



695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
TEL: 434.977.2970
FAX: 434.293.8858
WWW.RIVANNA.ORG

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4 **RWSA BOARD OF DIRECTORS**
5 **Minutes of Regular Meeting**
6 **January 23, 2018**
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9 A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was
10 held on Tuesday, January 23, 2018 at 2:15 p.m. in the 2nd floor conference room, Administration
11 Building, 695 Moores Creek Lane, Charlottesville, Virginia.
12

13 **Board Members Present:** Mr. Mike Gaffney – Chair, presiding; Ms. Kathy Galvin; Ms. Lauren
14 Hildebrand; Mr. Maurice Jones; Mr. Gary O’Connell; Dr. Liz Palmer; and Mr. Jeff Richardson
15 (arrived at 2:22 p.m.).
16

17 **Board Members Absent:** None.
18

19 **Staff Present:** Mr. Tim Castillo, Ms. Victoria Fort, Mr. Rich Gullick, Mr. Bill Mawyer, Ms.
20 Katie McIlwee, Mr. Scott Schiller, Ms. Michelle Simpson, Ms. Andrea Terry, and Mr. Lonnie
21 Wood.
22

23 **Also Present:** Mr. Kurt Krueger, RWSA counsel, and members of the public.
24

25 **1. Call to Order**

26 The Chair called the regular meeting of the Rivanna Water and Sewer Authority to order at 2:20
27 p.m.
28

29 **2. Minutes of Previous Board Meetings**

30 a) Approval of Board meeting minutes - December 19, 2017
31

32 **Mr. O’Connell moved to approve the minutes of the regular board meeting of December**
33 **19, 2017. Mr. Jones seconded the motion, which passed by a vote of 6-0. Mr. Richardson**
34 **had not yet arrived at the meeting and was absent from the vote.**
35

36 **3. Recognition**

37 Mr. Gaffney mentioned that there were no recognition items on the agenda.
38

39 **4. Executive Director’s Report**

40 Mr. Mawyer reported that the recent precipitation had helped the reservoirs and the urban
41 reservoirs were about 86% full. He noted that Sugar Hollow was up to 6½ feet below the dam,

42 and he referenced a picture that showed the contrast to 12½ feet down in December, which he
43 noted was good news for Sugar Hollow. He stated that Rivanna had resumed the transfer from
44 Sugar Hollow to Ragged Mountain starting the previous day. Mr. Mawyer noted that the strategy
45 that staff had presented to the Board the previous month was to stop transfers when it got down
46 to 19 feet below the top, and when it refilled to about 10 feet, to resume transfers. He noted that
47 they waited a few days because some of the air release valves were frozen from the cold weather,
48 so they let them thaw to get them started again. Mr. Mawyer noted that Ragged Mountain was
49 about 80% full.

50
51 Mr. O'Connell requested information regarding the amount of precipitation during the drop in
52 water levels.

53
54 Dr. Gullick stated that it was an inch and a half.

55
56 Dr. Palmer commented that she had visited the South Fork of the Rivanna near the Skyline Drive
57 over the weekend and was struck by the amount of ice buildup. She noted that she wondered
58 whether the flow rate might be affected by the melting ice, as she had not noticed it in the report.

59
60 Mr. Mawyer responded that there was some ice still visible at Sugar Hollow on one side the
61 previous day. He stated that Beaver Creek was at 84% full, 2½ feet below the dam, and Totier
62 Creek in Scottsville was 100% full; and South Rivanna was 100% full and overflowing, with
63 hopes that precipitation would continue.

64
65 Mr. Mawyer discussed a community outreach presentation by water department manager Mr.
66 David Tungate to a class of fifth grade students from Crozet Elementary School. Mr. Mawyer
67 also reported having given a quarterly presentation to the Albemarle County Board of
68 Supervisors and Charlottesville City Council, wherein he had presented the water supply strategy
69 that was discussed with the RWSA Board in December 2017.

70
71 Mr. Mawyer stated that the Environmental Working Group had released a report suggesting that
72 170 million Americans drink radioactive tap water. He explained that there was a radioactive
73 element – radium – in the Earth's crust, and if you have a groundwater well there was a higher
74 probability of radium content as compared to water systems supplied from surface water from
75 rivers and streams. Mr. Mawyer stated that most RWSA water supplies are from surface water
76 sources but noted that an exception is the groundwater well in the Red Hill Elementary School
77 area. He stated that the RWSA monitors for radium at all of its water sources and the level was
78 well below the maximum contaminant levels – so it was not considered an issue at this time.

79
80 Mr. Mawyer recognized Ms. Katie McIlwee, a new employee, who along with staff member
81 Miranda Baird had improved the RWSA job application process, which allows for electronic
82 submission of applications directly to the HR department instead of by print and/or email.

83
84 Mr. Mawyer presented information and pictures pertaining to the current state of the Sugar
85 Hollow Reservoir, noting that the pool behind the dam was visible, and he noted that the flow
86 out of the pipe at the bottom was the minimum instream release into the stilling basin at the foot
87 of the dam. He presented the State Drought Management Map, which continued to show Central

88 Virginia and the Middle James River region in a drought watch. He noted that the state recently
89 updated the webpage and updated the precipitation levels and stream flows were in the
90 Emergency category, with a Watch for the ground water levels, and reservoir levels being shown
91 as Normal. Mr. Mawyer noted that this information continued to be monitored along with water
92 supply information for the community.

93
94 Mr. Gaffney asked for an update regarding the recommendation to award a contract to Raftelis,
95 the firm that had assisted RWSA in developing the strategic plan.

96
97 Mr. Mawyer explained that the initial solicitation was to develop and implement a strategic plan,
98 with the contract initially negotiated in June 2017 for \$82,195.00 to do the plan development,
99 which was completed and approved by the RWSA Board in December 2017. Following that
100 approval, he noted, the RWSA requested a proposal from the firm to help implement the plan.
101 He explained that Raftelis responded with a proposal to take the six goal teams and provide
102 workshops with each of the teams that helped develop the six goals in the strategic plan, which
103 were workforce development, operational optimization, communication and collaboration,
104 environmental stewardship, solid waste services, infrastructure, and master planning. Mr.
105 Mawyer stated that the six goal teams and Raftelis would work on these six goals via their
106 template and process to keep the teams focused on strategies and implementation of the goals,
107 with attention paid to timelines and resources. Following this process, he noted, they would
108 provide information to the Board to review the next steps regarding the need for resources and
109 the time required for implementation. Mr. Mawyer indicated that Raftelis' scope in the second
110 part of the contract was to assist the goal teams with their implementation workshops and assist
111 with the development of a comprehensive strategy for the upcoming year.

