RIVANNA
WATER & SEWER AUTHORITY

Board of Directors Meeting

January 25, 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: **January 25, 2022**

LOCATION: **Virtually via ZOOM**

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

AGENDA

1. ***CALL TO ORDER***
2. ***STATEMENT FROM THE CHAIR***
3. ***MINUTES OF PREVIOUS BOARD MEETING***
   a. *Minutes of Regular Board Meeting on December 14, 2021*
4. ***RECOGNITION***
5. ***EXECUTIVE DIRECTOR'S REPORT***
6. ***ITEMS FROM THE PUBLIC***
7. ***RESPONSES TO PUBLIC COMMENTS***
8. ***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. *Approval of Cost-of-Living Increase*
   f. *Contract Award - Crozet Interceptor System Odor Control – Evoqua Water Technologies, LLC*
   g. *Biosolids Transportation Contract Award*
   h. *Construction Change Order Authorization - Moores Creek AWRRF Lighting Improvements Project - Pyramid Electrical Contractors, LLC*

9. OTHER BUSINESS

a. Presentation: Central Water Line Project, Michelle Simpson, Sr. Civil Engineer

(reconvene RSWA for a JOINT SESSION with the RWSA)

b. Presentation: Classification and Compensation Study; Lonnie Wood, Director of Finance & Administration and Betsy Nemeth, Human Resources Manager

c. Presentation: Strategic Plan Update; Deborah Anama, Executive Assistant

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

10. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

11. CLOSED MEETING

12. 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." 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." 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" 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. May 20, 2020

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 January 25, 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 25, 2020, Albemarle County's Continuity of Government Ordinance adopted on April 15th, 2020, and revised effective October 1, 2020 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. Pinkston: Please state your full name and location.
Mr. Richardson: Please state your full name and location.
Mr. Sanders: Please state your full name and location.

And I am Mike Gaffney, located at _____.

Joining us today electronically are the follow Authority staff members:

Bill Mawyer, Lonnie Wood, David Tungate, Jennifer Whitaker, John Hull, Betsy Nemeth, Michelle Simpson, and Deborah Anama

We are also joined electronically by Valerie Long, counsel to the Authority.

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RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
December 14, 2021

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, December 14, 2021 at 2:15 p.m. via Zoom.

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

Board Members Absent: none.

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Deborah Anama, Betsy Nemeth, Victoria Fort, Scott Schiller, David Tungate, John Hull.

Attorney(s) Present: Carrie Stanton.

1. CALL TO ORDER
Mr. Gaffney called the December 14, 2021, regular meeting of the Rivanna Water and Sewer Authority to order at 2:16 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 December 14, 2021, 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 25, 2020, Albemarle County's Continuity of Government Ordinance adopted on April 15th, 2020, and revised effective October 1, 2020 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 Northwest in Charlottesville.

Mr. Gary O'Connell stated he was located at the ACSA offices at 168 Spotnap Road, Charlottesville.

Dr. Liz Palmer stated she was located at 2958 Mechum Banks Drive in Ivy.

Mr. Jeff Richardson stated he was located at the County Office Building at 401 McIntire Road in Charlottesville.

Mr. Samuel Sanders stated he was located at 605 East Main Street in Charlottesville.

Mr. Lloyd Snook stated he was located at 408 East Market Street in Charlottesville.

Mr. Mike Gaffney stated he was located at 449 Washington Street, Marco Island, Florida.

Mr. Gaffney stated the following Authority staff members were joining the meeting electronically: Bill Mawyer, Lonnie Wood, David Tungate, Victoria Fort, Deborah Anama, Betsy Nemeth, and Scott Schiller.

Mr. Gaffney stated they were also joined electronically by Ms. Carrie Stanton, Counsel to the Authority.

3. ACCEPTANCE OF RESIGNATION AND ELECTION OF SECRETARY-TREASURER

a. Chip Boyles, former City Manager, resigned from the Rivanna Boards on October 19, 2021. This election will be for the term ending April 30, 2022.

Mr. Gaffney stated there would not be an election for Secretary-Treasurer at this time and that this would be done in January. He stated a vote was not needed on this item, so if there were any comments, he would ask for those to be made but otherwise, they would move on to the next agenda item.

No comments were made.

4. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on November 16, 2021

Mr. Gaffney asked if there were any comments or changes to the minutes.

Dr. Palmer moved that the Board approve the minutes of the November 16, 2021 meeting. The motion was seconded by Mr. O'Connell and passed unanimously (7-0).

5. RECOGNITIONS

a. Resolution of Appreciation for Mr. Steven Miller

Mr. Gaffney read the resolution aloud:

"WHEREAS, Mr. Miller has served as an Information Technology Administrator for the Rivanna Water and Sewer Authority since April of 1999; and

"WHEREAS, over the same period in excess of 22 years, Mr. Miller has provided significant contributions in his field and served as a valuable resource to the Authority; and

"WHEREAS, Mr. Miller's dedication and loyalty to the Authority have positively impacted the Authority, its customers and its employees; and

"WHEREAS, the Board of Directors is most grateful for the professional and personal contributions Mr. Miller has provided to the Rivanna Water and Sewer Authority.

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

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

Dr. Palmer moved that the Board approve the resolution. The motion was seconded by Mr. O'Connell and passed unanimously (7-0).

b. Resolution of Appreciation for Dr. Liz Palmer

Mr. Gaffney noted that this was the joint resolution heard in November at the Rivanna Solid Waste Authority Board meeting, but it certainly deserved repeating.

Mr. Gaffney read the resolution aloud:

"WHEREAS, Dr. Palmer has served as a member of the Rivanna Solid Waste Authority and the Rivanna Water & Sewer Authority Boards of Directors since 2016; and

"WHEREAS, since 1998 Dr. Palmer has been an active and valuable contributor and has demonstrated leadership in solid waste, recycling, drinking water and wastewater services as a member of the community and as a member of the Boards of Directors; and

"WHEREAS, Dr. Palmer's understanding of solid waste and recycling as well as drinking water and sewer operations of Albemarle County and the Rivanna Authorities has supported a strategic decision-making process that provided benefits to the customers served by Albemarle County as well as the community as a whole. During Dr. Palmer's tenure and through her efforts, major projects were completed including:
- a modern refuse Transfer Station at the Ivy Material Utilization Center
- the first recycling and refuse Convenience Centers located at the Ivy MUC as well as in Keene
- a Community Water Supply Plan to ensure an adequate water supply for the next 50 years

- the regional “Wastewater Projects Cost Allocation Agreement”
- Odor Control Improvements at the Moores Creek Advanced Water Resource Recovery Facility
- Granular Activated Carbon Filters for the water treatment plants
- a Strategic Plan for both Authorities; and

“WHEREAS, the Solid Waste Authority and Water & Sewer Authority Boards of Directors are most grateful for the professional and personal contributions Dr. Palmer has provided to both Authorities and to the community.

“NOW, THEREFORE, BE IT RESOLVED that the Rivanna Solid Waste Authority and Rivanna Water & Sewer Authority Boards of Directors recognize, thank, and commend Dr. Palmer for her distinguished service, efforts, and achievements and present this Resolution as a token of esteem, with their best wishes in her future endeavors.

“BE IT FURTHER RESOLVED that this Resolution be entered upon both the permanent Minutes of the Rivanna Solid Waste Authority and the Rivanna Water & Sewer Authority.”

Mr. Snook moved that the Board approve the resolution. The motion was seconded by Mr. O’Connell and passed unanimously (7-0).

Mr. Gaffney thanked Dr. Palmer for all her efforts over the past 20-plus years in Water and Sewer and Solid Waste.

Dr. Palmer thanked Mr. Gaffney. She stated she plans to keep watching and has a personal goal to live long enough to see the Sugar Hollow Pipeline be commissioned. She stated she will continue to watch the water supply plan. She stated it has been a great learning experience, and she has met many wonderful people along the way. She stated she collaborated with a lot of people she disagreed with on a lot of other things. She expressed thoughts about some turbulent times and that she is happy that things are quieter now. She stated she hopes they are able to keep things running along smoothly and reasonably as they have over the last several years. She stated the Authority has grown a lot and is very impressive.

Mr. Gaffney agreed. He thanked Dr. Palmer for her help in those many years. He stated the board looks forward to seeing her and hopefully, they would be able to meet in person again when Dr. Palmer comes out to advocate and talk during public comment sections.

Dr. Palmer expressed her disappointment about not having her last meeting in person.

6. EXECUTIVE DIRECTOR’S REPORT

Mr. Mawyer stated the Authority was pleased to recognize Ms. Mary Rad Morris, who came to work for Water and Sewer in January of 2021 as an unlicensed water operator and has already completed the testing requirements to achieve her Water Operator Class II rank, which is next to highest (with Class I being next). He stated she was able to do so quickly because Ms. Morris has a master’s degree in chemistry from UVA, along with another bevy of bachelor’s degrees. He stated those degrees take the place of some of the experience requirements. He stated Ms. Morris is a star in the group, and they are pleased to have her. He congratulated her for achieving her

new license.

Mr. Mawyer stated the Authority continues to monitor COVID and vaccinations, and they did start to require weekly testing for unvaccinated employees last Tuesday. He stated today is the second week they are taking testing, which are self-administered tests where the swab is put in a tube and mailed, with results returned in two days. He stated they hope this program will continue to go positively.

Mr. Mawyer stated the Authority did put out a caution and requirement to its staff over the holidays that if they travel out of the country or have guests from out of the country (as he himself would), that they have a return-to-work plan to make sure the Omicron variant is not affecting any of that process. He stated they hope all of their employees have a nice holiday, but the Authority did have to put this requirement in place.

Mr. Mawyer stated that overall, the Authority still stands at about 89% of its staff being fully vaccinated.

Mr. Mawyer stated drinking water supply and drought are recent topics on television. He stated that when he wrote his update the prior week, all of the reservoirs (except Ragged Mountain) were 100% full. He stated that since then, over the last few days, Sugar Hollow dropped down below the top of the dam, and it is about 96% full. He stated they are transferring from Sugar Hollow to Ragged Mountain now to try to get Ragged full during the winter months. He stated they have about 78 million gallons to go, which they expect would be able to top off Ragged Mountain in about one month. He stated they plan to continue to transfer from Sugar Hollow and then, as they get some rain, Sugar Hollow typically will refill very quickly.

Mr. Mawyer stated the Authority is watching the statewide drought monitor report, which had put the area in a warning for low precipitation and a watch for stream flows. He stated groundwater levels and reservoir levels, however, are normal in Central Virginia. He stated they are still doing fairly well and much better than what one will see when watching the national news, as there are major drought issues in California. He stated California is going into their third year of a drought, and their second-largest reservoir (Lake Oroville) is currently at 30% capacity whereas normally, it is at 60%. He stated there are dire straits in Northern California which fortunately, RWSA does not have.

Mr. Mawyer stated the Authority has completed a draft of its upcoming FY 23-27 Capital Improvement Program, and they will meet with Mr. O'Connell and Ms. Hildebrand on January 7 to review the $200-million five-year Capital Construction Plan. He stated they will bring a final proposed plan to the board in February.

Mr. Mawyer stated they continue to monitor federal funding opportunities. He stated the Authority did submit six projects to Albemarle County, requesting consideration for some of the local fiscal recovery funds as a part of the American Rescue Plan Act. He stated their projects total about $7.2 million. He stated they do not expect the County to fund all of this, but they tried to give them a variety of water, wastewater, and sustainability projects they can consider.

Mr. Mawyer stated the Authority is also closely watching the Bipartisan Infrastructure Law of 2021, which passed in November. He stated they understand Virginia is getting $126.3 million in the first-year allocation, so the Authority is monitoring and looking for application forms to get its projects proposed for any and all of these federal funding opportunities.

Mr. Mawyer stated they continue to work on the Central Water Pipe, which is the project of a new finished waterline that would go significantly through the southern part of the City. He stated they did put together an information page that was posted to the Authority's website and that day, they added what they call the "Route Study" their consultant completed, which considers all of the routes they considered (northern, central, southern, and railroad routes) and all the criteria they used to evaluate those routes. He stated they plan to bring the proposed route to the RWSA Board in January for their review and any comment. He stated the information is now on the webpage for all to read.

Mr. Mawyer stated the Authority had planned to shut down Observatory Water Treatment Plant to work on the renovation during the Christmas break at UVA this year, but due to supply chain issues and getting materials they need at the South Rivanna Plant so that it could carry the entire urban system while Observatory was not operational, South Rivanna was not ready to take on the full load of the entire urban system. He stated therefore, they will delay the shutdown of the Observatory Treatment Plant until December 2022. He stated they do not expect this to have any major impact on the completion of the overall project, which was a renovation of both plants. He stated they appreciate the efforts of the one Engineering Manager, Mr. Scott Schiller, and his staff for managing the major project.

Mr. Mawyer stated the Authority continues to have success in gaining the easements for the Rivanna-to-Ragged Pipeline, which he mentioned earlier. He stated there was a map to show the board what easements had been obtained.

Mr. Mawyer stated a utility in Ashland, Kentucky requested to tour RWSA's wastewater treatment plant, as they are considering a similar wastewater process to that of RWSA. He stated the Authority was happy to host them for a tour.

Mr. Mawyer stated in the board's packet were pictures of the new signs at Totier Creek Reservoir and the North Fork Rivanna River Reservoir, which are "Drinking Water Protection Area" signs the Authority obtained through a grant from the Virginia Department of Health. He stated they also have similar signs at Beaver Creek Reservoir.

Mr. Mawyer concluded his report.

Mr. Gaffney asked if there were questions.

Dr. Palmer stated it was a shame that Mr. Mawyer could not bring up the map, as she was somewhat confused about the one private property that has not yet been acquired, which was noted to be on Barracks Road.

Mr. Mawyer stated the property is located between Barracks Road and Albemarle High School.

He stated Sugarday Farm is the property they are talking about. He stated the Authority is having intermittent communications with that owner.

Staff were able to present the map on the screen.

Dr. Palmer stated it now made more sense to her that it was Sugarday Farm, as she had previously been confused from the packet.

Mr. Mawyer stated they also have the property on Reservoir Road to get from the Regents School. He stated they did recently obtain easements on Woodburn Road from two private owners. He stated they are down to Sugarday Farm, two properties with the UVA Foundation that are shown in blue on the map, one private property at Regents School on Reservoir Road, and with UVA as it traverses around Observatory Mountain. He stated they did get the easement finalized with the Virginia Department of Forestry.

Dr. Palmer asked if the one for the UVA Foundation with the pump station on it is delayed because of identifying exactly where the pump station will go.

Mr. Mawyer stated this was somewhat the case. He stated UVA Foundation has explored several of their sites, and the Authority is working with them on several different locations and how the pump station would be sited. He stated they are making progress, but it seems as though it is inch by inch sometimes.

Dr. Palmer stated this was the case all the time.

7. ITEMS FROM THE PUBLIC

Mr. Gaffney opened the meeting to the public. He asked Mr. Hull if there were any members of the public who wished to speak.

Mr. Hull replied there was no one from the public who indicated that they wished to speak.

Mr. Gaffney closed Items from the Public.

8. RESPONSES TO PUBLIC COMMENT

Mr. Gaffney stated that as there were no items from the public, there were no responses.

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. Approval of Work Authorization for the Beaver Creek Raw Water Pump Station and Intake Project – Subsurface Investigation – Hazen and Sawyer Engineers

f. Approval of Property Transfer to Albemarle County Public Schools – Albemarle-Berkeley Wastewater Pump Station Storage Basin Site

Mr. Gaffney asked if there were any items Board members wanted to pull for comments or questions.

Mr. O'Connell asked if the work authorization with Hazen and Sawyer for the Beaver Creek Pump Station was the normal course of events.

Mr. Mawyer replied yes. He stated the Authority has a term contract with them, which allows the Authority to issue work authorizations, but he and staff can only issue up to $200,000 and above that, they need to come to the board. He stated it is just part of the normal process of doing the subsurface evaluation for the pump station and the intake structure on the west side of the reservoir, which is the site that the board looked at and concurred with (called "Site #1").

Dr. Palmer moved that the board approve the Consent Agenda. Mr. O'Connell seconded the motion, which passed unanimously (7-0).

10. OTHER BUSINESS

a. Presentation: Plan for Urban Utilities, Northern Areas; Bill Mawyer, Executive Director and Scott Schiller, Engineering Manager

Mr. Mawyer stated he and Mr. Schiller wanted to talk to the board about an important aspect of what they do. He stated they have a very positive and productive relationship with both the City's and County's Economic Development Authorities and Planning Departments, the Service Authority, UVA, and UVA Foundation. He stated this is very important as the community collectively plans for its growth. He stated there is a lot of talk and interest in zoning and those types of issues, but projects cannot proceed if the utilities are not available to them. He stated it is very important that they continue to have these relationships to provide the planning and coordination.

Mr. Mawyer stated recently, there has been discussion about projects on 29 North, around the UVA Research Park and otherwise. He stated he did not know if it was the federal dollars driving the interest (adding that this was a great thing), but he wanted to remind everyone that these projects have to be coordinated with the RWSA. He stated for RWSA and the Service Authority, there is a CIP they bring to the board every year that has a strategic and affordable approach to providing infrastructure and capacity for water and wastewater, for which he would mention a few of those projects.

Mr. Mawyer stated he wanted to emphasize this with the RWSA Board as well as with the Land Use and Environmental Planning Committee (LUEPC), where he would be meeting with them that Friday to give them the same discussion. He stated RWSA had the same discussion with the Service Authority, as they partner very closely with them, particularly on projects that are on 29 North.

Mr. Mawyer displayed a graphic to show the board the urban area served by RWSA. He stated the pink color on the map showed the urban area, which covers the entire City of Charlottesville and extends to the Greene County line on Route 29 North, across the South Rivanna River as well as the North Rivanna River.

Mr. Mawyer presented another map and stated similarly, the same area serves as the Urban Wastewater System, with the addition of Crozet. He stated Crozet wastewater is piped back to Moores Creek for treatment, and Crozet is part of the Urban Wastewater System, and as the expenses are allocated annually to the City and Service Authority, Crozet is included in that calculation. He stated the wastewater flow (shown in yellow) comes into the newer Rivanna Wastewater Pump Station, and the blue flow comes in through what they call the Moores Creek Wastewater Pump Station, with both flows treated at Moores Creek.

Mr. Mawyer stated that back in June of 2020, he gave a presentation to the RWSA Board that talked about available water supply versus demand. He stated this was a part of the 50-year projection of water availability in the community. He stated one of the primary charges is making sure there is adequate water in the community for 50 years in advance. He presented a graph, explaining the graph shows that in 2060, the water supply (at 13.7 million gallons per day (mgd)) would equal the water demand. He stated if the board would recall, the Ragged Mountain Dam project agreement says that they should start the pipeline when a demand is equal to 85% of the supply. He stated doing this calculation, this comes back to about 2035.

Mr. Mawyer stated the big picture is that as major development projects are considered in the community – whether at the Research Park (on the northern perimeter) or Emmet Street (which has a lot of ongoing development with UVA) – and as the City and County consider rezonings that will densify neighborhoods and create more demand, this has to be done in a collective matter with utilities to make sure they can serve those developments when they need to be served. He stated the Authority has a 10- to 15-year plan that Mr. Schiller would talk to the board about to accommodate that growth.

Dr. Palmer asked if she could ask a quick question about the Available Water Supply vs. Demand chart that was on the screen, for clarity. She asked if this available supply is the supply that is actually usable.

Mr. Mawyer stated this was correct. He stated last year, they called it the “operational yield,” which is slightly different than safe yield. He stated “safe yield” is a term that has to do with how much a reservoir can supply, but RWSA has coined the term “operational yield” because they not only have to supply the water, but they have to treat, distribute, and deliver it to faucets. He stated to say that they have a 50-mgd supply really has no purpose or value if they cannot get it to the faucets.

Mr. Mawyer stated the graph on the screen with the gray bars showed the operational yield as the RWSA has calculated it, as the combination of reservoir supply, treatment capacity, and piping distribution capacity – in other words, how much they can get to customers. He stated those were the numbers seen at the top of the gray bars.

Mr. Mawyer stated that in 2020, they had 12.8 mgd as an operational, available water supply. He stated that in 2023, this will increase to about 15 mgd with the completion of the Observatory Water Treatment Plant upgrade, which will make it fully capable of treating up to 10 mgd, along with South Rivanna WTP treating 12 mgd. He stated then, the Central Waterline kicks in that they need to be able to distribute the treated water from the plants to the faucets. He stated it is a triplicate of data points they integrate to come up with what they call the "operational yield."

Mr. Mawyer stated the green line on the graph is the demand that they estimate based on the projections they receive from the City, County, and UVA and how much water the community may need.

Mr. Snook asked why the operational yield declines decade over decade.

Mr. Mawyer replied that this is due to siltation of the reservoirs, which is why the yield starts going down on the gray bars. He stated siltation is predicted in the reservoirs and at one time, it was predicted they would lose 15 million gallons a year out of the South Rivanna Reservoir. He stated that when RWSA did the bathometric study a year or so ago, they did not find this to be true in recent history. He stated this is why they update the bathometric studies, which measure how much water is in the reservoir every 10 years to get better information. He stated this determines if a big storm washed in (or washed out) a lot of silt.

Mr. Mawyer stated that clearly over time, with farm ponds, erosion wants to fill the depression, and the same is true for the reservoirs. He stated the quantities at the top of the gray bars on the chart declined with the decades due to predicted siltation in the reservoirs.

Mr. Snook asked if a critical limiting factor, at that point, is the capacity of the reservoir. He stated it was clearly not the pipelines, as they saw a couple of slides later.

Mr. Mawyer replied that they combine two things: the capacity of the reservoirs as the water supply, and comparison to the demand as the community grows. He stated this is what the green line on the chart is predicting. He stated they cross at 2060, which is where available supply equals demand. He stated they want to make sure they have available water beyond that quantity well in advance of 2060 because when everyone turns on their faucets, everyone expects to have water come out. He stated this is why the Ragged Mountain agreement talks about putting the pipeline in place when the demand equaled 85% of the supply. He stated 85% is the threshold RWSA is working with, and Mr. Schiller would be speaking more about that.

Mr. Mawyer asked if there were other questions and heard none. He added that in 2020, the chart shows there is a demand of 10.4 mgd and a supply of 12.8 mgd. He stated the whole point of this discussion is if there is a major project coming in that says it needs 1.5 mgd, while the RWSA could meet the demand in theory, this would put them at almost 12 mgd and cut in half their contingency. He stated it would expedite the construction schedule Mr. Schiller would speak about regarding when they need to get the facilities in place to serve that type of additional demand to the system.

Mr. Schiller stated that over the next 10-15 years, there are a number of projects planned to allow RWSA to better supply water to the North Rivanna Pressure Zone as well as the Urban Pressure Zone. He stated initially, at least for the North Rivanna Pressure Zone, the most significant project is the Airport Road Pump Station and waterline construction project, which will be the primary source of water for the North Rivanna Pressure Zone as opposed to the North Rivanna Water Treatment Plant.

Mr. Schiller stated once this becomes the primary method of providing water, they want to make sure the components that connect this to the system are reliable, so they have a second river crossing scheduled for both the South Rivanna River and the North Rivanna River to make sure the single crossings do not become a bottleneck, should they have an incident with one of the waterlines.

Mr. Schiller stated that at that point, the Urban Pressure Zone will be the source of water for the North Rivanna Pressure Zone, so they want to make sure they have done some improvements in the Urban System to also make sure this is reliable. He stated as Mr. Mawyer mentioned, some major projects associated with this are the improvements to the Observatory Water Treatment Plant as well as the Central Waterline, which will help get the water out of the treatment plants and into the distribution system.

Mr. Schiller stated that from a long-term reliability standpoint, many of the raw water piping improvement projects include Ragged Mountain to Observatory Treatment Plant, the Raw Water Pump Station Waterline (which has begun design), and the transfer system that connects the South Rivanna Reservoir to the Ragged Mountain Reservoir. He stated these improvements will allow the Authority to more efficiently use the capacity contained within those two reservoirs and apply the safe yield to the treatment plant and the system that needs it.

Mr. Schiller stated once they have the Airport Road Pump Station constructed and the second South Rivanna River crossing in place, in coordination with the Service Authority, RWSA determined that at that point, they would feel secure with decommissioning the North Rivanna Water Treatment Plant with the intent of having a secure, reliable water supply to that system.

Mr. Schiller stated as demand increases throughout the system, there are a few other miscellaneous improvements related to some of the pump stations and storage tank sites. He stated that over the next 10 to 15 years, these are the main projects they have programmed in to make sure they have a reliable source of water for both northern pressure zones.

Mr. Schiller stated the chart presented on the screen relates back to the one Mr. Mawyer showed previously, where the blue line is the safe yield and the green line is the demand. He stated as they approach 2035, they begin to hit the 80-85% criteria that is established in the agreement. He stated that at this point, their plan would be to have both the South Rivanna Reservoir to Ragged Mountain Reservoir transfer system in place and to also have increased the pool level of the Ragged Mountain Reservoir which, as seen on the chart, gives a significant increase in operational safe yield.

Mr. Schiller stated based on the siltation process and the current anticipated demand, they would

have an adequate water supply until 2120.

Mr. Schiller stated that as Mr. Mawyer mentioned, they do not want supply to meet demand right at 85%, so they want to beat this somewhat to make sure they have accounted for a factor of safety, which is why they have the 80-85% criteria set up.

Mr. Schiller stated the next slide provided charts showing what can happen if they add additional demand beyond what is planned for. He stated as seen on the last chart, they were at roughly 80% in 2035, so as additional demand is added to the system, the percentage begins to increase faster than previously planned for. He stated at 0.5 a mgd, they end up at 82.5% of system capacity. He stated at 1 mgd, they will have already exceeded 85% (to 86%) in 2035. He stated at 1.5 mgd, they are at 86% in 2030, and should they have projects which increase the demand all the way up to 2 mgd, they would find themselves in excess of 85% of system capacity 2025. He stated they begin to significantly increase the schedule at which those projects would have to occur to make sure they have the supply when it is required.

Mr. Schiller stated he wanted to show the impact overall to the system, adding that one-half an mgd is not that unusual when it comes to some of the larger developments being discussed.

Mr. Schiller stated as a general summary, RWSA has been working with ACSA and the City to have a plan to systematically improve the drinking water infrastructure in both the North Rivanna Pressure Zone and the Urban Pressure Zone over the next 10 to 15 years. He stated Mr. Mawyer had showed a map of the sewer infrastructure as well, and they did a study on the sewer system back in 2016, which identified that many of the major improvements were not really required, at least in the Northern Albemarle area, until the 2050-2060 timeframe. He stated should there be additional sewer demand, this could advance some of those improvements as well.

Mr. Schiller stressed the importance of making sure that any future projects with additional significant utility demands are properly coordinated with infrastructure planning schedules to make sure they can get water to people when they need it. He asked the board if there were questions.

Dr. Palmer stated she had a question, adding that she was having technical issues. She asked about the status of Phase 2 of the pre-treatment study for the South Fork to Ragged Mountain Reservoir.

Mr. Schiller replied that as far as the pre-treatment study of South Rivanna to Ragged Mountain, they are at the point of doing the first phase of the modeling, which is more of a desktop, one-dimensional study where they are looking at the impacts of transferring up to 25 mgd out of South Rivanna and sending it to the Ragged Mountain Reservoir, to see what the impact of phosphorus is on that reservoir over a period of time.

Mr. Schiller stated they have finalized some scenarios that need to be analyzed in that model, with the intent of a big-picture analysis or complete-mix scenario where they are not controlling it, but trying to see what the worst-case scenario is as far as the phosphorus impact to Ragged

Mountain so they can see what this is before they progress with a more significant two-dimensional model, where they will get more into the transport of phosphorus within the reservoir and areas where they might be able to sequester it so that it is not leaked out as frequently for turnover, hypolimnetic systems, etc. He stated they are in the middle of the first phase of the modeling process.

Dr. Palmer stated she thought she saw in the board materials that the second phase started in June of 2021.

Mr. Schiller clarified that they are in the first phase of the modeling, which is in the second phase of the program.

Mr. Gaffney asked the board if there were any other questions for Mr. Mawyer or Mr. Schiller on the urban utilities.

Mr. Snook stated he had one question. He stated they have estimates of continued population growth of roughly 1% per year going into the future for some time. He asked if the only thing they are doing is providing household water for another 1,500 to 2,000 people per year, what this does to the demand for water.

Mr. Schiller replied they have gone through a number of population and flow projection analyses, and they went through one just recently for some of the safe yield information that Mr. Mawyer had just showed as well as the demand projections. He stated this accounted for not only residential growth, but also commercial and industrial, based on known developments and buildout capabilities within currently zoned locations in both the City and the Service Authority's distribution area. He stated he believed this had all been taken into account when looking at those demand projections.

Mr. Snook stated the reason he was asking was although he was not trying to question the data from the Weldon Cooper center, they have given very different estimates over the last couple of years. He stated he was not quite sure he knew what he thought would really be happening. He stated he does think it is likely they will see this growth of a couple thousand people a year (from 1%, up to about 2%) in Albemarle County. He stated Mr. Schiller had talked about what it meant if they had 0.5 mgd more a day and 1 mgd. He asked if there is a rule of thumb of how many people equal how much demand for water.

Mr. Schiller replied yes. He stated one could take a certain population projection and show what the unit increase in demand would be. He stated he would have to look back to some of the numbers to better determine what that is. He stated it is based off per capita use, which is how they are coming up with the values.

Mr. Schiller stated as far as how it tracks, he is not a population prognosticator, so he prefers to deal with the subject of water going in and out of pipes. He stated they generally do work off the Weldon Cooper information as well as the information provided by various planning agencies of both the City and the County. He stated they look at the Weldon Cooper information as well as how they have seen things progress in the past, and how they think it will progress in the future.

Mr. Mawyer told Mr. Snook that the Virginia Department of Health has requirements on how many gallons per person for different types of facilities (e.g., hotels, residential) as a guide. He stated they specify 100 gallons per person per day, so when RWSA gets the population projections from various sources (City Planning, County Planning, and UVA) on how they will grow, they can take and objectively convert that into a quantity of water.

Mr. Mawyer stated if a community is able to prove that the VDH estimate is too high or too low by its historical usage, then many times the Health Department will allow localities to use their own data. He stated in June of 2020, the per-capita usage in the community had reduced from 110 gallons per person per day down to almost 60 gallons per person per day. He stated between those two numbers of 100 and 60 gallons per person is what RWSA would use to estimate increased water demand based on the population increase predicted.

Mr. Mawyer expressed that things become more involved when, for example, UVA staff says they will increase the student population, but they will continue to decrease the per-capita usage until the year 2035, when they predict their efficiency methods are going to be overcome by the sheer quantity increase. He stated RWSA took what UVA gave them for their projections, which resulted in the curve that he showed the board. He stated this is one reason they do the update every ten years, to see how well these projections are tracking, to see if UVA's usage is going down per capita, if the City's and County's usage continues to go down, or if the plumbing code requirements for efficient fixtures and similar changes essentially maxed out the efficiency, resulting in a rising demand because the number of people is increasing.

Mr. O'Connell stated the ten-year update in the Water Supply Plan is a check of what Mr. Snook was talking about of missing some part, whether it is development being faster or slower (depending on what is happening with the economy or population projections) is off, or it is the density projected by the Planning Departments' changes over time. He stated looking at this every ten years gives them the ability to readjust from what has actually happened.

Mr. Mawyer agreed. He stated they would not debate the data predicted by other organizations, but they will do a check in ten years to see whether the data are holding true.

Mr. Snook stated the important thing from all of this is it sounds like if they are adding 1-2% to the population every year, this would work out to about a 0.1-0.2 mgd per year. He stated he was trying to get a sense of the order of magnitude of what some of the pressures might be. He stated if it turns off they are a little off on the population growth, it will not be a fatal problem – at least not before they can correct for it.

Mr. Mawyer stated this was correct. He stated this is why they use the 85% criteria. He stated they do not want to go right to the point where they are running out of water before they build the infrastructure to supply the water capacity needed, so they are using 85% as the standard criteria. He stated the Health Department uses this quite a bit because when the wastewater plant starts receiving 85% of capacity to treat wastewater, for example, this is when the Health Department tells RWSA they need to start planning, designing, and building to increase the capacity once they get to the 85% level. He stated this is a fairly common threshold.

Dr. Palmer stated she had one more question. She stated UVA has obviously been doing a tremendous amount of work on their buildings over the last several years with heating, cooling, and reducing the water needs of the buildings. She asked how these numbers are showing up in the demand, or if they are big enough to show up.

Mr. Mawyer replied that he could not quote any of the numbers, but he would say that one of the key components to UVA's strategy to reducing the per-capita water demand is in their HVAC system and how much water they use with cooling towers and other mechanical equipment. He stated shower heads, low-flow toilets, and other improvements have basically been maxed out, and now they are having to look for other ways to reduce the per-capita usage. He stated they have to find another avenue to make those improvements such as in the HVAC systems, and UVA has done a lot in trying to economize that equipment.

Mr. Mawyer stated this is the key to UVA's strategy to having a lower per capita water demand, even though they are adding 200,000 square feet and hundreds of students every year, along with staff. He stated UVA is the City's single-largest user of water in the whole community. He stated UVA's changes can have a major increase to the overall community demand. He stated they work with RWSA to foretell these projects, but with the development at Emmet Street and Ivy Road, and with the proposed 1,500 housing units, RWSA needs to know about these projects well in advance so that they can integrate those demands into their infrastructure plans and CIP.

