



Rivanna Water and Sewer Authority

Board of Directors Meeting

September 25, 2018

2:15pm



695 MOORES CREEK LANE
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BOARD OF DIRECTORS

Regular Meeting of the Board of Directors of the Rivanna Water & Sewer Authority

DATE: September 25, 2018

LOCATION: Conference Room, Administration Building
695 Moores Creek Lane, Charlottesville, VA

TIME: 2:15 p.m.

AGENDA

1. **CALL TO ORDER**
2. **MINUTES OF PREVIOUS BOARD MEETINGS**
 - a. *Minutes of Regular Board Meeting on August 28, 2018*
3. **RECOGNITION**
4. **EXECUTIVE DIRECTOR'S REPORT**
5. **ITEMS FROM THE PUBLIC**
6. **RESPONSES TO PUBLIC COMMENTS**
7. **CONSENT AGENDA**
 - a. *Staff Report on Finance*
 - b. *Staff Report on Ongoing Projects*
 - c. *Staff Report on Operations*
 - d. *Recommendation for CIP Amendment and Award of Construction Contract: Crozet Water Treatment Plant Expansion and Rehabilitation*
 - e. *Recommendation for CIP Amendment and Construction Work Authorization: Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter*
8. **OTHER BUSINESS**
 - a. *Presentation: An Overview of Local and National Utility Projects: Executive Director, Bill Mawyer*

9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

10. CLOSED MEETING

11. ADJOURNMENT

GUIDELINES FOR PUBLIC COMMENT AT RIVANNA BOARD OF DIRECTORS MEETINGS

If you wish to address the Rivanna Board of Directors during the time allocated for public comment, please raise your hand or stand when the Chairman asks for public comments.

Members of the public requesting to speak will be recognized during the specific time designated on the meeting agenda for "Items From The Public." Each person will be allowed to speak for up to three minutes. When two or more individuals are present from the same group, it is recommended that the group designate a spokesperson to present its comments to the Board and the designated speaker can ask other members of the group to be recognized by raising their hand or standing. Each spokesperson for a group will be allowed to speak for up to five minutes.

During public hearings, the Board will attempt to hear all members of the public who wish to speak on a subject, but it must be recognized that on rare occasion presentations may have to be limited because of time constraints. If a previous speaker has articulated your position, it is recommended that you not fully repeat the comments and instead advise the Board of your agreement. The time allocated for speakers at public hearings are the same as for regular Board meetings, although the Board can allow exceptions at its discretion.

Speakers should keep in mind that Board of Directors meetings are formal proceedings and all comments are recorded on tape. For that reason, speakers are requested to speak from the podium and wait to be recognized by the Chairman. In order to give all speakers proper respect and courtesy, the Board requests that speakers follow the following guidelines:

- Wait at your seat until recognized by the Chairman.
- Come forward and state your full name and address and your organizational affiliation if speaking for a group;
- Address your comments to the Board as a whole;
- State your position clearly and succinctly and give facts and data to support your position;
- Summarize your key points and provide the Board with a written statement, or supporting rationale, when possible;
- If you represent a group, you may ask others at the meeting to be recognized by raising their hand or standing;
- Be respectful and civil in all interactions at Board meetings;
- The Board may ask speakers questions or seek clarification, but recognize that Board meetings are not a forum for public debate; Board Members will not recognize comments made from the audience and ask that members of the audience not interrupt the comments of speakers and remain silent while others are speaking so that other members in the audience can hear the speaker;
- The Board will have the opportunity to address public comments after the public comment session has been closed;
- At the request of the Chairman, the Executive Director may address public comments after the session has been closed as well; and
- As appropriate, staff will research questions by the public and respond through a report back to the Board at the next regular meeting of the full Board. It is suggested that citizens who have questions for the Board or staff submit those questions in advance of the meeting to permit the opportunity for some research before the meeting.

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



1
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3
4 **RWSA BOARD OF DIRECTORS**
5 **Minutes of Regular Meeting**
6 **August 28, 2018**
7
8

9 A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was
10 held on Tuesday, August 28, 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:** Gary O’Connell, Lauren Hildebrand, Mike Murphy, Mike Gaffney,
14 Jeff Richardson, Liz Palmer, and Kathy Galvin.
15

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

18 **Staff Present:** Mark Brownlee, Phil McKalips, Katie McIlwee, Bill Mawyer, David Rhodes,
19 Lonnie Wood, Michelle Simpson, Jennifer Whitaker, Scott Schiller, Liz Coleman, Andrea Terry,
20 Dave Tungate, Tom Castillo, Victoria Fort, and Tom Freeman.
21

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

25 **1. CALL TO ORDER**
26

27 Mr. Gaffney called the regular meeting of the Board of Directors of the Rivanna Water and
28 Sewer Authority at 2:34 p.m.
29

30 *a. Welcome to new Board member, Mike Murphy, Interim City Manager*
31 Mr. Gaffney welcomed Mr. Mike Murphy as a new Board member.
32

33 *b. Nominations and Election of Board Vice-Chair*

34 **Ms. Galvin moved to elect Mr. Murphy to serve as Vice-Chair of the RWSA. Dr. Palmer**
35 **seconded the motion, which passed unanimously (7-0).**
36

37 **2. MINUTES OF PREVIOUS BOARD MEETINGS**

38 *a. Minutes of Regular Board Meeting on July 24, 2018*
39

40 There were no changes to the minutes presented.
41

42 **Dr. Palmer moved to approve the RWSA Board meeting minutes of July 24, 2018. Ms.**
43 **Galvin seconded the motion, which passed unanimously (7-0).**

44
45 **3. *RECOGNITION***

46 There were no recognitions presented.

47
48 **4. *EXECUTIVE DIRECTOR'S REPORT***

49
50 Mr. Mawyer reported that RWSA's laboratory was recently inspected by the Virginia
51 Department of General Services and the lab was recertified and qualified for sampling of
52 drinking water, and he recognized Lab Manager Dr. Bill Morris and his staff -- Patricia
53 DeFibaugh and Deborah Hoyt.

54
55 Mr. Mawyer reported that the RWSA had received a grant for \$32,800 for the Beaver Creek
56 Dam project from the Virginia Department of Conservation and Recreation, and he thanked
57 Senior Engineer Victoria Fort for preparing and submitting the application. He added that
58 Rivanna would pursue other federal funding for the project as each phase moved forward --
59 preliminary engineering, final engineering and construction.

60
61 Mr. Mawyer stated that Ms. Whitaker had given a presentation on the South Fork Rivanna dam
62 gate repairs, and if the Board concurred, he recommended that the repairs be scheduled in the
63 FY20 CIP so they could take place after July 1, 2019. He noted that it would be included in the
64 FY20 budget and if the Board wanted to move it or delay it, they could during budget
65 discussions.

66
67 Mr. Mawyer presented a slide of the Red Hill water system, which was located on Route 29 at
68 Red Hill. He explained that the local gas station had a leaking underground storage tank in the
69 early 2000s, which challenged the wells on Red Hill Road and at the elementary school there. He
70 stated that DEQ has a fund to address leaking tanks, and they funded installation of a public
71 water system. He explained that a well was developed, and he noted the location of the pump
72 house and pump station. Mr. Mawyer referenced a picture of the chemical building, noting that
73 the well was outside the building with the storage tank and emergency power generator.

74
75 He stated that the Albemarle County Service Authority currently operated the facility, although
76 the RWSA owned it. Mr. Mawyer stated that the system was located along Route 29 and down
77 Red Hill Road, serving nine houses and Red Hill Elementary. He stated that some of the
78 chemical treatment processes there needed to be added and updated, and staff felt it was
79 Rivanna's area of expertise so he and Mr. O'Connell had discussed having the RWSA be
80 operator of that system, with the ACSA continuing to have those customers.

81
82 Dr. Palmer asked if a person would have to be out there, and if so, how often.

83
84 Mr. Mawyer responded that it would need to be visited every day, but a staff person would not
85 need to stay there. He stated that there would be electronic monitoring of the chemical systems to
86 know whether the chemicals were going in as they should, and Mr. Tungate would have an

87 operator that would visit every day for a brief time. He noted that the Red Hill system would be
88 the fourth water system, with the Urban, Crozet, and Scottsville systems.

89
90 Dr. Palmer asked if DEQ still monitored this site and if the plume was getting any bigger.

91
92 Mr. O'Connell replied that there had been a number of tests on the well itself and there was no
93 contamination known. He stated that the plumes he had seen were 10-12 years old, and those
94 houses were originally given filters by DEQ, then a decision was made to have the community
95 well system.

96
97 Dr. Palmer noted that this was a long 20-year history of DEQ not necessarily communicating
98 well with the Health Department. She stated that she had asked about the plume because she
99 wondered about future additions, as that had been discussed at earlier points.

100
101 Mr. O'Connell responded that he was not aware of anyone else having issues, and the school was
102 part of the project when the well was designed and planned.

103
104 Mr. Mawyer stated that it would be Rivanna's intent to add fluoride to the system, as it currently
105 did not get fluoridated. He stated that they were discussing it with Schools and had not yet
106 communicate with the community, adding that all of the other systems had fluoride added.

107
108 Mr. Mawyer stated that Water Resources Manager, Andrea Terry, had presented to the ACSA
109 Board about the reservoir water quality program. He stated that he had spoken in North Garden
110 with the Cove Garden Ruritan Club about the water supply plan and solid waste facilities, and
111 there was a meeting scheduled with the Beaver Creek Sculling Club and Western Albemarle
112 Rowing Club. Mr. Mawyer added that he, Mr. O'Connell, Lauren Hildebrand, and Alison Faroli
113 of the Emergency Operations Center, along with ACSA, City, and RWSA Staff had a post-storm
114 debrief about the May 30th storm and things that went well, as well as needed areas of
115 improvement.

116
117 Mr. Mawyer reported that he and Ms. Hildebrand had met with Chris Engel regarding City of
118 Charlottesville's Economic Development Authority, and he would also meet with the Albemarle
119 County Economic Development Authority in September.

120
121 Mr. Mawyer stated that there had been a project to get communication lines to facilities in Sugar
122 Hollow, and that was a joint effort with the community, which also wanted to hook into
123 communication lines -- and that project had been substantially and successfully completed.

124
125 **5. ITEMS FROM THE PUBLIC**

126
127 Mr. Richard Collins addressed the Board, stating that he had lived in Charlottesville since 1971
128 and had followed the planning process for the urban water supply. He stated that he supported
129 the pooled single financial plan with the Virginia Resources Authority, with one exception: if
130 they removed the Birdwood section for the pump-back, it could be done easily and without great
131 expense. Mr. Collins stated that the question was that Mr. O'Connell had indicated that the
132 ACSA Board gave him direction on the issue of timing, and that was what he considered this to

133 be. He stated that it was shovel-ready, and he supported the financial plan but wanted the
134 Birdwood aspect removed. He stated that he also felt that it should not be renamed the “urban
135 finished water supply plan” without that funding -- and the word “finished” should be removed.
136 He stated that it would be advisable to have the bathymetric studies completed before they
137 committed to something so physically and financially significant. Mr. Collins welcomed Mr.
138 Murphy. He stated that it was important to have the City hold a convening meeting to be updated
139 on these aspects of the plan, so that Council would have a chance to specify more clearly what
140 the plan would do, the issue of timing, and how it would be bonded.

141

142 **6. RESPONSES TO PUBLIC COMMENTS**

143

144 Mr. Mawyer stated that Rivanna had a presentation on the Birdwood waterline to discuss the
145 timing and planning, as well as the funding, and Mr. Wood could include the project in the VRA
146 bond borrowing at the Board’s discretion.

147

148 Dr. Palmer asked him to comment on the word “finished.”

149

150 Mr. Mawyer explained that finished water was treated water, and treated water was provided to
151 customers versus raw water such as what the Ragged Mountain pipeline conveyed -- but it did all
152 tie together.

153

154 Dr. Palmer stated the concern seems to be related to “finished” meaning that the plan was
155 finished.

156

157 **7. CONSENT AGENDA**

158

159 *a. Staff Report on Finance*

160

161 *b. Staff Report on Ongoing Projects*

162

163 *c. Staff Report on Operations*

164

165 *d. Capital Improvement Plan Amendment – Rt. 29 N Water Pump Station Site Acquisition*
166 *Project*

167

168 *e. Capital Improvement Plan Amendment – Scottsville Water Treatment Plant Finished Water*
169 *Metering Improvements*

170

171 **Dr. Palmer moved to approve the Consent Agenda as presented. Ms. Galvin seconded the**
172 **motion, which passed unanimously (7-0).**

173

174 **8. OTHER BUSINESS**

175

176 **The Board entered into a joint meeting with the Rivanna Solid Waste Authority Board at**
177 **2:50 p.m.**

178

179 a. *Presentation of Quarterly Strategic Plan Update; Katie McIlwee, Executive Coordinator*
180 *and Communications Manager*

181 Ms. McIlwee reminded the Board that under the Strategic Plan there were six goal teams and the
182 only change was that Scott Schiller was now the goal champion for the Infrastructure and Master
183 Planning Goal Team.

184
185 She stated that when she presented to the Board in April, they had just developed how they
186 would move forward and implement the Strategic Plan. She stated that within the six goals, there
187 were a total of 21 strategies, which had been narrowed down to 12 priority strategies with the
188 help of Raftelis consulting -- and from those they developed 78 total tactics. Ms. McIlwee stated
189 that the tactics were how they would accomplish strategies, which in turn were how they would
190 achieve goals. She presented the top strategies that each goal team selected, and they were also in
191 the strategic plan update handouts provided to the Board.

192
193 Ms. McIlwee reported that Rivanna was 36% complete with its plan and she noted the completed
194 items versus the goal items. She stated that the Infrastructure Team was ahead of schedule, and
195 the other Goal Teams were slightly behind or right on schedule.

196
197 Ms. McIlwee reported that new pay scales were implemented on July 1 for Workforce
198 Development; the Operational Optimization group completed an Authority-wide survey; the
199 Communications team started to develop a records management policy and an employee portal is
200 underway to increase internal communication. She stated that Environmental Stewardship team
201 has created a standing employee environmental committee; Solid Waste Services has defined
202 existing services and practices and is continuing to develop a list of organizations and POCs to
203 partner with; and Infrastructure Master Planning has developed and advertised an asset
204 management RFP, as well as identified needs for additional master plans.

