves	$ 12,800,000	$ 10,435,000	2,365,000
Grants	24,917,500	20,560,000	4,357,500
New Debt	308,267,060	232,086,800	76,180,260
	$ 345,984,560	$ 263,081,800	$ 82,902,760
Total Funding	**$ 371,000,400**	**$ 326,125,000**	**$ 44,875,400**
Percentage of funding in place	6.7%	19.3%	
Ratio of debt to expense	89.5%	89.9%	
Ratio of grant to expense	6.7%	6.3%	
Ratio of cash to expense	3.8%	3.8%	

Table 2 – Detail By Major System

Detail by Major Systems	Total CIP	Urban Water Projects	Urban Wastewater Projects	Shared Projects	Water Non-Urban Projects	Wastewater Non-Urban Projects
Project Cost						
Urban Water Projects	$ 223,391,000	$ 223,391,000	$ -		$ -	$ -
Urban Wastewater Projects	76,585,000	-	76,585,000		-	-
Non-Urban Projects & Shared	71,024,400	-	-	6,389,400	61,900,000	2,735,000
Total Project Cost Estimates	**$ 371,000,400**	**$ 223,391,000**	**$ 76,585,000**	**$ 6,389,400**	**$ 61,900,000**	**$ 2,735,000**
Funding in place						
Work-in-Progress (paid for)	$ 14,362,040	$ 9,407,500	$ 2,037,800	$ 1,229,400	$ 1,621,400	$ 65,940
Debt Proceeds available	9,353,800	8,116,000	1,237,800	-	-	-
Cash-Capital Available	1,300,000	-	1,300,000	-	-	-
Subtotal	$ 25,015,840	$ 17,523,500	$ 4,575,600	$ 1,229,400	$ 1,621,400	$ 65,940
Financing Needs						
Possible Future Reserves	$ 12,800,000	4,000,000	6,000,000	2,000,000	800,000	-
Grants	24,917,500	4,000,000	-	-	20,917,500	
New Debt	308,267,060	197,867,500	66,009,400	3,160,000	38,561,100	2,669,060
Subtotal	$ 345,984,560	$ 205,867,500	$ 72,009,400	$ 5,160,000	$ 60,278,600	$ 2,669,060
Total Funding	**$ 371,000,400**	**$ 223,391,000**	**$ 76,585,000**	**$ 6,389,400**	**$ 61,900,000**	**$ 2,735,000**
Percentage of funding in place	6.7%	7.8%	6.0%	19.2%	2.6%	2.4%
Ratio of debt to expense	89.5%	92.2%	87.8%	49.5%	62.3%	97.6%
Ratio of cash to expense	3.8%	1.8%	9.5%	31.3%	1.3%	0.0%

Table 3 – CIP Adjustments

	Urban Water	Urban Wastewater	Non-Urban	Shared	Total	Current Adopted
Adopted CIP 2024 - 2028	$ 209,590,000	$ 58,220,000	$ 57,714,000	$ 601,000	$ 326,125,000	
Completed or closed projects	(47,150,000)	-	-	(654,302)	(47,804,302)	
Adopted - Adusted	162,440,000	58,220,000	57,714,000	(53,302)	278,320,698	
Changes:						
Rollover for FY 2029 (roughly)	36,631,000	3,870,000	6,020,000	128,500	46,649,500	
Adjustments on existing projects or new projects	20,420,000	14,495,000	901,000	6,314,238	42,130,238	
Total Changes	**57,051,000**	**18,365,000**	**6,921,000**	**6,442,738**	**88,779,738**	
Total Proposed CIP 2025 - 2029	$ 219,491,000	$ 76,585,000	$ 64,635,000	$ 6,389,436	$ 367,100,436	326,125,000
Years 6 - 10 (FY 2030-34)					$ 104,093,000	218,641,755
Years 11 - 15 (FY 2035-39)					$ 107,318,000	165,880,000
			TOTAL 15 YEAR CIP		**$ 578,511,436**	**$ 710,646,755**
						(47,804,302) Completed
						$ 662,842,453 Net CIP