Mr. Mawyer stated the whole point of this discussion is to refresh the board's thinking and remind them that utilities are a part of the community's growth equation. He stated it is more than just the politics and zoning, the utilities have to be available for a project to be feasible. He stated they heard what ended up not being true a few months ago, it was stated that there is a project coming to 29 North which needs 2 mgd. He stated this tended to spur this discussion and while it did not turn out to be correct, when the community currently uses 10 mgd and if a single project needed 2 mgd, it would be a 20% increase and huge stress on the infrastructure, and it could put them in a position for RWSA to say that they cannot supply water and sewer at that level. He stated they do not want to have to do that.

Ms. Hildebrand added that the proposed strategy by UVA is still yet to come and it is not in place yet. She stated this is being monitored.

b. Presentation: Dam Safety Program Overview; Victoria Fort, Senior Civil Engineer

Ms. Victoria Fort, Dam Safety Program Coordinator, stated she would discuss the importance of dam safety and give an overview of the Dam Safety Program.

Ms. Fort stated a dam or impounding structure is a manmade structure and its appurtenant works that retain or store waters or other materials. She stated these enable the storage of water for drinking water, hydroelectric generation, flood control, and recreation. She stated they can also improve wildlife habitat and provide food for migratory birds.

Ms. Fort stated all dams in Virginia are subject to the VDCR dam safety regulations except for

small dams or lakes; any dams that are owned or licensed by the federal government; and any dams that are operated for mining, agriculture, or canals. She stated these regulations provide for proper and safe design, construction, operation, and maintenance of dams to promote public safety.

Ms. Fort stated that while they understand that dams should be well-maintained and safely operated, it becomes apparent when these dam failures are covered in the news just how huge the impact of these dam failures can be, both on public safety and health, as well as from a financial perspective. She stated just last year, they heard about the failures of the Edenville and Sanford dams in Central Michigan, which resulted in flash flooding, the destruction of over 2,500 properties, and over $250 million in damage. She stated luckily, they were able to evacuate about 11,000 residents from their homes, so they were able to prevent any loss of life from that event.

Ms. Fort stated similarly, in 2017, the Oroville Dam in California which, ironically, Mr. Mawyer mentioned earlier is currently experiencing a drought, was not the case in 2017 when they had some significant rains early in the year, which caused rising flood waters to overtop the dam's emergency spillway and caused substantial damage to the dam's concrete primary spillway, as shown in the picture on the screen. She stated luckily, a breach of that dam was avoided when the flood waters receded, but the dam required repairs in excess of $1.1 billion.

Ms. Fort stated one last example was closer to home. She stated that in 2018, the College Lake Dam in Lynchburg, Virginia overtopped following a six-inch rain event, which caused damage to the road that traversed the dam as well as to the embankment. She stated thankfully, downstream areas were evacuated, and the dam itself did not breach. She stated it has since been determined, however, that the dam would be removed rather than rehabilitated, and the bridge that crosses it will need to be relocated downstream at a fairly substantial cost to that community.

Ms. Fort stated with that context, she would cover the major components of the Dam Safety Program. She stated this program is fairly broad and involves a lot of staff time and resources. She stated the major components of the program include permitting and regulatory compliance; Emergency Action Plan updates, distribution, and training; annual staff training; dam emergency practice exercises; maintenance and vegetation control; repairs and upgrades to the dams and related structures; installation and maintenance of public safety features which can include, for example, fencing, signage, and buoys; preparation of studies and reports; regular (monthly and annual) inspections and surveys of the dams, and regular surveys of the reservoirs; regular monitoring; and operations.

Ms. Fort stated dam safety emergencies are very low-probability events, but since they have the potential for extremely high impact, they are designed with a very high level of conservatism to minimize the potential for failure. She stated potential causes of dam emergencies include rainfall in excess of the dam's design, material failure, vandalism, terrorism, and accidents.

Ms. Fort stated to put this all in context to talk about how the Authority's dams are classified, the state has a system for classifying dams according to their hazard potential. She stated hazard potential is assigned according to the severity of consequences from the failure or maloperation of the dam. She stated it does not reflect the physical condition of the dam. She stated if a high-

hazard dam were to fail, it would likely cause loss of life and severe economic damage, whereas a low-hazard dam's failure would not likely lead to any loss of life or significant economic damage.

Ms. Fort stated the hazard classification of a dam dictates its design criteria and the required capacity of the spillway, which comes into play when talking about a few of the Authority's dams in the presentation.

Ms. Fort stated another term the board may hear when talking about dam safety is the "probably maximal precipitation," or PMP. She stated this refers to the theoretically greatest amount of rainfall that would occur in a given watershed. She stated this is relevant because dams with a high hazard potential (which several of their dams are) must be designed to withstand the flooding from a PMP rainfall event. She stated this flooding is also referred to as the "probable maximum flood," or PMF.

Ms. Fort presented a graph of rainfall for the Sugar Hollow Dam. She stated to give a sense of how extreme a PMP rainfall event is, a two-year storm would produce just under four inches of rain in a 24-hour period. She stated a 100-year storm would produce over nine inches of rain in that same 24-hour period. She stated when talking about a PMP rainfall, the theoretical greatest rainfall one could expect in a watershed, this represents about 34 inches of rain in a 24-hour period, which is significant. She noted the PMP rainfall event is different for every watershed, so each one of the dams has a different PMP rainfall event it needs to be designed for, which range from 23 to 34 inches.

Ms. Fort stated while this sounds fairly improbable, there have been two reported incidences of PMP rainfall in the United States – once in Colorado in 1935, and in Pennsylvania in 1942. She stated more recently, in 2017, Hurricane Harvey produced rainfall in excess of 90% of the PMP over a 72-hour period.

Ms. Fort stated as the board might recall, in Central Virginia, they have seen their fair share of fairly extreme rainfall events including Hurricane Camille, which produced over 27 inches of rain overnight back in 1969, which represents over 81% of the probable maximum precipitation. She stated in 1995, in Madison County, there was a storm that produced between 25 and 30 inches of rain in about 16 hours, which was about 86% of the PMP. She stated while these storms seem rare, they are possible, and the dams need to be designed to handle these extremely large storm events.

Ms. Fort stated the Authority currently operates six regulated dams. She stated four of these (which include the Sugar Hollow Dam, South Fork Rivanna Dam, Beaver Creek Dam, and Ragged Mountain Dam) are classified as high-hazard dams. She stated the Totier Creek Dam in Scottsville and the Lickinghole Creek Dam in Crozet are two low-hazard dams. She stated they also operate several small dams, which are unregulated due to their size and include low head dams at the North Rivanna Water Treatment Plant and on the Mechums River just west of town. She stated there is also a small pond dam at the Ivy Material Utilization Center, which is actually owned by the Solid Waste Authority. She stated there is an unnamed dam on the Buck Mountain property.

Ms. Fort stated some other dams in the region the board may be familiar with that are not operated by RWSA include state dams like Lake Albemarle, private dams like Key West and Clover Lake, County dams like Walnut Creek Lake and Chris Greene, and Lake Anna (which is operated by Dominion Power).

Ms. Fort stated she would give more information on all of the RWSA's regulated dam facilities. She stated the South Rivanna Dam is currently a federally regulated dam, which is due to the presence of a hydropower facility. She stated the dam itself was built in 1965, and the hydropower facility was built in the 1980s. She stated the hydropower facility is set for decommissioning in 2022, at which point the dam will revert to state regulation. She stated it is a concrete gravity dam measuring 700 feet long and 47 feet tall.

Ms. Fort stated the Ragged Mountain Dam was built between 2012 and 2014, and it replaced two historical dams upstream that were built in 1885 and 1908. She stated it is an earth filled dam that measures 785 feet long and 125 feet tall.

Ms. Fort stated the Sugar Hollow Dam was originally built in 1948, then underwent major upgrades in the late 1990s, which included the installation of the rubber crest gate. She stated this followed massive flooding in Madison County that caused some damage to the dam facilities and required an update to the gate system on the crest. She stated it is a concrete gravity dam that measures 77 feet tall. She stated the rubber gate was just recently replaced in 2021 as it had reached the end of its useful life.

Ms. Fort stated the last high-hazard dam is Beaver Creek Dam, which was built in 1963 as a flood control and water supply reservoir. She stated it is an earthfill dam that measures 60 feet tall. She stated the site also serves as a County park. She stated Browns Gap Turnpike runs along the crest of the dam, as seen in the photo on the slide. She stated the dam is currently undergoing a planning study funded by the Natural Resources Conservation Service (NRCS) for necessary upgrades to its spillway. She stated it was reclassified in 2012 from a significant hazard dam to a high-hazard dam. She stated when it was built in the 1960s, it was only meant to pass about 60% of the probable maximum precipitation, and RWSA is now doing a study to determine how the spillway needs to be reconfigured in order to pass the full PMP rainfall.

Ms. Fort stated the last two dams are low-hazard dams, which are the Totier Creek Dam in Scottsville and Lickinghole Creek Dam in Crozet. She stated Totier Creek Dam was built in 1971 and measures 35 feet tall. She stated this area serves as another County park. She stated the Lickinghole Creek Dam was built in 1995 and is a concrete dam measuring 32 feet tall. She stated this is a sediment storage basin for the South Rivanna Reservoir. She stated Lickinghole Creek Dam is the only regulated dam in RWSA's system that does not provide water supply storage.

Ms. Fort stated RWSA plans for emergency situations through its Dam Safety Program policies, internal training, good design, and round-the-clock maintenance and monitoring. She stated they keep emergency action plans for their four high-hazard dams to allow for the coordination with emergency response and planning agencies in the event of an emergency. She stated RWSA also

trains its staff every year and performs drills on at least an annual basis. She stated they maintain signage, fencing, and other features in order to promote public safety around the dams.

Ms. Fort stated in closing, she wanted to provide more information on emergency action planning since some board members are EAP plan holders. She stated these plans provide a set of preplanned actions that minimize or alleviate emergency conditions at a dam during an emergency or large rainfall event. She stated these contain procedures and information that assists in issuing notifications in order to minimize the loss of life and property damage during a dam-related emergency. She stated these plans require coordination with outside agencies which include the Virginia Department of Emergency Management, public safety agencies such as police and fire rescue, local government, and the Department of Transportation.

Ms. Fort stated RWSA's responsibilities under the EAPs are to assess the emergency conditions at the dam, then report it out to the emergency management agencies. She stated they are also responsible for taking corrective actions at the facility, so they may decide to release water to take pressure off the dam or make emergency repairs. She stated the local Emergency Communications Center and local government are responsible for notifying the public of what the dangers are, coordinating evacuations as needed, and allocating the necessary resources to handle the emergency.

Ms. Fort stated there is a lot in EAPs, but she would touch on two components quickly. She stated each EAP binder (there is one for each of the four high-hazard dams) contains three different notification charts for different failure scenarios. She stated these scenarios indicate whether there is a risk of imminent failure, a possibility of a developing failure situation, or if there is a nonemergency failure, which essentially would mean a large rain event, which would cause severe flooding but not necessarily a failure of the dam.

Ms. Fort stated each flowchart outlines the contacts that are necessary to notify in order to deploy the resources to deal with the appropriate level of emergency. She stated that for each of the scenarios, there are three different alert stages, and it outlines who needs to be calling which individuals in order to deploy those resources.

Ms. Fort stated lastly, another important component of the EAPs are the inundation maps, which show areas that would flood. She stated most of the maps show failure and non-failure scenarios and the impacts of failure during a dry weather event (called a "sunny day breach" of the dam) or during a large rain event. She stated if there is a huge PMP rainfall, they will have a lot of flooding and if the dam breaches on top of that, it will be extensive.

Ms. Fort stated the maps show the different scenarios and flood areas, and they allow staff and outside agencies to identify the evacuation areas and any of the critical road crossings that they may need to close in order to protect the public in the event of a failure.

Mr. Mawyer stated the map was for Ragged Mountain and shows Interstate 64 inundated if the Ragged Mountain Dam would failure.

Ms. Fort replied yes. She stated all of the maps have those callouts (in slightly different color

schemes) that show major intersections – whether roads or railroad crossings – and they call out the time of arrival of the flood wave and the maximum flood elevation. She stated this gives the Authority the ability to plan out how much time they have to react at different places along the flood path.

Dr. Palmer asked if it did actually top I-64 there. She stated she knew it would to the bypass, but she wondered if it would actually go up high enough to go over I-64.

Ms. Fort replied that according to the inundation modeling, it would. She stated both the South Fork Rivanna Dam and the Ragged Mountain Dam, if they were to fail, would flood significant amounts of the central part of the City, which is why RWSA takes this so seriously and why it is so important.

Ms. Fort stated she would answer any other questions.

Dr. Palmer stated she had a couple of questions. She stated that in 1995, when the Madison flood happened, there was significant flooding at Sugar Hollow. She stated luckily, there was no loss of life there and no dam failure, but there was a reasonable amount of property damage. She asked Ms. Fort if she had the numbers on that. She stated she could not recall but believed it was 24 inches in 16 hours.

Ms. Fort replied that she did not know exactly what the rainfall was at the dam, but she did find that in Madison County, there was somewhere between 25 and 30 inches of rain in a single day.

Dr. Palmer stated there were two storms that came together and as she remembered, it was a little less in Sugar Hollow. She stated her other question was about agricultural dams. She stated she knows RWSA does not have much to do with them, but the area has a lot of agricultural lakes and dams, and some people tell her that they are regulated. She asked Ms. Fort if she had any information on how they are regulated, though obviously, they are not regulated as the RWSA's dams are. She asked how this works and what the definition is of an "agricultural dam." She asked if it is on rural land.

Ms. Fort replied that this is dictated by the Department of Conservation and Recreation, and she did not know that she was well versed on what the requirements are to be exempt from state regulation. She stated it has to do with the size, so if they exceed a certain size (whether or not they are used for agricultural reasons), they will still fall under the same regulations as RWSA dams that are regulated by the state. She stated if they fall below the size criteria, and they can be shown to be used for specifically agricultural purposes (e.g., irrigation), one must show a certain amount of revenue, and perhaps land use factors in as well. She stated the state regulations would speak to that more specifically.

11. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

There were no other items presented.

12. CLOSED MEETING

There was no reason for a closed meeting.

13. ADJOURNMENT

At 3:32 p.m., Mr. Snook moved to adjourn the meeting of the Rivanna Water and Sewer Authority. Dr. Palmer seconded the motion, which passed unanimously (7-0).

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: **JANUARY 25, 2022**

STRATEGIC PLAN GOAL: WORKFORCE DEVELOPMENT

Recognitions

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

Tony Fusco - CDL Class A Driver's License
Josh Powell - CDL Class A Driver's License
Jodi Schwake – Class I Water License

Staff Training

Several years ago, the Maintenance Department, with support from the Human Resources Manager, decided to promote and encourage on-going mechanic staff education and certification through the Virginia Department of Labor & Industry's Registered Apprenticeship Program. RWSA is a registered sponsor for the Maintenance Mechanic Apprenticeship and the HVAC Mechanic Apprenticeship Program. By encouraging this training, staff enhance the level of knowledge and understanding they bring to their daily work. Additionally, this allows employees to advance professionally and obtain certification. Lastly, the program ultimately provides cost savings to the Authority as outside contracting of these advanced skill sets is very costly. While RWSA pays for the educational classes listed below, the mechanics attend the classes on their own time.

The following staff are currently enrolled in the Apprenticeship Program (program and current class listed):

- Josh Powell (Maintenance Mechanic program) – currently taking Industrial Pneumatics
- Tyrone Hughes (HVAC Mechanic program) – currently taking AC & Refrigeration 2
- David Jefferies (HVAC Mechanic program) – currently taking AC & Refrigeration 2
- Matt Walker (Maintenance Mechanic program) - currently taking Industrial Pneumatics

- Blake Shifflett (HVAC Mechanic program) – currently taking Industrial Drive Components
- Steve Minnis (Maintenance Mechanic program) – currently taking Industrial Pneumatics & Basic Electrical Wiring
- Tony Fusco (Maintenance Mechanic program) - currently taking PLC Intro To Programmable Logic
- Richard McElfresh (Maintenance Mechanic program) – currently taking Basic Electrical Wiring

Additionally, Brian Baird is a registered Master Electrician and Kenny Lawhorne is a Journeyman Maintenance Mechanic.

Overview of Program:

An apprenticeship lasts for 4 years. Once all requirements of the apprenticeship are fulfilled by the employee, they become a journeyman. The requirements of the apprenticeship are:

1. **8,000 hours of on-the-job training** –Each year of employment with a sponsor counts for 2000 hours of on-the-job learning (OJL).
2. **576 hours of classroom time** or related training instruction (RTI) (144 hours per year). This can be courses at a variety of schools like Valley VoTech, CATEC, PVCC, etc. An average Valley VoTech class is 72 hours, so 2 classes per year.
3. Credit can be given for time already worked.
4. Employee and Employer must complete a registration form and send it in.
5. When an employee has fulfilled all of the requirements of the apprenticeship, they notify DOLI – our registered apprentice representative. We sign off on the work hours and DOLI can pull the credits from any tech school. If an employee uses PVCC or any other community college, they submit a transcript to DOLI.

STRATEGIC PLAN GOAL: OPERATIONAL OPTIMIZATION

Drinking Water Supply

Our reservoirs are 100% full. While 2021 ended with a 7.79" deficit for precipitation, recent storms have 2022 off to a wet start. We will continue to monitor local and statewide conditions.

Charlottesville Precipitation (inches)	
Total For the Year 2021	33.82
Normal for the Year	41.61
Departure from normal	7.79

National Weather Service, National Climatic Data Center (NCDC). Daily Climatological Report for Charlottesville, VA.

STRATEGIC PLAN GOAL: INFRASTRUCTURE AND MASTER PLANNING

FY 2023 – 2027 Capital Improvement Program

We completed a review of the proposed 5-year CIP totaling $205.1 M with the Board's Subcommittee (City and ACSA) in January. The proposed CIP will be presented to the Board in February.

S. Rivanna to Ragged Mtn Reservoir Water Pipe

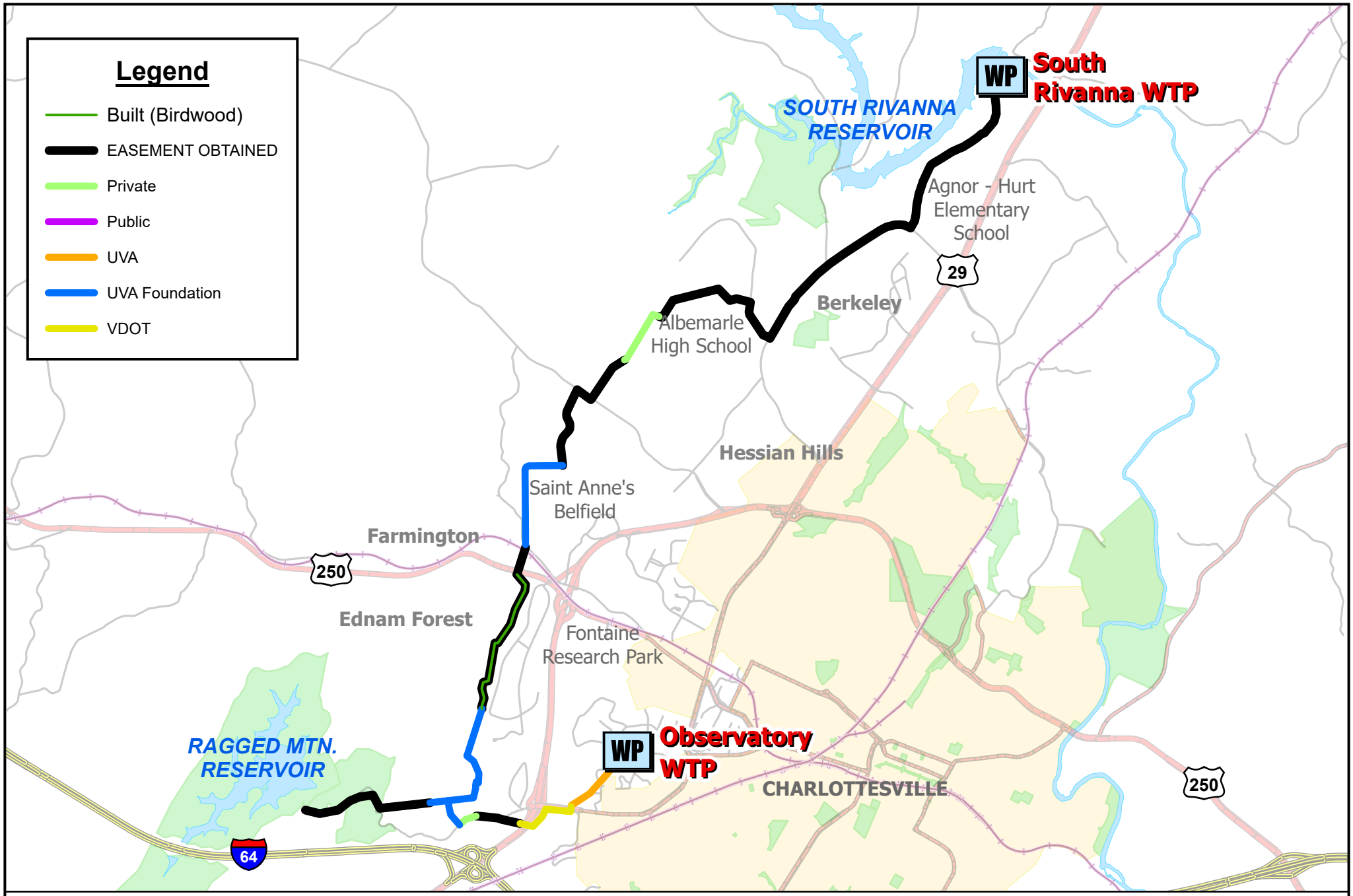
Easements and agreements (VDOT) have been obtained from all parties along the route except from 1 private owner near Barracks Road and from the UVA Foundation for 2 properties, as shown by the attached map. Preparation of engineering plans and specifications continue for a 0.25-mile section of this 36" raw water pipe from Birdwood to Old Garth Road to be constructed in 2022 - 2023.

Exterior Lighting Project, Moores Creek

This project was substantially completed when we determined the light levels around the aeration basins were too high. After further investigation with our consultant, it was determined that the fixtures were not in compliance with our lighting requirements. Replacement fixtures are currently under review with the Albemarle Zoning Department. Due to the uncertainties with material deliveries, we expect the new fixtures to be installed in 3 – 6 months. We will turn-off some of the lights around the aeration basins, until the replacement fixtures are installed, to reduce light levels which may impact the adjacent neighborhood.

STRATEGIC PLAN GOAL: ENVIRONMENTAL STEWARDSHIP, COMMUNICATION & COLLABORATION

Quarterly update reports and presentations to City Council and the Albemarle Board of Supervisors were provided this month.



Preliminary South Rivanna Reservoir to Ragged Mountain Reservoir Water Line

N

Miles
0 0.25 0.5

RIVANNA WATER & SEWER AUTHORITY

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

Date: 12/8/2021

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

REVIEWED: **BILL MAWYER, EXECUTIVE DIRECTOR**

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

DATE: **JANUARY 25, 2022**

Urban Water flows and rate revenues are 12% over budget estimates through November, and Urban Wastewater flows and rate revenues are 1.7% over budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 3,857,482	$ 4,020,962	$ 973,706	$ 8,852,150
Expenses	(3,461,242)	(3,721,275)	(1,018,451)	(8,200,968)
Surplus (deficit)	$ 396,240	$ 299,687	$ (44,745)	$ 651,182
Debt Service				
Revenues	$ 3,187,935	$ 3,692,778	$ 836,880	$ 7,717,593
Expenses	(3,190,191)	(3,631,543)	(837,330)	(7,659,064)
Surplus (deficit)	$ (2,256)	$ 61,235	$ (450)	$ 58,529
Total				
Revenues	$ 7,045,417	$ 7,713,740	$ 1,810,586	$ 16,569,743
Expenses	(6,651,433)	(7,352,818)	(1,855,781)	(15,860,032)
Surplus (deficit)	$ 393,984	$ 360,922	$ (45,195)	$ 709,711

When reviewing the Authority as a whole, operating revenues are $538,000 over budget and operating expenses are $158,000 under 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 Water – page 2) – Urban Water's salaries were a little higher than budgeted for July and August due to some overlap of salaries for the outgoing water department manager and the interim manager, but this is offset by overbudgeted health insurance costs, so total personnel costs are under budget.
C. Professional Services (Crozet Water, Glenmore Wastewater – pages 3, 6) – Crozet Water incurred unbudgeted engineering and technical services expenses for a water demand forecast update. Glenmore Wastewater engaged an engineering firm to perform a needs evaluation for Glenmore WRRF, which is an unbudgeted cost.
D. Information Technology (Urban Water, Scottsville Water, Urban Wastewater – pages 2, 4, and 5) – These rate centers are over budget on SCADA maintenance and support costs.
E. Operations & Maintenance (Urban Water, Scottsville Water, Scottsville Wastewater – pages 2, 4, and 7) – Urban Water and Scottsville Water each purchased a GAC carbon exchange for $85,600 and $18,120, respectively, which pushes Chemical costs over the prorated budget. Crozet Water is over budget for Beaver Creek Watershed signs and utility easement clearing costs. We will be reimbursed by a grant from the State for the watershed sign costs. Scottsville Wastewater incurred $14,000 of unbudgeted repairs to the lagoon intake gates.

Attachments

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021
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	$ 7,837,731	$ 8,284,833	$ 447,102	5.70%
Lease Revenue		105,000	43,750	30,263	(13,487)	-30.83%
Admin., Maint. & Engineering Revenue		553,000	230,417	241,591	11,175	4.85%
Other Revenues		540,589	225,245	359,477	134,231	59.59%
Use of Reserves-GAC		316,250	131,771	88,850	(42,921)	-32.57%
Rate Stabilization Reserves		200,000	83,333	83,333	-	0.00%
Interest Allocation		8,200	3,417	5,394	1,977	57.88%
Total Operating Revenues		**$ 20,533,594**	**$ 8,555,664**	**$ 9,093,742**	**$ 538,078**	**6.29%**
Expenses						
Personnel Cost	**A,B**	$ 9,649,988	$ 4,065,834	$ 3,972,610	$ 93,224	2.29%
Professional Services	**C**	712,050	296,688	230,731	65,956	22.23%
Other Services & Charges		3,111,400	1,296,417	1,203,628	92,788	7.16%
Communications		191,412	79,755	87,783	(8,028)	-10.07%
Information Technology	**A,D**	447,100	186,292	228,822	(42,530)	-22.83%
Supplies		42,160	17,567	14,464	3,103	17.66%
Operations & Maintenance	**A,E**	4,864,235	2,026,765	2,228,488	(201,723)	-9.95%
Equipment Purchases		615,250	256,354	101,033	155,321	60.59%
Depreciation		900,000	375,000	375,000	-	0.00%
Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 20,533,595**	**$ 8,600,670**	**$ 8,442,559**	**$ 158,111**	**1.84%**
Operating Surplus/(Deficit)		**$ (1)**	**$ (45,006)**	**$ 651,183**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 18,193,960	$ 7,580,817	$ 7,580,825	$ 8	0.00%
Use of Reserves		-	-	-	-	
Septage Receiving Support - County		109,440	45,600	109,441	63,841	140.00%
Buck Mountain Lease Revenue		1,600	667	-	(667)	-100.00%
Trust Fund Interest		33,700	14,042	9,391	(4,650)	-33.12%
Reserve Fund Interest		80,000	33,333	17,935	(15,399)	-46.20%
Total Debt Service Revenues		**$ 18,418,700**	**$ 7,674,458**	**$ 7,717,592**	**$ 43,134**	**0.56%**
Debt Service Costs						
Total Principal & Interest		$ 14,256,077	$ 5,940,032	$ 5,940,032	$ -	0.00%
Reserve Additions-Interest		80,000	33,333	17,935	15,399	46.20%
Debt Service Ratio Charge		725,000	302,083	302,083	-	0.00%
Reserve Additions-CIP Growth		3,357,634	1,399,014	1,399,014	-	0.00%
Total Debt Service Costs		**$ 18,418,711**	**$ 7,674,463**	**$ 7,659,064**	**$ 15,399**	**0.20%**
Debt Service Surplus/(Deficit)		**$ (11)**	**$ (5)**	**$ 58,528**		

Summary

Total Revenues	$ 38,952,294	$ 16,230,123	$ 16,811,334	$ 581,211	3.58%
Total Expenses	38,952,306	16,275,133	16,101,623	173,510	1.07%
Surplus/(Deficit)	**$ (12)**	**$ (45,010)**	**$ 709,711**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

Urban 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		$ 7,971,504	$ 3,321,460	$ 3,707,571	$ 386,111	11.62%
Lease Revenue		75,000	31,250	20,411	(10,839)	-34.69%
Miscellaneous		-	-	-	-	
Use of Reserves-GAC		300,000	125,000	85,600	(39,400)	-31.52%
Rate Stabilization Reserves		100,000	41,667	41,667	-	0.00%
Interest Allocation		3,400	1,417	2,233	817	57.64%
Total Operating Revenues		**$ 8,449,904**	**$ 3,520,793**	**$ 3,857,482**	**$ 336,689**	**9.56%**
Expenses						
Personnel Cost	**B**	$ 2,039,157	$ 858,494	$ 852,021	$ 6,473	0.75%
Professional Services		279,200	116,333	62,530	53,804	46.25%
Other Services & Charges		734,150	305,896	245,771	60,125	19.66%
Communications		98,670	41,113	44,194	(3,081)	-7.49%
Information Technology	**D**	80,500	33,542	42,933	(9,391)	-28.00%
Supplies		5,100	2,125	3,248	(1,123)	-52.84%
Operations & Maintenance	**A,E**	2,250,440	937,683	1,060,518	(122,835)	-13.10%
Equipment Purchases		15,400	6,417	6,417	0	0.00%
Depreciation		300,000	125,000	125,000	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 5,802,617	$ 2,426,602	$ 2,442,631	$ (16,029)	-0.66%
Allocation of Support Departments		2,647,289	1,114,320	1,018,611	95,709	8.59%
Total Operating Expenses		**$ 8,449,906**	**$ 3,540,922**	**$ 3,461,242**	**$ 79,680**	**2.25%**
Operating Surplus/(Deficit)		**$ (2)**	**$ (20,129)**	**$ 396,240**		

Debt Service Budget vs. Actual

	Budget FY 2022	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 7,621,725	$ 3,175,719	$ 3,175,720	$ 1	0.00%
Trust Fund Interest	12,000	5,000	3,409	(1,591)	-31.82%
Reserve Fund Interest	39,300	16,375	8,806	(7,569)	-46.22%
Use of Reserves	-	-	-	-	
Lease Revenue	1,600	667	-	(667)	-100.00%
Total Debt Service Revenues	**$ 7,674,625**	**$ 3,197,760**	**$ 3,187,935**	**$ (9,825)**	**-0.31%**
Debt Service Costs					
Total Principal & Interest	$ 5,215,275	$ 2,173,031	$ 2,173,031	$ -	0.00%
Reserve Additions-Interest	39,300	16,375	8,806	7,569	46.22%
Debt Service Ratio Charge	400,000	166,667	166,667	-	0.00%
Reserve Additions-CIP Growth	2,020,050	841,688	841,688	-	0.00%
Total Debt Service Costs	**$ 7,674,625**	**$ 3,197,760**	**$ 3,190,191**	**$ 7,569**	**0.24%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ (2,256)**		

Rate Center Summary

Total Revenues	$ 16,124,529	$ 6,718,554	$ 7,045,417	$ 326,863	4.87%
Total Expenses	16,124,531	6,738,682	6,651,433	87,249	1.29%
Surplus/(Deficit)	**$ (2)**	**$ (20,129)**	**$ 393,984**		
Costs per 1000 Gallons	$ 2.49		$ 2.19		
Operating and DS	$ 4.75		$ 4.21		
Thousand Gallons Treated	3,397,700	1,415,708	1,580,380	164,672	11.63%
or					
Flow (MGD)	9.309		10.329		

