

Albemarle County Service Authority Board of Directors

The Board of Directors of the Albemarle County Service Authority (ACSA) met in a regular session on August 15, 2024, at 9:00 a.m. at the Administration and Operations Center at 168 Spotnap Road in Charlottesville, Virginia.

Members Present: Mr. Richard Armstrong, Chair; Ms. Lizbeth Palmer; Mr. John Parcels; Mr. Clarence Roberts; Ms. Kimberly Swanson; Mr. Charles Tolbert, Vice-Chair.

Members Absent: None.

Staff Present: Kenny Barrow, Mike Derdeyn, Terri Knight, Quin Lunsford, Jeremy Lynn, Alex Morrison, Emily Roach, Sabrina Seay, Danielle Trent.

Staff Absent: April Walker.

Public Present: Bill Mawyer, RWSA Executive Director; Jennifer Whitaker, RWSA Director of Engineering.

1. **Call to Order and Establish a Quorum – Statement of Board Chair**

The Chair called the meeting to order. He then read the opening Board Chair statement (Attached as Page _____), and a quorum was established.

2. **Election of Officer – Board Organizational Meeting**

Quin Lunsford, Executive Director, stated that each January there is an election for the position of Secretary-Treasurer for the Albemarle County Service Authority Board of Directors. He stated that Gary O’Connell, former Executive Director, served in that capacity prior to his retirement and that position is now vacant. He stated that the Board is being asked today to consider nominations for election to that position. He noted that there is a recommended process, which is outlined on page 5. Mr. Armstrong confirmed that this position has traditionally been held by the ACSA Executive Director. Mr. Lunsford stated that was correct. Mr. Armstrong asked if there were any nominations from the Board for the position of Secretary-Treasurer. Mr. Tolbert nominated Quin Lunsford, seconded by

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Ms. Palmer. As there were no other nominations, Mr. Armstrong closed the nominations.

Mr. Tolbert moved to elect Quin Lunsford as Secretary-Treasurer; seconded by Ms. Palmer. All members voted aye.

3. Recognitions – Terri Knight, 35 Years of Service; Alex Morrison, Leaders Lab

Mr. Lunsford stated that Terri Knight began her career with the ACSA on August 1, 1989. He stated that since then, Ms. Knight has been an integral member of the ACSA team and the community she serves, assisting thousands of customers in her role as Customer Service Representative, Senior Customer Service Representative and currently as Customer Service Supervisor. He mentioned that Ms. Knight works closely with all the departments at the ACSA and is often tasked with challenging situations. He stated that she is a fantastic representative of the ACSA and thanked her for her 35 years of service.

Mr. Armstrong stated that there is a resolution, which he would read.

Mr. Parcels moved to approve the resolution; seconded by Mr. Tolbert. All members voted aye.

Mr. Lunsford stated that recently, Alex Morrison, Director of Operations, completed a program called Leaders Lab. He stated that it is facilitated through the Charlottesville Chamber of Commerce and is for current and emerging leaders in the community. He mentioned that the goal is to build leadership skills, practice community problem-solving, and learn first-hand those that are working together on local issues. He noted that Jennifer Whitaker, Director of Engineering for RWSA and who is at the meeting today, completed the program as well. He stated that they met monthly for 9 months to work on different issues and policies, and Mr. Morrison represented the ACSA very well. He stated that Mr. Morrison furthered his network of peers within local government and the business community. He congratulated Mr. Morrison and thanked him for his participation.

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4. Approve Minutes of June 20, 2024

Mr. Parcels stated that he had one comment on page 35, line 9. He stated that the word “water” should be added at the end of the sentence.

Ms. Palmer stated that she did not have any corrections, but she did have a couple of questions. She stated that on page 3 of the minutes, there is a discussion about the special rate district. She asked if the additional charge that the people in the special rate district pay is only for the ACSA portion of the sewer connection. Mr. Lunsford replied yes.

Ms. Palmer stated that her second question was about the ACSA’s CIP projects. She stated that sometimes the CIP reports point out that a particular project is being done, in part, because the County has development plans in that area. She stated that she wonders how much the County’s plans affect the ACSA’s timing on CIP projects.

Mr. Lynn stated that he would not say the timing of the projects is always consistent with the County’s plans. He mentioned that a lot of the ACSA’s projects have been water main replacement projects. He noted that the largest projects currently in the ACSA’s CIP that are growth-related are the Broadway Water Main Replacement Project and the Airport Trunk Sewer Upgrade Project. He noted that the latter has not moved as fast as the development community would like, so there may be some frustration from the development community surrounding the ACSA prioritizing that project and pushing it forward. He noted that the RWSA staff has been in communication with the County and the ACSA about the AC44 plan, which looks at where development is anticipated to occur in the next 20-30 years and what infrastructure improvements would be necessary. He mentioned that more of the larger infrastructure needs are on the RWSA side.

Mr. Parcels asked if it was possible for the staff to improve the Board’s understanding of the timing for expansion and demand. He asked if it could be put on the agenda at some point as a topic for discussion. He asked what it means if the ACSA’s timing for expansion does not meet the demand of the developers. Mr. Lynn replied that, in plain terms, sometimes

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it means that the developer has to fund the infrastructure improvements as part of their development, which follows the growth pays for growth philosophy. He stated that it could also mean that the ACSA has to expedite some of its projects, which is what they are starting to see with the Airport Trunk Sewer Project.

Ms. Palmer stated that she wanted to make it clear that she was not personally advocating for the ACSA to expedite projects based on development pressure. She stated that she is more interested in how the ACSA responds to development needs while weighing the needs of individual residents. Mr. Lynn stated that those are the types of questions the Board will have to consider as they look at future CIP projects.

Ms. Swanson asked if the developer ends up making infrastructure upgrades as part of their development, would they be done according to ACSA standards. Mr. Lynn replied yes.