Table 4 – City Utilities

		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
City of Charlottesville Charges													
Urban Water													
Operating Rate	Per 1000 gal.	$ 2.653	$ 2.949	$ 3.363	$ 3.699	$ 4.069	$ 4.476	$ 4.924	$ 5.219	$ 5.532	$ 5.864	$ 6.216	$ 6.589
	% Change	13.1%	11.2%	14.0%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	249,497	307,200	376,226	448,561	508,606	576,011	643,652					
		1.3%	23.1%	22.5%	19.2%	13.4%	13.3%	11.7%					
Revenue Requirements:				16.38%									
Operating Rate Revenue	Annual	$ 4,417,300	$ 4,810,300	$ 5,598,400	$ 6,158,240	$ 6,774,064	$ 7,451,470	$ 8,196,617	$ 8,688,414	$ 9,209,719	$ 9,762,303	$ 10,348,041	$ 10,968,923
Debt Service Revenues	Annual	2,994,000	3,686,400	4,514,700	5,382,736	6,103,269	6,912,128	7,723,818	-	-	-	-	-
Total		$ 7,411,300	$ 8,496,700	$ 10,113,100	$ 11,540,976	$ 12,877,333	$ 14,363,598	$ 15,920,435	$ 8,688,414	$ 9,209,719	$ 9,762,303	$ 10,348,041	$ 10,968,923
	$ Change		$ 1,085,400	$ 1,616,400	$ 1,427,876	$ 1,336,357	$ 1,486,265	$ 1,556,837	$ 491,797	$ 521,305	$ 552,583	$ 585,738	$ 620,882
	% Change		14.6%	19.0%	14.1%	11.6%	11.5%	10.8%					
Urban Wastewater													
Operating Rate	Per 1000 gal.	2.664	2.922	3.247	3.572	3.929	4.322	4.754	5.039	5.341	5.662	6.002	6.362
	% Change	5.8%	9.7%	11.1%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	384,637	$ 394,890	415,446	436,712	455,092	473,672	494,962					
		2.3%	2.7%	5.2%	5.1%	4.2%	4.1%	4.5%					
Revenue Requirements:				13.51%									
Operating Rate Revenue	Annual	$ 4,245,800	$ 4,557,800	$ 5,173,500	$ 5,690,850	$ 6,259,935	$ 6,885,929	$ 7,574,521	$ 8,028,993	$ 8,510,732	$ 9,021,376	$ 9,562,659	$ 10,136,418
Debt Service Revenues	Annual	4,615,644	4,738,800	4,985,500	5,240,540	5,461,100	5,684,060	5,939,540	-	-	-	-	-
Total		$ 8,861,444	$ 9,296,600	$ 10,159,000	$ 10,931,390	$ 11,721,035	$ 12,569,989	$ 13,514,061	$ 8,028,993	$ 8,510,732	$ 9,021,376	$ 9,562,659	$ 10,136,418
	$ Change		$ 435,156	$ 862,400	$ 772,390	$ 789,645	$ 848,954	$ 944,073	$ 454,471	$ 481,740	$ 510,644	$ 541,283	$ 573,760
	% Change		4.9%	9.3%	7.6%	7.2%	7.2%	7.5%					
Total all Rate Centers													
Operating Rate Revenue		$ 8,663,100	$ 9,368,100	$ 10,771,900	$ 11,849,090	$ 13,033,999	$ 14,337,399	$ 15,771,139	$ 16,717,407	$ 17,720,452	$ 18,783,679	$ 19,910,699	$ 21,105,341
Debt Service Revenues		7,609,644	8,425,200	9,500,200	10,623,276	11,564,369	12,596,188	13,663,358	13,663,358	13,663,358	13,663,358	13,663,358	13,663,358
Total City All Revenues		$ 16,272,744	$ 17,793,300	$ 20,272,100	$ 22,472,366	$ 24,598,368	$ 26,933,587	$ 29,434,497	$ 30,380,765	$ 31,383,810	$ 32,447,037	$ 33,574,057	$ 34,768,699
	$ Change		$ 1,520,556	$ 2,478,800	$ 2,200,266	$ 2,126,002	$ 2,335,219	$ 2,500,910	$ 946,268	$ 1,003,044	$ 1,063,227	$ 1,127,021	$ 1,194,642
	% Change		9.3%	13.9%	10.9%	9.5%	9.5%	9.3%					
									168,474	(311,563)	(341,983)	162,642	406,622
10-Year CIP Debt Service					101,766	280,429	584,969	1,010,777	1,179,251	867,688	525,705	688,347	1,094,969
Total Estimated Charge		$ 16,272,744	$ 17,793,300	$ 20,272,100	$ 22,574,132	$ 24,878,797	$ 27,518,556	$ 30,445,274	$ 31,560,016	$ 32,251,498	$ 32,972,742	$ 34,262,404	$ 35,863,668
% Change			$ 0	13.9%	11.4%	10.2%	10.6%	10.6%	3.7%	2.2%	2.2%	3.9%	4.7%
	Additional Annual Revenues			$ 2,478,800	$ 2,302,032	$ 2,304,665	$ 2,639,759	$ 2,926,718	$ 1,114,742	$ 691,481	$ 721,244	$ 1,289,663	$ 1,601,264
				13.9%	11.4%	10.2%	10.6%	10.6%	3.7%	2.2%	2.2%	3.9%	4.7%