112
113 Mr. Mawyer stated that Raftelis will also assist with presenting information to the Board in
114 regard to keeping the teams focused and meeting the goals, and keeping the Board and public
115 apprised of the progress towards those goals. He noted that contracts under the threshold of
116 \$100,000.00 could be awarded by staff, but the second part of the contract would take the
117 amount over that threshold – which is the purpose of bringing the entire contract back to the
118 Board for review and approval, including the second part in the amount of \$61,805.00.

119
120 Mr. Gaffney asked if this was for a period of the next 12 months or the next phase.

121
122 Mr. Mawyer indicated that it would be for the better part of the next 12 months, as they want to
123 get the annual plan done in the next few months so it could be brought to the Board for review by
124 April 2018 –after that, Raftelis would be assisting the teams to move forward with those plans.
125 Mr. Mawyer clarified that the total contract cost would be \$144,000.00, including the previous
126 \$82,195.

127
128 Mr. O'Connell inquired as to the breakdown of specific costs and expenditures, as it seemed like
129 a lot of hours.

130
131 Mr. Mawyer responded that it encompassed onsite facilitation, workshops, annual plan
132 development, and presentation to the Board, with some work be done by Raftelis in their own
133 office. He mentioned that they would work with the data they came up with, similarly to the

134 strategic plan development wherein the committees developed thoughts and formulated them
135 into statements to be used in the actual plan.

136

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

138

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

142

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

145

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

148

149 **5. Items from the Public**

150 There were no items from the public presented.

151

152 **6. Responses to Public Comments**

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

154

155 **7. Consent Agenda**

156

a) Staff Report on Finance

157

b) Staff Report on Ongoing Projects

158

c) Staff Report on Operations

159

d) Recommendation for Award of Non-Professional Services Contract for Strategic Plan
Development and Implementation: Raftelis Financial Consultants

160

161

e) Recommendation for Award of Construction Contract Award – Piney Mountain Ground
Storage Tank Improvements: Utility Services Co., Inc.

162

163

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

166

167 **8. Other Business**

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

170

171 Mr. Mawyer reviewed the previous month's discussion regarding the Rivanna Reservoir to
172 Ragged Mountain pipeline. He stated that the objective of the current discussion was to address
173 significance of the project within the community water supply plan and review some of the
174 project alternatives, as well as addressing the specifics of whether the project should proceed
175 within the 2019 to 2023 CIP that was currently being drafted and prepared for discussion at the
176 February Board meeting. He noted that the main purpose was to review the project and consider
177 some of the alternatives, with no decision necessary other than whether it should be included in
178 the current CIP.

179

180 Mr. Mawyer reported that the project has an estimated budget of approximately \$100 million,
181 which warranted some history and discussion, and staff wanted to review the scope of the work,
182 some of the assumptions, how it would affect the overall debt, guidance from the strategic plan,
183 explanation of the construction phasing and completion alternatives, and how potential
184 scheduling could impact debt – as well as the cost to RWSA customers as best as can be
185 predicted at the present time. He referenced a map and explained that there is water in Sugar
186 Hollow that runs through the Moormans River to South Rivanna, and piped water from Sugar
187 Hollow to Ragged Mountain. He noted that the water supply plan included building a larger dam
188 at Ragged Mountain and extending a pipeline from the South Rivanna Reservoir to Ragged
189 Mountain, which would require pump stations and a pretreatment facility.

190
191 Mr. Mawyer referred to a map showing a tentative route of the pipeline from the South Rivanna
192 Reservoir to the Ragged Mountain Reservoir, and he noted this would connect the two largest
193 reservoirs and provide redundancy. Mr. Mawyer provided some historical context and described
194 the drought of 2002 as creating a decade-long water supply plan and ultimate development of the
195 50-year community water supply plan. He stated that permits were applied for in 2008, and the
196 U.S. Army Corps of Engineers granted a 10-year permit for construction of the pipeline in 2008
197 that would expire later this year. Mr. Mawyer noted that Rivanna had already applied for an
198 extension of that for an additional 10-year period, and the Department of Environmental Quality
199 granted permits to withdraw water from the Rivanna Reservoir and pipe it to Ragged Mountain.
200 He noted that the DEQ permit was a 15-year permit that would expire in February of 2023.

201
202 Mr. Mawyer explained that when an application is made for a permit extension, DEQ will apply
203 the new rules and regulations to that request. He reported that the City of Charlottesville, the
204 Albemarle County Service Authority (ACSA), and RWSA had agreed to the Ragged Mountain
205 Dam Project Agreement in January 2012, and the agreement stated that there would be a new
206 earthen dam built at the Ragged Mountain Reservoir and the pipeline. Mr. Mawyer reported that
207 the cost sharing ratio for the dam was to be 85% for ACSA and 15% for the City of
208 Charlottesville, with the cost of the South Rivanna to Ragged Mountain pipeline construction to
209 be shared by ACSA at 80% and the City at 20%. He noted that the agreement also provided for
210 raising the water level in the Ragged Mountain Reservoir 12 feet, which would add 600 million
211 gallons to the reservoir capacity from 1.5 billion to 2.1 billion. He explained that this could occur
212 when the community demand was equal to 85% of the safe yield of the water supply system,
213 which currently was about 16 million gallons per day. He noted the agreement states that the
214 ACSA or the City could ask Rivanna to increase the water level – and it did not have to be both
215 but could be either one.

216
217 Mr. O’Connell posed the question as to whether a prior agreement would allow them to do that
218 earlier.

219
220 Mr. Mawyer noted that was the way Rivanna staff was looking at it, and indicated that at a
221 minimum, the City or Service Authority could request it once the demand reached the 85% safe
222 yield water level and Rivanna could move forward. Mr. Mawyer stated that the dam was already
223 built for the additional 12 feet and that adjustments may have to be made on the gates on the
224 outlet tower, with some clearing around the perimeter of the reservoir, but otherwise it was

225 considered to be a low-cost project to add the 12 feet of water and provide another 2.4 million
226 gallons per day in safe yield.