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

Crozet 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		$ 1,058,856	$ 441,190	$ 441,190	$ -	0.00%
Lease Revenues		30,000	12,500	9,853	(2,647)	-21.18%
Use of Reserves-GAC		13,000	5,417	-	(5,417)	-100.00%
Interest Allocation		500	208	313	105	50.17%
Total Operating Revenues		**$ 1,102,356**	**$ 459,315**	**$ 451,356**	**$ (7,959)**	**-1.73%**
Expenses						
Personnel Cost		$ 324,463	$ 136,596	$ 134,828	$ 1,768	1.29%
Professional Services	C	15,100	6,292	23,668	(17,376)	-276.18%
Other Services & Charges		104,450	43,521	42,109	1,412	3.24%
Communications		17,530	7,304	7,564	(259)	-3.55%
Information Technology		5,250	2,188	8,296	(6,108)	-279.23%
Supplies		1,500	625	508	117	18.74%
Operations & Maintenance		296,900	123,708	128,469	(4,760)	-3.85%
Equipment Purchases		28,000	11,667	1,250	10,417	89.29%
Depreciation		60,000	25,000	25,000	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 853,193	$ 356,900	$ 371,691	$ (14,791)	-4.14%
Allocation of Support Departments		249,161	104,872	95,993	8,879	8.47%
Total Operating Expenses		**$ 1,102,354**	**$ 461,772**	**$ 467,684**	**$ (5,912)**	**-1.28%**
Operating Surplus/(Deficit)		**$ 2**	**$ (2,457)**	**$ (16,328)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 1,847,832	$ 769,930	$ 769,930	$ -	0.00%
Trust Fund Interest		2,900	1,208	789	(419)	-34.71%
Use of Reserves		-	-	-	-	
Reserve Fund Interest		2,500	1,042	556	(486)	-46.63%
Total Debt Service Revenues		**$ 1,853,232**	**$ 772,180**	**$ 771,275**	**$ (905)**	**-0.12%**
Debt Service Costs						
Total Principal & Interest		$ 1,216,667	$ 506,945	$ 506,945	$ -	0.00%
Reserve Additions-Interest		2,500	1,042	556	486	46.63%
Reserve Additions-CIP Growth		634,070	264,196	264,196	-	0.00%
Total Debt Service Costs		**$ 1,853,237**	**$ 772,182**	**$ 771,696**	**$ 486**	**0.06%**
Debt Service Surplus/(Deficit)		**$ (5)**	**$ (2)**	**$ (422)**		
Rate Center Summary						
Total Revenues		$ 2,955,588	$ 1,231,495	$ 1,222,631	$ (8,864)	-0.72%
Total Expenses		2,955,591	1,233,954	1,239,380	(5,426)	-0.44%
Surplus/(Deficit)		**$ (3)**	**$ (2,459)**	**$ (16,750)**		
Costs per 1000 Gallons		$ 5.44		$ 4.17		
Operating and DS		$ 14.58		$ 11.04		
Thousand Gallons Treated		202,697	84,457	112,237	27,780	32.89%
Flow (MGD)		0.555		0.734		

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

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	$ 214,460	$ 214,460	$ -	0.00%
Use of Reserves-GAC		3,250	1,354	3,250	1,896	140.00%
Interest Allocation		200	83	151	68	81.26%
Total Operating Revenues		**$ 518,154**	**$ 215,898**	**$ 217,861**	**$ 1,964**	**0.91%**
Expenses						
Personnel Cost		$ 195,695	$ 82,401	$ 82,162	$ 239	0.29%
Professional Services		2,900	1,208	1,857	(648)	-53.65%
Other Services & Charges		28,100	11,708	9,324	2,384	20.36%
Communications		4,930	2,054	2,748	(694)	-33.80%
Information Technology	D	1,250	521	11,768	(11,247)	-2159.45%
Supplies		770	321	71	250	77.96%
Operations & Maintenance	E	87,200	36,333	49,777	(13,444)	-37.00%
Equipment Purchases		1,500	625	1,033	(408)	-65.28%
Depreciation		40,000	16,667	16,667	0	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 362,345	$ 151,839	$ 175,407	$ (23,568)	-15.52%
Allocation of Support Departments		155,813	65,564	60,104	5,460	8.33%
Total Operating Expenses		**$ 518,158**	**$ 217,403**	**$ 235,511**	**$ (18,108)**	**-8.33%**
Operating Surplus/(Deficit)		**$ (4)**	**$ (1,506)**	**$ (17,650)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 138,888	$ 57,870	$ 57,870	$ -	0.00%
Trust Fund Interest		300	125	85	(40)	-32.38%
Reserve Fund Interest		1,200	500	269	(231)	-46.20%
Total Debt Service Revenues		**$ 140,388**	**$ 58,495**	**$ 58,224**	**$ (271)**	**-0.46%**
Debt Service Costs						
Total Principal & Interest		$ 125,892	$ 52,455	$ 52,455	$ -	0.00%
Reserve Additions-Interest		1,200	500	269	231	
Reserve Additions-CIP Growth		13,299	5,541	5,541	-	
Total Debt Service Costs		**$ 140,391**	**$ 58,496**	**$ 58,265**	**$ 231**	**0.39%**
Debt Service Surplus/(Deficit)		**$ (3)**	**$ (1)**	**$ (42)**		
Rate Center Summary						
Total Revenues		$ 658,542	$ 274,393	$ 276,085	$ 1,692	0.62%
Total Expenses		658,549	275,900	293,776	(17,877)	-6.48%
Surplus/(Deficit)		**$ (7)**	**$ (1,507)**	**$ (17,692)**		
Costs per 1000 Gallons		$ 30.07		$ 27.92		
Operating and DS		$ 38.22		$ 34.83		
Thousand Gallons Treated		17,230	7,179	8,434	1,255	17.48%
or						
Flow (MGD)		0.047		0.055		

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

Urban 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		$ 8,535,195	$ 3,556,331	$ 3,617,322	$ 60,990	1.71%
Stone Robinson WWTP		20,589	8,579	7,060	(1,519)	-17.70%
Septage Acceptance		475,000	197,917	247,942	50,025	25.28%
Nutrient Credits		45,000	18,750	104,475	85,725	457.20%
Rate Stabilization Reserve		100,000	41,667	41,667	-	0.00%
Miscellaneous Revenue		-	-	-	-	
Interest Allocation		3,800	1,583	2,498	914	57.74%
Total Operating Revenues		**$ 9,179,584**	**$ 3,824,827**	**$ 4,020,962**	**$ 196,136**	**5.13%**
Expenses						
Personnel Cost	**A**	$ 1,289,471	$ 543,125	$ 551,685	$ (8,560)	-1.58%
Professional Services		208,500	86,875	62,128	24,747	28.49%
Other Services & Charges		2,011,700	838,208	823,819	14,389	1.72%
Communications		9,800	4,083	5,554	(1,470)	-36.01%
Information Technology	**D**	56,500	23,542	34,873	(11,331)	-48.13%
Supplies		1,200	500	479	21	4.22%
Operations & Maintenance	**A**	1,672,520	696,883	804,478	(107,594)	-15.44%
Equipment Purchases		294,250	122,604	20,833	101,771	83.01%
Depreciation		470,000	195,833	195,833	(0)	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 6,013,941	$ 2,511,654	$ 2,499,682	$ 11,972	0.48%
Allocation of Support Departments		3,165,643	1,332,291	1,221,592	110,698	8.31%
Total Operating Expenses		**$ 9,179,584**	**$ 3,843,945**	**$ 3,721,275**	**$ 122,671**	**3.19%**
Operating Surplus/(Deficit)		**$ (0)**	**$ (19,119)**	**$ 299,688**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 8,568,221	$ 3,570,092	$ 3,570,095	$ 3	0.00%
Septage Receiving Support - County		109,440	45,600	109,441	63,841	140.00%
Trust Fund Interest		18,500	7,708	5,100	(2,609)	-33.84%
Use of Reserves		-	-	-	-	
Reserve Fund Interest		36,300	15,125	8,142	(6,983)	-46.17%
Total Debt Service Revenues		**$ 8,732,461**	**$ 3,638,525**	**$ 3,692,778**	**$ 54,252**	**1.49%**
Debt Service Costs						
Total Principal & Interest		$ 7,689,212	$ 3,203,838	$ 3,203,838	$ -	0.00%
Reserve Additions-Interest		36,300	15,125	8,142	6,983	46.17%
Debt Service Ratio Charge		325,000	135,417	135,417	-	0.00%
Reserve Additions-CIP Growth		681,950	284,146	284,146	-	0.00%
Total Debt Service Costs		**$ 8,732,462**	**$ 3,638,526**	**$ 3,631,543**	**$ 6,983**	**0.19%**
Debt Service Surplus/(Deficit)		**$ (1)**	**$ (0)**	**$ 61,235**		

Rate Center Summary

Total Revenues	$ 17,912,045	$ 7,463,352	$ 7,713,740	$ 250,388	3.35%
Total Expenses	17,912,046	7,482,471	7,352,818	129,653	1.73%
Surplus/(Deficit)	**$ (1)**	**$ (19,119)**	**$ 360,922**		
Costs per 1000 Gallons	$ 2.71		$ 2.59		
Operating and DS	$ 5.28		$ 5.12		
Thousand Gallons Treated	3,390,400	1,412,667	1,437,156	24,489	1.73%
or					
Flow (MGD)	9.289		9.393		

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

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	$ 168,345	$ 168,345	$ -	0.00%
Rate Stabilization Reserve		-	-	-	-	
Interest Allocation		200	83	113	30	35.96%
Total Operating Revenues		**$ 404,228**	**$ 168,428**	**$ 168,458**	**$ 30**	**0.02%**
Expenses						
Personnel Cost		$ 94,885	$ 39,965	$ 40,603	$ (638)	-1.60%
Professional Services	C	12,900	5,375	30,000	(24,625)	
Other Services & Charges		34,300	14,292	15,359	(1,068)	-7.47%
Communications		3,130	1,304	1,427	(123)	-9.44%
Information Technology		2,000	833	661	172	20.67%
Supplies		-	-	69	(69)	
Operations & Maintenance		121,650	50,688	30,651	20,036	39.53%
Equipment Purchases		3,800	1,583	1,583	(0)	0.00%
Depreciation		10,000	4,167	4,167	0	0.00%
Subtotal Before Allocations		$ 282,665	$ 118,206	$ 124,521	$ (6,315)	-5.34%
Allocation of Support Departments		121,563	51,137	46,735	4,402	8.61%
Total Operating Expenses		**$ 404,229**	**$ 169,343**	**$ 171,256**	**$ (1,912)**	**-1.13%**
Operating Surplus/(Deficit)		**$ (1)**	**$ (915)**	**$ (2,797)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 7,412	$ 3,088	$ 3,090	$ 2	0.05%
Trust Fund Interest		-	-	-	-	
Reserve Fund Interest		200	83	54	(30)	-35.46%
Total Debt Service Revenues		**$ 7,612**	**$ 3,172**	**$ 3,144**	**$ 2**	**0.05%**
Debt Service Costs						
Total Principal & Interest		$ 1,578	$ 658	$ 658	$ -	0.00%
Reserve Additions-CIP Growth		5,834	2,431	2,431	-	0.00%
Reserve Additions-Interest		200	83	54	30	35.46%
Total Debt Service Costs		**$ 7,612**	**$ 3,172**	**$ 3,142**	**$ 30**	**0.93%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 2**		

Rate Center Summary					
Total Revenues	$ 411,840	$ 171,600	$ 171,602	$ 2	0.00%
Total Expenses	411,841	172,515	174,398	(1,883)	-1.09%
Surplus/(Deficit)	**$ (1)**	**$ (915)**	**$ (2,796)**		
Costs per 1000 Gallons	$ 9.76		$ 15.31		
Operating and DS	$ 9.95		$ 15.59		
Thousand Gallons Treated	41,401	17,250	11,183	(6,067)	**-35.17%**
or					
Flow (MGD)	0.113		0.073		

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

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	$ 135,945	$ 135,945	$ -	0.00%
Interest Allocation		100	42	86	45	107.05%
Total Operating Revenues		**$ 326,368**	**$ 135,987**	**$ 136,031**	**$ 45**	**0.03%**
Expenses						
Personnel Cost		$ 94,875	$ 39,961	$ 40,603	$ (642)	-1.61%
Professional Services		10,250	4,271	482	3,789	88.72%
Other Services & Charges		21,800	9,083	10,160	(1,077)	-11.85%
Communications		3,400	1,417	1,722	(305)	-21.53%
Information Technology		1,500	625	1,390	(765)	-122.47%
Supplies		-	-	-	-	
Operations & Maintenance	E	58,100	24,208	36,452	(12,243)	-50.57%
Equipment Purchases		3,800	1,583	1,583	(0)	0.00%
Depreciation		20,000	8,333	8,333	(0)	0.00%
Subtotal Before Allocations		$ 213,725	$ 89,481	$ 100,725	$ (11,244)	-12.57%
Allocation of Support Departments		112,640	47,386	43,275	4,111	8.67%
Total Operating Expenses		**$ 326,365**	**$ 136,867**	**$ 144,000**	**$ (7,133)**	**-5.21%**
Operating Surplus/(Deficit)		**$ 3**	**$ (881)**	**$ (7,969)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 9,882	$ 4,118	$ 4,120	$ 3	0.06%
Trust Fund Interest		-	-	9	9	
Reserve Fund Interest		500	208	108	(101)	-48.33%
Total Debt Service Revenues		**$ 10,382**	**$ 4,326**	**$ 4,237**	**$ (89)**	**-2.05%**
Debt Service Costs						
Total Principal & Interest		$ 7,453	$ 3,105	$ 3,105	$ -	0.00%
Reserve Additions-Interest		500	208	108	101	48.33%
Estimated New Principal & Interest		2,431	1,013	1,013	-	0.00%
Total Debt Service Costs		**$ 10,384**	**$ 4,327**	**$ 4,226**	**$ 101**	**2.33%**
Debt Service Surplus/(Deficit)		**$ (2)**	**$ (1)**	**$ 11**		

Rate Center Summary

Total Revenues	$ 336,750	$ 140,313	$ 140,268	$ (44)	-0.03%
Total Expenses	336,749	141,194	148,226	(7,032)	-4.98%
Surplus/(Deficit)	**$ 1**	**$ (882)**	**$ (7,958)**		
Costs per 1000 Gallons	$ 13.80		$ 22.80		
Operating and DS	$ 14.24		$ 23.47		
Thousand Gallons Treated	23,643	9,851	6,316	(3,535)	**-35.89%**
or					
Flow (MGD)	0.065		0.041		

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

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	$ 229,583	$ 230,835	$ 1,252	0.55%
Miscellaneous Revenue		2,000	833	10,184	9,350	1122.03%
Total Operating Revenues		**$ 553,000**	**$ 230,417**	**$ 241,019**	**$ 10,602**	**4.60%**
Expenses						
Personnel Cost		$ 2,177,998	$ 918,213	$ 888,548	$ 29,665	3.23%
Professional Services		163,200	68,000	47,512	20,488	30.13%
Other Services & Charges		86,200	35,917	42,726	(6,810)	-18.96%
Communications		21,000	8,750	10,534	(1,784)	-20.38%
Information Technology	**A**	171,900	71,625	101,827	(30,202)	-42.17%
Supplies		21,500	8,958	7,182	1,776	19.83%
Operations & Maintenance		68,600	28,583	15,810	12,773	44.69%
Equipment Purchases		25,200	10,500	6,333	4,167	39.68%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,735,598**	**$ 1,150,546**	**$ 1,120,472**	**$ 30,074**	**2.61%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (2,182,598)**	**$ (920,130)**	**$ (879,454)**	**$ (40,676)**	**4.42%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 960,343**	**$ 404,857**	**$ 386,960**	**$ 17,897**	
Crozet Water	4.00%	**$ 87,304**	**36,805**	**35,178**	**1,627**	
Scottsville Water	2.00%	**$ 43,652**	**18,403**	**17,589**	**814**	
Urban Wastewater	48.00%	**$ 1,047,647**	**441,662**	**422,138**	**19,524**	
Glenmore Wastewater	1.00%	**$ 21,826**	**9,201**	**8,795**	**407**	
Scottsville Wastewater	1.00%	**$ 21,826**	**9,201**	**8,795**	**407**	
	100.00%	**$ 2,182,598**	**$ 920,130**	**$ 879,454**	**$ 40,676**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

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		-	-	-	-	
Total Operating Revenues		**$ -**	**$ -**	**$ -**	**$ -**	
Expenses						
Personnel Cost		$ 1,398,597	$ 589,315	$ 578,457	$ 10,858	1.84%
Professional Services		-	-	-	-	
Other Services & Charges		61,200	25,500	7,722	17,778	69.72%
Communications		15,730	6,554	7,748	(1,194)	-18.22%
Information Technology		9,500	3,958	275	3,683	93.04%
Supplies		2,000	833	269	564	67.66%
Operations & Maintenance		89,600	37,333	45,051	(7,718)	-20.67%
Equipment Purchases		208,100	86,708	52,333	34,375	39.64%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,784,727**	**$ 750,203**	**$ 691,857**	**$ 58,346**	**7.78%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,784,727)**	**$ (750,203)**	**$ (691,857)**	**$ (58,346)**	**7.78%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 535,418**	**$ 225,061**	**$ 207,557**	**$ 17,504**	
Crozet Water	3.50%	**62,465**	**26,257**	**24,215**	**2,042**	
Scottsville Water	3.50%	**62,465**	**26,257**	**24,215**	**2,042**	
Urban Wastewater	56.50%	**1,008,371**	**423,865**	**390,899**	**32,966**	
Glenmore Wastewater	3.50%	**62,465**	**26,257**	**24,215**	**2,042**	
Scottsville Wastewater	3.00%	**53,542**	**22,506**	**20,756**	**1,750**	
	100.00%	**$ 1,784,727**	**$ 750,203**	**$ 691,857**	**$ 58,346**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

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	$ 173,241	$ 158,776	$ 14,465	8.35%
Professional Services		-	-	-	-	
Other Services & Charges		7,900	3,292	1,321	1,971	59.86%
Communications		1,300	542	445	97	
Information Technology		200	83	180	(97)	-116.00%
Supplies		1,300	542	733	(191)	-35.31%
Operations & Maintenance		120,590	50,246	36,362	13,884	27.63%
Equipment Purchases		1,700	708	708	(0)	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 544,027**	**$ 228,654**	**$ 198,525**	**$ 30,128**	**13.18%**

Department Summary

Net Costs Allocable to Rate Centers	**$ (544,027)**	**$ (228,654)**	**$ (198,525)**	**$ (30,128)**	**13.18%**
Allocations to the Rate Centers					
Urban Water 44.00%	**$ 239,372**	**$ 100,608**	**$ 87,351**	**$ 13,256**	
Crozet Water 4.00%	**21,761**	**9,146**	**7,941**	**1,205**	
Scottsville Water 2.00%	**10,881**	**4,573**	**3,971**	**603**	
Urban Wastewater 47.00%	**255,693**	**107,467**	**93,307**	**14,160**	
Glenmore Wastewater 1.50%	**8,160**	**3,430**	**2,978**	**452**	
Scottsville Wastewater 1.50%	**8,160**	**3,430**	**2,978**	**452**	
100.00%	**$ 544,027**	**$ 228,654**	**$ 198,525**	**$ 30,128**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - November 2021

Engineering

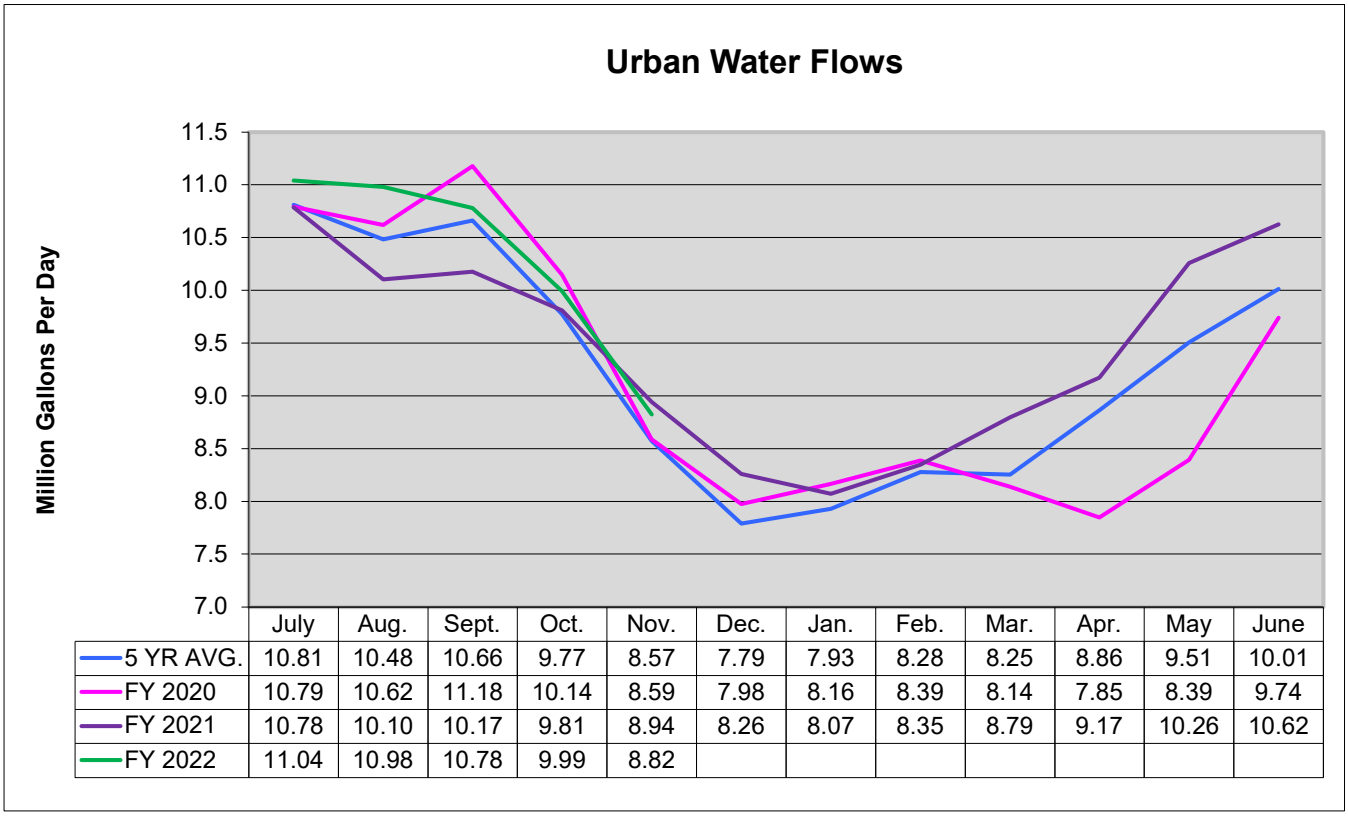
Operating Budget vs. Actual

	Notes	*Budget FY 2022*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ 573	$ 573	
Total Operating Revenues		**$ -**	**$ -**	**$ 573**	**$ 573**	
Expenses						
Personnel Cost		$ 1,623,810	$ 684,523	$ 644,926	$ 39,597	5.78%
Professional Services		20,000	8,333	2,556	5,778	69.33%
Other Services & Charges		21,600	9,000	5,316	3,684	40.93%
Communications		15,922	6,634	5,848	787	11.86%
Information Technology		118,500	49,375	26,618	22,757	46.09%
Supplies		8,790	3,663	1,905	1,758	47.99%
Operations & Maintenance		98,635	41,098	20,920	20,178	49.10%
Equipment Purchases		33,500	13,958	8,958	5,000	35.82%
Depreciation & Capital Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 1,940,757**	**$ 816,584**	**$ 717,047**	**$ 99,537**	**12.19%**

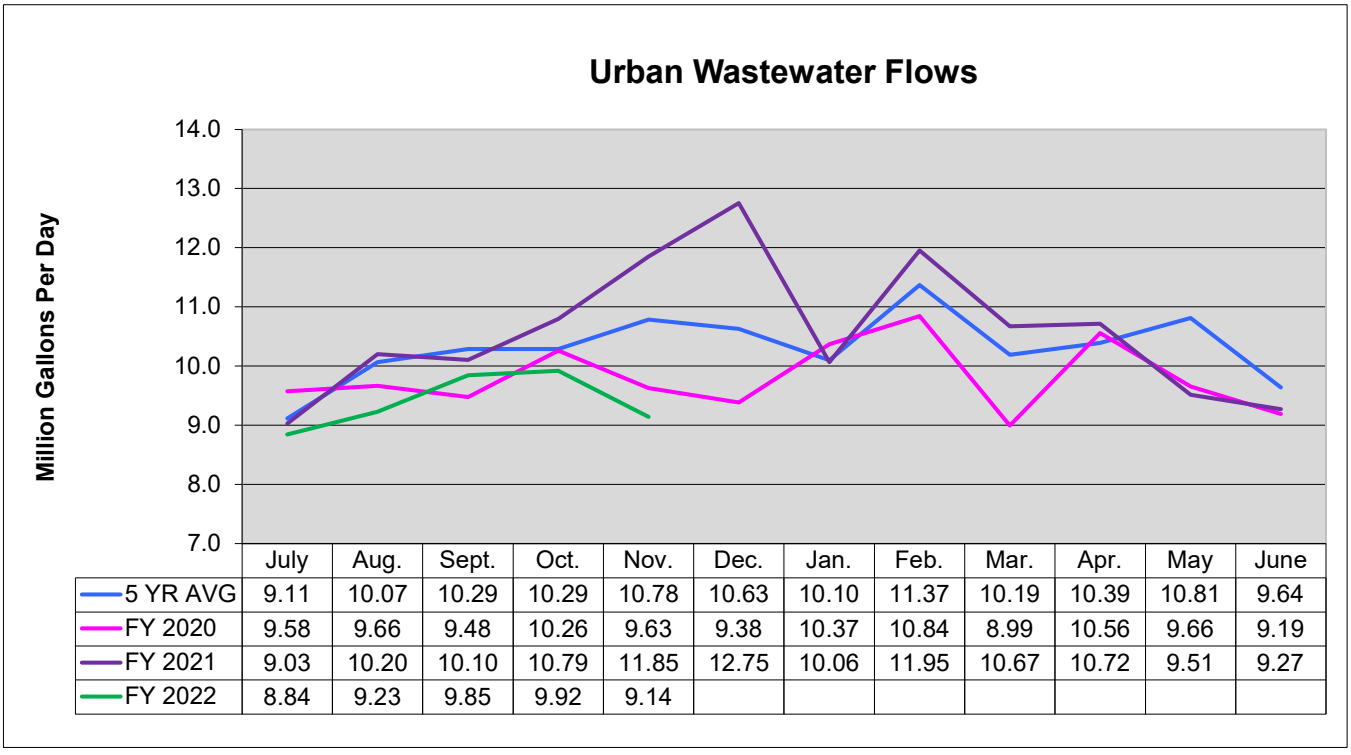
Department Summary

Net Costs Allocable to Rate Centers		**$ (1,940,757)**	**$ (816,584)**	**$ (716,474)**	**$ (98,964)**	**12.12%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 912,156**	**$ 383,794**	**$ 336,743**	**$ 47,051**	
Crozet Water	4.00%	**77,630**	**32,663**	**28,659**	**4,004**	
Scottsville Water	2.00%	**38,815**	**16,332**	**14,329**	**2,002**	
Urban Wastewater	44.00%	**853,933**	**359,297**	**315,249**	**44,048**	
Glenmore Wastewater	1.50%	**29,111**	**12,249**	**10,747**	**1,502**	
Scottsville Wastewater	1.50%	**29,111**	**12,249**	**10,747**	**1,502**	
	100.00%	**$ 1,940,757**	**$ 816,584**	**$ 716,474**	**$ 100,110**	

Rivanna Water and Sewer Authority
Flow Graphs



	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							



	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							

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 DECEMBER 2021**

DATE: **JANUARY 25, 2022**

WATER OPERATIONS:

The average and maximum daily water volumes produced in December 2021 were as follows:

Water Treatment Plant	***Average Daily Production (MGD)***	***Maximum Daily Production in the Month (MGD)***
South Rivanna	7.47	8.81 (12/2/2021)
Observatory	0.25	1.54 (12/16/2021)
North Rivanna	0.38	0.48 (12/2/2021)
Urban Total	8.10	9.73 (12/3/2021)
Crozet	0.65	0.98 (12/14/2021)
Scottsville	0.06	0.09 (12/1/2021)
Red Hill	0.0013	0.003 (12/9/2021)
RWSA Total	8.81	-

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

Status of Reservoirs (as of January 19, 2022):

- Urban Reservoirs: 100% of Total Useable Capacity
- Ragged Mountain Reservoir is full (100%)
- Sugar Hollow Reservoir is not 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 December 2021. Performance of the WRRFs in December 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	8.12	2.0	10	<QL	22	<QL	2.2
Glenmore	0.098	4.3	15	4.5	30	NR	NL
Scottsville	0.037	4.5	25	2.6	30	NR	NL
Stone Robinson	0.024	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 December 2021.

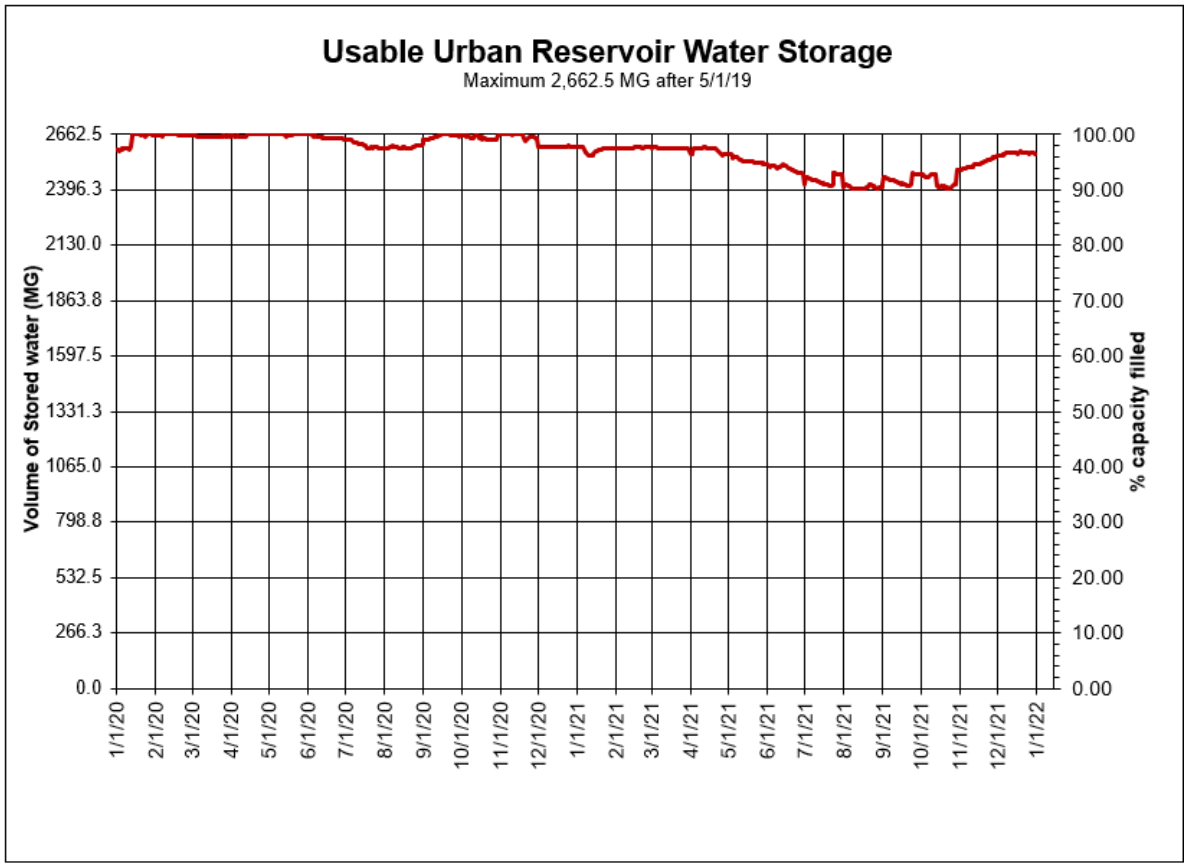
State Annual Allocation (lb./yr.) Permit		*Average Monthly Allocation (lb./mo.) **	*Moores Creek Discharge December (lb./mo.)*	*Performance as % of monthly average Allocation**	*Year to Date Performance as % of annual allocation*
Nitrogen	282,994	23,583	6,749	29%	29%
Phosphorous	18,525	1,544	337	22%	32%

*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
1/1/20
2/1/20
3/1/20
4/1/20
5/1/20
6/1/20
7/1/20
8/1/20
9/1/20
10/1/20
11/1/20
12/1/20
1/1/21
2/1/21
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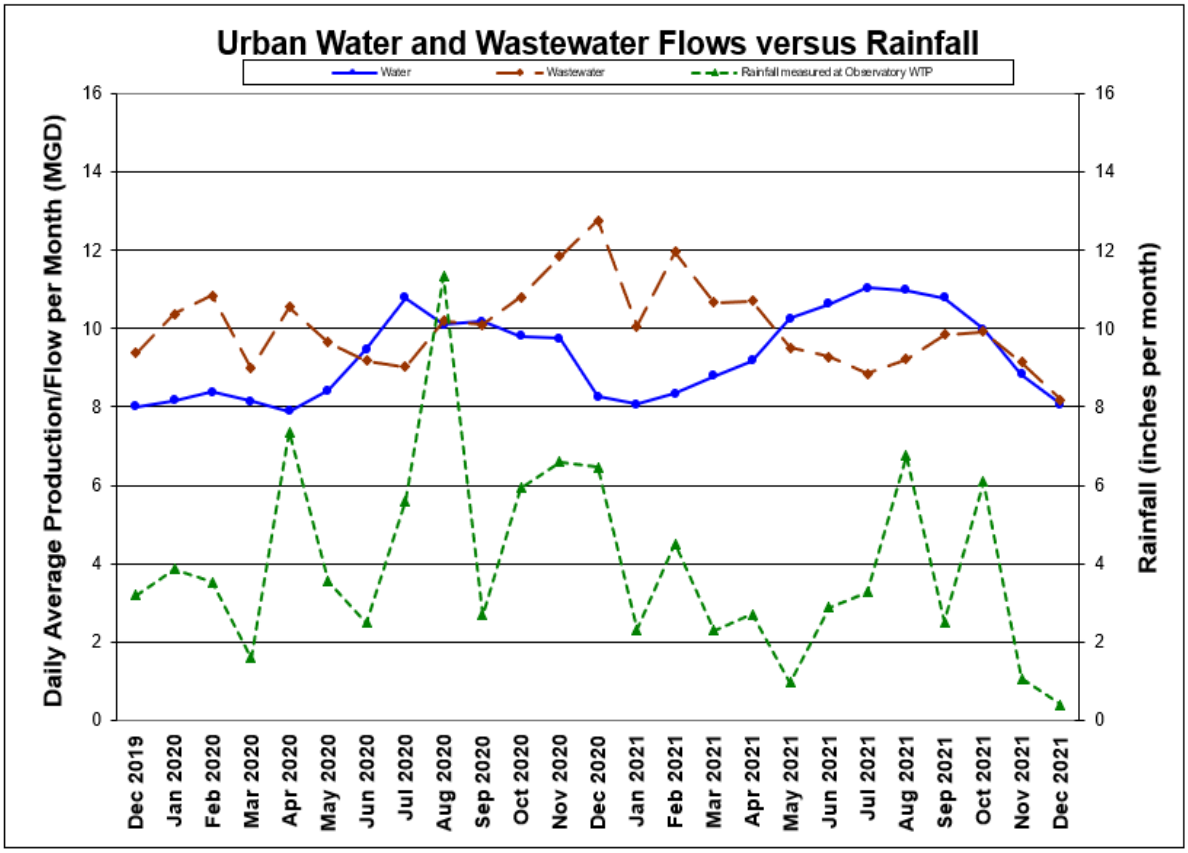
12/1/21
1/1/22


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
Dec 2019
Jan 2020
Feb 2020
Mar 2020
Apr 2020
May 2020
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

RIVANNA WATER & SEWER AUTHORITY
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MEMORANDUM

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

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

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

SUBJECT: **STATUS REPORT: ONGOING PROJECTS**

DATE: **JANUARY 25, 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/2021/06/2022-2026-CIP-Final.pdf

Under Construction

1. South Rivanna and Observatory Water Treatment Plant Renovations
2. Crozet Flow Equalization Tank
3. MC Aluminum Slide Gate Replacements
4. MC Exterior Lighting Improvements
5. MC Generator Fuel Expansion
6. MC Clarifier and Silo Demolition
7. Glenmore WRRF Influent Pump & VFD Addition
8. Airport Road Water Pump Station and Piping

Design and Bidding

9. Ragged Mtn Reservoir to Observatory WTP Raw Water Line and Pump Station
10. South Rivanna to Ragged Mtn. Raw Water Line – Birdwood to Old Garth
11. Beaver Creek Dam, Pump Station and Piping Improvements
12. South Rivanna River Crossing
13. MC 5kV Electrical System Upgrades
14. Central Water Line
15. Upper Schenks Branch Interceptor, Phase II

Planning and Studies

16. South Rivanna Reservoir to Ragged Mtn Reservoir Water Line Right-of-Way
17. Urban Finished Water Infrastructure Master Plan

18. Asset Management Plan
19. MC Facilities Master Plan
20. SRR to RMR Pipeline – Pretreatment Pilot Study

Other Significant Projects

21. Urgent and Emergency Repairs
22. Interceptor Sewer & Manhole Repair
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:	50%
Base Construction Contract + Change Orders to Date = Current Value:	$36,748,500 + $474,849 = $37,223,349
Completion:	May 2023
Budget:	$43,000,000

Current Status: Work continues at the SR WTP with installation of the filter media and start-up of the two new filters, completion of the Alum and Fluoride Chemical Storage Building, continued construction of the Administration Building, and replacement of a clarifier drive. Work at the OBWTP includes the foundation associated with the new Chemical Storage Building, installation of backwash pumps, expansion of the existing Filter Building and sedimentation basin improvements.