Ms. Swanson stated that it is her understanding that while the AC44 plan is going on, the County was doing a separate rezoning. She asked if the rezoning in the Airport Road area had taken place. Mr. Lynn replied that all the rezoning in the Hollymead Town Center area has occurred. He mentioned that there may have been some activity at the North Fork Research Park. Ms. Swanson asked if the zoning code review is a separate process at the County level. Mr. Lynn replied yes.

Ms. Palmer stated that when she was on the Albemarle County Board of Supervisors, which was two years ago, they were very behind on those zoning rewrites. She stated that they had been talking about updating those for decades, and there was a lot of pressure to get that going.

Ms. Palmer moved to approve the minutes of June 20, 2024, as amended, seconded by Mr. Parcels. All members voted aye.

5. Matters from the Public

There were no matters from the public.

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6. Response to Public Comment

There was no response to public comment.

7. Consent Agenda

A. **Monthly Financial Reports –**

- b. **Monthly Capital Improvement Program (CIP) Report –** Mr. Parcels asked if the RWSA and ACSA staff are in communication about the Avon Operations Center project. He stated that RWSA's construction start date for the GAC expansion is August 2025, but the ACSA's completion date for the Avon Street property just says 2025. He asked if all the items from Crozet would be moved out in time for RWSA to begin construction and stated that he assumed the two entities have been discussing it. Bill Mawyer, RWSA Executive Director, replied yes. Mr. Lynn stated that RWSA will not leave the ACSA high and dry.

c. **Monthly Maintenance Update –**

d. **Rivanna Water and Sewer Authority (RWSA) Monthly Update –**

e. **ACSA Board Policy Future Issues Agenda 2024 –**

f. **Classification and Compensation Study –**

Ms. Palmer moved to approve the consent agenda, seconded by Mr. Tolbert. All members voted aye.

8. Rivanna Pump Station Status Report/ Update

Mr. Lunsford stated that Bill Mawyer and Jennifer Whitaker, both from the Rivanna Water & Sewer Authority (RWSA), have prepared a useful and comprehensive review of the Rivanna Pump Station including the damage that occurred January 9th, 2024, as well as the emergency repairs that were made and the comprehensive causation analysis findings.

Bill Mawyer, RWSA Executive Director, stated that he appreciated the opportunity to discuss what happened on January 9th, 2024. He stated that he would also talk about the wastewater treatment process and the function the pump station serves, as well as the pump control issue that

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was determined to be the cause of the larger problem. He noted that he wanted to first make a comment about Ms. Palmer's earlier question about CIP projects and development. He stated that in addition to coordinating with Mr. Lynn and the County weekly, the RWSA performs a focused water supply and demand study every 10 years. He stated that the reservoir levels are measured and the RWSA staff works with various community partners to project growth in the service area. He added that the two factors are then compared to determine if there is enough water for the projected growth. He noted that this is how the RWSA does most of its master planning and CIP planning. He stated that they are aware of development and somewhat responding to it, but UVA is known to have projects that happen quickly and that is difficult to keep up with.

Mr. Mawyer stated that the Rivanna Pump Station is one of the two major pump stations at the Moores Creek Wastewater Treatment Plant (WWTP). He stated that the first slide shows an aerial view of the treatment plant. He stated that the purpose of the pump station is to pump wastewater up to the headworks (marked by the upper left star in the slide), which is about a 110ft increase in elevation. He noted that the area to the left near the interstate is what is called the "wet side." He stated that the wastewater is pumped from the Rivanna and Moores Creek pump stations up to the headworks, after which it flows through the wastewater treatment process and then back to the right area on the slide, which is called the "dry side." He mentioned that on the dry side, the water gets treated, disinfected with ultraviolet light and released into Moores Creek. He added that the solids go into the large circular basins shown on the right-hand side of the slide, which are called digestors. He stated that anaerobic bacteria consume a lot of the solids. He stated that the rectangular building is where the remaining solids go where they are put in a dryer and spun, and then hauled to Waverly, VA every day. He noted that they make about 500 trips to Waverly per year.

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Ms. Swanson asked if the globe-like structure is still being used. Mr. Mawyer replied yes. He stated that it captures methane gas, which is a by-product of the treatment process. He stated that it has also been used to heat water that goes into the digestors to help the bacteria further digest the waste products. He mentioned that RWSA has been working with the City of Charlottesville on a renewable gas concept. He stated that the Western Virginia Water Authority uses the methane from their wastewater process, which goes into a natural gas system.

Mr. Mawyer moved to the next slide, which showed a picture of both pump stations. He stated that the Moores Creek Pump Station is at the top right corner, that sits at the entrance of the plant, and the Rivanna Pump Station is the newest pump station which is at the bottom left of the slide. He mentioned that the Rivanna Pump Station was built in 2017 for about \$32 million and has the capacity to pump 53 million gallons per day (gpd).

Mr. Mawyer stated that these two pump stations serve the entire County of Albemarle, City of Charlottesville, and Crozet, as illustrated on the next slide. He stated that the Rivanna Pump Station takes all the wastewater north of the railroad track that runs through the City, which is the northern part of the City and the 29 North sector of the ACSA's service area. He noted that the Moores Creek Pump Station serves the area in blue on the map. He noted that all the wastewater from Crozet is transferred to the Moores Creek Pump Station as well. He added that there are four wastewater pump stations between Crozet and Moores Creek to convey the wastewater to the plant. He stated that Rivanna is the larger of the two pump stations, serving about 60% of the Urban wastewater system. He stated that the plant receives about 10 mgd on average, with about 6 mgd that go through the Rivanna Pump Station.