227
228 Mr. O’Connell asked about relooking at safe yield in 2020 with a new study.

229
230 Mr. Mawyer confirmed this, noting that the Ragged Mountain Dam Agreement required Rivanna
231 to do bathymetric studies of the urban reservoirs to assess the volume of water, how much they
232 had silted, and the current volume. He also mentioned that they had done the wholesale meter
233 project to measure the amount of water the City and ACSA were taking and compare the current
234 safe yield to the current demand to see if the 85% ACSA/15% City allocation was still
235 applicable.

236
237 Dr. Palmer asked when the metering was to be completed.

238
239 Mr. Mawyer responded that they hoped it would be within the next few months, depending on
240 the completion of the last vault on Ivy Road – but he noted recent challenges and the prospect of
241 some changes may have to be made regarding the approach to the project, which he was
242 discussing with Mr. O’Connell.

243
244 Mr. O’Connell asked if it was possible to upgrade the system data without the Ivy Road vault at
245 least until it was up and running and collecting data.

246
247 Mr. Mawyer stated that it would be possible but indicated that there were other devices that
248 needed to be corrected so that the wholesale water meters read flows correctly. He noted that the
249 Ivy Road vault was not the only thing that was unfinished but it was the major location to be
250 addressed.

251
252 Mr. O’Connell noted that they were five to six years past the point this was hoped to be
253 completed.

254
255 Mr. Mawyer clarified that it was three years, as the original agreement was 2012 and it was
256 hoped to be completed by 2015.

257
258 Mr. O’Connell noted that it was six years beyond the original agreement date.

259
260 Dr. Palmer asked if the delay was due to logistical issues.

261
262 Mr. Mawyer replied that it was due to construction difficulties.

263
264 Mr. O’Connell added that there was also the UVA issue, which required several meters to be
265 relocated.

266
267 Mr. Mawyer indicated that the dam as a longstanding facility was finished in 2014 and the
268 reservoir was filled in 2015, so they were entering the third summer using the new reservoirs. He
269 stated that the benefits of the project were increasing the safe yield for the community – which
270 means more water for use – and reduction of risk of water restrictions due to drought.

271
272 Dr. Palmer asked for further explanation.
273
274 Mr. Mawyer stated that there were numbers from the modeling consultant and prior to the
275 Ragged Mountain Dam being built, they looked at the hydrologic and weather history for the last
276 87 years, then applied the data from 1927 to 2014. He explained that it was determined if the
277 dam was not built, there would be voluntary restrictions projected at least 13 times – which then
278 could progress to mandatory restrictions 10 times and emergency restrictions 6 times. Following
279 construction of the dam, he noted, the likelihood of those events was reduced from 13 to 8, 10 to
280 5, and 6 to 3. Mr. Mawyer added that this was looking forward and trying to apply past weather
281 history to future projections, taking into account the existing infrastructure.
282
283 Dr. Palmer asked whether or any climate modeling could be included in those figures regarding
284 climate change.
285
286 Mr. Mawyer stated that he would ask the consultants to see if any specifics were available
287 beyond historical data being applied forward.
288
289 Ms. Galvin noted she felt it was very important to take into account the new science of climate
290 change.
291
292 Mr. Mawyer stated that before the dam was built, the minimum storage was going to be 5% of
293 the water level to survive the drought; after the dam was built, the expectation was for the water
294 level to be no lower than 30% ,which was new information not indicated on the graph.
295
296 Mr. Mawyer pointed out that the benefits of the pipeline project also include the flexibility to
297 utilize the South Rivanna Water Treatment Plant and the Observatory Treatment Plant if the
298 reservoirs are hooked together by the pipeline. He noted that water can be pumped back and
299 forth and they can use whichever water treatment plant would be better suited for that given
300 time. He noted that this gave a better balance of community amenities and environmental needs
301 in that it keeps the community out of the drought, particularly because there is a large reservoir at
302 Ragged Mountain that can't be effectively used yet because without the pipeline it can only feed
303 the Observatory Treatment Plant, which has alimited treatment capacity. Mr. Mawyer also noted
304 that if water could be pumped to Ragged Mountain from South Rivanna when it was full and
305 spilling, more water could be used without drawing from Sugar Hollow and therefore it would
306 keep minimum instream flows at the higher levels as opposed to what occurred in the fall of
307 2017 when the minimum instream flow was reduced at DEQ's approval.
308
309 Mr. Krueger clarified for the benefit of the public that Dr. Palmer's comments regarding the 87-
310 year historical data analysis which was used for projections for a 50-year period, the length of
311 the water supply plan.
312
313 Mr. Mawyer responded that he thought that was correct.
314
315 Dr. Palmer stated that Mr. Mawyer had mentioned that every three to five years, one could
316 expect voluntary or mandatory restrictions.

317
318 Mr. Mawyer clarified that the data presumed there would be restrictions no more frequently than
319 every five years regarding mandatory status.

320
321 Mr. O'Connell and Dr. Palmer expressed confusion in the public regarding the data and
322 projections of restrictions. Mr. O'Connell stated that the public expectation was that because of
323 the drought, Ragged Mountain was going to solve all water needs for 50 years. He noted that
324 there were many other pieces to the puzzle to complete, including the pipeline and numerous
325 other projects that would have financial consequences to the public. He emphasized that he was
326 not sure whether the public understood and was prepared to accept that at this time, so there was
327 a necessary educational component to this.

328
329 Mr. Mawyer referenced a 2014 letter that Hydrologics sent Rivanna when they were attempting
330 to enumerate the benefits of building the dam. He noted that the data was intended to indicate a
331 reduction in the occurrence of events, and as the capacity of the Observatory Treatment Plant
332 was increased and/or the pipeline was installed, the numbers of drought restrictions would
333 continue to decline. He stated that no specific numbers were available regarding how far they
334 would decline, but that the number would be less than eight.

335
336 Dr. Palmer asked if the 2014 letter from Hydrologics could be shared with the Board.

337
338 Mr. Jones also inquired as to when it could be expected that the eight voluntary experiences, the
339 five mandatory experiences, and the three emergency experiences could be expected to occur.

340
341 Mr. Gaffney stated that these figures were considered relevant prior to the pipeline being
342 implemented – so with no completed community water supply plan, just raising the dam alone
343 would not affect those issues.

344
345 Dr. Palmer noted those figures would change depending on how much treatment capacity there
346 would be at Observatory Hill.