205
206 Ms. McIlwee stated that next steps for Workforce include finalizing the master staffing plan;
207 now that the new safety manager is in place, Operational Optimization, will begin to develop and
208 implement some of their findings; Communication and Collaboration needs to complete and
209 implement the records management plan and complete the employee portal; Environmental
210 Stewardship will continue to coordination with other goal teams; Solid Waste Services will
211 continue to work towards completing the master plan and communicate those services to the
212 public; and Infrastructure and Master Planning will begin to finalize the asset management plan,
213 put a committee together, and work with the consultant to kick off that project.

214
215 Mr. Gaffney commented that it was nice to see the progress here, as a strategic plan will often sit
216 on a shelf.

217
218 Ms. McIlwee responded that the teams continue to meet monthly, and as they get further into
219 their implementation, the updates will become more robust as measurable metrics begin to
220 develop; she stated that there were measures and metrics developed in the strategic plan
221 framework that will be related to tasks and accomplishments.

222
223 Dr. Palmer asked about the “green roadshows” mentioned in the item related to Environmental
224 Stewardship.

225
226 Ms. Terry explained that she and Ms. McIlwee already have a roadshow ready that they take to
227 events such as Imagine a Day Without Water, and the City's Fix-a-Leak 5K, which is mostly
228 conservation oriented. She stated that they would also like to upgrade their display to have more
229 information that would allow them to participate in other community events.

230

231

232 *b. Presentation of FY 2020 – 2025 Six-Year Staffing Plan; Lonnie Wood, Director of*
233 *Administration & Finance*

234

235 Mr. Wood stated that one of the strategies under the Strategic Plan's Workforce Development
236 goal was to put together a multi-year staffing plan, similar to a CIP that projects out several
237 years. He stated that a staffing plan was meant to be a living document just like the CIP – looked
238 at every year, reviewed, and revised. Mr. Wood stated that as they worked through projects in the
239 CIP, there would be changes in technology, changes in treatment, new facilities, regulatory
240 changes and demands, and customer expectations.

241

242 Mr. Wood stated that the Red Hill Water System would come online before the fiscal year began,
243 and a Water Operator was needed for part of that effort – a half FTE would be needed for a
244 Water Operator to visit that site seven days a week, varying depending on maintenance needs.
245 He stated that the rest of the time, the water operator would be floating to non-urban plants, as
246 they have only one operator per shift. Mr. Wood stated that sometimes there was a maintenance
247 item, operational item, or safety item related to both of those where it was good to have two
248 operators onsite to do a major maintenance task. He noted that it was currently being handled by
249 managers, assistant managers, and supervisors.

250

251 Mr. Wood stated that the Construction Inspector represented a change in how Rivanna was doing
252 its construction inspection program, and Ms. Whitaker had presented to the Board about a year
253 earlier on the cost savings of bringing this program in house. He stated that previously, they
254 completed through hired consultant engineers, which can be expensive. Mr. Wood noted that the
255 second Construction Inspector was planned for 2021.

256

257 Mr. Wood reported that for Solid Waste in 2020, the attendant at McIntire was a new full-time
258 position but would replace two part-time positions, so it was a net zero of FTEs and would be
259 more cost for benefits. He stated that it was a challenge to staff that center with part-time
260 employees, and consistency was an issue – so it would be better to have a full-time person at
261 McIntire. He noted that if the Ivy recycling plans worked out, that would require an additional
262 full-time attendant, and the Paper Sort has had volumes increase over the years primarily due to
263 cardboard coming in. He stated that if the site came on board, there might be more material
264 coming in that way. Mr. Wood stated that there were currently 0.25 FTEs at the site, so there was
265 a net gain of 0.75, and they were using an operator at Ivy to fill in the gaps.

266

267 Mr. Wood explained that they were trying to get the Lab Technician in for this year, and there is
268 a reservoir plan and sampling that has been underway for the last several years, which was new
269 to the lab department and had put an unprecedented demand on them for laboratory analysis. He
270 stated the rest of the positions were a combination of IT backlog needs, with the Enhanced

271 Nutrient Removal (ENR) system put in for wastewater treatment about 10 years ago, which
272 increased the needs at this plant by about 500 instruments with thousands of data entry points –
273 so it was time to maintain and replace those. Mr. Wood noted that every time they added
274 something like GAC, it increased networking and IT needs to the infrastructure, as well as
275 administration that had not been enhanced for 15-20 years.

276
277 He stated the volume of transactions and complications had increased over that time, and
278 Rivanna was also now handling all of its enrollment for four different healthcare systems,
279 previously managed by the City of Charlottesville. He noted that VRS also used to be simple and
280 was now a hybrid system, and short-term disability also had its own sick leave policy, all
281 requiring administrative attention.

282
283 Mr. Wood emphasized that this was just a plan and did not require action, but was just an
284 introduction for the next budget cycle.

285
286 Mr. Gaffney noted that some of these things would save money, such as the two construction
287 inspectors.

288
289 Mr. Wood confirmed this.

290
291 Mr. O’Connell asked why the Lab Technician positions were bumped out to 2021 since they
292 were a current need.

293
294 Mr. Mawyer stated that they had been struggling with water quality results and were concerned
295 that the myriad of ways they collected samples was contributing to that, but they have been able
296 to align that over the last six months and had not had many positive total coliform samples. He
297 stated they had also increased chlorine in some systems to help combat any irregular testing, and
298 Dr. Morris from the lab anticipated the number of samples collected to accommodate the
299 growing population, to show the health department that all areas were covered. Mr. Mawyer
300 stated that there was one more year before they needed that position.

301
302 Mr. Henry asked if they did the reservoir testing onsite.

303
304 Ms. Terry clarified that they did some lab analysis onsite but also sent out algae samples for
305 analysis.

306
307 Mr. Henry asked if there was a way to leverage to Rivanna resources for parks and recreation
308 testing, which was currently being sent out.

309
310 Mr. Mawyer responded that it might be possible to take on that testing.

311
312 Ms. Terry stated they did the sampling themselves and did a lot of the reservoir testing in house,
313 sending out two parameters (algae counts and cyanotoxins), but she had been discussing this
314 with the County and staff – but not in terms of what Mr. Henry had suggested.

315

316 Mr. Mawyer stated that staff would bring to the Board next month a construction contract
317 recommendation to upgrade the Crozet Water Treatment Plant, and next year they would have a
318 recommendation to start construction on a project for South Rivanna and Observatory all in one
319 contract. He noted that they reshuffled the previous year's plan to get the construction inspectors
320 in an adjusted time delivery capacity so they would be available when needed.

321

322 Mr. O'Connell asked if this was the big staffing change since the earlier plan.

323

324 Mr. Mawyer responded that it was, noting that they had reduced some of the water operators,
325 with the Board granting three operators over the last two years, and now one more was needed
326 with the next need expected in 2024. He stated that the alliance with the upgrades to the water
327 treatment plants might require another operator, with a greater capacity and more instruments to
328 manage.

329

330 **The RSWA Board adjourned its meeting and left the joint meeting at 3:07 p.m.**

331

332 *c. Presentation and Request for Capital Improvement Plan Amendment: Water Line Project on*
333 *the Birdwood Property*

334 Mr. Mawyer reported that this project tied in with the community water supply plan that was
335 completed in 2002-2012, and the plan stated that in order to provide a 50-year water supply for
336 the community, a waterline would need to be built from the South Rivanna Reservoir to the
337 Ragged Mountain Reservoir. He stated that this presentation would involve just the section that
338 crossed the edge of the Birdwood Golf Course property.

339

340 Mr. Mawyer explained that in the 2006 permit application submitted to the Army Corps of
341 Engineers and the DEQ, it was envisioned that this pipeline would be somewhere on University
342 Foundation property at the golf course. He stated that the original plan was for the pipeline to go
343 around the western edge of the course, but in recent years, staff had determined that a better
344 alignment would be the eastern edge of the course adjacent to the Bellair subdivision.

345

346 He stated that they renewed discussions with the University Foundation in August 2017, with
347 Rivanna staff meeting with the Foundation staff involved with planning the reconstruction of the
348 golf course, and there have been many meetings with UVA Foundation regarding how Rivanna
349 could coordinate with them and put a pipe in before remodeling and reconstructing the golf
350 course. Mr. Mawyer stated that the scope of the work was to put in just over a mile of 36-inch
351 ductile iron pipe, which would be raw water pipe, and this would connect the two reservoirs but
352 was only one out of nine total miles of pipeline required to connect the reservoirs. He noted that
353 the UVA Foundation plans to start in October 2018 and finish between May and October of
354 2019, with Rivanna trying to get on the same schedule with the pipeline.

355

356 Mr. Mawyer stated that Rivanna had received several emails in the last 24 hours indicating that
357 this was a new tact by staff to move the project forward, but the minutes of RWSA Board
358 meetings show that on December 19, 2017, they talked about the Birdwood section of the
359 pipeline. He stated that Dr. Palmer mentioned the pipeline from South Fork to Ragged Mountain
360 and its route across Birdwood, with UVA coming to the County and stating they had been doing

361 work on their master plan, and she had commented that she hoped Rivanna staff would work
362 well with the University.

363
364 Mr. Mawyer stated that in March 2018, Rivanna staff reported to the Board that they had met
365 with staff of the UVA Foundation to coordinate installation of this section of the pipeline and
366 were working on the design because at the time, the UVA schedule to rework the golf course was
367 July 2018 through April 2019. He stated that in April, he, Mr. Gaffney, and other staff had met
368 with Tim Rose, head of the UVA Foundation, to discuss issues of coordinating the easement and
369 logistics, which was reported in the April 24, 2018 RWSA minutes. He stated that also in in
370 April 2018, Rivanna requested and the Board approved Engineering Services to do final
371 construction design plans for this section of the waterline, with construction to start in July 2018.

372
373 Mr. O'Connell asked what date that was approved.

374
375 Mr. Mawyer responded that it was April 24, 2018 and included approval of the design contract
376 for final design. He stated that the June 26, 2018 minutes reflect that there was a report of RWSA
377 meeting with the Foundation and coordinating the installation of the pipeline with their projects.
378 He added that he had mentioned in July that there was no plan for the entire pipeline to be
379 shovel-ready, but he should have mentioned this particular section of the pipeline.

380
381 Mr. Mawyer stated that the project budget was \$7 million to complete the construction, easement
382 acquisition, and administrative costs to pursue the project. He stated that the reason they wanted
383 to do this now is because the UVA Foundation was reconstructing the golf course and it would
384 be a decision to put the Rivanna pipeline in ahead of their work. Mr. Mawyer stated that this
385 would reduce construction costs versus doing the project through a finished golf course. He
386 added that Dominion Power was also running a powerline in the same area Rivanna wanted to
387 run the pipe, so they would be teaming up for land disturbance activities in that area and
388 avoiding some costs and environmental impacts. Mr. Mawyer stated that if they did that project
389 in the future, Rivanna would probably have to ask Birdwood to close at least a section of the golf
390 course while they did their work.

391
392 Mr. Mawyer stated that it had been asked whether it would be bad for the pipe to be in the
393 ground for a while prior to using it, and the answer was no. He stated they had checked with the
394 Ductile Iron Pipe Research Association, and their representatives commented that it would not be
395 detrimental to the pipe and they have a protective polyethylene they can wrap it in, demonstrated
396 by other similar projects wherein pipes were not put in service for years.

397
398 Mr. Mawyer stated that the pipeline would help increase safe yield to the system and also
399 supported community values of redundancy and resiliency and environmental protection, with
400 environmental improvement of the South Rivanna Reservoir and Moormans River when the
401 project is finished. He noted that this section represented just over 10% of the pipeline, and
402 Rivanna was requesting the Board's consideration so they could coordinate with UVA
403 Foundation.

404
405 Ms. Michelle Simpson provided a map and noted the location of Canterbury Road and the
406 entrance to Bellair subdivision. She pointed out the RWSA's proposed alignment and stated it

407 would run along the edge of the golf course up the eastern boundary and up to the point they can
408 patch into it and cross Route 250 in the vicinity of the John Deere store. Ms. Simpson showed
409 the location of the future golf course plan and pointed out specific elements, noting the four
410 proposed holes for construction, which are in the boundaries of some of the tee boxes.

411
412 Ms. Simpson mentioned that Dominion Power's project involved an electric line behind all of
413 the homes in Canterbury and had overhead electric on poles along Birdwood's and on Route 250.
414 She stated that Dominion was planning to underground all of that while the golf course was
415 closed, along with Rivanna.

416
417 Ms. Simpson reported that there were multiple project challenges, the first being access to the
418 site. She noted that this was a very linear project, which typically involves access at each end and
419 the whole easement really being the access road. She stated that they were looking at having an
420 access off of Route 250 at one end of the project, with the other access being down at the end of
421 Canterbury, going into a wooded section that is a UVA Foundation parcel that Rivanna would
422 use for a staging area and entrance road from that end -- so construction traffic could enter at one
423 end or the other. She added that Dominion would be using the same access points, and they
424 would both be working in the linear path along the edge of the golf course, and Rivanna has
425 already begun coordinating with Dominion on sharing the easement area.

426
427 Ms. Simpson reported that there would be impacts to the adjacent neighborhood and pit blasting
428 would be required, so outside of the normal construction nuisances such as noise and additional
429 truck traffic and 6,000 feet of pipe to be installed, with hauling of soil and stone. She stated that a
430 lot of the homes can see right onto the golf course, and Rivanna was also clearing some trees so
431 that would open up views to construction to those neighbors for about a year.

432
433 Dr. Palmer pointed out that they would see that with the golf course.

434
435 Ms. Simpson agreed, stating that it was a challenge but worked well while Dominion and the
436 golf course and Rivanna were working together simultaneously -- which caused the additional
437 noise and traffic but got all the construction for all parties out of the way at one time instead of
438 Rivanna coming back later and prolonging the issues for another year. She emphasized that it
439 was definitely beneficial to coordinate and plan together, and the three parties could work
440 together on phasing, with project meetings and coordination in advance on the timing of
441 construction elements.

442
443 Ms. Simpson mentioned that there were a lot of creek crossings and wetlands in the area, and
444 there were a lot of water features on the golf course that would also be coordinated, with impacts
445 minimized as much as possible by avoiding wetlands and crossing under existing water pipes so
446 there weren't any impacts to streams. She noted that all of the tree clearing was expected to be in
447 the fall and winter, which worked well with the new Birdwood schedule, so they were not
448 interrupting the April to September Indiana bat roosting season.

449
450 Dr. Palmer commented that this was in her district and she wanted to find out a lot more about
451 the negative impacts, so she would be following up with staff on this.

452

453 Mr. O'Connell asked if it made sense to put an authorization on the table since Ms. Galvin had to
454 leave the meeting early.