Table 5 – ACSA

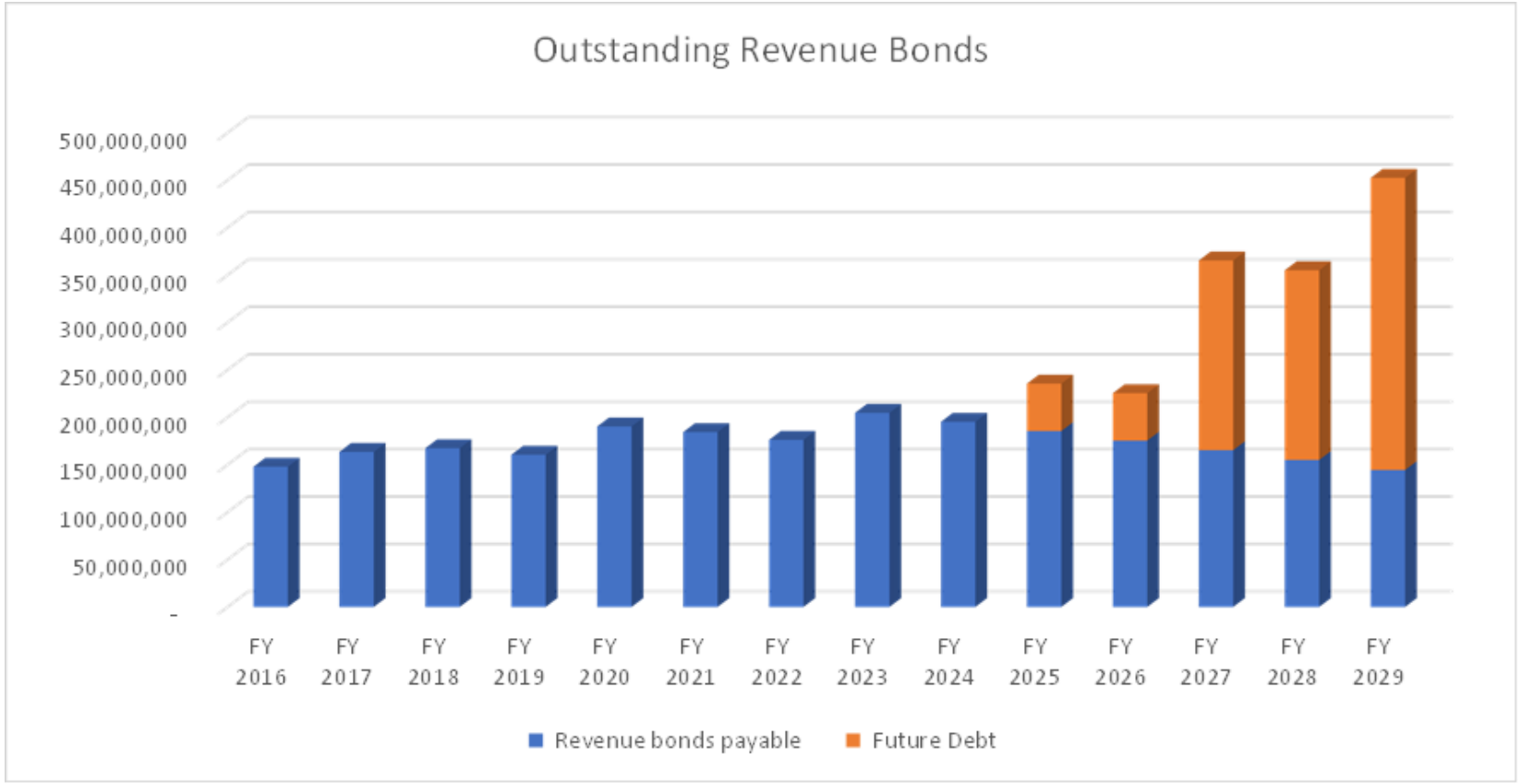
		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
ACSA Charges													
Urban Water													
Operating Rate	Per 1000 gal.	2.653	2.949	3.363	3.699	4.069	4.476	4.924	5.219	5.532	5.864	6.216	6.589
	% Change	0.0%	11.2%	14.0%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 442,355	$ 542,282	673,264	810,644	935,905	1,068,138	1,201,275					
		8.1%	22.6%	24.2%	20.4%	15.5%	14.1%	12.5%					
Revenue Requirements:				11.82%	10.00%	10.00%	10.00%	10.00%					
Operating Rate Revenue	Annual	$ 4,597,600	$ 5,211,100	$ 5,826,900	$ 6,409,590	$ 7,050,549	$ 7,755,604	$ 8,531,164	$ 9,043,034	$ 9,585,616	$ 10,160,753	$ 10,770,398	$ 11,416,622
Debt Service Revenues	Annual	5,308,200	6,507,400	8,079,200	9,727,722	11,230,860	12,817,652	14,415,304	-	-	-	-	-
Total		$ 9,905,800	$ 11,718,500	$ 13,906,100	$ 16,137,312	$ 18,281,409	$ 20,573,256	$ 22,946,468	$ 9,043,034	$ 9,585,616	$ 10,160,753	$ 10,770,398	$ 11,416,622
	$ Change		$ 1,812,700	$ 2,187,600	$ 2,231,212	$ 2,144,097	$ 2,291,847	$ 2,373,212	$ 511,870	$ 542,582	$ 575,137	$ 609,645	$ 646,224
	% Change		$ 0	18.7%	16.0%	13.3%	12.5%	11.5%					
Urban Wastewater													
Operating Rate	Per 1000 gal.	2.664	2.922	3.247	3.572	3.929	4.322	4.754	5.039	5.341	5.662	6.002	6.362
	% Change	5.8%	9.7%	11.1%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge	Per month	$ 355,205	$ 383,403	412,149	458,802	497,712	536,622	575,532					
		5.1%	0.0%	7.5%	11.3%	8.5%	7.8%	7.3%					
Revenue Requirements:				9.04%	10.00%	10.00%	10.00%	10.00%					
Operating Rate Revenue	Annual	$ 4,787,800	$ 5,350,500	$ 5,834,000	$ 6,417,400	$ 7,059,140	$ 7,765,054	$ 8,541,559	$ 9,054,053	$ 9,597,296	$ 10,173,134	$ 10,783,522	$ 11,430,533
Debt Service Revenues	Annual	4,262,460	4,600,800	4,945,800	5,505,625	5,972,545	6,439,465	6,906,385	-	-	-	-	-
Total		$ 9,050,260	$ 9,951,300	$ 10,779,800	$ 11,923,025	$ 13,031,685	$ 14,204,519	$ 15,447,944	$ 9,054,053	$ 9,597,296	$ 10,173,134	$ 10,783,522	$ 11,430,533
	$ Change		$ 901,040	$ 828,500	$ 1,143,225	$ 1,108,660	$ 1,172,834	$ 1,243,425	$ 512,494	$ 543,243	$ 575,838	$ 610,388	$ 647,011