Mr. Mawyer stated that the next slide showed a bird's-eye view of the Rivanna Pump Station. He stated that the red arrow on the right side indicates the direction that wastewater comes into the pump station. He stated that the rectangular area in the center is the wet well. He noted that

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in this slide, there is visible water in the wet well which should not be there. He stated that the water comes into the wet well, and there are three pumps in each of the two dry pumping areas. He mentioned that the pipes extend through the wall into the bottom of the wet well. He stated that they pull the water out of the wet well and it is pumped up to the headworks. He noted that the red arrow to the left shows the direction the water goes out of the pump station. He noted that the two pump rooms should always remain dry. He stated that the wet well is shaped somewhat like a swimming pool in that the left half is about 8ft deep, but the right side is about 18 ft deep. He mentioned that the deeper side is where the pipes from the pumps extend into the wet well and transfer the water out and up to the headworks. He stated that one can also see a tractor to the left of the building in the photo (taken January 10th, 2024), digging to reach the permanent pipe that leaves the pump station and takes the water to the headworks. He noted that they had to build a loop around the pump station, bypassing the permanent structure, and connect a temporary pipe to the permanent pipe.

Mr. Mawyer moved to the next slide, showing the two dry pump rooms and the wet well. He stated that the wet well has aluminum covers that sit on top of it to keep odors from permeating into the neighborhood. He stated that there are five or six gates seen in the middle photo, which can be lowered to open or close the three channels. He noted that the white dots on top of the gates are about 13 feet above the covers. He stated that the top right photo shows the depth of the pump room. He stated that it is 54 ft from ground level to the base of the pumps in the pump room. He stated that the bottom right photo shows the three pumps that would be in either of the two pump rooms.

Mr. Mawyer stated that the next slide showed an architectural illustration of a section through the building. He stated that the wet well shown to the left is where the water comes into the pump station, and the aluminum cover sits on top of the wet well, with a pump room on either side. He

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mentioned that on the day the issue occurred, the water rose to 312 ft, which was significantly above the covers of the wet well. Ms. Palmer asked for the elevation of the covers. Mr. Mawyer replied that the top of the covers is at 295 ft, which put the water 17 ft above the covers. He noted that there is a stairwell on the wet side, which is not supposed to be submerged. He stated that there is a door at the end of the stairs that gives access to the top of the covers. He stated that the water got through the door, into the wet well, through a duct penetration, and then into the pump room. He added that the next slide shows the day after the storm, where water had risen almost to the top of the stem on the gates in the wet well, which is 13 ft above the covers.

Mr. Mawyer stated that the next slide outlines a summary of the events on January 9, 2024. He stated that there was significant rainfall that day, with about 3.5 inches between 6am and 7:30pm. He mentioned that the pumps began working to accommodate the additional flows, noting that the pumps are designed so that they do not all run at the same time. He stated that they run on a pace basis so as more water comes in, the system calls on more pumps to start pumping. He noted that this step in the process is where the problem occurred because the controls did not signal the pumps to operate as they were intended to.

Mr. Mawyer stated that there was a pump alarm around 3:45 pm that day, and the operator went to the facility and reset the pumps. He noted that there was no water visible above the covers of the wet well at that time. He mentioned, however, that there was another alarm at 6pm that evening and upon arrival, the operator found water 16 ft above the covers and the pump room was significantly submerged.

Mr. Roberts asked if the water was 16 ft above the covers because the water could not get out of the building. Mr. Mawyer replied yes. He stated that coincidentally, the water in the Rivanna River was rising because of the storm, and the overflow started going into the sewer manholes, adding more water into the pump station. He noted that the pumps operated for

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several hours underwater, which they are not designed to do. He added that once the pumps quit, they had to get the temporary bypass pump going to get the water out of there. He stated that aside from a 26-hour period, all the water that came in still went through the normal treatment process. He stated that they did have to discharge into Moores Creek for 26 hours to get the water level low enough to reach the covers to get the pump to the deep end of the wet well, to pump the rest of the water out.

Mr. Mawyer stated that the photos on the next slide show piping going into the wet well, in an initial effort to get the water level down. He stated that they built a force main connection at the pump station in the top left photo. He mentioned that it was cold and snowing at times, and the RWSA staff worked 24/7 to make that happen. He stated that the first thing RWSA did was install a 10 mgd bypass pump system, with the help of contractors and ACSA staff.

Mr. Mawyer stated that after that, phase 2 consisted of construction of the full 55 mgd bypass pump. He stated that the relative volume of flow being received at the pump station was 40-50 million gallons, thus the 55 mgd bypass pump was necessary to keep up with the capacity coming into the wastewater system. He stated that between January 9-14th, they installed the large, black piping seen in the photos, down in the wet well. He stated that there were seven bypass pumps installed, as well as a major piping system that went around the entire building and tied into the Rivanna force main. He noted that structural beams were installed in the wet well to accommodate the piping load.

Ms. Palmer stated that this pump station, as she recalls Mr. Mawyer saying, receives an average of 6 mgd. She stated that he also said, after this rain event, that there was still 40-50 mgd coming into the pump station. She stated that she was curious as to why there was still so much flow coming into the pump station, after the rain event. Mr. Mawyer stated that it was not constant but rather, periodically. He stated, for example, the flow

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would increase if it rained more, and the river was still flowing over the bank from time to time.

Mr. Mawyer stated that the ACSA and the City have an active sewer rehabilitation program, but there is still Infiltration & Inflow (I&I) in the system. He stated that average flow is 10mgd, but there will be a peak of 40-50mgd occasionally when it rains. He mentioned that this is why the treatment plant's capacity is 55mgd. Ms. Palmer stated that her memory is that the 55mgd treatment plant was designed for growth. She stated, however, that with the flows they are seeing now, there would be no capacity for growth unless they eliminate the I&I. Mr. Mawyer stated that the more I&I that can be eliminated, the more capacity there is for growth.