455
456 Mr. Mawyer stated that Rivanna was waiting for the UVA Foundation to provide final approval
457 to start the project, which the Foundation indicated they would do by the end of the month. He
458 stated that he had spoken with the Foundation yesterday, and they had high confidence that they
459 would have the funding to do their project so Rivanna could do its project.

460
461 Mr. Richardson asked what the neighborhood backing up to the golf course knew at this point.

462
463 Mr. Mawyer asked staff if Rivanna had talked to Bellair.

464
465 Ms. Simpson stated that they were at the public meeting.

466
467 Dr. Palmer noted that they had a regular meeting every month with Bellair to go over all the
468 plans of projects, including the golf course, and she recognized how much coordination had been
469 going on.

470
471 **Dr. Palmer moved to approve the amendment to the FY19 CIP to add \$7 million to this**
472 **project and authorize installation of the waterline across the Birdwood Golf Course**
473 **property. Ms. Galvin seconded the motion.**

474
475 Ms. Galvin stated that the water supply plan had been in place since 2012, and staff had been
476 keeping the Board informed of the project since spring, so this was no surprise. She commented
477 that it was refreshing to see a coordinated project that was trying to minimize disruption to the
478 adjacent neighborhood as much as possible. She stated that it would be myopic not to realize that
479 issuing bonds now made more sense now than later, especially in light of interest rates, so from a
480 standpoint of good coordination, minimizing construction, and taking advantage of an open
481 ditch, this was the most logical approach. Ms. Galvin emphasized that this was in keeping with
482 the water supply plan, and they would be irresponsible if they didn't take advantage of this
483 opportunity.

484
485 Mr. Gaffney stated that if they did not do it now, they risked the chance of having to condemn
486 the Birdwood property -- and he wasn't even sure that was possible, but regardless there would
487 be a lot of ramifications.

488
489 Mr. Mawyer noted that Rivanna was working on an appraisal for the easement and should have it
490 next week, then would talk to the UVA Foundation about acquisition of the easement.

491
492 The Board thanked staff for their work on this project.

493
494 Mr. Murphy stated that he did not have enough information but he had received a lot of material
495 from Mr. Mawyer. He stated that he did not fully understand the history of their discussions
496 about whether they were closer to the 10-year end of this or the 40-year end of needing the pipe.
497 He added that he did have some concern about the June 4th City Council discussion, which
498 endorsed moving forward 8-10 years from now, and questions regarding how this section of

499 6,000 feet could be approved if the easements for the other sections had not been secured, as well
500 as how it would synch up properly on either side.

501
502 Ms. Galvin stated that her understanding of the spring vote was making sure they wouldn't be
503 going to the last phase, and on the advice of Rivanna, they would be going to the middle two
504 phases -- but this was not conducting or beginning the entire project. She stated that this was still
505 the overlapping of Schedule A and Schedule B, so it was taking advantage of an opportunity that
506 would ultimately save resources in the end. She added that she did not think it was out of line
507 with the overall intention of what Council voted for, and this was a situation in which they had a
508 segment they could do now to get them ahead, with B scheduled in earnest. Ms. Galvin
509 emphasized that she did not see these as mutually exclusive.

510
511 Mr. Mawyer stated that regarding connection to the ends of the pipe once they install this, the
512 Board does have the authority to condemn if necessary, but a lot of the property is not private
513 and when they come up Woodburn Road and Rio Road, that is public easement. He added that
514 going behind Albemarle High School, Jack Jouett, and Greer Elementary puts this on County
515 School Board property. He stated that Ingleside farm would be private, but then they cut across
516 and go in the public right of way through Colthurst Drive, then back on UVA Foundation
517 property with Birdwood. Mr. Mawyer emphasized that there were only a few private property
518 owners, and it was hoped that Rivanna could deal with them amenably -- but ultimately the
519 Board had the authority to condemn if necessary.

520
521 Mr. O'Connell noted that from the ACSA perspective, their Board had recommended Option B,
522 which was fairly close in terms of capital project timing. He stated they had to resolve that period
523 of 2027 or 2032, but they were pretty close together on that part of it.

524
525 Ms. Galvin responded that Council had approved B or C -- not C only -- and the project had
526 already essentially started. She stated that the coordination with UVA and Dominion only made
527 sense and would be imprudent for them not take advantage of that situation. She stated that it
528 wasn't completing the project ahead of schedule.

529
530 **The motion passed 5-0-1, with Mr. Murphy abstaining.**

531
532 *d. Presentation and Request for Capital Improvement Plan Amendment: Urban Water Supply*
533 *Program Update*

534 *i. Work Authorization: Urban Water Demand & Safe Yield Study: Hazen & Sawyer Engineers*

535 *ii. Work Authorization: Urban Water Infrastructure Master Plan; Baker Engineering*

536
537 Mr. Mawyer reported that when talking about the urban water supply, it included an area with all
538 of Charlottesville and some of the developed areas of the County such as Glenmore, Forest
539 Lakes, Ivy, and some of the southside. He stated that Ragged Mountain Reservoir supplied water
540 to the Observatory Treatment Plant and received its water from the Sugar Hollow Reservoir
541 through a pipeline all the way to Ragged Mountain. Mr. Mawyer stated that the South Rivanna
542 Treatment Plant served by the South Rivanna Reservoir, and collectively most of the water in the
543 urban system came from those two plants and those series of three reservoirs.

544

545 Mr. Mawyer stated that RWSA was currently doing task one, and he noted that safe yield was
546 the amount of water that could safely be removed from reservoirs during a drought of record
547 without draining the reservoirs. He stated that they would also discuss the bathymetric studies
548 and two engineering tasks to calculate future water demand or estimated and safe yield, as well
549 as the finished (treated) water master plan -- and they would discuss with DEQ the withdrawal
550 permit that renewed in 2023.

551
552 Mr. Mawyer explained that Rivanna looked at several alternatives related to the community
553 water supply plan, specifically the South Rivanna to Ragged Mountain Reservoir waterline. He
554 stated that they looked at four alternatives and can report from Hydrologic's work that currently
555 there was about 16.4 million gallons per day safe yield for the community, which used about 9.5
556 million gallons per day, or just under 60% using the safe yield available. Mr. Mawyer stated the
557 question was raised about how much the waterline from Rivanna to Ragged Mountain reservoirs
558 would add in terms of safe yield, and the estimate was about 3.1 million gallons per day. He
559 stated that similarly, if they were going to add 12 feet of water in Ragged Mountain Reservoir as
560 stipulated in the community water supply plan -- but without the pipeline to provide it -- that
561 would add about 2.6 MGD. Mr. Mawyer stated that both options would bring a net of about 5
562 MGD in additional safe yield.

563
564 Mr. O'Connell asked what safe yield meant to the community.

565
566 Mr. Mawyer responded that it means how much drinking water is available every day without
567 draining the water supply, even in a drought of record -- which was 18 months from mid-June
568 2001 until November of 2002. He stated that during that period, weather data is taken and
569 forecasted forward to assess safe yield relative to the water available in three reservoirs: the
570 South Rivanna Reservoir, which has about 900 million gallons; Ragged Mountain, which is 1.5
571 billion gallons; and Sugar Hollow, which has just under 400 million gallons. Mr. Mawyer stated
572 that they look at how that water can refill during a drought of record, and how long reservoirs
573 can withstand a demand of 8-10 MGD to supply the community. He stated that this was currently
574 16 MGD, even during the drought of record.

575
576 Dr. Palmer asked for confirmation that this took into consideration the interim period in the
577 permit that also took into consideration all the releases as specified by DEQ.

578
579 Mr. Mawyer confirmed this.

580
581 Dr. Palmer stated she also wanted to mention that Rivanna must think about its permit with each
582 stage they go through.

583
584 Mr. Mawyer agreed, stating that the DEQ protected the community but also protected the
585 environment and stipulated that the community could not have all the water and must release
586 some to the waterways. He stated that in calculating safe yield, it considered the minimum
587 instream releases that must be made.

588
589 Dr. Palmer stated that they must stipulate how much they would provide for the rivers as well as
590 the people, and that balance was a core issue in the development of the water supply plan.

591
592 Mr. Mawyer stated that Rivanna had started a bathymetric study of the South Rivanna and
593 Ragged Mountain reservoirs, as required by the Ragged Mountain Agreement to have an update
594 of South Rivanna beginning in 2020 and taking place every 10 years after to assess how much
595 safe yield was in the urban water supply system. He stated that Draper Aden was in the process
596 of measuring how much water was in the South Rivanna and Ragged Mountain reservoirs, and
597 Sugar Hollow had been surveyed in 2017 so there would be data available from all three of the
598 urban reservoirs.

599
600 Dr. Palmer stated that this was happening now so it would take into consideration the previous
601 summer with a lot of rain and flooding, so it was a question of timing, and she asked if it was
602 heavier in rains and storms that brought more sediment.

603
604 Mr. Mawyer responded that they would not necessarily know whether a heavy rain washed more
605 out or brought more into a reservoir, but the bathymetric study would help inform them. He
606 stated that the South Rivanna Reservoir was last surveyed in 2009 and provided the volume data
607 used today, but in 2006 when Gannett Fleming did the joint permit application, they indicated
608 that about 15 million gallons a year in storage could be lost from the South Rivanna Reservoir.
609 Mr. Mawyer stated that nine years later, the process would give a check on how much volume
610 remained and how much silt and sediment had washed in.

611
612 He stated that the bathymetric study was looking at the topography under the water, with volume
613 calculated and the stage storage curve that showed water volume and access. Mr. Mawyer stated
614 that when the Beaver Creek Reservoir was full, it had 499 million gallons, and in looking at all
615 the normal reservoirs and establishing water levels, they went into the curves and examined axis
616 points to determine the volume at that level. He emphasized that it was not a uniform shape on
617 the bottom of the reservoir, so the bathymetric study measured the topography and surveyed the
618 bottom of the reservoir, as well as enabled calculation of how much volume is available at each
619 increment as the reservoir water level goes down.

620
621 Mr. Mawyer explained that the survey used an aerial survey with a system called Lidar and a
622 sonar water survey done on boats. He stated that on Ragged Mountain, they would measure the
623 bathymetry if the 12 feet of additional water is added and how much volume they would have, so
624 they were looking at the land survey as well as underwater. Mr. Mawyer stated the data on
625 reservoir volume should be available by December, which was about half the equation, so they
626 needed to make sure they had enough water to meet the demand.

627
628 Ms. Whitaker stated that the third task contemplated water demand and safe yield, and with the
629 2012 Agreement on water supply, one of the things the community decided to do was to look at
630 demand on a routine interval and would go back and reassess demand patterns, growth,
631 development patterns, employment patterns, and water use patterns. She stated that Rivanna
632 would embark on a detailed water demand study, which was based off of the AECOM study
633 from 2011, a community-wide study to evaluate growth patterns and water demands, as well as
634 future projections. Ms. Whitaker commented that this was a fairly comprehensive process and
635 the plan was to continue that, but the intent was to also take it one step further.

636

637 Ms. Whitaker stated that the RWSA had recently completed and reported an update of Crozet
638 projections out to the Crozet community for the drinking water infrastructure master plan,
639 working with Albemarle County Community Development and businesses to analyze what was
640 happening in that area. She stated that they were looking at how water was used and what they
641 could expect to see over the 50-year planning horizon. Ms. Whitaker pointed out that water
642 usage over the last 10 years in this country had changed dramatically, and she wouldn't argue
643 whether it was good or bad but would say that it had changed. She noted that people who did this
644 type of work were looking at the changing patterns and observations about them, regardless of
645 the root causes, and they needed to project the true need going forward.

646
647 Ms. Whitaker reported that the other item underway was the safe yield analysis based on the new
648 bathymetry, and evaluation of a water system included looking at demands, safe yield, the
649 intersection of those elements, and assurance that there would not be a deficit. She stated that in
650 this case they were looking at the demand patterns going forward, and they would look at
651 bathymetry work and updated modeling work, then look at safe yield compared to demands to
652 help inform future projects. She added that this work was anticipated to be done by June 2019.

653
654 Ms. Whitaker stated that regarding task four, the finished water master plan was tied in because
655 it was part of the spectrum of water supply master planning discussed in their strategic
656 framework for the strategic plan, but it was not on the raw water or treatment side and was
657 geared toward what was needed for storage tanks and what was needed for transmission in the
658 system currently, and what was needed for fire flow -- as well as how to best move water
659 throughout the system given development in the area.

660
661 Ms. Whitaker stated that the master plan was originally planned for year 2023, however
662 questions recently about how water is moved between the two treatment plants made it clear the
663 plan should be completed now. She stated that the ACSA, RWSA, and the City of Charlottesville
664 all felt that it was important to do the master plan first and pause on some of the other projects,
665 then move forward with needed improvements to the distribution system. She stated that work
666 was anticipated to be done by November 2019, with the fees being approximately \$230K.

667
668 Ms. Whitaker reported that the last piece of the Plan included a meeting with VDEQ, with
669 ongoing discussions happening with them. She stated that last month she presented on Rivanna's
670 work on the dam -- the gates and downstream work. Ms. Whitaker stated that Hydrologics had
671 been doing analyses on the inflow calculations and how gauges were corrected, and they had
672 come back with the conclusion that there is a better way to do this, with slight tweaks as to how
673 to calculate inflows and get better information on what was coming into the reservoir. She stated
674 that the question and discussion with DEQ related to the appropriate time to revisit how to
675 calculate these inflows, with a permit renewal due in 2023 and that being the best time to go
676 through that process, present the information, and incorporate it into the new permit renewal.

677
678 Ms. Whitaker emphasized that RWSA staff agreed that there was a better way to estimate inflow
679 to the reservoir, and this used the Moormans and Mechums gauges in a slightly different way
680 than what was currently done to calculate inflow -- not a dramatic impact but enough to estimate
681 inflows. She stated that the last item related to the discharge meter for the minimum instream
682 flows and the correlation curve created to better use that meter going forward, as well as working

683 with the hydrology arm of DEQ to get the permanent stream gauge put in the South Fork
684 Rivanna River so they can calibrate the discharges coming from the reservoir and the system.

685
686 Mr. O'Connell commented that this was quite comprehensive.

687
688 Mr. Mawyer stated that they were looking at water supply in the reservoirs, water treatment by
689 upgrading the water treatment plants, and water distribution with the finished water master plan -
690 - with all three components needing to be in place for customers to be able to get the volume and
691 quality they expected out of their taps. He stated that staff were asking for approval of two tasks:
692 one with Hazen and Sawyer engineers to do the urban water demand and safe yield study in an
693 amount not to exceed \$140K; and the other with Baker Engineering for the finished water master
694 plan, not to exceed \$230K.

