RIVANNA
WATER & SEWER AUTHORITY

Board of Directors Meeting

July 26, 2022

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: **July 26, 2022**

LOCATION: **Virtually via ZOOM**

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

AGENDA

1. ***CALL TO ORDER***
2. ***STATEMENT FROM THE CHAIR***
3. ***AGENDA APPROVAL***
4. ***MINUTES OF PREVIOUS BOARD MEETING***
   a. *Minutes of Regular Board Meeting on June 28, 2022*
5. ***RECOGNITION***
6. ***EXECUTIVE DIRECTOR'S REPORT***
7. ***ITEMS FROM THE PUBLIC***
   For matters not listed on the agenda for public hearing
8. ***RESPONSES TO PUBLIC COMMENTS***
9. ***CONSENT AGENDA***

   a. *Staff Report on Finance*

   b. *Staff Report on Operations*

   c. *Staff Report on Ongoing Projects*

   d. *Staff Report on Wholesale Metering*

   e. *Staff Report on Drought Monitoring*

   f. *Transfer of Ownership to Albemarle County Service Authority – Upper Woodbrook Interceptor*

10. OTHER BUSINESS

(Joint Session with the RSWA)

a. *Presentation: Physical and Cyber Security Update*
Jennifer Whitaker, Director of Engineering and Maintenance
Jeff Southworth, Information Technology Manager

b. *Presentation and Work Session: 2023-2028 Strategic Plan Update*
Darin Thomas, Vice-President, Raftelis Financial Consultants, Inc.
Catherine Carter, Senior Manager, Raftelis Financial Consultants, Inc.

11. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

12. CLOSED MEETING - PERSONNEL REVIEW

(Motion, second and roll call vote to enter into a joint session to discuss confidential performance evaluations, goals and objectives of specific personnel as permitted by the personnel exemption at Section 2.2-3711-A(1) of the Code of Virginia)

Motion:

I move that the Rivanna Water & Sewer Authority enter into a joint closed session with the Rivanna Solid Waste Authority to discuss confidential performance evaluations, goals and objectives of specific personnel as permitted by the personnel exemption at Section 2.2-3711-A(1) of the Code of Virginia.

(Motion, second and roll call vote to certify the closed session)

Motion:

The Rivanna Water and Sewer Authority hereby certifies by recorded vote that, to the best of each member's knowledge, only public business matters lawfully exempted from the open meeting requirements of the Virginia Freedom of Information Act and identified in the motion authorizing the closed meeting were heard, discussed or considered in the closed meeting to which this certification resolution applies.

(Complete and close the RWSA meeting, then complete and close the RSWA meeting)

13. ADJOURNMENT

GUIDELINES FOR PUBLIC COMMENT AT VIRTUAL RIVANNA BOARD OF DIRECTORS MEETINGS

If you wish to address the Rivanna Board of Directors during the time allocated for public comment, please use the "chat" feature in the Zoom Meeting interface.

Members of the public who submit comments 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." The comment(s) will be read aloud to the Board of Directors only during this agenda item, so comments must be received prior to the end of this agenda item. The comments will be read by the Rivanna Authority's Executive Coordinator/Clerk of the Board.

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.

If you would like to submit a comment, please keep in mind that Board of Directors meetings are formal proceedings and all comments are recorded on tape. In order to give all who wish to submit a comment proper respect and courtesy, the Board requests that commenter follow the following guidelines:

- Submit your comment prior to the start of or during the "Items From The Public, Matters Not Listed for Public Hearing on the Agenda" section of the Agenda.
- In your comment, state your full name and address and your organizational affiliation if commenting 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;
- Be respectful and civil in all interactions at Board meetings;
- 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 commenters who have questions for the Board or staff submit those questions in advance of the meeting to permit the opportunity for some research before the meeting.

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

Rev. March 24, 2022

CALL TO ORDER

STATEMENT OF CHAIR TO OPEN MEETING

This is Mike Gaffney, Chair of the Rivanna Water and Sewer Authority.

I would like to call the July 26, 2022 meeting of the Board of Directors to order.

Notwithstanding any provision in our Bylaws to the contrary, as permitted under the City of Charlottesville's Continuity of Government Ordinance adopted on March 7, 2022 (Ordinance No. O-22-029), Albemarle County's Continuity of Government Ordinance adopted on April 15th, 2020, and last revised effective November 4, 2020 (Ordinance No. 20-A(16)) and Chapter 1283 of the 2020 Acts of the Virginia Assembly effective April 24, 2020, we are holding this meeting by real time electronic means with no board member physically present at a single, central location.

All board members are participating electronically. This meeting is being held pursuant to the second resolution of the City's Continuity of Government Ordinance and Section 6 of the County's revised Continuity of Government Ordinance. All board members will identify themselves and state their physical location by electronic means during the roll call which we will hold next. I note for the record that the public has real time audio-visual access to this meeting over Zoom as provided in the lawfully posted meeting notice and real time audio access over telephone, which is also contained in the notice. The public is always invited to send questions, comments, and suggestions to the Board through Bill Mawyer, the Authority's Executive Director, at any time.

ROLL CALL:

Ms. Hildebrand: Please state your full name and location.
Ms. Mallek: Please state your full name and location.
Mr. O'Connell: Please state your full name and location.
Mr. Lunsford (attending as an alternate for Mr. O'Connell): Please state your full name and location.
Mr. Pinkston: Please state your full name and location.
Mr. Richardson: Please state your full name and location.
Mr. Rogers: Please state your full name and location.

And I am Mike Gaffney, located at _____.

Joining us today electronically are the follow Authority staff members and consultants:

Bill Mawyer, Lonnie Wood, David Tungate, Jennifer Whitaker, John Hull, Jeff Southworth, Deborah Anama, Catherine Carter, and Darin Thomas.

We are also joined electronically by Carrie Stanton (Williams Mullen), counsel to the 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
June 28, 2022

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, June 28, 2022 at 2:15 p.m. via Zoom.

Board Members Present: Mike Gaffney, Michael Rogers, Brian Pinkston, Ann Mallek, Lauren Hildebrand, Gary O'Connell.

Board Members Absent: Jeff Richardson

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Jennifer Whitaker, David Tungate, Deborah Anama, John Hull, Jeff Southworth, Andrea Bowles, Michelle Simpson

Attorney(s) Present: Carrie Stanton.

1. *CALL TO ORDER*
Mr. Gaffney convened the June 28, 2022 regular meeting of the Board of Directors of the Rivanna Water and Sewer Authority at 2:15 p.m.

2. *STATEMENT FROM THE CHAIR*
Mr. Gaffney read the following statement aloud:

"This is Mike Gaffney, Chair of the Rivanna Water and Sewer Authority.

"I would like to call the June 28, 2022 meeting of the Board of Directors to order.

"Notwithstanding any provision in our Bylaws to the contrary, as permitted under the City of Charlottesville's Continuity of Government Ordinance adopted on March 7, 2022 (Ordinance No. O-22-029), Albemarle County's Continuity of Government Ordinance adopted on April 15th, 2020, and last revised effective November 4, 2020 (Ordinance No. 20-A(16)) and Chapter 1283 of the 2020 Acts of the Virginia Assembly effective April 24, 2020, we are holding this meeting by real time electronic means with no board member physically present at a single, central location.

"All board members are participating electronically. This meeting is being held pursuant to the second resolution of the City's Continuity of Government Ordinance and Section 6 of the County's revised Continuity of Government Ordinance. All board members will identify themselves and state their physical location by electronic means during the roll call which we will hold next. I note for the record that the public has real time audio-visual access to this meeting over Zoom as provided in the lawfully posted meeting notice and real time audio access over telephone, which is also contained in the notice. The public is always invited to send questions, comments, and suggestions to the Board through Bill Mawyer, the Authority's Executive Director, at any time."

Mr. Gaffney called the roll.

Ms. Lauren Hildebrand stated she was located at 305 4th Street NW, Charlottesville.

Ms. Ann Mallek stated she was located at 4826 Advance Mills Road, Earlysville.

Mr. Gary O'Connell stated he was located at the Albemarle County Service Authority Headquarters, 168 Spotnap Road, Charlottesville.

Mr. Brian Pinkston stated he was located in Clayton, Georgia.

Mr. Michael Rogers stated he was located at City Hall, 605 Main Street, Charlottesville.

Mr. Gaffney stated he was located at 3180 Dundee Road, Earlysville.

3. *AGENDA APPROVAL*

Mr. Gaffney stated Ms. Stanton wanted to explain this new agenda item for the Board.

Ms. Stanton explained that while this item was not required, it was a good practice to follow at the outset of each meeting. With approval of an agenda, it ensured the Chair can more easily follow and require others to follow the agenda. She stated otherwise, the agenda would be merely a suggestion, and individual members would be able to deviate. She stated the addition made the items to be discussed in the meeting more concrete.

Ms. Stanton explained how the process would work. She stated someone would bring forward a motion to adopt the meeting agenda, and any amendments could be proposed and would carry with a majority vote. She stated the motion to adopt would be seconded and voted upon like other motions. She stated the item would be added to the beginning of each meeting in future meetings.

Mr. Gaffney asked if there were comments or questions on the matter from the Board.

Ms. Mallek moved the Board to adopt the agenda as proposed. The motion was seconded by Mr. O'Connell and passed 6-0.

Mr. O'Connell stated he understood the Board was addressing a resolution for item 10-G. He asked if that needed to be formally added to the agenda.

Ms. Stanton stated the presentation and vote on the resolution could be added to agenda item 10-G to be clear.

Mr. Gaffney asked if that should be part of the motion.

Ms. Mallek moved to amend her motion as described by Mr. O'Connell. The motion was seconded by Mr. O'Connell and passed 6-0.

4. *MINUTES OF PREVIOUS BOARD MEETING*

a. Minutes of Regular Board Meeting on April 26, 2022

Mr. Gaffney asked if there were any changes to the Board minutes or comments any Board member would like to make.

Ms. Mallek stated she did not have any comments, but she had sent in one correction that Ms. Anama had already taken care of. She stated she would move to adopt the minutes as corrected when they got to it.

Mr. Gaffney asked if they needed to know what the change was.

Ms. Mallek stated it was a word about "on a basement" instead of "in a basement" for raising the elevation of buildings. She stated she would have to find the line number.

Ms. Anama stated it was line number 696.

Mr. Gaffney asked if there were any other changes. He asked if there was a motion and a second to approve the minutes.

Mr. Rogers moved to adopt the Board minutes as corrected. The motion was seconded by Mr. O'Connell and passed 6-0.

5. *RECOGNITIONS*

There were none presented.

6. *EXECUTIVE DIRECTOR'S REPORT*

Mr. Mawyer stated he would like to recognize David Bortner, a Water Operator Class II for RWSA. He stated Mr. Bortner had heard a "code red" emergency alert related to a missing person and coincidentally, he recognized the missing person on Route 250 near the Bellair Market and notified the police.

Mr. Mawyer stated the General Assembly established June 30 as Virginia's Annual Drinking Water and Wastewater Professionals Appreciation Day. He offered appreciation to the dedicated staff and to the Board in their efforts to provide outstanding drinking water and wastewater treatment services for the community.

Mr. Mawyer reported that Austin Marrs had recently passed his Professional Engineer exam and would be licensed as a Professional Engineer in Virginia. He stated Mr. Marrs was a homegrown success and had been working full time with RWSA for four years, having previously interned with Rivanna.

Mr. Mawyer stated related to operational optimization, the Virginia Department of Health (VDH) had a voluntary program that encouraged water treatment plants to exceed normal requirements on filtration, clarification, and backwashing. He stated they awarded various levels

of awards to water treatment plants (WTPs) in Virginia. He stated the North Rivanna, South Rivanna, Crozet, and Scottsville WTPs received the second highest award—silver—while the Observatory WTP received the highest award – gold. He congratulated Mr. David Tungate, Director of Operations, and Mr. Daniel Campbell, Water Manager, for these successes.

Mr. Mawyer reported that May 31 was Dam Safety Awareness Day, and June was National Safety Month. He stated in light of the recent unfortunate events in Richmond at Bosher's Dam, where two women were killed while boating, the community should be reminded about the hazards surrounding reservoirs and dams. He stated people should be able to enjoy recreation at those sites, but they needed to follow the safety rules associated with the reservoirs.

Mr. Mawyer stated that boaters were not supposed to go beyond the safety buoys near the dams, and no boats were allowed on the Sugar Hollow Reservoir because of the rubber bladder on the dam, as the bladder could deflate and pull a boat across the top of the dam. He stated only electric motors were allowed at Ragged Mountain, South Rivanna, Totier Creek, and Beaver Creek reservoirs, and swimming was not allowed in any of the reservoirs.

Mr. Mawyer stated the Authority had been reauthorized for another 50 years until June 2072. He stated both the City and the County approved those authorizations earlier in June.

Mr. Mawyer stated there was community outreach to the Crozet Community Advisory Committee through a presentation on the annual update of projects in the Crozet Area, particularly the Beaver Creek Dam spillway project and the Crozet wastewater flow equalization tank project. He stated the community had good questions regarding water quality and emergencies and what would be done in response to emergencies.

Mr. Mawyer stated that Water Resources Manager, Andrea Bowles had given a presentation to a class from UVA on stream flows, water supply systems, and drought planning related to the reservoirs.

He stated the previous evening, there had been a meeting with the Buck Mountain neighborhood during which the Authority provided information and an update on what it was considering for the private road (Allen Farm Lane) and the bridge, as well as the plans for leasing and sale of one property, the Elliott House with 2.2 acres. He stated there were about 15 to 20 people in attendance at the meeting including Ms. Mallek.

Mr. Mawyer noted that there were no consent agenda items. Staff wanted to take the opportunity to do a short presentation on each report that was normally on the consent agenda. He stated he had requested each of the division directors and other staff to provide reviews of the reports since there were a number of new Board members.

Ms. Mallek stated in relation to dam safety, there used to be a chain that went between the buoys; she did not know if the chain was still there, but she found it reassuring to have it as a safety measure. She noted that she did not know how it could be done now. She stated later, she would like to report on the EPA meetings she attended over the weekend and the PFAS framework that was discussed.

Mr. Mawyer asked if Ms. Mallek was referring to the South Rivanna Reservoir.

Ms. Mallek responded that she was.

Mr. Mawyer stated he believed the chains were gone, and some of the challenges involved debris flowing downstream pulling the chains out and destroying them. He stated if he were a boater, he would also like to be able to grab something, but the downside was that the stormwater and debris washed out the grab lines. He stated they were looking for good solutions to provide some sort of device to stop people from going over the dam.

Mr. Gaffney stated Ms. Mallek could address her other points during the agenda item for other items from the Board or staff not on the agenda.

7. *ITEMS FROM THE PUBLIC*

Mr. Gaffney asked speakers to state their full name and address and their organizational affiliation if they were commenting for a group. He stated comments should be limited to three minutes. He asked if there were members of the public wishing to speak.

Mr. Hull stated Ms. Dede Smith was present to speak.

Ms. Dede Smith stated she lived at 2652 Jefferson Park Circle, Charlottesville. She stated the Board would review an update on the Central Water Line with new information, and it was the same presentation shown to the Charlottesville City Council the previous week. She requested the Board pay particular attention to the second slide in the presentation that showed a chart on the various projects associated with the community water plan. She stated it looked familiar, except the cost and timelines kept changing.

Ms. Smith noted the cost for the Central Water Line and stated that a year ago, the Board had approved a CIP project with a cost of $13M for the Central Water Line. She stated a month ago, a CIP project was approved, and the cost for the Central Water Line was now $31M. She stated within the last month, the cost of the Central Water Line had risen to $41M—and there was no indication how high the costs would go.

Ms. Smith stated later in the presentation, there would be a chart that displayed what would happen if the Central Water Line were to connect to the planned Emmet Street pipeline that was not yet in the CIP. She stated the connection would allow the Authority to achieve one and a half of the pipelines that were in the master plan—for less than the cost of running the Central Water Line through the southern corridor. She emphasized the proposed timelines that would be displayed on the second slide of the presentation.

Ms. Smith stated the waterline was planned to be operative five years before the South Fork to Ragged Mountain raw water pipeline would be completed. She asked whether Rivanna planned to draw water from the Ragged Mountain Reservoir through the Observatory WTP for use other than drought and without a mechanism to refill it, or if they were planning on refilling any additional use from Ragged Mountain from the Moormans.

Mr. Hull stated there were no other members from the public who indicated they had a comment.

Mr. Gaffney closed the items from the public.

8. *RESPONSES TO PUBLIC COMMENTS*

Mr. Mawyer stated that Ms. Smith was correct about the changing cost estimates for the Central Water Line project. Cost estimates were currently a challenge with inflation, supply issues, and material costs increasing constantly. He stated that this was why the engineers had a recent $10M increase in the Central Water Line project. He stated the Consumer Price Index was at 8.6% for the past 12 months—the highest in 40 years. He noted with supply chain issues, it was harder to get quotes on materials. He stated the costs would continue to be monitored as the project moved forward to bidding by 2024, and the public should remain attentive to this. He noted that the prices could unfortunately change day-to-day.

Mr. Mawyer stated Ms. Smith was correct that the Central Water Line was five years ahead of another project—the South Rivanna to Ragged Mountain pipeline. He stated though they planned to construct the replacement pipeline from the Ragged Mountain Reservoir to the Observatory WTP concurrently with the Central Water Line with completion of both projects planned for 2028. He stated there would be raw water flowing to Observatory WTP through a new pipe, and there would be increased capacity at the WTP. He explained the Central Water Line would help transport treated drinking water from the plant to the distribution system for use by the community. He stated the Authority would still rely on the Sugar Hollow Reservoir to fill the Ragged Mountain Reservoir until the South Rivanna to Ragged Mountain pipeline was constructed.

Mr. Mawyer stated there was some consideration to request the Board to accelerate the South Rivanna to Ragged Mountain Reservoir pipeline. There may be an item before the Board during the next few months or in the next CIP cycle to accelerate the project. He stated further evaluation was needed before a final recommendation would be made. They were working on the timing of the entire project, and cost was definitely a factor.

Mr. Pinkston stated that delaying work would only add costs due to the construction environment.

Mr. Mawyer agreed.

Mr. Pinkston stated unintentional delays were one thing, but delaying just to delay added unnecessary costs.

Mr. Mawyer stated the new Consumer Price Index would be released the next month, and it had been nothing but bad news for the calendar year. He stated there was not a clear end to inflationary increases, and it was having a significant impact on construction projects. He stated all of the budgets would be challenged when the CIP was updated for FY 2024.

9. *CONSENT AGENDA*

Items have been moved to Other Business.

10. *OTHER BUSINESS*

a. Presentation and Vote on Approval: Staff Report on Finance

Director of Finance and Administration, Lonnie Wood, stated that each month, the Board received a summary of the monthly financial statements. He noted that the first page was meant to provide a quick summary of the actual revenues and actual expenses. He stated the budget and financial statements were divided into two primary areas: operations (personnel, utilities, maintenance, chemicals) and debt service (how the CIP was funded through debt payments and how reserves were established).

Mr. Wood stated that the statements have the two main rate centers: urban water and urban wastewater. He stated there were four other rate centers: Crozet water, Scottsville water, Glenmore wastewater, and Scottsville wastewater. He stated the net results for the total Authority in the month of April were $177,563, and there was detail provided on the total revenues and total expenses in the reports for each rate center similar to the consolidated report shown.

Mr. Wood explained that the next page of the summary provided financial comments related to some of the detailed line items he would discuss next. He stated the comments point out explanations of budget variances. The Authority had $764K when they compared budgeted revenues versus actual revenues. He stated the report showed expenses are in a deficit of $498K compared to budget. He stated there was a net difference of $175K in actual and $265K in budget vs. actual estimates.

Mr. Wood noted Item C was $534K over budget, because there was a bond issuance in the middle of the year. He stated they had to pay for the bond issuance costs and did not budget for that. He noted that they had received enough bond proceeds to pay for the expense. He stated each rate-center had its own line item related to revenue versus expenses and budget versus actual analysis.

Mr. Wood stated that on the operating side, revenues are generated by flow for the Urban Rate Centers. He stated there would be a charge per 1,000 gallons of consumption. He stated the Board set the rate every year during the budget process. He stated urban water flow was fairly easy to predict, but urban wastewater was more difficult to predict because it was affected by weather and infiltration into the sewer system. He noted there was one month with a 40% change in volume.

Mr. O'Connell moved to approve the Staff Report on Finance. The motion was seconded by Ms. Mallek and carried 6-0.

b. Presentation and Vote on Approval: Reimbursement Resolution – Capital Improvement Plan (CIP) Funding

Mr. Wood reported that every year after the CIP, Rivanna had passed a reimbursement

resolution. He explained that because they financed most of the projects with debt and the debt was most likely to be tax exempt municipal revenue bonds, the IRS rules for Rivanna to have the flexibility to pay itself back on the projects, depending on timing, meant there had to be a reimbursement resolution in place that stated the intent of the authority. He stated the resolution did not authorize debt to be issued, it stated that there was a CIP, and the Authority intended to issue an estimate of $125M in debt to fund the program.

Mr. Wood clarified that if the Authority were in a situation where it had to reimburse itself on any particular project, the resolution states they have the right to do that. He stated the $125M was derived from the CIP; it was estimated that almost $10M in reserves would be used to fund the CIP, and another $121M in debt proceeds would be issued. He stated they had estimated up to $125M to include debt issuance costs for paying for underwriters, bond trustees, lawyers, and financial advisors. He stated it was done every year routinely, and it provided the Authority flexibility to reimburse itself for some projects.

Mr. Wood explained that for example, financing of the Ragged Mountain Dam project was delayed for 6–8 months. He stated if the reimbursement resolution had not been in place, they would have had to stop construction of the dam, but they were instead able to continue using cash reserves to pay for the construction while the legal process progressed. He stated Rivanna eventually reimbursed itself for a good portion of the costs. He stated there was usually an earmark of around 10% of the project cost to be funded with cash on hand, but at that time, they had used about half the cash on the one project.

Mr. Rogers moved to approve the staff report on Finance. The motion was seconded by Mr. O'Connell and carried 6-0.

c. Presentation and Vote on Approval: Staff Report on Operations

The Director of Operations, David Tungate, stated that the Operations Report was submitted to the Board monthly. He stated the first table was based on the water operations, and the average daily water production for the month was provided. He noted that the average daily production for May was 7.73 MGD from South Rivanna. He stated the first three WTPs were the urban ones—South Rivanna, Observatory, and North Rivanna—and the maximum daily production of the month was displayed alongside them.

Mr. Tungate explained that as they moved through the warmer months, August and September usually had the highest production days in the urban system. He stated the same information was provided for Crozet, Scottsville, and Red Hill WTPs, and there was the average production total for all of the Rivanna plants. He stated the status of the reservoirs was provided on the right of the slide, and the figures were up to date as of June 22. He stated they were at 99.8% of total useable capacity due to the rain over the weekend.

Mr. Tungate reported that with Ragged Mountain Reservoir being the largest in volume, everything else was full—but Ragged Mountain was down 0.23 feet, which brought the urban reservoir total below 100%. He added that the water treatment facilities were in regulatory compliance for the month of May.

Mr. Tungate reported that the first table on the slide showed some of the production and water quality from the wastewater plants. He noted the average effluent flow at Moores Creek was 10.3 MGD, which was close to the average for the overall water production. He stated Stone Robinson was the smallest of the plants, and now that school was not in session, they did not have any effluent coming out of Stone Robinson because there were not enough people to keep the bugs alive in the package treatment plant.

Mr. Tungate stated the second table on the slide showed the allocation of the nutrient discharges from Moores Creek. He stated on an annual basis, Rivanna was permitted to discharge 282,994 lbs. of nitrogen and 18,525 lbs. of phosphorous. He stated the values were divided by 12 to give an average monthly allocation, and the third column going to the right represented the actually discharge for the month.

Mr. Tungate stated the treatment performance was provided as a percentage of the monthly allocation, and the year-to-date performance was provided as a percentage of the annual allocation. He stated the performance came into play because at the end of the calendar year, the excess nutrient credits were sold through a nutrient exchange. He stated the revenue from the exchange ranged from $80,000 to $110,000 a year based on the performance of the water treatment plant.

Mr. Tungate provided a chart for useable urban water storage, noting that it was charted by month and went back two years. He stated they were at 99.8% capacity. He presented a graph that displayed water production, wastewater treatment volume, and rainfall totals. He stated the y-axis provided the daily average production or flows per month along with the inches of rain, and they were tracked together.

Mr. Gaffney commented that the nitrogen and phosphorous discharges for May seemed high compared to the normal allocations, and he asked if the runoff was from farms.

Mr. Tungate responded that it was not from farms. He stated they had been trying new processes in the aeration basins, and that was why the values were higher, but less than the average monthly allocation. He stated the phosphorous was higher than normal, and it was based on what was coming into the plant from the sewer system.

Ms. Hildebrand moved to approve the Staff Report on Operations. The motion was seconded by Mr. O'Connell and carried 6-0.

d. Presentation and Vote on Approval: Staff Report on Ongoing Projects

The Director of Engineering and Maintenance, Jennifer Whitaker, stated that each month, an ongoing projects report was brought to the Board. She stated it had taken various forms and formats over the years and was typically around 25 pages—primarily prepared by the engineering department as part of a collaborative effort. She noted that it included CIP projects as well as O&M projects and emergency repairs. She added that there was a link in the report, midway down on the first page, that was a link to the full CIP program.

Ms. Whitaker explained that the projects in the report were broken into four categories. She

stated there was the category for Projects Under Construction, noting that staff were involved in the office and field work. She stated the Under Construction category included projects with contractors onsite, and they frequently had impacts to operations. She stated that Design and Bidding was the second category, and these were projects that were ready to go to contractors or in a formulation phase. She pointed out that it was a large category.

Ms. Whitaker stated that the third category was Planning and Studies, and those were the lower-dollar projects with higher levels of complexity, usually requiring more thought and input from stakeholders and customers. She reported that urgent and emergency repairs were listed under the fourth category of other Significant Projects, and a description was usually provided that explained the reason for the repair. She stated historically, Rivanna did not have a good program for urgent repairs, but they now performed proactive inspections and were able to identify issues before they were emergencies and could be performed as high-priority repairs.

Ms. Whitaker noted that not every project was included in the report, but staff tried to include the key projects the Board may have questions about.

Ms. Whitaker stated that under each one of the line items in the report, several bullets were listed. She stated they listed the design engineer, the construction contractor, the anticipated construction start date, a percentage complete, the base contract amount, any change orders that arose, the total construction project amount, and the most up-to-date completion timeline. She stated the timeline could change month to month, but they tried to consistently meet their schedules. She mentioned that the budget was also provided. She stated that it was usually the actual total capital project budget; but that in some cases, it was the anticipated total future budget for the effort. She state that while projects may not be fully funded, they tried to bring to the Board what they believed the total cost estimate to be.

Ms. Whitaker stated they typically provided a one- or two-sentence update for the projects. She stated a paragraph of the project history was historically provided, but it had become too cumbersome to read. The history was moved to the back of the report. She stated the quick, two-sentence description would typically provide enough information to give an update.

Mr. Gaffney commented that it was the best format they had in 20 years—the report was easy to read, it was complete, and the back of the report always provided more information. He suggested that in the under-construction section, it would be helpful to round the values to the nearest dollar for the change orders. He stated it looked confusing due to the amount of numbers.

Mr. Pinkston stated that he appreciated the reports, and they provided a helpful and appropriate synopsis for the projects.

Ms. Whitaker stated she welcomed the suggestions. She stated they had tried over the years to change formats based on reader interests.

Mr. O’Connell asked if staff performed a project management timeline.

Ms. Whitaker responded that they were in the process of implementing a new project

management software that would allow them to do that. She stated the software was called "Work Otter" and was being formatted such that each project would have a timeline of information and events, allowing them to roll up the project timeline for all projects together. She stated that it was currently done piecemeal, and that the goal was to have every project manager reporting up so that all of the projects could be added to a master schedule.

Mr. O'Connell stated once they had a roll-up summary, one should be provided to the Board, and seeing all of the projects at once would be helpful.

Mr. Pinkston moved to approve the Staff Report on Ongoing Projects. The motion was seconded by Mr. Rogers and carried 6-0.

e. Presentation and Vote on Approval: Staff Report on Wholesale Metering

Ms. Whitaker stated that she was filling in for Victoria Fort, who had a baby the week before and was unable to be present. She stated Ms. Fort prepared the report on a monthly basis, and it was presented to the Board as part of the 2012 Ragged Mountain Dam project agreement and the ancillary Water Cost Allocation Agreement. She explained that in the agreement between the ACSA, the City, and Rivanna, RWSA was tasked with developing a metering program to measure and identify water supplied from the treatment plants to the City and to ACSA.

Ms. Whitaker stated that it was to be done on a wholesale basis as opposed to a retail customer basis. She stated the Authority developed a wholesale water master metering program, and they installed 25 different remote-read meter vaults that circled the boundary of the City and its the border with the County. She provided a map of the locations of the meter vaults, noting that it was a net balance—three finished water meters were taken from the three urban plants, and then they either added or subtracted the boundary meters based on a master formula. This allocated the RWSA produced water between the City and ACSA. She stated nearly all of the locations were at the boundary where the waterlines cross into the City from the County.

Ms. Whitaker explained that each month, the net of the 28 meters was presented to the Board in this report. She noted City and ACSA usage by month and the daily average along with the flow split. She stated the 2012 agreement further required that the water metering and accounting was used to compare to an allocated amount against the actual usage. She stated if the water used ever reached the cap (for either party), there was a true-up and a repayment of debt service requirement. She noted that there was a complex formula that determined how the repayment was calculated, and that the metering program was done on a monthly basis in an effort to keep track of water production and usage.

Ms. Whitaker stated that each month, the individual points for water production for the past 12 months were reported—for both the City and ACSA. She noted there was a seasonal pattern, and year over year, the seasonal pattern was more prevalent, and additionally there were interesting patterns caused by the COVID-19 pandemic. She mentioned that the distribution between the City and the County varied.

Ms. Whitaker reported that they worked with ACSA staff and City staff to develop a formal process and program, which included operating costs such as digital remote readings. She stated

the meter vaults were large and could be 10 to 12 feet in width. She stated they used a third-party company to perform annual calibrations on the meters. She stated staff within engineering and maintenance worked on the meters—performing repairs, calibrations, checks, communications, and parts replacement.

Mr. Pinkston commented that there were essentially various larger transmission lines with meters at various critical points around the perimeter of the border between the County and the City.

Ms. Whitaker confirmed that this was correct, noting that it required a mass balance with calculation of what went into and out of the City.

Mr. Pinkston asked if the meters worked both ways.

Ms. Whitaker responded that most of the meters worked both ways because they were large-diameter meters and the mains could flow both directions. She noted that there were a few small meters that were unidirectional, and they were not necessarily on Rivanna mains. She stated historically, the system was developed as a unified system—and County, City, and Rivanna lines were not always segregated. She stated that they had been working to segregate the lines so each jurisdiction was responsible for its own infrastructure; there were places where a County and a City line joined, and that was where meters were located to monitor the flow of water.

Mr. Pinkston asked how often they had to adjust which party was paying the other.

Ms. Whitaker stated the true-up agreement—the repayment of debt service costs—only occurred when either party exceeded the maximum allocation. She stated the City had to reach 6.71 MGD or ACSA had to reach 11.99 MGD. She stated the meters had been in place since 2019, and they had yet to hit the limits.

Mr. Pinkston commented if they were to reach the maximums, then the water distribution projections had gone out of alignment.