Ms. Whitaker stated, for clarification, that they did not see the 40-50mgd for an entire day, but rather during a peak hour. She stated that to keep all the sewer flow in the pipe, they had to be able to accommodate that peak hour which is typically several hours past the most intense part of a rainstorm.

Mr. Parcels asked how the Moores Creek Pump Station compares to the Rivanna Pump Station in terms of how it is set up, and if there have ever been any issues with it. Mr. Mawyer replied that they have not had any issues with that pump station. Ms. Whitaker noted that the Moores Creek maximum capacity is 32 mgd and the Rivanna Pump Station maximum is 53 mgd, with a combined maximum peak capacity of 85 mgd.

Mr. Mawyer stated that the next two slides show photos of the RWSA staff and contractors working around the clock to install the piping necessary to setup the bypass pumping. He noted that the next two slides after that show photos of the 55 mgd bypass pumps, with the second one giving a bird's-eye view. He noted that the seven pipes coming out of the wet well connect to two major pipes that pump the water around the building and into the permanent piping in the ground, and then to the headworks.

Mr. Tolbert asked if the issue was that the flow coming into the pump station during this event exceeded the capacity, or the pumps did not

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operate correctly and therefore could not keep up with the flow. Mr. Mawyer replied that it was the pumps not operating correctly. He stated that the controller calls for additional pumping when the flow increases, but it did not do that in this case. Mr. Tolbert asked if the flows have ever reached 40mgd since the pump station was built. Mr. Mawyer replied that he believes they have but the pumps have responded appropriately in the past to that type of capacity. He noted that, unfortunately, they did not work this time.

Mr. Mawyer moved to the next slide which outlined Phase 3, as referred to by RWSA. He stated that after the pump station was dried out, a team went in to investigate the damage and clean it up so contractors and staff could further investigate and begin repairs. He mentioned that one of RWSA's engineering firms, that was not involved with the design of the pump station, performed an independent review and published a 400-page report of their findings. He noted that the firm concluded that the controls malfunctioned, failing to call on the pumps to work as they were designed to, and that is what caused the pump station to flood.

Mr. Tolbert stated that the duct penetration for the AC that allowed the water in on the dry side could have been higher up. He stated that he assumes it will be higher now. Mr. Mawyer replied yes, it will be much higher up if not removed completely. Ms. Whitaker added that there are three penetrations that go through, partly because the ventilation is required with wastewater. She stated, however, that they are going to create independent systems for each side of the station, so there is no interconnection. Mr. Mawyer noted that this was one part of the design that was not very good.

Mr. Mawyer stated that RWSA submitted the final root cause analysis to the property insurance firm and has received a positive response from them. He mentioned that RWSA submitted a claim for \$22 million. He noted that the insurance company has confirmed that they will pay for the

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temporary pumping setup and any repairs that must be done, but they will not cover costs for any improvements.

Mr. Mawyer stated that one of the issues that was identified was the gate that controls the main pipe that comes into the pump station. He stated that when the operators realized too much water was coming in around 6pm on January 9th, they attempted to close that gate, but it would not fully close. He mentioned that if they had of been able to get the gate closed, the water would have come out of the manholes upstream. He noted that they would have been able to clean out the pump station quicker, but it would have had more of an environmental impact. He noted that it is on the RWSA's work plan to replace the gate and ensure it works properly moving forward.

Ms. Palmer asked if there was a maintenance plan that could have helped with the gate. She stated that it was her understanding that the gate had corrosion and cracks. Mr. Mawyer stated that the gate was not on an active maintenance plan, but it is now. He stated that there was an issue with the gate a few years ago where it was locked half-shut.

Ms. Palmer asked where the screen is that takes all the trash from the sewage when it comes into the plant. Mr. Mawyer replied that there is a screen at the headworks which filters out rags, plastics, and other items that come into the plant. He stated that it is a rotating screen that dumps it all into a dumpster, which is then hauled away. Ms. Palmer asked if there is a way to filter out those things before it gets into the pump station. Ms. Whitaker stated that the issue with the gate is grit. She stated that the debris Ms. Palmer is talking about is ugly, but it is not the issue. She stated that rather it is fine grit that gets compacted into the tract and over time, it becomes like cement. She noted that this gate was maintained routinely, but it was not run full depth. She mentioned that with big gates like this, people become worried about it breaking closed. She stated that the decision was to lower it halfway and lock it out. She stated that all the electronics were maintained monthly, and all the stems were greased, but there was a lot of grit packed into the tract. She added that going forward,

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all the large gates will have bypass operation and will be ran at their full depth.

Ms. Swanson asked if the Department of Environmental Quality (DEQ) would give some leeway on their permit if they must close the gate in an emergency and it causes upstream overflows. Mr. Mawyer replied that he was not sure and would have to study the permit. He stated that DEQ stipulates that if RWSA spills into a stream, they are at fault. He noted that he believes there is a provision in the permit, however, that allowed them to empty the pump station into Moores Creek without violating the permit. Ms. Swanson asked if RWSA was responsible for notifying downstream intake facilities and monitoring. Mr. Mawyer replied yes. He stated that he believes DEQ put out some notifications as well, but they required RWSA to do some testing in Moores Creek for several days.

Mr. Tolbert asked if RWSA is developing a policy to decide if it is better to affect the environment and protect the pump station or protect the environment and affect the pump station. Mr. Mawyer replied that they want to protect the environment as much as possible, because not doing so would violate their permit. He stated that dumping into the stream would be a last resort, however they would try to avoid \$20 million worth of damage to the pump station. He added that the City of Richmond has dumped 2.9 billion gallons of wastewater into the James River since January. He stated that this does not make what RWSA had to do any better, but he wanted to note that there is wastewater coming into many of the streams in the United States.