695
696 **Mr. O'Connell moved to approve authorization to contract with Hazen and Sawyer**
697 **engineers to do the urban water demand safe yield study in an amount not to exceed**
698 **\$140K, and with Baker Engineering for the finished water master plan, not to exceed**
699 **\$230K. Mr. Richardson seconded the motion, which passed 6-0. Ms. Galvin had left the**
700 **meeting and was not present for the vote.**

701
702 *e. Presentation and Request for Authorization: Series 2018 Bond Issuance; Lonnie Wood,*
703 *Director of Administration & Finance*

704 Mr. Wood reported that Rivanna had reached a point on several projects where they were having
705 to issue debt to finance these projects, and the approved CIP in May 2018 contemplated about
706 \$96.9 million in additional debt to fund the CIP. This Bond is funding about \$31 million of \$96
707 million in addition to the \$7 million for the new Birdwood pipeline project. He stated that what
708 the Board had before them was fairly standard, and the RWSA had gone this route with VRA
709 (Virginia Resources Authority) several times.

710
711 Mr. Wood stated there was a resolution authorizing the bond issue itself, authorizing staff and
712 the Board's secretary-treasurer to execute the documents at closing, scheduled sometime for
713 November. He stated that there was also a supplemental trust agreement that was basically
714 saying they were issuing bonds and would make them equal to all other bonds already
715 outstanding, so they did not have special standing and assigned Bank of New York as trustee.

716
717 He stated that the last document was the VRA finance document, which basically stated VRA
718 agreed to buy Rivanna's bonds and become a member of a larger bond pool, and Rivanna in turn
719 agreed to pay the debt service with certain terms and conditions. He stated all the documents had
720 been reviewed by Mr. Krueger, bond counsel, bond counsel for the VRA, and RWSA's financial
721 advisors.

722
723 Mr. Wood stated that the documents were before the Board today for approval, but would change
724 slightly as to form. He stated that the resolution itself had language indicating the amount should
725 not exceed \$41 million, and page 2 of the memo detailed what some of that was. Mr. Wood
726 stated that the net bond proceeds needed after closing totaled \$38 million, which would be
727 deposited into a construction fund -- then they draw funds out of it as they executed the projects.

728 He stated they also needed to build into the bond issue an allowance for a discount bond issue,
729 which meant they had to issue slightly more par value to get a net \$38.3 million.

730
731 Mr. Wood stated that they were currently in a premium situation that allowed issuance of a
732 smaller amount to get more money out of it, and with an election nearing, the bond market and
733 interest rates could fluctuate significantly. He noted that there was also an item for capitalized
734 interest, and accounting rules stated that interest during a construction period when a project was
735 funded had to be considered part of the project cost, just like engineering fees. Mr. Wood stated
736 that this was money to capitalize that portion of the interest payments, with the other part being
737 issuance costs for engineering certifications, attorney's fees, financial advisors, and underwriters.
738 He stated that the recommendation was to have a bond issue in an amount not to exceed \$41.85
739 million, with that number fluctuating but not exceeding that amount.

740
741 Mr. Gaffney asked what the interest rates were currently.

742
743 Mr. Wood responded that he had estimated 5% as a maximum, and that would total annual
744 payments of about \$2.75 million over 30 years.

745
746 Mr. O'Connell noted that VRA issued bigger bonds that were pooled with bigger projects.

747
748 Mr. Wood confirmed this and stated they could have 20 or 30 different localities involved in a
749 pool, with RWSA being a small part of that pool, and in comparing doing it alone, there was a
750 slight advantage in going for the VRA because of the backing from the Commonwealth.

751
752 Mr. Krueger commented that the VRA did this as a service to authorities, and there were a lot of
753 authorities in the state that participated in spring and fall bond pools, which saved underwriting
754 fees to localities.

755
756 Mr. Richardson asked if it was typical for the Authority to take on 30-year debt instead of 20-
757 year debt.

758
759 Mr. Wood responded that they have done a combination, with wastewater projects leveraging a
760 special lending program from the DEQ's Water Quality Improvement Fund, which typically
761 issued 20-year debt; and Rivanna had also done a 20-30 year bank-qualified loan recently. He
762 mentioned that the reason these projects were recommended for 30 years was because they were
763 anticipated to have a long asset life, and it was ideal to align them.

764
765 Dr. Palmer moved that the Board adopt the resolution authorizing the issuance and sale of the
766 Series 2018 revenue bonds in an amount not to exceed \$41.85 million; and to authorize the
767 Director of Finance and Administration and Executive Director to take other necessary steps to
768 fulfill the RWSA requirements of the attached Finance Agreement to properly close on or about
769 November 14, 2018, as set forth in the resolution presented in the RWSA Board packet; and to
770 authorize the Director of Finance and Administration to accept minor and non-substantial
771 changes to the attached drafts of the bond documents should they be necessary to prior to
772 closing, in consultation with the Authority's general counsel. Ms. Hildebrand seconded the
773 motion.

774
775 **Mr. Krueger took a roll call vote: Mr. Gaffney -- aye; Ms. Galvin -- absent; Ms.**
776 **Hildebrand -- aye; Mr. Murphy -- aye; Mr. O'Connell -- aye; Dr. Palmer -- aye; and Mr.**
777 **Richardson -- aye.**

778

779

780 ***9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA***

781

782 There were no other items presented.

783

784 ***10. CLOSED MEETING***

785

786 There was no closed meeting held.

787

788 ***11. ADJOURNMENT***

789

790 **Mr. Richardson moved to adjourn the meeting. Dr. Palmer seconded the motion, which**
791 **passed 6-0. Ms. Galvin had left the meeting and was not present for the vote.**

792

793 **The RWSA Board adjourned the meeting at 4:03 p.m.**

794

MEMORANDUM

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

FROM: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: EXECUTIVE DIRECTOR'S REPORT

DATE: SEPTEMBER 25, 2018

Information Technology Master Plan

SP GOAL: Infrastructure and Master Planning; Operational Optimization; Communication & Collaboration

We began development of an IT Master Plan for both Authorities this month with assistance from a joint venture of two local consulting firms, TechDynamism/Birchbark. This IT Master Plan will provide a technology vision and include business priorities and resource requirements to leverage the use of technology and enhance our services over the next three years. The Plan will coordinate with our Asset Management System planning. We expect to complete the IT Master Plan by March 2019.

Algae Monitoring Program

SP GOALS: Environmental Stewardship; Operational Optimization; Infrastructure and Master Planning

We continue to regularly monitor and sample all five of our reservoirs for algae levels. Beaver Creek and South Rivanna Reservoirs have periodic blue-green algae populations, for which, Beaver Creek has received treatment. The hypolimnetic oxygenation system proposed for the Beaver Creek Reservoir Improvements Project will help overall water quality and reduce algae populations. A summary report and presentation will be provided when our sampling program decreases later this year.

Birdwood Raw Water Main

SP GOAL: Infrastructure and Master Planning

An Invitation for Construction Bids was issued on September 10, 2018, and a recommendation for award will be made to the Board during the next regular meeting on October 23, 2018. Discussions are underway with the UVA Foundation to finalize an easement agreement.

This project, and our plan to proceed with construction of this section of the water pipe in 2018, was discussed at the regular meetings of the Board of Directors on:

- December 19, 2017
- March 27, 2018
- April 24, 2018, included approval of the Engineering Services Contract,
- and June 26, 2018



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MEMORANDUM

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

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

SUBJECT: AUGUST MONTHLY FINANCIAL SUMMARY – FY 2019

DATE: SEPTEMBER 25, 2018

Urban Water flows and rate revenues are 13% over budget estimates for the first two months of this fiscal year and Urban Wastewater flows and rate revenues are 18% over budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	\$ 1,346,411	\$ 1,618,199	\$ 352,695	\$ 3,317,305
Expenses	(1,302,149)	(1,319,834)	(345,581)	(2,967,564)
Surplus (deficit)	\$ 44,262	\$ 298,365	\$ 7,114	\$ 349,741
Debt Service				
Revenues	\$ 1,046,471	\$ 1,532,422	\$ 194,199	\$ 2,773,092
Expenses	(1,061,117)	(1,430,649)	(193,609)	(2,685,375)
Surplus (deficit)	\$ (14,646)	\$ 101,773	\$ 590	\$ 87,717
Total				
Revenues	\$ 2,392,882	\$ 3,150,621	\$ 546,894	\$ 6,090,397
Expenses	(2,363,266)	(2,750,483)	(539,190)	(5,652,939)
Surplus (deficit)	\$ 29,616	\$ 400,138	\$ 7,704	\$ 437,458

Urban Wastewater received the annual Nutrient Exchange Credit of \$104,060 and Albemarle County’s annual septage receiving support of \$109,441 in July.

Some expense categories are over the prorated year-to-date budget as follows, but should even out over the course of the year compared to budget estimates, unless otherwise noted:

- A. Professional Services (Urban Water – page 2) – The Urban Water rate center is over budget on Engineering and Technical Services related to safe yield modeling upgrades that were not budgeted.

- B. Other Services & Charges (Urban Water, Urban Wastewater, Engineering – pages 2, 5, 11) – July’s payment of the annual property and liability insurance premium is causing Urban Water and Wastewater to be over budget in this category. Urban Wastewater’s utilities expense is running high. The Engineering department is over budget due to late posting of an ACSA invoice for modeling services for the quarter ending in June 2018 that are not budgeted in FY 2019.

- C. Information Technology (Engineering – page 11) – The Engineering department paid \$25,000 in July to renew an annual GIS computer software license agreement.

- D. Operations & Maintenance (Urban Water, Crozet Water, Urban Wastewater, Glenmore Wastewater – pages 2, 3, 5, 6) – Urban Water paid about \$200,000 for June’s North Rivanna Waterline emergency repairs. Urban Wastewater and Glenmore Wastewater went over the prorated budget on pump repairs. Crozet Water is over budget on algae treatment of the Beaver Creek Reservoir.

Attachments

Rivanna Water & Sewer Authority
 Monthly Financial Statements - August 2018
 Fiscal Year 2019

Consolidated
Revenues and Expenses Summary

<i>Budget</i>	<i>Budget</i>	<i>Actual</i>	<i>Budget</i>	<i>Variance</i>
<i>FY 2019</i>	<i>Year-to-Date</i>	<i>Year-to-Date</i>	<i>vs. Actual</i>	<i>Percentage</i>

Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$	16,387,174	\$	2,731,196	\$	3,109,825	\$	378,629	13.86%
Lease Revenue		100,000		16,667		21,165		4,498	26.99%
Admin., Maint. & Engineering Revenue		462,000		77,000		78,670		1,670	2.17%
Other Revenues		528,084		88,014		181,187		93,173	105.86%
Interest Allocation		28,050		4,675		5,130		455	9.72%
Total Operating Revenues	\$	17,505,308	\$	2,917,551	\$	3,395,975	\$	478,424	16.40%

Expenses

Personnel Cost	\$	8,429,784	\$	1,326,525	\$	1,284,316	\$	42,209	3.18%
Professional Services	A	710,250		118,375		77,372		41,003	34.64%
Other Services & Charges	B	2,814,735		469,123		588,780		(119,657)	-25.51%
Communications		143,105		23,851		16,079		7,772	32.58%
Information Technology	C	341,450		56,908		51,692		5,216	9.17%
Supplies		43,920		7,320		8,771		(1,451)	-19.82%
Operations & Maintenance	D	3,719,660		619,943		818,516		(198,573)	-32.03%
Equipment Purchases		459,400		76,567		60,208		16,359	21.37%
Depreciation		843,000		140,500		140,500		-	0.00%
Reserve Transfers		-		-		-		-	
Total Operating Expenses	\$	17,505,304	\$	2,839,112	\$	3,046,233	\$	(207,122)	-7.30%
Operating Surplus/(Deficit)	\$	4	\$	78,440	\$	349,742			

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$	14,852,531	\$	2,475,422	\$	2,475,420	\$	(2)	0.00%
Use of Reserves for 2016 Bond DS		300,000		50,000		50,000		-	0.00%
Septage Receiving Support - County		109,440		18,240		109,441		91,201	500.01%
Buck Mountain Surcharge		118,600		19,767		-		(19,767)	-100.00%
Buck Mountain Lease Revenue		1,600		267		-		(267)	-100.00%
Trust Fund Interest		46,400		7,733		24,451		16,718	216.18%
Reserve Fund Interest		344,000		57,333		113,780		56,446	98.45%
Total Debt Service Revenues	\$	15,772,571	\$	2,628,762	\$	2,773,092	\$	144,330	5.49%

Debt Service Costs

Total Principal & Interest	\$	12,295,400	\$	2,049,233	\$	2,049,233	\$	-	0.00%
Reserve Additions-Interest		343,000		57,167		113,780		(56,613)	-99.03%
Debt Service Ratio Charge		725,000		120,833		120,833		-	0.00%
Reserve Additions-CIP Growth		2,409,175		401,529		401,529		-	0.00%
Total Debt Service Costs	\$	15,772,575	\$	2,628,763	\$	2,685,376	\$	(56,613)	-2.15%
Debt Service Surplus/(Deficit)	\$	(4)	\$	(1)	\$	87,716			

Summary

Total Revenues	\$	33,277,879	\$	5,546,313	\$	6,169,067	\$	622,754	11.23%
Total Expenses		33,277,879		5,467,874		5,731,609		(263,735)	-4.82%
Surplus/(Deficit)	\$	0	\$	78,439	\$	437,458			

Rivanna Water & Sewer Authority
Monthly Financial Statements - August 2018

Urban Water Rate Center
Revenues and Expenses Summary

Budget FY 2019	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 7,034,788	\$ 1,172,465	\$ 1,327,632	\$ 155,167	13.23%
Lease Revenue	70,000	11,667	15,004	3,338	28.61%
Miscellaneous	-	-	1,600	1,600	
Interest Allocation	12,000	2,000	2,175	175	8.75%
Total Operating Revenues	\$ 7,116,788	\$ 1,186,131	\$ 1,346,411	\$ 160,280	13.51%