Ms. Whitaker clarified that the meters were more of a tool to observe trends in water usage, and if they saw numbers suddenly rise, it would cause them to investigate why.

Mr. Gaffney noted that Ms. Whitaker had discussed the formula to determine the debt-service repayment. He stated Mr. Wood had drafted the formula, and it was the last link in the Community Water Supply Plan.

Ms. Mallek moved the Board approve the Staff Report on Wholesale Metering. The motion was seconded by Mr. O'Connell and carried 6-0.

Ms. Mallek stated the system was not easy to develop, but it was understandable by community members.

f. Presentation and Vote on Approval: Staff Drought Monitoring Report

Water Resources Manager, Andrea Bowles, stated that regarding drought, the Authority was in a

good place at the moment. She explained how the Authority monitored drought and daily reservoir levels, noting that they reviewed the U.S. Drought Monitoring report. She commented that the report was up to date as of June 22. She stated that she had reviewed the data before the meeting, and there were still no drought phases that had been initiated, with the County still in the normal zone. She stated the VDEQ Drought Status report was a daily map that changed based on drought status; it was still the same, showing a watch-level for groundwater, with the urban reservoirs 99.8% full. She stated they regularly examined several parameters to see what kind of drought status they were in.

Ms. Bowles explained that she sourced the precipitation data from the National Climatic Data Center. She stated that since the report was released, she had reviewed the precipitation data. She stated that the report showed that the departure total from January to May was 1.49 inches above normal, and the most up-to-date data showed they were up 1.16 inches above normal, which included the precipitation during June. She stated they had reviewed daily the different river gages located around the watersheds. She stated they were reviewed to determine how much water was coming in to the reservoirs, how it related to the median over time, and whether the volume was at, above, or below the median. She noted that they were above the median in most cases for the week, but they still continued to need periodic rainfall.

Ms. Bowles stated there was a Drought Response Committee that included the City, the County, and RWSA, and she would convene the committee later in the year if it became drier, to touch base and communicate any future coordinated efforts.

Mr. Pinkston asked what it meant for groundwater to be in a “watch” state.

Ms. Bowles responded that the state monitored different parameters, and groundwater level was one of them. She stated they did it based off of a groundwater meter, and it was considered to be in watch because of its level in comparison to the groundwater well level median level over time. She commented that it was trying to give a relative value, and if the groundwater level rose, then it would go off of the drought watch. She stated there could be a drought watch due to precipitation or reservoir levels; those were not active at the moment.

Mr. Gaffney mentioned that during the 2002 drought, the groundwater level was so low that when it would rain, it would pull the water out of the streams back into the ground.

Ms. Bowles confirmed that this was correct, and it was what would happen when the water level reached such a low level. She stated last year, they were negative in relation to precipitation—down almost eight inches at the end of the year. She noted that they had rebounded somewhat along with the groundwater table, but it still needed more time.

Ms. Mallek stated she believed it took months for the water table to come back, and it was lower in many places than anticipated. She stated in Louisa, there used to be a place called the Tyler Well that was used as a water indicator—it went dry in 2002 and had not been replaced. She stated it had taken many years for the water to recharge after the 2002 drought.

Mr. Pinkston moved to approve the Staff Drought Monitoring Report. The motion was

seconded by Mr. Rogers and carried 6-0.

g. Presentation and Vote on Approval: Central Water Line Project

Ms. Simpson introduced herself as a Senior Civil Engineer, and stated she would be presenting on the Central Water Line Project. She noted that she had given a presentation in January on this topic and had also touched on it briefly last month during the Finished Water Master Plan presentation. She stated there were some minor updates to the presentation that Mr. Mawyer had made, so it might not be exactly the same as what was in the Board packet.

Ms. Simpson stated on the slide was an overall map of their community water supply projects. She stated the South Rivanna Water Treatment Plant renovation was ongoing, and the plant was shown with a star at the top of the map. She stated project two is the Observatory Water Treatment Plant renovation, which was ongoing right now as well, was shown with the star at the bottom of the page. She stated they were upgrading the plant to a 10 million gallon per day capacity right now.

Ms. Simpson stated project three was the Ragged Mountain to Observatory Raw Water Pipe & Pump Station project, and that was the brown line from Ragged Mountain to Observatory. She stated the Central Water Line Project was the blue line in the middle of the page, and number five was the South Fork to Ragged Mountain Water Pipe, which was shown in purple. She stated the red section on the screen had already been constructed, which was the Birdwood Water Line Project. She stated project six in the yellow is to raise the Ragged Mountain water level by twelve feet.

Ms. Simpson stated that she would give an overview of the Central Water Line Project. She explained that the scope of work included approximately five miles of 24-inch to 30-inch water transmission mains, which were large water transmission mains that connected all the water plants and storage tanks in the system. She stated the water lines would be installed under the City streets in a segmented process, with the current schedule to construct between 2024 to 2028 and the cost allocation agreement to have 48% paid by the City and 52% paid by the ACSA.

Ms. Simpson reported that in 1987, there was a Southern Loop Agreement that outlined the project in two phases. She stated the western branch was already constructed from Observatory Water Plant down to the Avon Street tank, and the eastern branch was supposed to be constructed at a later date. She stated in 2017, they essentially picked up what was the conceptual eastern branch of the Southern Loop Project and started on some preliminary engineering of the Avon to Pantops Water Line.

Ms. Simpson stated at the August 2018 Board meeting, after a year of that work, the project was put on hold; they decided to move forward and complete the Finished Water Master Plan before proceeding. She stated they began work on that plan, and the 2020 Observatory Water Treatment Plant Agreement outlined some of the cost allocations for the improvements just discussed on the previous slide as part of the Community Water Supply Plan, and that also included the Central Water Line Project. She noted that in 2021, as the work on the Finished Water Master Plan was wrapping up, they did some work on the Central Water Line routing study to study the southern corridor a little more in depth.

Ms. Simpson stated she would give some background on the Urban Finished Water Master Plan. She stated the goals of the Finished Water Master Plan were to address the operational and hydraulic inefficiencies in moving water across the distribution system and improve system flexibility. She stated on the map shown, the dark blue lines represented all of the existing transmission lines. She stated on the left of the page, the Observatory WTP was highlighted by a green star; moving below that was the Observatory tank, with the rest of the line being the Southern Loop Water Line. She stated that was the western branch and the Avon Street tank that were completed in 1989 as part of that original Southern Loop Agreement.

Ms. Simpson stated on the right side of the page were all the water lines that came from the South Rivanna Treatment Plant, and the Pantops tank was on the far right of the page. She stated the Observatory WTP was hydraulically well-connected to the Southern Loop Water Line, so on the southwest side of the system everything was well-connected. She stated on the northeast side of the system, the South Rivanna WTP was well-connected to the Pantops tank and to those large-diameter water lines on the northeast side of the system, so there is a hydraulic gap in the system. She stated there were a lot of other City water mains and ACSA water mains that bridged those gaps, but there were no large-diameter transmission mains that Rivanna owned to fill in those gaps.

Ms. Simpson stated that it was through much hydraulic modeling and the study in the Finished Water Master Plan that they determined these areas operated somewhat independently of each other, so the Observatory water supplied in those water transmission mains in the southwest, and the South Rivanna water supplied in the water mains in the northeast part of the system. She stated essentially, the water did not move well between those two independent pressure systems—even though it was all one system.

Ms. Simpson stated in the results of the Master Plan, it was shown with modeling that they needed to close those gaps in the water transmission system to help the hydraulic connectivity between the two sides of the water system. She stated it was all one system, but the water did not move very efficiently, with reduced flexibility and efficiency in the system. She stated the primary recommendation for improving connectivity in the system was the Central Water Line, which was represented by the pink line shown on the screen. She stated the pink line would connect from the Observatory Water Plant to the Urban Water Line in the middle of the City, located at West Main and 10th Street, and would also connect over to the Pantops Water Line at East High and Long Street near Free Bridge.

Ms. Simpson stated the goal of the Central Water Line was to connect those three major transmission lines and improve the connectivity across the system. She noted that part of the Finished Water Master Plan recommended the Emmet Street Water Line, which was improvement project for system redundancy. She stated that was a north-south connector line and would improve connectivity between the Observatory and South Rivanna plants, but it specifically provided redundancy to the other north-south lines in the system and some redundancy to the Central Water Line. She stated it was supposed to be constructed as opportunities arose—meaning that as other projects happened such as City Streetscape projects, UVA projects, or VDOT projects—they would create opportunities to complete sections of the

Emmet Street waterline.

Ms. Simpson stated closing these gaps in the system will provide consistent supply and pressure to customers; reduce service disruptions when there were water main breaks and tank maintenance; support firefighting demands, improve system flexibility, efficiency, and redundancy; and help to utilize capacity of the Observatory upgrade. She stated that as Mr. Mawyer had mentioned earlier, when they upgraded the capacity of the Observatory WTP to 10 MGD, they needed to be able to get that water out of Observatory, and there were currently not enough large capacity water lines to get that water away from Observatory and into the system. She emphasized that this was what the Central Water Line would do.

Ms. Simpson stated that for community outreach for the Central Water Line, they had presented to City Council and the RWSA Board in January. She stated they set up a project website at the end of last year, on which a lot of this information could be found. She stated they mailed project flyers to approximately 480 property owners along the Southern Cherry Avenue route. She stated they presented to six neighborhood associations—Fry's Spring, Fifeville, Little High, Martha Jefferson, Belmont-Carlton, and Woolen Mills—and some of those meetings were combined with several neighborhood associations.

Ms. Simpson stated they also reached out to multiple other organizations, including Mt. Zion Baptist Church, the Piedmont Housing Alliance, Public Housing Area Residents, Region 10, the Charlottesville Redevelopment and Housing Authority, First Steps Infant Development Center, Charlottesville Day School, and others. She stated they would continue to have ongoing contact with these groups during design and before construction begins, as well as many other organizations along the route. She stated they had received a lot of feedback from different neighborhood meetings, and with that decided to go back to some of the original work done and reevaluate several of the existing alignments as well as several new alignments, which is what they would be discussing today.

Ms. Simpson stated with the reevaluation work, they did some new field work, used VDOT traffic volume information, used GIS data and aerial photography, did additional hydraulic modeling, and coordinated with City utilities, City traffic, ACSA, Michael Baker, and RWSA engineers. She stated for criteria, they evaluated the water distribution benefits for these different alignments and looked at fire flow and the ability to fill the storage tanks, because they had to have good system connectivity to be able to fill the water storage tanks at night so that the water can flow back out during the day and supply customers.

Ms. Simpson stated they needed to keep in mind that the water in all of their pipes flowed in different directions depending on the time of day and which water treatment plant is putting out different flows, so that all varied from day to day or from situation to situation. She stated they looked at average day traffic impacts and the different impacts to neighborhoods, businesses, and UVA; right-of-way widths; construction costs; pipe lengths; crossings and physical features such as railroad crossings and bridge crossings; different water features that may need to be crossed; opportunities to coordinate with other projects; underground and above-ground utility congestion; overall construction duration; and tree-clearing requirements.

Ms. Simpson stated they looked at five primary alignments, and there were some variations of each of them. She stated they looked at the Emmet Street and Route 250 Bypass alignment, where they started at Observatory, went up Emmet Street, then went on the bypass all the way down to Free Bridge. She stated option two was the Northern Preston line shown in purple, which would go from Observatory up Emmet Street, across Lambeth Field and up Rugby, over Grady to Preston, and then end up on East High Street. She stated the Middle alignment would essentially follow the Main Street Corridor in the central part of town. She stated the Southern Cherry alignment essentially went south of the City and followed JPA to Cleveland to Cherry to Elliott alignment, and then the Southern Harris alignment would go south of the City and follow JPA to Harris to 5th Street, then come up 5th Street and be in the same alignment as the Cherry Avenue alignment.

Ms. Simpson stated that the first alignment she would discuss in detail was the Emmet/Route 250 Bypass alignment. She stated this alignment was difficult to explain; however, it was a concept to put two projects together, which would be the Emmet Street project plus the Central Water Line Project. She stated they looked at this at a high level a long time ago, and Ms. Smith had been very insightful to also mention this project. She stated it did appear that there could be an opportunity to combine these two projects together, but when looking at it closer, it did not end up being one of the best options. She stated the concept was to tie into the Emmet Street project near the interchange of the bypass and follow the bypass to High Street. She stated in concept, it sounded good, but there were several projects that would need to be completed within the timeframe of the Central Water Line Project to actually complete that pipeline.

Ms. Simpson stated there were several other City projects that would be constructed within the timeframe of 2024 to 2028 for the Central Water Line: the Emmet streetscape phase one and the Barracks Road project north of that. She stated they were currently working with the City to design and construct the pieces of the Emmet Street Water Line with those two City projects. She stated those were the only two projects in the Emmet Street corridor that would be constructed within the construction timeframe for the Central Water Line. She stated there would be piping gaps if they completed the Central Water Line without advancing the Emmet Street Water Line.

Ms. Simpson stated to make a continuous water line from Observatory all the way over to the East High Street and Long Street connection, the gaps must be filled in. She stated the orange parts of the lines with the black dots were the advanced parts of the Emmet Street Water Line to fill in those gaps, so they would have a continuous water line from Observatory all the way over to Long Street and East High Street. She stated with constructing the Route 250 Bypass, they would require night work, so they would be constructing for years in the Route 250 Bypass at night because they would have very limited night work hours from 8 p.m. to 5 a.m., and they would have to cover that work back up every single night.

She stated that they would have limited work hours and then would have to finish the work early, cover it back up, backfill it, and repave every single night to work in the bypass. She stated that this extended the construction length time and would also have noise impacts to all the residents who lived along the Route 250 Bypass, and that section of water line was expected to take years because of the slow amount of progress they would be able to make due to the limited work

hours every night. She stated based on the long amount of the construction period and night work hours, the cost of that project would be about $60 million. She noted that they looked at going through McIntire Park instead for that stretch shown in the upper right of the map, and that City Park alternative would be about $7.5 million less because of less night work, less pavement replacement, and longer work hours—but would also require about 4.5 acres of tree clearing.

Ms. Simpson stated the second alignment considered was the Northern Preston alignment. She stated this alignment would essentially go up JPA to Emmet Street and through the Lambeth Field area, up Rugby and over to Grady, West High to East High, then to Free Bridge. She stated an alternative would be to go up McIntire Road and work in the bypass. She stated that alternative would be about 1,900 feet longer and $3.1M higher. She stated that alternative also did not take advantage of the East High Street City Water Main Project, for which they were planning to co-locate their water lines, so they would lose that benefit as well. She stated for the Northern Preston alignment, the cost was $39M; for that bypass alternative, there would be nightwork required, and there was also a chance that night work would be required on Emmet Street.

Ms. Simpson reported that one of their original alignments was the Middle alignment, which was originally thought to co-locate with the City's West Main Street streetscape project, but that project was now on hold. She stated this was one of the original alignments because it was one of the shortest, but now with the West Main Street project not going forward, this alignment had lost some of its benefits. She noted that this area was also congested with academic, hospital, medical, and business areas, and the roads themselves were actually highly congested with older underground utilities and abandoned utilities, such as older trolley tracks and bricks. She stated they knew this corridor was not only congested with businesses, buildings, and traffic, but it also had a lot of utility congestion and other conflicts. She stated it was a shorter route at around $39M, but it would be a difficult route to construct.

Ms. Simpson stated the red alignment was the Southern Cherry alignment, which was the Stadium, Piedmont, Price, railroad crossing at Lewis Street, JPA, Cleveland, Cherry, Elliott, 6th Street SE, Avon, crossing the railroad into10th Street NE, East Jefferson, 11th Street NE, and East High Street. She stated this alignment took advantage of co-locating with the City's East High Water Main Project and came in around $41M. She added that this route had the lowest traffic count of all of the routes.

Ms. Simpson explained that the fifth alignment was the Southern Harris and 5th Street alignment, which started off the same and then took a variation of JPA to Harris, up 5th Street, then continuing to the east on Elliott, but it would also need to have a spur to go back and connect to the Urban Water Line at West Main Street. She stated that the Harris/5th Street and spur would be about $8M higher and 3,700 feet longer. She stated the traffic on 5th Street is much higher, and she knew it was also an emergency access route from the interstate up to the hospital.

Ms. Simpson stated on the Southern Cherry route, they looked at multiple other variations. She stated there was the Shamrock alternative, which would change the location of the railroad crossing and instead of crossing at Lewis Street, they would cross at Shamrock. She stated that

alternative was about 1,800 feet shorter and about $3M less. She stated that in speaking with the City traffic and utilities representatives, that route was much narrower in terms of the road, and Shamrock Road itself was curvy and narrower—so it would be much more difficult to install the water line at Shamrock versus the JPA, Cleveland, and Cherry route.

Ms. Simpson stated on the east side of town, they looked at East Market and Meade and East Water and Meade alignments; both of those were longer and more expensive. She stated they did not overlap with as much of the East High City water main project as the Southern Cherry alignment.

Ms. Simpson stated that the engineers at Michael Baker had put together a matrix, and with a summary table of the five primary alignments. She stated shown was overall pipe length, and that the Emmet and Route 250 Bypass and Southern Harris had the longest routes. She noted that Middle was the shortest route; the Northern and Southern were about the same. She stated the maximum traffic counts, especially on the bypass, were significantly higher than the other routes, and the Southern Cherry route had the lowest overall, with 32% of the route greater than 10,000 vehicles per day, and all the other routes were significantly higher.

Ms. Simpson stated that regarding overall duration, most of the alignments were within 4–6 years, and the Emmet Street Bypass was 8 years to construct, which was based on one crew working in segments. She stated to complete that within a 4-year timeframe, they would have to double up the crews and be working in multiple places along that route to meet the project goal of completion in 4 years.

Ms. Simpson stated the costs were separated based on cost for the Central Water Line Project and cost of what was originally considered as the Emmet Street Water Line Project. She stated that was only impacted on the Emmet Street and northern routes where those could be somewhat co-located and overlapped. She stated this essentially just divided the funding differently for those two projects, even though the entire project needed to be built as one continuous line and built all at one time. She stated the overall costs were shown, and generally the Northern, Middle, and Southern alignments were all very close in cost; the Southern 5th Street, and Emmet Street bypass alignments had the highest costs.

Ms. Simpson stated that for water system benefits, the Middle and Southern alignments had the higher water system benefits, based on overall reliability and redundancy; the Southern and Middle corridors had better connectivity to the southern portions of the system. She stated that something discussed previously was having better connectivity to the existing Southern Loop and the Avon Street tank, and with the alignment being in the southern part of the City, they had better connectivity to the Avon Street tank. She added that regarding ease of future operations and maintenance, it was rated high if it was in a lower traffic area—as it would be much more difficult to operate and maintain if it was in a higher traffic area.

Ms. Simpson stated that all alignments would have challenges. She stated they were working through an urban corridor and in public streets, and they targeted building all the alignments in the street so that fewer easements would be required. She noted that currently, there were just a handful of easements required on the Southern alignment based on the railroad crossings, and

otherwise, they planned to have all water lines within the public right-of-way. She stated not all alignments equally met RWSA operational and hydraulic goals; the Southern and Middle alignment performed the best as far as providing all of their goals, and the Southern Cherry alignment provided the greatest overall benefits with the higher water system advantages, customer benefits, lower impacts to traffic, lower estimated overall project cost, ease of future operations and maintenance efforts, greatest hydraulic advantage when paired with future Emmet Street Water Line improvements. She stated she would now take any questions.

Ms. Mallek asked to see the slide with the pink line for the Southern Cherry alignment. She stated it also had the Emmet Street and Urban Water lines coming down, and she wanted reassurance that they were still concerned with the east-west connectivity for delivery of services in case of operational failure. She stated the lack of redundancy east-west was one of the things from 10 years ago that managers were very concerned about because if there was a major failure, there would be no way to get water from one of the other treatment plants into the southern part of the City successfully. She stated the pink line seemed to answer that question if that was still an important element—and without the pink line, it was unclear if the north-south ones did the job. She reiterated that she wanted clarification on this.

Ms. Simpson stated the east-west was the intention of the original Southern Loop, and it could be seen where the western branch of the Southern Loop was meant to connect from east to west from Observatory over to the Pantops area, so it was more of an east-west connector. She stated the pink line did provide the east-west connection as well as some north-south connection because of its interconnections with the other north-south lines. She stated it definitely filled in those gaps from east to west that would not be provided with other alignments.

Mr. Rogers stated these big projects were not just about infrastructure but were also about people and how these projects affected people's lives in their work, home, and community. He asked to see the slide that discussed community engagement and stated to get the word out about this, they sent out a number of letters to homeowners.

Ms. Simpson clarified that they were property owners.

Mr. Rogers stated they had six neighborhood associations with 43 attendees. He asked if they had a sense of how many people would actually be affected by this project in that community. He asked what percentage of the total people those 43 people represented.

Ms. Simpson stated she did not have an answer to that.

Mr. Rogers stated he knew they tried to do the best they could and could only put it out there and offer information to people, but there was still a lot of comment and concern about the project. He stated this raised the question of whether they were as effective as they could have been in terms of connecting with the people in the community and getting their feedback and helping them to understand the benefits of this project and how in the long term it would be beneficial to the City overall. He asked if there was any comment on that and what more could they do.

Mr. Mawyer responded that he knew that all staff, especially Ms. Simpson, were trying to reach

out to everyone they could think of that they had heard from in Mr. Rogers' office, as well as others they should contact. He stated Ms. Smith even volunteered some suggestions of people they should contact; in the presentation, they listed many organizations they had contacted to provide as much information as desired about the project. He stated they had an extensive communication program to reach all who were interested and wanted to hear about the project. He stated they had not held anything back and had the Central Water Line information sheet that was part of the mailer sent to everyone affected, including along routes that Ms. Simpson and the team had evaluated. He noted that at the Fry's Spring neighborhood meeting, participants suggested trying the 5th Street corridor, so that was added to the list of routes to evaluate.

Mr. Mawyer explained that at another meeting, participants suggested adding the Meade and Water Street alternatives at East High Street, so they were added to the list and were the alternate routes evaluated. He stated they tried to listen and consider what the neighborhoods had to say. They held private meetings with one resident who was concerned about the project and considered her suggestions, such as the Route 250 Bypass route. He stated he supposed they could do more, but they had put forth an extensive program to this point, and they intended to continue to communicate and keep everyone updated on progress. He added that they would provide information along the full route through all the neighborhoods again as they got closer to construction. They could introduce the contractor to the neighborhoods so that people knew specifically what trucks were going to be in their neighborhood and have their questions answered.

Mr. Mawyer stated they tried to listen to the neighborhoods that pointed out specifics in their area, such as Buford School being on Cherry Avenue, and how they would deal with school traffic. He stated the First Steps Infant Center had a lot of questions about how the work would be done next to their play area. He stated they knew that the hospital was a part of the route on the east end of Cherry Avenue, and they recognized that going up Roosevelt Brown Boulevard would impact traffic going to the Medical Center. He stated they listened to the neighborhoods about their concerns of getting essential services through the construction zone, and they assured the residents they would do that. He stated with few exceptions, they would keep traffic going and access available—which was one of the reasons the Cherry Avenue route was preferred, as it was most complementary to those goals.

Mr. Mawyer stated they had made a very reasonable effort to communicate with the community, and in January, one of the concerns was that the community did not know about the project. He acknowledged that was true, because they had been working with technical staff to introduce the project to City Council and their Board before rolling it out to the community. He stated that after those presentations were completed in January, they tried to have communication outreach with anyone who was willing to come to the meetings and listen to what they had to report, as well as mailing information to people who live along the Southern Cherry Avenue route.

Mr. Rogers stated he had heard Mr. Mawyer say they looked at other alternatives as they met with some of the community associations and factored that into the final decision-making. He emphasized that this was the important point.

Mr. Mawyer stated residents suggested the 5th Street route and changes at the east end of Cherry

Avenue near Meade Avenue and Water Street, and they took that input very seriously and evaluated those suggestions.

Mr. Rogers stated alright. He thanked Mr. Mawyer for his response.

Mr. Gaffney asked if there were other comments and questions.

Mr. Pinkston asked to see the slide with the matrix. He stated looking at this, cost was an important piece. He stated he was at the virtual meeting with the Fry's Spring neighborhood when they talked about going down 5th Street, and staff dutifully went through and processed the information and stated what would be involved, so he felt like this had been a responsive process on that side. He stated as he looked at this, they were about to spend somewhere around $40M for a project that was going to take at least four years. He asked if this was cast iron pipe.

Mr. Mawyer confirmed that it would be ductile iron pipe.

Mr. Pinkston stated his point was that they were talking about an asset that was going to be in the ground for about 75 years. He asked if that sounded reasonable, noting that the line would be in use for at least 50 years.

Mr. Mawyer responded that they used 100 years as the anticipated life of the pipe.

Mr. Pinkston stated he was trying to err on the lower side. He stated they were basically talking about making an investment overall for the whole community—not just Charlottesville, but for the County as well—as a 100-year investment. He stated it was a once-in-a-generation event, so he had a really difficult time supporting anything when it came to the water system benefits that was not the highest possible. He stated they were about to spend a lot of money on something that would be in use for 100 years, so he wondered why would they do anything where they were not getting the biggest bang for their buck, particularly given the longevity of it.

Mr. Pinkston stated that another important aspect was the schedule duration, and the schedule for projects like this one almost always went over schedule. He stated he knew that with their team, they would do everything they could to keep it on schedule—but having the space, right-of-way, width of road, and reduced traffic counts was why they were talking about a 4-year project for Cherry versus 6 years for the Middle and 4.5 years for the Southern Harris route. He stated doing something that yielded the biggest return on their investment over the course of 100 years and minimized disruption to City and regional life was what compelled him to support the Southern Cherry route.

Mr. Gaffney thanked Mr. Pinkston. He asked if there were any other comments or questions.

Mr. Pinkston responded that his only question was about the resolution and asked if this was the resolution they would be approving.

Mr. Mawyer confirmed that it was and stated he would be happy to read it.

Mr. Gaffney stated that would be a great idea since it had been distributed so recently.

Mr. O'Connell commented that it also identified the benefits of the project, so it was a good idea to read it.

Mr. Mawyer stated Mr. O'Connell deserved credit for his suggestion that they have a resolution about this project, and they worked hard to get it done. He stated it came in today and was what was being voted on. He stated this was a resolution of the RWSA regarding the Central Water Line Project dated June 28, 2022, and he read the resolution aloud:

"Resolution of the Rivanna Water and Sewer Authority Regarding the Central Water Line Project

June 28, 2022

WHEREAS, pursuant to an agreement between the City of Charlottesville (the "City"), the Albemarle County Service Authority (the "ACSA"), and the Rivanna Water and Sewer Authority (the "Authority," and, collectively with the City and ACSA, the "Parties") dated January 28, 2020 and identified as the "Observatory Water Treatment Plant, Raw Water Pumping and Piping Upgrade Cost and Capacity Allocation Agreement (the "2020 Agreement"), the Parties recognized that to receive the benefits of the infrastructure improvements planned for the Observatory Water Treatment Plant and the raw water lines supplying the plant, which infrastructure improvements will strengthen the Urban Area community drinking water system and enable the Authority to more easily and efficiently provide continuously reliable water service; that a future finished water distribution line in a different location than previously planned is necessary; and

WHEREAS, in the 2020 Agreement the Parties agreed that the necessary future finished water distribution line should be located more centrally through the City of Charlottesville, that the Authority would identify the exact location of such line upon completion of an Urban Finished Water Master Plan, and that the City and ACSA would cooperate fully to ensure the additional finished water distribution line is constructed expeditiously; and

WHEREAS, the planned future finished water distribution line is now referred to as the proposed "Central Water Line," and

WHEREAS, the Central Water Line will provide benefits to all water customers of the City and the ACSA in the following ways:

- *Provide consistent drinking water supply and pressure to residential and business customers in both the City and County*
- *Reduce service disruptions during water line breaks and storage tank maintenance*
- *Support firefighting demands*
- *Improve system flexibility, efficiency, and redundancy*
- *Assist with maintaining water supply during times of drought by utilizing the increased capacity of the upgraded Observatory Water Treatment Plant; and*

WHEREAS, the Urban Finished Water Master Plan prepared by the Authority's engineering

consultant Michael Baker International, Inc. identified multiple options for the alignment of the Central Water Line, and a detailed Central Water Line Routing Study also prepared by Michael Baker International, Inc. (the "Routing Study") summarized the alternative routes and further evaluated the Southern (Cherry Avenue) Corridor, all in consultation with the City's Utility and Traffic Departments and with ACSA, including each of their engineering staff;

WHEREAS, review of the Urban Finished Water Master Plan, the Routing Study, and additional investigations, a series of street alignments and their associated impacts were evaluated based on numerous factors, including the technical benefits to the drinking water distribution system, construction challenges and costs, projected impacts to the public and neighborhoods, projected impacts to traffic and adjacent areas, opportunities to coordinate with other necessary City utility projects, and future operation and maintenance requirements, among other factors; and

WHEREAS, following consideration of the assessments, public engagement with neighborhood associations along the potential routes, presentations to City Council, and further consultation with the City's Traffic Engineer, the City's Department of Utilities and ACSA, including the engineering staff from both, and Michael Baker International Inc., the Authority staff recommended the Southern (Cherry Avenue) alignment as generally planned to follow along the following route: Stadium Road, Piedmont Avenue, Price Avenue, Lewis Street, Jefferson Park Avenue, Cleveland Avenue, Cherry Avenue, Elliott Avenue, 6th Street SE, Avon Street, 10th Street NE, E. Jefferson Street, 11th Street NE, E. High Street, and Roosevelt Brown Boulevard (the "Southern (Cherry Avenue) Alignment"); and

WHEREAS, the Southern (Cherry Avenue) Alignment was selected based on its ability to provide the least amount of overall impacts to the surrounding community while also providing the greatest short-term and long-term benefits to the community's drinking water distribution system; and

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Rivanna Water and Sewer Authority that it hereby endorses the recommendation of the Authority staff and approves the Southern (Cherry Avenue) Alignment for the Central Water Line."

Mr. Gaffney thanked Mr. Mawyer and clarified that before them was a motion if a director would so support it. He suggested they put forth the motion, a second, and then have a discussion, unless Board members preferred to have the discussion first.

Mr. Rogers moved the Board adopt the resolution. Mr. Pinkston seconded the motion, which carried 6-0.

11. *OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA*

Ms. Mallek stated over the weekend, the local government advisory committee for the EPA had met, and she was a member of the water committee and the air committee. She stated there were several presentations about the PFAS family of chemicals, and the EPA was standing up a whole regulatory framework to cover these. She stated in the Q&A, she was very proud of their granular activated carbon (GAC) filtration system, and one of the senior staff came to her afterwards and stated they would anticipate there would be some special design for the GAC that

would be needed to fully optimize the way it removed the PFAS chemicals.

Ms. Mallek stated that was all she knew at the moment, but they would learn more as this word went forward and there was a lot of research happening. She stated that the Bipartisan Infrastructure Bill grants and wastewater availabilities were being discussed, and she was probably being a nuisance by passing along everything that came across her desk to Mr. Mawyer.

Mr. Gaffney thanked Ms. Mallek for serving on those committees because they were very important and stated it was great to get the notice early if Mr. Mawyer was not getting those.

Mr. Mawyer stated that regarding the PFAS issue, the EPA had provided advisories the previous week that the threshold used to be 70 parts per trillion, with parts per trillion being one drop of water in 27 Olympic-sized swimming pools, or over 18 million gallons. He stated they lowered their standards from 70 parts per trillion to a reporting standard of 4 parts per trillion. He stated he was pleased to say that they monitored their raw water and finished water, and for the two PFAS species—PFOS and PFOA—they had small detections that were below even the new EPA standard of 4 parts per trillion. He stated effectively, they had no PFAS.