	% Change		10.0%	8.3%	10.6%	9.3%	9.0%	8.8%					
Non-Urban Rate Centers				10.86%	10.00%	10.00%	10.00%	10.00%					
Operating Rate Revenue	Annual	$ 2,565,900	$ 2,797,300	3,101,200	3,411,320	3,752,452	4,127,697	4,540,467	4,812,895	5,101,669	5,407,769	5,732,235	6,076,169
Debt Service Revenues	Annual	2,342,600	2,585,800	2,862,100	3,245,900	3,629,700	4,013,500	4,397,300	-				
Total		$ 4,908,500	$ 5,383,100	$ 5,963,300	$ 6,657,220	$ 7,382,152	$ 8,141,197	$ 8,937,767	$ 4,812,895	$ 5,101,669	$ 5,407,769	$ 5,732,235	$ 6,076,169
			$ 474,600	$ 580,200	$ 693,920	$ 724,932	$ 759,045	$ 796,570	$ 272,428	$ 288,774	$ 306,100	$ 324,466	$ 343,934
			9.7%	10.8%	11.6%	10.9%	10.3%	9.8%					
Total all Rate Centers													
Operating Rate Revenue		$ 11,951,300	$ 13,358,900	$ 14,762,100	$ 16,238,310	$ 17,862,141	$ 19,648,355	$ 21,613,191	$ 22,909,982	$ 24,284,581	$ 25,741,656	$ 27,286,155	$ 28,923,324
Debt Service Revenues		11,913,260	13,694,000	15,887,100	18,479,247	20,833,105	23,270,617	25,718,989	25,718,989	25,718,989	25,718,989	25,718,989	25,718,989
Total ACSA All Revenues		$ 23,864,560	$ 27,052,900	$ 30,649,200	$ 34,717,557	$ 38,695,246	$ 42,918,972	$ 47,332,180	$ 48,628,971	$ 50,003,570	$ 51,460,645	$ 53,005,144	$ 54,642,313
	$ Change		$ 3,188,340	$ 3,596,300	$ 4,068,357	$ 3,977,689	$ 4,223,726	$ 4,413,208	$ 1,296,791	$ 1,374,599	$ 1,457,075	$ 1,544,499	$ 1,637,169
	% Change		13.4%	13.3%	13.3%	11.5%	10.9%	10.3%					
10-Year CIP Debt Service					347,458	929,234	1,649,343	2,490,682	2,857,773	2,660,491	2,345,940	2,562,393	3,003,685
Total Estimated Charge		$ 23,864,560	$ 27,052,900	$ 30,649,200	$ 35,065,015	$ 39,624,480	$ 44,568,315	$ 49,822,862	$ 51,486,744	$ 52,664,061	$ 53,806,585	$ 55,567,537	$ 57,645,999
% Change			$ 0	13.3%	14.4%	13.0%	12.5%	11.8%	3.3%	2.3%	2.2%	3.3%	3.7%
	Additional Annual Revenues			$ 3,596,300	$ 4,415,815	$ 4,559,465	$ 4,943,835	$ 5,254,547	$ 1,663,882	$ 1,177,317	$ 1,142,524	$ 1,760,952	$ 2,078,461
				13.3%	14.4%	13.0%	12.5%	11.8%	3.3%	2.3%	2.2%	3.3%	3.7%