2. Crozet Flow Equalization Tank

Design Engineer:	Schnabel Engineering
Construction Contractor:	Anderson Construction (Lynchburg, VA)
Construction Start:	September 2020
Percent Complete:	80%
Based Construction Contract + Change Orders to Date = Current Value:	$4,406,300
Completion:	July 2022
Budget:	$5,400,000

Current Status: Interior concrete tank construction continues and the second phase of bypass pumping of the existing pump station is being set up to allow for the final stage of pump, piping and valve installation.

3. MC Aluminum Slide Gate Replacements

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Waco Incorporated (Sandston, VA)
Construction Start:	September 2020
Percent Complete:	87%
Base Construction Contract + Change Orders to Date = Current Value:	$373,600 + $32,050.02 = $405,650.02
Completion:	April 2022
Budget:	$675,000

Current Status: The new 30" mud valve was delivered in early January. It will take approximately 2 months to complete the mud valve and actuator installation, testing, and calibration.

A quote package for temporary bypass pumping and slide gate inspection for the Moores Creek Pump Station was awarded to Waco in September 2021. Hazen has reviewed the bypass pumping submittal and the inspection is scheduled for February 1st, weather permitting. This work will define the repairs and budget needed to complete the slide gate repair in the Moores Creek Pump Station.

4. MC Exterior Lighting Improvements

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Pyramid Electrical Contractors (Richmond, VA)
Construction Start:	April 2021
Percent Complete:	90%
Base Construction Contract + Change Order to Date = Current Value:	$349,000 + $17,598.30 = $366,598.30
Completion:	May 2022
Budget:	$600,000

Current Status: Project was nearing completion, when it was discovered that some additional lighting modifications would be needed to meet County ordinance requirements. These lighting modifications will be completed in 3 – 6 months, depending upon the schedule for delivery of the new light fixtures.

5. MC Generator Fuel Storage Expansion

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Construction Contractor:	Waco Incorporated (Sandston, VA)
Construction Start:	July 2021
Percent Complete:	50%
Base Construction Contract + Change Order to Date = Current Value:	$168,860
Completion:	March 2022
Budget:	$220,000

Current Status: The 8,000 gallon, above ground, double-wall steel fuel storage tank will be installed when received. Tank delivery and installation are anticipated this February/March

MC Clarifier and Lime Silo Demolition

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Pleasant View Developers (Staunton, VA)
Construction Start:	November 2021
Percent Complete:	10%
Base Construction Contract + Change Order to Date = Current Value:	$649,000
Completion:	August 2022
Budget:	$790,000

Current Status: Contractor has removed the lime silo and will be rerouting the utilities necessary for the clarifier demolition.

6. Glenmore WRRF Influent Pump and VFD Addition

Design Engineer:	Wiley|Wilson
Construction Contractor:	MEB (Chesapeake, VA)
Construction Start:	September 2021
Percent Complete:	5%
Base Construction Contract + Change Order to Date = Current Value:	$288,000
Completion:	October 2022
Budget:	$370,000

Current Status: The contractor anticipates mobilizing to the site this month to begin pump installation and the necessary electrical improvements.

7. Airport Road Water Pump Station and Piping

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction, Inc. (Lynchburg, VA)
Construction Start:	December 2021
Percent Complete:	5%
Base Construction Contract + Change Order to Date = Current Value:	$8,520,312.50
Completion:	December 2023
Budget:	$10,000,000

Current Status: The contractor has begun submitting shop drawings. There is currently a 5-7 month lead time for ductile iron pipe, fittings, and some pump station materials, so contractor mobilization to the site may not be until Spring 2022.

Design and Bidding

8. 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:	Design (8%) & Easement Acquisition
Construction Start:	2025
Completion:	2028
Budget:	$29,375,000

Current Status: Preparation of engineering plans and specifications is underway. Survey work along portions of the water main alignment is underway, along with cultural resources investigations. A hydraulic evaluation of the future SRR to RMR transfer system is also underway, which will further inform design of the RMR Pump Station and associated yard piping. Once the topographic survey data for the portions of the new waterline west of the proposed RMR Pump Station site is received by Kimley-Horn, additional design will commence. Easement negotiations with one private owner, UVA, and the UVA Foundation continue.

9. 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:	Summer 2022
Completion:	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. Design documents have been submitted to local regulatory authorities for review.

10. 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:	70% NRCS Planning Process
Construction Start:	2024
Completion:	2026
Budget:	$30,870,000

Current Status: Staff are moving forward with development of a Joint Permit Application and supporting documents for submission to DEQ in early 2022. Remaining NRCS requirements,

including review and approval of the planning study, are scheduled for completion by September 2022. An application for design and construction funding from NRCS will be submitted in early 2022.

11. South Rivanna River Crossing

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2020
Project Status:	35% Design
Construction Start:	January 2023
Completion:	April 2024
Budget:	$5,850,000

Current Status: Baker has recommended a water line route that will cross 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. A technical memorandum is being finalized to summarize the recommendation.

12. MC 5 kV Electrical System Upgrades

Design Engineer:	Hazen and Sawyer (Hazen)
Project Start:	August 2020
Project Status:	Bidding
Construction Start:	May 2022
Completion:	June 2024
Budget:	$5,050,000

Current Status: Contract Documents were advertised in December 2021 and a pre-bid meeting was held on January 18. Staff anticipates bringing a recommendation to award to the Board of Directors at the February 2022 meeting.

13. Central Water Line

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2021
Project Status:	5% Design
Construction Start:	January 2024
Completion:	June 2026
Budget:	$31,000,000

Current Status: Survey and utility designation work will begin this month and continue along the proposed 5-mile alignment through May 2022. The Central Water Line Routing Study was added to our website in December 2021. RWSA will complete a drone survey of the proposed CWL alignment this month and post it on our web page.

14. 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.

Planning and Studies

15. 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.

16. Urban Finished Water Infrastructure Master Plan

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2018
Project Status:	99% complete
Completion:	February 2022
Budget:	$253,000

Current Status: A final draft of the master plan will be submitted to stakeholders this month for review.

17. Asset Management Plan

Design Engineer:	GHD, Inc. (GHD)
Project Start:	July 2018
Project Status:	Phase 2 – 100% Complete CMMS Implementation – 60% Complete
Completion:	Phase 2 – 2021 CMMS Implementation – June 2022
Budget:	$1,180,000

Current Status: The Tactical Asset Management Plan has been finalized, closing out the Phase 2 work. For implementation of the new CMMS, GHD is completing updates to our facility geodatabase and continuing the software configuration process. Workshops associated with software integration and the overall configuration process have been completed.

18. MC Facilities Master Plan

Design Consultant:	Hazen and Sawyer (Hazen)
Project Start:	August 2019
Project Status:	97% Complete
Completion:	February 2022
Budget:	$275,000

Current Status: The final draft of the master plan was submitted to stakeholders on December 21, 2021 for review. A supplement will be prepared to include the impact of the recent wastewater collection system flow allocation analysis.

19. SRR to RMR Pipeline – Pretreatment Pilot Study

Design Consultant:	SEH
Project Start:	August 2020
Project Status:	100% Complete (Phase 1), 50% Complete (Phase 2)
Completion:	July 2022
Budget:	$22,969 (Phase 1), $98,629 (Phase 2)

Current Status: Phase 1, analysis of existing water quality and seasonal weather data, has been completed. SEH and staff have finalized the memo for this portion of the study. Phase 2 of the study is underway and includes detailed reservoir water quality modeling performed by DiNatale Water Consultants. Staff coordinated internally and generated a list of scenarios for DiNatale to run in a excel-based desktop model. Once these runs have been completed and the technical memo has been finalized, work on a more detailed reservoir model will likely commence, which will help better represent the future conditions at Ragged Mountain Reservoir based upon the known characteristics of the proposed transfer system.

Other Significant Projects

20. Urgent and Emergency Repairs

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

Project No.	Project Description	Approx. Cost
2020-08	UWL-010 Leak	$40,000
2020-24	Erosion Between CZI MH-55 and 56	$20,000
2021-04	UWL-ARV-15 Settlement	$30,000
2021-08	MCAWRRF Digester Manway Sealing	$70,000
2021-09	SLW Erosion Near SLW-022	$20,000
2021-17	NRW-ARV-02 Seal Failure	$3,000

- UWL-010 Leak: In 2020, during routine line maintenance, RWSA Maintenance Staff discovered that a blowoff valve on the Urban Waterline, UWL-010, was leaking into an adjacent creek. A

blind flange was installed to stop the leakage at that time. Staff is coordinating the replacement of this defective valve with its On-Call Maintenance Contractor for later this Winter.

- Erosion Between CZI MH-55 & 56: Excessive runoff from the adjacent Buckingham Branch railroad has caused moderate erosion over the Crozet Interceptor near Lynx Farm Lane. Staff decided to work with its On-Call Maintenance Contractor, Digs, Inc., to install erosion control measures over the easement, to better protect the existing 18" sanitary sewer. Staff has coordinated this work with Buckingham Branch, as well as adjacent property owners in the area. Digs completed this work on December 1, 2021.

- UWL-ARV-15 Settlement: While marking a Miss Utility Ticket, the RWSA Engineering Department identified an ARV that was settling with a small section of Kenwood Lane. No immediate danger to the ARV was found to be present, however, staff pulled in its On-Call Maintenance Contractors to begin coordinating the associated repairs. The overall scope of work was to excavate around the ARV, replace the entire ARV assembly with more modern materials, install an appropriate structure/manhole around the ARV, and then perform all applicable site restoration. Work began during the week of 9/27, and staff found that the existing corp stop was seized, and the existing ARV assembly was very corroded, with a small leak/drip between the ARV and corp stop. Staff coordinated a shutdown of the Urban Waterline for 12/6, which enabled staff to safely remove and replace the existing corp stop and ARV assembly, while the On-Call Maintenance Contractor was able to complete installation of the surrounding manhole structure and appropriate site restoration. All work was coordinated with the surrounding property owners and City Utilities Staff. Work efforts were completed on December 7, 2021.

- MCAWRRF Digester Manway Sealing: Staff has identified the immediate need to repair gas leaks in Digesters #1, #2 and #3 at the MCAWRRF. The gas leaks are a safety concern and are causing significant concrete degradation which has led to Digester #2 being taken out of service thereby reducing solids processing redundancy. Following external and internal inspections by our engineering consultants, it has been decided that installation of rubber seals in the manways and sample ports will mitigate gas leaks into the annular roof space and decrease further concrete degradation. Waco, Inc. was selected to perform the work under an Emergency Declaration by the Executive Director and seals were installed in Digester #2. Unfortunately, the Digester continued to leak gas once back in service so further investigative work is warranted to determine the source of the leaks and evaluate the structural integrity of the annular roof space. Waco has completed the work on Digester #1 and #2 and will complete the work on Digester #3 in February 2022.

- Erosion Near SLW-022: In Spring 2021, staff identified an area of erosion over RWSA's 20" Southern Loop Waterline (SLW), located near Forest View Road in Albemarle County. During subsequent site visits, it was determined that an adjacent creek/stormwater channel has silted in, causing water to become redirected over the RWSA Easement during heavy rain events. Staff is coordinating easement restoration efforts through its On-Call Maintenance Contract for later this winter and is also coordinating with Albemarle County Water Resources staff on potential collaborative efforts to address the issues on the RWSA easement and improve stormwater flow in the area.

- NRW-ARV-02 Seal Failure: On Monday, December 27, at around 5:00 pm, RWSA staff was notified of a potential water main issue adjacent to Rt. 29 North, between Camelot Drive and Boulders Road. Upon responding to the scene, staff found that the issue was isolated to a nearby Air Release Valve (ARV). Upon further investigation, it was found that the seal at the bottom of the ARV had failed, causing a small leak. RWSA Maintenance staff was able to open the structure that the ARV was located in and was able to close the existing ball valve and replace the ARV by 7:30 pm, thus ending the leakage with minimal disturbance to the roadway and adjacent features.

21. Interceptor Sewer and Manhole Repair

Design Engineer:	Frazier Engineering
Construction Contractor:	TBD
Construction Start:	November 2017
Percent Complete:	Evaluation – 100%, Bidding
Base Construction Contract + Change Orders to Date = Current Value:	$37,980
Expected Completion:	June 2022
Budget:	$1,088,330 (Urban) + $880,000 (Crozet) = $1,968,330

Current Status: With the completion of the Upper Morey Creek Interceptor (MRI) Point Repair/New MH Installation, all rehabilitation work on the Upper MRI has been completed. Staff continues coordination on the lower Powell Creek Interceptor and a portion of the Woodbrook Interceptor, as these are the next high-priority areas to be addressed based upon the latest CCTV footage. The scope of this rehabilitation work is likely to include several sections of Cured in Place Piping, as well as manhole rehabilitation. A Notice to Proceed was issued to Tri-State Utilities, LLC on October 4th to perform additional cleaning and CCTV work and that was completed on October 15, 2021. Staff has reviewed the footage with Frazier Engineering, and a bid package has been issued to address the highest priority defects on the Powell Creek and Woodbrook Interceptors, as well as the Crozet Interceptor. A pre-bid meeting was held on January 11, and staff anticipates bringing a recommendation to award to the Board of Directors at the February 2022 meeting.

22. Security Enhancements

Design Engineer:	N/A
Construction Contractor:	Security 101
Construction Start:	March 2020
Percent Complete:	98% (WA 2 & 3), 35% (WA 4)
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) = $1,127,423.96 (total)
Completion:	December (WA 2 & 3), February 2022 (WA 4)
Budget:	$2,810,000

Current Status: Access control system installation has been completed on all exterior doors at MCAWRRF, as well as all WTP motorized gates. The Card Access System is in use at the

Administration, Engineering, and Maintenance Buildings at MCAWRRF, as well as at various process buildings across the site and at the WTP gates. The only task that remains is some door and lock hardware improvements under WA #2, which will enhance the functionality of the card access system. Card access installation at the Crozet and Scottsville WTP exterior doors under WA #3 is substantially complete. Finally, WA #4 includes security conduit at the South Rivanna and Observatory WTPs that was not included in the Improvements Project. This work began on November 2, 2021, with the majority of the work at South Rivanna WTP now complete, except for the Filter Building, which is currently ongoing heavy construction work as part of the Improvements Project. Security 101's subcontractor is transitioning to Observatory, where they'll finish the necessary work at that site, prior to completing work in the South Rivanna Filter Building.

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 being 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. **Crozet Flow Equalization Tank**

   A 2016 update to the 2006 model was completed which evaluated the I&I reduction goals previously established and future capital project needs. Based on the results of that study, it was determined that the Crozet Interceptor system and the existing Crozet Pump Stations (1 through 4) have adequate capacity to handle the 2015 peak wet weather flow from the Crozet Service Area during a two-year storm. However, as projected growth in the service area occurs, peak wet weather flows in the area

under the storm conditions established in the updated model will begin to exceed the firm capacities of the pump stations by 2025. Additional I&I reductions in order to reduce flows enough to not exceed the pump station firm capacities are not feasible and as a result, the construction of a flow equalization tank was identified as the best method to alleviate wet weather capacity issues.

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

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

A work authorization with Schnabel Engineering was finalized and a Project Kick-off Meeting was held on July 12, 2018. The construction bids were received on July 16, 2020. Anderson Construction of Lynchburg, VA was awarded the construction contract. Notice to Proceed on this project was given on October 9, 2020 and now construction is in progress.

3. MC Aluminum Slide Gate Replacements

Several large aluminum slide gates are located at the influent side of the Moores Creek Pump Station. These gates allow staff to stop or divert flow to perform maintenance activities. After repeated attempts to repair the deteriorated gates, it is now necessary to replace the gates and modify the gate arrangement. There are also several deteriorated gates at the Ultraviolent disinfection facility that leak water, causing a reduced capacity of the facility. Replacement of these gates will restore the process to full capacity. Work also includes replacement of the cast iron gates in the holding pond pump station and new actuators on the headworks gates. A Notice to Proceed for these efforts was provided on October 6, 2020. The work specific to the Moores Creek Pump Station will be bid under a separate project due to the extensive bypass pumping.

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

In 1998, the Sugar Hollow Dam underwent a significant upgrade to improve structural stability and spillway capacity. The original metal spillway gates were replaced with a manufactured five-foot-high inflatable rubber dam that is bolted to the existing concrete structure. This rubber dam allows for the normal storage of water in the reservoir with the ability to be lowered during extreme storm events. The rubber dam has an approximate service life of twenty years and is therefore now due for replacement. The aging intake tower structure has been inspected and evaluated. Recommended repairs include repair or replacement of intake trash racks and sealing/grouting of minor concrete wall cracks. This project was advertised for construction in July 2020 and Allegheny Construction was awarded the project. A Notice to Proceed was provided on October 1, 2020.

5. MC Exterior Lighting Improvements

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

RWSA and Albemarle County staff have been working together to best address the issue. A photo

metric plan of existing lighting was submitted to the county for review. RWSA has submitted a minor site plan amendment and Architectural Review Board submission that will include a large-scale replacement of non-compliant fixtures as well as address industrial lighting standards for the entire facility. The submission was approved by the County and design is underway.

The design has been completed by Hazen and Sawyer and the project was awarded to Pyramid Electrical Contractors, LLC. Notice to Proceed was provided on April 13, 2021.

6. MC Generator Fuel Expansion

The Moores Creek AWRRF south side electrical facilities have a single large system back-up power generator that was installed between 2009 – 2012 during the ENR plant upgrade. The generator has a belly tank that allows for approximately 22 hours of operation. This project will install an ancillary fuel tank that will allow for approximately three days of operation. A Notice of Award was issued to Waco, Inc. Construction of the concrete pad the new tank will rest on as well as electrical connections for the tank are in progress. Tank delivery is expected in January of 2022

7. MC Clarifier and Lime Silo Demolition

The two in-plant clarifiers were constructed in the late 1950's and were taken out of service as a result of the Odor Control Project at the plant. Due to the age of the tanks, various components have significantly deteriorated over time and no additional uses for these tanks have been identified. In addition, due to their out-of-service status, they remain empty and a safety concern for plant staff and visitors. There is also an abandoned lime silo currently located adjacent to the Solids Handling Building. Lime was previously used with the old plat and frame presses before centrifuges were installed for sludge dewatering purposes. This project will include the complete demolition of the in-plant clarifiers by removing all existing components, backfilling the area, and returning the area to open space and removing the lime silo from the plant and properly disposing of it. The project was advertised, and bids are due on July 1, 2021. A Notice of Award was issued on August 6, 2021 and a Notice to Proceed was issues on September 28, 2021.

8. 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.

9. 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.

Design and Bidding

10. 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.

11. 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 effort were authorized in June 2021 with construction anticipated in Summer 2022.

12. 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.

13. 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.

14. 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.

15. <u>Central Water Line</u>

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 has been negotiated and 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.

16. <u>Upper Schenks Branch Interceptor, Phase II</u>

The Schenks Branch Sanitary Sewer interceptor is a pipeline operated by RWSA that serves the City of Charlottesville. The 21-inch sewer line was originally constructed by the City in the 1950s. Evaluations from the flow metering and modeling from the Comprehensive Sanitary Sewer Interceptor Study, and negotiations with the ACSA and City, resulted in an inflow and infiltration reduction plan from which it was concluded that increased capacity of the Schenks Branch Interceptor was needed for wet weather peak flow. Due to several road construction projects and the construction of the

Meadow Creek Interceptor project along the sewer alignment, Schenks Branch was to be constructed in multiple phases. The completed sections, collectively known as the Lower Schenks Branch Interceptor, include the Tie-in to Meadow Creek, the section along McIntire Road Ext, and the section though the Route 250 Interchange.

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

Planning and Studies

17. 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.

18. Urban Finished Water Infrastructure Master Plan

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

19. 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.

20. MC Facilities Master Plan

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

21. 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.

Other Significant Projects

22. 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.

23. Interceptor Sewer and Manhole Repair

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

Lining work and manhole rehabilitation on the Upper Morey Creek Interceptor began in Fall 2019 and was completed in Fall 2020. A critical section of upper Morey Creek Interceptor under Rt. 250 was lined on August 28, 2020. 65' of new ductile iron sewer to replace a sagging section of vitrified clay piping was installed in May 2021. Tri-State Utilities completed over 3,000 LF of Sewer Cleaning and CCTV under RFQ No. 1105 in October 2021 on high-priority portions of the Powell Creek and Woodbrook Interceptors.

24. 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 DECEMBER 2021**

DATE: **JANUARY 25, 2022**

The monthly and average daily Urban water system usages by the City and the ACSA for December 2021 were as follows:

	Month	***Daily Average***	
City Usage (gal)	119,921,284	3,868,429	**47.9%**
ACSA Usage (gal)	130,347,928	4,204,772	**52.1%**
Total (gal)	**250,269,212**	**8,073,200**	

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 January 2021), and that usage relative to the maximum allocation for each party (6.71 MGD for the City and 11.99 MGD for ACSA).

Figure 1: City of Charlottesville Monthly Water Usage and Allocation

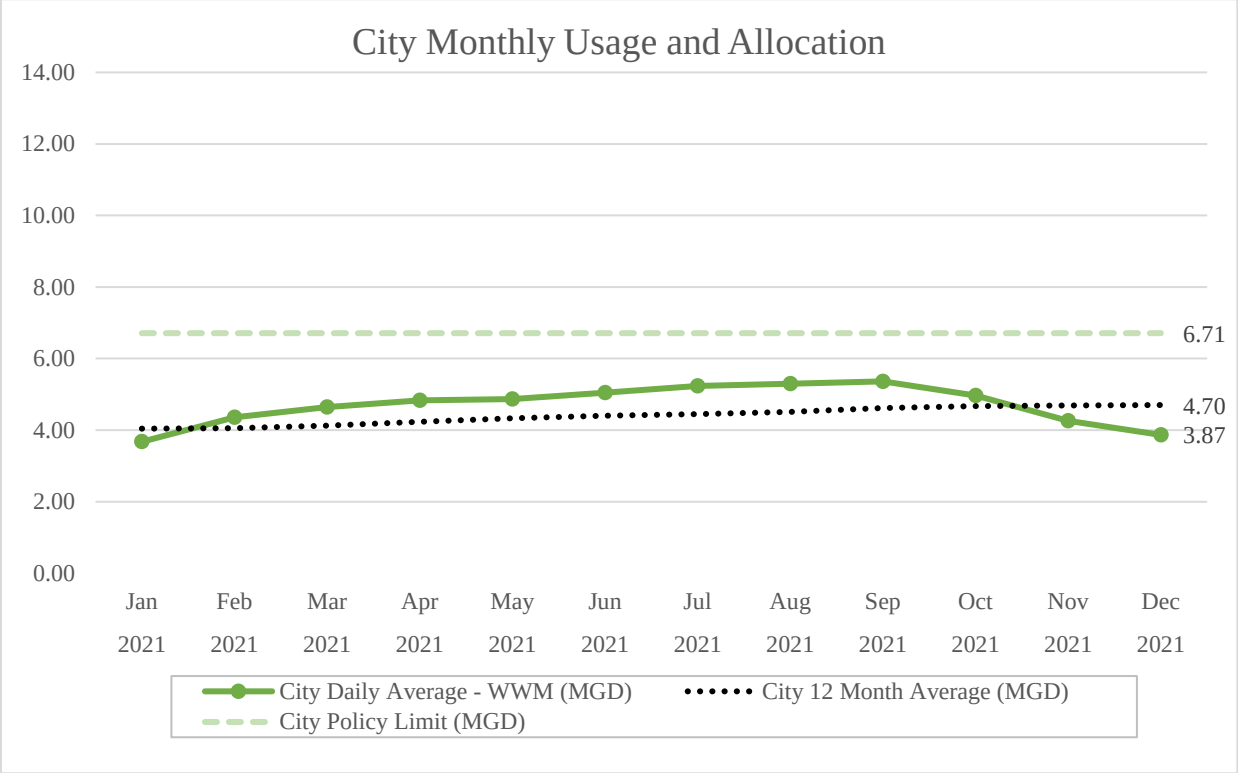
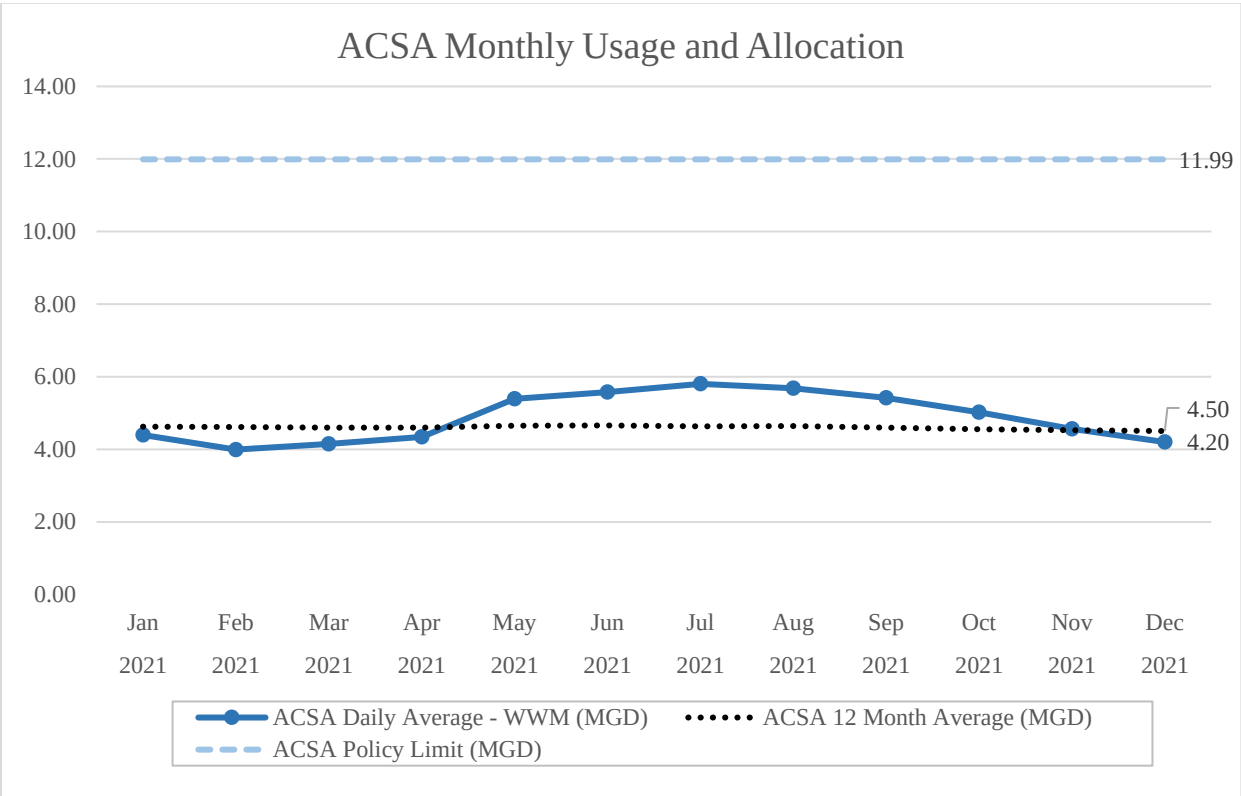


Figure 2: Albemarle County Service Authority Monthly Water Usage and Allocation



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

MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **APPROVAL OF COST-OF-LIVING INCREASE**

DATE: **JANUARY 25, 2022**

This memo is to request a 6% cost of living increase for all RWSA and RSWA staff, including the Executive Director, in February 2022. The proposed cost of living adjustment will help the Authorities retain the specialized, licensed and professional employees we require to provide our drinking water, wastewater, refuse and recycling services for our community. Competition for qualified employees in the utility and solid waste workforce marketplace has become more challenging due to the highest rate of inflation in 40 years (7%), and low unemployment (2.4%) in the Charlottesville/Albemarle region.

In support of our Strategic Plan goal to "attract, develop and retain a professional, highly skilled, dedicated and versatile team", we have been monitoring the recent escalations in the cost-of-living index and other compensation factors in our area and industry. Thru December 2021, the CPI-U index has risen 7.0% since December 2020. This inflationary increase has a significant impact on our ability to hire and retain qualified staff. At mid-year of FY 22, our overall staff turnover rate is already 12.6% (11% for RWSA; 20% for RSWA), which is above our Strategic Plan goal of 10% annual turnover, with six months to go this FY. Competition to hire and retain skilled trade and professional employees is a challenge as the Charlottesville/Albemarle County region has a low unemployment rate of 2.4%. The City of Charlottesville and County of Albemarle recently responded to this inflationary situation and approved increases of 6% (plus $3500 bonus by the City) for staff. Several regional utilities have also recently approved salary increases.

The proposed cost of living adjustment will not increase our charges to the City or ACSA in FY 22, as we will use savings from vacancies and other programs to offset the additional expense. These additional costs will be included in the base budget for FY 23, and will total about $450,000 (1.2%) of the estimated $42 M Operating Budget for RWSA. The increase will total about $73,000 (1.2%) of the estimated $6 M Operating Budget for the RSWA. While mid-year adjustments are not the way we typically manage our budgets, the covid pandemic and its current impact on inflation have made the last 2 years very atypical. The most recent salary increase of 2% in July 2021 did not anticipate the unprecedented increase in inflation now challenging our staff and country.

Board Action Requested:
Authorize a 6% cost of living increase for all RWSA and RSWA employees, including the Executive Director, to be effective in February 2022.

