RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
January 23, 2018

A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was held on Tuesday, January 23, 2018 at 2:15 p.m. in the 2nd floor conference room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Mr. Mike Gaffney – Chair, presiding; Ms. Kathy Galvin; Ms. Lauren Hildebrand; Mr. Maurice Jones; Mr. Gary O’Connell; Dr. Liz Palmer; and Mr. Jeff Richardson (arrived at 2:22 p.m.).

Board Members Absent: None.

Staff Present: Mr. Tim Castillo, Ms. Victoria Fort, Mr. Rich Gullick, Mr. Bill Mawyer, Ms. Katie McIlwee, Mr. Scott Schiller, Ms. Michelle Simpson, Ms. Andrea Terry, and Mr. Lonnie Wood.

Also Present: Mr. Kurt Krueger, RWSA counsel, and members of the public.

1. Call to Order
The Chair called the regular meeting of the Rivanna Water and Sewer Authority to order at 2:20 p.m.

2. Minutes of Previous Board Meetings
a) Approval of Board meeting minutes - December 19, 2017

Mr. O’Connell moved to approve the minutes of the regular board meeting of December 19, 2017. Mr. Jones seconded the motion, which passed by a vote of 6-0. Mr. Richardson had not yet arrived at the meeting and was absent from the vote.

3. Recognition
Mr. Gaffney mentioned that there were no recognition items on the agenda.

4. Executive Director’s Report
Mr. Mawyer reported that the recent precipitation had helped the reservoirs and the urban reservoirs were about 86% full. He noted that Sugar Hollow was up to 6½ feet below the dam,
and he referenced a picture that showed the contrast to 12½ feet down in December, which he noted was good news for Sugar Hollow. He stated that Rivanna had resumed the transfer from Sugar Hollow to Ragged Mountain starting the previous day. Mr. Mawyer noted that the strategy that staff had presented to the Board the previous month was to stop transfers when it got down to 19 feet below the top, and when it refilled to about 10 feet, to resume transfers. He noted that they waited a few days because some of the air release valves were frozen from the cold weather, so they let them thaw to get them started again. Mr. Mawyer noted that Ragged Mountain was about 80% full.

Mr. O’Connell requested information regarding the amount of precipitation during the drop in water levels.

Dr. Gullick stated that it was an inch and a half.

Dr. Palmer commented that she had visited the South Fork of the Rivanna near the Skyline Drive over the weekend and was struck by the amount of ice buildup. She noted that she wondered whether the flow rate might be affected by the melting ice, as she had not noticed it in the report.

Mr. Mawyer responded that there was some ice still visible at Sugar Hollow on one side the previous day. He stated that Beaver Creek was at 84% full, 2½ feet below the dam, and Totier Creek in Scottsville was 100% full; and South Rivanna was 100% full and overflowing, with hopes that precipitation would continue.

Mr. Mawyer discussed a community outreach presentation by water department manager Mr. David Tungate to a class of fifth grade students from Crozet Elementary School. Mr. Mawyer also reported having given a quarterly presentation to the Albemarle County Board of Supervisors and Charlottesville City Council, wherein he had presented the water supply strategy that was discussed with the RWSA Board in December 2017.

Mr. Mawyer stated that the Environmental Working Group had released a report suggesting that 170 million Americans drink radioactive tap water. He explained that there was a radioactive element — radium — in the Earth’s crust, and if you have a groundwater well there was a higher probability of radium content as compared to water systems supplied from surface water from rivers and streams. Mr. Mawyer stated that most RWSA water supplies are from surface water sources but noted that an exception is the groundwater well in the Red Hill Elementary School area. He stated that the RWSA monitors for radium at all of its water sources and the level was well below the maximum contaminant levels — so it was not considered an issue at this time.

Mr. Mawyer recognized Ms. Katie McIlwee, a new employee, who along with staff member Miranda Baird had improved the RWSA job application process, which allows for electronic submission of applications directly to the HR department instead of by print and/or email.

Mr. Mawyer presented information and pictures pertaining to the current state of the Sugar Hollow Reservoir, noting that the pool behind the dam was visible, and he noted that the flow out of the pipe at the bottom was the minimum instream release into the stilling basin at the foot of the dam. He presented the State Drought Management Map, which continued to show Central
Virginia and the Middle James River region in a drought watch. He noted that the state recently
updated the webpage and updated the precipitation levels and stream flows were in the
Emergency category, with a Watch for the ground water levels, and reservoir levels being shown
as Normal. Mr. Mawyer noted that this information continued to be monitored along with water
supply information for the community.

Mr. Gaffney asked for an update regarding the recommendation to award a contract to Raftelis,
the firm that had assisted RWSA in developing the strategic plan.

Mr. Mawyer explained that the initial solicitation was to develop and implement a strategic plan,
with the contract initially negotiated in June 2017 for $82,195.00 to do the plan development,
which was completed and approved by the RWSA Board in December 2017. Following that
approval, he noted, the RWSA requested a proposal from the firm to help implement the plan.
He explained that Raftelis responded with a proposal to take the six goal teams and provide
workshops with each of the teams that helped develop the six goals in the strategic plan, which
were workforce development, operational optimization, communication and collaboration,
environmental stewardship, solid waste services, infrastructure, and master planning. Mr.
Mawyer stated that the six goal teams and Raftelis would work on these six goals via their
template and process to keep the teams focused on strategies and implementation of the goals,
with attention paid to timelines and resources. Following this process, he noted, they would
provide information to the Board to review the next steps regarding the need for resources and
the time required for implementation. Mr. Mawyer indicated that Raftelis’ scope in the second
part of the contract was to assist the goal teams with their implementation workshops and assist
with the development of a comprehensive strategy for the upcoming year.

Mr. Mawyer stated that Raftelis will also assist with presenting information to the Board in
regard to keeping the teams focused and meeting the goals, and keeping the Board and public
apprised of the progress towards those goals. He noted that contracts under the threshold of
$100,000.00 could be awarded by staff, but the second part of the contract would take the
amount over that threshold – which is the purpose of bringing the entire contract back to the
Board for review and approval, including the second part in the amount of $61,805.00.