347
348 Mr. Jones noted that raising the capacity another 12 feet at the dam, it would play into that.

349
350 Mr. Krueger indicated that the 2014 letter was not accounting for the dam raise nor the pipeline.

351
352 Mr. Gaffney added that it was probably also not accounting for Observatory capacity increases.

353
354 Mr. Jones emphasized that those were important pieces.

355
356 Mr. Krueger agreed that it did not account for Observatory's increased capacity.

357
358 Mr. Mawyer emphasized that it was only before the dam, and after the dam.

359
360 Mr. O'Connell stated that very few people know about the other projects, and until they are done
361 the plan is not complete.

362

363 Mr. Mawyer agreed, stating that all of those projects would be addressed.
364

365 Dr. Gullick stated that his impression was that the estimates being discussed were based on the
366 87-year period, and he explained that they took the past 87 years and projected them forward
367 under current operating conditions.
368

369 Mr. Mawyer reiterated that the figures only applied to conditions before the dam and after the
370 dam and had nothing to do with the Observatory Plant or raising the Ragged Mountain Dam
371 level or building the pipeline. He added that it just showed that project reduced the risk of the
372 community having drought events.
373

374 Mrs. Palmer asked if the projections were just a probability-based analysis assuming the same
375 precipitation and period of record during the 87-year historical period. She noted that the next
376 87-year period would likely be different, but the current data was the best available at this time.
377

378 Mr. Mawyer stated that the original scope of work for the project back in 2006 was to put in a
379 raw waterline about nine miles long that had a capacity of transferring 25 million gallons per day
380 (MGD) between the two reservoirs; there would be an intake structure at the South Rivanna
381 Reservoir to take the water out of the Rivanna Reservoir, and there would be a pump station at
382 both ends, with a pretreatment facility at the South Rivanna plant to remove only sediment – and
383 that pretreatment facility was anticipated to cost approximately \$7 million in 2017 dollar value.
384 He added that they would close the Sugar Hollow Reservoir waterline that goes to Ragged
385 Mountain, and the estimate in 2009 for the entire pipeline project was^[A1] \$63 million dollars. He
386 stated that current plans to do the original scope may also include nutrient removal in addition to
387 sediment at the pretreatment facility, which could add \$8 million to the project. Mr. Mawyer
388 noted that they had done an inflationary index increase from the period of 2009 to 2017 dollars,
389 which added \$19 million, and an addition for the replacement of the raw water pipelines between
390 the Ragged Mountain Reservoir and the Observatory Water Treatment Plant resulted in a cost of
391 \$10 million. Mr. Mawyer noted that if all adjustments were added to the prior \$63 million, the
392 total of the project estimate was \$100 million dollars, and it is expected that once the project was
393 started it would take about eight years.
394

395 Dr. Palmer asked whether the removal of nutrients from the pretreatment would add \$8 million
396 to the \$7 million figure.
397

398 Mr. Mawyer confirmed that the \$8 million would be added to the prior \$7 million figure, noting
399 that those figures were preliminary at this time.
400

401 Mr. Gaffney asked if there were that many more nutrients in South Rivanna as compared to
402 Sugar Hollow.
403

404 Mr. Mawyer affirmed this but added that he did not have a quantified answer. He explained that
405 the watershed of the South Rivanna Reservoir, which he was considering as including
406 everything west of Route 29 from Greene Co. to Nelson Co., everything drains to South
407 Rivanna. He then indicated that the watershed for Sugar Hollow was only at the foot of the
408 National Park and the mountains and was very pristine, so the Rivanna Reservoir was getting a

409 runoff from development areas and clearly would have a higher sediment and nutrient load than
410 the water in Sugar Hollow.

411
412 Mr. Gaffney stated that it would make sense not to contaminate Ragged Mountain with the
413 nutrients.

414
415 Mr. Mawyer answered that the concern would be that Ragged Mountain is a static reservoir that
416 did not have enough strong steady flow-through, so there would be a potential for algae growth if
417 nutrients were pumped in.

418
419 Mr. O'Connell asked if that situation was an issue at this time at Ragged Mountain.

420
421 Mr. Mawyer stated that there were no known events of blue-green algae.

422
423 Ms. Terry commented that there had been some green algae but that was not unusual.

424
425 Dr. Gullick stated that it was due to the transfer of water to fill Ragged Mountain in 2015, and it
426 had only occurred that one time.

427
428 Ms. Terry added that this didn't mean Ragged wouldn't get algae.

429
430 Mr. O'Connell asked about the original proposal for two raw water pump stations and what the
431 current thinking was.

432
433 Mr. Mawyer replied that it was the same, stating that there would be a water pump station at the
434 South Rivanna plant to pump to Ragged Mountain, and another pump station at the Ragged
435 Mountain end to pump back to the Rivanna Treatment Plant or Reservoir. He stated that if there
436 was a lack of water as in the past October, when there was plenty of water in the Ragged
437 Mountain Reservoir, if the pipeline and the pump station were at both ends, they could have
438 pumped from Ragged Mountain back to the Rivanna Treatment Plant or the Rivanna Reservoir.
439 He used a hypothetical example of the previous Friday, when transfer from Sugar Hollow was
440 stopped because that reservoir had gotten to the maximum lowering of 19 feet – but yet the
441 Rivanna reservoir was overflowing – water could have been pumped from the Rivanna Reservoir
442 to Ragged Mountain to help fill it and not rely on the Sugar Hollow pipeline.

443
444 Mr. O'Connell indicated that his question was sufficiently answered by that example.

445
446 Mr. Mawyer explained that the original scope pertaining to pump stations was still the same, and
447 that all the original scope was the same as it is presently except that the nutrient element was
448 added to the pretreatment facility and the pipeline between the Ragged Mountain Reservoir and
449 the Observatory Treatment Plant was added. He stated that the thinking is if there is all the water
450 at Ragged Mountain and the Observatory Treatment Plant is upgraded, there would still be a
451 100-year-old pipe in between, along with two pump stations that were not very reliable – and
452 they want the whole system to be reliable.

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454 Dr. Palmer expressed surprise that that information was not in the first scope of work.

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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 RWSA 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

500 could be used as a criteria for the Board in addressing how the Ragged Mountain pipeline project
501 could be afforded.