Expenses

Personnel Cost	\$ 1,903,779	\$ 300,724	\$ 283,929	\$ 16,795	5.58%
Professional Services	A 329,250	54,875	64,348	(9,473)	-17.26%
Other Services & Charges	B 582,700	97,117	124,431	(27,314)	-28.13%
Communications	64,200	10,700	9,478	1,222	11.42%
Information Technology	65,300	10,883	9,461	1,423	13.07%
Supplies	5,000	833	1,210	(377)	-45.18%
Operations & Maintenance	D 1,570,660	261,777	407,949	(146,173)	-55.84%
Equipment Purchases	106,600	17,767	22,514	(4,748)	-26.72%
Depreciation	300,000	50,000	50,000	-	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	\$ 4,927,489	\$ 804,676	\$ 973,321	\$ (168,645)	-20.96%
Allocation of Support Departments	2,189,298	346,520	328,828	17,692	5.11%
Total Operating Expenses	\$ 7,116,787	\$ 1,151,196	\$ 1,302,149	\$ (150,953)	-13.11%
Operating Surplus/(Deficit)	\$ 1	\$ 34,935	\$ 44,262		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 5,863,271	\$ 977,212	\$ 977,212	\$ 0	0.00%
Trust Fund Interest	18,000	3,000	8,387	5,387	179.56%
Reserve Fund Interest	184,000	30,667	60,872	30,206	98.50%
Buck Mountain Surcharge	118,600	19,767	-	(19,767)	-100.00%
Lease Revenue	1,600	267	-	(267)	-100.00%
Total Debt Service Revenues	\$ 6,185,471	\$ 1,030,912	\$ 1,046,471	\$ 15,559	1.51%

Debt Service Costs

Total Principal & Interest	\$ 4,190,796	\$ 698,466	\$ 698,466	\$ -	0.00%
Reserve Additions-Interest	184,000	30,667	60,872	(30,206)	-98.50%
Debt Service Ratio Charge	400,000	66,667	66,667	-	0.00%
Reserve Additions-CIP Growth	1,410,675	235,113	235,113	-	0.00%
Total Debt Service Costs	\$ 6,185,471	\$ 1,030,912	\$ 1,061,117	\$ (30,206)	-2.93%
Debt Service Surplus/(Deficit)	\$ -	\$ -	\$ (14,646)		

Rate Center Summary

Total Revenues	\$ 13,302,259	\$ 2,217,043	\$ 2,392,882	\$ 175,839	7.93%
Total Expenses	13,302,258	2,182,108	2,363,266	(181,159)	-8.30%
Surplus/(Deficit)	\$ 1	\$ 34,935	\$ 29,616		
Costs per 1000 Gallons	2.09		2.03		
Thousand Gallons Treated or Flow (MGD)	3,397,700	566,283	641,368	75,085	13.26%
	9.309		10.345		

Rivanna Water & Sewer Authority
Monthly Financial Statements - August 2018

Crozet Water Rate Center
Revenues and Expenses Summary

Budget FY 2019	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 957,384	\$ 159,564	\$ 159,564	\$ -	0.00%
Lease Revenues	30,000	5,000	6,160	1,160	23.21%
Interest Allocation	1,700	283	311	28	9.71%
Total Operating Revenues	\$ 989,084	\$ 164,847	\$ 166,035	\$ 1,188	0.72%

Expenses

Personnel Cost	\$ 288,389	\$ 45,565	\$ 42,936	\$ 2,630	5.77%
Professional Services	30,000	5,000	-	5,000	100.00%
Other Services & Charges	126,960	21,160	22,610	(1,450)	-6.85%
Communications	4,450	742	453	289	38.97%
Information Technology	14,200	2,367	-	2,367	100.00%
Supplies	620	103	424	(320)	-309.95%
Operations & Maintenance	261,150	43,525	63,927	(20,402)	-46.87%
Equipment Purchases	26,450	4,408	1,782	2,626	59.57%
Depreciation	30,000	5,000	5,000	-	0.00%
Reserve Transfers	-	-	-	-	-
Subtotal Before Allocations	\$ 782,219	\$ 127,870	\$ 137,130	\$ (9,260)	-7.24%
Allocation of Support Departments	206,863	32,746	30,905	1,842	5.62%
Total Operating Expenses	\$ 989,082	\$ 160,617	\$ 168,035	\$ (7,418)	-4.62%
Operating Surplus/(Deficit)	\$ 2	\$ 4,230	\$ (2,000)		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 995,568	\$ 165,928	\$ 165,928	\$ -	0.00%
Trust Fund Interest	1,800	300	856	556	185.26%
Reserve Fund Interest	6,700	1,117	2,217	1,101	98.56%
Total Debt Service Revenues	\$ 1,004,068	\$ 167,345	\$ 169,001	\$ 1,656	0.99%

Debt Service Costs

Total Principal & Interest	\$ 426,071	\$ 71,012	\$ 71,012	\$ -	0.00%
Reserve Additions-Interest	6,700	1,117	2,217	(1,101)	-98.56%
Reserve Additions-CIP Growth	571,300	95,217	95,217	-	0.00%
Total Debt Service Costs	\$ 1,004,071	\$ 167,345	\$ 168,446	\$ (1,101)	-0.66%
Debt Service Surplus/(Deficit)	\$ (3)	\$ (1)	\$ 555		

Rate Center Summary

Total Revenues	\$ 1,993,152	\$ 332,192	\$ 335,036	\$ 2,844	0.86%
Total Expenses	1,993,153	327,962	336,481	(8,519)	-2.60%
Surplus/(Deficit)	\$ (1)	\$ 4,230	\$ (1,444)		
Costs per 1000 Gallons	5.02		4.54		
Thousand Gallons Treated	196,946	32,824	36,992	4,168	12.70%
Flow (MGD)	0.540		0.597		

Rivanna Water & Sewer Authority
 Monthly Financial Statements - August 2018

Scottsville Water Rate Center
 Revenues and Expenses Summary

Budget FY 2019	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 443,328	\$ 73,888	\$ 73,888	\$ -	0.00%
Interest Allocation	750	125	137	12	9.98%
Total Operating Revenues	\$ 444,078	\$ 74,013	\$ 74,025	\$ 12	0.02%

Expenses

Personnel Cost	\$ 153,885	\$ 24,324	\$ 22,660	\$ 1,664	6.84%
Professional Services	20,000	3,333	2,901	433	12.99%
Other Services & Charges	28,680	4,780	5,842	(1,062)	-22.22%
Communications	3,210	535	384	151	28.19%
Information Technology	7,000	1,167	-	1,167	100.00%
Supplies	750	125	-	125	100.00%
Operations & Maintenance	66,570	11,095	13,809	(2,714)	-24.46%
Equipment Purchases	14,000	2,333	217	2,117	90.71%
Depreciation	20,000	3,333	3,333	(0)	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	\$ 314,095	\$ 51,026	\$ 49,146	\$ 1,880	3.68%
Allocation of Support Departments	129,988	20,587	19,332	1,255	6.10%
Total Operating Expenses	\$ 444,083	\$ 71,612	\$ 68,478	\$ 3,135	4.38%
Operating Surplus/(Deficit)	\$ (5)	\$ 2,401	\$ 5,548		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 129,280	\$ 21,547	\$ 21,546	\$ (1)	0.00%
Trust Fund Interest	400	67	245	178	266.77%
Reserve Fund Interest	3,300	550	1,114	564	102.63%
Total Debt Service Revenues	\$ 132,980	\$ 22,163	\$ 22,905	\$ 742	3.35%

Debt Service Costs

Total Principal & Interest	\$ 129,680	\$ 21,613	\$ 21,613	\$ -	0.00%
Reserve Additions-Interest	3,300	550	1,114	(564)	
Reserve Additions-CIP Growth	-	-	-	-	
Total Debt Service Costs	\$ 132,980	\$ 22,163	\$ 22,728	\$ (564)	-2.55%
Debt Service Surplus/(Deficit)	\$ -	\$ -	\$ 177		

Rate Center Summary

Total Revenues	\$ 577,058	\$ 96,176	\$ 96,930	\$ 754	0.78%
Total Expenses	577,063	93,776	91,205	2,570	2.74%
Surplus/(Deficit)	\$ (5)	\$ 2,401	\$ 5,725		
Costs per 1000 Gallons	23.70		23.21		
Thousand Gallons Treated or Flow (MGD)	18,738	3,123	2,950	(173)	-5.54%
	0.051		0.048		

Rivanna Water & Sewer Authority
 Monthly Financial Statements - August 2018

Urban Wastewater Rate Center
 Revenues and Expenses Summary

<i>Budget FY 2019</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 7,277,082	\$ 1,212,847	\$ 1,436,309	\$ 223,462	18.42%
Stone Robinson WWTP	28,084	4,681	3,639	(1,042)	-22.26%
Septage Acceptance	410,000	68,333	71,306	2,973	4.35%
Nutrient Credits	90,000	15,000	104,060	89,060	593.73%
Miscellaneous Revenue	-	-	582	582	
Interest Allocation	12,500	2,083	2,303	220	10.55%
Total Operating Revenues	\$ 7,817,666	\$ 1,302,944	\$ 1,618,199	\$ 315,255	24.20%

Expenses

Personnel Cost	\$ 1,282,792	\$ 202,243	\$ 194,871	\$ 7,372	3.65%
Professional Services	54,000	9,000	-	9,000	100.00%
Other Services & Charges	B 1,816,225	302,704	385,866	(83,162)	-27.47%
Communications	10,430	1,738	717	1,022	58.77%
Information Technology	57,250	9,542	826	8,715	91.34%
Supplies	2,700	450	106	344	76.50%
Operations & Maintenance	D 1,408,900	234,817	256,468	(21,651)	-9.22%
Equipment Purchases	74,500	12,417	10,551	1,865	15.02%
Depreciation	470,000	78,333	78,333	(0)	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	\$ 5,176,797	\$ 851,244	\$ 927,738	\$ (76,494)	-8.99%
Allocation of Support Departments	2,640,868	418,118	392,096	26,022	6.22%
Total Operating Expenses	\$ 7,817,665	\$ 1,269,362	\$ 1,319,834	\$ (50,472)	-3.98%
Operating Surplus/(Deficit)	\$ 1	\$ 33,582	\$ 298,365		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 7,854,820	\$ 1,309,137	\$ 1,309,136	\$ (1)	0.00%
Use of Reserves for 2016 Bond DS	300,000	50,000	50,000	-	0.00%
Septage Receiving Support - County	109,440	18,240	109,441	91,201	500.01%
Trust Fund Interest	26,200	4,367	14,940	10,573	242.13%
Reserve Fund Interest	148,000	24,667	48,905	24,238	98.26%
Total Debt Service Revenues	\$ 8,438,460	\$ 1,406,410	\$ 1,532,422	\$ 126,012	8.96%

Debt Service Costs

Total Principal & Interest	\$ 7,539,261	\$ 1,256,544	\$ 1,256,544	\$ -	0.00%
Reserve Additions-Interest	148,000	24,667	48,905	(24,238)	-98.26%
Debt Service Ratio Charge	325,000	54,167	54,167	-	0.00%
Reserve Additions-CIP Growth	426,200	71,033	71,033	-	0.00%
Total Debt Service Costs	\$ 8,438,461	\$ 1,406,410	\$ 1,430,648	\$ (24,238)	-1.72%
Debt Service Surplus/(Deficit)	\$ (1)	\$ (0)	\$ 101,773		

Rate Center Summary

Total Revenues	\$ 16,256,126	\$ 2,709,354	\$ 3,150,621	\$ 441,266	16.29%
Total Expenses	16,256,126	2,675,772	2,750,482	(74,710)	-2.79%
Surplus/(Deficit)	\$ (0)	\$ 33,582	\$ 400,138		
Costs per 1000 Gallons	2.31		1.97		
Thousand Gallons Treated or Flow (MGD)	3,390,400	565,067	669,296	104,229	18.45%

Rivanna Water & Sewer Authority
 Monthly Financial Statements - August 2018

Glenmore Wastewater Rate Center
 Revenues and Expenses Summary

<i>Budget FY 2019</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 372,720	\$ 62,120	\$ 62,120	\$ -	0.00%
Interest Allocation	600	100	112	12	11.82%
<i>Total Operating Revenues</i>	\$ 373,320	\$ 62,220	\$ 62,232	\$ 12	0.02%

Expenses

Personnel Cost	\$ 94,490	\$ 14,898	\$ 14,430	\$ 468	3.14%
Professional Services	3,000	500	-	500	
Other Services & Charges	39,510	6,585	5,555	1,030	15.64%
Communications	2,600	433	385	48	11.14%
Information Technology	3,350	558	-	558	100.00%
Supplies	100	17	-	17	100.00%
Operations & Maintenance	D 121,450	20,242	26,783	(6,542)	-32.32%
Equipment Purchases	2,900	483	400	83	17.24%
Depreciation	5,000	833	833	0	0.00%
<i>Subtotal Before Allocations</i>	\$ 272,400	\$ 44,550	\$ 48,387	\$ (3,837)	-8.61%
Allocation of Support Departments	100,915	15,994	15,135	859	5.37%
<i>Total Operating Expenses</i>	\$ 373,315	\$ 60,544	\$ 63,522	\$ (2,978)	-4.92%
<i>Operating Surplus/(Deficit)</i>	\$ 5	\$ 1,676	\$ (1,290)		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 1,586	\$ 264	\$ 264	\$ (0)	-0.13%
Trust Fund Interest	-	-	-	-	
Reserve Fund Interest	1,000	167	341	175	104.80%
<i>Total Debt Service Revenues</i>	\$ 2,586	\$ 431	\$ 605	\$ (0)	-0.08%

Debt Service Costs

Total Principal & Interest	\$ 1,586	\$ 264	\$ 264	\$ -	0.00%
Reserve Additions-Interest	1,000	167	341	(175)	-104.80%
<i>Total Debt Service Costs</i>	\$ 2,586	\$ 431	\$ 606	\$ (175)	-40.53%
<i>Debt Service Surplus/(Deficit)</i>	\$ -	\$ -	\$ (0)		

Rate Center Summary					
Total Revenues	\$ 375,906	\$ 62,651	\$ 62,837	\$ 186	0.30%
Total Expenses	375,901	60,975	64,128	(3,153)	-5.17%
Surplus/(Deficit)	\$ 5	\$ 1,676	\$ (1,291)		
Costs per 1000 Gallons	8.60		8.30		
Thousand Gallons Treated or Flow (MGD)	43,412	7,235	7,654	419	5.79%
	0.119		0.123		

Rivanna Water & Sewer Authority
 Monthly Financial Statements - August 2018

Scottsville Wastewater Rate Center
 Revenues and Expenses Summary

<i>Budget FY 2019</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 301,872	\$ 50,312	\$ 50,312	\$ -	0.00%
Interest Allocation	500	83	91	8	9.57%
Total Operating Revenues	\$ 302,372	\$ 50,395	\$ 50,403	\$ 8	0.02%