Mr. Mawyer stated the question had emerged as to why they were applying for a grant from VDH to add more GAC. He explained that they had anticipated the EPA was going to do just what they did last week and lower the standards on PFAS. He stated there were thousands of different types of PFAS, so the future was unclear and they wanted to be prepared with the best GAC treatment filters to address whatever the EPA came up with for them in the future.

Ms. Mallek stated the 4 parts per trillion was the level at which they were able to test it right now, but they expected that the adverse effects were way down in the range of 0.2 parts per trillion—so more serious testing levels and detectability standards were coming, and she was grateful they were ahead of the game compared to many other communities.

Mr. Mawyer thanked Ms. Mallek.

Mr. Gaffney commented that it was appropriate to compliment the community, the City, the County, ACSA, and Rivanna for their wise decision a number of years ago to go to GAC—the more expensive way to treat their water—and it really was coming home to roost what a great choice that was. He asked if there were any other items from Board or staff not on the agenda.

Mr. Mawyer stated there were none from staff.

12. *CLOSED MEETING*

There was no reason to have a closed meeting.

13. *ADJOURNMENT*

At 4:19 p.m., Ms. Mallek moved to adjourn the meeting of the Rivanna Water and Sewer Authority Board. Mr. O'Connell seconded the motion, which passed unanimously (6-0).

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: **JULY 26, 2022**

STRATEGIC PLAN GOAL: WORKFORCE DEVELOPMENT

Recognitions

The professional qualifications of our staff continue to improve and enhance our services. We congratulate the following employees for successfully completing the requirements for a license from the State:

- Maurice Whitlow - Class A CDL
- Michael Hearn – Water Operator, Class 1

STRATEGIC PLAN GOAL: COMMUNICATION & COLLABORATION

Community Outreach

David Tungate, Director of Operations, provided a tour of the Crozet WTP for an Albemarle County family who reached out to request a visit to learn more about the water treatment process.

Return to In-Person Board of Director Meetings

We understand local emergency ordinances will expire, and we will be required to return to in-person Board of Director meetings in our Administration Building conference room starting on September 27.

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 ADMINISTRATION**

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **MAY MONTHLY FINANCIAL SUMMARY – FY 2022**

DATE: **JULY 26, 2022**

Total Authority revenues and expenses have a net positive balance of $175,600 thru May. Urban Water flows and rate revenues are 1.5% over budget estimates through May, and Urban Wastewater flows and rate revenues are 3% over budget. Revenues and expenses are summarized in the table below (this table is showing actual results of revenues and expenses only; the following statements show a more in-depth review of actual results compared to budget estimates):

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 7,695,625	$ 8,808,296	$ 2,158,191	$ 18,662,112
Expenses	(7,527,079)	(8,603,368)	(2,354,551)	(18,484,998)
Surplus (deficit)	$ 168,546	$ 204,928	$ (196,360)	$ 177,114
Debt Service				
Revenues	$ 7,038,719	$ 8,005,923	$ 1,842,496	$ 16,887,138
Expenses	(7,037,414)	(8,006,957)	(1,844,253)	(16,888,624)
Surplus (deficit)	$ 1,305	$ (1,034)	$ (1,757)	$ (1,486)
Total				
Revenues	$ 14,734,344	$ 16,814,219	$ 4,000,687	$ 35,549,250
Expenses	(14,564,493)	(16,610,325)	(4,198,804)	(35,373,622)
Surplus (deficit)	$ 169,851	$ 203,894	$ (198,117)	$ 175,628

Please refer to the Budget vs Actual financial statements when reviewing these comments. The Authority's actual operating revenues are $881,000 greater than the prorated annual budget and operating expenses are $659,000 over the prorated budget.

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 be significant impacts on the budget vs. actual monthly comparisons but will even out as the year progresses. Septage receiving support revenue of $109,441 is billed to the County annually in July. Annual payments are made for leases, health savings account contributions, and certain maintenance agreements. Insurance premiums are paid quarterly.

B. Personnel Costs (Urban Wastewater – page 5) – The Urban Wastewater rate center salaries are running high due to pay increases for plant operators resulting from operators achieving higher licenses.

C. Professional Services (Crozet Water, Glenmore Wastewater, Administration – pages 3, 6, 8) – Crozet Water incurred unbudgeted engineering and technical services expenses for a water demand forecast update. Glenmore Wastewater has spent $95,000 this year to perform a needs evaluation for Glenmore WRRF, which is an unbudgeted cost. This will cause Glenmore Reserves to be overdrawn, causing the other rate centers to fund Glenmore cost overruns. The Administration department has incurred $518,000 in unbudgeted bond issuance costs which were paid with bond proceeds.

D. Information Technology (Urban Water, Crozet Water, Scottsville Water, Administration – pages 2, 3, 4, 8) – Urban Water went over the annual budget on computer hardware purchases. Crozet and Scottsville Water incurred some unbudgeted SCADA maintenance and support costs to replace modems. The Administration department has spent about $172,000 more than the annual budget in this category. Extra costs are being incurred this year to mitigate several items identified in a Cyber Security Assessment conducted in August 2021.

E. Operations & Maintenance (Crozet Water, Scottsville Water, Urban Wastewater, Scottsville Wastewater, Maintenance – pages 3, 4, 5, 7, 9) – Scottsville Water has incurred some unbudgeted building and grounds maintenance costs. Crozet Water is over budget for Beaver Creek Watershed signs and utility easement clearing costs, but we expect to be reimbursed by a grant from the State for the watershed sign costs. Urban Wastewater's chemical costs and maintenance and repair costs are running higher than estimated. Scottsville Wastewater incurred $14,000 of unbudgeted repairs to the lagoon intake gates. The Maintenance department is over budget on the cost of fuel, lubricants, and other maintenance supplies.

F. Other Services and Charges (Crozet Water, Urban Wastewater – pages 3, 5) - Urban Wastewater is over budget on the cost of sludge hauling for composting. Crozet Water's utility costs are running higher than estimates.

Attachments

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022
Fiscal Year 2022

Consolidated
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 18,810,555	$ 17,243,009	$ 17,584,658	$ 341,649	1.98%
Lease Revenue		105,000	96,250	120,263	24,013	24.95%
Admin., Maint. & Engineering Revenue	C	553,000	506,917	1,041,670	534,754	105.49%
Other Revenues		540,589	495,540	656,721	161,181	32.53%
Use of Reserves-GAC		316,250	289,896	101,850	(188,046)	-64.87%
Rate Stabilization Reserves		200,000	183,333	183,333	-	0.00%
Interest Allocation		8,200	7,517	15,285	7,769	103.35%
Total Operating Revenues		**$ 20,533,594**	**$ 18,822,461**	**$ 19,703,781**	**$ 881,320**	**4.68%**
Expenses						
Personnel Cost	B	$ 9,649,988	$ 8,890,827	$ 8,774,650	$ 116,178	1.31%
Professional Services	C	712,050	652,713	1,209,973	(557,260)	-85.38%
Other Services & Charges	F	3,111,400	2,852,117	2,822,680	29,437	1.03%
Communications		191,412	175,461	183,916	(8,455)	-4.82%
Information Technology	A, D	447,100	409,842	646,730	(236,889)	-57.80%
Supplies		42,160	38,647	32,942	5,705	14.76%
Operations & Maintenance	A, E	4,864,235	4,458,882	4,762,676	(303,794)	-6.81%
Equipment Purchases		615,250	563,979	268,100	295,879	52.46%
Depreciation		900,000	825,000	825,000	-	0.00%
Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 20,533,595**	**$ 18,867,467**	**$ 19,526,667**	**$ (659,200)**	**-3.49%**
Operating Surplus/(Deficit)		**$ (1)**	**$ (45,006)**	**$ 177,114**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 18,193,960	$ 16,677,797	$ 16,677,815	$ 18	0.00%
Use of Reserves		-	-	-	-	
Septage Receiving Support - County		109,440	100,320	109,441	9,121	9.09%
Buck Mountain Lease Revenue		1,600	1,467	9,224	7,758	528.93%
Trust Fund Interest		33,700	30,892	12,518	(18,373)	-59.48%
Reserve Fund Interest		80,000	73,333	78,139	4,806	6.55%
Total Debt Service Revenues		**$ 18,418,700**	**$ 16,883,808**	**$ 16,887,138**	**$ 3,329**	**0.02%**
Debt Service Costs						
Total Principal & Interest		$ 14,256,077	$ 13,068,071	$ 13,566,071	$ (498,001)	-3.81%
Reserve Additions-Interest		80,000	73,333	78,139	(4,806)	-6.55%
Debt Service Ratio Charge		725,000	664,583	664,583	-	0.00%
Reserve Additions-CIP Growth		3,357,634	3,077,831	2,579,830	498,001	16.18%
Total Debt Service Costs		**$ 18,418,711**	**$ 16,883,818**	**$ 16,888,624**	**$ (4,806)**	**-0.03%**
Debt Service Surplus/(Deficit)		**$ (11)**	**$ (10)**	**$ (1,486)**		

Summary

Total Revenues	$ 38,952,294	$ 35,706,270	$ 36,590,919	$ 884,650	2.48%
Total Expenses	38,952,306	35,751,286	36,415,291	(664,006)	-1.86%
Surplus/(Deficit)	**$ (12)**	**$ (45,016)**	**$ 175,628**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Urban Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 7,971,504	$ 7,307,212	$ 7,417,972	$ 110,760	1.52%
Lease Revenue		75,000	68,750	92,071	23,321	33.92%
Miscellaneous		-	-	1,987	1,987	
Use of Reserves-GAC		300,000	275,000	85,600	(189,400)	-68.87%
Rate Stabilization Reserves		100,000	91,667	91,667	-	0.00%
Interest Allocation		3,400	3,117	6,328	3,211	103.04%
Total Operating Revenues		**$ 8,449,904**	**$ 7,745,745**	**$ 7,695,625**	**$ (50,121)**	**-0.65%**
Expenses						
Personnel Cost		$ 2,039,157	$ 1,878,072	$ 1,860,924	$ 17,148	0.91%
Professional Services		279,200	255,933	167,946	87,988	34.38%
Other Services & Charges		734,150	672,971	619,917	53,054	7.88%
Communications		98,670	90,448	93,160	(2,712)	-3.00%
Information Technology	D	80,500	73,792	90,676	(16,884)	-22.88%
Supplies		5,100	4,675	6,054	(1,379)	-29.50%
Operations & Maintenance		2,250,440	2,062,903	2,021,570	41,333	2.00%
Equipment Purchases		15,400	14,117	14,117	0	0.00%
Depreciation		300,000	275,000	275,000	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 5,802,617	$ 5,327,911	$ 5,149,363	$ 178,548	3.35%
Allocation of Support Departments		2,647,289	2,437,964	2,377,716	60,248	2.47%
Total Operating Expenses		**$ 8,449,906**	**$ 7,765,875**	**$ 7,527,079**	**$ 238,796**	**3.07%**
Operating Surplus/(Deficit)		**$ (2)**	**$ (20,129)**	**$ 168,546**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 7,621,725	$ 6,986,581	$ 6,986,584	$ 3	0.00%
Trust Fund Interest		12,000	11,000	4,544	(6,456)	-58.69%
Reserve Fund Interest		39,300	36,025	38,366	2,341	6.50%
Use of Reserves		-	-	-	-	
Lease Revenue		1,600	1,467	9,224	7,758	528.93%
Total Debt Service Revenues		**$ 7,674,625**	**$ 7,035,073**	**$ 7,038,719**	**$ 3,646**	**0.05%**
Debt Service Costs						
Total Principal & Interest		$ 5,215,275	$ 4,780,669	$ 5,236,838	$ (456,169)	-9.54%
Reserve Additions-Interest		39,300	36,025	38,366	(2,341)	-6.50%
Debt Service Ratio Charge		400,000	366,667	366,667	-	0.00%
Reserve Additions-CIP Growth		2,020,050	1,851,713	$ 1,395,544	456,169	24.63%
Total Debt Service Costs		**$ 7,674,625**	**$ 7,035,073**	**$ 7,037,414**	**$ (2,341)**	**-0.03%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 1,305**		

Rate Center Summary

Total Revenues	$ 16,124,529	$ 14,780,818	$ 14,734,343	$ (46,475)	-0.31%
Total Expenses	16,124,531	14,800,948	14,564,493	236,454	1.60%
Surplus/(Deficit)	**$ (2)**	**$ (20,129)**	**$ 169,850**		
Costs per 1000 Gallons	$ 2.49		$ 2.38		
Operating and DS	$ 4.75		$ 4.61		
Thousand Gallons Treated	3,397,700	3,114,558	3,161,966	47,408	1.52%
or					
Flow (MGD)	9.309		9.439		

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Crozet Water Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 1,058,856	$ 970,618	$ 970,618	$ -	0.00%
Lease Revenues		30,000	27,500	28,192	692	2.52%
Use of Reserves-GAC		13,000	11,917	13,000	1,083	9.09%
Interest Allocation		500	458	887	428	93.43%
Total Operating Revenues		**$ 1,102,356**	**$ 1,010,493**	**$ 1,012,697**	**$ 2,204**	**0.22%**
Expenses						
Personnel Cost		$ 324,463	$ 298,827	$ 295,462	$ 3,365	1.13%
Professional Services	C	15,100	13,842	26,638	(12,796)	-92.45%
Other Services & Charges	F	104,450	95,746	108,719	(12,974)	-13.55%
Communications		17,530	16,069	16,635	(566)	-3.52%
Information Technology	D	5,250	4,813	37,386	(32,573)	-676.85%
Supplies		1,500	1,375	1,119	256	18.63%
Operations & Maintenance	E	296,900	272,158	324,766	(52,608)	-19.33%
Equipment Purchases		28,000	25,667	3,322	22,345	87.06%
Depreciation		60,000	55,000	55,000	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 853,193	$ 783,497	$ 869,048	$ (85,551)	-10.92%
Allocation of Support Departments		249,161	229,452	223,307	6,145	2.68%
Total Operating Expenses		**$ 1,102,354**	**$ 1,012,949**	**$ 1,092,355**	**$ (79,406)**	**-7.84%**
Operating Surplus/(Deficit)		**$ 2**	**$ (2,456)**	**$ (79,658)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 1,847,832	$ 1,693,846	$ 1,693,846	$ -	0.00%
Trust Fund Interest		2,900	2,658	1,052	(1,607)	-60.44%
Use of Reserves		-	-	-	-	
Reserve Fund Interest		2,500	2,292	2,422	131	5.70%
Total Debt Service Revenues		**$ 1,853,232**	**$ 1,698,796**	**$ 1,697,320**	**$ (1,476)**	**-0.09%**
Debt Service Costs						
Total Principal & Interest		$ 1,216,667	$ 1,115,278	$ 1,115,278	$ -	0.00%
Reserve Additions-Interest		2,500	2,292	2,422	(131)	-5.70%
Reserve Additions-CIP Growth		634,070	581,231	581,231	-	0.00%
Total Debt Service Costs		**$ 1,853,237**	**$ 1,698,801**	**$ 1,698,931**	**$ (131)**	**-0.01%**
Debt Service Surplus/(Deficit)		**$ (5)**	**$ (5)**	**$ (1,611)**		

Rate Center Summary

Total Revenues	$ 2,955,588	$ 2,709,289	$ 2,710,016	$ 727	0.03%
Total Expenses	2,955,591	2,711,749	2,791,286	(79,537)	-2.93%
Surplus/(Deficit)	**$ (3)**	**$ (2,460)**	**$ (81,269)**		
Costs per 1000 Gallons	$ 5.44		$ 4.82		
Operating and DS	$ 14.58		$ 12.32		
Thousand Gallons Treated	202,697	185,806	226,592	40,786	21.95%
Flow (MGD)	0.555		0.676		

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Scottsville Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 514,704	$ 471,812	$ 471,812	$ -	0.00%
Use of Reserves-GAC		3,250	2,979	3,250	271	9.09%
Interest Allocation		200	183	428	245	133.45%
Total Operating Revenues		**$ 518,154**	**$ 474,975**	**$ 475,490**	**$ 515**	**0.11%**
Expenses						
Personnel Cost		$ 195,695	$ 180,249	$ 180,084	$ 164	0.09%
Professional Services		2,900	2,658	9,805	(7,147)	-268.85%
Other Services & Charges		28,100	25,758	27,260	(1,502)	-5.83%
Communications		4,930	4,519	6,303	(1,784)	-39.48%
Information Technology	D	1,250	1,146	13,559	(12,414)	-1083.37%
Supplies		770	706	71	635	89.98%
Operations & Maintenance	E	87,200	79,933	108,793	(28,859)	-36.10%
Equipment Purchases		1,500	1,375	1,783	(408)	-29.67%
Depreciation		40,000	36,667	36,667	0	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 362,345	$ 333,011	$ 384,326	$ (51,315)	-15.41%
Allocation of Support Departments		155,813	143,471	138,237	5,234	3.65%
Total Operating Expenses		**$ 518,158**	**$ 476,482**	**$ 522,563**	**$ (46,081)**	**-9.67%**
Operating Surplus/(Deficit)		**$ (4)**	**$ (1,508)**	**$ (47,073)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 138,888	$ 127,314	$ 127,314	$ -	0.00%
Trust Fund Interest		300	275	113	(162)	-59.04%
Reserve Fund Interest		1,200	1,100	1,172	72	6.55%
Total Debt Service Revenues		**$ 140,388**	**$ 128,689**	**$ 128,599**	**$ (90)**	**-0.07%**
Debt Service Costs						
Total Principal & Interest		$ 125,892	$ 115,401	$ 121,377	$ (5,976)	-5.18%
Reserve Additions-Interest		1,200	1,100	1,172	(72)	
Reserve Additions-CIP Growth		13,299	12,191	$ 6,215	5,976	
Total Debt Service Costs		**$ 140,391**	**$ 128,692**	**$ 128,764**	**$ (72)**	**-0.06%**
Debt Service Surplus/(Deficit)		**$ (3)**	**$ (3)**	**$ (165)**		
Rate Center Summary						
Total Revenues		$ 658,542	$ 603,664	$ 604,089	$ 425	0.07%
Total Expenses		658,549	605,174	651,327	(46,153)	-7.63%
Surplus/(Deficit)		**$ (7)**	**$ (1,510)**	**$ (47,238)**		
Costs per 1000 Gallons		$ 30.07		$ 27.46		
Operating and DS		$ 38.22		$ 34.23		
Thousand Gallons Treated		17,230	15,794	19,028	3,234	20.47%
or						
Flow (MGD)		0.047		0.057		

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Urban Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 8,535,195	$ 7,823,929	$ 8,054,818	$ 230,889	2.95%
Stone Robinson WWTP		20,589	18,873	15,532	(3,341)	-17.70%
Septage Acceptance		475,000	435,417	534,728	99,311	22.81%
Nutrient Credits		45,000	41,250	104,475	63,225	153.27%
Rate Stabilization Reserve		100,000	91,667	91,667	-	0.00%
Miscellaneous Revenue		-	-	-	-	
Interest Allocation		3,800	3,483	7,077	3,594	103.17%
Total Operating Revenues		**$ 9,179,584**	**$ 8,414,619**	**$ 8,808,296**	**$ 393,677**	**4.68%**
Expenses						
Personnel Cost	**B**	$ 1,289,471	$ 1,187,861	$ 1,219,897	$ (32,036)	-2.70%
Professional Services	**C**	208,500	191,125	234,197	(43,072)	-22.54%
Other Services & Charges	**F**	2,011,700	1,844,058	1,877,016	(32,958)	-1.79%
Communications		9,800	8,983	10,384	(1,401)	-15.59%
Information Technology		56,500	51,792	56,759	(4,968)	-9.59%
Supplies		1,200	1,100	1,603	(503)	-45.77%
Operations & Maintenance	**A, E**	1,672,520	1,533,143	1,864,147	(331,004)	-21.59%
Equipment Purchases		294,250	269,729	80,323	189,406	70.22%
Depreciation		470,000	430,833	430,833	(0)	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 6,013,941	$ 5,518,625	$ 5,775,161	$ (256,536)	-4.65%
Allocation of Support Departments		3,165,643	2,915,112	2,828,207	86,905	2.98%
Total Operating Expenses		**$ 9,179,584**	**$ 8,433,737**	**$ 8,603,368**	**$ (169,631)**	**-2.01%**
Operating Surplus/(Deficit)		**$ (0)**	**$ (19,119)**	**$ 204,928**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 8,568,221	$ 7,854,203	$ 7,854,209	$ 6	0.00%
Septage Receiving Support - County		109,440	100,320	109,441	9,121	9.09%
Trust Fund Interest		18,500	16,958	6,798	(10,161)	-59.92%
Use of Reserves		-	-	-	-	
Reserve Fund Interest		36,300	33,275	35,475	2,200	6.61%
Total Debt Service Revenues		**$ 8,732,461**	**$ 8,004,756**	**$ 8,005,923**	**$ 1,167**	**0.01%**
Debt Service Costs						
Total Principal & Interest		$ 7,689,212	$ 7,048,444	$ 7,079,818	$ (31,374)	-0.45%
Reserve Additions-Interest		36,300	33,275	35,475	(2,200)	-6.61%
Debt Service Ratio Charge		325,000	297,917	297,917	-	0.00%
Reserve Additions-CIP Growth		681,950	625,121	$ 593,747	31,374	5.02%
Total Debt Service Costs		**$ 8,732,462**	**$ 8,004,757**	**$ 8,006,957**	**$ (2,200)**	**-0.03%**
Debt Service Surplus/(Deficit)		**$ (1)**	**$ (1)**	**$ (1,034)**		
Rate Center Summary						
Total Revenues		$ 17,912,045	$ 16,419,375	$ 16,814,219	$ 394,844	2.40%
Total Expenses		17,912,046	16,438,494	16,610,325	(171,831)	-1.05%
Surplus/(Deficit)		**$ (1)**	**$ (19,120)**	**$ 203,894**		
Costs per 1000 Gallons		$ 2.71		$ 2.69		
Operating and DS		$ 5.28		$ 5.19		
Thousand Gallons Treated		3,390,400	3,107,867	3,200,166	92,299	2.97%
or						
Flow (MGD)		9.289		9.553		

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 404,028	$ 370,359	$ 370,359	$ -	0.00%
Rate Stabilization Reserve		-	-	-	-	
Interest Allocation		200	183	321	138	75.11%
Total Operating Revenues		**$ 404,228**	**$ 370,542**	**$ 370,680**	**$ 138**	**0.04%**
Expenses						
Personnel Cost		$ 94,885	$ 87,407	$ 89,993	$ (2,586)	-2.96%
Professional Services	C	12,900	11,825	95,000	(83,175)	
Other Services & Charges		34,300	31,442	30,024	1,418	4.51%
Communications		3,130	2,869	2,962	(93)	-3.22%
Information Technology		2,000	1,833	787	1,047	57.09%
Supplies		-	-	69	(69)	
Operations & Maintenance		121,650	111,513	87,779	23,733	21.28%
Equipment Purchases		3,800	3,483	3,483	(0)	0.00%
Depreciation		10,000	9,167	9,167	0	0.00%
Subtotal Before Allocations		$ 282,665	$ 259,539	$ 319,264	$ (59,724)	-23.01%
Allocation of Support Departments		121,563	111,919	106,342	5,577	4.98%
Total Operating Expenses		**$ 404,229**	**$ 371,458**	**$ 425,606**	**$ (54,148)**	**-14.58%**
Operating Surplus/(Deficit)		**$ (1)**	**$ (915)**	**$ (54,925)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 7,412	$ 6,794	$ 6,798	$ 4	0.05%
Trust Fund Interest		-	-	-	-	
Reserve Fund Interest		200	183	234	51	27.85%
Total Debt Service Revenues		**$ 7,612**	**$ 6,978**	**$ 7,032**	**$ 4**	**0.05%**
Debt Service Costs						
Total Principal & Interest		$ 1,578	$ 1,447	$ 5,929	$ (4,482)	-309.85%
Reserve Additions-CIP Growth		5,834	5,348	866	4,482	83.81%
Reserve Additions-Interest		200	183	234	(51)	-27.85%
Total Debt Service Costs		**$ 7,612**	**$ 6,978**	**$ 7,029**	**$ (51)**	**-0.73%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 4**		

Rate Center Summary

Total Revenues	$ 411,840	$ 377,520	$ 377,712	$ 192	0.05%
Total Expenses	411,841	378,435	432,634	(54,199)	-14.32%
Surplus/(Deficit)	**$ (1)**	**$ (915)**	**$ (54,922)**		
Costs per 1000 Gallons	$ 9.76		$ 14.02		
Operating and DS	$ 9.95		$ 14.25		
Thousand Gallons Treated	41,401	37,951	30,350	(7,601)	**-20.03%**
or					
Flow (MGD)	0.113		0.091		

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 326,268	$ 299,079	$ 299,079	$ -	0.00%
Interest Allocation		100	92	245	153	166.74%
Total Operating Revenues		**$ 326,368**	**$ 299,171**	**$ 299,324**	**$ 153**	**0.05%**
Expenses						
Personnel Cost		$ 94,875	$ 87,398	$ 89,993	$ (2,595)	-2.97%
Professional Services		10,250	9,396	2,030	7,366	78.39%
Other Services & Charges		21,800	19,983	20,554	(571)	-2.86%
Communications		3,400	3,117	3,511	(394)	-12.65%
Information Technology		1,500	1,375	1,999	(624)	-45.38%
Supplies		-	-	-	-	
Operations & Maintenance	E	58,100	53,258	75,376	(22,118)	-41.53%
Equipment Purchases		3,800	3,483	3,483	(0)	0.00%
Depreciation		20,000	18,333	18,333	(0)	0.00%
Subtotal Before Allocations		$ 213,725	$ 196,344	$ 215,280	$ (18,936)	-9.64%
Allocation of Support Departments		112,640	103,706	98,747	4,959	4.78%
Total Operating Expenses		**$ 326,365**	**$ 300,050**	**$ 314,027**	**$ (13,977)**	**-4.66%**
Operating Surplus/(Deficit)		**$ 3**	**$ (879)**	**$ (14,703)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 9,882	$ 9,059	$ 9,064	$ 6	0.06%
Trust Fund Interest		-	-	12	12	
Reserve Fund Interest		500	458	469	11	2.30%
Total Debt Service Revenues		**$ 10,382**	**$ 9,517**	**$ 9,545**	**$ 29**	**0.30%**
Debt Service Costs						
Total Principal & Interest		$ 7,453	$ 6,832	$ 6,832	$ -	0.00%
Reserve Additions-Interest		500	458	469	(11)	-2.30%
Estimated New Principal & Interest		2,431	2,228	2,228	-	0.00%
Total Debt Service Costs		**$ 10,384**	**$ 9,519**	**$ 9,529**	**$ (11)**	**-0.11%**
Debt Service Surplus/(Deficit)		**$ (2)**	**$ (2)**	**$ 16**		

Rate Center Summary

Total Revenues	$ 336,750	$ 308,688	$ 308,869	$ 181	0.06%
Total Expenses	336,749	309,569	323,556	(13,988)	-4.52%
Surplus/(Deficit)	**$ 1**	**$ (881)**	**$ (14,687)**		
Costs per 1000 Gallons	$ 13.80		$ 19.50		
Operating and DS	$ 14.24		$ 20.09		
Thousand Gallons Treated	23,643	21,673	16,104	(5,569)	**-25.69%**
or					
Flow (MGD)	0.065		0.048		

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Administration

Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 551,000	$ 505,083	$ 507,837	$ 2,754	0.55%
Bond Proceeeds Funding Bond Issuance Costs	C	-	-	518,307	518,307	
Miscellaneous Revenue		2,000	1,833	13,553	11,719	639.23%
Total Operating Revenues		**$ 553,000**	**$ 506,917**	**$ 1,039,697**	**$ 532,780**	**105.10%**
Expenses						
Personnel Cost		$ 2,177,998	$ 2,007,212	$ 1,976,780	$ 30,431	1.52%
Professional Services	C	163,200	149,600	651,962	(502,362)	-335.80%
Other Services & Charges		86,200	79,017	86,067	(7,050)	-8.92%
Communications		21,000	19,250	25,802	(6,552)	-34.04%
Information Technology	A, D	171,900	157,575	343,753	(186,178)	-118.15%
Supplies		21,500	19,708	18,222	1,486	7.54%
Operations & Maintenance		68,600	62,883	48,744	14,140	22.49%
Equipment Purchases		25,200	23,100	13,933	9,167	39.68%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,735,598**	**$ 2,518,345**	**$ 3,165,265**	**$ (646,920)**	**-25.69%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (2,182,598)**	**$ (2,011,428)**	**$ (2,125,568)**	**$ 114,140**	**-5.67%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 960,343**	**$ 885,028**	**$ 935,250**	**$ (50,222)**	
Crozet Water	4.00%	**$ 87,304**	**80,457**	**85,023**	**(4,566)**	
Scottsville Water	2.00%	**$ 43,652**	**40,229**	**42,511**	**(2,283)**	
Urban Wastewater	48.00%	**$ 1,047,647**	**965,486**	**1,020,273**	**(54,787)**	
Glenmore Wastewater	1.00%	**$ 21,826**	**20,114**	**21,256**	**(1,141)**	
Scottsville Wastewater	1.00%	**$ 21,826**	**20,114**	**21,256**	**(1,141)**	
	100.00%	**$ 2,182,598**	**$ 2,011,428**	**$ 2,125,568**	**$ (114,140)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Maintenance

Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ -	$ -	
Miscellaneous Revenue		-	-	623	623	
Total Operating Revenues		**$ -**	**$ -**	**$ 623**	**$ 623**	
Expenses						
Personnel Cost		$ 1,398,597	$ 1,288,614	$ 1,258,358	$ 30,256	2.35%
Professional Services		-	-	-	-	
Other Services & Charges		61,200	56,100	31,190	24,910	44.40%
Communications		15,730	14,419	13,983	437	3.03%
Information Technology		9,500	8,708	888	7,820	89.80%
Supplies		2,000	1,833	395	1,439	78.47%
Operations & Maintenance	**E**	89,600	82,133	100,046	(17,912)	-21.81%
Equipment Purchases		208,100	190,758	114,833	75,925	39.80%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,784,727**	**$ 1,642,566**	**$ 1,519,692**	**$ 122,874**	**7.48%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,784,727)**	**$ (1,642,566)**	**$ (1,519,069)**	**$ (122,251)**	**7.44%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 535,418**	**$ 492,770**	**$ 455,721**	**$ 37,049**	
Crozet Water	3.50%	**62,465**	**57,490**	**53,167**	**4,322**	
Scottsville Water	3.50%	**62,465**	**57,490**	**53,167**	**4,322**	
Urban Wastewater	56.50%	**1,008,371**	**928,050**	**858,274**	**69,776**	
Glenmore Wastewater	3.50%	**62,465**	**57,490**	**53,167**	**4,322**	
Scottsville Wastewater	3.00%	**53,542**	**49,277**	**45,572**	**3,705**	
	100.00%	**$ 1,784,727**	**$ 1,642,566**	**$ 1,519,069**	**$ 123,497**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Laboratory

Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
	N/A					
Expenses						
Personnel Cost		$ 411,037	$ 378,760	$ 347,301	$ 31,458	8.31%
Professional Services		-	-	-	-	
Other Services & Charges		7,900	7,242	10,495	(3,254)	-44.93%
Communications		1,300	1,192	1,147	45	
Information Technology		200	183	610	(427)	-232.73%
Supplies		1,300	1,192	1,358	(167)	-13.99%
Operations & Maintenance		120,590	110,541	83,275	27,266	24.67%
Equipment Purchases		1,700	1,558	1,693	(135)	-8.64%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 544,027**	**$ 500,667**	**$ 445,880**	**$ 54,787**	**10.94%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (544,027)**	**$ (500,667)**	**$ (445,880)**	**$ (54,787)**	**10.94%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 239,372**	**$ 220,294**	**$ 196,187**	**$ 24,106**	
Crozet Water	4.00%	**21,761**	**20,027**	**17,835**	**2,191**	
Scottsville Water	2.00%	**10,881**	**10,013**	**8,918**	**1,096**	
Urban Wastewater	47.00%	**255,693**	**235,314**	**209,563**	**25,750**	
Glenmore Wastewater	1.50%	**8,160**	**7,510**	**6,688**	**822**	
Scottsville Wastewater	1.50%	**8,160**	**7,510**	**6,688**	**822**	
	100.00%	**$ 544,027**	**$ 500,667**	**$ 445,880**	**$ 54,787**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - May 2022

Engineering

Operating Budget vs. Actual

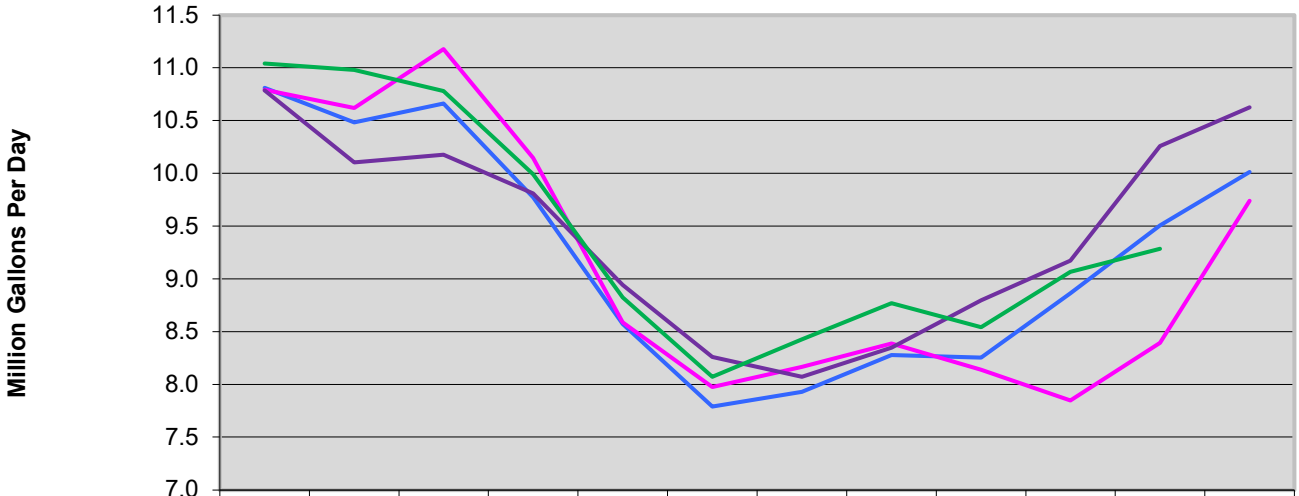
	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ 1,351	$ 1,351	
Total Operating Revenues		**$ -**	**$ -**	**$ 1,351**	**$ 1,351**	
Expenses						
Personnel Cost		$ 1,623,810	$ 1,496,428	$ 1,455,856	$ 40,572	2.71%
Professional Services		20,000	18,333	22,394	(4,061)	-22.15%
Other Services & Charges		21,600	19,800	11,437	8,363	42.24%
Communications		15,922	14,595	10,030	4,565	31.28%
Information Technology		118,500	108,625	100,313	8,312	7.65%
Supplies		8,790	8,058	4,050	4,007	49.73%
Operations & Maintenance		98,635	90,415	48,180	42,235	46.71%
Equipment Purchases		33,500	30,708	31,129	(421)	-1.37%
Depreciation & Capital Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 1,940,757**	**$ 1,786,962**	**$ 1,683,389**	**$ 103,573**	**5.80%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,940,757)**	**$ (1,786,962)**	**$ (1,682,039)**	**$ (102,222)**	**5.72%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 912,156**	**$ 839,872**	**$ 790,558**	**$ 49,314**	
Crozet Water	4.00%	**77,630**	**71,478**	**67,282**	**4,197**	
Scottsville Water	2.00%	**38,815**	**35,739**	**33,641**	**2,098**	
Urban Wastewater	44.00%	**853,933**	**786,263**	**740,097**	**46,167**	
Glenmore Wastewater	1.50%	**29,111**	**26,804**	**25,231**	**1,574**	
Scottsville Wastewater	1.50%	**29,111**	**26,804**	**25,231**	**1,574**	
	100.00%	**$ 1,940,757**	**$ 1,786,962**	**$ 1,682,039**	**$ 104,924**	

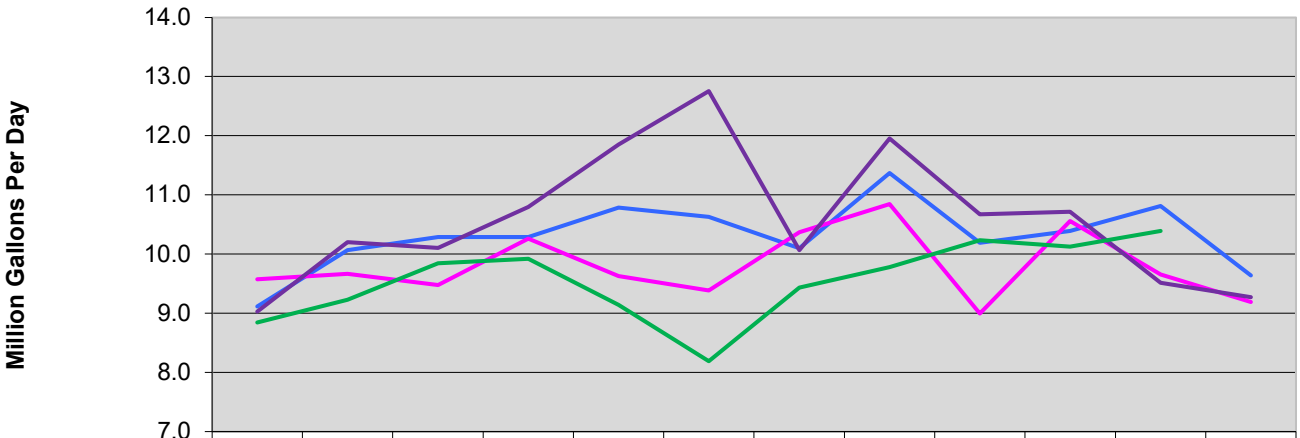
Rivanna Water and Sewer Authority
Flow Graphs

Urban Water Flows



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG.	10.81	10.48	10.66	9.77	8.57	7.79	7.93	8.28	8.25	8.86	9.51	10.01
FY 2020	10.79	10.62	11.18	10.14	8.59	7.98	8.16	8.39	8.14	7.85	8.39	9.74
FY 2021	10.78	10.10	10.17	9.81	8.94	8.26	8.07	8.35	8.79	9.17	10.26	10.62
FY 2022	11.04	10.98	10.78	9.99	8.82	8.07	8.43	8.77	8.54	9.07	9.28	

Urban Wastewater Flows



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG	9.11	10.07	10.29	10.29	10.78	10.63	10.10	11.37	10.19	10.39	10.81	9.64
FY 2020	9.58	9.66	9.48	10.26	9.63	9.38	10.37	10.84	8.99	10.56	9.66	9.19
FY 2021	9.03	10.20	10.10	10.79	11.85	12.75	10.06	11.95	10.67	10.72	9.51	9.27
FY 2022	8.84	9.23	9.85	9.92	9.14	8.19	9.43	9.78	10.23	10.13	10.39	

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

MEMORANDUM

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

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

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

SUBJECT: **OPERATIONS REPORT FOR JUNE 2022**

DATE: **JULY 26, 2022**

WATER OPERATIONS:

The average and maximum daily water volumes produced in June 2022 were as follows:

Water Treatment Plant	*Average Daily Production (MGD)*	*Maximum Daily Production in the Month (MGD)*
South Rivanna	8.38	9.79 (6/30/2022)
Observatory	0.83	1.83 (6/6/2022)
North Rivanna	0.48	0.54 (6/17/2022)
Urban Total	9.69	11.19 (6/16/2022)
Crozet	0.64	0.76 (6/21/2022)
Scottsville	0.06	0.090 (6/22/2022)
Red Hill	0.0016	0.003 (6/7/2022)
RWSA Total	10.39	-

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

Status of Reservoirs (as of July 18, 2022):

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

WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during June 2022. Performance of the WRRFs in June 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	9.41	<QL	9	<QL	22	<QL	2.2
Glenmore	0.110	3.6	15	5.4	30	NR	NL
Scottsville	0.058	<QL	25	3.4	30	NR	NL
Stone Robinson	0.0005	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 June 2022.

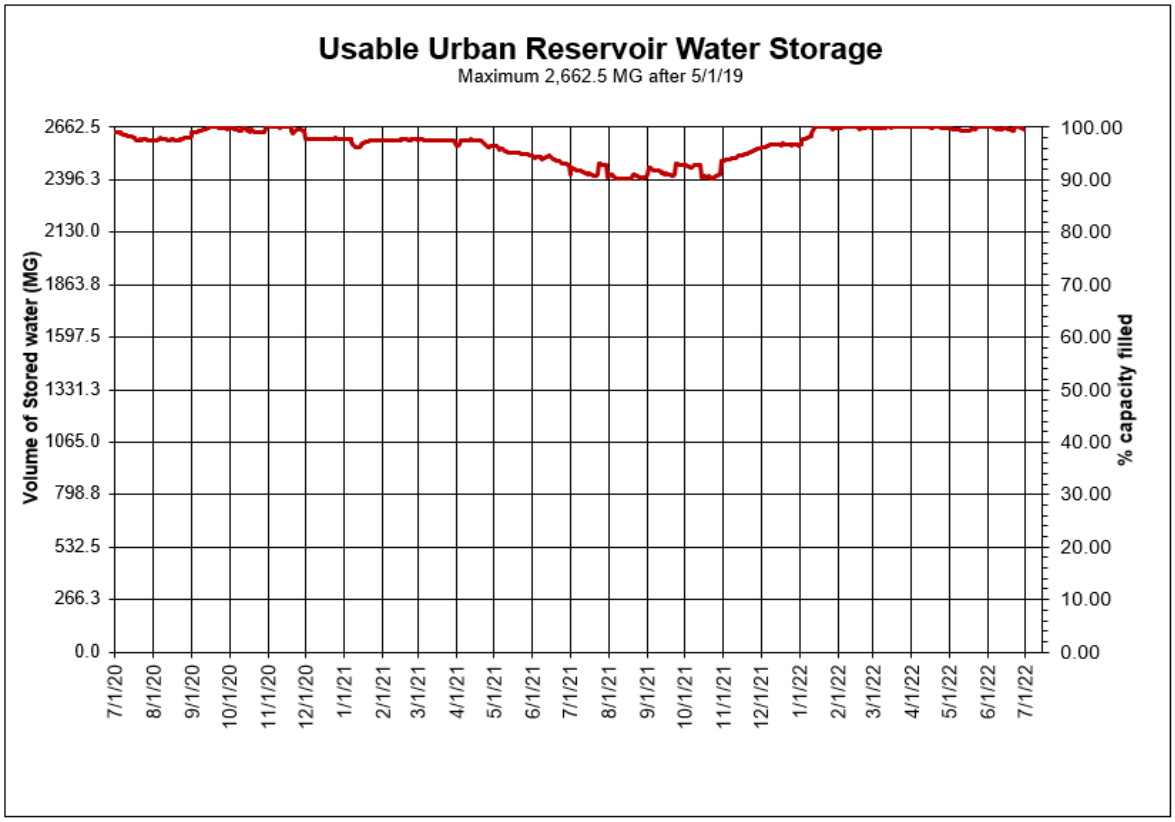
State Annual Allocation (lb./yr.) Permit		*Average Monthly Allocation (lb./mo.) **	*Moores Creek Discharge June (lb./mo.)*	*Performance as % of monthly average Allocation**	*Year to Date Performance as % of annual allocation*
Nitrogen	282,994	23,583	5,850	25%	17%
Phosphorous	18,525	1,544	1,008	65%	22%

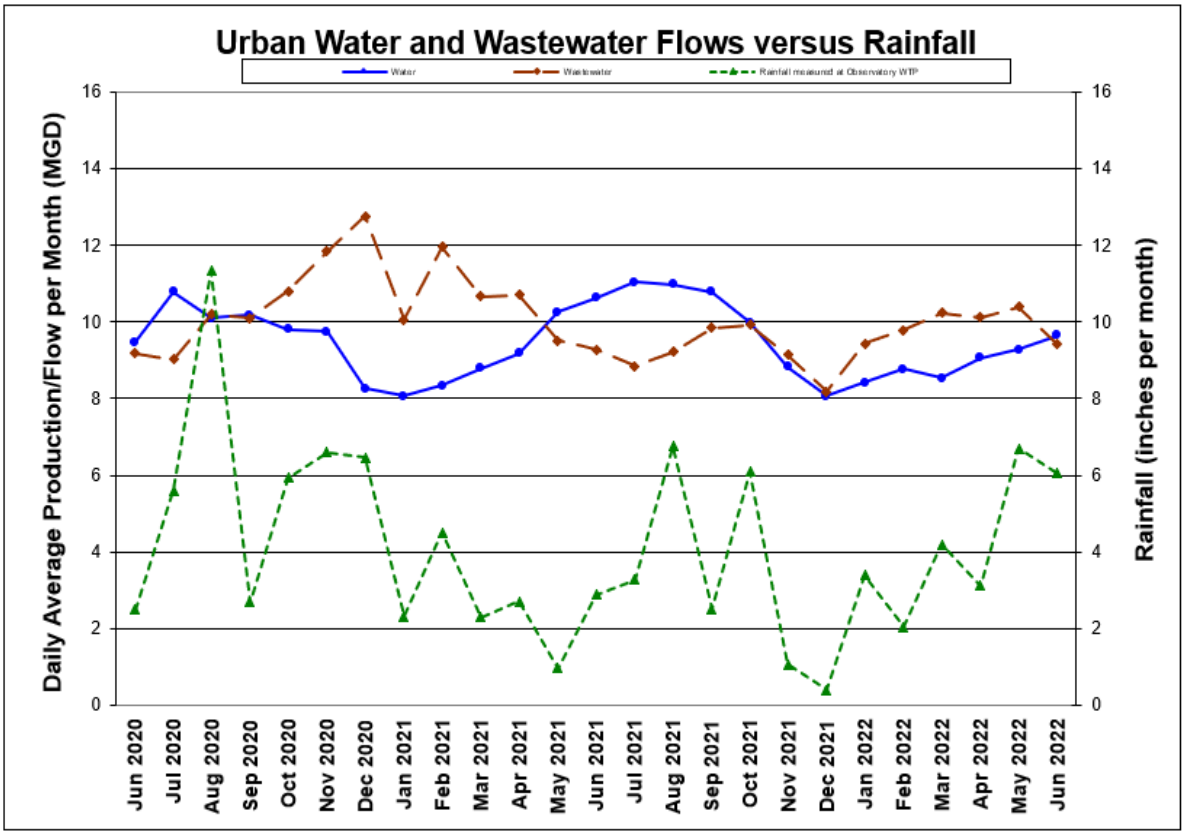
*State allocations are expressed as annual amounts. One-twelfth of that allocation is an internal monthly benchmark for comparative purposes only.

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)
% capacity filled
2662.5
2396.3
2130.0
1863.8
1597.5
1331.3
1065.0
798.8
532.5
266.3
0.0
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
7/1/20
8/1/20
9/1/20
10/1/20
11/1/20
12/1/20
1/1/21
2/1/21
3/1/21
4/1/21
5/1/21
6/1/21
7/1/21
8/1/21
9/1/21
10/1/21
11/1/21
12/1/21
1/1/22
2/1/22
3/1/22
4/1/22
5/1/22
6/1/22
7/1/22


Urban Water and Wastewater Flows versus Rainfall
Water
Wastewater
Rainfall measured at Observatory WTP
Daily Average Production/Flow per Month (MGD)
Rainfall (inches per month)
16
14
12
10
8
6
4
2
0
Jun 2020
Jul 2020
Aug 2020
Sep 2020
Oct 2020
Nov 2020
Dec 2020
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Oct 2021
Nov 2021
Dec 2021
Jan 2022
Feb 2022
Mar 2022
Apr 2022
May 2022
Jun 2022

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: **STATUS REPORT: ONGOING PROJECTS**

DATE: **JULY 26, 2022**

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

For the current, approved CIP, please visit: https://www.rivanna.org/wp-content/uploads/2022/06/Final-2023-2027-CIP.pdf

Under Construction

1. South Rivanna and Observatory Water Treatment Plant Renovations
2. Glenmore WRRF Influent Pump & VFD Addition
3. Airport Road Water Pump Station and Piping
4. MC 5kV Electrical System Upgrades
5. Scottville WTP Lagoon Liners Replacement

Design and Bidding

6. Ragged Mtn Reservoir to Observatory WTP Raw Water Line and Pump Station
7. South Rivanna to Ragged Mtn. Raw Water Line – Birdwood to Old Garth
8. Beaver Creek Dam, Pump Station and Piping Improvements
9. South Rivanna River Crossing
10. Central Water Line
11. Upper Schenks Branch Interceptor, Phase II
12. Red Hill Water Treatment Plant Upgrades
13. Emmet Street Water Line Betterment
14. Scottsville WRRF Whole Plant Generator and ATS
15. Crozet Pump Station Rehabilitation
16. Moores Creek AWRRF Concrete Repairs
17. Moores Creek AWRRF Compost Shed Roof Rehabilitation

Planning and Studies

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

19. Asset Management Plan
20. SRR to RMR Pipeline – Pretreatment Pilot Study
21. Moores Creek AWRRF Cogeneration Upgrades

Other Significant Projects

22. Urgent and Emergency Repairs
23. 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:	65%
Base Construction Contract + Change Orders to Date = Current Value:	$36,748,500 + $718,669 = $37,467,169
Completion:	May 2023
Budget:	$43,000,000

Current Status: Work continues at SRWTP with construction of the Administration Building and improvements at the Raw Water Pump Station. Work at the OBWTP includes the new Chemical Storage Building, sedimentation basin improvements, foundation work for the GAC expansion and a large retaining wall.

2. Glenmore WRRF Influent Pump and VFD Addition

Design Engineer:	Wiley|Wilson
Construction Contractor:	MEB (Chesapeake, VA)
Construction Start:	September 2021
Percent Complete:	80%
Base Construction Contract + Change Order to Date = Current Value:	$288,000
Completion:	October 2022
Budget:	$370,000

Current Status: Pump and VFD have been installed. SCADA integration and pump testing are underway .

3. 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:	10%
Base Construction Contract +	

Change Order to Date = Current Value:	$8,520,312
Completion:	December 2023
Budget:	$10,000,000

Current Status: The contractor has installed approximately 700 feet of pipe at the Kohl's site. Clearing and grubbing of the pump station site is complete and grading will begin this month.

4. MC 5kV Electrical System Upgrades

Design Engineer:	Hazen and Sawyer (Hazen)
Construction Contractor:	Pyramid Electrical Contractors (Richmond, VA)
Construction Start:	May 2022
Percent Complete:	5%
Base Construction Contract + Change Order to Date = Current Value:	$5,180,000 - $970,000 = $4,210,000
Completion:	June 2024
Budget:	$5,050,000

Current Status: Submittal review is underway. Work will begin in the fall 2022 due to long lead times to receive the electrical equipment.

5. Scottsville WTP Lagoon Liners Replacement

Design Engineer:	Wiley|Wilson
Construction Contractor:	Haren Construction Company, Inc. (Etowah, TN)
Construction Start:	May 2022
Percent Complete:	85%
Base Construction Contract + Change Order to Date = Current Value:	$448,000
Completion:	November 2022
Budget:	$540,000

Current Status: Contractor has replaced the liners in both lagoons. Testing of the liner in the second lagoon and paving will begin this month.

Design and Bidding

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

Design Engineer:	Michael Baker International (Baker) (Right of Way)
Design Engineer:	Kimley-Horn (Design)
Project Start:	August 2018
Project Status:	Easement Acquisition & Design (20%)
Construction Start:	2025
Completion:	2028
Budget:	$29,375,000

Current Status: Preparation of engineering plans and specifications is underway. Topographic survey work to the East of the proposed pump station site has been completed, with efforts at the proposed

PS site slated for July. Easement negotiations with one private owner, UVA, and the UVA Foundation continue. Staff met with the UVA Foundation on June 8th to examine the proposed alignment through Foxhaven Farm, as well as discuss potential laydown areas on the property.

7. South Rivanna Reservoir to Ragged Mtn. Reservoir Raw Water Line – Birdwood to Old Garth

Design Engineer:	Kimley-Horn
Project Start:	June 2021
Project Status:	90% Design
Construction Start:	January 2023
Completion:	December 2023
Budget:	$1,980,000

Current Status: Preparation of engineering plans and specifications is substantially complete for a 0.25-mile section of this 36" raw water pipe from Birdwood to Old Garth Road. One remaining easement is under negotiation with the UVA Foundation for this phase of the project.

8. 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:	80% NRCS Planning Process
Construction Start:	2024
Completion:	2027
Budget:	$30,870,000

Current Status: A Joint Permit Application and supporting documents will be submitted to VDEQ this month. Remaining NRCS requirements, including review and approval of the planning study, are scheduled for completion this winter. An application for design funding from NRCS will be submitted in 2022.

9. South Rivanna River Crossing

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2020
Project Status:	45% Design
Construction Start:	Spring 2023
Completion:	April 2024
Budget:	$5,850,000

Current Status: Baker has recommended a water line route that will include a trenchless crossing under the river parallel to the west side of the Berkmar Bridge and follow Rio Mills Road until it intersects the new 24" water line in Route 29.

10. Central Water Line

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2021

Project Status:	6% Design
Construction Start:	2024
Completion:	2028
Budget:	$41,000,000

Current Status: Detailed field investigation and design are underway. The RWSA Board approved the Southern (Cherry) Route in June 2022.

11. Upper Schenks Branch Interceptor, Phase II

Design Engineer:	Frazier Engineering, P.A.
Project Start:	July 2021
Project Status:	Design
Construction Start:	TBD
Completion:	TBD
Budget:	$4,725,000

Current Status: A revised draft alignment of the sewer line to be installed within easements and out of the roadway has been completed and provided to the City of Charlottesville and Albemarle County for review. Pending review, a determination will be made regarding whether the line will be installed in McIntire Road or an easement adjacent to the road.

12. Red Hill Water Treatment Plant Upgrades

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	July 2022
Project Status:	5% Design
Construction Start:	January 2023
Completion:	December 2023
Budget:	$400,000

Current Status: A kick-off meeting was held on July 18th and preliminary design work has begun, including the geotechnical evaluation.

13. Emmet Street Water Line Betterment

Design Engineer:	Whitman, Requardt & Associates (WRA)
Project Start:	September 2021
Project Status:	Contemplative Commons – Preconstruction Emmet Streetscape – Preliminary Design
Completion:	2030
Budget:	$1,000,000

Current Status: Upgrading a section of 16” water main in Emmet Street to 30” as part of the UVA Ivy Corridor Public Realm project is complete. Upgrading a section of 16” water main adjacent to the Dell Pond to 30” as part of the UVA Contemplative Commons project is expected to start in September 2022. WRA and RWSA are developing a scope of work for design of a 24-30” water main in Emmet Street as part of the City’s Emmet Streetscape Phase I project.

14. Scottsville WRRF Whole Plant Generator and ATS

Design Engineer:	Wiley|Wilson
Project Start:	December 2021
Project Status	35% Design
Completion:	Summer 2023
Budget:	$200,000

Current Status: The current back-up power generator at the Scottsville Water Treatment Plant has reached the end of its service life (22 years), does not power the entire plant, serves only the facilities needed to send flow to the lagoons, and needs to be replaced. A site plan is being prepared for review by the Town of Scottsville. Additionally, Wiley|Wilson is preparing an analysis of alternatives to the propane generator at the wastewater influent pump station.

15. Crozet Pump Station Rehabilitation

Design Engineer:	TBD
Project Start:	Summer 2022
Project Completion:	2023
Project Status:	0% Design
Construction Start:	2023
Completion:	2023
Budget:	$590,000

Current Status: Work authorizations are being developed to address various improvements needed at the four wastewater pump stations to include roof, generator, and pump replacements. This work is being initiated based on the anticipated completion of the Crozet FET project this summer.

16. Moores Creek AWRRF Concrete Repairs

Design Engineer:	TBD
Project Start:	Summer 2022
Project Status:	Design
Completion:	TBD
Budget:	$2,650,000

Current Status: The project scope to complete repairs in the two holding ponds and two equalization basins is being reviewed. A consultant will be selected, and a work authorization will be developed. This work is being initiated following completion of the MCAWRRF Master Plan.

17. Moores Creek AWRRF Compost Shed Roof Rehabilitation

Design Engineer:	TBD
Project Start:	Summer 2022
Project Status:	Design
Completion:	TBD
Budget:	$1,360,000

Current Status: The shed roof rafters are deteriorated and may need to be replaced. A consultant is being selected and work authorization development will follow. This work is being initiated following completion of the MCAWRRF Master Plan.

Planning and Studies

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

Design Engineer:	Michael Baker International (Baker)
Project Start:	October 2017
Project Status:	Easement Acquisition
Completion:	2022
Budget:	$2,295,000

Current Status: Progress continues in our efforts to acquire the 8 miles of easements and agreements (with VDOT) for this 36" water line. Discussions continue for remaining easements with the UVA Foundation and one final private property owner.

19. Asset Management Plan

Design Engineer:	GHD, Inc. (GHD)
Project Start:	July 2018
Project Status:	CMMS Implementation – 85% Complete
Completion:	CMMS Implementation – October 2022
Budget:	$1,180,000

Current Status: For implementation of the new CMMS, GHD is completing updates to our facility geodatabase and continuing the software configuration process. Discussions related to the next phase of RWSA's overall Asset Management Program have been completed and a work authorization is being finalized to initiate those efforts this month.

20. SRR to RMR Pipeline – Pretreatment Pilot Study

Design Consultant:	SEH
Project Start:	August 2020
Project Status:	100% Complete (Phase 1), 70% Complete (Phase 2)
Completion:	December 2022
Budget:	$22,969 (Phase 1), $116,401 (Phase 2)

Current Status: Phase 2 of the study continues with detailed reservoir water quality modeling performed by DiNatale Water Consultants. Modeling efforts using the Excel-based desktop model have been completed, and while these efforts were helpful in determining high-level transfer scenarios, the more detailed reservoir model will be utilized to help better represent the future conditions at Ragged Mountain Reservoir based upon the known characteristics of the proposed transfer system. Staff continues to evaluate potential pretreatment and water quality improvement solutions, and toured Western Virginia Water Authority's Hypolimnetic Oxygenation Systems (HLOS) at their reservoirs on June 15th. Staff was able to get an understanding of the benefits that WVWA has seen with these

systems and will continue to evaluate HLOS/Aeration as a potential solution for nutrient sequestration in RMR and SFRR.

21. Moores Creek AWRRF Cogeneration Upgrades

Design Engineer:	SEH
Project Start:	October 2021
Project Status:	Preliminary Engineering/Study (85%)
Completion:	June 2024
Budget:	$2,145,000

Current Status: Manufacturers in the Cogeneration Industry are being interviewed to determine acceptable providers before engineering plans and specifications are completed.

Other Significant Projects

22. 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
2020-21	PCI Erosion and Access Improvements	$80,000
2021-01/2022-03	WBI and RVI Erosion	TBD
2022-09	CZI Force Main ARV Replacements	$200,000
2022-02/05/12	Miscellaneous MCI/PCI/RVI MH Repairs	$60,000
2022-10	MCAWRRF Primary Clarifier Building 36" Sanitary Sewer Leak	TBD

- PCI Erosion and Access Improvements: In October 2020, the RWSA Maintenance Department raised concerns about several creek crossings and ditch lines along the Powell Creek Interceptor (PCI). Through the On-Call Maintenance Contract, two of the worst ditch lines were addressed in November 2020, including the installation of culverts and erosion control as appropriate. In June 2022, staff will address the remaining 5 areas of concern along the interceptor, mostly focused to smaller creek crossings where access is particularly challenging. The scope of work will be to install vehicular rip-rap crossings, which will allow for much improved access for staff performing maintenance and inspections on the sewer, as well as emergency access for small-mid size construction equipment. This work began on June 13th, and is anticipated to take approximately 4 – 6 weeks to complete.
- WBI and RVI Erosion: In February 2022, RWSA Maintenance staff notified Engineering staff of some ditch lines along the Rivanna Interceptor that are in need of repair. In addition, during the previous round of manhole inspections on the Woodbrook Interceptor, there was one small ditch identified to be in need of repairs there as well. Staff will be visiting these sites in July, and then likely issuing to its On-Call Maintenance Contractor, Digs, for repairs. The scope of work is likely to include installation of erosion control at the ditch crossings over the various sewer lines.
- CZI Force Main ARV Replacements: Over the past several years, staff has been monitoring the condition of the air release valves (ARVs) up and down the force main portions of the Crozet

Interceptor, as they have been continuing to degrade. These valves are 1980s-vintage, and while they have been serviced and partially rebuilt over the years by the RWSA Maintenance Department, replacement of the tapping saddle and corporation stop has not been possible, since shutdown of the force main is required. Historically, it has taken several hours to drain the force main to allow for the work to take place, and by the time that has occurred, the upstream pump stations need to turn on to prevent overflow. Now with the Flow Equalization Tank nearing completion, this work can take place with the force main offline for up to a 24-hr period. Staff has begun the procurement of the materials needed for the job, and is visiting the site with its On-Call Maintenance Contractor, Faulconer Construction, on July 14th.

- Miscellaneous MCI/PCI/RVI MH Repairs: Over the past several months, staff have identified issues with various manholes on the Moores Creek, Powell Creek, and Rivanna Interceptors (MCI, PCI, and RVI, respectively). These include one manhole on MCI that needs to be raised, as it was historically buried but found in Summer 2021 by the RWSA Maintenance & Engineering Departments, one manhole on RVI that needs a failing HDPE liner to be removed and cementitious mortar to be installed, and one manhole each on PCI and MCI that need to be coated with cementitious mortar due to root intrusion and groundwater infiltration. This work is likely to be performed through the On-Call Maintenance contract with Digs, and staff is scheduled to look at the sites in the field with Digs on July 15th.
- MCAWRRF Primary Clarifier Building 36" Sanitary Sewer Leak: On July 7th, RWSA Engineering Staff was made aware of a small leak through the wall in the basement of the Primary Clarifier Building at MCAWRRF. Staff is working to identify possible sources of the leakage and coordinate an inspection of the splitter box feeding the 36" sanitary sewer that appears to be leaking through the wall. The leakage is small and is not endangering any plant processes or infrastructure at this time.