502
503 Mr. Mawyer reported on the strategic plan and noted that one of the six goals was infrastructure
504 and master planning: to plan, deliver, and maintain dependable infrastructure in a financially
505 responsible manner. He noted that it is believed the project is consistent with this goal and was
506 clearly a major addition to the water infrastructure; would enhance the dependability of the water
507 supply infrastructure when completed; and would be completed in a financially responsible
508 manner. Mr. Mawyer explained the three phases of construction, stating that Phase One is
509 currently ongoing and includes the preliminary alignment for the Rivanna to Ragged Mountain
510 pipeline. He noted that when that is completed, they would move on to acquiring the easements
511 of the properties for that project at a cost of \$2.3 million, which is included in what is referred to
512 as the project budget of \$100 million. He stated that they were also in the process of planning
513 and designing the improvements to the Observatory Water Treatment Plant and the South
514 Rivanna Water Treatment Plant, estimated collectively to be \$26 million and increasing the
515 Observatory Treatment Plan capacity from 7 to 10 MGD by rating. He noted that this did not
516 include any added capacity to the South Rivanna Water Treatment Plant, but it may add some
517 capacity to the sub-systems within the plant. He noted that this is planned concurrently with the
518 right of way acquisition. He noted that thirdly and concurrently, there are plans for the Avon
519 Street to Pantops Mountain waterline that was in last year's CIP, and money was being added in
520 the current CIP for that project – which is a 24-inch pipeline three miles long that generally helps
521 to complete a loop around the entire urban area and helps distribute water with better pressure
522 and reliability.

523
524 Dr. Palmer asked if Phase One was already included in the graph that addressed the debt service.
525 Mr. Mawyer confirmed this, but noted that some of the costs may end up being the \$95 million
526 being requested to be added to the debt curve.

527
528 Mr. Wood noted that it was shown on the graph as dark blue and green, before any other costs
529 are added.

530
531 Mr. Mawyer stated that all of the costs were included in the \$95 million.

532
533 He gave a preview of the upcoming CIP, stating that the Beaver Creek Dam work is about \$9
534 million; there is \$8.5 million for the Observatory Water Treatment Plant upgrade; there was
535 approximately \$7 million for the Avon to Pantops waterline, with some of that money in the
536 current budget and \$7 million fulfilling the budget. He stated that the Crozet water treatment
537 facility would require \$6.5 million; a major waterline from the South Rivanna Plant north
538 towards the 29 North area estimated at \$5 million – and that is all part of the \$95 million that the
539 Board would hear about the following month.

540
541 Mr. O'Connell noted that to achieve full redundancy, there was now 12 MGD capacity at South
542 Rivanna – with plans to go to 10 MGD at Observatory – and he asked if something happened to
543 South Rivanna if it could fully support the system. He asked if it would be prudent to increase
544 capacity slightly so both could fully support equal amounts.

545

546 Mr. Mawyer stated that they were getting estimates to go to both 10 million and to 12 million at
547 Observatory, and he understood that it was an exponential increase to go above 10 million. He
548 added that they could tweak things to go to 10, but if they go to 12, it would require a whole new
549 process.

550
551 Dr. Gullick noted there would be a need for new filters to go to 12, which was the big jump.

552
553 Mr. Mawyer stated that those figures would be available to the Board and that if they wanted to
554 increase Observatory capacity to 12 million it could be done. He noted that the current demand
555 was 9.25 MGD but it would be close for Observatory to meet demand at 10 million.

556
557 Mr. Gaffney asked what the production capacity was for North Fork.

558
559 Mr. Mawyer responded that North Fork production was rated as 1 or 2 million, but typically it
560 produced about 400 thousand gallons to 1/2 million gallons.

561
562 Dr. Gullick added that it had a safe yield of 2 million, and a production capacity of 1 million
563 with the current pumping system there.

564
565 Mr. Mawyer noted there were old pipes between the Ragged Mountain Reservoir and the
566 Observatory Treatment Plant, with two pipes that go through two raw water pump stations. He
567 stated that the plan is to replace all of that infrastructure so there would be a significant water
568 supply and an upgraded treatment plant so they can get the water there dependably. Mr. Mawyer
569 stated that the budget to achieve those goals is approximately \$18 million.

570
571 Mr. O'Connell asked if those pipes were both 100 years old.

572
573 Mr. Mawyer stated that the Royal Pump Station was built in 1920, and the Stadium was newer
574 but it did not have the capacity to serve a 10 MGD or a 12 MGD Observatory Treatment Plant
575 He stated that the proposal is to build one new pump station with a dual purpose of transferring
576 water from the reservoir to the Observatory Treatment Plant and serving as the pump station to
577 return water to the Rivanna Reservoir. He noted that it would then be one of the two new pump
578 stations discussed with the Ragged Mountain to Rivanna pipeline. He noted that the facility
579 could be designed without the pumps if the construction of the actual pipeline was going to be a
580 long way off, but they would have the infrastructure at the pumping facility set up to
581 accommodate the 36-inch pipeline between Rivanna and Ragged Mountain.

582
583 Mr. Mawyer explained that Phase Three is the core project, which has a budget of approximately
584 \$80 million to build the 9 miles of piping between the two reservoirs, the intake structure, the
585 second of the two raw water pump stations at the Rivanna end, the pre-treatment facility, and to
586 close the Sugar Hollow waterline. He noted there was a projection of eight years to design and
587 build the project, and he noted there were four potential schedules regarding this plan. He noted
588 that it was recommended that once the pipeline was built, the Ragged Mountain Reservoir would
589 be raised 12 feet, the infrastructure would be available to do it from the reservoir side and the
590 pumping and piping side, and staff recommended that they take advantage of that.

591

592 Mr. Mawyer referenced a timeline that showed ongoing projects of getting the right of way
593 acquisitions between 2017 and 2021, as well as doing the improvements; a capacity increase to
594 the Observatory Water Treatment Plant and the improvements at the Rivanna Treatment Plant;
595 and working on the Avon to Pantops waterline. He noted these were all moving forward between
596 2017 and 2022. He noted that the Phase Two projects of replacing the waterline between the
597 Ragged Mountain reservoir and the Observatory Treatment Plant, concurrently replacing the
598 pump stations, would begin in 2022 when the ongoing projects were over and would extend
599 through 2026. Mr. Mawyer stated that the core project options for building the nine miles of pipe
600 and the second pump station and the pretreatment facility were addressed through some
601 alternatives. He noted that the Schedule A alternative indicated that the earliest start of the core
602 project would follow the acquisition of the right of way for the pipeline, which would go from
603 2022 through 2030 for a total of 8 years. He noted that the Schedule B alternative logic, with a
604 later start of the core project, was that the debt service started to decline around 2030, and the
605 first few years of Schedule B would be design dollars – smaller dollars relative to the total
606 project of \$80 million – and the larger expenditures would begin about the time the debt profile
607 began to decline, with more debt service capacity. Mr. Mawyer noted that Schedule B allow for
608 payment of the debt service without significant rate increases.