Expenses

Personnel Cost	\$ 94,515	\$ 14,902	\$ 14,430	\$ 472	3.17%
Professional Services	2,000	333	-	333	100.00%
Other Services & Charges	28,400	4,733	3,161	1,572	33.22%
Communications	2,630	438	721	(282)	-64.45%
Information Technology	2,350	392	-	392	100.00%
Supplies	100	17	446	(429)	-2573.06%
Operations & Maintenance	57,850	9,642	9,362	280	2.90%
Equipment Purchases	3,200	533	400	133	25.00%
Depreciation	18,000	3,000	3,000	-	0.00%
Subtotal Before Allocations	\$ 209,045	\$ 33,991	\$ 31,519	\$ 2,471	7.27%
Allocation of Support Departments	93,328	14,790	14,027	763	5.16%
Total Operating Expenses	\$ 302,372	\$ 48,781	\$ 45,546	\$ 3,235	6.63%
Operating Surplus/(Deficit)	\$ (0)	\$ 1,614	\$ 4,857		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 8,006	\$ 1,334	\$ 1,334	\$ (0)	-0.02%
Trust Fund Interest	-	-	24	24	
Reserve Fund Interest	1,000	167	330	163	97.78%
Total Debt Service Revenues	\$ 9,006	\$ 1,501	\$ 1,688	\$ 187	12.46%

Debt Service Costs

Total Principal & Interest	\$ 8,006	\$ 1,334	\$ 1,334	\$ -	0.00%
Reserve Additions-Interest	-	-	330	(330)	
Estimated New Principal & Interest	1,000	167	167	-	
Total Debt Service Costs	\$ 9,006	\$ 1,501	\$ 1,831	\$ (330)	-21.96%
Debt Service Surplus/(Deficit)	\$ -	\$ -	\$ (143)		

Rate Center Summary					
Total Revenues	\$ 311,378	\$ 51,896	\$ 52,091	\$ 195	0.38%
Total Expenses	311,378	50,282	47,377	2,905	5.78%
Surplus/(Deficit)	\$ (0)	\$ 1,614	\$ 4,715		
Costs per 1000 Gallons	15.14		12.05		
Thousand Gallons Treated or Flow (MGD)	19,966	3,328	3,781	453	13.62%

Rivanna Water & Sewer Authority
Monthly Financial Statements - August 2018

Administration

<i>Budget FY 2019</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Payment for Services SWA	\$ 460,000	\$ 76,667	\$ 76,667	\$ (0)	0.00%
Miscellaneous Revenue	2,000	333	469	135	40.64%
Total Operating Revenues	\$ 462,000	\$ 77,000	\$ 77,135	\$ 135	0.18%

Expenses

Personnel Cost	\$ 1,796,150	\$ 281,432	\$ 283,806	\$ (2,375)	-0.84%
Professional Services	228,000	38,000	7,570	30,431	80.08%
Other Services & Charges	140,980	23,497	18,836	4,660	19.83%
Communications	20,280	3,380	2,394	986	29.18%
Information Technology	138,500	23,083	11,911	11,172	48.40%
Supplies	21,000	3,500	6,113	(2,613)	-74.65%
Operations & Maintenance	60,400	10,067	5,039	5,028	49.94%
Equipment Purchases	27,500	4,583	2,083	2,500	54.55%
Depreciation	-	-	-	-	-
Total Operating Expenses	\$ 2,432,810	\$ 387,542	\$ 337,753	\$ 49,789	12.85%

Department Summary

Net Costs Allocable to Rate Centers		\$ (1,970,810)	\$ (310,542)	\$ (260,617)	\$ (49,925)	16.08%
<u>Allocations to the Rate Centers</u>						
Urban Water	44.00%	\$ 867,157	\$ 136,638	\$ 114,672	\$ 21,967	
Crozet Water	4.00%	\$ 78,832	\$ 12,422	\$ 10,425	\$ 1,997	
Scottsville Water	2.00%	\$ 39,416	\$ 6,211	\$ 5,212	\$ 998	
Urban Wastewater	48.00%	\$ 945,989	\$ 149,060	\$ 125,096	\$ 23,964	
Glenmore Wastewater	1.00%	\$ 19,708	\$ 3,105	\$ 2,606	\$ 499	
Scottsville Wastewater	1.00%	\$ 19,708	\$ 3,105	\$ 2,606	\$ 499	
	100.00%	\$ 1,970,810	\$ 310,542	\$ 260,617	\$ 49,925	

Rivanna Water & Sewer Authority
 Monthly Financial Statements - August 2018

Maintenance

<i>Budget FY 2019</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

Miscellaneous Revenue	-	-	1,534	1,534
Total Operating Revenues	\$ -	\$ -	\$ 1,534	\$ 1,534

Expenses

Personnel Cost	\$ 1,304,247	\$ 205,228	\$ 185,920	\$ 19,308	9.41%
Professional Services	-	-	-	-	
Other Services & Charges	17,500	2,917	6,715	(3,798)	-130.23%
Communications	17,325	2,888	793	2,094	72.53%
Information Technology	6,500	1,083	2,250	(1,167)	-107.69%
Supplies	2,000	333	272	62	18.52%
Operations & Maintenance	64,300	10,717	11,846	(1,129)	-10.54%
Equipment Purchases	105,650	17,608	15,420	2,189	12.43%
Depreciation	-	-	-	-	
Total Operating Expenses	\$ 1,517,522	\$ 240,774	\$ 223,215	\$ 17,558	7.29%

Department Summary

Net Costs Allocable to Rate Centers		\$ (1,517,522)	\$ (240,774)	\$ (221,681)	\$ (16,024)	6.66%
Allocations to the Rate Centers						
Urban Water	30.00%	\$ 455,256	\$ 72,232	\$ 66,504	\$ 5,728	
Crozet Water	3.50%	53,113	8,427	7,759	668	
Scottsville Water	3.50%	53,113	8,427	7,759	668	
Urban Wastewater	56.50%	857,400	136,037	125,250	10,787	
Glenmore Wastewater	3.50%	53,113	8,427	7,759	668	
Scottsville Wastewater	3.00%	45,526	7,223	6,650	573	
	100.00%	\$ 1,517,522	\$ 240,774	\$ 221,681	\$ 19,093	

Rivanna Water & Sewer Authority
 Monthly Financial Statements - August 2018

Laboratory

<i>Budget FY 2019</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual

Notes

Revenues

N/A

Expenses

Personnel Cost	\$ 301,100	\$ 47,357	\$ 47,199	\$ 158	0.33%
Professional Services	-	-	-	-	
Other Services & Charges	14,230	2,372	1,058	1,314	55.40%
Communications	800	133	-	133	
Information Technology	2,500	417	-	417	100.00%
Supplies	2,150	358	75	283	79.06%
Operations & Maintenance	53,500	8,917	12,037	(3,120)	-34.99%
Equipment Purchases	72,100	12,017	267	11,750	97.78%
Depreciation	-	-	-	-	
<i>Total Operating Expenses</i>	\$ 446,380	\$ 71,570	\$ 60,635	\$ 10,935	15.28%

Department Summary

Net Costs Allocable to Rate Centers		\$ (446,380)	\$ (71,570)	\$ (60,635)	\$ (10,935)	15.28%
<u>Allocations to the Rate Centers</u>						
Urban Water	44.00%	\$ 196,407	\$ 31,491	\$ 26,679	\$ 4,812	
Crozet Water	4.00%	17,855	2,863	2,425	437	
Scottsville Water	2.00%	8,928	1,431	1,213	219	
Urban Wastewater	47.00%	209,799	33,638	28,498	5,140	
Glenmore Wastewater	1.50%	6,696	1,074	910	164	
Scottsville Wastewater	1.50%	6,696	1,074	910	164	
	100.00%	\$ 446,380	\$ 71,570	\$ 60,635	\$ 10,935	

Rivanna Water & Sewer Authority
Monthly Financial Statements - August 2018

Engineering

<i>Budget FY 2019</i>	<i>Budget Year-to-Date</i>	<i>Actual Year-to-Date</i>	<i>Budget vs. Actual</i>	<i>Variance Percentage</i>
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Operating Budget vs. Actual**Revenues**

Payment for Services SWA

Total Operating Revenues

\$ -	\$ -	\$ -	\$ -	-
\$ -	\$ -	\$ -	\$ -	-

Expenses

Personnel Cost

Professional Services

Other Services & Charges

Communications

Information Technology

Supplies

Operations & Maintenance

Equipment Purchases

Depreciation & Capital Reserve Transfers

Total Operating Expenses

\$ 1,210,438	\$ 189,852	\$ 194,135	\$ (4,283)	-2.26%
44,000	7,333	2,554	4,780	65.18%
B 19,550	3,258	14,706	(11,448)	-351.35%
17,180	2,863	755	2,109	73.65%
C 44,500	7,417	27,244	(19,827)	-267.33%
9,500	1,583	127	1,457	92.00%
54,880	9,147	11,296	(2,150)	-23.50%
26,500	4,417	6,573	(2,157)	-48.83%
-	-	-	-	-
\$ 1,426,548	\$ 225,870	\$ 257,390	\$ (31,519)	-13.95%

Department Summary

Net Costs Allocable to Rate Centers

\$ (1,426,548)	\$ (225,870)	\$ (257,390)	\$ 31,519	-13.95%
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Allocations to the Rate Centers

Urban Water

47.00%	\$ 670,477	\$ 106,159	\$ 120,973	\$ (14,814)
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Crozet Water

4.00%	57,062	9,035	10,296	(1,261)
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Scottsville Water

2.00%	28,531	4,517	5,148	(630)
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Urban Wastewater

44.00%	627,681	99,383	113,251	(13,869)
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Glenmore Wastewater

1.50%	21,398	3,388	3,861	(473)
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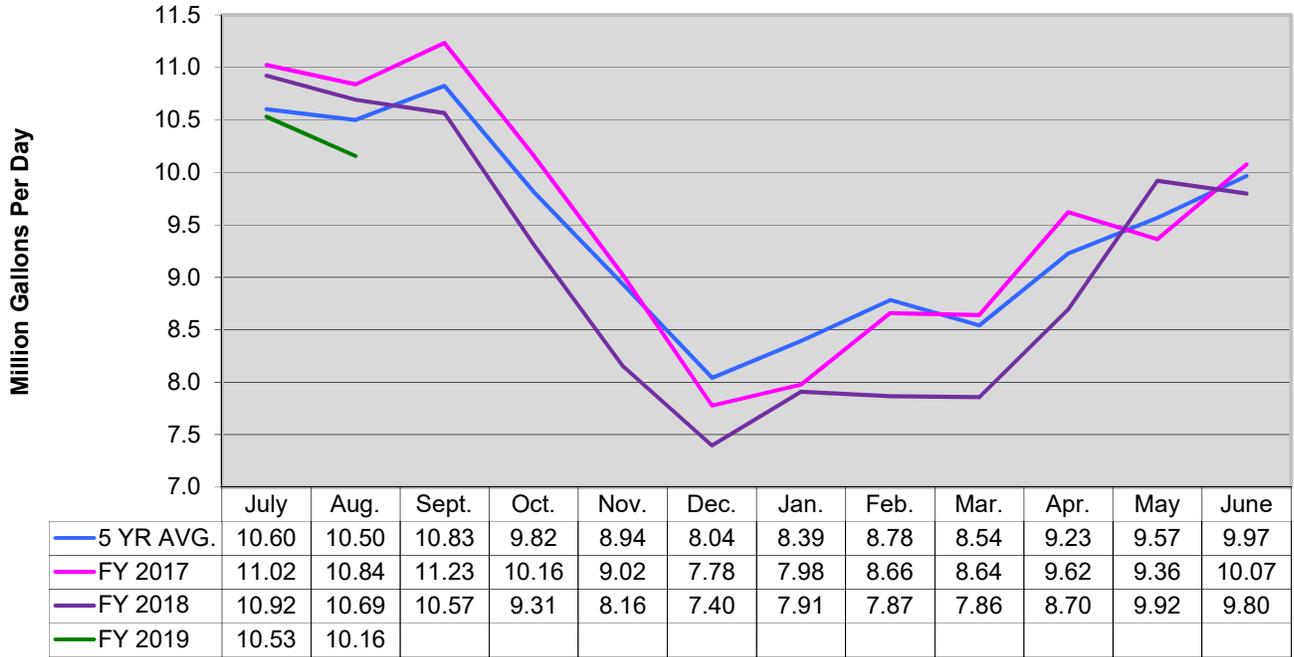
Scottsville Wastewater

1.50%	21,398	3,388	3,861	(473)
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100.00%	\$ 1,426,548	\$ 225,870	\$ 257,390	\$ (31,519)
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**Rivanna Water and Sewer Authority
Flow Graphs**

Urban Water Flows



Urban Wastewater Flows



MEMORANDUM

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

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

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: STATUS REPORT: ONGOING PROJECTS

DATE: SEPTEMBER 25, 2018

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

Under Construction

1. Crozet Finished Water Pump Station
2. Crozet Water Treatment Plant Expansion
3. Crozet Interceptor Pump Stations Bypass & Isolation Valves
4. Wholesale Water Master Metering
5. Sugar Hollow Reservoir to Ragged Mountain Reservoir Transfer Flow Meter
6. Interceptor Sewer & Manhole Repair
7. Urgent and Emergency Repairs
8. Piney Mountain Tank Rehabilitation (on hold until April 2019)

Design and Bidding

9. Birdwood Raw Water Main
10. Observatory Water Treatment Plant Expansion
11. South Rivanna Water Treatment Plant Improvements
12. Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line and Raw Water Pump Station
13. Crozet Flow Equalization Tank
14. Beaver Creek Dam Alterations
15. Beaver Creek Raw Water Pump Station and Hypolimnetic Oxygenation System
16. Crozet Interceptor Pump Station Rebuilds
17. Buck's Elbow & Crozet Waterball Tank Painting
18. Valve Repair – Replacement (Phase 2)

19. MCAWRRF Digester Sludge Storage Improvements
20. MCAWRRF Aluminum Slide Gate Replacements
21. Glenmore Secondary Clarifier Coating
22. Sugar Hollow Dam – Rubber Crest Gate Replacement and Intake Tower Repairs
23. Avon to Pantops Water Main (on hold until completion of the Urban Water Master Plan)

Planning and Studies

24. South Fork Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way
25. Urban Water Demand and Safe Yield Study
26. Urban Finished Water Infrastructure Master Plan
27. South Rivanna River Crossing and North Rivanna Transmission Main
28. Route 29 Pump Station
29. South Rivanna Hydropower Plant Decommissioning
30. Security Enhancements
31. Upper Schenks Branch Interceptor, Phase II
32. Engineering and Administration Building
33. Asset Management Plan

1. Crozet Finished Water Pump Station

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction, Inc.
Construction Start:	May 2017
Percent Complete:	95%
Base Construction Contract + Change Orders to Date = Current Value:	\$1,949,386
Expected Completion Date:	October 2018
Total Capital Project Budget:	\$2,600,000

Current Status:

Start-up and testing of equipment is underway. Operations and Maintenance Manuals have been distributed and training began at the end of August. The new pump station was tied into the existing distribution system at the end of July and will be put into service at the conclusion of the demonstration period

History:

As part of the FY 2016 CIP, the Crozet Water Treatment Plant was studied to expand the treatment capacity to secure future demand needs of the Crozet community. Prior to any plant expansion, it was determined that the finished water pumping facilities were in need of replacement. The existing pump station is very small and was constructed as part of the original plant construction in the late 1960s. The pumping equipment and controls are outdated and reduce operational reliability and efficiency. The pump house is located in a low, poorly drained area near the ground storage clearwell, and drainage issues exist. Due to the age and condition of pumps, electrical systems, building systems and controls, it has been determined that a full station replacement is necessary. An Alternatives Analysis

Report was completed in June 2016.