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MEMORANDUM

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

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

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

SUBJECT: **CONTRACT AWARD – CROZET INTERCEPTOR SYSTEM ODOR CONTROL – EVOQUA WATER TECHNOLOGIES, LLC**

DATE: **JANUARY 25, 2022**

Wastewater from Crozet is connected to the main portion of RWSA's interceptor system through a series of pump stations and processed at the Moores Creek WW Treatment Plant. As a result of this conveyance process, the wastewater ages to the point where its oxygen content is depleted, and the formation of hydrogen sulfide occurs. The formation of hydrogen sulfide is a concern for several reasons, including: the presence of foul odors in and around the conveyance infrastructure, health and safety depending on the concentration of the gas, and the corrosion of conveyance infrastructure due to the formation of sulfuric acid as the released hydrogen sulfide gas combines with moisture. To alleviate these concerns, RWSA has previously entered into agreements with an odor control vendor to install, operate, and maintain an odor control chemical feed system in the Crozet Interceptor. The previous contract had an initial two-year term and was renewed annually after that up to the maximum five-year term. As a result of reaching the maximum term limit, it was necessary to re-procure these services for an additional term.

To procure these services in the most appropriate and advantageous method, RWSA selected a competitive negotiation process. This allows RWSA to evaluate not only the merits of the odor control technologies proposed by interested contractors, but also their management approaches and qualifications of key personnel, all while still allowing RWSA to factor the total estimated annual price for services into the decision-making process.

The RFP was advertised on December 15, 2021, a pre-proposal meeting was held on December 22, 2021, and proposals were due on January 11, 2022. Two proposals were received. The RFP indicated that interviews may be conducted to assist RWSA in determining the preferred Offeror, but it was not a requirement. Based on the content of the two proposals, it was determined that interviews would not be necessary in order to determine the preferred Offeror. The RFP also included provisions for pilot testing of submitted technologies; however, if the preferred Offeror had previous experience providing odor control services to RWSA, the pilot testing could be avoided. Since the preferred Offeror met these requirements, no pilot testing was necessary. The selection committee reviewed the two proposals and based on the contents of the proposal, the Offeror's previous experience with RWSA, and the best pricing of $4.15/gallon for peroxide and $2.98/gallon for bioxide, with both products required to reduce odors, and determined that Evoqua Water Technologies, LLC was the most meritorious candidate.

Board Action Requested:

Authorize the Executive Director to execute a contract with an initial term of two (2) years with options to renew the contract following the initial term for a total term not to exceed five (5) years with Evoqua Water Technologies, LLC for odor control services in the Crozet Interceptor System with an estimated annual expense of $390,000.

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MEMORANDUM

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

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

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

SUBJECT: **BIOSOLIDS TRANSPORTATION CONTRACT AWARD**

DATE: **JANUARY 25, 2022**

This memo is to request authorization to award a contract to McGill Environmental to transport wastewater biosolids from Moores Creek to the McGill composting facility in Waverly, Va. for a unit price of $615 per pull. The total annual cost is estimated to be $307,000.

RWSA advertised a Request For Bids #388 for "Biosolids Transportation" on December 3, 2021. Bids were opened on January 7, 2022. Our bid specifications require the contractor to transport biosolids and water treatment residuals in RWSA-owned trailers to the composting facility owned by McGill Environmental in Waverly Virginia. RWSA generates approximately 14,000 tons of biosolids and water treatment residuals per year, which results in over 500 individual trailer trips to McGill Environmental each year. The lowest responsive bidder, McGill Environmental, offered a cost of $615 per trip, a 34% increase over our current rate of $456 per trip. RWSA biosolids transportation costs will be approximately $307,000 per year, or an $80,000 increase from the previous year.

RWSA's current transportation provider was in the second year of a 5-year contract, but requested an increase of $294 per pull (from $456 to $750) to cover unpredictable fuel prices and repair parts. Rather than renew the contract, we utilized a public bidding process which resulted in a savings of $135 per pull and $67,500 per year for this service.

Board Action Requested:

Authorize the Executive Director to award a biosolids transportation contract to McGill Environmental for $615 per pull, and any necessary modification up to 10% of the estimated total contract amount.

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MEMORANDUM

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

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

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

SUBJECT: **CONSTRUCTION CHANGE ORDER AUTHORIZATION – MOORES CREEK AWRRF LIGHTING IMPROVEMENTS PROJECT – PYRAMID ELECTRICAL CONTRACTORS, LLC**

DATE: **JANUARY 25, 2022**

The memo is to request an increase to the project contingency from $35,000 (10%) to $90,000 (35%) to provide light fixtures compliant with our requirements. Most of this increase will be reimbursed by our lighting engineer.

Background:
Our engineering consultant, Hazen and Sawyer, developed a preliminary engineering report (PER) and site plan amendment for lighting modifications at Moores Creek that considered site safety requirements and the need to bring the facility into compliance with the Albemarle County lighting ordinance. Following submission of the site plan amendment, staff divided the over 300 fixtures to be installed or replaced into two groups; fixtures to be modified in-house by the Maintenance Department and fixtures to be installed by an outside electrical contractor. The Maintenance Department has completed the lighting modifications they were capable of and a contract was awarded to Pyramid Electrical Contractors on January 26, 2021 to perform the remaining work.

During the course of the project, additional existing lights were added to the project for replacement since they were not working properly. Costs associated with these unforeseen issues have been estimated to exceed the 10% contingency originally approved by the Board when the contract was awarded. Additionally, it was recently determined that there was misapplication of the lighting model by the consultant which resulted in specification of noncompliant light fixtures around the aeration basins at the plant. This lighting was found to be noncompliant with the Albemarle County ordinance and is being replaced. Additional funds to replace the light fixtures, approximately $60,000, are being requested. The engineering consultant will reimburse the Authority for the additional expense thru engineering services associated with our Urban Wastewater rate center. This increase will result in total contingency of $122,150 or an increase of $87,250 from what was originally approved.

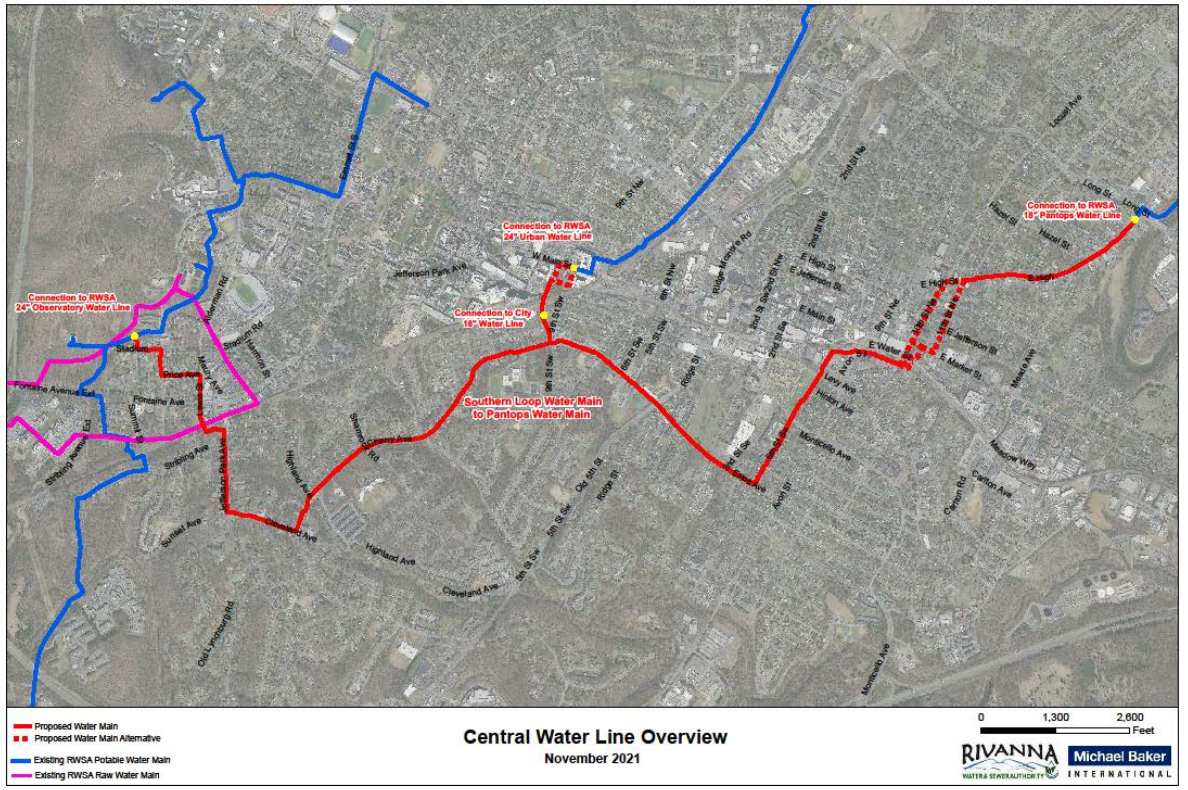
Board Action Requested:

Authorize an increase in construction contingency funding of $55,000 for the MCAWRRF Lighting Improvements Project. This would bring the total Board authorized contingency to $122,150. The total costs remain within the CIP Budget of $1,900,000 for this project.

Central Water Line Project

to support the

Urban Drinking Water System



RIVANNA WATER AND SEWER AUTHORITY

BOARD OF DIRECTORS MEETING

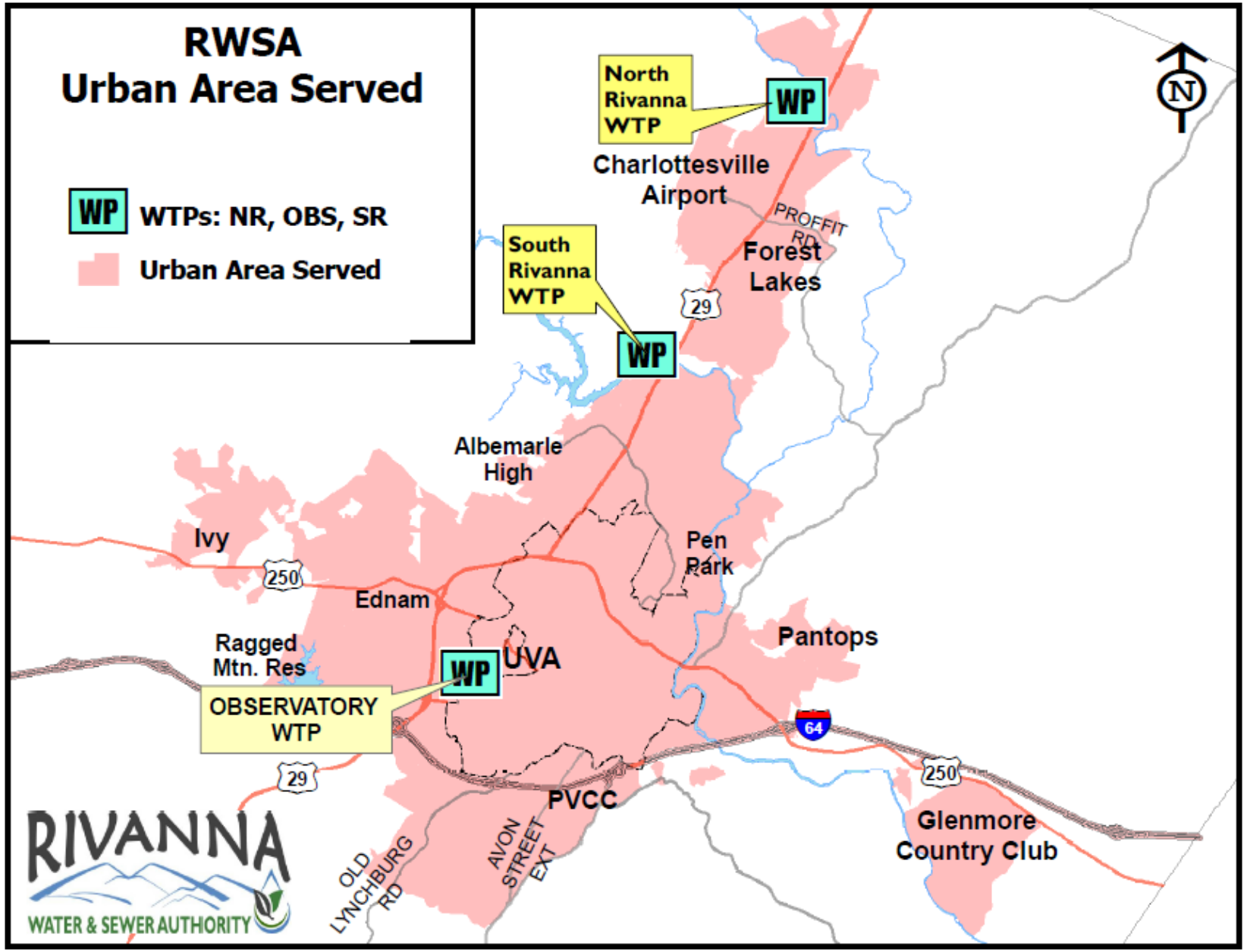
JANUARY 25, 2022

RIVANNA WATER & SEWER AUTHORITY

Urban Water Treatment System

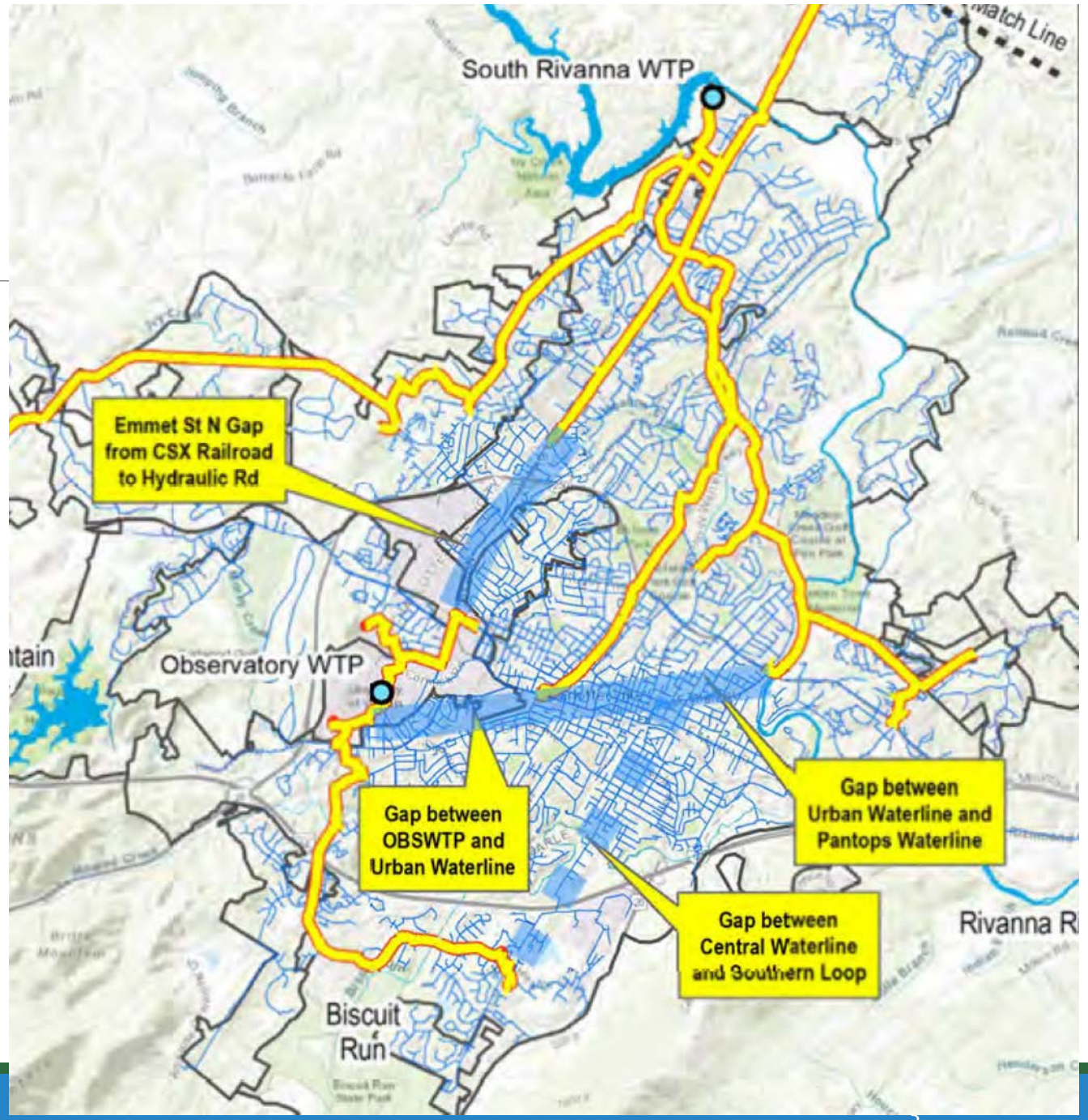
S. Rivanna WTP	12 MGD
Observatory WTP*	7.7 MGD
N. Rivanna WTP	1 MGD
	20.7 MGD

*Upgrade to 10 MGD in progress



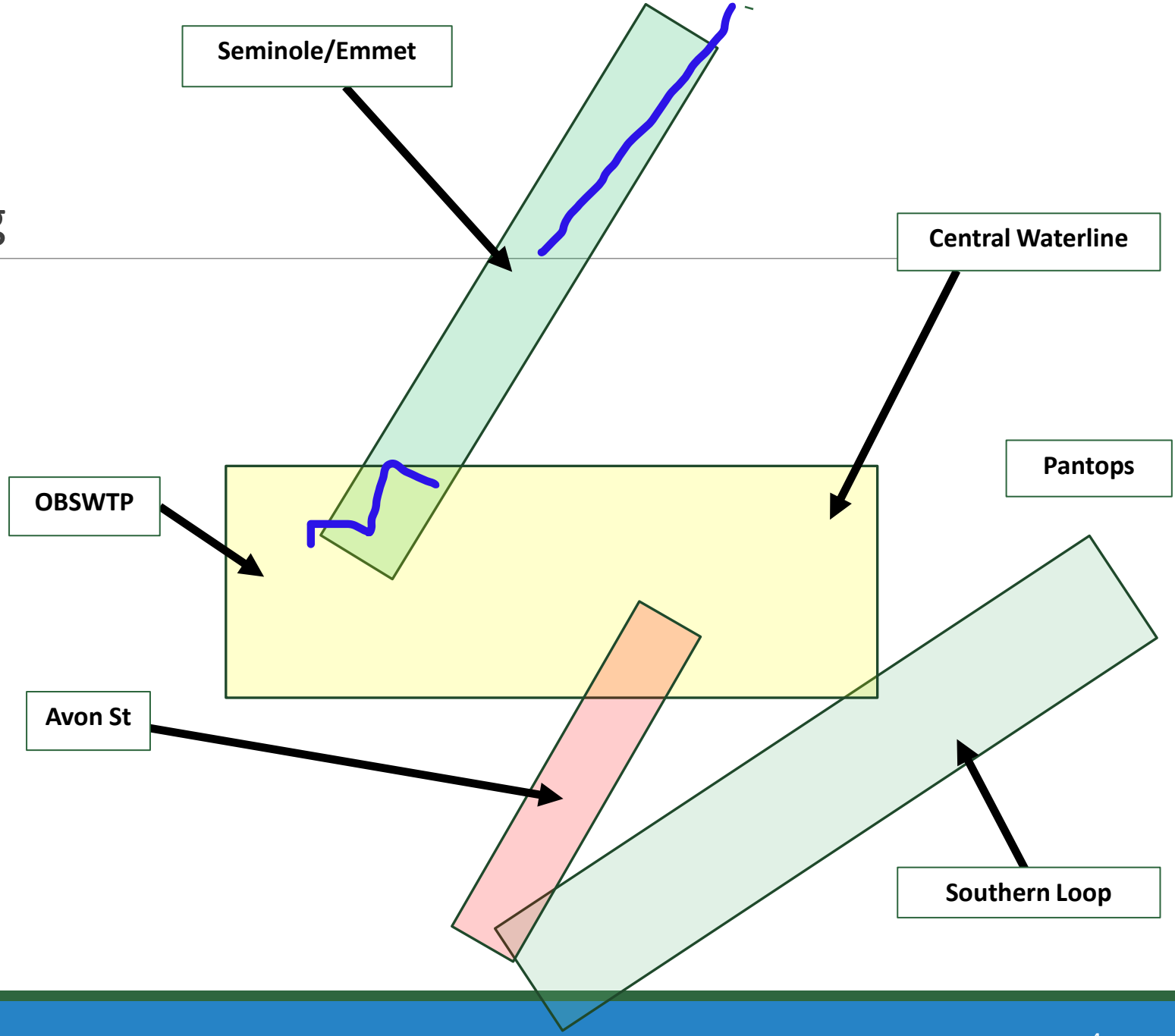
Background Work: Avon to Pantops Study & Finished Water Master Plan

- **Goals:** Address operational and hydraulic inefficiencies in moving water across distribution system and improving system flexibility.
- **Results:** It was determined that a lack of hydraulic connectivity across the Urban Service Area is primarily caused by gaps in RWSA large diameter water transmission mains.



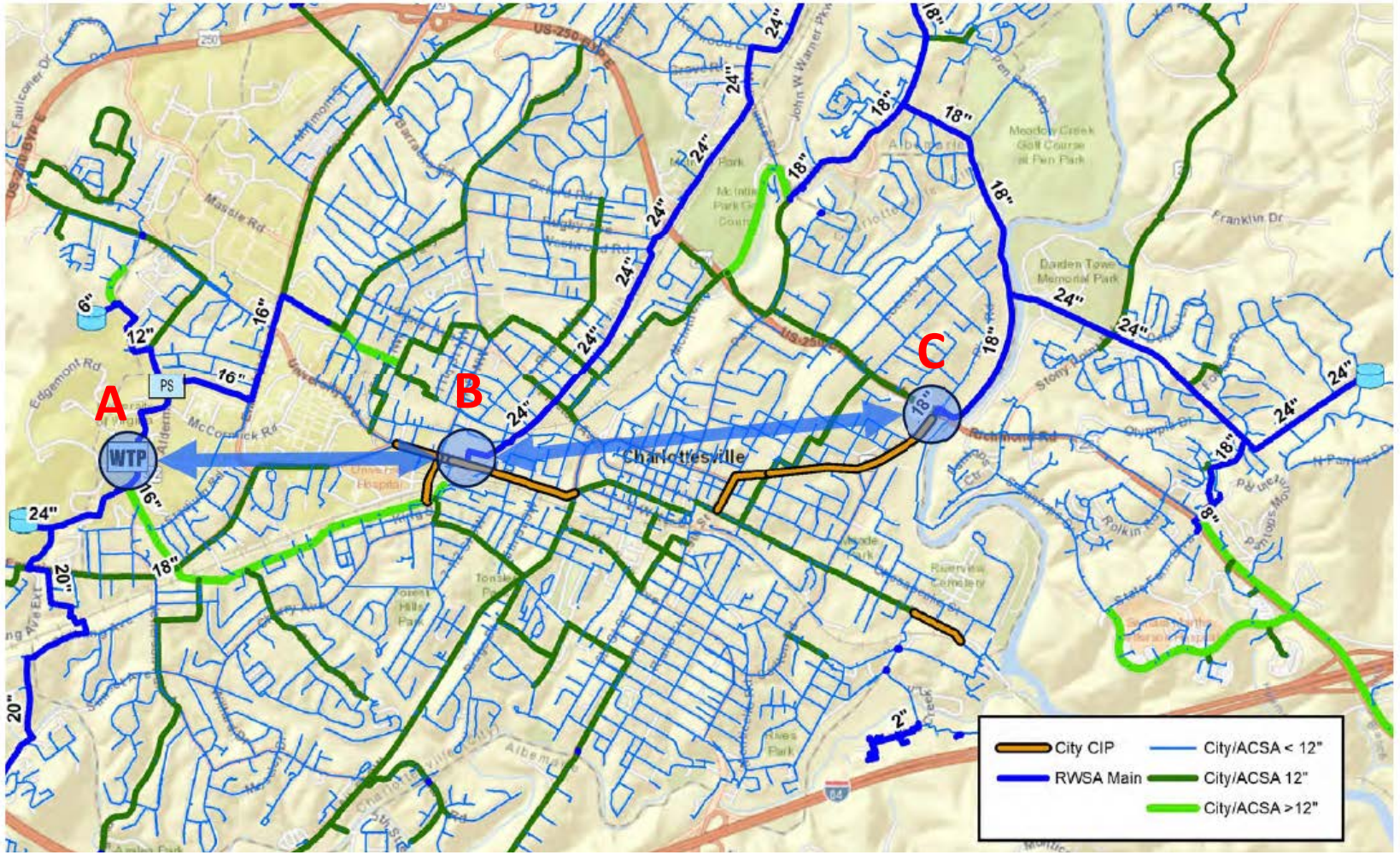
Finished Water Master Plan Modeling

- Started with multiple options to connect the gaps in the water system
- Modeling determined which options met our goals
- Central water line corridor provided the best hydraulic connectivity



Objectives: Improve Flow, Pressure, Redundancy

More efficiently convey water from the Observatory Water Treatment Plant to the City, County and UVA and generally strengthen the Urban water system



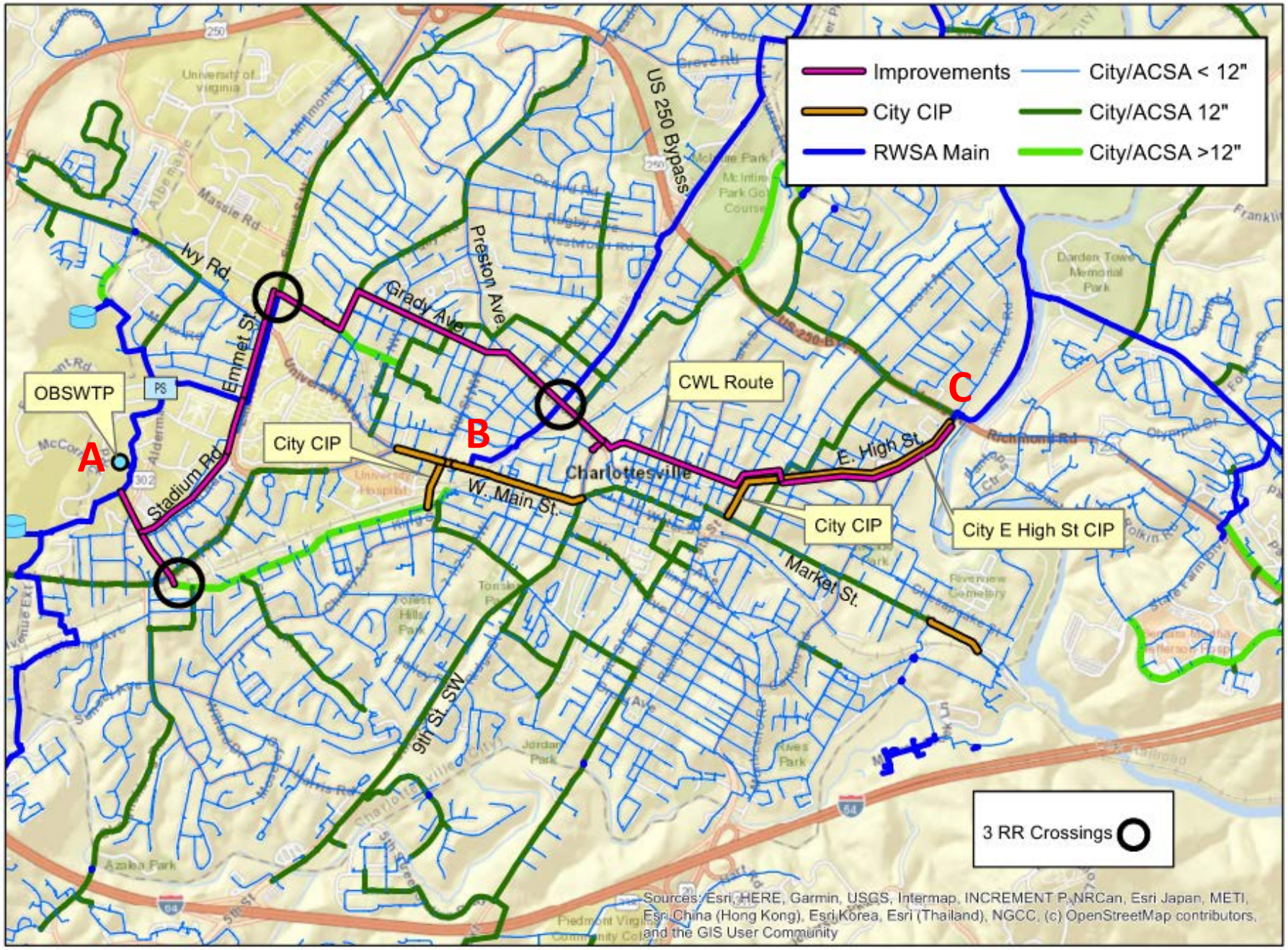
Northern Corridor Concept

Pros:

- Opportunity to upgrade existing 16” RWSA cast iron main with Emmet Streetscape Project

Challenges:

- Narrow and congested neighborhood streets
- Heavy traffic in downtown area
- Minimum hydraulic connectivity to southern portions of the City
- 3 railroad crossings



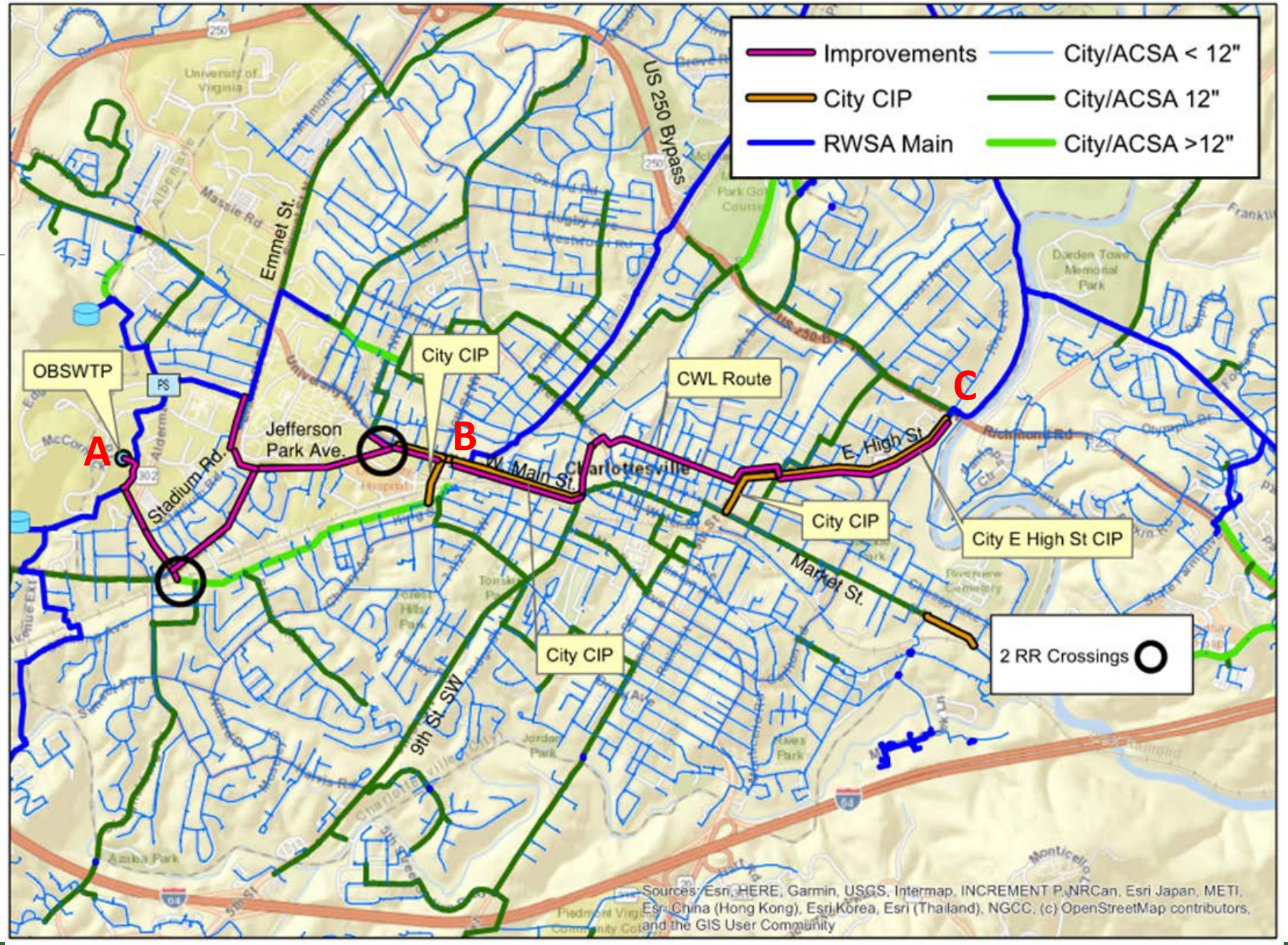
Middle Corridor Concept

Pros:

- Shortest route

Challenges:

- Narrow and congested neighborhood streets
- Heavy traffic in downtown area
- Minimum hydraulic connectivity to southern portions of the City