Mr. Gaffney asked if this was for a period of the next 12 months or the next phase.

Mr. Mawyer indicated that it would be for the better part of the next 12 months, as they want to
get the annual plan done in the next few months so it could be brought to the Board for review by
April 2018 – after that, Raftelis would be assisting the teams to move forward with those plans.
Mr. Mawyer clarified that the total contract cost would be $144,000.00, including the previous
$82,195.

Mr. O’Connell inquired as to the breakdown of specific costs and expenditures, as it seemed like
a lot of hours.

Mr. Mawyer responded that it encompassed onsite facilitation, workshops, annual plan
development, and presentation to the Board, with some work be done by Raftelis in their own
office. He mentioned that they would work with the data they came up with, similarly to the
strategic plan development wherein the committees developed thoughts and formulated them into statements to be used in the actual plan.

Mr. Gaffney noted it was nice to know it didn’t sit on a shelf.

Mr. Mawyer agreed, adding that they decided to move forward with Raftelis to the second phase – which was included in the scope – because they were pleased with the company’s previous work.

Ms. Galvin commented that she had no problems with the second phase and noted she felt it was wise to have the assistance of Raftelis because they were very familiar with the plan.

Mr. O’Connell noted that the company had considerable experience working with utilities, which he considered a strength in the process.

5. Items from the Public

There were no items from the public presented.

6. Responses to Public Comments

There were no responses, as there had been no comments the previous month.

7. Consent Agenda

a) Staff Report on Finance
b) Staff Report on Ongoing Projects
c) Staff Report on Operations
d) Recommendation for Award of Non-Professional Services Contract for Strategic Plan Development and Implementation: Raftelis Financial Consultants
e) Recommendation for Award of Construction Contract Award – Piney Mountain Ground Storage Tank Improvements: Utility Services Co., Inc.

Mr. Jones moved to approve the Consent Agenda items as presented. Mr. O’Connell seconded the motion, which passed unanimously 7-0.

8. Other Business

a) Community Water Supply Program – Review of the South Fork Rivanna Reservoir to Ragged Mountain Reservoir Waterline Project

Mr. Mawyer reviewed the previous month’s discussion regarding the Rivanna Reservoir to Ragged Mountain pipeline. He stated that the objective of the current discussion was to address significance of the project within the community water supply plan and review some of the project alternatives, as well as addressing the specifics of whether the project should proceed within the 2019 to 2023 CIP that was currently being drafted and prepared for discussion at the February Board meeting. He noted that the main purpose was to review the project and consider some of the alternatives, with no decision necessary other than whether it should be included in the current CIP.
Mr. Mawyer reported that the project has an estimated budget of approximately $100 million, which warranted some history and discussion, and staff wanted to review the scope of the work, some of the assumptions, how it would affect the overall debt, guidance from the strategic plan, explanation of the construction phasing and completion alternatives, and how potential scheduling could impact debt – as well as the cost to RWSA customers as best as can be predicted at the present time. He referenced a map and explained that there is water in Sugar Hollow that runs through the Moormans River to South Rivanna, and piped water from Sugar Hollow to Ragged Mountain. He noted that the water supply plan included building a larger dam at Ragged Mountain and extending a pipeline from the South Rivanna Reservoir to Ragged Mountain, which would require pump stations and a pretreatment facility.

Mr. Mawyer referred to a map showing a tentative route of the pipeline from the South Rivanna Reservoir to the Ragged Mountain Reservoir, and he noted this would connect the two largest reservoirs and provide redundancy. Mr. Mawyer provided some historical context and described the drought of 2002 as creating a decade-long water supply plan and ultimate development of the 50-year community water supply plan. He stated that permits were applied for in 2008, and the U.S. Army Corps of Engineers granted a 10-year permit for construction of the pipeline in 2008 that would expire later this year. Mr. Mawyer noted that Rivanna had already applied for an extension of that for an additional 10-year period, and the Department of Environmental Quality granted permits to withdraw water from the Rivanna Reservoir and pipe it to Ragged Mountain. He noted that the DEQ permit was a 15-year permit that would expire in February of 2023.

Mr. Mawyer explained that when an application is made for a permit extension, DEQ will apply the new rules and regulations to that request. He reported that the City of Charlottesville, the Albemarle County Service Authority (ACSA), and RWSA had agreed to the Ragged Mountain Dam Project Agreement in January 2012, and the agreement stated that there would be a new earthen dam built at the Ragged Mountain Reservoir and the pipeline. Mr. Mawyer reported that the cost sharing ratio for the dam was to be 85% for ACSA and 15% for the City of Charlottesville, with the cost of the South Rivanna to Ragged Mountain pipeline construction to be shared by ACSA at 80% and the City at 20%. He noted that the agreement also provided for raising the water level in the Ragged Mountain Reservoir 12 feet, which would add 600 million gallons to the reservoir capacity from 1.5 billion to 2.1 billion. He explained that this could occur when the community demand was equal to 85% of the safe yield of the water supply system, which currently was about 16 million gallons per day. He noted the agreement states that the ACSA or the City could ask Rivanna to increase the water level – and it did not have to be both but could be either one.

Mr. O’Connell posed the question as to whether a prior agreement would allow them to do that earlier.

Mr. Mawyer noted that was the way Rivanna staff was looking at it, and indicated that at a minimum, the City or Service Authority could request it once the demand reached the 85% safe yield water level and Rivanna could move forward. Mr. Mawyer stated that the dam was already built for the additional 12 feet and that adjustments may have to be made on the gates on the outlet tower, with some clearing around the perimeter of the reservoir, but otherwise it was
considered to be a low-cost project to add the 12 feet of water and provide another 2.4 million
gallons per day in safe yield.

Mr. O'Connell asked about relooking at safe yield in 2020 with a new study.