Bids were received and opened for the project on March 7, 2017. The apparent low bidder was Anderson Construction, Inc. from Lynchburg, VA. The Board of Directors approved the contract bid award of \$1,941,000 at the March 2017 meeting, a Notice of Award was issued on April 10, 2017, and a Notice to Proceed was issued on May 3, 2017.

The filter plant effluent line to the ground storage tank has been installed, tested, disinfected and placed into service. The existing generator and electrical lines have been relocated and placed into a temporary location. The pipeline and generator were relocated in order to make room for the new pump station foundation excavation. Partial removal of old, existing asbestos cement (transite) pipe was completed in July. The building is complete.

2. Crozet Water Treatment Plant Expansion

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Orders Construction Co.
Construction Start:	November 2018
Percent Completion:	0%
Base Construction Contract + Change Order to Date = Current Value:	\$7,170,000
Expected Completion Date:	December 2020
Total Project Budget:	\$8,500,000

Current Status:

Construction bids were opened on September 6, 2018. The bids have been evaluated and the design engineer recommends awarding the project to the apparent low bidder, Orders Construction Company, Inc, from St. Albans, W.Va. The recommendation to award the project and amend the Capital Improvement Plan budget for this project is being brought to the Board this month.

History:

This project was created to analyze the feasibility of increasing the supply capacity of the existing Crozet WTP by modernizing plant systems. The goal is to not drastically increase the plant footprint in regard to the existing filter plant, flocculation tanks, and sedimentation basins. By modernizing the outdated equipment within these treatment systems, the plant discharge capacity can be improved by approximately 100% (from 1 to 2 mgd).

SEH completed a Preliminary Engineering Report (PER) for this project and some preliminary watershed data collection. In addition, raw water jar testing was performed to finalize the type of treatment parameters necessary for the upgrade work, and the testing results were incorporated into the PER. A new Work Authorization with SEH was executed to perform preliminary and final design documents, as well as construction administration services.

3. Crozet Interceptor Pump Stations Bypass and Isolation Valves

Design Engineer:	Johnson, Mirmiran & Thompson (JMT)
Construction Contractor:	Anderson Construction
Construction Start:	September 2018
Percent Completion:	0%
Base Construction Contract + Change Order to Date = Current Value:	\$361,820
Expected Completion Date:	November 2018
Total Capital Project Budget:	\$720,000

Current Status:

The Contract Documents have been fully executed and a Pre-Construction Meeting was held on September 5, 2018. The Notice to Proceed was issued on September 14, 2018 and the contractor anticipates mobilizing by the end of September.

History:

There are four pump stations located in the Crozet Interceptor system that help convey flow from the Crozet Area into the Morey Creek Interceptor and the rest of the urban collection system. These pump stations were constructed in the 1980s and provided no means of isolating each pump station from its downstream force main. This condition complicates maintenance-related activities as each time a pump station component needs to be serviced or replaced, the volume of wastewater within the force main must be addressed at the pump station as it drains back to the wet well. In addition, the Crozet Interceptor pump stations also have limited storage within their wet wells, and any reduction of down time as a result of dealing with the impacts of no isolation valves, decreases the amount of time available to work on the equipment. In order to alleviate this condition, temporary valves called “line stops” will be temporarily installed on the force mains downstream of the pump stations to allow enough time for a new isolation valve to be installed. Isolation valves will be located in order to provide the maximum amount of down time available based on current system conditions for future pump station maintenance activities. While line stops are in place, bypass connections will also be provided at each pump station. These will allow staff the option of bringing in bypass pumps for more significant pump station shutdowns required for maintenance activities or repairs for which the isolation valves alone cannot account. Contract Documents were advertised for bidding and bids were opened on July 10, 2018. A Notice of Award was provided to Anderson Construction on August 6, 2018.

4. Wholesale Water Master Metering

Design Engineer:	Michael Baker International (Baker)
Construction Contractor:	Linco, Inc.
Construction Start:	January 2016
Percent Complete:	95%
Base Construction Contract + Change Orders to Date = Current Value:	\$2,228,254 - \$240,604.24 = \$1,987,649.76
Expected Completion Date:	September 2018
Total Capital Project Budget:	\$3,600,000

Current Status:

Three water treatment plant flow meters, and all 25 distribution system flow meters have been installed. Of those 25 meters, 18 are currently functional and 7 are experiencing reporting errors. Meter troubleshooting is ongoing with the intent of having all meters functional by the end of September 2018. In May 2018, a final version of the *Wholesale Metering Administration and Implementation Policy* was completed and forwarded to the ACSA and the City. RWSA terminated the construction contract with Linco, Inc. on April 2, 2018 and is coordinating the remaining work in-house.

History:

In January 2012, a Water Cost Allocation Agreement was signed by the City of Charlottesville (City) and ACSA designating how the two agencies would share in the financing of the New Ragged Mountain Dam project. Within the agreement is a general provision developed by the ACSA and City to enhance measurement of the water usage by each of the distribution agencies.

The Board authorized staff in August of 2012 to enter into an agreement with Michael Baker International, Inc. (Baker) to complete an engineering study on metering plan alternatives. Baker's study identified several alternatives for a metering plan based on combinations of metering and estimating methodologies. Based on feedback from ACSA, the City, and RWSA, Baker recommended a Jurisdictional Approach which included installation of water meters at 34 locations at the City/County corporate boundary and at each of the three urban water treatment plants at an estimated cost of \$6.4 million. At its September 2013 meeting, the RWSA Board of Directors requested staff to proceed with the Jurisdictional Coverage Approach. In February 2014, the Board of Directors authorized Baker to complete preliminary and final design for the project and to provide bid-phase services. The final design includes construction of 25 metering systems in underground vaults and required acquisition of twenty (20) permanent water line easements and one (1) permanent access easement.

5. Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter

Design Engineer:	Michael Baker International (Baker)
Construction Contractor:	G.L. Howard
Construction Start:	October 2018
Percent Complete	5%
Base Construction Contract + Change Orders to Date = Current Value:	\$354,905
Expected Completion:	November 2018
Total Capital Project Budget:	\$383,241

Current Status:

RWSA staff forwarded information to the construction contractor from the Virginia Department of Health (VDH) and Department of Environmental Quality (DEQ) regarding the additional permitting requirements associated with the removal/abandonment of the Gatekeeper House's utilities. Using this information and the finalized scope, the construction contractor was able to produce a revised cost estimate and project schedule.

Subsequently, a Work Authorization was developed to cover the demolition and construction portions of the project and is being presented to the Board this month for approval. The initial Work Authorization covered the purchase of the project's long lead items. This project requires the Sugar Hollow to Ragged Mountain Reservoir transfer line to be out of service, and as such, any transfer line needs will be coordinated with the RWSA Water and Maintenance Departments.

History:

RWSA staff has worked with the design engineers to complete plan and profile design drawings for this project. The project will include installation of a flow meter on the 18-inch diameter Sugar Hollow Reservoir discharge pipe and a control valve that can be operated remotely through the Observatory WTP SCADA system. The control valve will modulate the amount of flow being transferred between the two reservoirs, the flow meter will record data, and staff will be able to remotely monitor the data through the SCADA system. Additional work has been added to this project including replacement of an existing, original gate valve at the site, demolition of four existing small utility structures and sheds that have not been used in many years, demolition of the existing Gatekeeper's House, and a separate control valve vault that will optimize the accuracy of the new flow meter by creating adequate separation distance between the meter and modulating control valve. The structures to be demolished and removed have been inspected and tested for asbestos containing materials and lead based paint. As a result, there will be some special abatement work required. Several long lead items were purchased by the contractor as a result of a recent Work Authorization

6. Interceptor Sewer and Manhole Repair

Design Engineer:	Frazier Engineering
Construction Contractor:	IPR Northeast
Construction Start:	November 2017
Percent Complete:	10%
Base Construction Contract + Change Orders to Date = Current Value:	\$1,244,337.19
Expected Completion:	2020
Total Capital Project Budget:	\$1,962,389

Current Status:

Frazier Engineering continues to conduct condition assessment activities and has completed a preliminary review of previous CCTV results. Manhole inspections on various interceptors were completed and a report documenting the results is being developed. An initial work authorization with the contractor to perform additional CCTV investigations has begun and completion is expected by October 2018 as some additional cleaning of interceptor sections will be required to complete the investigation. Initial results from the investigation have been provided to Frazier Engineering for review. Additional investigation and rehabilitation work will follow after the initial round of CCTV investigations.

History:

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

7. Urgent and Emergency Repairs

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

Project No.	Project Description	Approx. Cost
2017-03	Crozet Sewer Force Main Air Release Valve Repair	\$135,000
2018-01	Rivanna Interceptor – RVI-MH-32 Erosion Repair	\$50,000
2018-06	South Rivanna Dam Apron and River Bank Repairs	\$200,000

- Crozet Sewer Force Main Air Release Valve Repair

During routine inspections of the sewer force main, the Maintenance Department identified that the saddle for one of the air release valves was loose and needed to be repaired. Due to the profile of the force main however, it is not possible to dewater the force main and take pressure off the pipe at this location without the installation of line stops. As a result, a contractor was contacted to begin development of a method to address the issue and a site meeting was conducted. The contractor has provided estimated pricing and a work authorization is being developed. Coordination with the property owner is underway and this repair will be scheduled sequentially with the Rivanna Interceptor manhole repair this fall.

- Rivanna Interceptor – RVI-MH-32 Erosion Repair

During routine inspections of the Rivanna Interceptor, the Maintenance Department observed some significant erosion around RVI-MH-32. A site meeting was held with the contractor and the City of Charlottesville to confirm the cause of the erosion and determine the preferred method of repair, as the repair will impact a section of the Rivanna Trail. The contractor has provided estimated pricing and a work authorization is being developed. This repair will be scheduled sequentially with the Crozet Sewer Force Main repair this fall.

- South Rivanna Dam Apron and River Bank Repairs

Intense rainfall between May 30-31 resulted in extensive flooding throughout Charlottesville and parts of Albemarle County, with flows over the South Fork Rivanna Dam reaching more than 7 feet over the spillway crest at its peak. Staff has inspected the dam and abutments to determine the extent of damage resulting from the extreme flooding. Although there is no discernible damage to the dam itself, staff found erosion

damage to the north downstream river bank and substantial displacement of large stone downstream of the dam to form a rock dam and pool below the north apron. Additionally, some damage to concrete structures on both aprons was noted, including possible creation of voids beneath the concrete and loss of concrete joint filler. Repairs to the river bank and removal of the rock dam will take place in fall of 2018 under RWSA's on-call construction contract. Repairs to the north and south concrete aprons will be designed by Schnabel Engineering and those services will be procured separately from the on-call contract.

8. Piney Mountain Tank Rehabilitation (on hold until April 2019)

Design Engineer:	Johnson, Mirmiran & Thompson (JMT)
Construction Contractor:	Utility Service Co, Inc.
Construction Start:	April 2019
Percent Complete:	0%
Base Construction Contract + Change Orders to Date = Current Value:	\$251,700 + \$12,585 = \$264,285
Expected Completion:	July 2019
Total Capital Project Budget:	\$500,000

Current Status:

The Piney Mountain Tank Rehabilitation project will require a shutdown of the tank for over three months. Due to unforeseen complications with an extended tank shutdown and other ongoing construction activities in the North Rivanna Water System, construction of the Piney Mountain Tank repairs has been postponed until spring 2019. Utility Service Co., Inc will remain the general contractor for this project.

History:

The 700,000 gallon Piney Mountain Tank serves the North Rivanna pressure zone. A routine inspection of the Piney Mountain Tank in April of 2012 revealed several deformed roof rafters, indicating the potential for structural deficiency. An in-depth structural inspection was performed in May of 2013 and a list of recommended roof repairs provided. This project includes consultant services for design and bidding of necessary roof repairs and other ancillary items, as well as construction, construction administration, and inspection services. Long term plans for the Rt. 29 service area include the modification or elimination of this facility. The current recommended improvements are needed in order to maintain the existing tank in service for at least the next 10 years.

The project was advertised for bid on November 28, 2017 and bids were opened on January 9, 2018. At its January meeting, the RWSA Board of Directors approved staff's recommendation of award to Utility Service Co., Inc., the apparent low bidder on the project.

9. Birdwood Raw Water Main

Design Engineer:	Michael Baker International
Project Start:	April 2018
Project Status:	Bidding
Construction Start:	November 2018
Completion:	October 2019
Total Capital Project Budget:	\$7,000,000

Current Status:

Following design of the construction documents which was authorized in April 2018 by the Board of Directors, the construction contract was advertised for bid on September 10, 2018. Bids are scheduled to be opened on October 9, 2018 with an award anticipated at the October 2018 Board Meeting.

History:

RWSA and the UVA Foundation wish to expedite construction of the portion of the 36-inch raw water main through the Birdwood Golf Course Property. This would enable pipeline work to proceed just ahead of the planned golf course reconstruction project to prevent subsequent disruption to the property and increased water line construction costs. The golf course reconstruction project is planned to be underway in November 2018. This work includes installation of approximately 6,000 linear feet of 36-inch raw water main along the eastern property boundary of the golf course.