Mr. Roberts asked how the flood waters got from the river into the system. Mr. Mawyer skipped ahead a few slides to show the Board a photo of a manhole that was overflowing, as well as the Rivanna River that was overflowing onto a trail in Riverview Park. He stated that the water from the river made its way into the manholes. He mentioned that manholes get old and crack with age, so when groundwater raises it can seep into the

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manhole. He stated that even though they have a solid system, it can still happen.

Ms. Palmer stated that a lot of the interceptors going into the RWSA line have been replaced, but she asked how old the actual line is. Mr. Mawyer asked if she was referring to the line that goes into the pump station. Ms. Palmer replied yes. Ms. Whitaker replied that it was installed in the early 1980s.

Mr. Mawyer moved to the slide outlining phase 4, which entailed restoration of the pump station. He stated that all the pumps and motors were removed and sent back to the factory for review. He stated that they should be able to rebuild the pumps, but the motors will have to be replaced.

Mr. Parcels stated that the pumps can accommodate some of the grit and materials that come in with the wastewater, but asked what that means in terms of the maintenance of the pumps. He asked how often the rotors have to be checked to ensure it has the right clearances to maintain its pumping capacity. Ms. Whitaker replied that the pump station has three channels but only two need to operate at any given time, thus they can valve off to clean the bar racks. She stated that they also have comminutors that can grind up almost anything, but they have seen 12 ft 2x4s come into the pump station. Mr. Mawyer stated that there are grinders under the covers that hopefully destroy anything in the wastewater before it reaches the pumps. Ms. Whitaker added that they also take the channels down and clean them. Mr. Parcels asked if there was any issue with the efficiency of the pumps. Ms. Whitaker replied no and stated that they did look at that.

Ms. Palmer asked how a 2x4 would get into the sewer, as it is clearly not being flushed down a toilet. Ms. Whitaker replied that occasionally, contractors work in the manholes and do not remove their debris. She stated that when they were building the Meadowcreek Interceptor, they had a contractor that was notorious for losing things in the manhole. She stated

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that RWSA made them paint all their tools and equipment with pink paint and sure enough, the pump station was full of pink debris. She noted also that the pipe coming to the pump station is 60 inches in diameter.

Ms. Swanson asked if UVA has a way of managing what enters their sewer system first. Ms. Whitaker replied that hospitals are notoriously known for having items such as rags or bedsheets in their sewer systems, but RWSA has not had a big issue with that. She mentioned that they used to occasionally have issues with the old Martha Jefferson Hospital location, but currently they do not have issues with either hospital. She noted that she does not know if UVA chooses to monitor what is leaving their sewer piping, but she suspects it goes in just like everywhere else.

Ms. Whitaker stated that she would be giving a lot of technical information during her portion of the presentation, but she would answer any questions the Board might have. She stated that as Mr. Mawyer indicated, investigations began in February 2024, as soon as they were able to get into the pump station and clean up. She stated that it took several months of investigation to figure out what happened, but they were able to publish their findings in June 2024.

Ms. Whitaker moved to the next slide, outlining the root cause analysis. She stated that findings showed four main contributing factors, each of which she would discuss, with the first one being the most complicated as it has some subparts. She stated that the first factor was the complex pump control system malfunction. She noted that the key here is that the pump station is controlled by two overlapping and redundant systems. She mentioned that they are designed, and intended to be overlapping, as there is a primary system and a backup system. She stated that the picture on the top left is an ultrasonic transducer, which is the first and primary control system for the pump station. She noted that 99.9% of the time, this is how the pump station is controlled and run. She stated that on the top right is a picture of a bar with wires hanging down, which is called a float tree. She mentioned that it is a set of wires and floats that independently control a

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pump. She added that if the primary control system fails, the pumps can still run with minimal intervention on this backup system.

Ms. Whitaker stated that the second factor was that water levels in the wet well and collection system rose quickly once storage capacity was full. She stated that this gets into how big the sewer system is, how quickly did it fill, and what happens when it fills. She stated that the third factor or causation, was that wastewater entered the second pump room through an HVAC duct that connected the wet well and stairs to the pump rooms, and the fourth contributing factor was that the wastewater inundated the pump rooms and submerged the pumps. She noted that there are some pump station designs where the pumps can be submerged, but this pump station is not one of them.

Ms. Whitaker moved to the next slide to discuss the primary pump control system. She stated that there is a logic controller, which is the brain of the pump station, and it gets its signal through the ultrasonic transducer. She noted the diagram to the left that shows the transducer, which is mounted to the wall and sends a signal down and back up which measures the water level. She stated that it then goes to the brain of the pump station, which has an entire control system strategy to determine how many pumps to turn on based on the water level. She noted that it gets all the information from the transducer.

Mr. Parcels asked if there were multiple transducers. Ms. Whitaker replied that there are two transducers that control the pump station. She noted that there are several others upstream that control the gates and grinders, but there are two in the pump station. She noted that the green and red lines on the graph to the right represent the primary and secondary transducers. Mr. Parcels asked if the logic looks at the primary first and, if it decides that signal is not reliable, then looks at the secondary transducer signal. Ms. Whitaker replied yes. She stated that if, for example, a wire gets cut or there is a lightning strike and the primary transducer is out of service, the logic will then look at the secondary transducer.

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Ms. Whitaker stated that unfortunately, the same error was true for both transducers. She stated that transducers have a unique quality in that they need to be above the water. She mentioned that if water enters the blanking range, about 12-24 inches below the transducer, the transducer signal will be invalid, and it will not operate properly. She noted that the transducer will not indicate that it is not working but will rather give incorrect readings and the pumps are controlled off those readings.

Mr. Parcels asked if the transducers have a failure state. Ms. Whitaker replied no, and that they will only enter a failure state if they get submerged or wet. She stated that the blanking range is a really important factor that they have gone back and looked at for the entire authority, due to this event. She stated that in that blanking range, the transducers give erroneous information. She noted that on the graph on the right, when the water hit 15 feet, it was in the blanking range and the transducers were giving various water level readings. She stated that the red line on the graph is what they believe the water was doing.