23. Security Enhancements

Design Engineer:	N/A
Construction Contractor:	Security 101 (Richmond, VA)
Construction Start:	March 2020
Percent Complete:	99% (WA 2 & 3), 80% (WA 4), 40% (WA #5)
Based Construction Contract + Change Orders to Date = Current Value:	$718,428.00 (WA1) + $91,130.32 (WA2) + $128,166.69 (WA3) + $189,698.95 (WA4) + $76,920.11 (WA 5) = $1,204,344.07 (total)
Completion:	October 2022 (WA #5)
Budget:	$2,810,000

Current Status: WA #5, which authorizes card access installation at Glenmore Water Resource Recovery Facility (GWRRF), Scottsville Water Resource Recovery Facility (SVWRRF), and Red Hill Water Treatment Plant (RHWTP), began during the week of June 20th. Conduit and cable pulling is complete at GWRRF and SVWRRF, with the same work at RHWTP underway. Security 101 will be onsite for final wiring and programming during the week of July 25th.

History

Under Construction

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

An informational meeting with prospective contractors was held on September 26, 2019 to maximize interest in the project. A project kickoff meeting with staff was held on November 14, 2018 and 30% design documents were provided in February. A Value Engineering Workshop took place the week of April 8, 2019, and a memo summarizing the results has been completed. Agreed upon results were incorporated into the project. The project was advertised, and bids were received. English Construction was awarded the contract and a Notice to Proceed was issued on May 18, 2020. Coordination with UVA and Dominion on a new electrical easement at the plant has been completed and documents are being finalized.

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

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

2. **Glenmore WRRF Influent Pump and VFD Addition**

The 0.381-mgd water resource recovery facility, located within the Glenmore subdivision, is operated by RWSA. The facility includes an influent pumping station located immediately adjacent to the treatment facility. The Glenmore WRRF is predicted to see additional dry and wet weather flows as construction within the service area continues. Future wet weather flows will require higher influent pumping capacity and an additional pump and electrical variable frequency drive will be required to maintain firm capacity. After discussions with the Operations and Maintenance departments, installation of a new exhaust fan in the influent pump station will also be included. A work authorization for this project has been finalized and design is underway. The project was advertised, and bids are due on July 8, 2021. A Notice of Award was issued on August 6, 2021.

3. **Airport Road Water Pump Station and Piping**

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

improvements included under a separate CIP project have been added to this project to allow connection of the pump station to the distribution system.

Bids were opened on October 7, 2021 and this work was awarded at the October 2021 Board of Directors meeting. The contract was signed, and the pre-construction conference was held on December 9, 2021.

4. MC 5 kV Electrical System Upgrades

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. A technical memo was provided in July 2020 by Hazen & Sawyer, which recommended that a CIP Project be added immediately to encompass replacement of the original 1980s-vintage 5kV cables, switchgear, transformers, and MCCs. A CIP Amendment Recommendation and Engineering Services Work Authorization was approved during the August 2020 Board of Directors Meeting. The Design Work Authorization was executed on October 6, 2020.

A Design Kickoff Meeting was held virtually on October 20, 2020. A site visit was attended on November 5, 2020 by Hazen & Sawyer staff, as well as RWSA Maintenance and Engineering Department staff. 50% Design Documents were provided in Spring 2021, with staff feedback provided soon thereafter. A follow-up site visit by Hazen was performed in July 2021, in order to confirm the availability of spare conduits across the site and plan for the associated cable replacements. 95% Design Documents were provided by Hazen in September 2021, and staff returned comments in October 2021. Field work was conducted in Fall 2021 to evaluate the condition of conduits within the existing duct bank network, as well as verify pathways and connectivity within the network.

A Request for Bids (RFB) was issued on December 22, 2021, and bids were submitted on February 3, 2022. A Construction Contract Award for Pyramid Electrical Contractors was approved by the RWSA Board of Directors on February 22, 2022, and a Notice of Award (NOA) was provided to Pyramid on March 4, 2022.

5. Scottsville WTP Lagoon Liners Replacement

The Scottville Water Treatment Plant (WTP) has two lined lagoons that receive filter backwash water, filter-to-waste water, and flow from the sedimentation basin sludge collectors. The lagoons are regulated under the Virginia DEQ VPDES permit program. The earthen lagoons are original to the plant and were lined at the request of DEQ in 2007 to prevent water infiltration out of the lagoons.

Recently, the lagoon liners have shown signs of degradation from ultraviolent sunlight. As such, a liner replacement project was added to the FY 22-26 CIP to begin in FY23 and be completed in FY24. Unfortunately, in early June ‘21, the liner in one of the lagoons failed during a high flow event. DEQ has been notified and the lagoon taken out of service, leaving the plant with only one

remaining lagoon. In order to advance replacement of the liners, bid documents were developed, a Request for Bids was issued on January 4, 2022, and bids were received on February 1, 2022. A Notice of Award was provided to Haren Construction on March 4, 2022 and a Notice to Proceed was issued on May 2, 2022.

Design and Bidding

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

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

The RMR to Observatory WTP raw water pump station is planned to replace the existing Stadium Road and Royal pump stations, which have exceeded their design lives or will require significant upgrades with the Observatory WTP expansion. The pump station will pump up to 10 million gallons per day (MGD) of raw water to the Observatory WTP. The new pump station site selection and design are being conducted in coordination with the South Rivanna Reservoir to RMR pipeline in the interest of improved operational and cost efficiencies. An integrated pump station would also include the capacity to transfer up to 16 MGD of raw water from RMR back to the SR WTP.

Both Design Work Authorizations received Board of Directors approval on July 27, 2021. A kickoff meeting was held on September 17, 2021, and a meeting to begin establishing boundary conditions for the RMR Pump Station was held on October 25, 2021. An internal RMR Pump Station Operations workshop was held on February 23, 2022 to set the boundary conditions for the facility, and this information was provided promptly to the Design Consultant to allow design efforts to continue progressing.

7. South Rivanna Reservoir to Ragged Mtn. Reservoir Raw Water Line -Birdwood to Old Garth

This project is the continuation of the SRR to RMR 36" raw water pipeline built on the Birdwood Golf Course. Design efforts were authorized in June 2021 with construction anticipated in Summer 2022.

8. Beaver Creek Dam and Pump Station Improvements

Dam: A spillway upgrade alternative for the dam has been selected and was presented in a public meeting on October 6, 2021. A new raw water pump station site and pipe access route were selected and approved by the Board in August 2021. RWSA operates the Beaver Creek Dam and reservoir as

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

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

In 2020, staff received grant funding for a planning and environmental study from the Natural Resources Conservation Service (NRCS). The project kicked off in August 2020 and is expected to be completed in July 2022. Following completion of the study and acceptance of the Plan-Environmental document by NRCS, staff will pursue additional grant funding through NRCS that, if available, could cover up to 65% of final design and construction costs.
Pump Station: The Drinking Water Infrastructure Plan for the Crozet water service area, developed by Hazen and Sawyer, recommends installation of a new Raw Water Pump Station and Intake at the Beaver Creek Dam in order to meet new minimum instream flow requirements and provide adequate raw water pumping capacity to serve the growing Crozet community for the next 50 years. The pump station will be moved out of its existing location at the toe of the dam to a new location, to be determined during design. The new intake structure will include enhanced controls to allow for access to the best quality water at any given time.

9. South Rivanna River Crossing

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

10. Central Water Line

Route alignment determination, hydraulic modeling, and preliminary design were underway in 2017. 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 Central Water Line (formerly referred to as the Avon to Pantops Water Main). The focus of this project was on the

southern half of the urban area water system which is currently served predominantly by the Avon Street and Pantops water storage tanks. The Avon Street tank is hydraulically well connected to the Observatory Water Treatment Plant, while the Pantops tank is well connected to the South Rivanna Water Treatment Plant. The hydraulic connectivity between the two tanks, however, is less than desired, creating operational challenges and reduced system flexibility. In 1987, the City and ACSA developed the Southern Loop Agreement which laid out two key phases (with the first being built at the time). The 1987 Agreement and planning efforts were a starting point for this current project. An engineering contract was approved by the Board of Directors in July 2017. Recent efforts and modeling for the Urban Finished Water Infrastructure Master Plan have determined that a central water line corridor through the City is the best option to hydraulically connect the Observatory Water Treatment Plant to the Pantops area, with connections to City water lines to support the water distribution system in the City and County.

11. Upper Schenks Branch Interceptor, Phase II

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

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

15. Red Hill Water Treatment Plant – Upgrades

The Red Hill WTP was constructed in a joint effort of ACSA and RWSA in 2009 and consists of a well, a pneumatic tank and pump house that provides treated water to the Red Hill Elementary School and adjoining neighborhood. The project was constructed in response to groundwater contamination as a result of a nearby leak of underground fuel storage tanks. Originally the facility was operated primarily as a well head and pump house. More recently the facility has operated more 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.

16. Emmet Street Water Line 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 University of Virginia 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 water main improvements

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 VDOT intersection improvements at Barracks Road, the US-250/Emmet Street Interchange, and Hydraulic Road.

17. Crozet Pump Station Rehabilitation

The Crozet Pump Stations were constructed in the 1980's and many of the components are original. This project includes the replacement of pump and valves and other components at Pump Station 2 to improve pumping capabilities at this location, as well as Pump Stations 1 and 3 as the pumps are reaching the end of their useful life. It also includes roof replacements at all four pump stations, siding replacement for the wet well enclosure at Pump Station 3, and installation of new wells at pump stations 3 and 4. This project also now intends to include new back-up generators at Pump Stations 1 through 3 as the generators have also reached the end of their useful life.

18. Moores Creek AWRRF Concrete Repairs

The two Holding Ponds and the two Equalization Basins were built with the 1977 Moores Creek Upgrades and are critical to the plant infrastructure to contain wet weather flows. The 40 year old concrete is showing signs of degradation. Following inspections in the Fall 2020, Hazen recommended we implement concrete repairs soon to extend the life of the concrete basins. Work will include crack repair, spalling repair, joint repair, and coating of miscellaneous metals and valves in the basins.

19. Moores Creek AWRRF Compost Shed Roof Rehabilitation

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

20. Scottsville WRRF Whole Plant Generator and ATS

The current back-up power generator at the Scottsville Water Treatment Plant does not power the entire plant, serving only the facilities needed to send flow to the lagoons. This project will offer greater treatment flexibility and monitoring capability for the operations staff, particularly when the plant is unmanned and monitored remotely.

Planning and Studies

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

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

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

22. Asset Management Plan

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

23. SRR to RMR Pipeline – Pretreatment Pilot Study

As part of the SRR to RMR Pipeline project, the impact of sending raw water from the SRR to RMR has been previously studied and a significant amount of pretreatment was initially identified as being needed to avoid reducing the quality of the raw water contained within the RMR. With the pipeline easement acquisition process well underway and additional information now available associated with the proposed timing of this overall project based on water demand projections, the intent of this project is to update the pretreatment needs anticipated.

The study is anticipated to be completed in 4 phases: 1. Analysis and Correlation of Existing Water Quality and Seasonal Weather Data 2. Enhanced Water Quality Sampling 3. Pretreatment Piloting 4. Level Setting for the Final Pretreatment Solution. Phase 1 commenced in January 2021 and was completed in July 2021. Phase 2 began in June 2021. The Excel Desktop Modeling portion of the analysis was completed in February 2022.

24. MCAWRRF Cogeneration Upgrades

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

Other Significant Projects

25. Urgent and Emergency Repairs

- South Rivanna Dam Apron and Riverbank Repairs

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

- Urban Water Line Valve and Blow-off Repair

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

26. Security Enhancements

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

RWSA Engineering staff held a meeting with Operations staff to discuss overall project needs and priorities in October 2018. Meetings with ACSA and City staff were held in Fall/Winter 2018-2019 to discuss how access control and intrusion detection systems have been implemented into to the day-to-day operations of the two utilities. A Request for Proposal (RFP) for an Implementer to facilitate selection of an access control system, confirmation of design requirements based upon RWSA's facilities and project goals, and installation of the selected system was issued on June 6, 2019. RWSA conducted a Pre-Proposal Meeting on June 14, 2019, and proposals were opened on June 27, 2019. Interviews were conducted on July 15-16, 2019, and a Contract Award Recommendation was approved by the Board on July 23, 2019. Access Control System Installation at MCAWRRF began in March 2020. Access Control System Installation was completed in the Administration and Engineering Buildings by the week of November 30, 2020, completing installation of the physical access control system across the MCAWRRF site. Training for staff was completed on November 10, 2020. RWSA authorized improvements to locks and doors across the MCAWRRF site on May 4,

2021, in order to improve the condition of the hardware and subsequently, operations of the access control system. In addition, installation of the card access system on all exterior doors at the Scottsville and Crozet Water Treatment Plants (SVWTP and CZWTP, respectively) was authorized shortly thereafter. RWSA also authorized installation of security conduits not already included at SRWTP and OBSWTP under the Improvements Project in August 2021.

Access Control on exterior doors at the CZWTP and SVWTP was substantially completed in November 2021.

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 JUNE 2022**

DATE: **JULY 26, 2022**

The monthly and average daily Urban water system usages by the City and the ACSA for June 2022 were as follows:

	Month	***Daily Average***	
City Usage (gal)	138,384,527	4,612,818	**50.1%**
ACSA Usage (gal)	137,945,038	4,598.168	**49.9%**
Total (gal)	**276,329,565**	**9,210,968**	

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 July 2021), 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.

Note: Staff detected a read issue with Meter Site 15 – Ivy Road at Colonnade Drive in March and has determined that the meter's register will require replacement. Staff will report a flow estimate for this site using available data until the issue is resolved, likely this summer.

Note: Staff detected a read issue with Meter Site 9 – Moores Creek Lane in June and has not determined the source of the issue. Staff will report a flow estimate for this site using available data until the issue is resolved.

Figure 1: City of Charlottesville Monthly Water Usage and Allocation

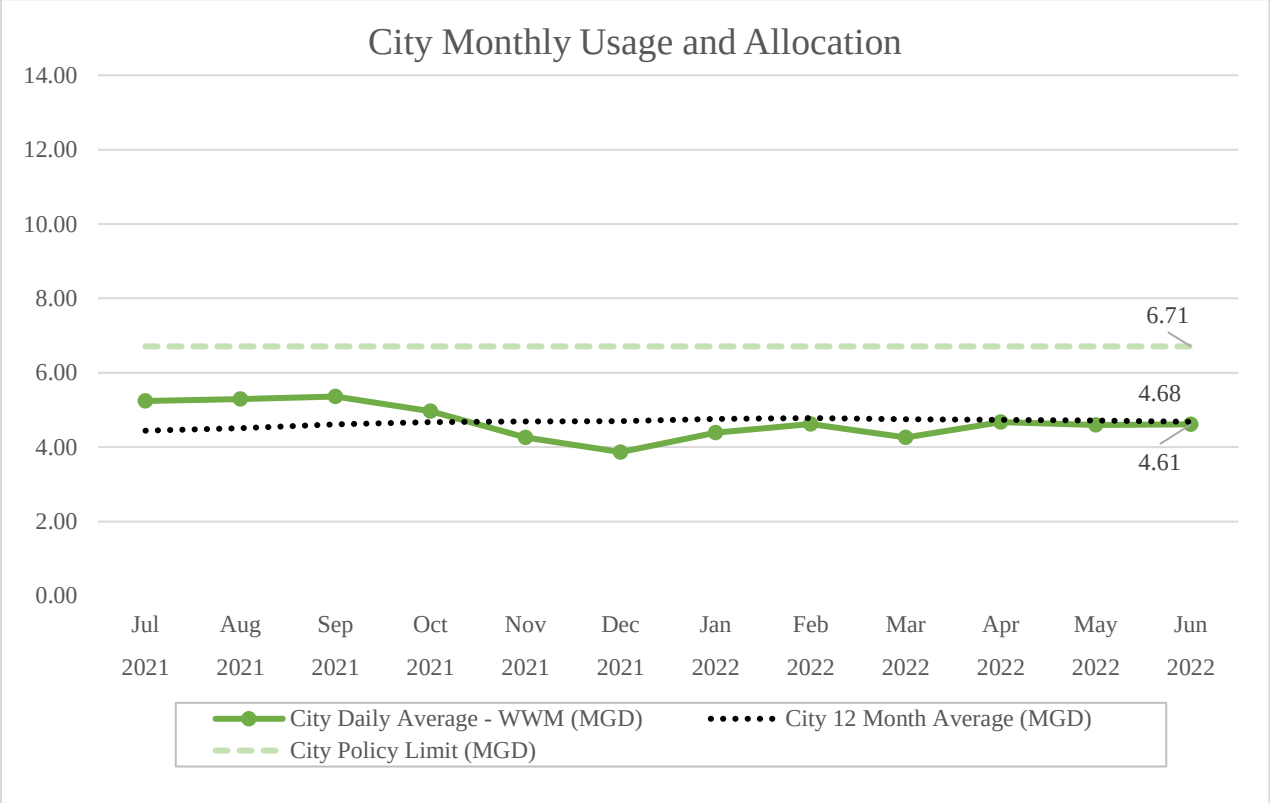
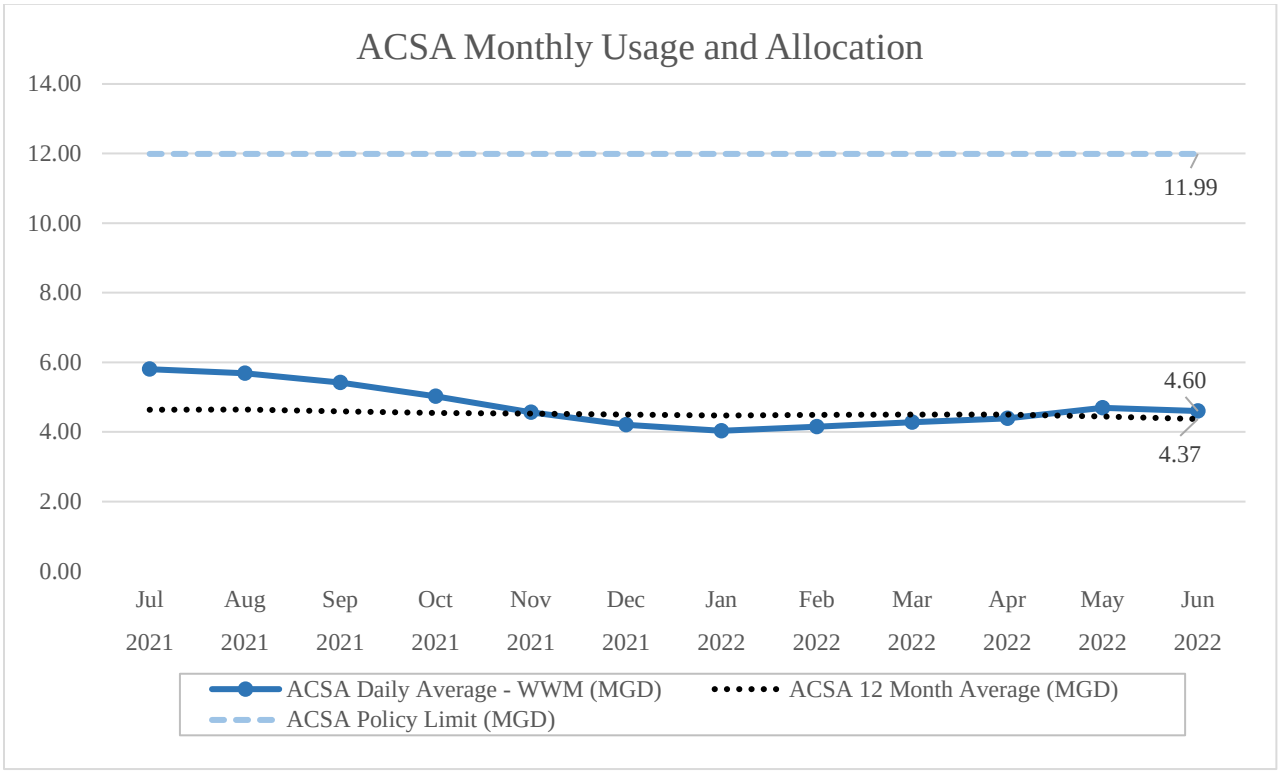
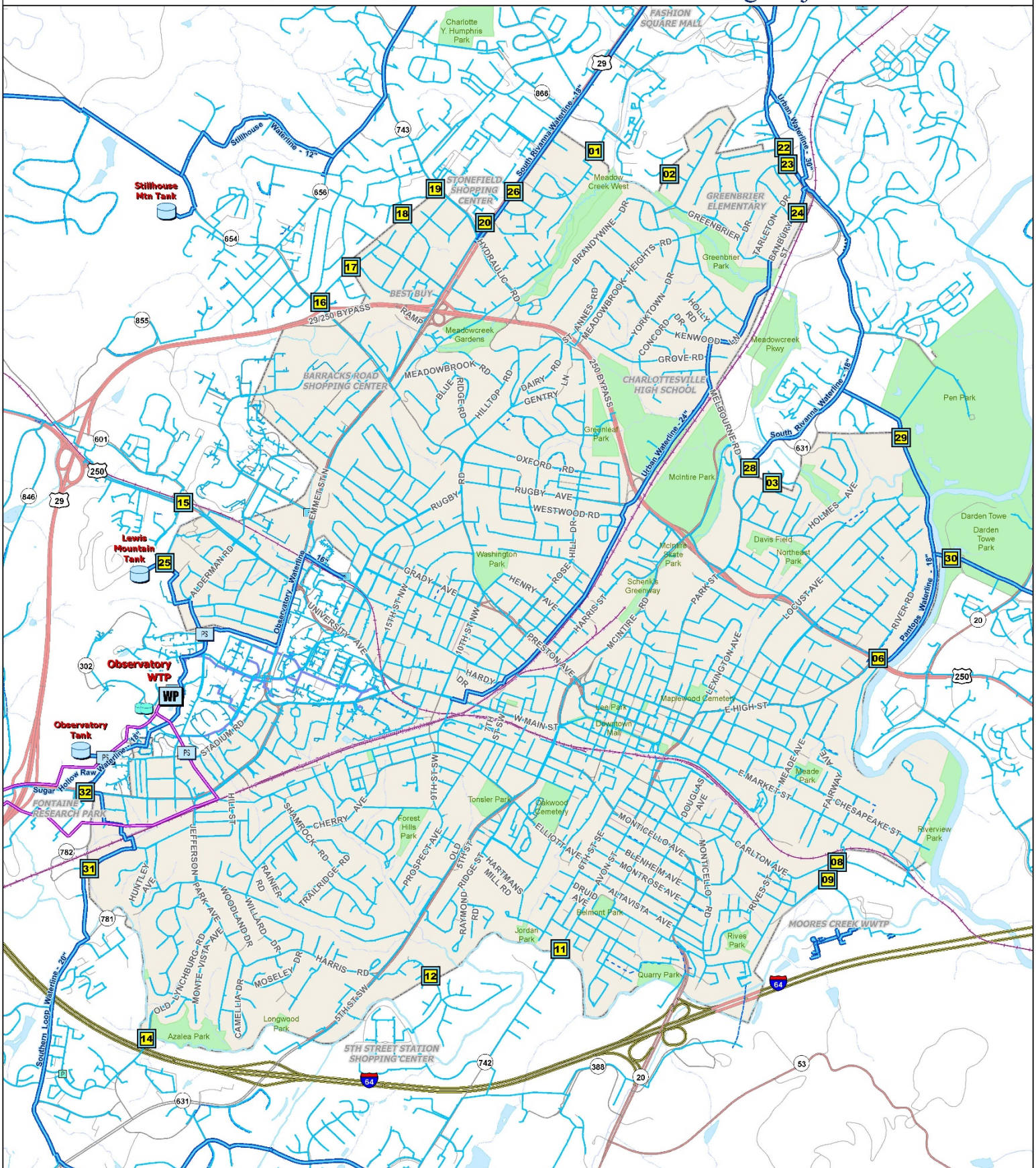


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation



Meter Locations for the Wholesale Water Metering Project



Miles
0 0.25 0.5

Date: 4/21/2017

RIVANNA WATER & SEWER AUTHORITY

695 Moores Creek Lane
Charlottesville, VA 22902
p.434-977-2970
www.rivanna.org
www.rivannagis.org

Meter Site Locations - WWMP

01, Pepsi Place
02, Michael Pl / Wilson Ct
03, Wilder Dr
06, Long St / River Rd
08, Franklin St / Carlton Ave / Broadway St
09, Moores Creek Ln
11, Avon St
12, Loma Ln / Harris Rd
14, Old Lynchburg Rd
15, Ivy Rd / Colonnade Dr
16, Ricky Rd / Barracks Rd
17, Ricky Rd (near Wayne Ave)
18, North Berkshire Rd
19, Hydraulic Rd / Inglewood Dr
20, Trader Joes
22, Rio Rd @ Church of Our Savior
23, Greenbrier Dr / Rio Rd
24, Greenbrier Ter
25, University Heights Apts
26, Seminole Trl
28, Rio Rd / Melbourne Rd
29, Pen Park Ln
30, Darden Towe Park
31, Stribling Ave
32, Fontaine Ave

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

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

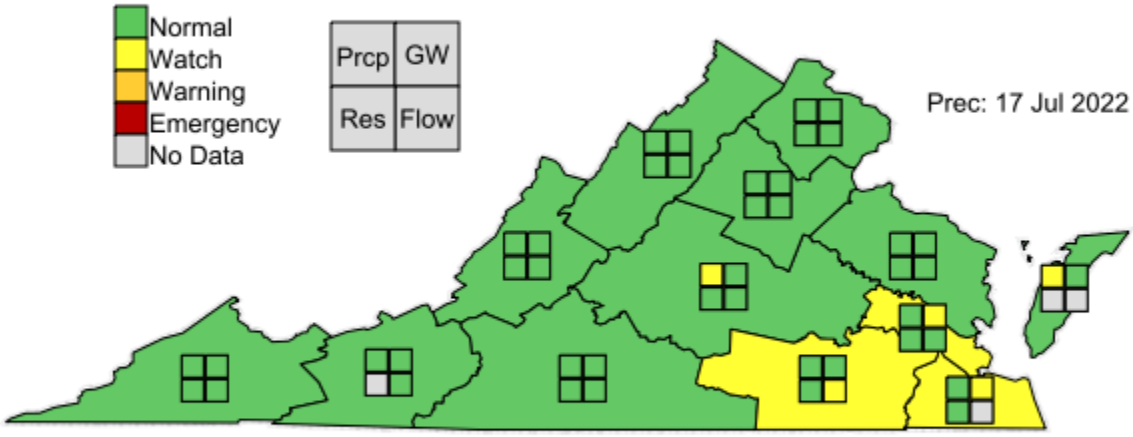
SUBJECT: **DROUGHT MONITORING REPORT**

DATE: **JULY 26, 2022**

Drinking Water Supply and Drought Monitoring, as of July 18, 2022:

A. U.S. Drought Monitoring Report:
   - No drought phases have been initiated. Albemarle County is noted to be normal.

B. VDEQ Drought Status Report:
   - Our region is at a "Watch" level for precipitation.



C. Urban Reservoirs Status (Sugar Hollow, South Rivanna, Ragged Mountain):
   - 100 % full.

Precipitation

Charlottesville Precipitation				
Year	**Month**	**Observed (in.)**	**Normal (in.)**	**Departure (in.)**
2021	**Total: Jan - Dec**	**33.82**	**41.61**	**-7.79**
2022	January	3.79	2.96	0.83
	February	1.48	2.35	-0.87
	March	3.19	3.54	-0.35
	April	3.05	3.17	-0.12
	May	6.17	4.17	2.00
	June	3.66	4.38	-0.72
	Total: Jan - June	**21.34**	**20.57**	**+0.77**

Source: National Weather Service, National Climatic Data Center.

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 AND MAINTENANCE**

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

SUBJECT: **TRANSFER OF OWNERSHIP TO ALBEMARLE COUNTY SERVICE AUTHORITY – UPPER WOODBROOK INTERCEPTOR**

DATE: **JULY 26, 2022**

In Spring 2022, RWSA rehabilitated a significant portion of the Woodbrook Interceptor (WBI). The upper portion of the WBI originates just northeast of the Fashion Square Mall and contains approximately 3,400 LF of 8" Ductile Iron and 10" Vitrified Clay Piping and 13 manholes. Upper WBI carries on average approximately 130,000 gallons per day of dry weather sanitary sewage, mostly from residential and small non-residential sewer connections. The nature and volume of the discharges into this sewer aligns better with sewers owned and operated by the Albemarle County Service Authority (ACSA), thus staff recommends that ownership of the Upper WBI be transferred to ACSA.

Background

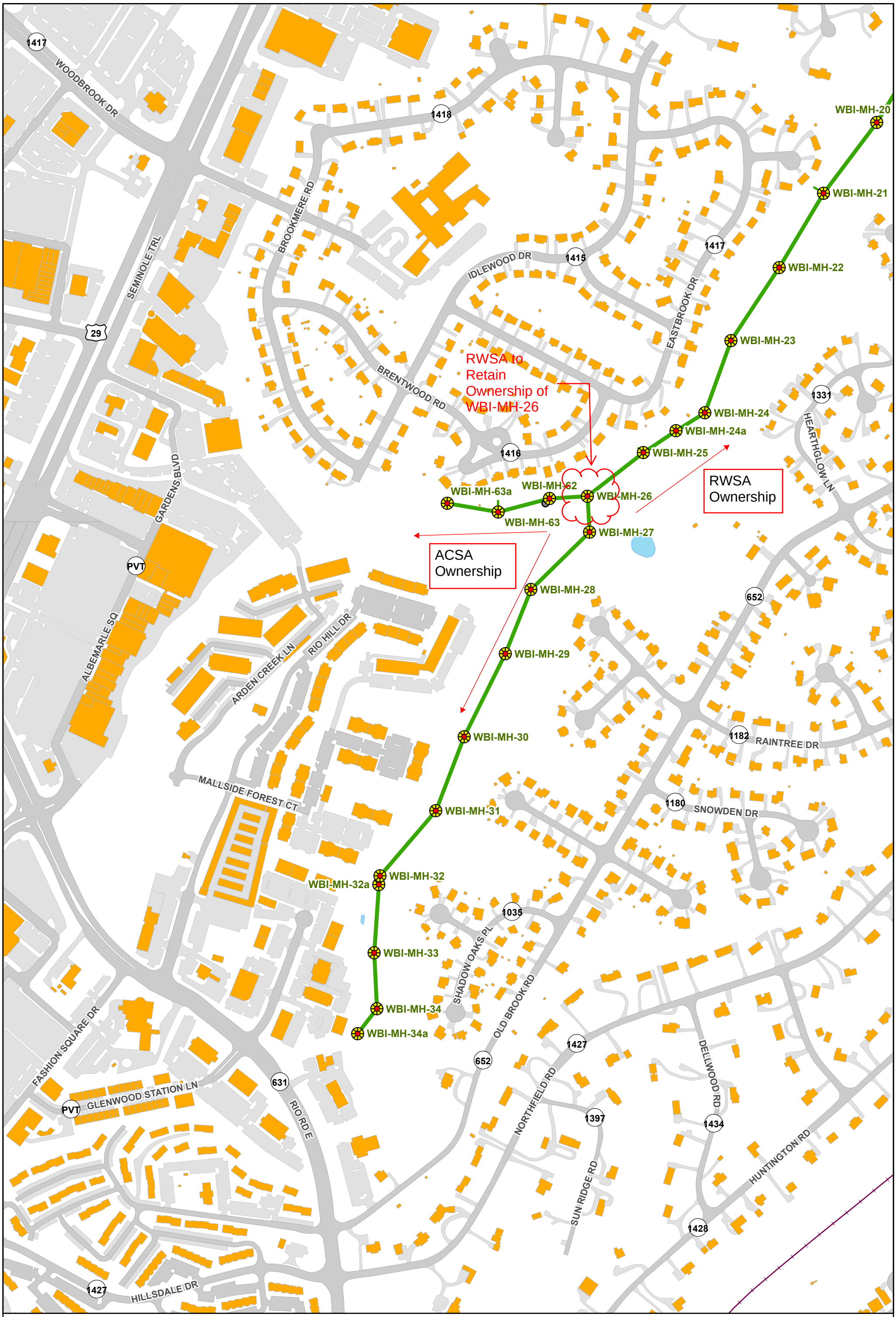
The Woodbrook Interceptor (WBI) was constructed in 1973-1977 and carries sanitary sewage from the Urban Area of north Albemarle County to the Rivanna Interceptor and the Moores Creek Advanced Water Resource Recovery Facility. The uppermost reach of WBI is known as the Upper WBI and is an 8-10" sanitary sewer that originates just northeast of the Fashion Square Mall. From the first manhole (MH-34A) to the manhole on WBI where the 8" and 10" come together (MH-26), the sewer is characterized by small residential and non-residential direct connections and acts as a low-flow collector sewer. At WBI-MH-26, the 8" and 10" portions of WBI come together and upsize to 12", and the downstream portions of WBI function as a more typical RWSA Interceptor, with higher flows and fewer direct connections. At the time of construction, the ACSA and RWSA established an understanding that these smaller diameter, lower flow sections would eventually revert to ACSA ownership.