Mr. Mawyer confirmed this, noting that the Ragged Mountain Dam Agreement required Rivanna
to do bathymetric studies of the urban reservoirs to assess the volume of water, how much they
had silted, and the current volume. He also mentioned that they had done the wholesale meter
project to measure the amount of water the City and ACSA were taking and compare the current
safe yield to the current demand to see if the 85% ACSA/15% City allocation was still
applicable.

Dr. Palmer asked when the metering was to be completed.

Mr. Mawyer responded that they hoped it would be within the next few months, depending on
the completion of the last vault on Ivy Road – but he noted recent challenges and the prospect of
some changes may have to be made regarding the approach to the project, which he was
discussing with Mr. O'Connell.

Mr. O'Connell asked if it was possible to upgrade the system data without the Ivy Road vault at
least until it was up and running and collecting data.

Mr. Mawyer stated that it would be possible but indicated that there were other devices that
needed to be corrected so that the wholesale water meters read flows correctly. He noted that the
Ivy Road vault was not the only thing that was unfinished but it was the major location to be
addressed.

Mr. O'Connell noted that they were five to six years past the point this was hoped to be
completed.

Mr. Mawyer clarified that it was three years, as the original agreement was 2012 and it was
hoped to be completed by 2015.

Mr. O'Connell noted that it was six years beyond the original agreement date.

Dr. Palmer asked if the delay was due to logistical issues.

Mr. Mawyer replied that it was due to construction difficulties.

Mr. O'Connell added that there was also the UVA issue, which required several meters to be
relocated.

Mr. Mawyer indicated that the dam as a longstanding facility was finished in 2014 and the
reservoir was filled in 2015, so they were entering the third summer using the new reservoirs. He
stated that the benefits of the project were increasing the safe yield for the community – which
means more water for use – and reduction of risk of water restrictions due to drought.
Dr. Palmer asked for further explanation.

Mr. Mawyer stated that there were numbers from the modeling consultant and prior to the Ragged Mountain Dam being built, they looked at the hydrologic and weather history for the last 87 years, then applied the data from 1927 to 2014. He explained that it was determined if the dam was not built, there would be voluntary restrictions projected at least 13 times – which then could progress to mandatory restrictions 10 times and emergency restrictions 6 times. Following construction of the dam, he noted, the likelihood of those events was reduced from 13 to 8, 10 to 5, and 6 to 3. Mr. Mawyer added that this was looking forward and trying to apply past weather history to future projections, taking into account the existing infrastructure.

Dr. Palmer asked whether or any climate modeling could be included in those figures regarding climate change.

Mr. Mawyer stated that he would ask the consultants to see if any specifics were available beyond historical data being applied forward.

Ms. Galvin noted she felt it was very important to take into account the new science of climate change.

Mr. Mawyer stated that before the dam was built, the minimum storage was going to be 5% of the water level to survive the drought; after the dam was built, the expectation was for the water level to be no lower than 30%, which was new information not indicated on the graph.

Mr. Mawyer pointed out that the benefits of the pipeline project also include the flexibility to utilize the South Rivanna Water Treatment Plant and the Observatory Treatment Plant if the reservoirs are hooked together by the pipeline. He noted that water can be pumped back and forth and they can use whichever water treatment plant would be better suited for that given time. He noted that this gave a better balance of community amenities and environmental needs in that it keeps the community out of the drought, particularly because there is a large reservoir at Ragged Mountain that can’t be effectively used yet because without the pipeline it can only feed the Observatory Treatment Plant, which has a limited treatment capacity. Mr. Mawyer also noted that if water could be pumped to Ragged Mountain from South Rivanna when it was full and spilling, more water could be used without drawing from Sugar Hollow and therefore it would keep minimum instream flows at the higher levels as opposed to what occurred in the fall of 2017 when the minimum instream flow was reduced at DEQ’s approval.

Mr. Krueger clarified for the benefit of the public that Dr. Palmer’s comments regarding the 87-year historical data analysis which was used for projections for a 50-year period, the length of the water supply plan.

Mr. Mawyer responded that he thought that was correct.

Dr. Palmer stated that Mr. Mawyer had mentioned that every three to five years, one could expect voluntary or mandatory restrictions.
Mr. Mawyer clarified that the data presumed there would be restrictions no more frequently than every five years regarding mandatory status.

Mr. O'Connell and Dr. Palmer expressed confusion in the public regarding the data and projections of restrictions. Mr. O'Connell stated that the public expectation was that because of the drought, Ragged Mountain was going to solve all water needs for 50 years. He noted that there were many other pieces to the puzzle to complete, including the pipeline and numerous other projects that would have financial consequences to the public. He emphasized that he was not sure whether the public understood and was prepared to accept that at this time, so there was a necessary educational component to this.

Mr. Mawyer referenced a 2014 letter that Hydrologics sent Rivanna when they were attempting to enumerate the benefits of building the dam. He noted that the data was intended to indicate a reduction in the occurrence of events, and as the capacity of the Observatory Treatment Plant was increased and/or the pipeline was installed, the numbers of drought restrictions would continue to decline. He stated that no specific numbers were available regarding how far they would decline, but that the number would be less than eight.

Dr. Palmer asked if the 2014 letter from Hydrologics could be shared with the Board.

Mr. Jones also inquired as to when it could be expected that the eight voluntary experiences, the five mandatory experiences, and the three emergency experiences could be expected to occur.

Mr. Gaffney stated that these figures were considered relevant prior to the pipeline being implemented — so with no completed community water supply plan, just raising the dam alone would not affect those issues.

Dr. Palmer noted those figures would change depending on how much treatment capacity there would be at Observatory Hill.

Mr. Jones noted that raising the capacity another 12 feet at the dam, it would play into that.

Mr. Krueger indicated that the 2014 letter was not accounting for the dam raise nor the pipeline.

Mr. Gaffney added that it was probably also not accounting for Observatory capacity increases.

Mr. Jones emphasized that those were important pieces.

Mr. Krueger agreed that it did not account for Observatory’s increased capacity.

Mr. Mawyer emphasized that it was only before the dam, and after the dam.

Mr. O’Connell stated that very few people know about the other projects, and until they are done the plan is not complete.
Mr. Mawyer agreed, stating that all of those projects would be addressed.