609
610 Mr. Mawyer reported that Schedule C was based on the AECOM 2011 report, which noted that
611 safe yield would equal demand in 2040 – so it has an even later start for the core project and
612 begins in 2032 and completes the core project by 2040, when the report noted they were needed.
613 He noted that the other Schedule D logic states that if around 2038 to 2040, if Ragged Mountain
614 water level was raised 12 feet, it would give a 2.4 MGD safe yield that could satisfy demand for
615 an additional 10 years and extend the need to approximately 2050. He pointed out that all of the
616 schedules are the same amount of work – it was just a matter of when they would be done.

617
618 Mr. Mawyer presented a summary of each schedule as follows: Schedule A from 2022 to 2030
619 increases the water supply safe yield and the redundancy, providing flexibility to use either
620 Observatory Treatment Plant or Rivanna treatment plant via the Ragged Mountain reservoir and
621 the Rivanna reservoir. He noted that this would allow redundancy within the infrastructure as
622 well as the additional benefits discussed earlier, but it creates a financial impact because it would
623 be concurrent with other projects ongoing. He added that it could be completed by a fairly
624 straightforward extension of existing regulatory permits, which would extend until at least 2028.
625 He stated that staff felt fairly comfortable that there would not be a permit issue.

626
627 Mr. Mawyer stated that Schedule B fit within the debt profile better, and it increases safe yield
628 and redundancy. He noted he was not sure how much of a permitting process it would require,
629 but staff was hopeful that it would not be much different than Schedule A – although the permit
630 would expire much earlier in the project, around 2028, than in Schedule A. He reported that
631 Schedules C and D were based on water supply predictions of when the safe yield would be
632 consumed by the community demand and more water supply would be needed. Mr. Mawyer
633 stated that the current 2011 reports noted that must be completed by 2040, which would be way
634 out beyond any expected permit extensions, so that may require an extensive permitting process.
635 He noted that Schedule D went another 10 years, making it plausible if the water level at Ragged
636 Mountain were raised by no later than 2038 or 2040; it would provide the same water supply and
637 redundancy benefits and was also expected to take an extensive permitting process.

638
639 Mr. Mawyer provided a brief budget summary stating that ongoing projects: property acquisition
640 is \$2.3 million; the base projects of the waterline replacement and the pump station replacement
641 are the \$13 million and \$5 million each; the core project at \$80 million results in the \$100
642 million project summary.
643
644 Mr. O'Connell asked if the inflationary factor of \$19 million dollars projected would impact
645 Schedules A, B, C.
646
647 Mr. Mawyer responded that the figures were all in 2017 dollars and they did not inflate them to
648 2040 dollars.
649
650 Mr. O'Connell indicated there would be budget changes at 2030 and 2040, and another at 2050.
651
652 Mr. Mawyer noted that depending on what schedule was used, they would have to inflate to then
653 current dollars to get a current budget. He again reiterated that all figures were done in 2017
654 dollars to make them comparable.
655
656 Ms. Galvin agreed that Mr. O'Connell raised an interesting point because the longer these are
657 projected out, the more likelihood that inflation would put pressure on the cost of the project. She
658 also inquired as to whether there was cost to the extending of the permitting process.
659
660 Mr. Mawyer stated that there would likely be costs of permitting fees, processing, and
661 consultants.
662
663 Ms. Galvin also mentioned the uncertainty of the negotiations with regulators as well, noting that
664 RWSA currently had the permits in hand.
665
666 Mr. Mawyer agreed and noted that the extensions were readily available but beyond that it was
667 uncertain what the regulatory agencies would require because they have to consider, at the time,
668 what the laws are and the EPA direction when considering the application.
669
670 Ms. Galvin stated that Schedule B noted it "may" require new permits, and it appeared that many
671 permits would still follow in that timeframe but some may not.
672
673 Mr. Mawyer confirmed this and commented that it would be close. He noted that if an extension
674 was granted on the 2018 permit to 2028, that is in part of the Schedule B timeframe but at the
675 very beginning – so staff was hopeful that it would work. Mr. Mawyer emphasized that it was
676 not as clear as it was with the Schedule A timeframe that is clearly within the permit timeline.
677
678 Dr. Palmer noted that there were so many unknowns in putting something out that far, but she
679 felt that as their knowledge increased as to what stream health entailed and what it needed, those
680 environmental permit concerns might get stricter. She added that they were really talking about
681 putting off Schedule D and putting off those full environmental effects with the water supply
682 plan out into the future pretty significantly.
683

684 Mr. Mawyer agreed, noting that they would not know what animals might be put on an
685 endangered list over the next decade – and he agreed that was a risk that would need to be
686 considered.

687
688 Ms. Galvin noted that this would need to encompass the ability to investigate and identify
689 animals that were currently there but were not yet inventoried.

690
691 Dr. Palmer stated that it would also need to be established what it took in velocity and flows to
692 keep them healthy, and that specific information was not known at that time.

693
694 Mr. Gaffney pointed out that they didn't know what effect the LP gas pipelines and new
695 regulations to be added once those were built.

696
697 Mr. Wood reported that there were several debt schedules that would impact the debt profile,
698 stating that he used a consistent estimate for each one – with \$90 million dollars in new debt
699 issued that would add some cost to it at a 5% rate over 30 years. He noted it was basically taking
700 it and fitting it on the schedule with the same timeline Mr. Mawyer reviewed. Mr. Wood stated
701 that Schedule A indicated if you added the debt service related to that over a six-year period to
702 an eight-year period, there would be a spike of around \$24-25 million in debt service needs that
703 would have to be built into rates and then probably more because the policy and bond ratings
704 hinged on being able to charge excess revenue to cover debt service needs, which is known as
705 debt service ratio. He noted that the Davenport presentation in November had included this
706 information, with a schedule in the annual report showing the current debt service ratio revenue
707 charges.