In fall 2021, Closed-Circuit Television footage revealed that the 10" Vitrified Clay portion of Upper WBI needed significant sewer and manhole rehabilitation, to include cured in place piping (CIPP) and manhole coatings. These efforts were completed by RWSA in June 2022. With the 10" Vitrified Clay portion of the Upper WBI rehabilitated to the confluence at MH-26 and the overall lower flow characteristics of Upper WBI, staff recommends the Upper WBI (8" and 10" sections) from WBI-MH-34A and WBI-MH-63A, respectively, to WBI-MH-26 be transferred to ACSA.

Board Action Requested:

Authorize the Executive Director to execute a deed with the Albemarle County Service Authority that will transfer ownership of approximately 3400 LF of the Woodbrook Interceptor upstream of WBI-MH-26 to ACSA. RWSA will retain ownership of MH-26 and all of WBI downstream of this manhole.

RWSA WBI Transfer to ACSA



1:4,529
Feet
0 230 460
Date: 6/28/2022

RIVANNA WATER & SEWER AUTHORITY

695 Moores Creek Lane
Charlottesville, VA 22902
p.434-977-2970
www.rivanna.org

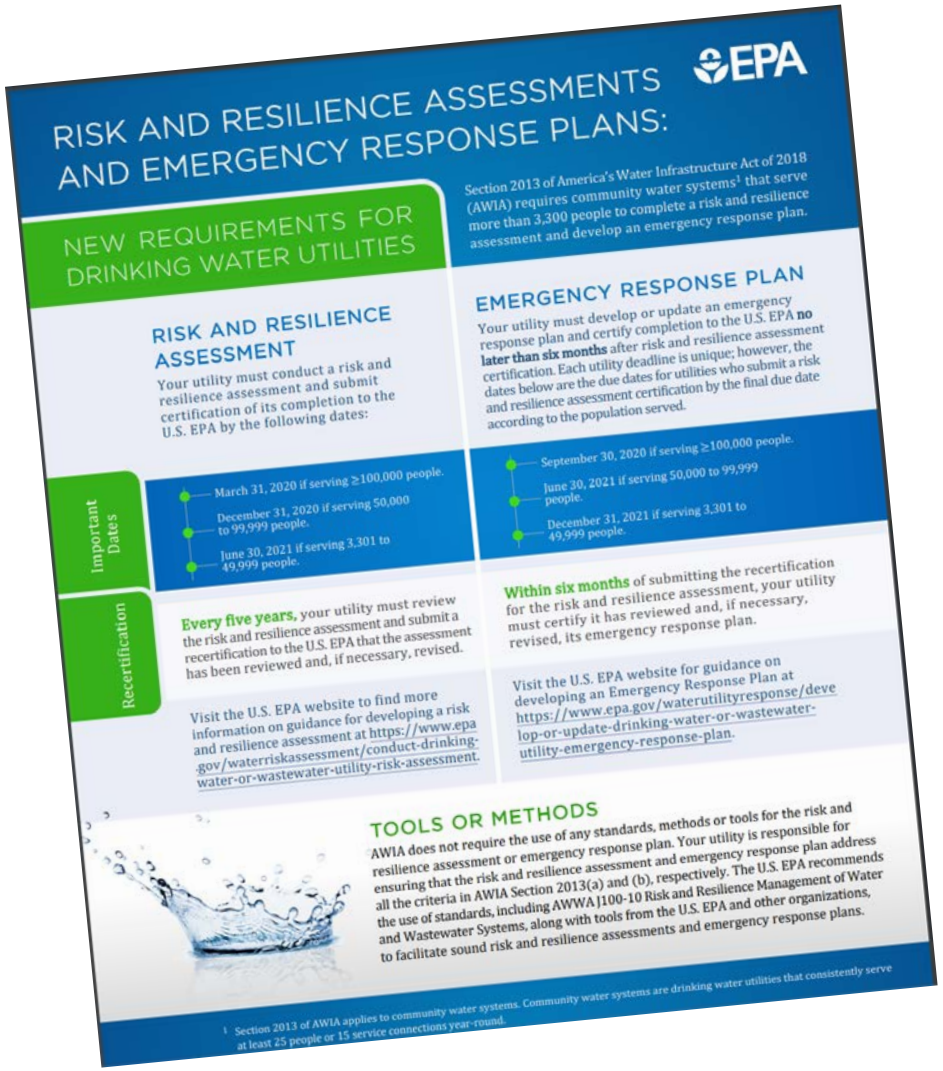
Physical and Cyber Security Update

PRESENTED TO THE BOARDS OF DIRECTORS

BY: JENNIFER WHITAKER, DIRECTOR OF ENGINEERING & MAINTENANCE

JEFF SOUTHWORTH, INFORMATION TECHNOLOGY MANAGER

JULY 26, 2022



Legislative Mandate

- Infrastructure security has been a long-standing concern for the Water and Wastewater Utilities Industry as it is fundamental to community health
- Shortly after 9/11/01 significant regulations and best practices emerged mandating that risk assessments be performed for Critical Infrastructure
- More recently, the America's Water Infrastructure Act of 2018 mandated that Utilities develop and routinely update:
  - **Risk Assessments** and
  - **Emergency Response Plans**

Physical Security

- Physical Security at RWSA facilities works in tandem with other security mitigation measures to ***reduce vulnerability*** and ***increase resilience***
- Key Program Areas include:
  - Door Hardening and Replacement
  - Lock Strengthening and Key Inventory
  - Fencing and Gate Improvements
  - Cameras and Lighting
  - Landscaping and Housekeeping
  - Access Control and Badging
- Funding
  - Designated Capital Projects; As Part of other Capital Projects; Routine Maintenance Activities, and Specialized Tasks
  - Seeking DHS/FEMA Homeland Security Grant Program (HSGP) funding for the Moores Creek entrance gate project.

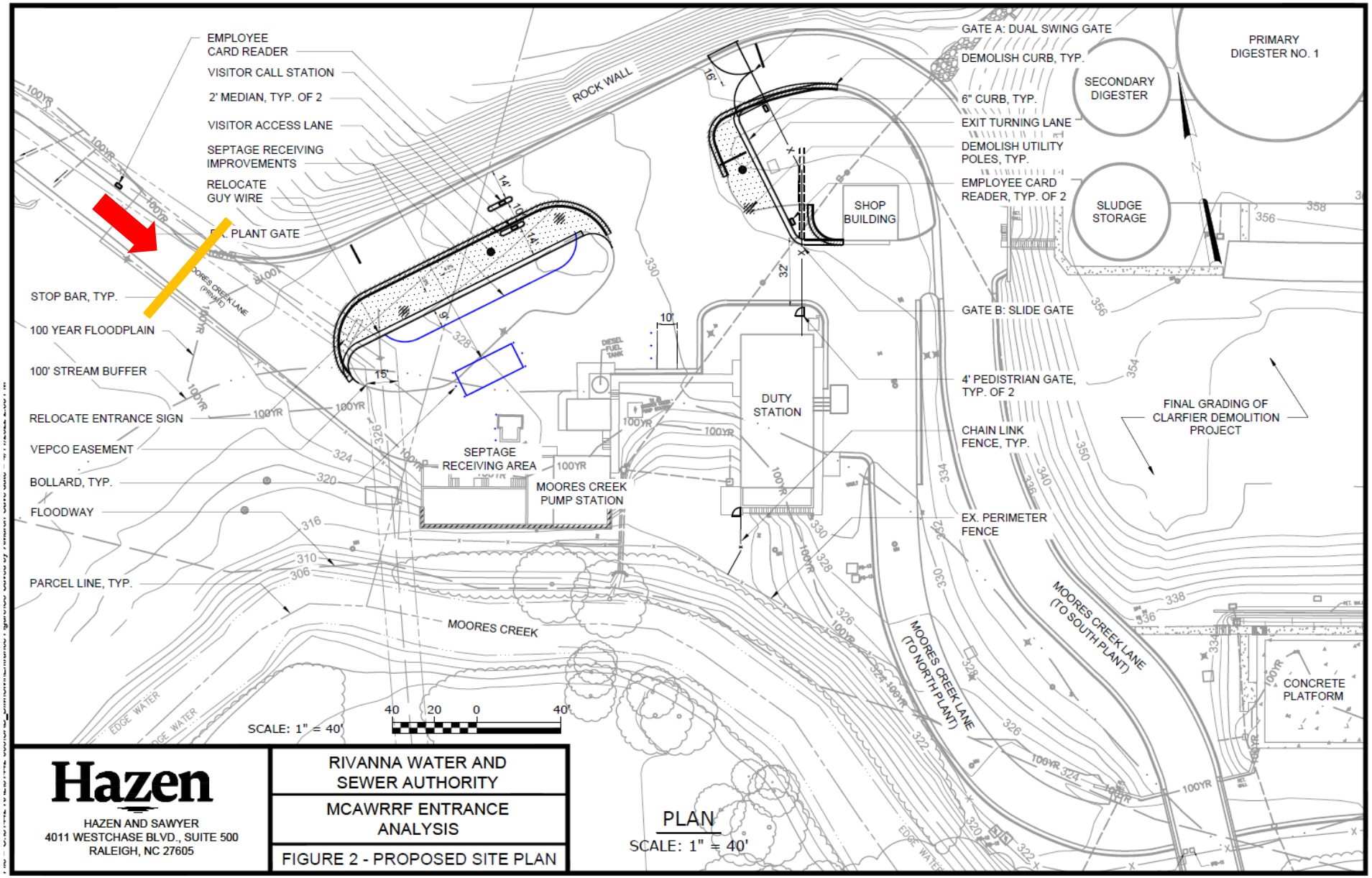
Capital Project – Access Control

- Access Control Consultant – Security 101
  - System selection
  - Software installation, training, and support
  - Hardware design and installation, and
  - Ongoing on-call maintenance

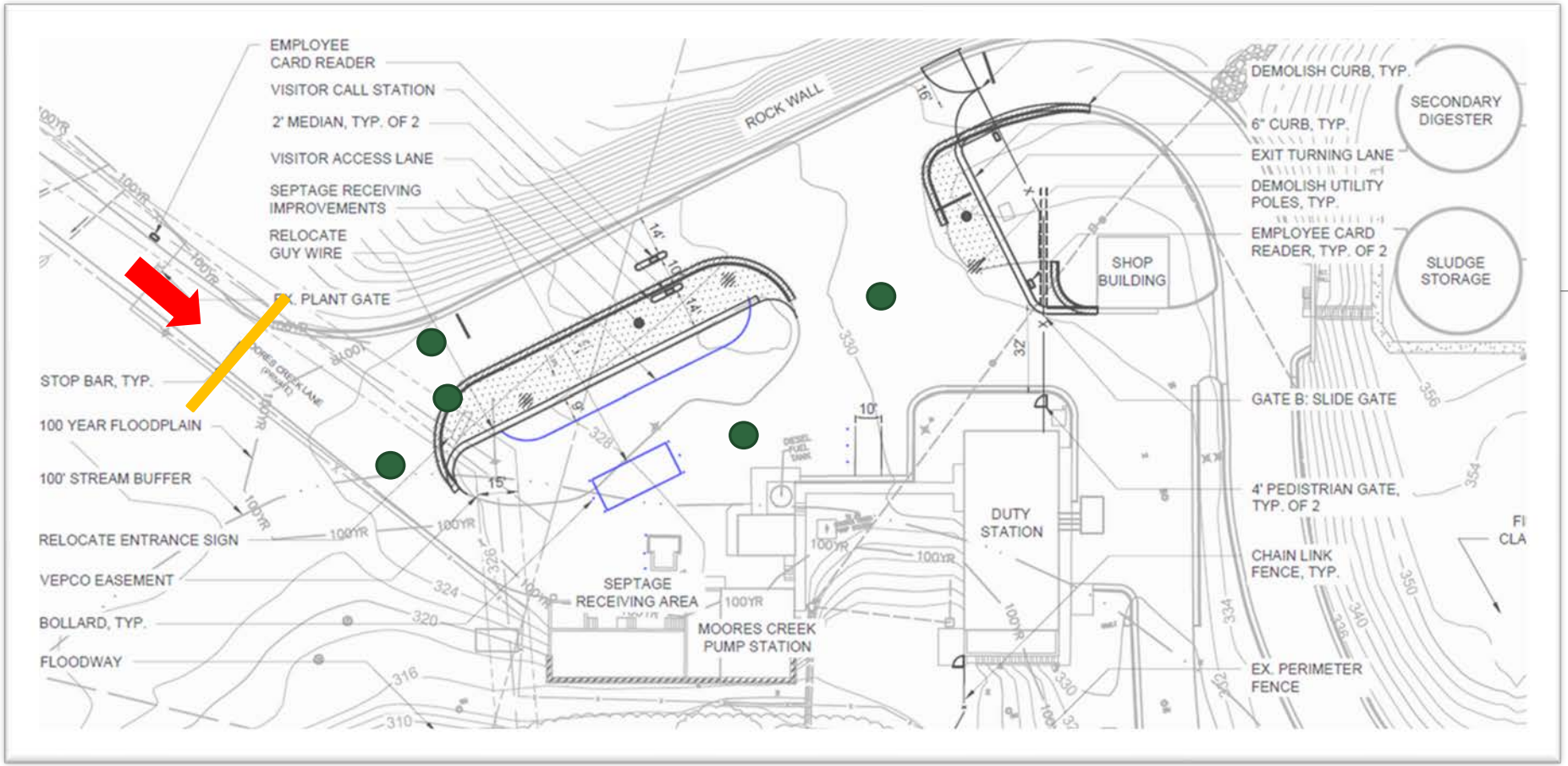
  - Badge System for Employees, Vendors and Contractors
  - Programable Permissions by Department, Facility, Time of Day and/or Position

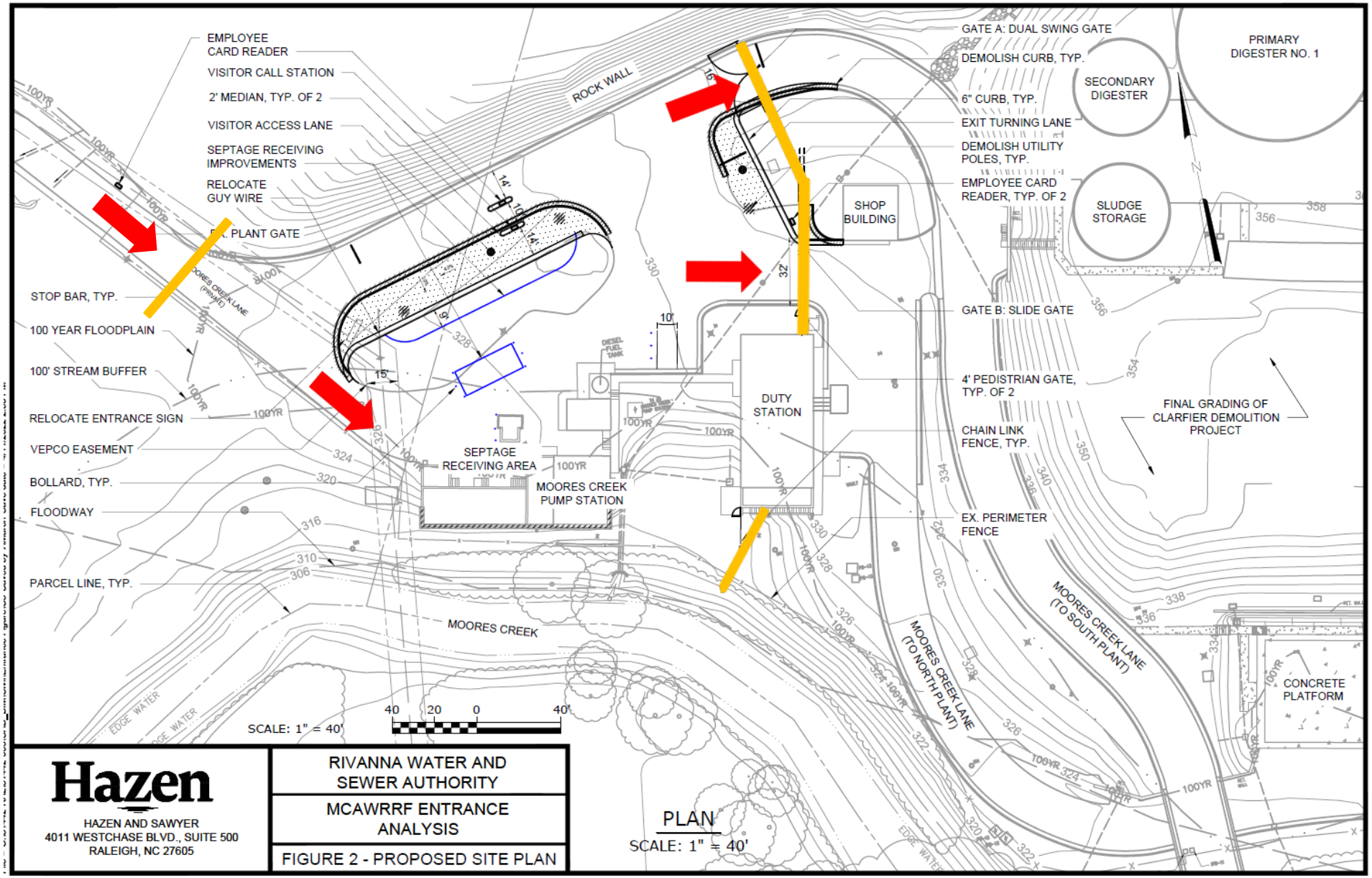
  - Improves:
    - Identification of Employees & Visitors
    - Provides Intrusion and Open-Door Notifications
    - Easily Mitigates Lost Keys
    - Key and Padlock Control and Inventory

Capital Project – MCAWRRF Main Gate



Capital Project – MCAWRRF Main Gate





Capital Project – MCAWRRF Main Gate

- Controls Public Interaction in Wastewater Process Areas
- Integrates with Access Control and Camera Systems
- Allows Access to Septage during normal hours
- Improves Visitor Check-In

Total current Security Project Cost = $ 2.8M

MC Gate, Doors and Access Control

Questions?

WHAT IS CYBER-SECURITY?

cybersecurity noun

cy·ber·se·cu·ri·ty | \ˈsī-bər-si-ˌkyu̇r-ə-tē\

Cyber-security *is the practice of defending computers, servers, mobile devices, electronic systems, networks and data from malicious attacks.*

COMMON CYBER-SECURITY ATTACKS

- Computer Viruses
- Malware
- Phishing Emails
- Social Engineering to obtain passwords from users
- Impersonation
  - Pretending to be someone they aren't to gain information or task performed
- Intercepting Communications

Resources and Guidance

CISA – **C**ybersecurity & **I**nfrastructure **S**ecurity **A**gency (part of US Dept. of Homeland Security; sets security standards; guidance and threat alerts)

AWWA - GUIDANCE TOOL

(closely aligned with CISA; used in a security assessment)

What should we be asking ourselves?

Self Assessments

- **WHAT** do we need to protect and WHY?
  - We need to understand the risks – both in technology and physical security
  - 90% of successful cyber attacks are caused by human error
  - 3rd Party vendors
- **HOW** we evaluate options and prioritize solutions?
  - This helps the Authority allocate resources
  - Based on the risk assessment, we are developing a cybersecurity plan and protocols
- **WHO** is the lead for cybersecurity within the organization and part of overall team?
  - The Rivanna IT Team is the leader for cybersecurity within the organization
  - Top management involved
  - All staff must be part of defensive posture

CISA Security Assessment

The categories are as follows:

- IT Risk Assessment
- IT Asset Management
- Supply Chain Risk Management
- Identity Management - Authentication and Access Control
- Awareness and Training
- Data Security
- IT Response Planning
- Disaster Recovery Planning

What do we need to Protect and Why?

- **CISA Security Assessment completed outside contractor**
  - Network Mapping Tool
  - SEIM (Security Event and Information Management) Tool
  - Vulnerability Scan Tool

- **Network Assessment** – Completed by outside contractor

- **Penetration and Vulnerability Testing** – Completed by outside contractor

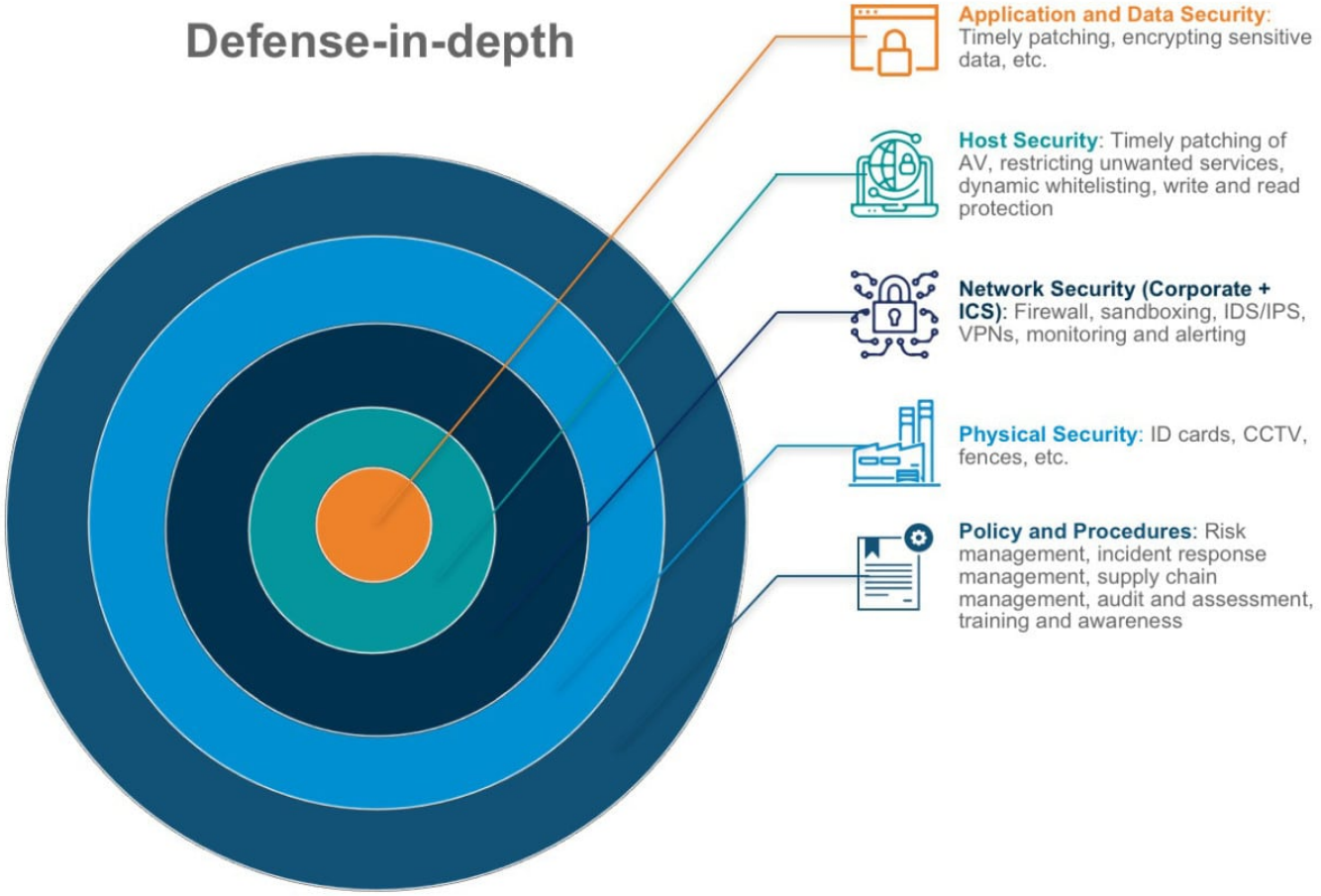
AWWA RECOMMENDATIONS

Recommendations	Status
Maintain an Accurate Inventory of Control System Devices and Eliminate Any Exposure of this Equipment to External Networks	Complete - Implemented Network Mapping Tool
Implement Network Segmentation and Apply Firewalls	Complete
Use Secure Remote Access Methods	Complete
Establish Role-Based Access Controls and Implement System Logging	Partially Complete
Use Only Strong Passwords, Change Default Passwords, and Consider Other Access Controls	Complete – Strong password policy in place. MFA (Multi Factor Authentication) in practice
Maintain Awareness of Vulnerabilities and Implement Necessary Patches and Updates	Vulnerability Scan Tool, Monthly Patching - Utilizing RMM – Remote Monitoring and Management system
Develop and Enforce Policies on Mobile Devices	Complete - **In-Tune** Mobile Device Management
Implement an Employee Cybersecurity Training Program	Ongoing training for all staff
Involve Executives in Cybersecurity	Ongoing
Implement Measures for Detecting Compromises and Develop a Cybersecurity Incident Response Plan	Complete Policy update within 1 year

What have we done?

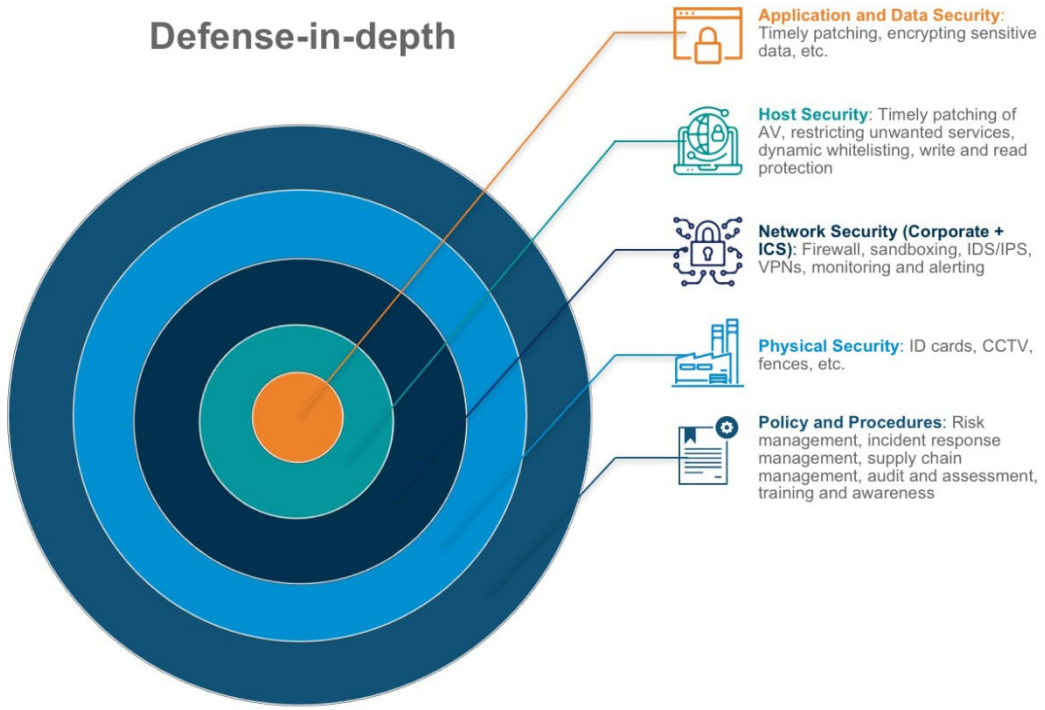
We have adopted the…

… approach



What have we done?

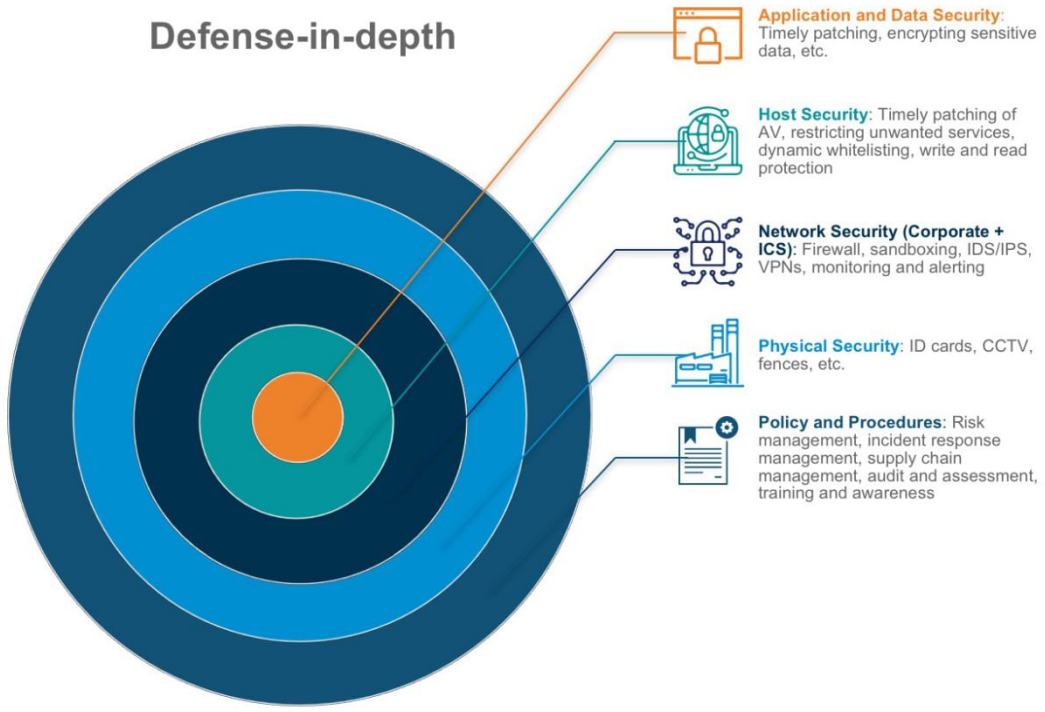
- **Application and Data Security**
  - 90-Day Password Expiration – Strong Password requirements
  - Active Directory cleanup
  - UltraBac Sofware – File / Folder backup –offsite storage
  - Barracuda Office 365 backup – Exchange Email, OneDrive, Teams file backup



What have we done?