Dr. Gullick stated that his impression was that the estimates being discussed were based on the 87-year period, and he explained that they took the past 87 years and projected them forward under current operating conditions.

Mr. Mawyer reiterated that the figures only applied to conditions before the dam and after the dam and had nothing to do with the Observatory Plant or raising the Ragged Mountain Dam level or building the pipeline. He added that it just showed that project reduced the risk of the community having drought events.

Mrs. Palmer asked if the projections were just a probability-based analysis assuming the same precipitation and period of record during the 87-year historical period. She noted that the next 87-year period would likely be different, but the current data was the best available at this time.

Mr. Mawyer stated that the original scope of work for the project back in 2006 was to put in a raw waterline about nine miles long that had a capacity of transferring 25 million gallons per day (MGD) between the two reservoirs; there would be an intake structure at the South Rivanna Reservoir to take the water out of the Rivanna Reservoir, and there would be a pump station at both ends, with a pretreatment facility at the South Rivanna plant to remove only sediment – and that pretreatment facility was anticipated to cost approximately $7 million in 2017 dollar value. He added that they would close the Sugar Hollow Reservoir waterline that goes to Ragged Mountain, and the estimate in 2009 for the entire pipeline project was $63 million dollars. He stated that current plans to do the original scope may also include nutrient removal in addition to sediment at the pretreatment facility, which could add $8 million to the project. Mr. Mawyer noted that they had done an inflationary index increase from the period of 2009 to 2017 dollars, which added $19 million, and an addition for the replacement of the raw water pipelines between the Ragged Mountain Reservoir and the Observatory Water Treatment Plant resulted in a cost of $10 million. Mr. Mawyer noted that if all adjustments were added to the prior $63 million, the total of the project estimate was $100 million dollars, and it is expected that once the project was started it would take about eight years.

Dr. Palmer asked whether the removal of nutrients from the pretreatment would add $8 million to the $7 million figure.

Mr. Mawyer confirmed that the $8 million would be added to the prior $7 million figure, noting that those figures were preliminary at this time.

Mr. Gaffney asked if there were that many more nutrients in South Rivanna as compared to Sugar Hollow.

Mr. Mawyer affirmed this but added that he did not have a quantified answer. He explained that the watershed of the South Rivanna Reservoir, which he was considering as including everything west of Route 29 from Greene Co. to Nelson Co., everything drains to South Rivanna. He then indicated that the watershed for Sugar Hollow was only at the foot of the National Park and the mountains and was very pristine, so the Rivanna Reservoir was getting a
runoff from development areas and clearly would have a higher sediment and nutrient load than
the water in Sugar Hollow.

Mr. Gaffney stated that it would make sense not to contaminate Ragged Mountain with the
nutrients.

Mr. Mawyer answered that the concern would be that Ragged Mountain is a static reservoir that
did not have enough strong steady flow-through, so there would be a potential for algae growth if
nutrients were pumped in.

Mr. O'Connell asked if that situation was an issue at this time at Ragged Mountain.

Mr. Mawyer stated that there were no known events of blue-green algae.

Ms. Terry commented that there had been some green algae but that was not unusual.

Dr. Gollick stated that it was due to the transfer of water to fill Ragged Mountain in 2015, and it
had only occurred that one time.

Ms. Terry added that this didn’t mean Ragged wouldn’t get algae.

Mr. O'Connell asked about the original proposal for two raw water pump stations and what the
current thinking was.

Mr. Mawyer replied that it was the same, stating that there would be a water pump station at the
South Rivanna plant to pump to Ragged Mountain, and another pump station at the Ragged
Mountain end to pump back to the Rivanna Treatment Plant or Reservoir. He stated that if there
was a lack of water as in the past October, when there was plenty of water in the Ragged
Mountain Reservoir, if the pipeline and the pump station were at both ends, they could have
pumped from Ragged Mountain back to the Rivanna Treatment Plant or the Rivanna Reservoir.
He used a hypothetical example of the previous Friday, when transfer from Sugar Hollow was
stopped because that reservoir had gotten to the maximum lowering of 19 feet – but yet the
Rivanna reservoir was overflowing – water could have been pumped from the Rivanna Reservoir
to Ragged Mountain to help fill it and not rely on the Sugar Hollow pipeline.

Mr. O'Connell indicated that his question was sufficiently answered by that example.

Mr. Mawyer explained that the original scope pertaining to pump stations was still the same, and
that all the original scope was the same as it is presently except that the nutrient element was
added to the pretreatment facility and the pipeline between the Ragged Mountain Reservoir and
the Observatory Treatment Plant was added. He stated that the thinking is if there is all the water
at Ragged Mountain and the Observatory Treatment Plant is upgraded, there would still be a
100-year-old pipe in between, along with two pump stations that were not very reliable – and
they want the whole system to be reliable.

Dr. Palmer expressed surprise that that information was not in the first scope of work.
Ms. Galvin agreed.

Mr. Mawyer stated that Ms. Whitaker had gone through the paperwork and noted they included a section of that pipeline but not the entire length, so staff added that information. Mr. Mawyer reported that some of the assumptions going forward are that there would be improvements made to the Observatory Treatment Plant and upgrade it to 10 MGD, and renovations would be done at the South Rivanna Plant to keep that in good working order per the current CIP, and they would expect that in about five years that the work would be completed. He added that the safe yield of the urban reservoirs is expected to meet the community demand until about 2040, which is currently estimated at 14 MGD. He noted the safe yield could be increased by 2.4 MGD if the Ragged Mountain water level was raised 12 feet, and he noted that the 2.4 million gallons added about 10 years in meeting community demand.