Table 6 – RWSA

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033	FY 2034
RWSA												
Operations Revenues												
Urban Water	$ 9,014,900	$ 10,021,400	$ 11,425,300	$ 12,567,830	$ 13,824,613	$ 15,207,074	$ 16,727,782	$ 17,731,449	$ 18,795,336	$ 19,923,056	$ 21,118,439	$ 22,385,545
Urban Wastewater	9,033,600	9,908,300	11,007,500	12,108,250	13,319,075	14,650,983	16,116,081	17,083,046	18,108,028	19,194,510	20,346,181	21,566,951
Other Rate Centers	2,565,900	2,797,300	3,101,200	3,411,320	3,752,452	4,127,697	4,540,467	4,812,895	5,101,669	5,407,769	5,732,235	6,076,169
Total	$ 20,614,400	$ 22,727,000	$ 25,534,000	$ 28,087,400	$ 30,896,140	$ 33,985,754	$ 37,384,329	$ 39,627,389	$ 42,005,033	$ 44,525,334	$ 47,196,855	$ 50,028,666
Change $		2,112,600	2,807,000	2,553,400	2,808,740	3,089,614	3,398,575	2,243,060	2,377,643	2,520,302	2,671,520	2,831,811
Change %		10.2%	12.4%	10.0%	10.0%	10.0%	10.0%	6.0%	6.0%	6.0%	6.0%	6.0%
Debt Service Charge Revenues												
Urban Water	8,302,200	10,193,800	12,593,900	15,110,458	17,334,129	19,729,780	22,139,122					
Urban Wastewater	8,878,104	9,339,600	9,931,300	10,746,165	11,433,645	12,123,525	12,845,925					
Other Rate Centers	2,342,600	2,585,800	2,862,100	3,245,900	3,629,700	4,013,500	4,397,300					
	$ 19,522,904	$ 22,119,200	$ 25,387,300	$ 29,102,523	$ 32,397,474	$ 35,866,805	$ 39,382,347	$ 39,382,347	$ 39,382,347	$ 39,382,347	$ 39,382,347	$ 39,382,347
Change $		2,596,296	3,268,100	3,715,223	3,294,951	3,469,331	3,515,542					
Change %		13.3%	14.8%	14.6%	11.3%	10.7%	9.8%					
Total RWSA Customer Revenues	**$ 40,137,304**	**$ 44,846,200**	**$ 50,921,300**	**$ 57,189,923**	**$ 63,293,614**	**$ 69,852,559**	**$ 76,766,676**	**$ 79,009,736**	**$ 81,387,380**	**$ 83,907,681**	**$ 86,579,202**	**$ 89,411,013**
Change $		**$ 4,708,896**	**$ 6,075,100**	**$ 6,268,623**	**$ 6,103,691**	**$ 6,558,945**	**$ 6,914,117**	**$ 2,243,060**	**$ 2,377,643**	**$ 2,520,302**	**$ 2,671,520**	**$ 2,831,811**
Change %		**11.7%**	**13.5%**	**12.3%**	**10.7%**	**10.4%**	**9.9%**	**2.9%**	**3.0%**	**3.1%**	**3.2%**	**3.3%**
Additional for 10-Year CIP				**449,224**	**1,209,663**	**2,234,312**	**3,501,459**	**4,037,024**	**3,528,179**	**2,871,645**	**3,250,740**	**4,098,654**
Total Estimated Charge	**$ 40,137,304**	**$ 44,846,200**	**$ 50,921,300**	**$ 57,639,147**	**$ 64,503,277**	**$ 72,086,871**	**$ 80,268,135**	**$ 83,046,760**	**$ 84,915,558**	**$ 86,779,327**	**$ 89,829,942**	**$ 93,509,666**