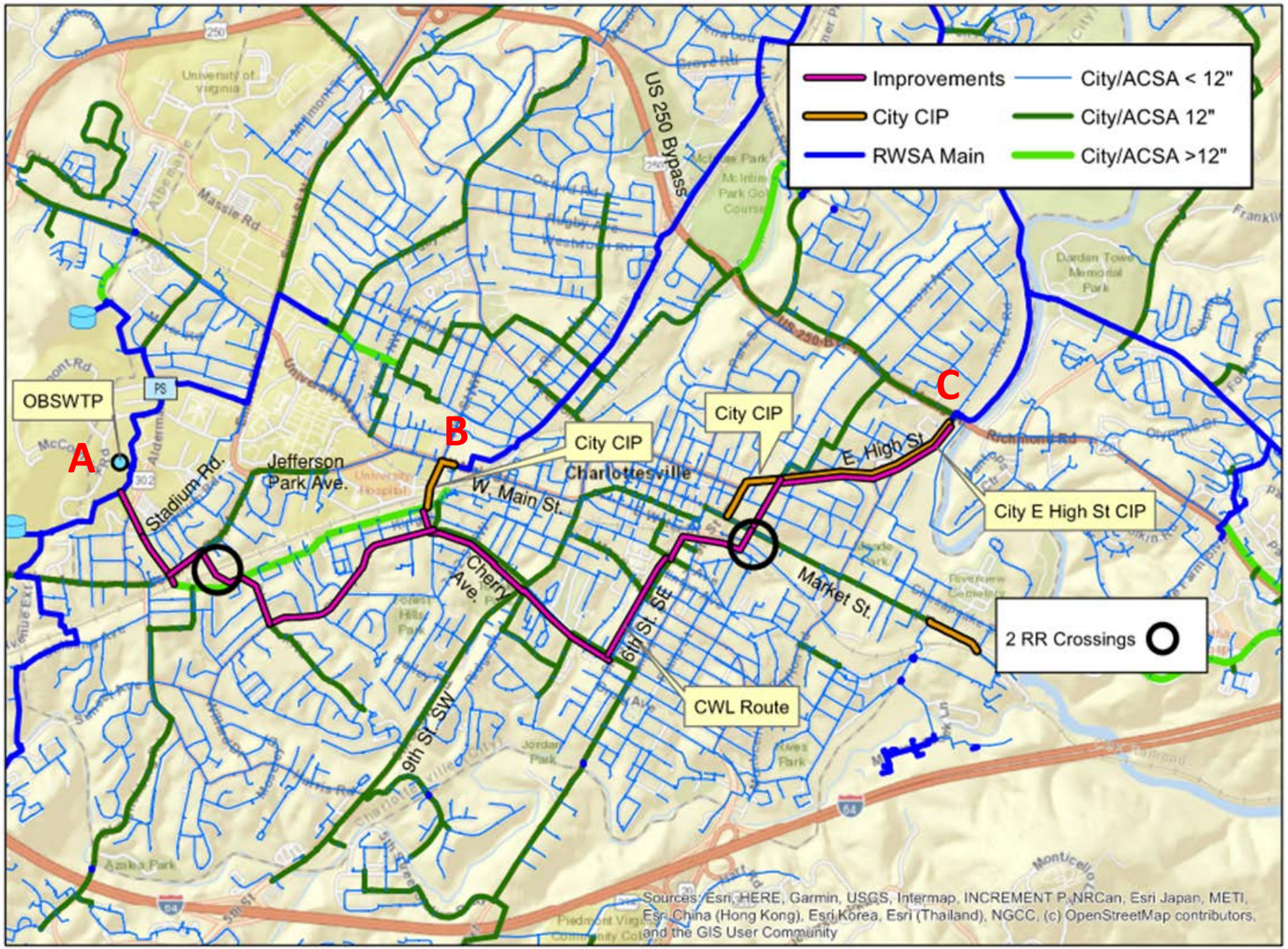
Southern Corridor Concept

Pros:

- Utilizes streets with wider rights-of-way which provides less impacts to traffic
- Better hydraulic connectivity to the southern portions of the City and Avon Tank

Challenges:

- Longest route



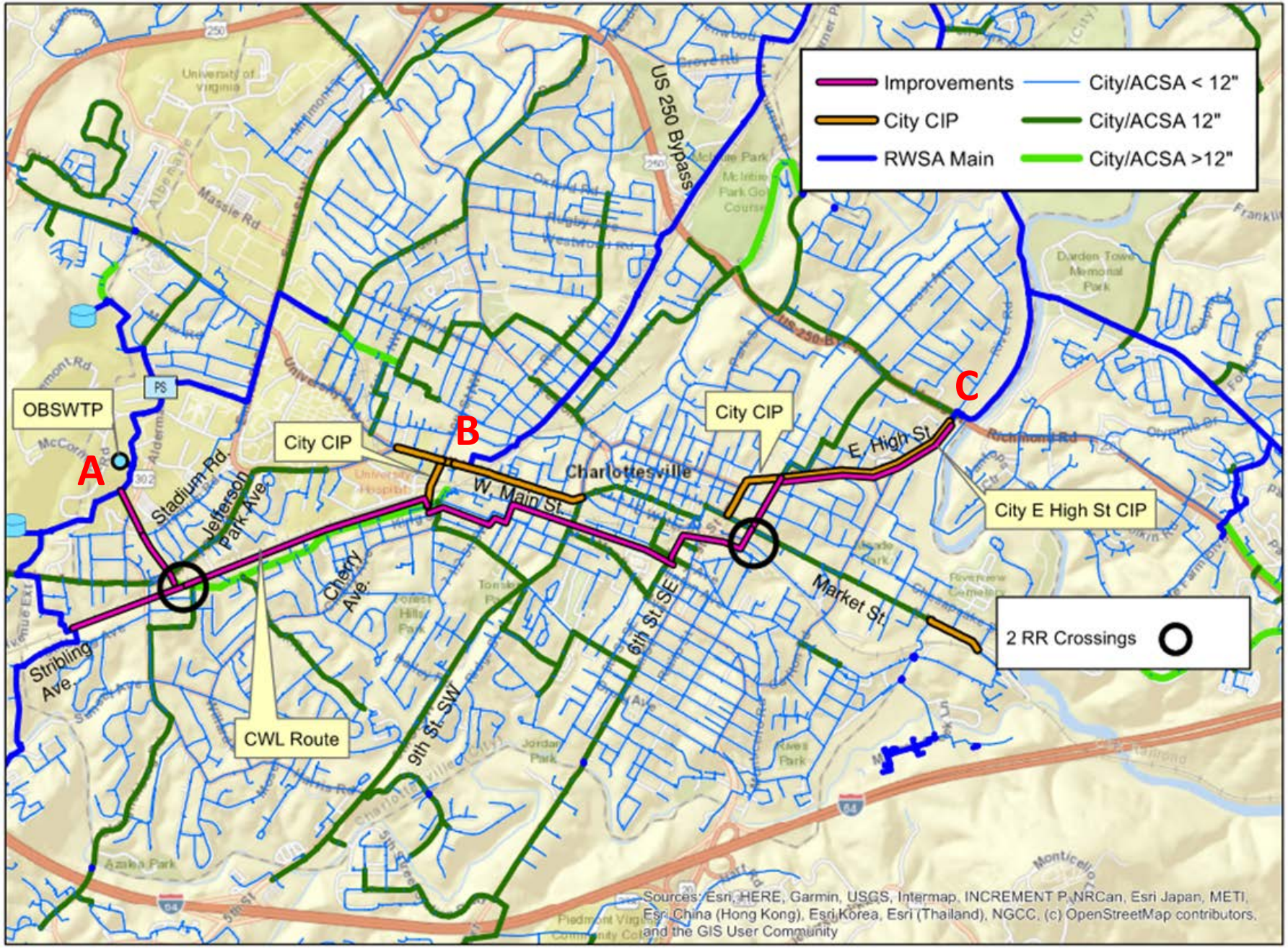
Railroad Corridor Concept

Pros:

- Second shortest route

Challenges:

- Grading, existing structures, and environmental concerns along railroad
- Railroad permitting for parallel WL installation may be difficult
- Extensive private easements needed and tree buffer clearing between homes and railroad

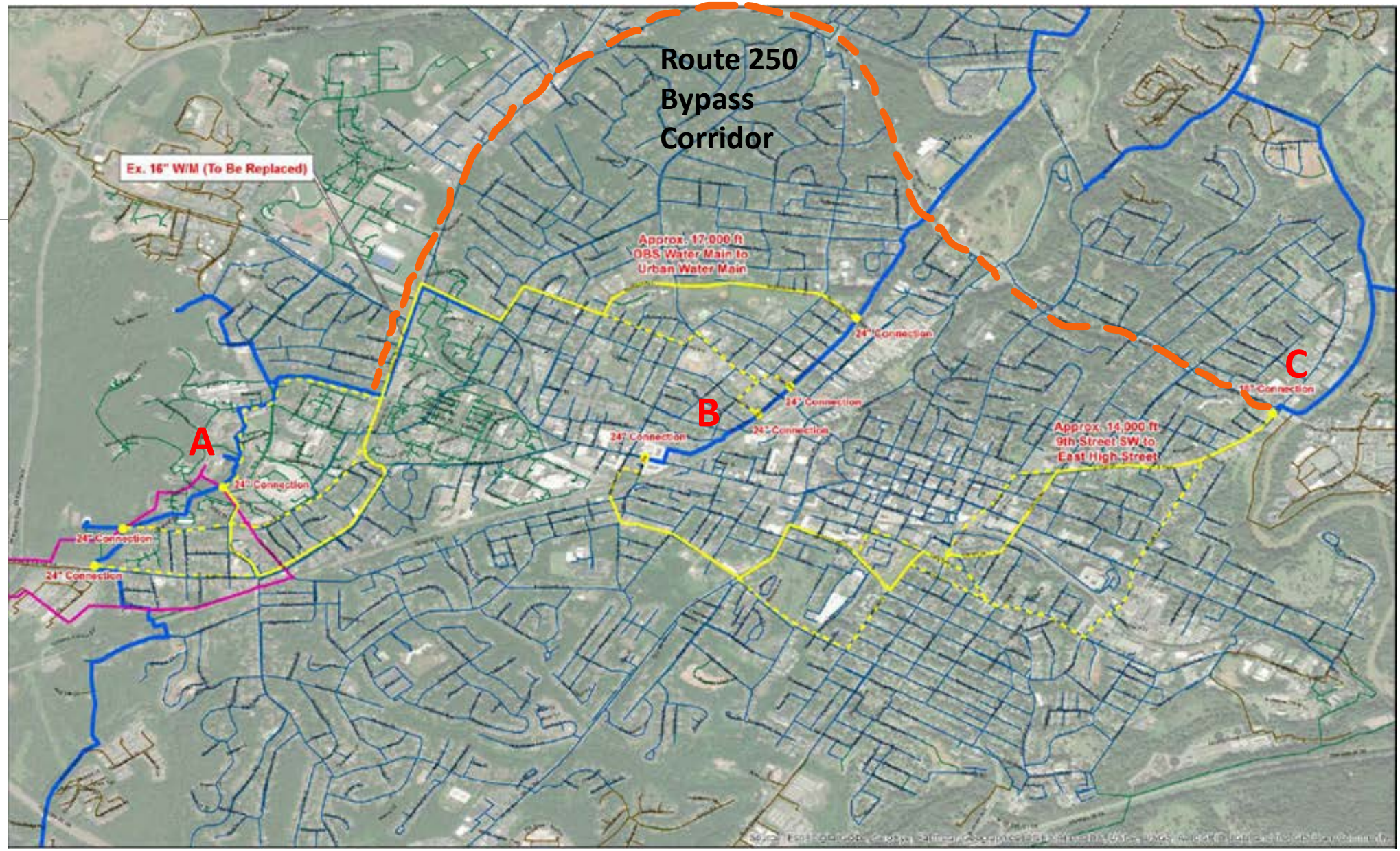


Other Options:

- Hybrid Corridor Concept (yellow)
- Route 250 Bypass Corridor Concept (orange)

Challenges:

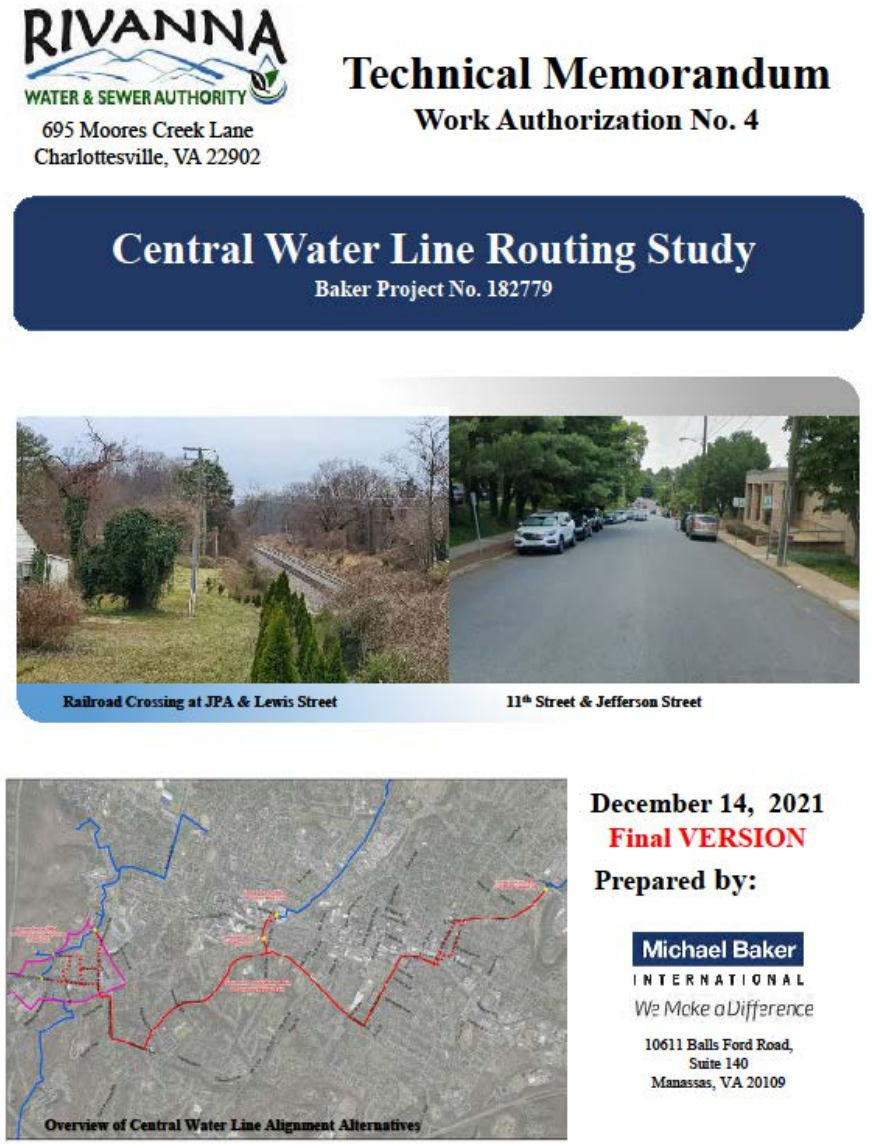
- Longest, most expensive routes
- Significant impacts to traffic and residential neighborhoods
- Less hydraulic benefit



CWL Routing Study

- Following multiple workshops and coordination with City of Charlottesville Utilities, City Traffic (NDS), and ACSA, the Southern Corridor Concept was selected for further evaluation

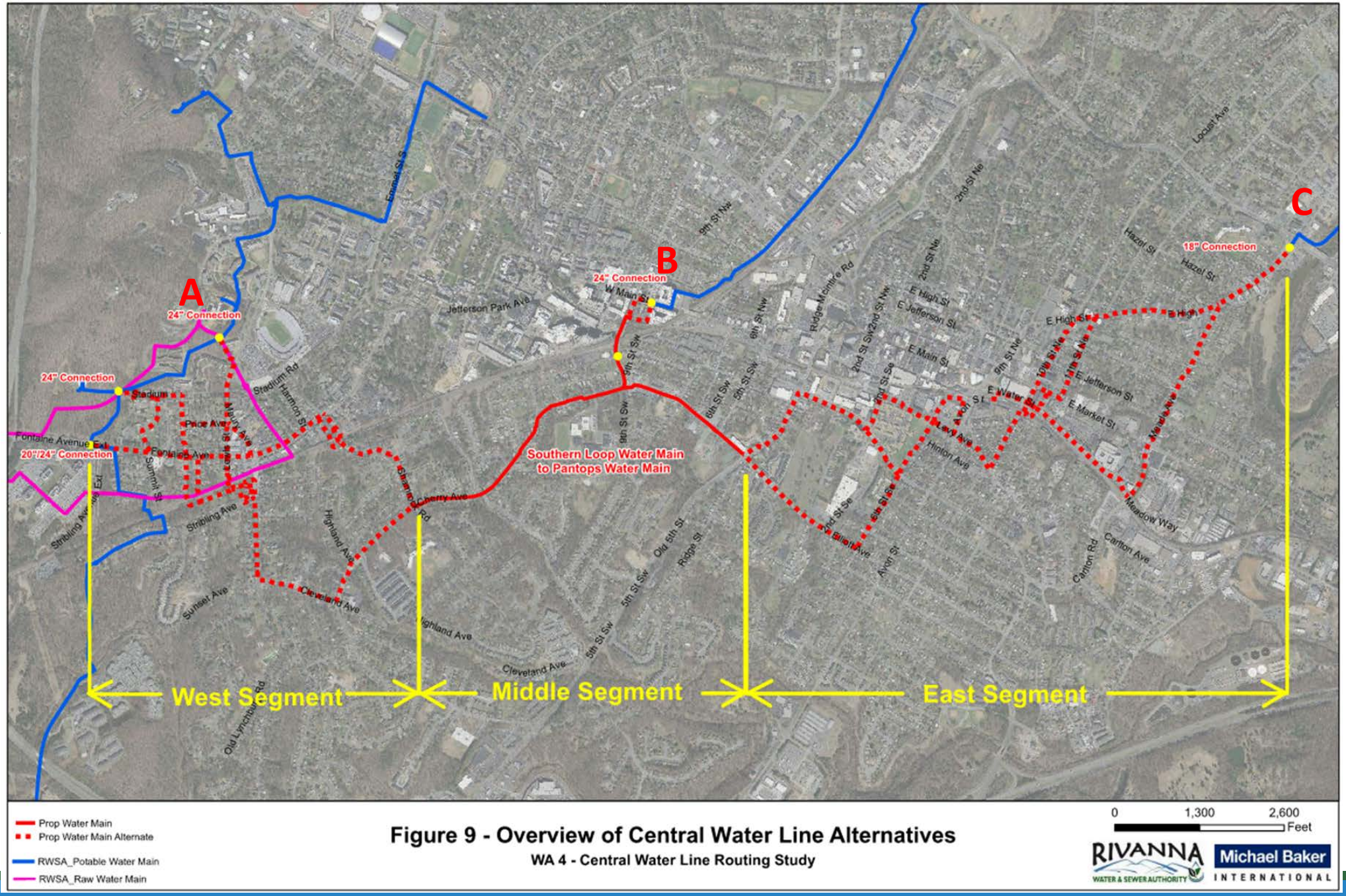
- Study located on our website at: Central-Water-Line-Routing-Study-Final-Tech-Memo-2021.12.14.pdf (rivanna.org)



Routing Study Criteria Evaluated

- Constructability
- Traffic, Parking, and Sidewalk Impacts
- Neighborhoods and Public Impacts
- Railroad Crossing Locations
- Existing Underground and Overhead Utility Congestion
- Access
- Construction Cost
- Opportunities to Coordinate with City Projects
- Easements
- Permitting

Routing Study Alternatives



Western Segment Evaluation

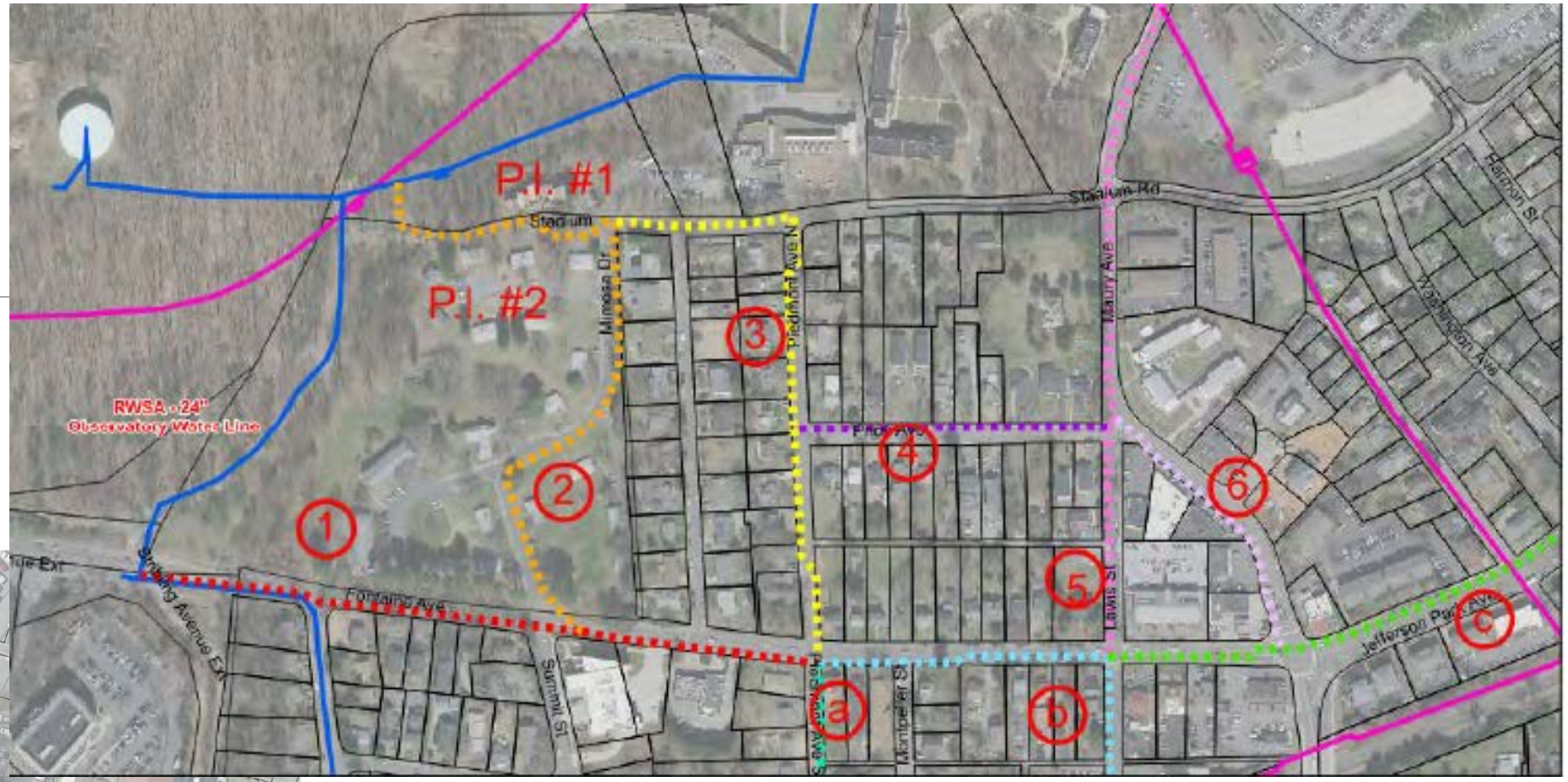
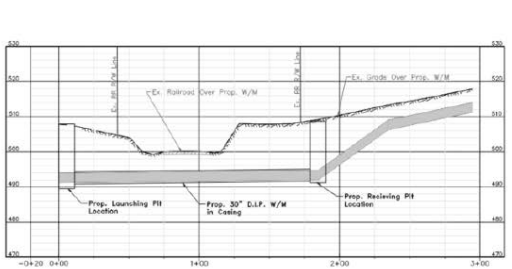
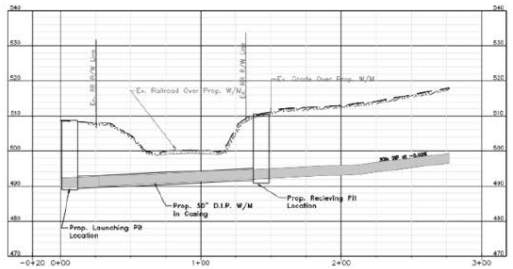


Figure 13 – Lewis Street Railroad Crossing Plan



LEWIS STREET ALIGNMENT 1 PROFILE



LEWIS STREET ALIGNMENT 2 PROFILE

West Alternative Alignment Evaluation

Alignment	Evaluation Factor								Total Score
	Impacts on Public During Construction (Traffic, Parking, Access)	Impacts on existing utilities (Congested underground utilities)	Impacts on private properties (Number of Parcels requiring easement)	Environmental Impacts/ Permitting Requirements	Future maintenance consideration (access, traffic, etc)	Trenchless Crossing - Required and Difficulty	Miscellaneous Challenges	Construction costs	
West 1a	1	2	0	1	1	1	1	1	8
West 1b	1	2	1	1	1	2	1	1	10
West 1c	0	1	1	1	0	1	1	2	7
West 2a	2	2	0	1	2	1	1	1	10
West 2b	1	2	1	1	1	2	1	1	10
West 2c	0	1	1	1	0	1	1	2	7
West 3a	2	1	0	1	2	1	1	1	9
West 3b	1	1	1	1	1	2	1	1	9
West 3c	0	1	1	1	0	1	1	2	7
West 4b	2	1	1	1	2	2	1	1	11
West 4c	1	1	1	1	1	1	1	2	9
West 5b	2	2	1	1	2	2	1	1	12
West 5c	1	1	1	1	1	1	1	2	9
West 6c	0	1	1	1	0	1	1	2	7

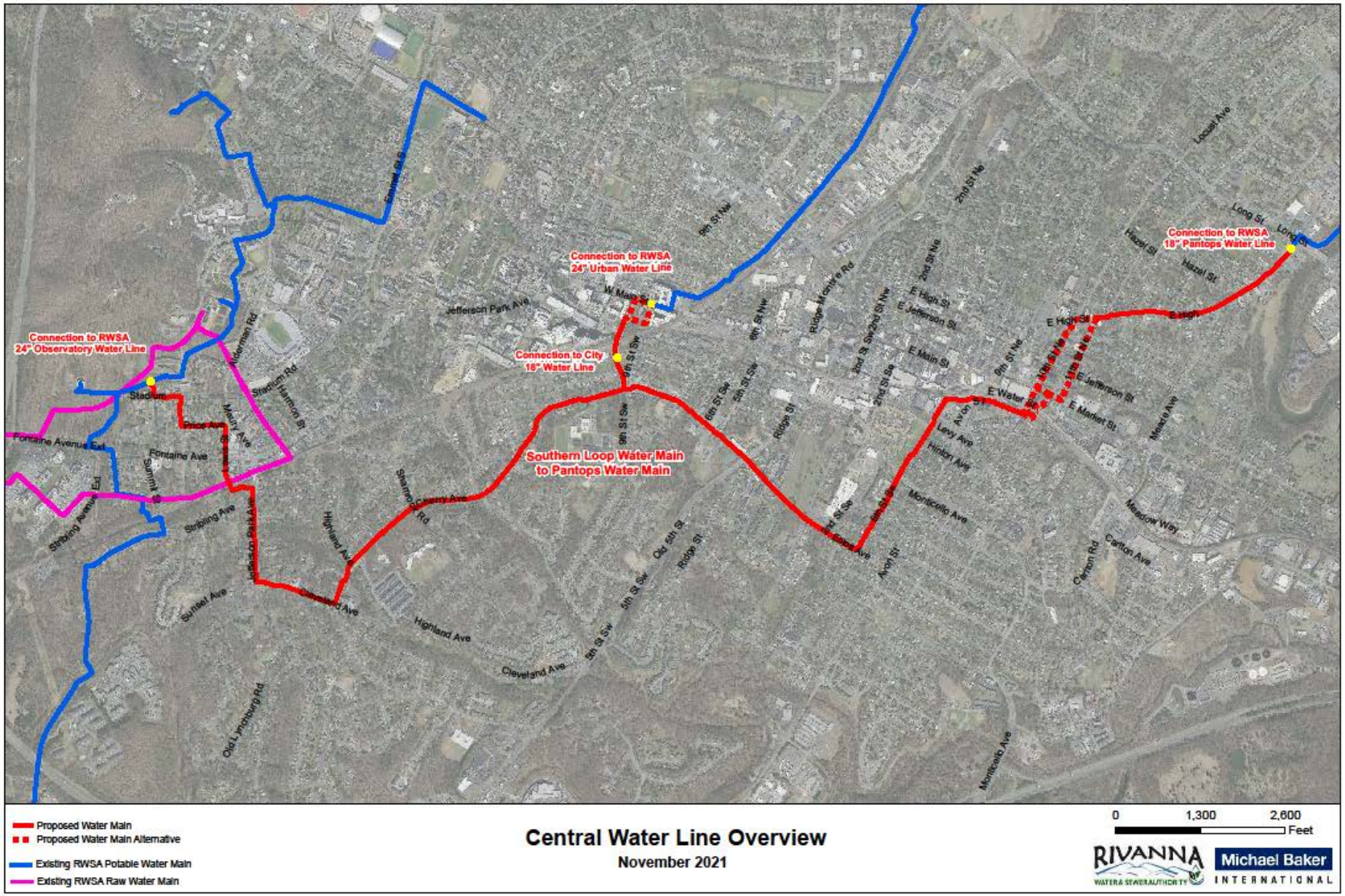
Alignment	Evaluation Factor					
	Fontaine Tie-In-->Lewis RR Crossing-->JPA-->Cleveland (1b)	Royal PS Tie-in-->Mimosa-->Fontaine-->Lewis RR Crossing-->JPA-->Cleveland (2b)	Royal PS Tie-in --> Stadium-->Piedmont/Price-->Lewis RR Crossing -->JPA->Cleveland (4b)	Royal PS Tie-in-->Stadium-->Piedmont/Price-->Fontaine/JPA->Shamrock RR Crossing (4c)	Alderman/OBS Tie-in-->Maury-->Lewis RR Crossing-->JPA-->Cleveland (5b)	Alderman/OBS Tie-in-->Maury->Fontaine/JPA-->Shamrock RR Crossing (5c)
Length	7,650 LF	8,320 LF	8,200 LF	6,650 LF	7,480 LF	6,000 LF
Preliminary Cost Estimate	$7.7M	$8.3M	$8.3M	$6.6M	$7.5M	$6.0M
Areas of Major Traffic Impact	Fontaine, JPA (south)	Fontaine, JPA (south)	JPA (South)	Fontaine/JPA (north), Shamrock	Alderman, JPA (South)	Alderman, Fontaine/JPA (North), Shamrock
Parcels Impacted	3 (residential)	5 (3 residential, 2 UVA)	5 (3 residential, 2 UVA)	4 (2 residential, 2 UVA)	4 (3 residential, 1 UVA)	3 (1 residential, 1 commercial, 1 UVA)
Miscellaneous Impacts	Fire Station Along Fontaine	Footprint on UVA (Mimosa); Fire Station Along Fontaine	Footprint on UVA (pedestrian trail)	Footprint on UVA (pedestrian trail)	Footprint on UVA (Alderman Rd)	Footprint on UVA (Alderman Rd)
Pros	No UVA Impact; follows lesser traffic route of JPA-Cleveland	Lewis RR Crossing - straightforward; follows lesser traffic route of JPA-Cleveland	Lewis RR Crossing - straightforward; follows lesser traffic route of JPA-Cleveland	Shamrock Routes are shorter and less expensive	Best hydrulic benefit (tie-in closest to OBSWTP); Lewis RR Crossing - straightforward; follows lesser traffic route of JPA-Cleveland	Best hydraulic benefit (tie-in closest to OBWTP); Shamrock Routes are shorter and less expensive
Cons	Fontaine Traffic/Parking Impacts; Least Hydraulic Benefit (furthest from OBSWTP); Fontaine routes are medium length/expense	Royal/Lewis routes are longer/more expensive; Residential yard impacts south of RR	Royal/Lewis routes are longer/more expensive; Residential yard impacts south of RR	Follows heavier traffic route of JPA-Shamrock; tight corridor and congested utilities along Shamrock	Footprint on UVA (Alderman Rd); Residential yard impacts south of RR	Footprint on UVA (Alderman Rd); follows heavier traffic route of JPA-Shamrock; tight corridor and congested utilites on Shamrock

Mutually Beneficial Projects Explored

- Main Street Streetscape Project – on hold
- E. High Street Water Main and Streetscape Project – coordination included
- Belmont Bridge Construction – ready for construction and our waterline could not be incorporated, however, our waterline will be built under the bridge and can be constructed independently with no interference
- Fontaine Streetscape Project – RWSA is coordinating the waterline crossing of Fontaine Ave at Lewis St.
- Emmet Street Corridor Streetscape Project – this corridor was not needed for the CWL, however, we are working with the City on replacing our aging cast iron waterline in Emmet St.

Final Selected Alignment

Streets from west to east: Stadium Road, Piedmont Avenue, Price Avenue, Lewis Street (to railroad), Jefferson Park Avenue, Cleveland Avenue, Cherry Avenue, Elliot Avenue, 6th Street SE, Avon Street (to railroad), E Water Street, 10th Street NE and/or 11th Street NE, and E High St to Long Street.



Project Schedule and Cost

- Design, permitting, bidding: 2021 - 2024
- Construction: 2024 – 2029
- Cost: $25 – 31 M

Questions?