Ms. Palmer asked if the blanking range issue was because of the particular brand of transducer. Ms. Whitaker replied no. She stated that the blanking range is true for every transducer and is something to be cautious of. She stated that the most important takeaway from the transducer malfunction is that it was giving erroneous readings of low water levels, which told the brain of the pump station that there did not need to be additional pumps on.

Ms. Whitaker stated that the second piece of the pump control system malfunction, shown on the next slide, is that some of the pumps did not automatically transfer. She noted that when the water level reached 15 feet, the pumps were supposed to transfer from the primary control system to the float system. She noted that instead, three of the pumps tripped out. She stated that there is a complex circuitry, and it turns out that the circuitry holds energy and must fully de-energize for the second system to turn on and control the pumps.

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Ms. Whitaker stated that the graph shows the pump station flow at just shy of 40 mgd, until the trigger event of the water level reaching 15 feet. She noted that the pumps then dropped out and the flow was registering at below 20 mgd. She stated that pump 3 was running while pumps 1,2, and 5 shut off. She mentioned that the operator received an alarm that the pumps had shut off and they went into the pump station and restarted the pumps, but only pumps 2 and 5 restarted.

Ms. Whitaker added that as the pumps stage up from 1 to 5, the speed decreases. She noted that because of this, when all five pumps are on, the maximum they are allowed to run is at 75% speed. Mr. Parcels stated that it sounds like an electrical issue. Ms. Whitaker replied that it is a setting buried deep within the program that they did not find until weeks later. She stated that some of the pumps that stayed running also slowed down so there were pumps that tripped out, pumps that did not start, and pumps that slowed down.

Ms. Whitaker moved to the next slide to discuss the last item related to controls. She stated that on the left is a diagram of the pipe which represents the collection system, and the blue line represents the water level. She stated that once the pipe is full, the line goes almost straight up, which represents the water level in the wet well. She mentioned that one of the questions they asked was could the operator have seen this coming and reacted within that one-hour time span. She stated that the water was under the covers, the transducer was telling them everything was ok, and the pumps were working correctly. Mr. Parcels asked if all six pumps were running when the water was at the 100% level. Ms. Whitaker replied no. She stated that they were running at 100%, but not all of them were running because the flows had not picked up to that level yet. She mentioned that the problem was the pumps shut off and they could not recover. She noted that this event happened within a 15-minute window, and the reaction time would have been very short.

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Ms. Whitaker stated that the far-left picture on the next slide is a map of the RWSA collection system, as well as Riverview Park and Darden Towe Park to the right. She stated that initially she thought the Rivanna River caused the issue, as it did rise about five feet out of its banks. She stated that they performed some river modeling and believe that the manhole lids blew off first and, later in the evening as the river overflowed, the flows connected into the pump station.

Ms. Whitaker stated that the graphic on the next slide is one that Mr. Mawyer showed earlier in the presentation. She noted that there is a wet side and a dry side, and the HVAC duct connects the two at an elevation of 301.5 feet. She noted that the high-water elevation was 312.7 feet. She stated that picture one in the bottom-right corner of the next slide shows the wet well and the access door, which was blown completely out of the concrete. She stated that the picture in the bottom-left corner of the next slide shows the HVAC duct in relation the pumps. She stated that there was 35 feet of water in the pump room, and the pumps were not meant to be submerged. She noted that luckily, most of the electrical equipment is above-grade and was not damaged. She noted that the top picture is a door in between the dry and wet side of the pump station, which was bent by the hydraulic force.

Ms. Whitaker stated that if anyone were to ask what happened at the pump station, the summary on the next slide would be a good synopsis of the sequence of events.

Mr. Parcels stated that he is surprised that the transducer would be positioned that close, given the blanking range. Ms. Whitaker stated that when going through the odor control process, there were putting covers over the entire plant. She stated that odor scrubbing is not only expensive, but it also causes corrosion. She stated that anywhere there is water, an air space, and a cover, there will be massive corrosion in that airspace, so the goal is to minimize that air space. She noted that the pump station did not originally have covers, but they were added during the odor control project.

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She noted that when the transducers were put in, they clearly were not high enough and some modifications should have been made.

Mr. Parcels asked why the backup float switches failed. Ms. Whitaker replied that the circuitry that causes the transition failed, not so much the floats themselves. She stated that pieces of the floats did go everywhere, and they are looking to replace the float system. Mr. Parcels stated that another type would be solid state probe so that the contact with the liquid would trigger it. Ms. Whitaker stated that RWSA is looking into switching to that type. Mr. Tolbert asked if it could be mounted at a different level. Ms. Whitaker replied that they can but, in each case, it needs to be above the covers. She noted that they are several design teams working on how to change the entire control system.

Ms. Palmer asked if there was any structural damage to the actual building. Ms. Whitaker replied that when all the bypass pumping was installed, they were concerned about the structural stability of the building. She noted that the foundation was very solid, as it was built into solid rock that had to be blasted out, but they were worried about the stress on the walls. She noted that this is the reason for all the beams in the pictures. She added that a structural engineer came in to evaluate the walls, and they then had a contractor perform a structural modification to the building on the fly. She stated that the second concern was for the pumps themselves, as they were running submerged in water which caused banging, clattering, and shaking the ground when they turned on and off. She stated that they performed a structural inspection and there were some cracks in the concrete pillars that support the check valves.

Mr. Parcels asked, with respect to the logic control, if there was any type of lesson learned that can be applied to the Moores Creek Pump Station. Ms. Whitaker replied that there are lessons learned that can be applied to everything they do going forward, such as how to startup a pump station, how they program a pump station, and many other things for existing stations and going forward. Mr. Mawyer added that they are looking at

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issuing an RFP for a commissioning firm, which would look at everything from the design to construction, as well as perform testing to ensure everything works the way it is supposed to.