Mr. Mawyer noted that the asterisks next to numbers on the slide being presented to the Board were to indicate that these numbers were the estimates that AECOM did back in 2011, and staff was poised to move forward with another assessment over the next year or two to reevaluate again the safe yield of all the reservoirs through the bathymetric studies, as well as the community demand, to reevaluate when the demand would be equal to the safe yield. He added that there was data that suggests that the safe yield would last longer than 2040 or 2050 and that the community demand would not increase at the level anticipated, but the new study would address those figures. He also noted that there was no specific information as to how much sediment has come into the reservoirs, so the safe yield could go down and demand could go down. Mr. Mawyer emphasized that those issues would be reassessed as stipulated in the Ragged Mountain Dam agreement – which requires it to be done by 2020 and every 10 years thereafter. He added that it is anticipated that with the predictions for 2040 to 2050, newer data may revise those figures.

Mr. Mawyer stated that one criteria for consideration this project was affordability. He indicated that the lime green color on the graph was the current debt service paid at a level of $12 million per year for the $160 million in existing RWISA debt. He stated that the debt payment proposed for 2019 CIP was approximately $15.7 million per year. He indicated a line on the graph as a point of reference and stated that the dark blue graph was for $95 million in additional debt proposed in the FY 2019-2023 CIP – which did not include the Ragged Mountain project.

Mr. O’Connell requested that information be repeated.

Mr. Mawyer explained that the existing debt profile in lime green shows the current debt service payment at approximately $12 million per year currently, and it begins to decline around 2030 as those obligations begin to be paid off. He indicated that the dark green shows that the current CIP proposed for the coming year, which the Board had not seen yet, is for about $190 million and includes $95 million dollars in additional debt – with a proposal that the debt service payment would be about $15.7 million that would be shared in accordance with the Ragged Mountain Dam agreement requirements with the ACSA and the City Utilities Department. He stated that these were the current debt and projected debt profiles, noting that this information
could be used as a criteria for the Board in addressing how the Ragged Mountain pipeline project could be afforded.

Mr. Mawyer reported on the strategic plan and noted that one of the six goals was infrastructure and master planning: to plan, deliver, and maintain dependable infrastructure in a financially responsible manner. He noted that it is believed the project is consistent with this goal and was clearly a major addition to the water infrastructure; would enhance the dependability of the water supply infrastructure when completed; and would be completed in a financially responsible manner. Mr. Mawyer explained the three phases of construction, stating that Phase One is currently ongoing and includes the preliminary alignment for the Rivanna to Ragged Mountain pipeline. He noted that when that is completed, they would move on to acquiring the easements of the properties for that project at a cost of $2.3 million, which is included in what is referred to as the project budget of $100 million. He stated that they were also in the process of planning and designing the improvements to the Observatory Water Treatment Plant and the South Rivanna Water Treatment Plant, estimated collectively to be $26 million and increasing the Observatory Treatment Plan capacity from 7 to 10 MGD by rating. He noted that this did not include any added capacity to the South Rivanna Water Treatment Plant, but it may add some capacity to the sub-systems within the plant. He noted that this is planned concurrently with the right of way acquisition. He noted that thirdly and concurrently, there are plans for the Avon Street to Pantops Mountain waterline that was in last year’s CIP, and money was being added in the current CIP for that project – which is a 24-inch pipeline three miles long that generally helps to complete a loop around the entire urban area and helps distribute water with better pressure and reliability.

Dr. Palmer asked if Phase One was already included in the graph that addressed the debt service. Mr. Mawyer confirmed this, but noted that some of the costs may end up being the $95 million being requested to be added to the debt curve.

Mr. Wood noted that it was shown on the graph as dark blue and green, before any other costs are added.

Mr. Mawyer stated that all of the costs were included in the $95 million.

He gave a preview of the upcoming CIP, stating that the Beaver Creek Dam work is about $9 million; there is $8.5 million for the Observatory Water Treatment Plant upgrade; there was approximately $7 million for the Avon to Pantops waterline, with some of that money in the current budget and $7 million fulfilling the budget. He stated that the Crozet water treatment facility would require $6.5 million; a major waterline from the South Rivanna Plant north towards the 29 North area estimated at $5 million – and that is all part of the $95 million that the Board would hear about the following month.

Mr. O’Connell noted that to achieve full redundancy, there was now 12 MGD capacity at South Rivanna – with plans to go to 10 MGD at Observatory – and he asked if something happened to South Rivanna if it could fully support the system. He asked if it would be prudent to increase capacity slightly so both could fully support equal amounts.
Mr. Mawyer stated that they were getting estimates to go to both 10 million and to 12 million at Observatory, and he understood that it was an exponential increase to go above 10 million. He added that they could tweak things to go to 10, but if they go to 12, it would require a whole new process.

Dr. Gullick noted there would be a need for new filters to go to 12, which was the big jump.

Mr. Mawyer stated that those figures would be available to the Board and that if they wanted to increase Observatory capacity to 12 million it could be done. He noted that the current demand was 9.25 MGD but it would be close for Observatory to meet demand at 10 million.

Mr. Gaffney asked what the production capacity was for North Fork.

Mr. Mawyer responded that North Fork production was rated as 1 or 2 million, but typically it produced about 400 thousand gallons to 1/2 million gallons.

Dr. Gullick added that it had a safe yield of 2 million, and a production capacity of 1 million with the current pumping system there.

Mr. Mawyer noted there were old pipes between the Ragged Mountain Reservoir and the Observatory Treatment Plant, with two pipes that go through two raw water pump stations. He stated that the plan is to replace all of that infrastructure so there would be a significant water supply and an upgraded treatment plant so they can get the water there dependably. Mr. Mawyer stated that the budget to achieve those goals is approximately $18 million.

Mr. O'Connell asked if those pipes were both 100 years old.

Mr. Mawyer stated that the Royal Pump Station was built in 1920, and the Stadium was newer but it did not have the capacity to serve a 10 MGD or a 12 MGD Observatory Treatment Plant. He stated that the proposal is to build one new pump station with a dual purpose of transferring water from the reservoir to the Observatory Treatment Plant and serving as the pump station to return water to the Rivanna Reservoir. He noted that it would then be one of the two new pump stations discussed with the Ragged Mountain to Rivanna pipeline. He noted that the facility could be designed without the pumps if the construction of the actual pipeline was going to be a long way off, but they would have the infrastructure at the pumping facility set up to accommodate the 36-inch pipeline between Rivanna and Ragged Mountain.