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

MEMORANDUM

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

FROM: **LONNIE WOOD, DIRECTOR OF FINANCE & ADMINISTRATION**
BETSY NEMETH, HUMAN RESOURCES MANAGER

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

SUBJECT: **PAY SCALE ADJUSTMENT**

DATE: **JANUARY 25, 2022**

Staff, with the assistance of Evergreen Solutions, LLC (Evergreen) of Tallahassee, FL, conducted a comprehensive review of the compensation and classification system of both Authorities to determine if our compensation plan and pay scale continue to be competitive compared with the local market, the utility market, and internal expectations. Our last full compensation review was completed in January 2018. The study concluded with several recommendations that will increase our competitiveness in an increasingly challenging labor market, help retain employees and combat salary compression.

The external market compensation survey and analysis identified certain job classifications that are compensated below market average. The survey also found that the overall pay grade scale was below market conditions. The internal equity analysis identified classifications compensated disproportionately to other classifications based on complexity of the job performed.

In summary, the study recommends:

1. a 4% overall pay scale adjustment, which essentially has no budget impact.
2. Elimination of pay grades 10 and 20, as we have no employees in these pay ranges due to the complexity of our positions. This change will bring the Authorities minimum hourly wage to at least $15.00 per hour.
3. Pay grade changes to improve internal and external equity.

This study and the resulting recommended outcomes will help attract and retain a highly skilled workforce as set forth by the Strategic Plan goals of the Authorities.

Board Action Requested:

1. Adopt the Proposed Pay Scale effective February 1, 2022 (Table 1). This table shows the current pay scale compared with the proposed pay scale. The proposed pay scale includes a 4% increase in the overall scale and elimination of the two lowest pay grades (10 and 20).

2. Approval of the proposed classification pay grade placement changes as shown by the attached

Table 2. The pay grade changes correct external equity for classifications identified as above or below the market, as well as ensuring internal equity.

TABLE 1

Current Pay Scale			
Grade	**Min**	**Mid**	**Max**
10	$27,969	$37,199	$46,429
20	$29,368	$39,059	$48,750
30	$30,836	$41,012	$51,188
40	$32,378	$43,062	$53,747
50	$33,997	$45,215	$56,434
60	$35,696	$47,476	$59,256
70	$37,481	$49,850	$62,219
80	$39,355	$52,343	$65,330
90	$41,323	$54,960	$68,596
100	$43,389	$57,708	$72,026
110	$45,559	$60,593	$75,627
120	$47,837	$63,623	$79,409
130	$50,228	$66,804	$83,379
140	$52,740	$70,144	$87,548
150	$55,377	$73,651	$91,926
160	$58,146	$77,334	$96,522
170	$61,053	$81,200	$101,348
180	$64,106	$85,261	$106,415
190	$67,311	$89,524	$111,736
200	$70,676	$94,000	$117,323
210	$74,210	$98,700	$123,189
220	$77,921	$103,635	$129,349
230	$81,817	$108,816	$135,816
240	$85,908	$114,257	$142,607
250	$90,203	$119,970	$149,737

Proposed Pay Scale			
Grade	**Min**	**Mid**	**Max**
30	$32,069	$42,652	$53,236
40	$33,673	$44,784	$55,897
50	$35,357	$47,024	$58,691
60	$37,124	$49,375	$61,626
70	$38,980	$51,844	$64,708
80	$40,929	$54,437	$67,943
90	$42,976	$57,158	$71,340
100	$45,125	$60,017	$74,907
110	$47,381	$63,017	$78,652
120	$49,750	$66,168	$82,585
130	$52,237	$69,476	$86,714
140	$54,850	$72,950	$91,050
150	$57,592	$76,597	$95,603
160	$60,472	$80,427	$100,383
170	$63,495	$84,448	$105,402
180	$66,670	$88,671	$110,672
190	$70,003	$93,105	$116,205
200	$73,503	$97,760	$122,016
210	$77,178	$102,648	$128,117
220	$81,038	$107,780	$134,523
230	$85,090	$113,169	$141,249
240	$89,344	$118,827	$148,311
250	$93,811	$124,769	$155,726

TABLE 2

Job Title	Current Pay Grade	Proposed Pay Grade
Maintenance Worker	10	30
Operator/Attendant - Papersort	20	30
Operator/Attendant - Ivy	20	30
Administrative Assistant	30	40
Recycling Technician	30	40
Scale Clerk	30	40
Mechanic Helper	40	50
Plant Operator Trainee	50	60
Plant Operator 4	50	60
Mechanic 4	60	70
Mechanic 3	70	80
Plant Operator 3	70	80
Driver/Equipment Operator	80	90
Heavy Equipment Operator/Attendant	80	90
Vehicle Equipment Mechanic	80	90
Mechanic 2	90	100
Plant Operator 2	90	100
Water Quality Specialist	90	100
Plant Operator 1	110	120
Chemist	120	130
Instrumentation Specialist	120	130
Mechanic 1	120	130
Wastewater Supervisor	130	140
Water Supervisor	130	140
GIS Coordinator	140	150
Senior Accountant	150	160
Safety Manager	180	170
Human Resources Manager	190	200
Engineering Manager	210	220
IT Manager	210	220
Director of Solid Waste	230	240

Classification and Compensation Study for the Rivanna Authorities

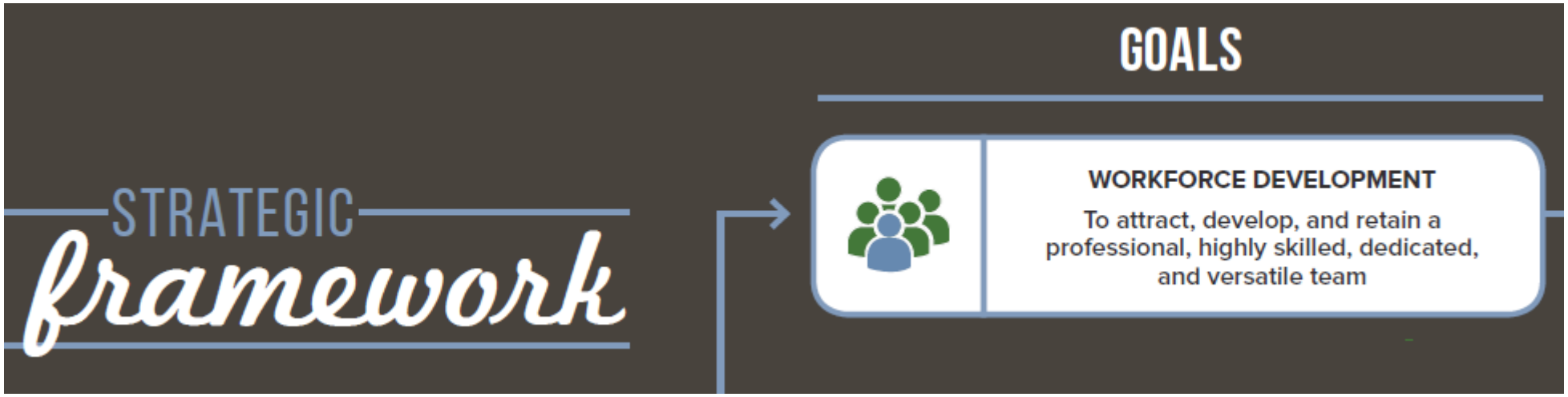
PRESENTED TO THE BOARDS OF DIRECTORS

BY: LONNIE WOOD, DIRECTOR OF FINANCE & ADMINISTRATION

BETSY NEMETH, HUMAN RESOURCES MANAGER

JANUARY 25, 2022

Strategic Plan Goal:
Workforce Development



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

Study Overview

Beginning in May 2021, Evergreen Solutions, LLC Began a Classification and Compensation Study for the Rivanna Authorities

Study Goals:

- Review the current classification and compensation system to ensure internal equity
- Survey local and utility peer organizations to ensure external equity
- Maintain competitiveness in the local labor marketplace

Assessment of Current Conditions

Key points of the Authorities' current classification and compensation structure:

- an open-range pay plan with 25 pay grades spanning from grade 10 to 250
- the difference between the minimum and maximum of each pay grade is 66%
- a 5% difference between each pay grade
- 60% of employee salaries fall below the mid-point of their pay grades

Market Survey – Organizations Surveyed

Market Peers	
Albemarle County	Hanover County
Albemarle County Service Authority	Henrico County
Appomattox River Water Authority	Louisa County Service Authority
Augusta County Service Authority	Prince William County Service Authority
Bedford County Service Authority	Southeastern Public Service Authority
Chesterfield County	Spotsylvania County Utilities Department
City of Charlottesville	Loudoun County Service Authority
City of Lynchburg	South Central Wastewater Authority
City of Staunton	Upper Occoquan Service Authority
Hampton Roads Sanitation District	Western Virginia Water Authority
Harrisonburg-Rockingham Regional Service Authority	

Blue Indicates Data Obtained

Market Survey Results

(Completed in August 2021)

- The Authorities are:
  - *4.4% Below market minimum*

    Minimums are considered entry level salaries for employees who have not yet mastered their job.
  - *3.6% Below market midpoints*

    Midpoints are the salary points at which employees are fully proficient in the performance their work.
  - *3.8% Below the market maximum*

    Market maximums represent the upper salary limit that an organization can offer in order to retain experienced or high performing employees.
  - *Competitive with peers on benefits*

Note: All data collected were adjusted for cost of living using a national index factor, which allowed salary dollars from organizations outside of the local area to be adjusted for cost of living relative to the Authorities. The County Cost of Living Index (COLI), which is published by the Council for Community and Economic Research (C2ER) was used for these results.

Recommendations

- Increase the current pay scale 4% to promote hiring and retention

  Increase any salary to the minimum of the new pay grade (estimated cost: $0 for RSWA; $6600 for RWSA)

- Remove 2 grades (10 and 20) from the pay scale to eliminate grades with wages less than $15 per hour

  Due to the nature and complexity of our positions, all of our employees have wages which exceed $15/hr

- Regrade certain positions to provide internal and external equity

  (Water/Wastewater Operators, Mechanics, Equipment Operators, and others)

Pay Scale Recommendations

CURRENT PAY SCALE

Pay Grade	Minimum	Midpoint	Maximum
10	$27,969	$37,199	$46,429
20	$29,368	$39,059	$48,750
30	$30,836	$41,012	$51,188
40	$32,378	$43,062	$53,747
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RECOMMENDED PAY SCALE

Pay Grade	Minimum	Midpoint	Maximum
30	$32,069	$42,652	$53,236
40	$33,673	$44,784	$55,897
50	$35,357	$47,024	$58,691
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Pay Grade Recommendations

Job Title	Current Pay Grade	Proposed Pay Grade
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Plant Operator 2	90	100
Water Quality Specialist	90	100
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Chemist	120	130
Instrumentation Specialist	120	130
Mechanic 1	120	130
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Water Supervisor	130	140
GIS Coordinator	140	150
Senior Accountant	150	160
Safety Manager	180	170
Human Resources Manager	190	200
Engineering Manager	210	220
IT Manager	210	220
Director of Solid Waste	230	240

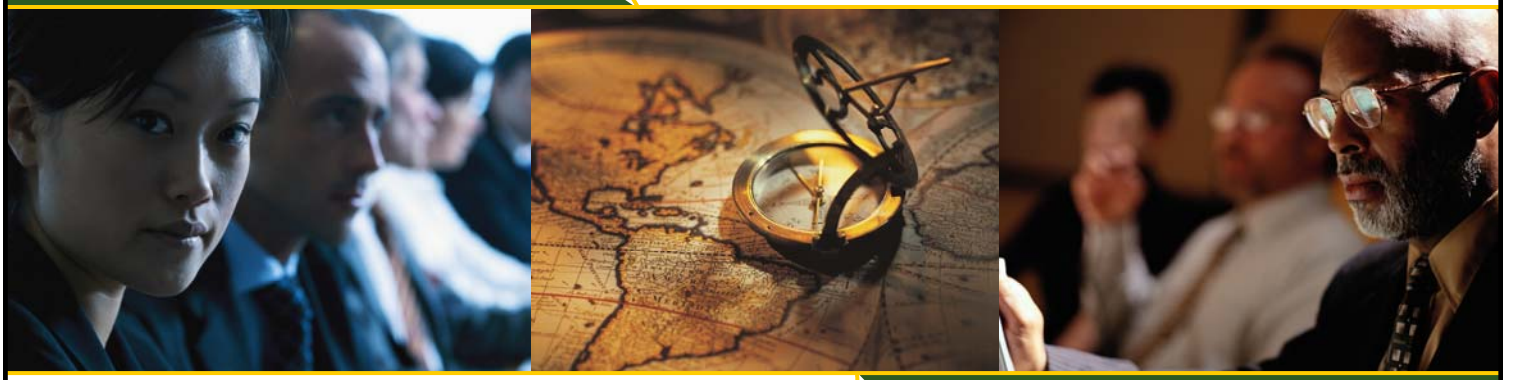
Questions?

Actions to be Considered by the Board:

Approve the recommended pay scale and position changes to be effective in February 2022.

Compensation Study
for the Rivanna Authorities, VA

FINAL REPORT



Evergreen Solutions, LLC

December 14, 2021

Table of Contents

Chapter 1 - Introduction

Evergreen Solutions, LLC (Evergreen) conducted a Compensation Study for the Rivanna Authorities (the Authorities) beginning in May 2021. The Authorities' pay structure was implemented in February 2018 following a compensation and classification study, which was also conducted by Evergreen. Following that study, and the recommendation to continue reviewing its compensation system on a regular basis, another compensation study was again conducted (by Evergreen) in 2021. As a result, the pay plan was adjusted to align with a more competitive market position and some classifications grades were adjusted in the pay plan to remain competitive. The Authorities continual pursuit of maintaining a highly competitive pay plan and efforts to make adjustments to employees' salaries accordingly is commended. The study findings and recommendations are contained in this report.

Study tasks involved:

- holding a study kick-off meeting;
- analyzing the Authorities' current salary structure (pay plan) to determine its strengths and weaknesses;
- facilitating discussions with the Authorities' project team to develop an understanding of its compensation philosophy;
- conducting a market salary survey to assess the external equity (market competitiveness) of the Authorities' current pay system and benefit offerings;
- revising the pay plan and examining any required changes to pay grade assignments as needed while ensuring internal and external equity;
- developing the most appropriate method for transitioning employees' salaries into the revised pay structure (plan);
- providing the Authorities with information and strategies regarding compensation and classification administration; and
- preparing and submitting draft and final reports that summarize the study findings and recommendations.

1.1 STUDY METHODOLOGY

Evergreen used a combination of quantitative and qualitative methods to develop recommendations to improve the Authorities' competitive position for its compensation system. Study activities included:

Kick-off Meeting

The kick-off meeting allowed members of the study team from the Authorities and Evergreen to discuss different aspects of the study. During the meeting, information about the Authorities' compensation (pay plan) and current pay philosophy was shared and the work plan for the study was finalized. The meeting also provided an opportunity for Evergreen to explain the types of data needed to begin the study.

Assessment of Current Conditions

This analysis provided an overall assessment of the Authorities' current pay structure (plan) and related employee data at the time of the study. The current pay plan and the progression of employees' salaries through the pay ranges were examined during this process. The findings of this analysis are summarized in Chapter 2 of this report.

Compensation Philosophy

Evergreen conducted meetings with the Authorities' project team to develop an understanding of its position with regard to employee compensation. Several key factors were examined and provided the framework for the recommended compensation system and related pay practices.

Salary and Benefits Survey – External Equity Analysis

For the salary survey, peers were identified that compete with the Authorities for human resources and provide similar services. All classifications were identified to be surveyed. After the selection of peers, a survey tool was developed for the collection of salary range data for each classification. Included was a survey to collect data about the core and fringe benefits offered by peer organizations. The salary and benefits data collected during this survey process were analyzed, and a summary provided, which can be found in Chapter 3 of this report.

Recommendations

During the review of the compensation philosophy, the Authorities identified its desire to be at a minimum, competitive with the labor market. Understanding this, and utilizing the findings of the analysis of both internal and external equity, a revised compensation system was developed. Recommendations were also provided on how to maintain the compensation system going forward. A summary of all study findings and recommendations can be found in Chapter 4 of this report.

1.2 REPORT ORGANIZATION

This report includes the following additional chapters:

- Chapter 2 – Assessment of Current Conditions
- Chapter 3 – Market Summary
- Chapter 4 – Recommendations

Chapter 2 – Assessment of Current Conditions

The purpose of this evaluation was to provide an overall assessment of the Authorities' compensation structure, and employee salary progression. Data included here reflect the conditions when the study began, and should be considered, as such, a snapshot in time. The insights gained from this evaluation provided the basis for further analysis through the course of this study. The results of this evaluation were considered during the review of internal equity and the analysis of peer market data. Subsequently, appropriate compensation related recommendations were developed for the Authorities and are described later in this report.

2.1 PAY PLAN ANALYSIS

The Authorities administered one open-range pay plan (with an established minimum, midpoint, and maximum) for 112 employees. As illustrated in **Exhibit 2A,** the plan had 25 pay grades, spanning from grade 10 to 250. The range spread (difference between the minimum and maximum) was a uniform 66 percent throughout the pay plan. The pay plan had a pay progression of five percent between each pay grade.

EXHIBIT 2A
OPEN RANGE PAY PLAN

Grade	Minimum	Midpoint	Maximum	Range Spread	Employees
10	$ 27,969.00	$ 37,199.00	$ 46,429.00	66.0%	1
20	$ 29,368.00	$ 39,059.00	$ 48,750.00	66.0%	8
30	$ 30,836.00	$ 41,012.00	$ 51,188.00	66.0%	3
40	$ 32,378.00	$ 43,062.00	$ 53,747.00	66.0%	1
50	$ 33,997.00	$ 45,215.00	$ 56,434.00	66.0%	10
60	$ 35,696.00	$ 47,476.00	$ 59,256.00	66.0%	1
70	$ 37,481.00	$ 49,850.00	$ 62,219.00	66.0%	9
80	$ 39,355.00	$ 52,343.00	$ 65,330.00	66.0%	12
90	$ 41,323.00	$ 54,960.00	$ 68,596.00	66.0%	14
100	$ 43,389.00	$ 57,708.00	$ 72,026.00	66.0%	0
110	$ 45,559.00	$ 60,593.00	$ 75,627.00	66.0%	14
120	$ 47,837.00	$ 63,623.00	$ 79,409.00	66.0%	8
130	$ 50,228.00	$ 66,804.00	$ 83,379.00	66.0%	2
140	$ 52,740.00	$ 70,144.00	$ 87,548.00	66.0%	3
150	$ 55,377.00	$ 73,651.00	$ 91,926.00	66.0%	1
160	$ 58,146.00	$ 77,334.00	$ 96,522.00	66.0%	4
170	$ 61,053.00	$ 81,200.00	$101,348.00	66.0%	5
180	$ 64,106.00	$ 85,261.00	$106,415.00	66.0%	1
190	$ 67,311.00	$ 89,524.00	$111,736.00	66.0%	10
200	$ 70,676.00	$ 94,000.00	$117,323.00	66.0%	0
210	$ 74,210.00	$ 98,700.00	$123,189.00	66.0%	1
220	$ 77,921.00	$103,635.00	$129,349.00	66.0%	0
230	$ 81,817.00	$108,816.00	$135,816.00	66.0%	1
240	$ 85,908.00	$114,257.00	$142,607.00	66.0%	0
250	$ 90,203.00	$119,970.00	$149,737.00	66.0%	3

Source: Created by Evergreen from data provided by the Authorities as of May 2021.

2.2 EMPLOYEE SALARY PLACEMENT BY GRADE

When assessing the effectiveness of the Authorities' pay plan and practices, it is important to analyze where employees' salaries fell within each pay range. Identifying those areas where there may be clusters of employees' salaries could illuminate potential pay progression concerns within the current plan. It should be noted that employees' salaries, and the progression of the same, is associated with an organization's compensation philosophy —

specifically, the method of salary progression and the availability of resources. Therefore, the placement of employees' salaries should be viewed with this context in mind.

Exhibit 2B illustrates the placement of employees' salaries relative to pay grade minimums and maximums. The exhibit contains the following:

- the pay grades,
- the number of employees assigned to the pay grade,
- the number and percentage of employees with salaries at the minimum, and
- the number and percentage of employees with salaries at the maximum

EXHIBIT 2B
SALARY PLACEMENT OF EMPLOYEES
AT THE MINIMUM AND MAXIMUM BY GRADE

Grade	Employees	# at Min	% at Min	# at Max	% at Max
10	1	0	0.0%	0	0.0%
20	8	0	0.0%	0	0.0%
30	3	0	0.0%	0	0.0%
40	1	0	0.0%	0	0.0%
50	10	0	0.0%	0	0.0%
60	1	0	0.0%	0	0.0%
70	9	0	0.0%	0	0.0%
80	12	1	8.3%	0	0.0%
90	14	0	0.0%	0	0.0%
110	14	0	0.0%	0	0.0%
120	8	0	0.0%	0	0.0%
130	2	0	0.0%	0	0.0%
140	3	0	0.0%	0	0.0%
150	1	0	0.0%	0	0.0%
160	4	0	0.0%	0	0.0%
170	5	0	0.0%	0	0.0%
180	1	0	0.0%	0	0.0%
190	10	0	0.0%	0	0.0%
210	1	0	0.0%	0	0.0%
230	1	0	0.0%	0	0.0%
250	3	0	0.0%	0	0.0%
Total	**112**	**1**	**0.9%**	**0**	**0.0%**

Source: Created by Evergreen from data provided by the Authorities as of May 2021.

Employees with salaries at the grade minimum are typically new hires or are new to their classification following a recent promotion; on the other hand, employees with salaries at the grade maximum are typically highly experienced and proficient in their classification. As **Exhibit 2B** illustrates, at the time of this study, there was 1 (0.9 percent) employee with a salary at their pay grade minimum, and no employees with salaries at their pay grade maximum.

Exhibit 2C illustrates the placement of employees' salaries in their pay grades relative to the pay grade midpoints (the average of the pay grade minimum and pay grade maximum) for the pay plan. The exhibits contain the following:

- the pay grades,
- the number of employees assigned to the pay grade,
- the number and percentage of employees with salaries below the midpoint, and
- the number and percentage of employees with salaries above the midpoint of each pay grade.

EXHIBIT 2C
SALARY PLACEMENT OF EMPLOYEES
BELOW AND ABOVE THE MIDPOINT BY GRADE

Grade	Employees	# < Mid	% < Mid	# at Mid	% at Mid	# > Mid	% > Mid
10	1	1	100.0%	0	0.0%	0	0.0%
20	8	8	100.0%	0	0.0%	0	0.0%
30	3	0	0.0%	0	0.0%	3	100.0%
40	1	1	100.0%	0	0.0%	0	0.0%
50	10	10	100.0%	0	0.0%	0	0.0%
60	1	1	100.0%	0	0.0%	0	0.0%
70	9	7	77.8%	0	0.0%	2	22.2%
80	12	9	75.0%	0	0.0%	3	25.0%
90	14	8	57.1%	0	0.0%	6	42.9%
110	14	8	57.1%	0	0.0%	6	42.9%
120	8	5	62.5%	0	0.0%	3	37.5%
130	2	0	0.0%	0	0.0%	2	100.0%
140	3	1	33.3%	0	0.0%	2	66.7%
150	1	0	0.0%	0	0.0%	1	100.0%
160	4	2	50.0%	0	0.0%	2	50.0%
170	5	3	60.0%	0	0.0%	2	40.0%
180	1	1	100.0%	0	0.0%	0	0.0%
190	10	3	30.0%	0	0.0%	7	70.0%
210	1	0	0.0%	0	0.0%	1	100.0%
230	1	0	0.0%	0	0.0%	1	100.0%
250	3	0	0.0%	0	0.0%	3	100.0%
Total	**112**	**68**	**60.7%**	**0**	**0.0%**	**44**	**39.3%**

Source: Created by Evergreen from data provided by the Rivanna Authorities as of May 2021.

Employees with salaries close to the midpoint of a pay range should be fully proficient in their classification and require minimal supervision to satisfactorily complete their job duties. Within this framework, grade midpoint is commonly considered to be the salary an individual could reasonably expect for similar work in the market. Therefore, it is important to examine the percentage and number of employees with salaries above and below the midpoint.

As **Exhibit 2C** illustrates, of the 112 employees in the Authorities' pay plan, 68 (60.7 percent) had salaries below the midpoint, and 44 (39.3 percent) had salaries above the midpoint.

2.3 SALARY QUARTILE ANALYSIS

This section provides an additional analysis of the distribution of employees' salaries across their respective pay ranges at the time of this study. For this analysis, employees' salaries were slotted within one of four equal distributions. The first quartile (0-25) represents the lowest 25 percent of the pay range. The second quartile (26-50) represents the segment of the pay range above the first quartile up to the pay range's midpoint. The third quartile (51-75) represents the part of the pay range above the midpoint up to the 75th percentile of the pay range. The fourth quartile (76-100) is the highest 25 percent of the pay range. This analytical method provided an opportunity to assess how employees' salaries are disbursed throughout each pay range, which can indicate whether clustering of employees' salaries existed.

Exhibit 2D provides a breakdown of placement of employees' salaries relative to salary quartiles and provides the following:

- the pay grades,
- the number of employees per pay grade, and
- the location (by quartile) of the employees' salaries within each grade.

EXHIBIT 2D
SALARY QUARTILE ANALYSIS FOR EMPLOYEES IN THE PAY PLAN

GRADE	Total Employees	1st Quartile # Employees	2nd Quartile # Employees	3rd Quartile # Employees	4th Quartile # Employees
10	1	1	0	0	0
20	8	1	7	0	0
30	3	0	0	1	2
40	1	0	1	0	0
50	10	5	5	0	0
60	1	1	0	0	0
70	9	3	4	2	0
80	12	3	6	3	0
90	14	2	6	6	0
110	14	1	7	4	2
120	8	0	5	2	1
130	2	0	0	1	1
140	3	1	0	2	0
150	1	0	0	0	1
160	4	1	1	1	1
170	5	2	1	2	0
180	1	1	0	0	0
190	10	0	3	6	1
210	1	0	0	0	1
230	1	0	0	1	0
250	3	0	0	0	3
Total	**112**	**22**	**46**	**31**	**13**
Percentage		**19.6%**	**41.1%**	**27.7%**	**11.6%**

Source: Created by Evergreen from data provided by the Authorities as of May 2021.

As **Exhibit 2D** illustrates, employees' salaries in the pay plan had the following distribution: 22 employees (19.6 percent) had salaries in the first quartile, 46 employees (41.1 percent) had salaries in the second quartile, 31 employees (27.7 percent) had salaries in the third quartile, and 13 employees (11.6 percent) had salaries in the fourth quartile. The number of employees in the second quartile could suggest some salary compression concerns. Further analysis will be conducted, and any recommendations to alleviate this, if necessary, will be made in **Chapter 4** of this report.

2.4 SUMMARY

Overall, the Authorities' compensation structure offered a firm foundation on which to build. The key points of the current structure were:

- The Authorities administered one open-range pay plan for 112 employees, with 60.7 percent of salaries falling below the midpoint.

- The Authorities had 41.1 percent of employees' salaries in the second quartile.

The Authorities' pay structure provided employees with a pay plan and ranges. However, salary compression is a potential for concern with a moderate concentration of employee salaries falling below the midpoint. The method by which salaries have progressed and should continue to progress was examined in more detail during the review of the Authorities' compensation philosophy.

The information gained from this review of current conditions was used in conjunction with the market analysis data to develop recommendations for a competitive compensation plan that would best align with the Authorities' compensation philosophy moving forward. These recommendations can be found in Chapter 4 of this report.

Chapter 3 – Market Summary

This chapter provides a market analysis comparing the Authorities' pay plan (salary ranges) and benefits to those at peer organizations. The data from targeted market peers were used to evaluate the overall compensation and benefits at the Authorities at the time of this study. It is important to note that the market comparisons contained herein do not translate at the individual level and are instead used to provide an overall analysis. The utilized methodology is not intended to evaluate salaries paid to individuals. An employee's total compensation (salary and benefits) is determined through a combination of factors, which could include: the market conditions for a job, geographic location of the organization, the candidate's prior education and experience, and/or an individual's negotiation skills during the hiring process. It should be noted that market comparisons are best thought of as a snapshot of current market conditions.

3.1 SALARY SURVEY RESULTS

Evergreen collected pay range information from target organizations utilizing a salary survey tool. All of the Authorities' classifications were included in the survey. The job title, a description of assigned duties, and the education and experience requirements for each benchmarked classification were provided in the survey tool so that peers could determine if the position existed within their organization.

Evergreen received concurrence from the Authorities' project team regarding the targets to which the survey was provided. Several factors were utilized when developing this peer list, including geographic proximity to the Authorities, similar service offerings, organization size, relative population being served by the organization, and organizations to which the Authorities are losing employees. Data were analyzed with adjustments for cost of living. Exhibit 3A provides the list of 17 peer organizations from which data was collected for 40 classifications from which salary range data were collected.

EXHIBIT 3A
MARKET PEERS

Market Peers
City of Charlottesville
City of Lynchburg
City of Staunton
Albemarle County
Chesterfield County
Hanover County
Henrico County
Albemarle County Service Authority
Appomattox River Water Authority
Augusta County Service Authority
Bedford County Service Authority
Hampton Roads Sanitation District
Harrisonburg-Rockingham Regional Sewer Authority
Loudoun County Service Authority
Louisa County Service Authority
Prince William County Service Authority
South Central Wastewater Authority
Southeastern Public Service Authority
Spotsylvania County Utilities Department
Upper Occoquan Service Authority
Western Virginia Water Authority

***Bold indicates data obtained from peer**

The pay plan overall was compared to a more than competitive market position (at the 60th percentile). This market position is ten percent higher than the market, which is slightly higher than the Authorities' desired position to be about five percent above the market. To determine the position of the existing structure, Evergreen compared the Authorities' 2021 salary ranges for the classifications to this market position. It is important to note that the data in the subsequent exhibits reflect the 60th percentile (ten percent above the market) for collected peer data for a given classification.

All data collected were adjusted for cost of living using a national cost of living index factor, which allowed salary dollars from organizations outside of the immediate recruiting area to be adjusted for cost of living relative to the Authorities. The cost-of-living index utilized is the County Cost of Living Index (COLI), published by the Council for Community and Economic Research (C2ER). COLI factors in the overall cost of living in the area, population density, and income per capita.

The market range data presented in this chapter were not the sole criteria for the proposed pay ranges. Some classifications' grade assignments varied from their associated market range due to the other factors, such as internal hierarchy. More detail on this analysis is provided in **Chapter 4.**

Exhibit 3B contains the following information:

- The market salary range information for each classification. This indicates the 60th percentile (ten percent above the market) of the minimum, midpoint, and maximum of the peer survey data for each benchmarked classification.

- The percent differentials (to the Authorities' existing salary ranges). A positive differential indicates the Authorities pay range for these positions was above the 60th percentile (ten percent above the market) for that classification at the minimum, midpoint, or maximum. A negative differential indicates the Authorities' pay range was below the 60th percentile (ten percent above the market) for that classification. The final row provides the average percent differentials for the ranges' minimum, midpoint, and maximum for all benchmarked classifications. This represents an average of all classifications' differentials.

- The survey average range width. This provides the average range width for each classification surveyed determined by the average minimum and average maximum salaries of the respondents, relative to the minimum. The average range width for all the classifications is provided in the final row.

- The number of data points for each classification is provided in the final column. The average number of data points for all the classifications is provided in the final row of the exhibit.