Ms. Whitaker moved to the next slide, which outlined the next steps. She stated that this project was big enough that each phase had its own team. She noted that phase 4 was the recovery and design phase, and there is a group working on that. She mentioned that they have already hired a contractor and will begin construction in the next 4-6 weeks. She stated that currently, RWSA is paying \$350,000 a month for bypass pumping equipment rental so the goal is to get that bypass system offline by March 2025, and be completely done by May 2025.

Ms. Palmer asked when they expect the insurance company to notify them as to whether they will pay. Mr. Mawyer replied that they expect to receive some reimbursement in the next month or two, but it will be for expenses they have already incurred as well as repair work as it is performed. Ms. Whitaker referred to the cost estimate on the next slide and stated that they are beginning to work with the insurance company to identify what costs are related to bypass work, like kind and quality repairs which will restore the pump station to its condition before January 8th, and improvements. She added that it is likely that they will receive the emergency funds fully refunded, as well as the like kind and quality costs.

Ms. Palmer asked if this is a situation where the insurance rates will go up. Mr. Mawyer replied that the insurance company has not indicated as much, but they could. Mr. Parcels asked if anything turned up in terms of culpability on the part of the engineering firm that designed the pump station in the first place. Ms. Whitaker replied that there are a few different pieces, the first being the HVAC duct. She stated from a design perspective, however, they never expected the water to be that high. She stated that in terms of the controls, there was a third-party contractor that did the programming and the 75% slow down speed for the pumps appeared about 3-4 months in the programming, after the pump station

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opened. She stated that she knows there is a desire to find one company to blame, but there are so many contributing factors that it is difficult to do so.

Mr. Parcels asked if this presentation is something that could be shared as a lesson learned at the water association meeting or something similar. Ms. Whitaker replied that there will probably be a substantial number of papers on this event. She stated that on one hand, it was a bad day for RWSA but, on the other hand, everyone rose to the occasion very quickly. Ms. Palmer stated that she was astounded at how quickly they were able to mobilize a construction team to respond. Ms. Whitaker replied that RWSA has tried to hire a certain level of professionals throughout the authority and that night, everyone understood the mission and helped to resolve the issue. Mr. Mawyer added that Faulconer Construction was their primary contractor, as well as a construction company out of Chesapeake, who is doing most of the rework currently. Ms. Whitaker added that rental equipment came from everywhere east of the Mississippi, as far out as Michigan and Texas.

9. Request for Approval – Annual Year-End Appropriations

Mr. Lunsford stated that this is a request the staff makes annually to re-appropriate funds that were budgeted in the prior fiscal year, to the current fiscal year. He stated that several requests are listed on the memo, totaling \$287,106.

Mr. Parcels moved to approve the reappropriation of \$287,106 from fiscal year 2024 to fiscal year 2025, seconded by Mr. Tolbert. The Chair asked for a roll-call vote: Mr. Parcels, aye; Ms. Palmer, aye; Mr. Tolbert, aye; Mr. Armstrong, aye; Mr. Roberts, aye; Ms. Swanson, aye.

10. Drought Monitoring/ Declaration of Drought Watch

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Mr. Lynn stated that the staff planned to present this presentation (Attached as Pages _____) in July, and thankfully the situation has drastically improved since then. He stated that he will talk about where things are, where they were, and potential next steps.

Mr. Lynn stated that in late June 2024, the RWSA Board of Directors declared a drought watch for our community and issued a press release, which triggered some steps for the ACSA and City of Charlottesville to take.

Mr. Lynn stated that, as a reminder, there are three stages of a drought or water emergency, with the first being a drought watch. He noted that in a drought watch, the community is asked to voluntarily conserve water. He stated that the second step is a drought warning where mandatory restrictions are imposed on the community, and the third step is a drought emergency. He stated that during a drought emergency, increased restrictions are put in place, as well as emergency water rates to further encourage conservation.

Mr. Armstrong asked at what point during the drought stages, does the system flushing cease, or if it does at all. Mr. Lynn replied that it is something that they would look at on a case-by-case basis, to determine how important it is to continue flushing. He noted that the ACSA is continuing to flush at most of its locations during the drought watch. He added that the staff had begun discussing what actions to take when they reached the drought warning stage, but they did not get to that point.

Mr. Lynn stated that next, he wanted to discuss the steps the ACSA staff took once we moved into the drought watch stage. He stated that they added some advisory messaging on both the telephone greeting and customer bills. He mentioned that they updated the website with the drought watch declaration, as well as some conservation tips on social media and through local media ads. He stated that as always, conservation kits are available in the ACSA Operations Center lobby, and the ACSA also reenergized its Carwash Certification Program. He noted that there are 14

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car washes in the community, with a huge influx in the last few years. He added that the Environmental staff has made site visits to all 14, educating them on the program. He stated that only two are ready for inspections, and they are waiting to hear back from the other 12.

Ms. Palmer asked if the carwashes are the laser type that recycle the water, or the old-fashioned kind. Mr. Lynn replied that there is a combination of self-service car washes and the pull-in, conveyer belt type. He stated that he assumes, as a matter of business, that they would do whatever they can in their design and construction to recycle water, but the newer ones have not been tested yet. Mr. Parcels asked if there was any idea as to how much water would be saved through recycling. Mr. Lynn replied that the ACSA Rules and Regulations has limits on how much new, potable water can be used for each type of carwash. Mr. Parcels asked if the car washes are classified as commercial or industrial, meaning that they have a fixed rate instead of a tiered rate. Mr. Lunsford replied yes.