% Change		**0.0%**	**13.5%**	**13.2%**	**11.9%**	**11.8%**	**11.3%**	**3.5%**	**2.3%**	**2.2%**	**3.5%**	**4.1%**
			$ 50,921,300	***$ 57,639,147***	***$ 64,503,277***	***$ 72,086,871***	***$ 80,268,135***	***$ 83,046,760***	***$ 84,915,558***	***$ 86,779,327***	***$ 89,829,942***	***$ 93,509,666***
	Additional Annual Revenues		***$ 6,075,100***	***$ 6,717,847***	***$ 6,864,130***	***$ 7,583,594***	***$ 8,181,264***	***$ 2,778,625***	***$ 1,868,798***	***$ 1,863,769***	***$ 3,050,615***	***$ 3,679,725***
			13.5%	***13.2%***	***11.9%***	***11.8%***	***11.3%***	***3.5%***	***2.3%***	***2.2%***	***3.5%***	***4.1%***

Total Revenue Bonds

FY 2016-2029



Summary
FY 25-29 Capital Improvement Plan

64 Projects, $371.0 M

Urban Water	Urban Wastewater	Non-Urban Projects & Shared	Total
$223.4 M	$76.6 M	$71 M	$371 M

	FY 25	FY 26	FY 27	FY 28	FY 29
City Utilities	13.9	11.4	10.2	10.6	10.6
ACSA	13.3	14.4	13.0	12.5	11.8
RWSA Overall	13.5	13.2	11.9	11.8	11.3

Summary

The Proposed CIP addresses the mission and goals of the RWSA and will:

1. *Maintain our drinking water and wastewater infrastructure to provide reliable services which comply with or exceed regulatory requirements.*
2. *In preparation for the uncertainties of climate change, enhance the capacity, reliability and resilience of our community's drinking water supply by completing the Rivanna to Ragged Pipeline and Pumping project as soon as possible (by 2030 rather than 2033); completing the Ragged Mountain to Observatory Pipeline and Pumping Project, and raising the Ragged Mtn. Reservoir normal pool and begin filling by 2026 (as rainfall patterns allow).*
3. *Install critical drinking water infrastructure to reliably meet the needs of the entire service area now and in the future by constructing the Airport Road Pumping Station, the second South and North Fork Rivanna River crossings, the Central Waterline, and decommissioning of the North Fork WTP.*
4. *Continue to enhance our abilities to address emerging contaminants at both the water and wastewater facilities. Provide additional GAC filtering capacity at Red Hill and Crozet WTPs using grant funding from Albemarle County ($400k) and VDH ($3.4 M).*
5. *Leverage partnerships with City Utilities, UVA, and VDOT to reduce costs and disruption of piping projects in key roadways such as the Emmet Street and High Street corridors .*
6. *Complete the CIP in an environmentally protective and financially responsible manner.*

Questions ?