Mr. Mawyer explained that Phase Three is the core project, which has a budget of approximately $80 million to build the 9 miles of piping between the two reservoirs, the intake structure, the second of the two raw water pump stations at the Rivanna end, the pre-treatment facility, and to close the Sugar Hollow waterline. He noted there was a projection of eight years to design and build the project, and he noted there were four potential schedules regarding this plan. He noted that it was recommended that once the pipeline was built, the Ragged Mountain Reservoir would be raised 12 feet, the infrastructure would be available to do it from the reservoir side and the pumping and piping side, and staff recommended that they take advantage of that.
Mr. Mawyer referenced a timeline that showed ongoing projects of getting the right of way acquisitions between 2017 and 2021, as well as doing the improvements; a capacity increase to the Observatory Water Treatment Plant and the improvements at the Rivanna Treatment Plant; and working on the Avon to Pantops waterline. He noted these were all moving forward between 2017 and 2022. He noted that the Phase Two projects of replacing the waterline between the Ragged Mountain reservoir and the Observatory Treatment Plant, concurrently replacing the pump stations, would begin in 2022 when the ongoing projects were over and would extend through 2026. Mr. Mawyer stated that the core project options for building the nine miles of pipe and the second pump station and the pretreatment facility were addressed through some alternatives. He noted that the Schedule A alternative indicated that the earliest start of the core project would follow the acquisition of the right of way for the pipeline, which would go from 2022 through 2030 for a total of 8 years. He noted that the Schedule B alternative logic, with a later start of the core project, was that the debt service started to decline around 2030, and the first few years of Schedule B would be design dollars – smaller dollars relative to the total project of $80 million – and the larger expenditures would begin about the time the debt profile began to decline, with more debt service capacity. Mr. Mawyer noted that Schedule B allow for payment of the debt service without significant rate increases.

Mr. Mawyer reported that Schedule C was based on the AECOM 2011 report, which noted that safe yield would equal demand in 2040 – so it has an even later start for the core project and begins in 2032 and completes the core project by 2040, when the report noted they were needed. He noted that the other Schedule D logic states that if around 2038 to 2040, if Ragged Mountain water level was raised 12 feet, it would give a 2.4 MGD safe yield that could satisfy demand for an additional 10 years and extend the need to approximately 2050. He pointed out that all of the schedules are the same amount of work – it was just a matter of when they would be done.

Mr. Mawyer presented a summary of each schedule as follows: Schedule A from 2022 to 2030 increases the water supply safe yield and the redundancy, providing flexibility to use either Observatory Treatment Plant or Rivanna treatment plant via the Ragged Mountain reservoir and the Rivanna reservoir. He noted that this would allow redundancy within the infrastructure as well as the additional benefits discussed earlier, but it creates a financial impact because it would be concurrent with other projects ongoing. He added that it could be completed by a fairly straightforward extension of existing regulatory permits, which would extend until at least 2028. He stated that staff felt fairly comfortable that there would not be a permit issue.

Mr. Mawyer stated that Schedule B fit within the debt profile better, and it increases safe yield and redundancy. He noted he was not sure how much of a permitting process it would require, but staff was hopeful that it would not be much different than Schedule A – although the permit would expire much earlier in the project, around 2028, than in Schedule A. He reported that Schedules C and D were based on water supply predictions of when the safe yield would be consumed by the community demand and more water supply would be needed. Mr. Mawyer stated that the current 2011 reports noted that must be completed by 2040, which would be way out beyond any expected permit extensions, so that may require an extensive permitting process. He noted that Schedule D went another 10 years, making it plausible if the water level at Ragged Mountain were raised by no later than 2038 or 2040; it would provide the same water supply and redundancy benefits and was also expected to take an extensive permitting process.
Mr. Mawyer provided a brief budget summary stating that ongoing projects: property acquisition is $2.3 million; the base projects of the waterline replacement and the pump station replacement are the $13 million and $5 million each; the core project at $80 million results in the $100 million project summary.

Mr. O’Connell asked if the inflationary factor of $19 million dollars projected would impact Schedules A, B, C.

Mr. Mawyer responded that the figures were all in 2017 dollars and they did not inflate them to 2040 dollars.

Mr. O’Connell indicated there would be budget changes at 2030 and 2040, and another at 2050.

Mr. Mawyer noted that depending on what schedule was used, they would have to inflate to then current dollars to get a current budget. He again reiterated that all figures were done in 2017 dollars to make them comparable.

Ms. Galvin agreed that Mr. O’Connell raised an interesting point because the longer these are projected out, the more likelihood that inflation would put pressure on the cost of the project. She also inquired as to whether there was cost to the extending of the permitting process.

Mr. Mawyer stated that there would likely be costs of permitting fees, processing, and consultants.

Ms. Galvin also mentioned the uncertainty of the negotiations with regulators as well, noting that RWSA currently had the permits in hand.

Mr. Mawyer agreed and noted that the extensions were readily available but beyond that it was uncertain what the regulatory agencies would require because they have to consider, at the time, what the laws are and the EPA direction when considering the application.

Ms. Galvin stated that Schedule B noted it “may” require new permits, and it appeared that many permits would still follow in that timeframe but some may not.

Mr. Mawyer confirmed this and commented that it would be close. He noted that if an extension was granted on the 2018 permit to 2028, that is in part of the Schedule B timeframe but at the very beginning – so staff was hopeful that it would work. Mr. Mawyer emphasized that it was not as clear as it was with the Schedule A timeframe that is clearly within the permit timeline.

Dr. Palmer noted that there were so many unknowns in putting something out that far, but she felt that as their knowledge increased as to what stream health entailed and what it needed, those environmental permit concerns might get stricter. She added that they were really talking about putting off Schedule D and putting off those full environmental effects with the water supply plan out into the future pretty significantly.
Mr. Mawyer agreed, noting that they would not know what animals might be put on an endangered list over the next decade – and he agreed that was a risk that would need to be considered.

Ms. Galvin noted that this would need to encompass the ability to investigate and identify animals that were currently there but were not yet inventoried.