708
709 Mr. Wood noted that this showed that it was likely they would have to build in around \$28-30
710 million of revenue charges to the two customers to meet Schedule A needs. He noted that
711 Schedule B was a little better, with everything moved down three years, and this indicated that
712 the number was down to about \$23 million in the spike – which would only last for a couple of
713 years and by that time it would already be built it into the rates.

714
715 Mr. O'Connell asked about the debt falloff.

716
717 Mr. Wood responded that the debt would fall off a year or two earlier than 2030, and Schedule C
718 fit that timeframe better and could be moved up a little bit. He added the Schedule C timeframe
719 could be pushed off a little bit from where Schedule B is – so somewhere in the middle, 2030
720 would hit the sweet spot. He then noted that on Schedule C, they were right at the \$20-million to
721 \$19-million spike where the debt service charge would need to be. He noted that Schedule D
722 would push it out quite a bit, and it would not really have an impact on the current estimate of
723 the capital improvement plan to be adopted.

724
725 Ms. Galvin noted that Schedule D did not include all of the other capital projects that might be
726 incurred.

727
728 Mr. Wood responded that it included a portion of the Ragged Mountain to Observatory pipeline
729 and the pump station.

730
731 Mr. Mawyer interjected that way out at 2040 there may be lots of other unknown projects added
732 to the CIP, and that debt profile is not going to look like what was being presented at the present
733 time.
734
735 Mr. O'Connell commented that this did not have any wastewater projects included.
736
737 Mr. Mawyer stated that regulations could change with ammonia, for example, and projects
738 regarding wastewater would certainly change the current debt profile – so the further they went
739 out, the more likelihood it would be different than what was expected at this point.
740
741 Mr. Gaffney asked that if it was pushed out to 2040 there may be a spike due to other costs.
742
743 Mr. Mawyer concurred and noted that it didn't mean they would be below the \$15.7-million line,
744 because a lot of other things may have happened that would have pushed the debt service up by
745 then.
746
747 Mr. Mawyer noted that they did project that in 2019, preliminarily, for a total operating CIP
748 budget, the projection was a 5% revenue increase from the City of Charlottesville, and a 10.5%
749 increase from ACSA. He stated that through 2023, the projected increases were indicated by a
750 five-year rate model. He noted that they were in the process of getting a rate model that would go
751 beyond five years, and within a month that would be operational – which is why no numbers
752 were available for 2024, 2025, or 2026. He noted that an example was provided in Schedule B,
753 and the projection for just the core projects was a 1.5% addition to the City and 5% to the
754 Service Authority above any other normal budget increase. Mr. Mawyer noted that was the best
755 information available to date to answer some of the Board's questions, and staff may have be
756 better information available in the months to come.
757
758 Mr. O'Connell noted that 2019 would represent what the staff was thinking about CIP projects,
759 some of which was shown.
760
761 Mr. Mawyer noted that also included operating and any other recommendations, and those five
762 years were the full budget.
763
764 Mr. O'Connell asked if the 8% was more of a guess.
765
766 Mr. Wood responded that it assumed a 3-5% increase in operations.
767
768 Dr. Palmer asked Mr. O'Connell if he could provide the completed report as to what it means in
769 costs to ratepayers.
770
771 Ms. Galvin reiterated this request.
772
773 Mr. O'Connell explained that all three agencies would be doing a rate study to consider current
774 impact and impact over the next 10 years or longer – so the timing is perfect.

775
776 Dr. Palmer agreed, stating that the percentage was sometimes misleading and this was why the
777 actual cost per month illustrates what people are actually going to have to pay.
778
779 Ms. Galvin stated that it was going to be really important how they communicate this, and the
780 most successful way to understand it would be through looking at the dollars.
781
782 Mr. Jones noted that the tendency was to look at the average household and the effect it would
783 have on them.
784
785 Dr. Palmer stated that she thought that the Board would like to know that information when all of
786 the matters were taken care of, and she felt certain that would happen.
787
788 Mr. O'Connell echoed that 10.5% would be a significant piece.
789
790 Mr. Gaffney noted the question was whether it would just be a few dollars a month.
791
792 Dr. Palmer noted that the ACSA has had a policy for many years that growth pays for growth,
793 and there were connection charges used as rate stabilization, so the ACSA Board got to decide
794 how to use that money to stretch out these increases over time.
795
796 Mr. O'Connell noted that the rate study would look at this, and the City had something similar.
797 He noted that part of looking this far out was beneficial, rather than having those big spikes and
798 trying to find out how you can smooth out and have the least impact.
799
800 Dr. Palmer added that John Martin used to call it "yo-yo water pricing" many years ago, and they
801 did not want that.
802
803 Mr. Mawyer summarized that the presentation was an overview of the community water supply
804 plan that was generally created about 10 years earlier. He noted that he had shown alternatives of
805 how the core projects could go forward, and he would ask for any feedback offered regarding
806 whether Schedule A was under consideration – as well as whether they needed to include that
807 project in the new CIP to be brought to them in February.
808
809 Dr. Palmer asked for information regarding staffing needs for this type of process, and assumed
810 that if Schedule A were to be considered, it would have some impact on staff.
811
812 Mr. Mawyer stated that if they were trying to do all the work at the same time, they would have
813 to add staff or use more consultants – which could be a good thing but was an expensive option.
814 He noted that if all the projects were stacked together in the same timeline, there would need to
815 be additional staff. He was unable to provide an actual number but noted it would be a challenge.
816 He noted the need for inspectors, project engineers, and noted it would produce a ripple effect
817 throughout the whole organization when they were paying more bills, processing more
818 paperwork, etc.
819

820 Mr. Gaffney noted that he recognized this was an overview of the four different timeframes, but
821 urged them to throw out Schedule D quickly, recognizing how difficult it was to keep Ragged
822 Mountain full with the Sugar Hollow pipeline. He expressed concern that they were going to add
823 600 million more gallons of capacity and try to fill it with the same pipe and the same Sugar
824 Hollow Reservoir.

825
826 Ms. Galvin noted that Schedule D was so far out it was almost just a guess and was not based on
827 any current projections, and she did not think they would be able to anticipate extreme weather
828 that might occur over the next several decades.