- **Host Security**
  - Monthly Patching – Servers and Computers
  - Sophos Antivirus – Servers, Computers and Phones

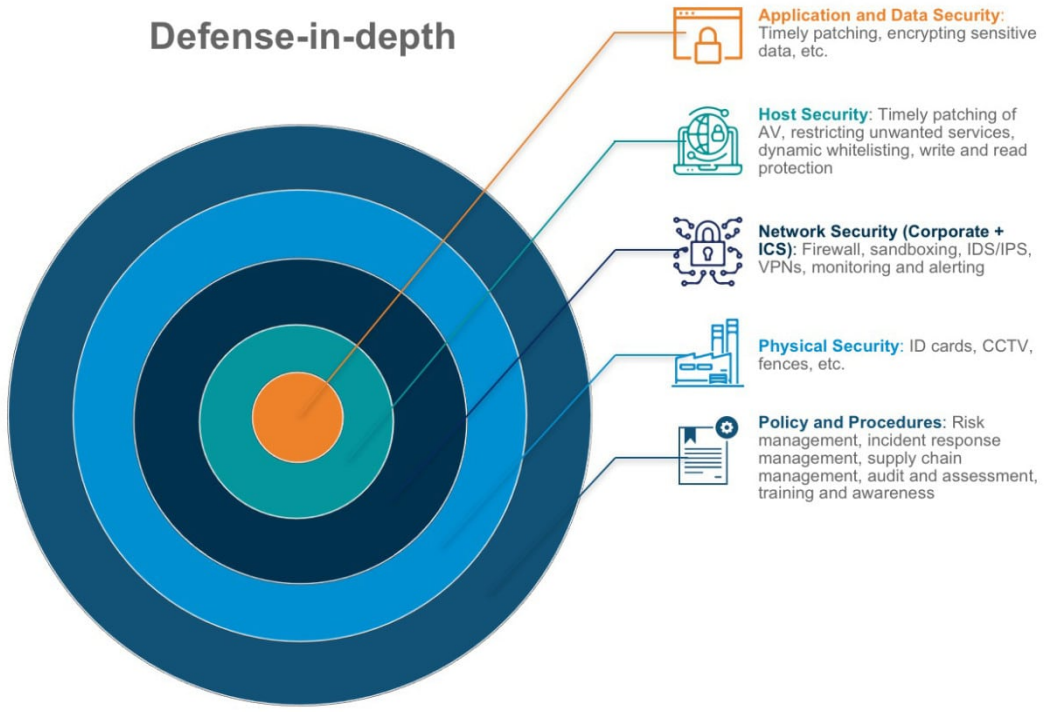
- **Network Security**
  - Geofencing – creating a virtual geographic boundary
  - Firewall – device at the “front door” that keeps hackers out of our private data network
  - Router Anti-virus software
  - IPSEC Tunnels between internal routers – secure data transmission between 2 points
  - Monitoring and Alerting
  - Multi-factor Authentication



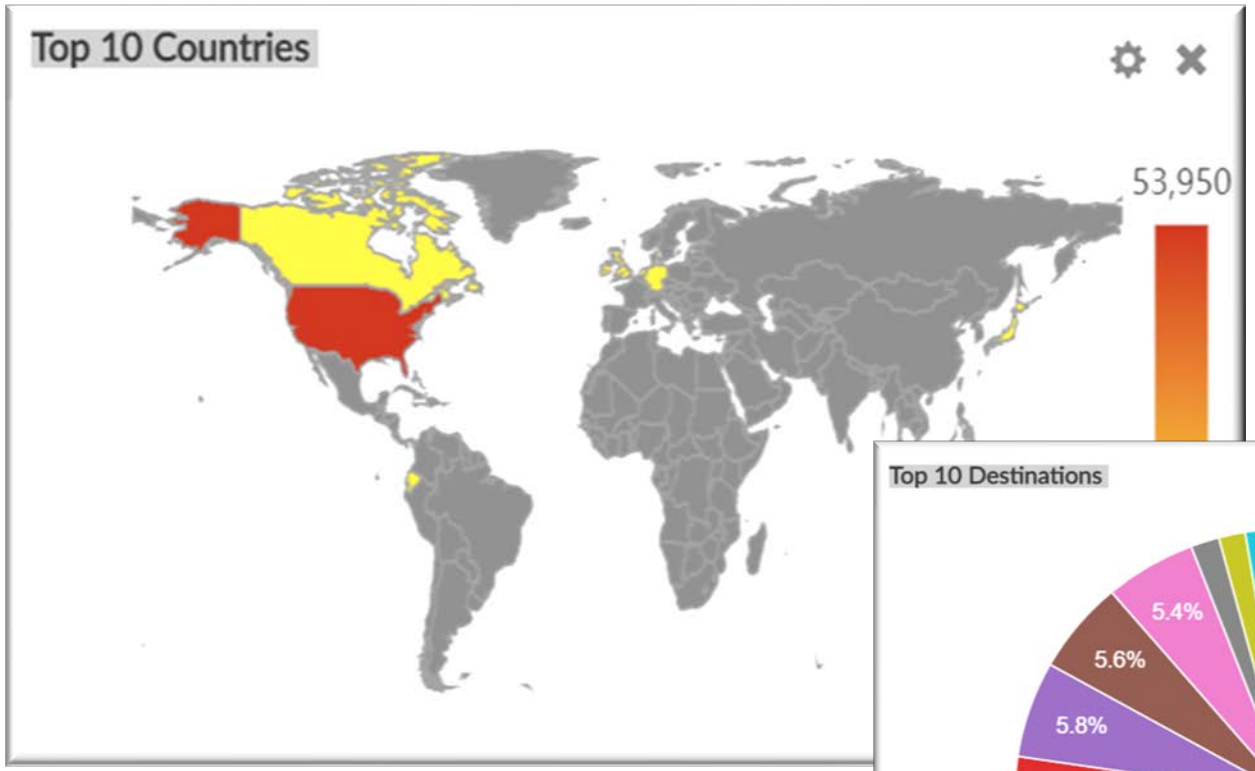
What have we done?

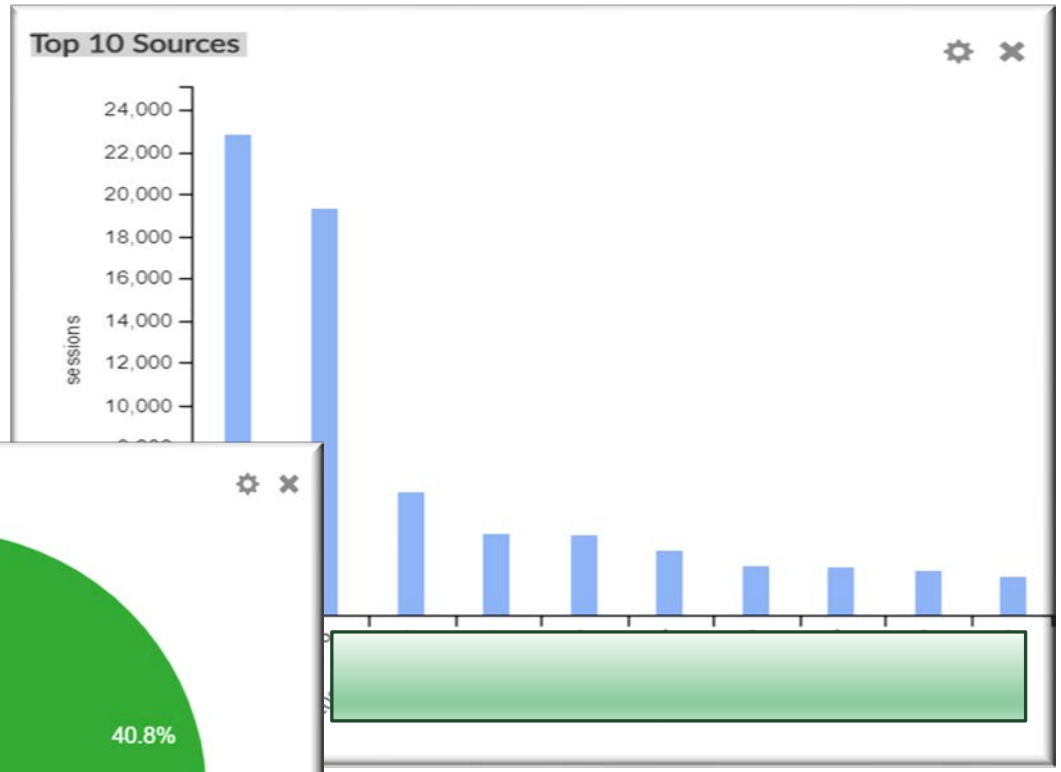
- **Physical Security**
  - Building Access badging system
  - Web based Security Cameras for locations
    - Reservoirs and Dams
    - Front Gates

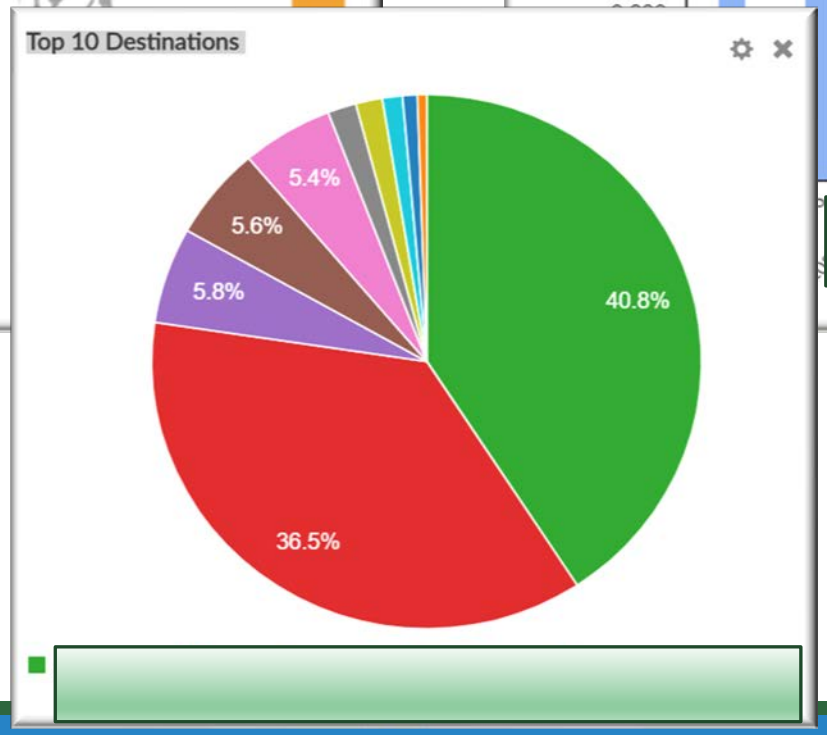
- **Policy and Procedures**
  - Email Phishing Campaign Training using KnowBe4
  - Updated IT Policies
    - NDA (Non-Disclosure Agreement with our vendors)
    - BYOD (Bring Your Own Device) Policy



THREAT MONITORING





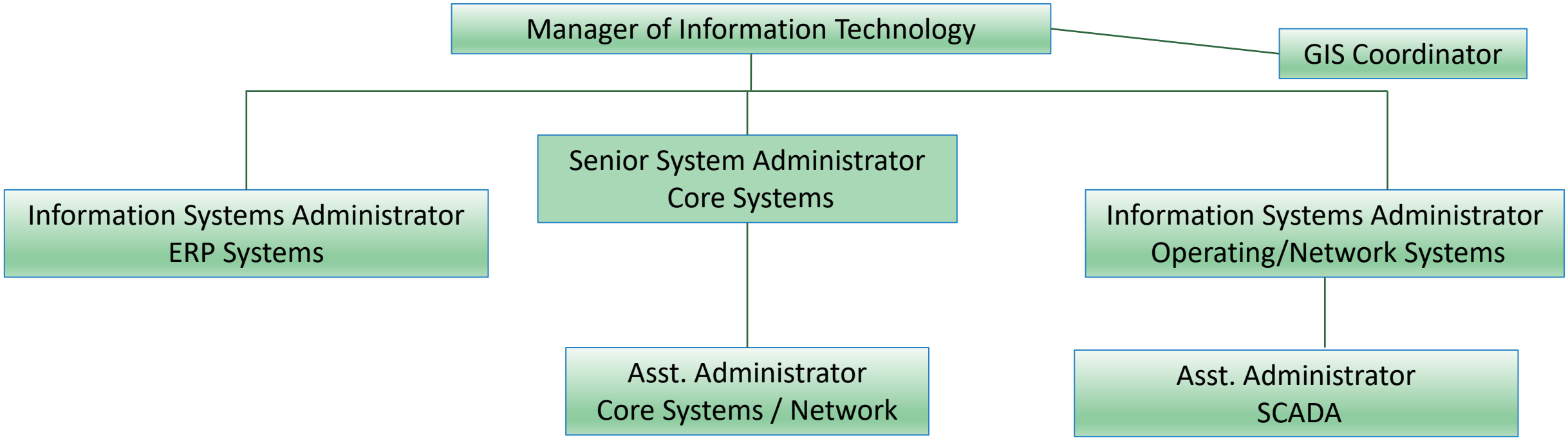


IT OVERVIEW

A **Cyber Security program** is a continuous process of assessing, testing and implementing changes to defend against the latest threats.

The Rivanna IT team is committed to leading and fostering not only a ***Cyber Security culture*** with our employees, but providing a ***Security Ecosystem*** that include technology, user training, and leadership awareness.

INFORMATION TECHNOLOGY TEAM



Questions?

RIVANNA AUTHORITIES

Sense of Stakeholders Information

JULY 7, 2022

RAFTELIS

Sense of Stakeholders

Leadership Team Interviews - 6

Employee Focus Groups

- **Three groups, approximately 35 participants total**

Board Interviews – 9

External Stakeholder Interviews - 8

- **Residents**
- **PVCC**
- **VA Department of Health**
- **Free Enterprise Forum**
- **Residential Developer**
- **Albemarle Co. Facilities & Environmental Services**
- **Town of Scottsville**

STAKEHOLDER INPUT BY GROUP:

Leadership Team

ASPIRATIONS

- Community understanding and appreciation
- Regional leadership
- Increased employee engagement and energy
- Customer satisfaction with services
- Closer to steady state

STRENGTHS

- Solid Waste operation
- Dedicated, professional team
- Continuing education and development opportunities
- Culture
- Willingness to try new ideas
- Resources (e.g., employee, financial, operational)
- Leadership
- Trouble-shooting and problem-solving
- Capital improvement planning
- Collaboration and communication

CRITICAL ISSUES

- Technology integration
- Funding strategies
- Staff workloads/capacity
- Facility modernization
- Institutional knowledge capture and transfer
- Retirements and back-filling positions
- Supply chain issues
- Mitigating environmental impacts (e.g., flooding)
- Cyber threats
- Changing growth patterns
- Continued regulatory compliance

OPPORTUNITIES

- New technologies, including HRIS system
- Streamline processes and policies
- Continue to leverage PVCC partnership for increased training and development opportunities
- Enhanced safety program
- Employee engagement
- Environmental stewardship
- Outreach and community education

STAKEHOLDER INPUT BY GROUP:

Employees

ASPIRATIONS

- Upgraded infrastructure, facilities, and technology
- Known as a great place to work with excellent employee development opportunities
- Community understanding and support
- Valued and respected as leaders and stewards
- Continue to provide high quality water services
- Responsive, collaborative team
- Streamlined, efficient organization
- Emergency preparedness and resiliency
- Set the standard for similar organizations
- Apolitical entity

STRENGTHS

- Dedicated employees – everyone has their eyes on the mission
- High quality water and services
- Staff are flexible and resilient
- Cross-departmental coordination and teamwork
- Investments in and growth opportunities for employees
- Implementation of new and proven technologies (e.g., GAC, inclined plate settlers)
- Employee training, certifications, and knowledge transfer
- Financial strength

CRITICAL ISSUES

- Environmental Sustainability
- Employee recruitment, development, and retention
- Lack of internet connectivity in rural areas
- Inefficient internal processes/administrative systems
- Internal and external communication
- Staff capacity
- Director/Manager span of control/task delegation/time management
- Capital project financing
- Population growth impacts
- Institutional knowledge transfer and record-keeping
- Lack of community understanding
- Water resource management/supply
- Upgrade and update network and systems infrastructure, with a priority on cyber security

STAKEHOLDER INPUT BY GROUP:

Boards of Directors

ASPIRATIONS

- Established as subject matter experts
- Regional leadership
- Enhanced community engagement and communication around the value of services
- Be ready for anything, and well positioned for the next 20 years and beyond
- Financial stability
- Focused on diversity and equity
- Environmentally sustainable (e.g., actively working on limiting carbon footprint and using renewable energy)
- Reliable infrastructure

STRENGTHS

- Organizational leadership
- Talented, experienced staff
- Responsiveness to issues that arise
- Efficient, well-run organization
- People-focus
- Service reliability
- Capital planning and execution
- High-quality water
- Financial position
- Proactive, long-term focus
- Environmental stewardship

CRITICAL ISSUES

- Continued compliance with federal regulations
- Service affordability
- Potential governance challenges
- Climate change adaptation and mitigation
- Lack of community awareness
- Succession planning for Rivanna leadership
- Shift to Zero Waste
- Disruption and equity issues related to the Central Water line
- Ensuring workforce stability
- Board turnover and orientation
- Preparing for population growth

OPPORTUNITIES

- Continued investment in the workforce
- Public engagement
- Solid waste and recycling
- Regional visibility (be “at the table” to address regional challenges
- Develop a cohesive, shared vision for solid waste
- Succession planning
- Invest in resiliency
- Long-term planning (50-100 years out)
- Increase employee diversity
- Solid waste convenience centers

STAKEHOLDER INPUT BY GROUP:

External Stakeholders

ASPIRATIONS

- A planning organization
- Effective community engagement and communication
- A model for other regional water utilities
- Source of technical expertise and assistance
- Stable
- Proactively addressing known challenges
- Strong workforce
- Well-executed capital projects

STRENGTHS

- Investment in staff and leadership
- Forward thinking, professional organization
- Financial expertise and transparency
- Representation of women in leadership
- Planning for treatment and facility updates
- Solid operations and staff who are experts in their fields
- Talented operators
- Effective collaboration
- Continued focus on long-term needs
- Product quality and capacity
- Political neutrality

CRITICAL ISSUES

- Employee diversity
- Strengthen environmental commitment
- Focus on service equity
- Address security challenges (physical and cyber)
- Population growth, density, and new development
- Capital project price increases and inflation
- New regulatory requirements
- Political tension
- Housing within the service area
- Climate change

OPPORTUNITIES

- Attracting diverse candidates
- Promote entry level opportunities to the community
- Collaborate with the City and County on communication and messaging
- Systematize leadership and coaching training
- Increase environmental stewardship activities
- Composting
- Increase focus on mitigating climate change
- Execute long-term water resource plan
- Expand partnerships with surrounding agencies
- Leverage alternative funding opportunities
- Workforce development
- Optimize operations, especially around solid waste
- Increase community presence
- Upgrade public meeting spaces
- Joint conservation messaging efforts

Contact

DARIN THOMAS

dthomas@raftelis.com

CATHERINE CARTER

ccarter@raftelis.com

RAFTELIS

Rivanna Authorities

Employee Strategic Planning Survey Results

Final Report / July 2022

RAFTELIS

Table of Contents

List of Tables

List of Figures

List of Appendices

Introduction

The Rivanna Authorities are in the process of updating their 2017 strategic plan and engaged Raftelis to facilitate plan development. One aspect of this process is understanding how Rivanna employees feel about the work they do, the organization today, and where the organization is going. Raftelis worked with Rivanna to develop and administer a survey to all the utility's employees to gather this input. The survey was administered through a web-based tool, Zoho™ Survey, and was available from June 17 to June 26, 2022. A total of 85 employees responded.

The survey was divided into the following sections:

- Demographics
- Strengths
- Issues and Performance
- Opportunities
- Other Comments

This report summarizes the results of that survey. A copy of the survey questions is included in Appendix A.

Demographics

The following section illustrates the breakdown of respondents by Department and Tenure. The survey was sent via email to 114 employees, and 85 answered the majority of the questions. This represents a response rate of 76% Rivanna's employees.

Respondents by Department

A total of 85 respondents provided their Department. Of these, 20% are in Administration and Water. Another 17% % indicated they are in Solid Waste, and 12%, indicated they are in Maintenance. The following figure illustrates the breakdown of respondents.

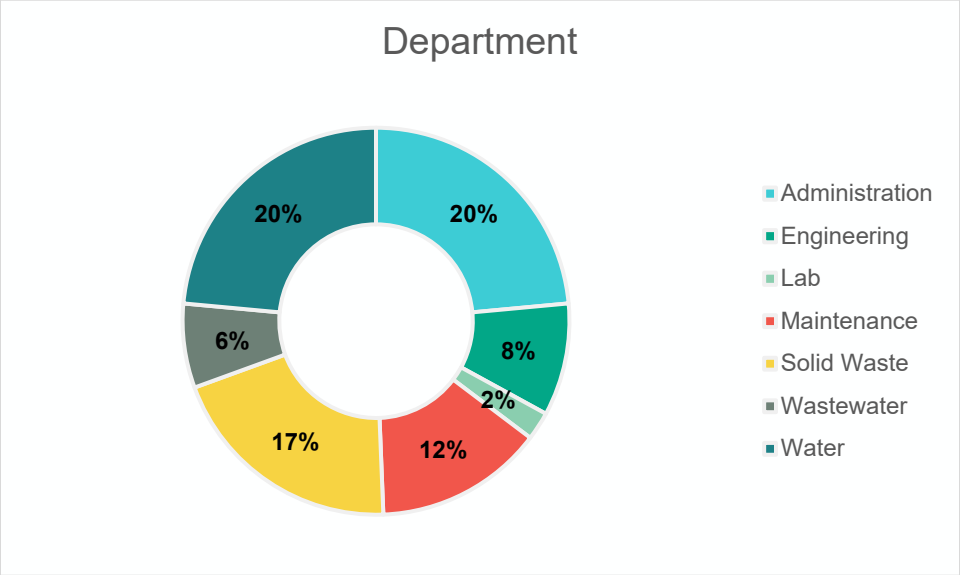


Figure 1: Respondents by Department

Respondents by Tenure

A total of 84 respondents provided their tenure with the organization. Approximately 10% of respondents have been with Rivanna more than 20 years, almost half (46%) have been with the organization between three and 10 years, and a third (27%) have been with the organization less than two years. The following figure illustrates the breakdown of respondents.

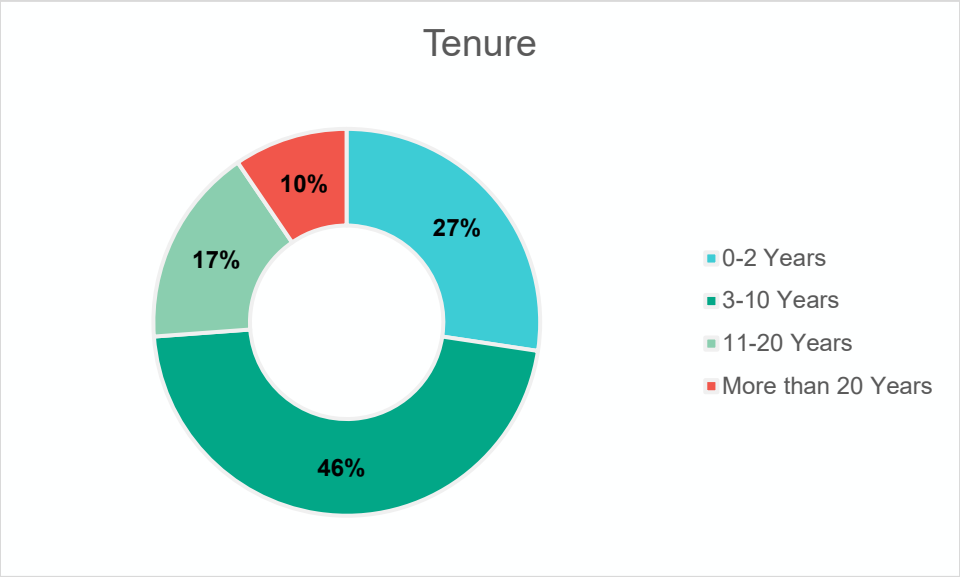


Figure 2: Respondents by Tenure

Strengths

In the next section, respondents were asked about Rivanna's strengths. The questions were open-ended, and the project team categorized the responses into themes. The top themes for each open-ended question are reported below, along with representative quotes from the responses.

Greatest Strengths

Respondents were asked, "What do you think are Rivanna's three biggest strengths?". A total of 81 individuals provided responses. Themes discussed by three or more respondents are shown below, along with the number and percent of respondents who mentioned them.

Table 1: Respondent Input on Rivanna's Strengths

Theme	Number of Responses	Percent of Responses
Great people	75	35%
Workplace and benefits	30	14%
Product quality	20	9%
Operational environment	17	8%
Decision making	15	7%
Customer-focus	12	6%
Teamwork	12	6%
Communication	9	4%
Trustworthiness	9	4%
Workforce evolution	5	2%
Sustainability	3	1%
Long-term planning	3	1%
Relationship management	3	1%
Other	2	1%

The most common theme discussed was the great people who work for the Rivanna Authorities. Representative quotes from respondents include:

- The experts we have in house
- Talented and dedicated employees
- Management support for employees
- HR department

The second-most common themes were workplace and benefits. Many noted the employment stability and benefits such as compensation and work location and schedule. Comments included:

- Stability for employees

- Pay and benefits
- Loyalty to staff
- Work schedule

The third-most common theme was product quality. Representative quotes from respondents include:

- Ability to deliver a quality product
- Supplying our services to the community
- Producing great water quality year after year
- Exceptional water, wastewater, and solid waste services are provided

Top Services

Next, respondents were asked, "What are three services that Rivanna provides really well, either within the organization for employees or for our customers and community?". A total of 78 individuals provided responses. Themes discussed by four or more respondents are shown below.

Table 2: Respondent Input on Rivanna's Top Services

Theme	Number of Responses	Percent of Responses
Water and wastewater service	55	26%
Employer of choice	39	18%
Solid waste and recycling services	26	12%
Safety and environmental stewardship	19	9%
Workplace dynamics	16	7%
Professional development	15	7%
Communication and outreach	10	5%
Resiliency	9	4%
Customer service	8	4%
Programs and initiatives	7	3%
Strong leadership	4	2%
Other	6	3%

The top service discussed was Rivanna's ability to provide Water and Wastewater services for its customers. Comments included:

- Water and wastewater treatment
- Water quality
- Reliable and needed product
- Excellent drinking water

Employer of Choice was the second-most-common service highlighted by respondents. Comments included:

- Morale-building activities
- Salaries in line with averages
- Stable healthcare costs

- Good optional benefits (gyms/legal/etc.)

The third most commonly mentioned service was Solid Waste and Recycling Services. Comments included:

- Recycling options
- Clean and efficient recycling
- Solid waste services - comprehensive
- An amplitude of recycling and waste disposal services

Accomplishments

Next, respondents were asked, "What are three biggest accomplishments associated with the 2017 strategic plan?". A total of 69 individuals provided responses. Themes discussed by four or more respondents are shown below.

Table 3: Respondent Input on Rivanna's Biggest Accomplishments

Theme	Number of Responses	Percent of Responses
Investments and enhancements	33	22%
Culture	18	12%
Teamwork and communication	18	12%
Direction	15	10%
Employee attraction and retention	13	9%
Customer-focus	7	5%
Programs and initiatives	6	4%
Environmental stewardship	5	3%
Implementable goals	5	3%
Safety	5	3%
Brand identity	4	3%
Leadership support	4	3%
Other	16	11%

The biggest accomplishment discussed was Rivanna's investments and enhancement to facilities and infrastructure. Comments included:

- Upgrading our systems
- Upgrading and expanding the plant
- Training current and hiring new and knowledgeable people
- Focus on infrastructure improvements

The culture was the second-most-mentioned accomplishment highlighted by respondents. Comments included:

- Progressive thinking
- Sense of belonging
- Increase in the professionalism of management and staff
- Better relationships between departments

The third most commonly mentioned accomplishment was teamwork and communication across departments and among staff. Comments included:

- Increased teamwork
- Communication and collaboration
- Teamwork with the other departments
- Allowed insight into other departments' processes

Issues and Performance

Top Issues

Respondents were provided with a list of key issues for Rivanna and asked to select the three issues that they believe are most important to Rivanna's success over the next five years. The following table illustrates the issues, ranked from most-selected to least-selected.

Table 4: Top Issues

Issue	Number of Responses	Percent of Respondents Selecting
Attracting, retaining, and developing highly qualified employees	72	88%
Ensuring reliable infrastructure and minimizing system failures	50	61%
Making the best and most efficient use of operational resources	29	35%
Addressing challenges and risks proactively	21	26%
Managing long-term capacity needs	20	24%
Balancing short- and long-term financial decisions	18	22%
Providing responsive and reliable customer service	15	18%
Minimizing environmental threats associated with our services	13	16%
Receiving support from citizens, other municipalities, the press, etc.	7	9%
Other (Please specify)	6	7%

The top issue, selected by nearly 88% of respondents, was "Attracting, retaining, and developing highly qualified employees." Roughly 60% of respondents also selected "Ensuring reliable infrastructure and minimizing system failures". Approximately 35% selected "making the best and most efficient use of operational resources" as a top issue.

Respondents also had the option of selecting "Other" and identifying another key issue not on the list. A total of 5 respondents selected "Other." Themes mentioned by two or more respondents included:

- Workplace concerns
- Sustainability of operations and customer service

Performance Against the Issues

Respondents were given a list of ten areas and asked to rate Rivanna's performance on an Excellent, Very Good, Good, Fair, Poor, and No Opinion scale.

PRODUCT QUALITY

Producing high-quality water and services that meet and exceed regulatory compliance standards

This graph illustrates employee responses regarding Rivanna's performance in product quality. In 2022, a total of 86% of respondents considered performance in this area to be Excellent or Very Good, which is an increase of 9% since 2017.

Figure 3: Product Quality Performance

EMPLOYEE LEADERSHIP AND DEVELOPMENT

Employee recruitment, development, and retention

This graph illustrates employee responses regarding Rivanna's performance in employee recruitment, development, and retention. A total of 34% of respondents considered performance in this area to be Excellent or Very Good, which is an increase of 17% since 2017, while 30% thought it to be Fair or Poor.

Figure 4: Employee and Leadership Development Performance

INFRASTRUCTURE STABILITY

Ensuring reliable infrastructure and minimizing failures

This graph illustrates employee responses regarding Rivanna's performance in ensuring reliable infrastructure and minimizing failures. A total of 44% of respondents considered performance in this area to be Excellent or Very Good which is an increase of 22% since 2017, while 19% thought it to be Fair or Poor.

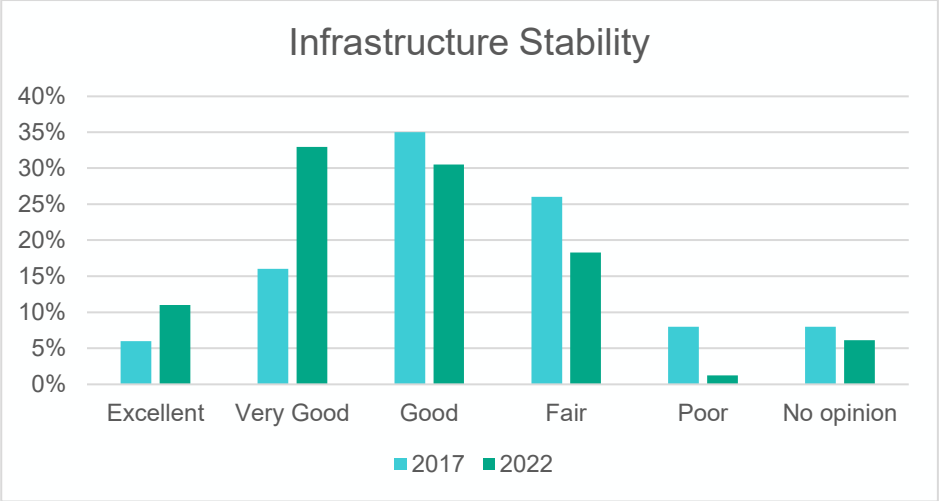


Figure 5: Infrastructure Stability Performance

CUSTOMER SERVICE

Providing responsive and reliable customer service

This graph illustrates employee responses regarding Rivanna's performance in providing good customer service. A total of 73% of respondents considered performance in this area to be Excellent or Very Good, which represents a small improvement on the percentage in 2017 (65%), while 2% thought it to be Fair or Poor.