Dr. Palmer stated that it would also need to be established what it took in velocity and flows to keep them healthy, and that specific information was not known at that time.

Mr. Gaffney pointed out that they didn’t know what effect the LP gas pipelines and new regulations to be added once those were built.

Mr. Wood reported that there were several debt schedules that would impact the debt profile, stating that he used a consistent estimate for each one – with $90 million dollars in new debt issued that would add some cost to it at a 5% rate over 30 years. He noted it was basically taking it and fitting it on the schedule with the same timeline Mr. Mawyer reviewed. Mr. Wood stated that Schedule A indicated if you added the debt service related to that over a six-year period to an eight-year period, there would be a spike of around $24-25 million in debt service needs that would have to be built into rates and then probably more because the policy and bond ratings hinged on being able to charge excess revenue to cover debt service needs, which is known as debt service ratio. He noted that the Davenport presentation in November had included this information, with a schedule in the annual report showing the current debt service ratio revenue charges.

Mr. Wood noted that this showed that it was likely they would have to build in around $28-30 million of revenue charges to the two customers to meet Schedule A needs. He noted that Schedule B was a little better, with everything moved down three years, and this indicated that the number was down to about $23 million in the spike – which would only last for a couple of years and by that time it would already be built it into the rates.

Mr. O’Connell asked about the debt falloff.

Mr. Wood responded that the debt would fall off a year or two earlier than 2030, and Schedule C fit that timeframe better and could be moved up a little bit. He added the Schedule C timeframe could be pushed off a little bit from where Schedule B is – so somewhere in the middle, 2030 would hit the sweet spot. He then noted that on Schedule C, they were right at the $20-million to $19-million spike where the debt service charge would need to be. He noted that Schedule D would push it out quite a bit, and it would not really have an impact on the current estimate of the capital improvement plan to be adopted.

Ms. Galvin noted that Schedule D did not include all of the other capital projects that might be incurred.

Mr. Wood responded that it included a portion of the Ragged Mountain to Observatory pipeline and the pump station.
Mr. Mawyer interjected that way out at 2040 there may be lots of other unknown projects added
to the CIP, and that debt profile is not going to look like what was being presented at the present
time.

Mr. O’Connell commented that this did not have any wastewater projects included.

Mr. Mawyer stated that regulations could change with ammonia, for example, and projects
regarding wastewater would certainly change the current debt profile – so the further they went
out, the more likelihood it would be different than what was expected at this point.

Mr. Gaffney asked that if it was pushed out to 2040 there may be a spike due to other costs.

Mr. Mawyer concurred and noted that it didn’t mean they would be below the $15.7-million line,
because a lot of other things may have happened that would have pushed the debt service up by
then.

Mr. Mawyer noted that they did project that in 2019, preliminarily, for a total operating CIP
budget, the projection was a 5% revenue increase from the City of Charlottesville, and a 10.5%
increase from ACSA. He stated that through 2023, the projected increases were indicated by a
five-year rate model. He noted that they were in the process of getting a rate model that would go
beyond five years, and within a month that would be operational – which is why no numbers
were available for 2024, 2025, or 2026. He noted that an example was provided in Schedule B,
and the projection for just the core projects was a 1.5% addition to the City and 5% to the
Service Authority above any other normal budget increase. Mr. Mawyer noted that was the best
information available to date to answer some of the Board’s questions, and staff may have be
ter information available in the months to come.

Mr. O’Connell noted that 2019 would represent what the staff was thinking about CIP projects,
some of which was shown.

Mr. Mawyer noted that also included operating and any other recommendations, and those five
years were the full budget.

Mr. O’Connell asked if the 8% was more of a guess.

Mr. Wood responded that it assumed a 3-5% increase in operations.

Dr. Palmer asked Mr. O’Connell if he could provide the completed report as to what it means in
costs to ratepayers.

Ms. Galvin reiterated this request.

Mr. O’Connell explained that all three agencies would be doing a rate study to consider current
impact and impact over the next 10 years or longer – so the timing is perfect.
Dr. Palmer agreed, stating that the percentage was sometimes misleading and this was why the actual cost per month illustrates what people are actually going to have to pay.

Ms. Galvin stated that it was going to be really important how they communicate this, and the most successful way to understand it would be through looking at the dollars.

Mr. Jones noted that the tendency was to look at the average household and the effect it would have on them.

Dr. Palmer stated that she thought that the Board would like to know that information when all of the matters were taken care of, and she felt certain that would happen.

Mr. O'Connell echoed that 10.5% would be a significant piece.

Mr. Gaffney noted the question was whether it would just be a few dollars a month.

Dr. Palmer noted that the ACSA has had a policy for many years that growth pays for growth, and there were connection charges used as rate stabilization, so the ACSA Board got to decide how to use that money to stretch out these increases over time.

Mr. O'Connell noted that the rate study would look at this, and the City had something similar. He noted that part of looking this far out was beneficial, rather than having those big spikes and trying to find out how you can smooth out and have the least impact.

Dr. Palmer added that John Martin used to call it “yo-yo water pricing” many years ago, and they did not want that.

Mr. Mawyer summarized that the presentation was an overview of the community water supply plan that was generally created about 10 years earlier. He noted that he had shown alternatives of how the core projects could go forward, and he would ask for any feedback offered regarding whether Schedule A was under consideration – as well as whether they needed to include that project in the new CIP to be brought to them in February.

Dr. Palmer asked for information regarding staffing needs for this type of process, and assumed that if Schedule A were to be considered, it would have some impact on staff.

Mr. Mawyer stated that if they were trying to do all the work at the same time, they would have to add staff or use more consultants – which could be a good thing but was an expensive option. He noted that if all the projects were stacked together in the same timeline, there would need to be additional staff. He was unable to provide an actual number but noted it would be a challenge. He noted the need for inspectors, project engineers, and noted it would produce a ripple effect throughout the whole organization when they were paying more bills, processing more paperwork, etc.
Mr. Gaffney noted that he recognized this was an overview of the four different timeframes, but urged them to throw out Schedule D quickly, recognizing how difficult it was to keep Ragged Mountain full with the Sugar Hollow pipeline. He expressed concern that they were going to add 600 million more gallons of capacity and try to fill it with the same pipe and the same Sugar Hollow Reservoir.