Mr. Lynn stated that as the ACSA, County, City, and RWSA staff began discussions about moving to a drought warning, they identified some of the factors that would influence that decision. He stated that there is a Virginia Drought Monitoring Task Force that issues routine advisories and suggestions across the state. He mentioned that there is also data from the National Oceanic and Atmospheric Administration (NOAA), the National Weather Service, and the Virginia State Climatology Office, which they would look at as well. He noted that RWSA can run a hydraulic model called Oasis, that looks at historical rainfall and can predict future reservoir levels.

Mr. Parcels stated that the Ragged Mountain Reservoir is still low, and its only source is Sugar Hollow. Mr. Lynn stated that he would speak to that in an upcoming slide. He stated that reservoir levels and streamflow data is another factor they would look at in determining whether to move to a different drought stage.

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Mr. Lynn stated that the graphic on slide six is an example of what the Virginia Drought Monitoring Task Force issues. He noted that they have put the Albemarle community in a drought warning advisory. He noted, however, that the four parties feel with the recent rainfall, groundwater, and reservoir levels and flows, the community is not prepared to move into a drought warning stage at this point.

Mr. Lynn stated that the ACSA staff receives a daily email from RWSA about the reservoir levels, which they have been watching very closely. He stated that July 17, 2024, was probably the low point with the Urban reservoirs below 95% capacity and below full at 4 out of 5 reservoirs. He noted, however, that currently Ragged Mountain is the only reservoir that is below full, which is a much better situation.

Mr. Lynn stated that the USGS has four stream gauges in the community- one on the Moormans River upstream of the South Rivanna Reservoir, one on the Mechums River, as well as the North and South Rivanna. He noted that here was a huge bump in flows in the Moormans River due to the tropical storm last week, which is starting to decrease as time passes since that rainfall.

Mr. Lynn stated that anytime drought conditions are discussed, it seems appropriate to highlight some of RWSA's major CIP projects in the pipeline. He stated that the two most important projects are probably the Ragged Mountain to Observatory pipeline and the Ragged Mountain to South Rivanna pipeline. He mentioned that currently, there is only a single feed from Sugar Hollow to refill the Ragged Mountain Reservoir. He noted, however, that following the completion of those two projects, water can be moved from the overflowing South Rivanna to Ragged Mountain. He stated that this also restores flow in the Moormans River.

Mr. Lynn stated that if they must move to a drought warning declaration, the decision would be made as a group and RWSA would make that declaration and immediately notify the ACSA. He stated that the ACSA would then have a Board meeting and adopt a resolution, requesting

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that the Albemarle County Board of Supervisors declare a drought warning or emergency. He stated that once that happens, it allows the ACSA staff to implement and enforce Section 16 of the Rules and Regulations.

Mr. Parcels asked if the ACSA was able to discern any difference in water use, before the big rainfall event. He stated, in other words, could the staff tell if customers were conserving. Mr. Lynn replied that he does not think they noticed any change. He stated that there was a period of cooler weather where daily production numbers were down. He stated that the worry is the late August/early September time frame when it is still warm, and the UVA students are entering the community. He noted that, looking ahead, we are still in front of the peak for daily demand on the system.

Mr. Lunsford added that now that the system is almost entirely on AMI, the staff is receiving irrigation reports daily. He stated that they have seen a trend in those irrigation systems becoming smarter or customers are more responsible in their use. He mentioned that they have seen irrigation decrease considerably during rain events, indicating that those systems are not running after it rains. He added that some of those systems are smart enough to look at future weather, so there has been some benefit from that technology. Mr. Lynn added that the ACSA also requires rain sensors on irrigation systems, which would lock out a system and not allow it to run when it is raining.

11. ACSA Freedom of Information Act Update

Mr. Armstrong stated that typically, the ACSA's FOIA Officer is the Executive Director. Mr. Roberts asked if the ACSA receives a lot of requests, and if there is someone else assisting with those requests. Mr. Lunsford replied that they do not receive a lot, but the officer role is more so to be responsible for ensuring the requests are handled appropriately.

Ms. Swanson asked if the FOIA requests are more because people do not know where to find the information on the website. Mr. Lunsford

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replied that most of the requests are for information that is not posted publicly, by practice. Mr. Parcels asked if it was ok to tell the Board what type of requests the ACSA receives. Mr. Lunsford replied that they most frequently receive requests related to properties that have had their water service disconnected for real estate purposes. He mentioned that they have had requests related to their investments and surrounding PFAS as well. He noted that the intent does not matter in terms of why the information is being requested, and Mike Derdeyn is regularly involved in ensuring appropriate information is provided when necessary.

Ms. Swanson asked if there are requests for properties that are occupied. Mr. Lunsford replied that the ACSA does not provide any personally identifiable information, but they do provide information related to a specific property if it is receiving water service.

Mr. Parcels moved to approve the ACSA FOIA Rights and Responsibilities Policy, as amended, seconded by Mr. Roberts. The Chair asked for a roll-call vote: Ms. Palmer, aye; Mr. Parcels, aye; Mr. Tolbert, aye; Mr. Armstrong, aye; Mr. Roberts, aye; Ms. Swanson, aye.

12. Items Not on the Agenda

Mr. Lunsford stated that the ACSA has a Labor Day employee picnic on August 30th, beginning at noon at Darden Towe Park. He stated that it will be an Olympic-themed picnic, with various events for employees to compete in. He stated that he wanted to extend the invitation to the Board as well.

Mr. Parcels asked if there was any development with the Green County request. Mr. Lunsford replied nothing formally. He stated that he has met with the RWSA Board of Directors Chair and Bill Mawyer regarding the feelings that have been communicated to him thus far. He stated that he suspects he will hear more about that in the next 4-6 months. Ms. Palmer

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added that she heard they have hired a permanent director now, so they will be able to get moving on a lot of stuff.

13. Adjourn

There being no further business, Ms. Palmer moved that the meeting be adjourned, seconded by Mr. Parcels. All members voted aye.

Quin Lunsford, Secretary-Treasurer