EXHIBIT 3B
SALARY SURVEY SUMMARY—60TH PERCENTILE

Classification	Survey Minimum		Survey Midpoint		Survey Maximum		Survey Avg	# of Data
	60th Percentile	% Diff	60th Percentile	% Diff	60th Percentile	% Diff	Range	Points
Accounting Associate	$38,950.67	1.0%	$48,643.50	7.3%	$59,337.93	9.6%	54.5%	4
Accounting Technician (Accounts Payable and Accounts Receivable)	$37,291.09	5.4%	$48,848.47	6.9%	$60,053.56	8.4%	64.3%	7
Administrative Office Technician	$37,883.41	3.8%	$48,209.21	8.2%	$64,664.88	1.0%	63.2%	3
Adminstrative Assistant	$40,335.18	-26.7%	$48,404.91	-16.5%	$60,912.84	-17.4%	64.9%	8
Chemist	$50,462.80	-5.3%	$67,895.70	-6.5%	$85,328.59	-7.2%	65.1%	5
Civil Engineer	$58,457.96	4.3%	$78,200.33	3.8%	$97,275.47	4.1%	69.7%	8
Communication Manager/Executive Coordinator	$59,683.77	-26.8%	$77,095.19	-24.0%	$94,955.44	-22.7%	66.5%	4
Director of Engineering & Maintenance	$95,522.04	-5.7%	$124,399.68	-3.6%	$154,981.48	-3.4%	48.7%	4
Director of Finance & Administration	$106,308.79	-16.4%	$137,774.95	-13.8%	$170,605.67	-13.0%	60.5%	7
Director of Operations	$99,480.67	-9.8%	$130,286.07	-8.2%	$161,091.47	-7.3%	56.8%	3
Driver/Equipment Operator	$32,858.54	18.0%	$43,755.19	17.9%	$54,651.84	17.8%	63.1%	7
Engineering Manager	$81,727.84	-9.6%	$110,006.44	-10.8%	$137,687.39	-11.1%	66.9%	4
Engineering Technician/Inspector	$43,887.67	8.6%	$59,082.22	7.4%	$73,180.96	8.2%	65.8%	7
Executive Assistant	$50,076.93	-14.3%	$67,606.41	-15.8%	$85,135.90	-16.7%	71.0%	6
GIS Coordinator	$65,500.11	-21.6%	$84,266.98	-18.3%	$109,233.93	-22.0%	67.2%	4
Heavy Equipment Operator/Attendant	$36,361.67	7.9%	$48,910.63	6.8%	$59,196.46	9.9%	62.5%	6
Human Resource Manager	$66,394.85	1.4%	$94,265.64	-5.2%	$111,534.94	0.2%	72.0%	6
Information Systems Administrator	$65,374.23	2.9%	$86,327.63	3.6%	$107,036.89	4.3%	62.2%	3
Instrumentation Specialist	$44,810.09	6.5%	$63,413.57	0.3%	$82,017.06	-3.2%	67.5%	4
IT/SCADA Technician	$49,871.44	-9.0%	$60,836.50	-0.4%	$69,528.16	8.4%	51.0%	3
Lab Manager	$60,933.61	0.2%	$84,654.96	-4.2%	$110,251.52	-8.4%	71.7%	4
Maintenance Manager	$50,803.84	28.0%	$76,636.00	15.5%	$101,399.55	9.7%	80.7%	5
Maintenance Worker	$32,712.96	-15.6%	$41,119.27	-10.0%	$50,608.33	-8.6%	51.6%	6
Manager of Information Tech.	$75,639.53	-1.9%	$94,803.07	4.0%	$119,697.82	2.9%	70.2%	5
Mechanic 1	$51,966.50	-8.3%	$68,164.45	-6.9%	$84,362.39	-6.0%	58.0%	3
Mechanic 2	$42,676.11	-3.2%	$56,109.06	-2.1%	$69,809.18	-1.8%	62.7%	4
Mechanic 3	$47,277.90	-23.1%	$62,280.45	-22.2%	$77,283.00	-21.6%	60.8%	5
Payroll & Benefits Coordinator	$65,884.51	-50.4%	$87,240.34	-50.0%	$108,596.16	-49.8%	76.9%	3
Plant Operator 1	$46,883.48	-2.9%	$62,658.46	-3.4%	$78,569.85	-3.8%	67.2%	8
Plant Operator 2	$42,319.88	-2.4%	$56,315.38	-2.4%	$70,310.89	-2.5%	67.4%	6
Plant Operator 3	$38,373.83	-2.4%	$51,674.41	-3.6%	$64,539.61	-3.7%	64.1%	7
Plant Operator 4	$34,721.06	-2.1%	$47,141.57	-4.2%	$59,196.46	-4.8%	69.5%	6
Plant Operator Trainee	$32,572.12	4.3%	$43,078.53	4.8%	$54,263.77	3.9%	65.6%	6
Safety Manager	$64,234.23	-0.2%	$84,984.13	0.3%	$111,534.94	-4.7%	67.4%	6
Scale Clerk	$29,546.57	4.3%	$39,161.59	4.6%	$48,343.53	5.7%	58.9%	3
Senior Accountant	$58,953.23	-6.3%	$78,600.46	-6.5%	$98,247.68	-6.6%	72.5%	6
Senior Civil Engineer	$68,072.83	-1.1%	$91,022.24	-1.7%	$113,971.65	-2.0%	69.2%	3
Utility Locator	$36,093.04	8.6%	$48,910.63	6.8%	$61,693.72	5.7%	74.1%	6
Wastewater Department Manager	$70,191.18	-4.2%	$84,590.49	5.7%	$107,927.27	3.5%	69.1%	4
Water Department Manager	$71,405.86	-5.9%	$89,015.92	0.6%	$112,810.79	-1.0%	69.5%	5
Water Quality Specialist	$45,549.64	-9.7%	$60,898.99	-10.3%	$76,248.34	-10.6%	77.8%	4
Overall Average		**-4.4%**		**-3.6%**		**-3.8%**	**65.6%**	**5.1**

Market Minimums

A starting point of the analysis was to compare the peer's market minimum for each classification to the Authorities' range minimums. Market minimums are generally considered an entry level salary for employees who meet the minimum qualifications of a classification. Employees with salaries at or near the range minimums typically have not mastered the job and probably have not acquired the skills and experience necessary to be fully proficient in their classification.

As **Exhibit 3B** illustrates for benchmarked classifications, the Authorities was, on average, approximately 4.4 percent below the 60th percentile market position at the minimum of the respective salary ranges.

Market Midpoints

Market midpoints are important to consider because they are commonly recognized as the salary point at which employees are fully proficient in satisfactorily performing their work. As such, midpoint is often considered as the salary point at which a fully proficient employee could expect his or her salary to be placed.

As **Exhibit 3B** illustrates for the benchmarked classifications, the Authorities was, on average, approximately 3.6 percent below the competitive market position at the midpoint of the respective salary ranges.

Market Maximums

In this section, salary range maximums are compared to the peers' average of maximums for each benchmarked classification. The market maximum is significant as it represents the upper limit salary that an organization might provide to retain and/or reward experienced and high performing employees. Additionally, being competitive at the maximum allows organizations to attract highly qualified individuals for in-demand classifications.

As **Exhibit 3B** illustrates for the benchmarked classifications, the Authorities was, on average, approximately 3.8 percent below the competitive market position at the maximum of the respective salary ranges.

Shift Differential and Inclement Weather Pay

Peers were also asked to respond to additional questions regarding shift differential pay and inclement weather pay. Four peers responded to these questions. With respect to shift differential pay, one peer responded that they pay employees five percent of their hourly rate for shift differential pay, which is higher than the two percent of the hourly rate the Authorities paid its employees for shift differential pay. Neither the respondent peers nor the Authorities offered inclement weather pay.

3.2 SALARY SURVEY SUMMARY

It should again be noted that the standing of a classification's pay range compared to the market is not a definitive assessment of an individual employee's salary being equally above or below market. A salary range does, however, speak to the Authorities' general ability to recruit and retain talent over time. If a range minimum is significantly lower than the market would offer, the Authorities could find itself losing out to its market peers when it seeks to fill a position. It is equally true that range maximums lower than the market maximums may serve as a disincentive for experienced employees to remain at the Authorities. From the analysis of the data gathered and discussed above, the benchmark classifications' ranges were generally found to be below the Authorities' desired position of leading the labor market at the 60th percentile.

3.3 BENEFITS SURVEY RESULTS

In addition to the salary survey, Evergreen conducted a benefit survey to compare the Authorities' current employee benefits to those of its peers. The information provided in this section is a result of the analysis of the current benefits at the Authorities and at each peer organization, which are subject to change. Benefit plans have intricacies that are not represented in this chapter; therefore, the data provided should not be used independently as a line-by-line comparison of benefits. It should also be noted that benefits are usually negotiated and acquired through third parties, so one-to-one comparisons can be difficult. The analysis below highlights the results of the benefits survey. Data were requested from the same peers contacted for the salary survey and subsequently collected from the nine peer organizations identified in **Exhibit 3C.**

EXHIBIT 3C
MARKET PEERS

Market Peers
City of Charlottesville
City of Lynchburg
Chesterfield County
Albemarle County Service Authority
Appomattox River Water Authority
Augusta County Service Authority
Loudoun County Service Authority
Louisa County Service Authority
Southeastern Public Service Authority

*Bold indicates data obtained from peer

Employee Health Plans

Exhibit 3D shows the number of health plans provided to current employees by the responding peers and the Authorities. The average number of health plans provided (any combination of PPO, HMO, or HDHP) was 2.1 based on the market. The Authorities offered one POS (Point of Service) medical plan and one HDHP (High Deductible Health Plan) medical plan. Subsequent comparisons will be based on peers' POS and HDHP plans.

EXHIBIT 3D
NUMBER OF HEALTH PLANS

Number of Plans	Peer Average	Rivanna Authorities
Number of health plans offered	2.1	2

Premiums and Deductibles

Exhibit 3E displays information regarding the POS health plans of peers compared to the Authorities' plan. Compared to their peers with POS plans, the Authorities' employees paid more for individual and family coverage. The in-network deductibles were slightly higher than peers' deductibles, but the out of network deductibles were slightly lower.

Comparisons for the HDHP (**Exhibit 3F**) were limited since only two peers responded. The premiums for employee only coverage were slightly lower for Authorities' employees compared to the peers' premiums. It should be noted that the Authorities paid a significantly portion of the HDHP health plan premiums. The peers, by contrast, paid less for the premiums, but contributed between $3,600-$7,200 to employees' health savings accounts to cover medical expenses. The in-network deductibles of the peers' plans compared to the Authorities' plan were comparable, and the peers did not have an out of network deductible whereas the Authorities did have out of network deductibles.

EXHIBIT 3E
POS MEDICAL PLAN
PREMIUMS AND DEDUCTIBLES

Premium Paid by Employee for:	Peer POS Average	Rivanna Authorities
Percentage of peers offering each plan	55.56%	Yes; 1
Employee coverage	$3.33	$35.00
Employee + Family	$340.47	$454.00

Premium Paid by Employer for:	Peer POS Average	Rivanna Authorities
Employee coverage	$595.33	$672.75
Employee + Family	$999.12	$1,729.41

Deductibles	Peer POS Average	Rivanna Authorities
Individual Maximum In Network	$750.00	$1,000.00
Individual Maximum Out of Network	$2,250.00	$4,500.00
Employee + Family Maximum In Network	$1,275.00	$2,000.00
Employee + Family Maximum Out of Network Network	$4,500.00	$9,000.00

EXHIBIT 3F
HDHP MEDICAL PLAN PREMIUMS AND DEDUCTIBLES

Premium Paid by Employee for:	Peer HDHP Average	Rivanna Authorities
Percentage of peers offering each plan	22.22%	Yes; 1
Employee coverage	$12.00	$5.00
Employee + Family	$284.00	$360.00

Deductibles	Peer HDHP Average	Rivanna Authorities
Individual Maximum In Network	$2,800.00	$3,000.00
Individual Maximum Out of Network	n/a	$6,000.00
Employee + Family Maximum In Network	$5,800.00	$6,000.00
Employee + Family Maximum Out of Network Network	n/a	$12,000.00

Other Insurance Plans

Exhibit 3G displays information from the responding peers and the Authorities, regarding whether dental and vision insurances were offered. The Authorities offered both dental and vision insurance to its employees. In comparison, 88.9 percent of peers offered dental insurance, and 66.7 percent of employers offered vision insurance.

EXHIBIT 3G
DENTAL AND VISION INSURANCE PLAN OFFERINGS

Dental and Vision	Peer Average	Rivanna Authorities
Offer Dental?	88.9%	Yes
Offer Vision?	66.7%	Yes

Tuition Reimbursement

Tuition reimbursement for employees is provided by 88.9 percent of peers, with an average reimbursement limit of $3,716.67 per year. The Authorities also provided tuition reimbursement to its employees with a reimbursement limit of $5,250 per fiscal year.

EXHIBIT 3H
TUITION REIMBURSEMENT

Tuition Reimbursement	Peer Percentage (Yes)	Peer Average	Rivanna Authorities
Offered?	88.9%	–	Yes
Limit	–	$ 3,716.67	$5,250/year

Employee Leave and Holidays

The Authorities observed 12.5 holidays per year, and the peers, on average, also observed 12.5 holidays per year. **Exhibit 3I** provides the average accrual rates for sick and annual/vacation for peers and the Authorities. The Authorities' accrual rates for sick leave (8.0 hours per month) was about the same as the peers' sick leave accrual (8.2 hours per month). The Authorities' minimum annual/vacation leave accrual rate of 8.0 hours per month was higher than the peers' average minimum annual/vacation leave accrual rate of 6.2 hours per month. While the average maximum annual/vacation leave accrual rate for the Authorities was higher at 18.0 hours per month, compared to 14.1 hours among peer organization, the Authorities' employees had to wait 25 years before reaching the maximum accrual rate. By comparison, employee at peer organizations had to wait, on average, 19.2 years before accruing the maximum rate of annual/vacation leave. Some peers (22.2 percent) provided a paid time off in a single pool that could be used for either sick leave or annual/vacation leave. The minimum monthly accrual rate for paid time off was 10 hours, and the maximum monthly accrual rate for paid time off was 20 hours. Unlike the Authorities, 11.1 percent of peers also offered 14-20 hours of personal leave to its employees, above and beyond sick leave and annual/vacation leave.

EXHIBIT 3I
LEAVE TIME ACCRUAL

Leave Accrual	Organization	Offered?	Minimum Accrual Rate in Hours (Monthly)	Years of service to accrue the minimum rate	Maximum Accrual Rate in Hours (Monthly)	Years of service to accrue the maximum rate
Sick Leave	Peer Average Offered	77.8%	8.2	0.0	8.2	0.0
	Rivanna Authorities	Yes	8.0	0.0	8.0	0.0
Annual/Vacation Leave	Peer Average Offered	77.8%	6.8	0.0	14.1	19.2
	Rivanna Authorities	Yes	8.0	0.0	18.0	25.0
Paid Time Off	Peer Average Offered	22.2%	10.0	0.0	20.0	20.0
	Rivanna Authorities	No	n/a	n/a	n/a	n/a

Retiree Benefits

The peers were also asked about its retiree insurance offerings. The Authorities, and 33.3 percent of its peers, offered life insurance to its retirees. In contrast, 44.4 percent of peers offered retiree health insurance and 33.3 percent of peers offered retiree dental insurance. The Authorities did not offer either retiree health or retiree dental insurance at the time of the study.

EXHIBIT 3J
RETIREE INSURANCE OFFERINGS

Plan Type	Organization	Percentage Offered
Retiree Health	Peer Average	44.4%
	Rivanna Authorities	No
Retiree Dental	Peer Average	33.3%
	Rivanna Authorities	No
Retiree Life	Peer Average	33.3%
	Rivanna Authorities	Yes

3.4 BENEFITS SURVEY SUMMARY

The peer benefit data summarized in this chapter indicate that the Authorities' benefits offerings were, overall, competitive with its peers. For instance, the Authorities' medical deductibles for the POS and HDHP plan were competitive, the tuition reimbursement limit was generous, and the sick leave and annual/vacation leave accrual rates were also competitive. Employee paid health insurance premiums were potential areas for improvement since they were higher, on average, than peers' employee paid health insurance premiums.

3.5 MARKET SUMMARY

It should again be noted that the standing of a classification's pay range compared to the Authorities' desired market position is not a definitive assessment of an individual employee's salary being equally above or below market. It is also important to consider how employee salaries are progressing through the pay ranges. The pay range does, however, speak to the Authorities' general ability to recruit and retain talent over time. If a range minimum is significantly lower than the market would offer, the Authorities could find itself losing out to its market peers when it seeks to fill a position. It is equally true that range maximums lower than the market maximums may serve as a disincentive for experienced employees to remain at the Authorities.

From the analysis of the data gathered in the external assessment discussed above, the Authorities' pay plan was found to be below its desired market position. When comparing employee benefits, the Authorities was found to be generally competitive with its benefits offerings. All study findings and subsequent recommendations can be found in the next chapter of this report.

Chapter 4 – Recommendations

The analysis of the Authorities' compensation system revealed that its pay plan had some opportunities for improvement. Evergreen worked to build on the strength of the existing pay structure while placing focus on developing a more competitive pay plan that could be implemented as budget conditions permit. Study recommendations, as well as the findings that led to each, are discussed in this chapter.

4.1 COMPENSATION SYSTEM

The compensation system analysis consisted primarily of an external market assessment during which the Authorities' pay ranges for its classifications were compared to the 60th percentile (its desired market position). Details regarding the external market assessment were provided in **Chapter 3** of this report. Additionally, internal equity (i.e., the hierarchy of classifications), was considered. Both factors were utilized when developing the recommendations below.

FINDING

The Authorities' salary ranges were behind its desired market position (60th percentile) for many of the classifications at the minimum, midpoint, and maximums, thus indicating the current pay ranges needed revision to be more competitive.

RECOMMENDATION 1: Increase the current pay plan (ranges) by four percent. Implement the revised pay plan with recommended re-slotting of some classifications within the plan based on external analysis and internal hierarchy review; and transition employees' salaries into the plan.

Consistent with the Authorities' compensation philosophy, the pay plan retained its open-range structure. **Exhibit 4A** shows the proposed pay plan, with 23 pay grades and constant range spreads of 66 percent. The pay grades of 10 and 20 were also removed from this proposed pay plan in order to have a minimum wage of at least $15 per hour, which was considered a "living wage" at the time of this report.

EXHIBIT 4A
PROPOSED PAY PLAN

Grade	Minimum	Midpoint	Maximum	Range Spread
30	$ 32,069.44	$ 42,652.48	$ 53,235.52	66%
40	$ 33,673.12	$ 44,784.48	$ 55,896.88	66%
50	$ 35,356.88	$ 47,023.60	$ 58,691.36	66%
60	$ 37,123.84	$ 49,375.04	$ 61,626.24	66%
70	$ 38,980.24	$ 51,844.00	$ 64,707.76	66%
80	$ 40,929.20	$ 54,436.72	$ 67,943.20	66%
90	$ 42,975.92	$ 57,158.40	$ 71,339.84	66%
100	$ 45,124.56	$ 60,016.32	$ 74,907.04	66%
110	$ 47,381.36	$ 63,016.72	$ 78,652.08	66%
120	$ 49,750.48	$ 66,167.92	$ 82,585.36	66%
130	$ 52,237.12	$ 69,476.16	$ 86,714.16	66%
140	$ 54,849.60	$ 72,949.76	$ 91,049.92	66%
150	$ 57,592.08	$ 76,597.04	$ 95,603.04	66%
160	$ 60,471.84	$ 80,427.36	$ 100,382.88	66%
170	$ 63,495.12	$ 84,448.00	$ 105,401.92	66%
180	$ 66,670.24	$ 88,671.44	$ 110,671.60	66%
190	$ 70,003.44	$ 93,104.96	$ 116,205.44	66%
200	$ 73,503.04	$ 97,760.00	$ 122,015.92	66%
210	$ 77,178.40	$ 102,648.00	$ 128,116.56	66%
220	$ 81,037.84	$ 107,780.40	$ 134,522.96	66%
230	$ 85,089.68	$ 113,168.64	$ 141,248.64	66%
240	$ 89,344.32	$ 118,827.28	$ 148,311.28	66%
250	$ 93,811.12	$ 124,768.80	$ 155,726.48	66%

Next, both the hierarchy of classifications and market data were analyzed when slotting the Authorities' employee classifications. The resulting recommended pay grades for each are shown in **Exhibit 4B**. Furthermore, some classifications were assigned to a higher pay grade, and those classifications and their new pay grades are shown in **Exhibit 4C.**

EXHIBIT 4B
PROPOSED PAY GRADES

Classification Title	Proposed Grade	Proposed Minimum	Proposed Midpoint	Proposed Maximum
Maintenance Worker Operator Attendant - Papersort Operator Attendant -Ivy	30	$32,069.44	$42,652.48	$53,235.52
Adminstrative Assistant Recycyling Technician Scale Clerk	40	$33,673.12	$44,784.48	$55,896.88
Mechanic Helper	50	$35,356.88	$47,023.60	$58,691.36
Plant Operator 4 Plant Operator Trainee	60	$37,123.84	$49,375.04	$61,626.24
Mechanic 4	70	$38,980.24	$51,844.00	$64,707.76
Acct Tech / AP Acct Tech / AR Administrative Office Technician Mechanic 3 Payroll Technician Plant Operator 3	80	$40,929.20	$54,436.72	$67,943.20
Driver/Equipment Operator Heavy Equipment Operator/Attendant Vehicle Equipment Mechanic	90	$42,975.92	$57,158.40	$71,339.84
Mechanic 2 Plant Operator 2 Water Quality Specialist	100	$45,124.56	$60,016.32	$74,907.04
Executive Coordinator	110	$47,381.36	$63,016.72	$78,652.08
Chemist Communication Manager/Executive Coordinator Engineering Technician Engineering Technician/Inspector Plant Operator 1	120	$49,750.48	$66,167.92	$82,585.36
Instrumentation Specialist Mechanic 1	130	$52,237.12	$69,476.16	$86,714.16
Assistant Information Systems Administrator Assistant Information Systems Administrator SCADA Wastewater Treatment Plant Supervisor Water Treatment Plant Supervisor	140	$54,849.60	$72,949.76	$91,049.92

EXHIBIT 4B (CONTINUED)
PROPOSED PAY GRADES

Classification Title	Proposed Grade	Proposed Minimum	Proposed Midpoint	Proposed Maximum
GIS Coordinator	150	$57,592.08	$76,597.04	$95,603.04
Ivy MUC Assistant Manager Maintenance Assistant Manager Senior Accountant Wastewater Department Assistant Manager Water Department Assistant Manager	160	$60,471.84	$80,427.36	$100,382.88
Civil Engineer Water Resources Manager	170	$63,495.12	$84,448.00	$105,401.92
Safety Manager	180	$66,670.24	$88,671.44	$110,671.60
Human Resource Manager Information Systems Administrator Information Systems Administrator ERP Information Systems Administrator SCADA Ivy MUC Manager Lab Manager Maintenance Manager Senior Civil Engineer Wastewater Department Manager Water Department Manager	190	$70,003.44	$93,104.96	$116,205.44
Engineering Manager IT Manager	220	$81,037.84	$107,780.40	$134,522.96
Director of Engineering & Maintenance Director of Finance & Administration Director of Operations Director of Solid Waste	250	$93,811.12	$124,768.80	$155,726.48

EXHIBIT 4C
PAY GRADE CHANGES

Classification Title	Current Pay Grade	Proposed Pay Grade
Maintenance Worker	10	30
Operator Attendant - Papersort	20	30
Operator Attendant -Ivy	20	30
Adminstrative Assistant	30	40
Recycyling Technician	30	40
Scale Clerk	30	40
Mechanic Helper	40	50
Plant Operator 4	50	60
Plant Operator Trainee	50	60
Mechanic 4	60	70
Mechanic 3	70	80
Plant Operator 3	70	80
Driver/Equipment Operator	80	90
Heavy Equipment Operator/Attendant	80	90
Vehicle Equipment Mechanic	80	90
Mechanic 2	90	100
Plant Operator 2	90	100
Water Quality Specialist	90	100
Communication Manager/Executive Coordinator	110	120
Plant Operator 1	110	120
Instrumentation Specialist	120	130
Mechanic 1	120	130
Wastewater Treatment Plant Supervisor	130	140
Water Treatment Plant Supervisor	130	140
GIS Coordinator	140	150
Senior Accountant	150	160
Engineering Manager	210	220
IT Manager	210	220
Director of Solid Waste	230	250

After assigning pay grades to classifications, the next step was to develop optional methods for transitioning employees' salaries into the new pay plan. This was done by establishing methods of calculating salaries in the proposed pay ranges and determining whether

adjustments were necessary. Evergreen calculated and provided optional transition methods for implementing the new plans. The Authorities implemented the following option.

Bring to New Minimums

First, employees' salaries were compared to the minimums of their classification's proposed pay ranges for all plans. If an employee's salary was below his or her classification's pay range minimum, an adjustment was proposed to raise the individual's salary to the minimum. A benefit to this preliminary adjustment is that it provides a basis for all other adjustment calculations. Additionally, best practice within Human Resources is to have all employees' salaries fall within the pay range of their classification.

Utilizing this approach for general employees, adjustments were then recommended for four employees with a total approximate annualized (salary only) cost of **$8,611.**

4.2 SYSTEM ADMINISTRATION

The Authorities' compensation system will continue to require periodic maintenance. The recommendations provided to improve the competitiveness of the plan were developed based on conditions at the time the data were collected. While it is likely under current market conditions that there will be fewer changes in salary, it is important to monitor for any recruitment and retention issues that may arise among critical/highly skilled positions.

RECOMMENDATION 2: Continue conducting small-scale salary surveys as needed to assess the market competitiveness of hard-to-fill classifications and/or classifications with retention issues and make changes to pay grade assignments if necessary.

A small number of classifications' pay grades may need to be reassigned more frequently. If one or more classifications are exhibiting high turnover or are having difficulty with recruitment, the Authorities should collect salary range data from peer organizations to determine whether an adjustment is needed for the pay grade of the classification(s). If increasing a classification's pay grade based on market data does not help with the recruitment and/or retention issues, it may be necessary for the Authorities to offer incentives to attract employees to the position and/or to encourage employees to remain in the position.

RECOMMENDATION 3: Conduct a comprehensive classification and compensation study every three to five years.

Small-scale salary surveys can improve the market position of specific classifications, but it is recommended that a full classification and compensation study be conducted every three to five years to preserve both internal and external equity. Changes to classification and compensation do occur, and while the increments of change may seem minor, they can compound over time. A failure to react to these changes quickly has the potential to place the Authorities in less than desirable position for recruiting and retaining quality employees.

RECOMMENDATION 4: Review and revise, as appropriate, existing pay practice guidelines including those for determining salaries of newly hired employees, progressing employee salaries through the pay plans and determining pay increases for employees who have been promoted to a different classification.

The method of moving salaries through the pay plan and setting new salaries for new hires, promotions, and transfers depends largely on an organization's compensation philosophy. It is important for the Authorities to have established guidelines for each of these situations, and to ensure that they are followed consistently for all employees. Common practices for progressing employee salaries are outlined below.

Salary Progression

There are several common methods for salary progression including cost of living adjustments (COLA)/across the board and performance-based. Many organizations are utilizing these methods, especially in the current market, in efforts to progress salaries. It is recommended that the Authorities evaluate, annually, whether a COLA needs to be applied (to both the pay plan and employees' salaries) to keep up with cost of living. Additionally, the Authorities should provide merit increases, as warranted based on employees' performance evaluation results and as budget permits. It is also recommended that the Authorities continuously evaluate its practices to progress employees' salaries and if necessary, make improvements to preserve equitable pay practices, particularly in the administration of the employee performance evaluation process.

4.3 SUMMARY

The recommendations in this chapter provide an update to the compensation system for the Authorities' employees. The recommendations will enhance the Authorities' competitiveness in the labor market. By implementing the revised proposed pay plan it will have a responsive compensation system for several years to come. While the upkeep of this will require work, the Authorities will find that having a more competitive system that enhances strong recruitment and employee retention is well worth this commitment.

Strategic Plan (2018-2023) Year Four Update

for the Boards of Directors

Presented By: Deborah Anama, Executive Assistant

January 25, 2022

RIVANNA AUTHORITIES

Strategic Direction

Values

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

Integrity
Teamwork
Respect
Quality

Vision

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

Mission

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

Year 4 Implementation

Overall Completion: 75%

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

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

Communication & Collaboration
To foster a culture that encourages open communications and strengthens relationships

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

Solid Waste Services
To provide reliable, convenient, and innovative solid waste and recycling services

Infrastructure & Master Planning
To plan, deliver, and maintain dependable infrastructure in a financially responsible manner

Workforce Development

Overall Completion: 75%

Goal Team Leader: Betsy Nemeth & Lonnie Wood

Conduct Training Needs Assessment & Enhance the Training Program

- Expanded Leadership Coaching Program with PVCC to include all new leaders in the organization
- Expanded DPOR Apprenticeship program to include HVAC apprenticeships

Complete a Compensation and Classification Study

- Worked with Evergreen Solutions, LLC and completed study in December 2021
- Reviewed benefit offerings during the peer survey

Next Steps:

- Work with PVCC for leadership training Continuing Education credits for all Class 1 & 2 Plant Operators (October 2023)
- Set up Class A CDL training with PVCC due to a regulatory change from the Department of Transportation

- Adopt the recommendations from the Compensation & Classification Study
- Issue a Request for Proposal for all healthcare offerings for FY2023
- Review performance evaluation system

Operational Optimization

Overall Completion: 71%

Goal Team Leader: Dave Tungate

Continually Evaluate, Prioritize, & Improve Key Business & Operational Processes

- Designed a new sampling program for better data trending and analysis for GAC Backwash Project
- Automated system for polymer dosing has been installed and is ready to be tested; should be operational first quarter 2022
- Progress on lab certification for Total Kjeldahl Nitrogen (TKN) on the SEAL instrument is moving forward
- Improved oxygen control in Scottsville WW Plant

Protect Workforce and the Public Through Continually Growing Rivanna's Culture of Safety

- Safety upgrades to the Glenmore influent pump station will add a new ventilation system to increase air exchanges and make it a safer place for staff to work. A new influent pump with a Variable Frequency Drive will be installed in next 6 months for more consistent flow. Project has been awarded and contractor is waiting on materials
- 4 web-based security cameras added to Observatory WTP; there will be more cameras to add once South Rivanna and Observatory Water Treatment Plant construction is complete

Next Steps:

- Assess lab results from new sampling program for GAC Backwash Process improvements
- Polymer dosing - Put new polymer dosing equipment on-line and fine tune the programming
- SEAL instrument and TKN - Lab Manager has implemented a new schedule for TKN method on SEAL instrument
- Scottsville Dissolved Oxygen- Confirm proper operation after several high flow events and fine tuning of the equipment

- Complete construction on Glenmore safety upgrades
- Complete safety training
- Review and update Safety Manual annually

Communication & Collaboration

Overall Completion: 100%

Goal Team Leader: Katie McIlwee

Create & Maintain Internal Communication Platforms

- Migrated legacy documents from Laserfishe to DocLink
- Completed implementation of digital Purchase Order process in DocLink
- Published Bi-Monthly Newsletter

Create & Implement a Comprehensive Public Outreach Plan

- Created project specific webpages
- Held the annual Pumpkin Smash event at the McIntire Recycling Center
- Participated in annual Imagine a Day without Water art contest with City and ACSA

Enhance Internal & External Communication

- Conducted virtual facility tours of Water Treatment Plants and McIntire Recycling Center
- Continued to live-stream monthly Board Meetings
- Researched and prepared to continue broadcasting board meetings virtually when in-person meetings resume

Next Steps:

- Continue implementation of DocLink

- Plan and schedule project/facility videos
- Continue maintenance of website
- Continue use of social media to share information with the public

- Resume in-person facilities tours, as appropriate
- Continue to virtually participate and present to community organizations
- Continue to participate in peer work groups w/ City Utilities, Public Works, & ACSA

Environmental Stewardship

Overall Completion: 75 %

Goal Team Leader: Andrea Bowles

Increase Internal Environmental Engagement

- Staff participated in United Way's Day of Caring
- Developed internal Sustainability Working Group
- Continued contributions to Rivanna Review newsletter

Provide Regional Leadership in Environmental Stewardship Partnerships

- Continued Stormwater partnership and James River Riparian Consortium participation
- Provided tour of wetland mitigation site to James River Association representative
- Participated in County Stream Health Workgroup
- Participated in County Climate Action Study

Evaluate Potential Opportunities for Additional Environmental Activities at RWSA Facilities

- Continued to develop Buck Mountain Property Management Plan. Coordinate with neighbors regarding our progress
- Evaluated potential for silviculture and solar at Buck Mountain properties

Next Steps:

- Continue to look for opportunities, such as stream cleanups, tree plantings, etc. to engage employees

- Continue with existing coordination
- Look for opportunities for collaboration

- Evaluate potential for solar at RWSA facilities
- Implement phased property management plan for Buck Mountain

Solid Waste Services

Overall Completion: 70%

Goal Team Leader: Phil McKalips

Strategies – Community Needs and Service Levels; Partnerships with UVA and Local Governments; Best in Class Service Practices and Services

- Completed Customer Appreciation Event at Ivy
- Increased Public Awareness of avenues for feedback and suggestions
- Establish translations of RSWA signage to aid Spanish speaking customers
- Established a more aesthetically pleasing entryway to Ivy MUC for visual buffer and habitat
- Started New Tactic to evaluate Ivy MUC Service Fee Structure
- Evaluated regional mulch sale pricing to compare with our fees (we seem on target)

Other Activities:

- Working with Nelson County on Glass Collection
- Increased permitted tonnage and operating hours at Ivy MUC
- Worked with City and County on Vegetative Waste Fee Waiver event

Next Steps:

- Continue designs of Keene Convenience Center and New Baling Facility (new Paper Sort)
- Expand Vegetative Waste Collection and Processing Areas
- Develop Large Clean Fill Project Program

Infrastructure & Master Planning

Overall Completion: 56%

Goal Team Leader: Scott Schiller

Implement an Authority-Wide Asset Management Program

- Tactical Asset Management Plan has been completed
- Computerized Maintenance Management System implementation process continues with updates to our facility geodatabase and completion of workshops associated with software integration and general Cityworks configuration
- Phase 3 work has begun with completion of an Authority-wide asset register for use in Cityworks based on Antero data and the addition of other major pieces of equipment when appropriate

Develop & Maintain Long-Term Master Plans for all Critical Assets

- Completed analyses associated with the MC AWRRF Master Plan
- Performing a follow up analysis of the MC AWRRF Master Plan results to account for more recent flow data collected
- Initiated the Central Water Line project based on results from the Finished Water Master Plan
- Continuing analyses associated with the master plan/needs assessment for the Glenmore WWTP and Stone Robinson WWTP

Next Steps:

- Continue the Cityworks configuration process working towards a summer go-live date
- Take the results of the Tactical Asset Management Plan and review it against the Strategic Asset Management Plan to finalize the approach for system-wide implementation

- Finalize master plan/needs assessment work for Glenmore WWTP and Stone Robinson WWTP
- Perform the amendment to the MC AWRRF Master Plan to account for more recent flow data
- Update the master plan matrix based on information gathered from the annual gap assessment

Questions?