829
830 Dr. Palmer added that there appeared to be lots of problems with the process because today they
831 were being asked about Schedule A, but she had tremendous concerns about D from an
832 environmental standpoint and an economic development standpoint, as well as considering
833 climate change and community expectations. She noted that she doubted that the community was
834 really expecting to have to go into restrictions every three to five years. Dr. Palmer added that it
835 was not a very good advertisement for the community.

836
837 Mr. Gaffney stated that the community expectation was that there would be no more restrictions
838 at all simply because of the Ragged Mountain dam.

839
840 Ms. Galvin expressed concern at the “multiple puzzle piece” nature of the issue, and noted that if
841 one piece is missing then it would be difficult to access and fully utilize the investment that has
842 already been made in the dam. She stated that it didn’t make sense to go that far out, and
843 Schedule A didn’t make sense because it was not quite needed yet, and they didn’t need that
844 enormous investment in staff time.

845
846 Mr. Gaffney countered that while it was noted that it wasn’t needed, they just went through the
847 type of water supply they thought they had figured out, and having Observatory rebuilt would
848 help.

849
850 Ms. Galvin stated that the reality was that they were implementing the water supply plan at the
851 present time, with a current investment of \$20 million of the \$100-million-dollar cost regardless.

852
853 Mr. O’Connell stated that they would go through the design and the land acquisition piece
854 anyway, so they were in the Phase One – which was a multiple year effort.

855
856 Dr. Palmer agreed that Schedule A needed to come off for right now, and she felt that ACSA and
857 the City had to look at their pricing, then come back on the timing.

858
859 Ms. Galvin commented that it seemed there would be a big spike.

860
861 Mr. Gaffney noted that what staff was proposing with the Schedules was not the specific time
862 periods, it was just for examples. He added that the projects could be left out of the CIP this year
863 and added in next year.

864
865 Ms. Galvin asked when they would get the water demand study.

866
867 Mr. Mawyer responded that it would be available over the next two years but probably sooner
868 rather than later since the discussion had been started.
869
870 Ms. Galvin noted that would help them understand the difference between Schedules B and C.
871
872 Dr. Palmer noted that they would want to give a long enough period in between the two for it to
873 meaningful, and weather patterns – not just population – would be used as variables. She added
874 that if they had a few years of normal to better than average rainfall, it would skew the outcomes.
875
876 Ms. Galvin agreed.
877
878 Dr. Palmer noted that they were in a building boom now, and it was extraordinary how it was
879 picking up after the recession ended.
880
881 Mr. Gaffney responded that it was built-up demand from the recession.
882
883 Ms. Galvin agreed.
884
885 Mr. O’Connell indicated that ACSA would have its regular Board meeting on Thursday and he
886 added this to the agenda to keep them apprised – so as they moved through the budget process,
887 he will have some guidance from them. He added that in the original negotiations, it was
888 projected in the numbers that the Service Authority was running about 2030 for the pipeline
889 coming into play. He noted that it did believe that the 12 feet of the dam would have already
890 have been built before that happened. Mr. O’Connell noted that it was a starting point for the
891 Board to look at the timing of this, and noted that probably a lot of it would be driven just by the
892 finances. Mr. O’Connell stated that Mr. Wood had done a good job in the past in avoiding big
893 jumps.
894
895 Mr. Gaffney asked if it was possible to determine whether they could actually fill the 12 feet
896 with the Sugar Hollow pipeline.
897
898 Mr. Mawyer responded that he felt they could get their modeler to give them, based on weather
899 patterns, how long it would take to get it to full and to keep it full.
900
901 Dr. Gullick noted that keeping it full was the key, with the higher volume filled in a year and a
902 half, adding that it was full when the weather was right.
903
904 Mr. Gaffney noted that once they got Observatory rebuilt, if they needed to go to Ragged
905 Mountain, it would go down quicker.
906
907 Mr. O’Connell asked what the current size of Ragged Mountain was.
908
909 Mr. Mawyer responded that it was 1.5 billion, and it went to about 2.1 billion with the additional
910 12 feet of water.
911

912 Dr. Palmer commented that the community expectation to realize the full environmental benefits
913 of a completed water supply was important for them to remember – and what she strongly
914 disliked about Schedule D was relying on a 17-square-mile watershed of Ragged Mountain for
915 an extended period of time. She also expressed concern about weather patterns and economic
916 development impacts.

917
918 Ms. Galvin asked if there needed to be a fuller discussion with City Council.

919
920 Mr. Jones noted that he felt Council should have that discussion.

921
922 Ms. Galvin stated that it was important to consider rates, but emphasized that they were in a
923 pattern of unpredictable and extreme weather. She acknowledged the building boom but noted
924 the City was focused on affordable housing, adding that they should not underestimate the
925 needed infrastructure for balanced growth. She noted that they would need to hear from the
926 ACSA regarding decisions as to how to use their rate stabilization fund.

927
928 Mr. Richardson commented that this would be very helpful.

929
930 Ms. Galvin asked Mr. Mawyer whether he wanted to know if Schedule A was off the table, and
931 when he needed to know that.

932
933 Mr. Mawyer responded that this would be helpful, and staff would be meeting with Mr.
934 O’Connell and Ms. Hildebrand in a few weeks, then with the whole Board in February,
935 particularly to inform the CIP.

936
937 Dr. Palmer reiterated Mr. Gaffney’s point regarding whether to take it off for this year.

938
939 Ms. Hildebrand noted that they could run different scenarios based on Mr. Wood’s 10-year
940 projections.

941
942 Mr. Richardson noted that they were getting feedback that this would be pushed off for the
943 coming year, and the analysis would be done for 2019-2023, with consideration to add it back
944 just one year behind Schedule A but other options to be reviewed between now and then.

945
946 Mr. Mawyer noted that Schedule A wouldn’t be delayed even if it were put off this year, because
947 it doesn’t start until 2022.

948
949 **9. Other Items from Board or Staff not on the Agenda**

950 There were no additional items presented.

951
952 **10. Closed Meeting**

953 There was no closed meeting held.

954
955 **11. Adjournment**

956 **Dr. Palmer moved to adjourn the Board meeting. Mr. Jones seconded the motion, which**
957 **passed unanimously (7-0).**

958
959
960
961
962
963
964
965
966
967
968

There being no further business, the meeting adjourned at 3:41 p.m.

Respectfully submitted,



Mr. Jeff Richardson
Secretary-Treasurer