Figure 6: Customer Service Performance

OPERATIONAL OPTIMIZATION

Making the best and most efficient use of operational resources

This graph illustrates employee responses regarding Rivanna's performance in addressing challenges and risks before they become problems. A total of 35% of respondents considered performance in this area to be Excellent or Very Good, which is similar to the percentage in 2017, while 18% thought it to be Fair or Poor. Notably, 10% of respondents in 2022 responded with "no opinion."

Figure 7: Operational Optimization Performance

COMMUNITY SUSTAINABILITY

Minimizing threats associated with our services to the environment, public health, and the community

This graph illustrates employee responses regarding Rivanna's performance in minimizing cyber security threats. A total of 65% of respondents considered performance in this area to be Excellent or Very Good, which is an increase of 15% since 2017, while 11% thought it to be Fair or Poor.

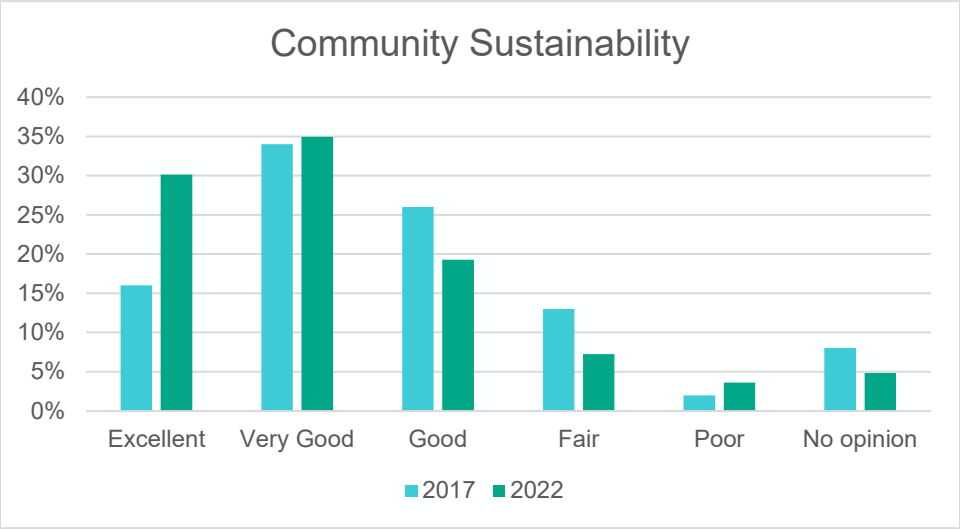


Figure 8: Community Sustainability Performance

STAKEHOLDER UNDERSTANDING AND SUPPORT

Receiving support from citizens, municipalities, the press, etc.

This graph illustrates employee responses regarding Rivanna's performance in receiving support from City leadership, other local utilities, etc. 32% of respondents considered performance in this area to be Excellent or Very Good. In comparison, 14% thought it to be Fair or Poor.

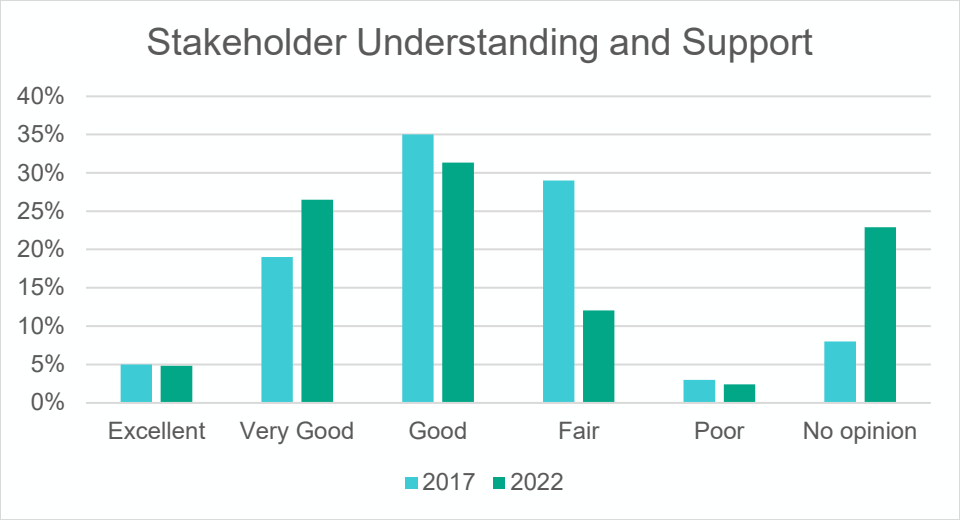


Figure 9: Stakeholder Understanding and Support Performance

CAPACITY AND RESOURCE ADEQUACY

Managing long-term treatment capacity needs

This graph illustrates employee responses regarding Rivanna's capacity and resource adequacy. A total of 43% of respondents considered performance in this area to be Excellent or Very Good, which is a small improvement over 2017, while 12% thought it to be Fair or Poor.

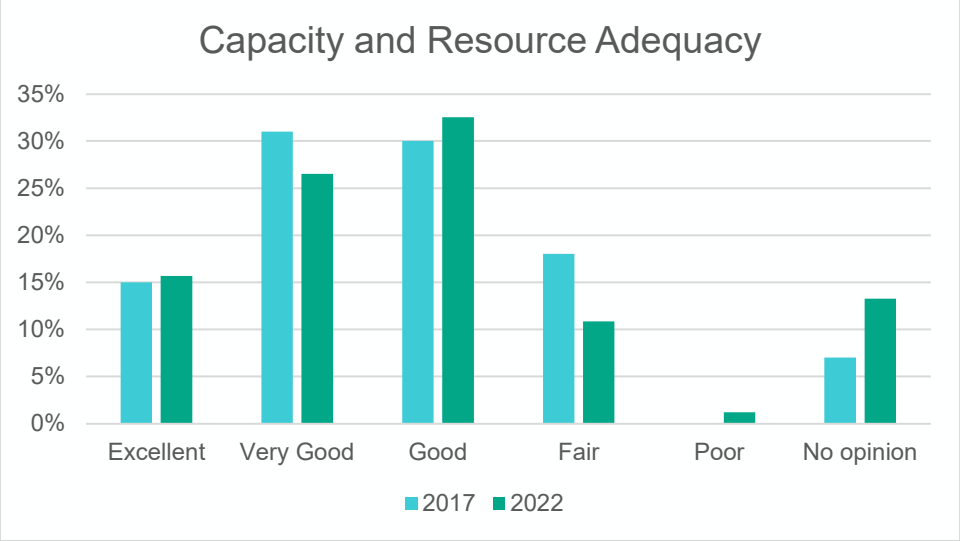


Figure 10: Capacity and Resource Adequacy Performance

OPERATIONAL RESILIENCY

Addressing challenges and risks proactively

This graph illustrates employee responses regarding Rivanna's performance in operational resiliency. A total of 47% of respondents considered performance in this area to be Excellent or Very Good, which is an increase of 22% since 2017, while 12% thought it to be Fair or Poor.

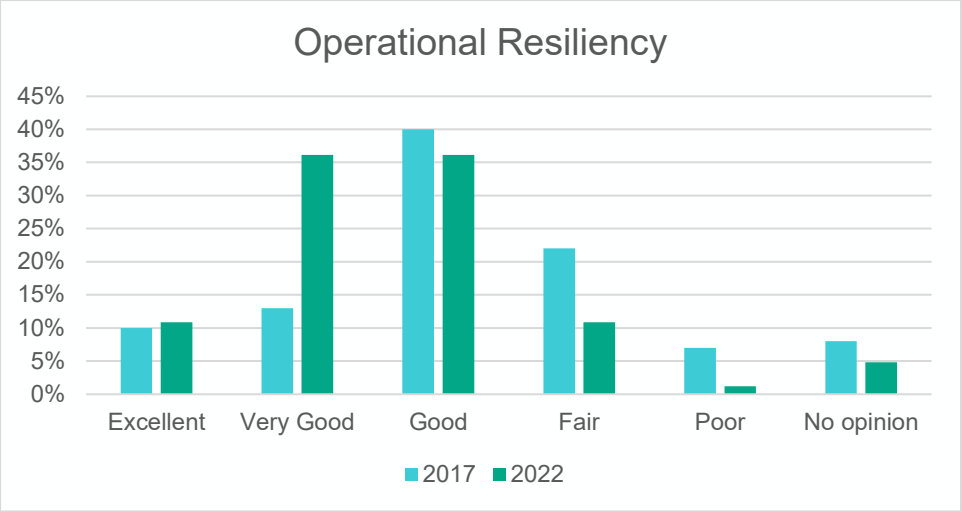


Figure 11: Operational Resiliency Performance

FINANCIAL VIABILITY

Balancing short- and long-term financial decisions

This graph illustrates employee responses regarding Rivanna's performance in balancing short- and long-term financial decisions. A total of 37% of respondents considered performance in this area to be Excellent or Very Good – a 10% increase over 2017, while 12% thought it to be Fair or Poor.

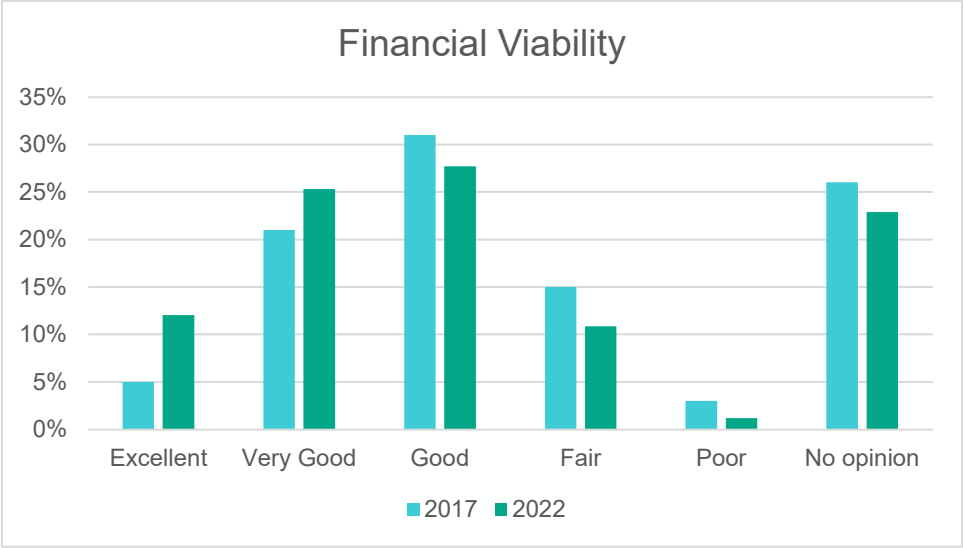


Figure 12: Financial Viability Performance

Keys to Management Success

Respondents were asked to rate Rivanna's performance in terms of a number of different management techniques and their effectiveness for the organization. According to respondents, Rivanna does well at having a well-communicated vision that describes the desired future state of the organization and developing and sharing a plan to guide the organization into the future. Areas where performance was rated at a lower level include willingness to make changes to support increased organizational accountability and effectiveness and empowering teams of employees to consider challenges and develop solutions.

Figure 13: Keys to Management Success, 2022

Figure 14: Performance in Key Management Areas, 2017

In 2017, the organization performed well at making changes to support increased accountability and effectiveness, and leading and communicating the organizational values and priorities. Areas where performance was rated at a lower level include internal communication, producing regular reports to communicate organizational performance, and having a well-communicated vision.

Respondents have identified having a well-communicated vision that describes the desired future state of the organization as a strength for Rivanna and empowering teams of employees to consider challenges and develop solutions to be area of improvement in both 2017 and 2022.

Opportunities

Looking forward, respondents were asked to think about what opportunities the organization should pursue in the future. Questions were open-ended, with themes summarized by the project team.

Focus Areas

Respondents were first asked, "What are the three biggest things that Rivanna should focus on to do better in the future." A total of 59 individuals responded. The following table summarizes themes mentioned by two or more respondents.

Table 5: Respondent Input on Rivanna's Opportunities

Theme	Number of Responses	Percent of Responses
Infrastructure Resiliency	9	15%
Retention	9	15%
Communication	6	10%
Workplace conditions	5	8%
Environmental footprint	4	7%
None	4	7%
Public awareness	4	7%
Technology	4	7%
Collaboration	3	5%
Planning	3	5%
Resources	2	3%
Safety	2	3%
Other	4	5%

Infrastructure resiliency was the top focus area, mentioned by nearly 15% of respondents. Comments included:

- Aging infrastructure
- Airgap all backups
- Continue to improve infrastructure
- Ensuring reliable infrastructure and minimizing system failures

Many also discussed a desire for efforts focused on retention by Rivanna. Comments included:

- Employee retention
- Focus on using in house talent versus hiring consultants and contractors
- Improving health and dental plans – costs are high for anything but preventative work
- More focus on employee retention and being competitive in the job market

The third-most-common theme was improving communication. Comments included:

- Improve communication

- Communicate the overall plan for growth
- Explain project needs to the public
- Improve communication and coordination between departments

Rivanna in Five Years

Respondents were next asked to respond to the prompt, "In five years, I would be most proud of Rivanna if:". A total of 60 individuals responded. The following table summarizes themes mentioned by four or more respondents.

Table 6: Respondent Input on Rivanna in Five Years

Theme	Number of Responses	Percent of Responses
Employer of choice	20	27%
CIP	16	13%
Continuous improvement culture	10	13%
High quality services and initiatives	9	12%
Growth and success	6	8%
Training and advancement	5	7%
Public awareness	4	5%
Other	4	5%

Being and Employer of Choice were again a top theme. Comments included:

- [I would be most proud of Rivanna if] I'm still employed and advancing within the company
- [I would be most proud of Rivanna if] Staff shared a feeling of oneness with team spirit soaring
- [I would be most proud of Rivanna if] The health and dental plan were improved to make costs less prohibitive
- [I would be most proud of Rivanna if] We learned to communication with open ears and speak to each other with respect

The second-most-common themes were Capital Improvement Projects. Comments on Rivanna included:

- [I would be most proud of Rivanna if] a water and wastewater training programs was established with PVCC
- [I would be most proud of Rivanna if] we continued to grow and serve our communities to the best of our capabilities
- [I would be most proud of Rivanna if] we upgraded our equipment and facilities
- [I would be most proud of Rivanna if] we reconciled our current capital improvement project situation

Finally, some again see an opportunity to enhance the Continuous Improvement Culture. Comments included:

- [I would be most proud of Rivanna if] we are known as a center of excellence
- [I would be most proud of Rivanna if] we simplified and automated several processes to allow for maximum effort on tasks that can't be automated
- [I would be most proud of Rivanna if] we were open to new and different ideas
- [I would be most proud of Rivanna if] we were more efficient, with higher quality product with less operational impact

Other Comments

In the final section of the survey respondents were asked to provide any additional comments that might be helpful in developing the strategic plan. A total of 15 individuals provided feedback. Themes mentioned by two or more respondents are shown below.

Table 7: Themes from Other Comments

Theme	Number of Responses	Percent of Responses
Engaging and motiving employees	5	28%
Establishing and maintaining a good work culture	3	17%
Improving communication across and below	2	11%
None	2	11%
Training and development	2	11%

The most common theme was the importance of engaging and motivating employees. Comments included:

- The stick is less effective than the carrot.
- Any fringe benefits provided to one employee need to be provided to all employees
- Have anyone with ideas, have a suggestion box. Way it is never forgotten
- Implement program to educate new hires on the strategic plan and implement ongoing program for continuing education of strategic plan. Implement more frequent employee surveys like this one.

This page intentionally left blank to facilitate two-sided printing.

APPENDIX A:

SURVEY INSTRUMENT

This page intentionally left blank to facilitate two-sided printing.

Rivanna Employee Strategic Planning Survey

We are in the early stages of create a strategic plan for Rivanna Authorities. This plan will serve as a road map for where we want to go and how we want to get there.

Your input is needed. As a Rivanna team member, you have a very valuable perspective on the opportunities and issues ahead of us.

Please complete this survey by Friday, June 24th. The survey should take you about 10 minutes to complete. Your answers are anonymous. Thank you for your time in sharing your views.

Demographics

1. What Department do you work for?
    - Administration
    - Engineering
    - Lab
    - Maintenance
    - Solid Waste
    - Wastewater
    - Water
2. How long have you worked for Rivanna?
    - 0-2 Years
    - 3-10 Years
    - 11-20 Years
    - More than 20 Years

Strengths

3. What do you think are Rivanna's three biggest strengths?
4. What are three services that Rivanna provides really well, either within the Department for employees or for our customers and community?
5. From your perspective, what are the three biggest accomplishments associated with the 2017 strategic plan?

Issues, Performance, and Opportunities

6. Please select the top three issues that you believe are most important to Rivanna's success over the next five years.
    - Attracting, retaining, and developing highly qualified employees
    - Ensuring reliable infrastructure and minimizing failures
    - Providing responsive and reliable customer service
    - Addressing challenges and risks proactively
    - Minimizing environmental threats like pollution associated with our services

- Receiving support from residents' other cities/counties the press etc.
- Managing long-term capacity needs
- Making the best and most efficient use of operational resources
- Balancing short- and long-term financial decisions
- Other (please specify)

7. Please rate Rivanna's performance for each of the issues listed in the previous question:
   - Producing high-quality water and services that meet and exceed regulatory compliance standards
   - Attracting, retaining, and developing highly qualified employees
   - Ensuring reliable infrastructure and minimizing system failures
   - Providing responsive and reliable customer service
   - Addressing challenges and risks proactively
   - Minimizing environmental threats associated with our services
   - Receiving support from citizens, other municipalities, the press, etc.
   - Managing long-term capacity needs
   - Making the best and most efficient use of operational resources
   - Balancing short- and long-term financial decisions
   - Performance on any other important issues listed in the previous question:

8. Please rate Rivanna's performance in each of the following areas:
   - Leading and communicating the organizational values and priorities
   - Having a well-communicated vision that describes the desired future state of the organization
   - Developing and sharing a plan to guide that organization into the future
   - Internal communications within and between departments
   - Empowering teams of employees to consider challenges and develop solutions
   - Measuring organizational performance
   - Producing regular reports to communication organizational performance
   - Willingness to make changes to support increased organizational accountability and effectiveness
   - Performance in any other management-related areas (please specify):

9. What are the three biggest things that Rivanna should focus on to do better in the future?

10. In five years, I would be most proud of Rivanna if:

Other Comments

11. Please provide any additional comments that might be helpful in developing the strategic plan.

Board of Directors Briefing, July 26, 2022

RIVANNA AUTHORITIES

RAFTELIS

AGENDA

- Welcome/Introductions
- Rivanna Strategic Plan Update Process & Timeline
- Summary of Stakeholder Input Received
- Check-in on Vision, Mission and Values
- Board Input/Discussion – Proposed Goals (Focus Areas) Next 5 Years
- Next Steps/Wrap-Up

STRATEGIC PLANNING PROCESS & TIMELINE

Rivanna Authorities

STRATEGIC PLANNING FLOW CHART & TIMELINE

PROJECT KICK OFF & DOCUMENT REVIEW	STAKEHOLDER ENGAGEMENT	FOUNDATION WORKSHOP	STRATEGY WORKSHOP	PREPARE STRATEGIC PLANNING DOCUMENTS	IMPLEMENTATION SUPPORT

Major Activities
• Facilitate a virtual half-day Project Kick-off Workshop (w/Core Team)
• Discuss process, schedule, and participants
• Develop project charter
• Conduct an environmental scan
	Major Activities
	• Conduct interviews with key stakeholders
	  ○ Core Team
	  ○ Other employees
	  ○ External stakeholders
	  ○ Members of the Board of Directors
	• Administer online employee survey
	• Facilitate three employee focus groups
		Major Activities
		• Facilitate a one-day Foundation Workshop
		• Review summarized stakeholder information
		• Refine:
		  ○ Vision
		  ○ Mission
		  ○ Core values
		  ○ Goal categories
			Major Activities
			• Facilitate a one-day Strategy Workshop
			• Review Foundation Workshop results
			• Evaluate, select, and prioritize goal categories, measures, and strategies
				Major Activities
				• Draft plan and review strategic plan documents
				• Deliver final strategic plan document
					Major Activities
					• Set up access to StrategyBlocks
					• Develop a reporting template

Deliverables • Project Charter • Final project schedule • Trends analysis	**Deliverables** • Sense of stakeholder information • Presentation for Board of Directors	**Deliverables** • Partial strategic framework • Presentation for Board of Directors	**Deliverables** • Final strategic framework	**Deliverables** • Final strategic plan document • Summary strategic framework	**Deliverables** • Initial set up of StrategyBlocks
MAY - JUNE	JUNE	JUNE - JUL	JUL - AUG	AUG - SEP	SEP - OCT

June 9th

June to July

July 7th

Aug. 18th

STAKEHOLDER INPUT SUMMARY

Rivanna Authorities

Employee Strategic Planning Survey Results

Final Report / July 2022

RAFTELIS

RIVANNA AUTHORITIES

Sense of Stakeholders Information

JULY 7, 2022

RAFTELIS

THEMES - ASPIRATIONS

Regional Leadership – a Model for Others

Excellent Workforce Development and Engagement

Updated Facilities and Infrastructure

Streamlined and Efficient Operations

Stakeholder and Community Understanding

THEMES - STRENGTHS

- Professional, Knowledgeable Workforce
- Excellent Product Quality
- Leadership and Organizational Culture
- Capital/Long-range Planning
- Responsive and Reliable
- Sufficient Resources (e.g., Financial, Operational, Internal Expertise)

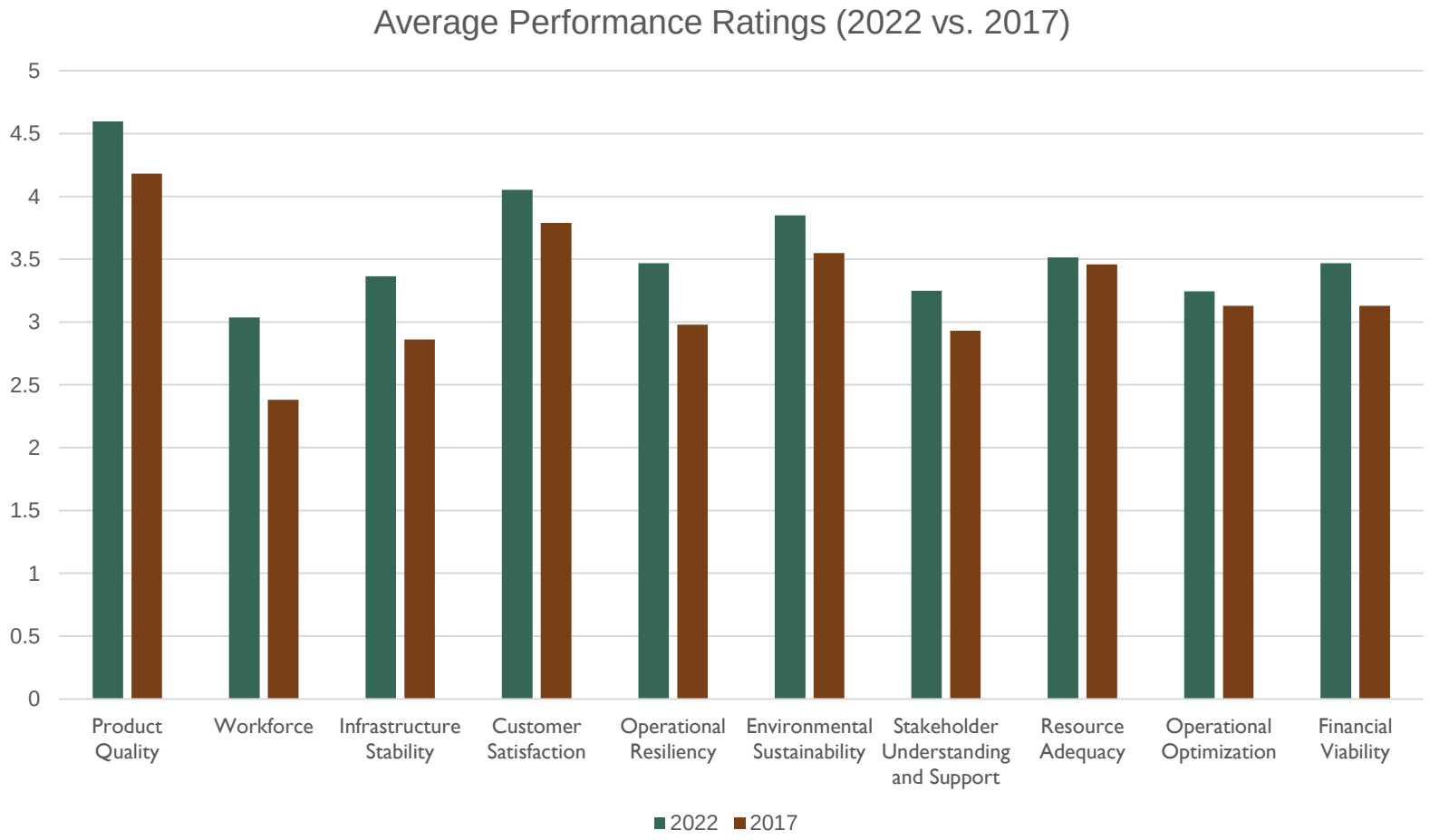
THEMES - OPPORTUNITIES

- Increased Regional Visibility
- External Partnerships to Support Rivanna Goals (e.g., PVCC)
- Employee Recruitment and Retention
- Cohesive, Shared Vision for Solid Waste
- Environmental Stewardship
- Organizational Focus on Diversity, Equity, and Inclusion

THEMES – CRITICAL ISSUES

- Technology Upgrades / Cyber Security
- Population / Service Area Growth
- Supply Chain Issues
- Lack of Community Understanding and Awareness
- Service Affordability / Capital Project Financing, Regulatory Requirements
- Staff Workload / Capacity
- Climate Change / Resiliency

EMPLOYEE SURVEY PERFORMANCE RATINGS



CHECK-IN ON VISION, MISSION, VALUES

Vision - Current

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

Vision - Proposed

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

CHECK-IN ON VISION, MISSION, VALUES

Mission - Current

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

Mission - Proposed

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

CHECK-IN ON VISION, MISSION VALUES

Values - Current

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

- *Integrity*
- *Teamwork*
- *Respect*
- *Quality*

Values - Proposed

No Change Proposed

PRIORITIES "GOAL AREAS" FOR NEXT 5 YEARS

Current

Proposed/Emerging

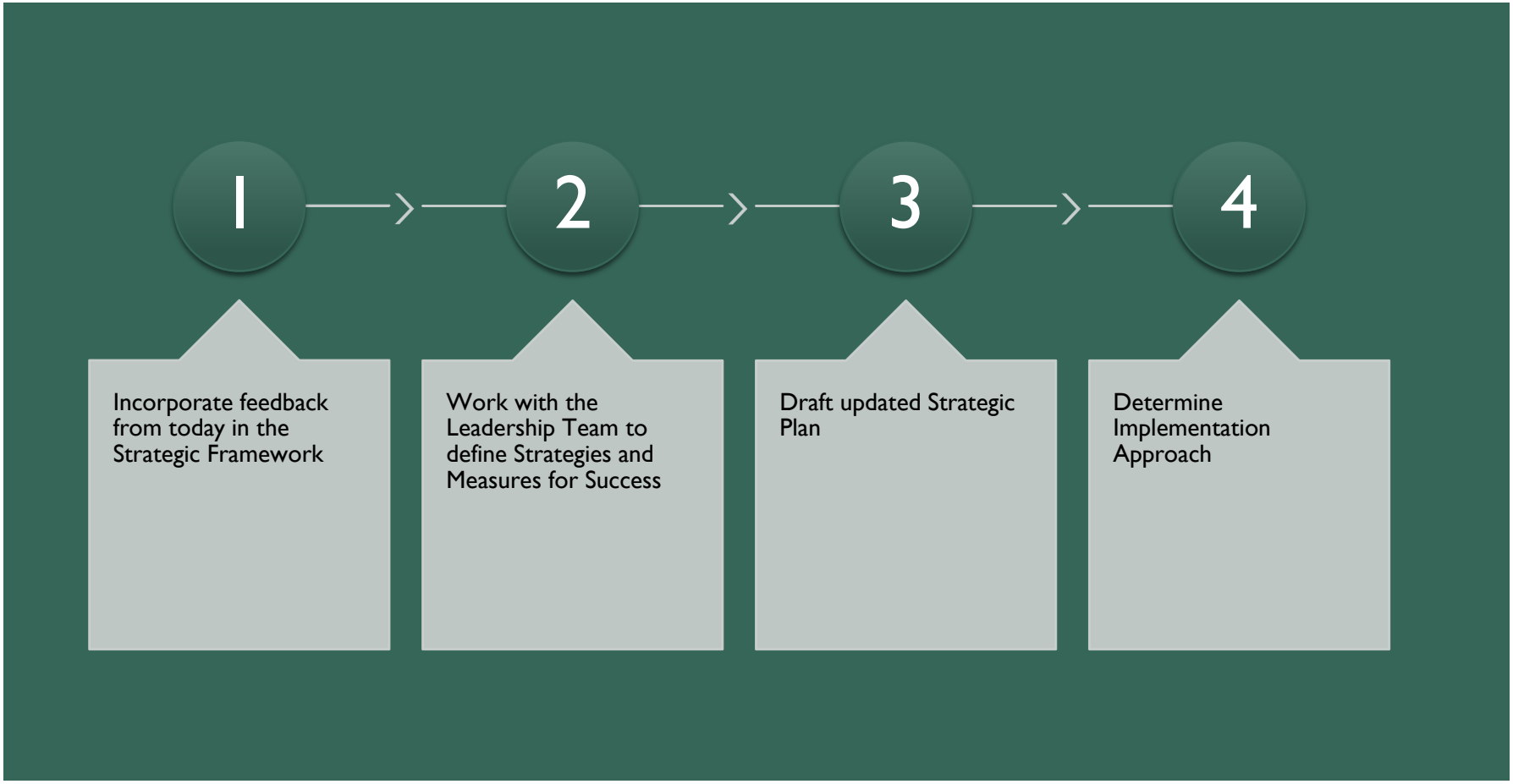
Workforce
(Attract, Develop, Retain)

Optimization & Resiliency
(Be Efficient, Leverage Technology, Risk Mitigation)

Planning & Infrastructure
(Long-Term View, CIP Delivery)

Stakeholder, Communications, Collaboration
(Elevate Brand and Awareness)

Environmental Stewardship
(A Strong Voice for Sustainability)


1
2
3
4
Incorporate feedback from today in the Strategic Framework
Work with the Leadership Team to define Strategies and Measures for Success
Draft updated Strategic Plan
Determine Implementation Approach

NEXT STEPS