Ms. Galvin noted that Schedule D was so far out it was almost just a guess and was not based on any current projections, and she did not think they would be able to anticipate extreme weather that might occur over the next several decades.

Dr. Palmer added that there appeared to be lots of problems with the process because today they were being asked about Schedule A, but she had tremendous concerns about D from an environmental standpoint and an economic development standpoint, as well as considering climate change and community expectations. She noted that she doubted that the community was really expecting to have to go into restrictions every three to five years. Dr. Palmer added that it was not a very good advertisement for the community.

Mr. Gaffney stated that the community expectation was that there would be no more restrictions at all simply because of the Ragged Mountain dam.

Ms. Galvin expressed concern at the “multiple puzzle piece” nature of the issue, and noted that if one piece is missing then it would be difficult to access and fully utilize the investment that has already been made in the dam. She stated that it didn’t make sense to go that far out, and Schedule A didn’t make sense because it was not quite needed yet, and they didn’t need that enormous investment in staff time.

Mr. Gaffney countered that while it was noted that it wasn’t needed, they just went through the type of water supply they thought they had figured out, and having Observatory rebuilt would help.

Ms. Galvin stated that the reality was that they were implementing the water supply plan at the present time, with a current investment of $20 million of the $100-million-dollar cost regardless.

Mr. O’Connell stated that they would go through the design and the land acquisition piece anyway, so they were in the Phase One – which was a multiple year effort.

Dr. Palmer agreed that Schedule A needed to come off for right now, and she felt that ACSA and the City had to look at their pricing, then come back on the timing.

Ms. Galvin commented that it seemed there would be a big spike.

Mr. Gaffney noted that what staff was proposing with the Schedules was not the specific time periods, it was just for examples. He added that the projects could be left out of the CIP this year and added in next year.

Ms. Galvin asked when they would get the water demand study.
Mr. Mawyer responded that it would be available over the next two years but probably sooner rather than later since the discussion had been started.

Ms. Galvin noted that would help them understand the difference between Schedules B and C.

Dr. Palmer noted that they would want to give a long enough period in between the two for it to meaningful, and weather patterns – not just population – would be used as variables. She added that if they had a few years of normal to better than average rainfall, it would skew the outcomes.

Ms. Galvin agreed.

Dr. Palmer noted that they were in a building boom now, and it was extraordinary how it was picking up after the recession ended.

Mr. Gaffney responded that it was built-up demand from the recession.

Ms. Galvin agreed.

Mr. O’Connell indicated that ACSA would have its regular Board meeting on Thursday and he added this to the agenda to keep them apprised – so as they moved through the budget process, he will have some guidance from them. He added that in the original negotiations, it was projected in the numbers that the Service Authority was running about 2030 for the pipeline coming into play. He noted that it did believe that the 12 feet of the dam would have already have been built before that happened. Mr. O’Connell noted that it was a starting point for the Board to look at the timing of this, and noted that probably a lot of it would be driven just by the finances. Mr. O’Connell stated that Mr. Wood had done a good job in the past in avoiding big jumps.

Mr. Gaffney asked if it was possible to determine whether they could actually fill the 12 feet with the Sugar Hollow pipeline.

Mr. Mawyer responded that he felt they could get their modeler to give them, based on weather patterns, how long it would take to get it to full and to keep it full.

Dr. Gullick noted that keeping it full was the key, with the higher volume filled in a year and a half, adding that it was full when the weather was right.

Mr. Gaffney noted that once they got Observatory rebuilt, if they needed to go to Ragged Mountain, it would go down quicker.

Mr. O’Connell asked what the current size of Ragged Mountain was.

Mr. Mawyer responded that it was 1.5 billion, and it went to about 2.1 billion with the additional 12 feet of water.
Dr. Palmer commented that the community expectation to realize the full environmental benefits of a completed water supply was important for them to remember — and what she strongly disliked about Schedule D was relying on a 17-square-mile watershed of Ragged Mountain for an extended period of time. She also expressed concern about weather patterns and economic development impacts.

Ms. Galvin asked if there needed to be a fuller discussion with City Council.

Mr. Jones noted that he felt Council should have that discussion.

Ms. Galvin stated that it was important to consider rates, but emphasized that they were in a pattern of unpredictable and extreme weather. She acknowledged the building boom but noted the City was focused on affordable housing, adding that they should not underestimate the needed infrastructure for balanced growth. She noted that they would need to hear from the ACSA regarding decisions as to how to use their rate stabilization fund.

Mr. Richardson commented that this would be very helpful.

Ms. Galvin asked Mr. Mawyer whether he wanted to know if Schedule A was off the table, and when he needed to know that.

Mr. Mawyer responded that this would be helpful, and staff would be meeting with Mr. O’Connell and Ms. Hildebrand in a few weeks, then with the whole Board in February, particularly to inform the CIP.

Dr. Palmer reiterated Mr. Gaffney’s point regarding whether to take it off for this year.

Ms. Hildebrand noted that they could run different scenarios based on Mr. Wood’s 10-year projections.

Mr. Richardson noted that they were getting feedback that this would be pushed off for the coming year, and the analysis would be done for 2019-2023, with consideration to add it back just one year behind Schedule A but other options to be reviewed between now and then.

Mr. Mawyer noted that Schedule A wouldn’t be delayed even if it were put off this year, because it doesn’t start until 2022.

9. Other Items from Board or Staff not on the Agenda

There were no additional items presented.

10. Closed Meeting

There was no closed meeting held.

11. Adjournment

Dr. Palmer moved to adjourn the Board meeting. Mr. Jones seconded the motion, which passed unanimously (7-0).
There being no further business, the meeting adjourned at 3:41 p.m.

Respectfully submitted,

[Signature]

Mr. Jeff Richardson
Secretary-Treasurer