10. Observatory Water Treatment Plant Expansion

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Project Start:	October 2017
Project Status:	Preliminary Engineering Report
Construction Start:	October 2019
Completion:	2023
Total Capital Project Budget:	\$18,630,000

Current Status:

The PER has been finalized. A Work Authorization with the design engineer is being developed for design, bidding and construction administration services. Design documents will be completed by May 2019.

History:

This project will consider the design and costs for upgrading the plant systems to achieve a consistent 7 MGD plant capacity, as well as consider the costs involved with upgrading the plant to 10 or 12 MGD capacity. Much of the Observatory Water Treatment Plant is original to the 1953 construction. In an effort to better understand the needed future improvements, a Condition Assessment Report was completed by SEH in October of 2013. The approved Capital Improvement Plan project was based on the findings from this report. A portion of this project was expedited in order to repair and replace old, existing equipment that was not functional. The flocculator systems have been replaced and

upgraded as part of the Drinking Water Activated Carbon and WTP Improvements project (GAC). The second flocculator system was started up in May 2017, and both systems are currently in full service.

11. South Rivanna Water Treatment Plant Improvements

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	October 2017
Project Status:	Preliminary Engineering Report
Construction Start:	October 2019
Completion:	December 2022
Total Capital Project Budget:	\$7,500,000

Current Status:

The PER has been finalized. A Work Authorization with the design engineer is being developed for design, bidding and construction administration services. Design documents will be completed by May 2019.

History:

The South Rivanna Water Treatment Plant is currently undergoing significant upgrades as part of the Granular Activated Carbon Project. Several other significant needs have also been identified and have been assembled into a single project. The projects herein include: expansion of the coagulant storage facilities; installation of additional filters to meet firm capacity needs; the addition of a second variable frequency drive at the Raw Water Pump Station; the relocation for the electrical gear from a sub terrain location at the Sludge Pumping Station; a new building on site for additional office, lab, control room and storage space; improvements to storm sewers to accept allowable WTP discharges; and the construction of a new metal building to cover the existing liquid lime feed piping and tanks. The scope of this project will not increase plant treatment capacity.

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

Design Engineer:	Michael Baker International (Baker)
Project Start:	August 2018
Project Status:	Work Authorization in Progress
Construction Start:	2022
Completion:	2025
Total Capital Project:	\$18,000,000

Current Status:

A Work Authorization is being negotiated with Michael Baker International for the raw water line routing study, preliminary design, plat creation and the easement acquisition process. A site evaluation study to recommend a location for the raw water pump station is currently being conducted under the South Rivanna River to Ragged Mountain Reservoir Water Line Right-of-Way Work Authorization with Baker.

History:

Raw water is transferred from the Ragged Mountain Reservoir (RMR) to the Observatory Water Treatment Plant by way of two 18-inch cast iron pipelines, which have been in service for more than 110 and 70 years, respectively. The increased frequency of emergency repairs and expanded maintenance requirements are one impetus for replacing these pipelines. The proposed water line will be able to reliably transfer water to the expanded Observatory plant, which may eventually have the capacity to treat 10 million gallons per day (mgd). The new pipeline is expected to be constructed of 36-inch ductile iron and will approximately 14,000 feet in length. The opportunity to integrate the Observatory WTP raw water supply line with the proposed South Rivanna Reservoir to RMR raw water main project is currently being investigated as part of the approved 50-year Community Water Supply Plan.

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

13. Crozet Flow Equalization Tank

Design Engineer:	Schnabel Engineering
Project Start:	October 2016
Project Status:	20% Design Complete
Construction Start:	2019
Completion:	2020
Total Capital Project Budget:	\$3,300,000

Current Status:

Design documents will be completed by February 2019.

History:

A 2016 update to the 2006 model was completed which evaluated the I&I reduction goals previously established and future capital project needs. Based on the results of that study, it was determined that the Crozet Interceptor system and namely the existing Crozet Pump Stations (1 through 4) have adequate capacity to handle the 2015 peak wet weather flow from the Crozet Service Area during a two-year storm. However, as projected growth in the service area occurs, peak wet weather flows in the area under the storm conditions established in the updated model will begin to exceed the firm capacities of the pump stations by 2025. Additional I&I reductions in order to reduce flows enough to not exceed the pump station firm capacities are not feasible and as a result, the construction of a flow equalization tank was identified as the best method to alleviate wet weather capacity issues.

While the study indicates that capacity should not be an issue until 2025, a flow

equalization tank would also provide a significant benefit to the maintenance of the Crozet Pumping Station system which currently lacks system storage necessary to allow adequate time to perform repairs on the pumps and the associated force mains while the system is down. As a result, it is important to progress into the siting study for the flow equalization tank to ensure that it can be constructed in time for the 2025 flow targets but also to facilitate less complicated and more thorough maintenance on the system that has not been possible previously.

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

A work authorization with Schnabel Engineering was finalized and a Project Kick-off Meeting was held on July 12, 2018. A data collection period has begun which includes a wetlands investigation of the project site and a topographic survey of the site has also been completed. An inspection of the existing Pump Station No. 4 is scheduled for September 20, 2018 where information on the control and electrical systems will be gathered.

14. Beaver Creek Dam Alterations

Design Engineer:	Schnabel Engineering
Project Start:	February 2018
Project Status:	Work Authorization Under Negotiation
Construction Start:	2021
Completion:	2023
Total Capital Project Budget:	\$20,600,000

Current Status:

Staff expects completion of a Preliminary Engineering Report in the fall of 2018. A work authorization for the design of the dam upgrades is being negotiated with Schnabel Engineering. Final design is expected to begin in November 2018.

History:

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

Schnabel Engineering developed three alternatives for upgrading the capacity of the Beaver Creek Dam Spillway in 2012. Following the adoption of a new Probable Maximum Precipitation (PMP) Study on December 9, 2015 and the release of DCR guidelines for implementing the PMP study in March of 2016, RWSA determined it would proceed with

an updated alternatives analysis and Preliminary Engineering Report for upgrading the dam spillway. In 2017, RWSA entered into a term contract with Schnabel Engineering for dam-related engineering services. The design work for this project is being completed under Schnabel's term contract.

Following the completion of an updated alternatives analysis by Schnabel Engineering, staff met with members of Albemarle County and ACSA staff to discuss the preferred alternative. It was determined that staff would proceed with design of a labyrinth spillway and chute through the existing dam with a bridge to allow Browns Gap Turnpike to cross over the new spillway.

15. Beaver Creek Raw Water Pump Station, Intake and Hypolimnetic Oxygenation System

Design Engineer:	Hazen & Sawyer
Project Start:	August 2018
Project Status:	Work Authorization Under Negotiation
Construction Start:	2021
Completion:	2023
Total Capital Project Budget:	\$6,100,000

Current Status:

Staff is negotiating a Work Authorization (scope and fee) with Hazen and Sawyer for design of the Raw Water Pump Station and Intake and the Hypolimnetic Oxygenation System. Design is expected to begin in November 2018.

History:

The Drinking Water Infrastructure Plan for the Crozet water service area, developed by Hazen and Sawyer, recommends installation of a new Raw Water Pump Station and Intake at the Beaver Creek Dam in order to meet new minimum instream flow requirements and provide adequate raw water pumping capacity to serve the growing Crozet community for the next 50 years. The pump station will be moved out of its existing location at the toe of the dam to a new location, to be determined during design. The new intake structure will include enhanced controls to allow for access to the best quality water at any given time.

Following a Reservoir Water Quality and Management Study by DiNatale Water Consultants, several recommendations were made to improve water quality in the Beaver Creek Reservoir, including installation of a new outlet structure and installation of a hypolimnetic oxygenation system. The oxygenation system will reduce reliance on algaecide treatments by increasing dissolved oxygen in the reservoir. This system will be designed as part of the new raw water pump station and intake by Hazen and Sawyer, with assistance from DiNatale in preparing the system specifications.

16. Crozet Interceptor Pump Station Rebuilds

Design Engineer:	TBD
Project Start:	July 2018
Project Status:	25% Design Complete
Construction Start:	2019
Completion:	2023
Total Capital Project Budget:	\$525,000
<u>Current Status:</u>	

Staff is reviewing the overall scope of work for the project and will be coordinating with the Maintenance Department regarding schedule and preferred equipment and materials. Work will be performed via quote packages and the need for consultant assistance is being determined.

History:

The Crozet Interceptor Pump Stations were constructed in the 1980's and many of the components are still original. The project will include the replacement of pumps and valves at Pump Station No. 2 in order to improve pumping capabilities at this location and provide spare parts for the pumps at Pump Station No. 1. This work will also include roof replacements at all four pump stations, siding replacement for the wet well enclosure at Pump Station No. 3, and installation of a new water well at Pump Station No. 3. Components of this project will be coordinated and timed to properly coincide with the Crozet Flow Equalization Tank project.

17. Bucks Elbow Tank and Crozet Waterball Tank Painting

Design Engineer:	TBD
Project Start:	August 2018
Project Status:	Work Authorization Under Negotiation
Construction Start:	2020
Completion:	2021
Total Capital Project Budget:	\$1,200,000

Current Status:

Following selection of a consultant to complete the work, staff will begin negotiation of the first work authorization for design services for this project.

History:

The two million-gallon Bucks Elbow Ground Storage Tank provides finished water storage for the Crozet Area while the 50,000 gallon Crozet Waterball Tank serves as filter backwash storage at the Crozet Water Treatment Plant. Routine inspections of these tanks in 2012 indicated that the tanks would require recoating by 2020. The project includes recoating the interior and top-coating the exterior of both tanks as well as installation of an active mixing system at the Bucks Elbow Tank to decrease stratification and improve overall water quality in the Crozet area. Minor repairs and improvements to both tanks will also be included in this work. Construction of the tank improvements are expected to begin in spring of 2020.

18. Valve Repair – Replacement (Phase 2)

Design Engineer:	N/A
Project Start:	July 2018
Project Status:	Preliminary Design
Construction Start:	Spring 2019
Completion:	Summer 2020
Total Capital Project Budget:	\$500,000

Current Status:

RWSA Staff is working to finalize the project's goals and scope and continues to assemble draft design documents for Phase 2. Meetings with ACSA, City, and VDOT Staff will take place in October of 2018 once draft design documents are complete. Once feedback from all stakeholders has been incorporated and all design documents are finalized, a Request for Bids will be issued. Staff anticipates bidding taking place in Fall of 2018 with construction starting in Spring of 2019.

History:

Isolation valves are critical for normal operation of the water distribution system and timely emergency response to water main breaks. Staff continuously reviews results from an ongoing Valve Exercising and Condition Assessment Program. This project will replace the highest-priority valves that are identified during the condition assessment as not operable and not repairable. In addition, valves that are identified in the condition assessment as being inoperable and repairable will be repaired as a part of the project. Phase 1 of the Valve Repair-Replacement Project replaced several inoperable and unrepairable valves in the North Rivanna Finished Water System. Phase 2 will continue replacing inoperable and unrepairable valves in the North Rivanna Finished Water System, but it will also replace valves on the South Rivanna, Crozet, Pantops, and Southern Loop Finished Water Systems. Once these inoperable and unrepairable valves have been replaced, the focus will shift to replacing older isolation valves. Numerous valves in the North Rivanna and South Rivanna Finished Water Systems are 50+ years old, and replacing these valves will enhance the resiliency and reliability of the two systems.

19. MCAWRRF Digester Sludge Storage Improvements

Design Engineer:	TBD
Project Start:	Fall 2018
Project Status:	Preliminary Design
Construction Start:	Spring 2019
Completion:	Fall 2019
Total Capital Project Budget:	\$265,000

Current Status:

Preparation of construction documents will progress this Fall. Implementation of this work will commence after Digester No. 2 and No. 3 are both coated and back in service.

History:

With the second centrifuge installation, additional capacity for storage of digested sludge would provide the Authority operational flexibility it does not currently have. Additionally, the sole sludge storage tank at the MCAWRRF was constructed in 1959 of reinforced concrete and is in need of repairs. This project would convert one of the three existing anaerobic digesters (Digester No. 1) into a sludge storage tank through piping modifications, and would provide redundancy to the existing sludge storage tank so it can be removed from service, cleaned, inspected, and repaired with minimal impact to the existing sludge dewatering operations. The piping configuration would also allow flexibility for the anaerobic digester to be used as either an anaerobic digester or sludge storage tank as needed for operations. The scope of work would include piping modifications, hydraulic improvements, tank safety improvements such as handrail and lights, and structural improvements to the existing sludge storage tank roof.

20. MCAWRRF Aluminum Slide Gate Replacements

Design Engineer:	Hazen and Sawyer
Project Start:	September 2018
Project Status:	Preliminary Design
Construction Start:	March 2019
Completion:	June 2019
Total Capital Project Budget:	\$470,000

Current Status:

Engineering staff is negotiating a scope of work with Hazen and Sawyer for project design support.

History:

Several large aluminum slide gates are located at the influent side of the Moores Creek Pump Station. These gates allow staff to stop or divert flow to perform maintenance activities. After repeated attempts to access and repair the gates, it is now necessary to replace and modify the gate arrangement. The replacement includes new gates for greater flexibility and resiliency as well as significant influent flow bypass pumping. Likewise, there are several gates at the Ultraviolet disinfection facility that leak water, causing a reduced capacity of the facility. Replacement of these gates will restore the process to full capacity.

21. Glenmore Secondary Clarifier Coating

Design Engineer:	SEH
Project Start:	Fall 2018
Project Status:	Preliminary Design
Construction Start:	2019
Completion:	2019
Total Capital Project Budget:	\$50,000
<u>Current Status:</u>	

Engineering staff is negotiating a scope of work with SEH to provide design services for blasting and coating both clarifiers.

History:

The secondary clarifiers at the Glenmore facility were painted over 10-years ago. The clarifier environment is a particularly harsh environment subject to corrosive gasses, grit abrasion and mechanical wear. Based on observations by operations staff, the coating system is in need of replacement to prevent deterioration and failure of the underlying metal superstructure. This project includes the cleaning and full coating of the clarifier.

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

Design Engineer:	Schnabel Engineering
Project Start:	September 2018
Project Status:	Work Authorization Under Negotiation
Construction Start:	2019
Completion:	2021
Total Capital Project Budget:	\$940,000

Current Status:

Design will begin in the fall of 2018 with construction to begin in 2019.

History:

In 1998 the Sugar Hollow Dam underwent a significant upgrade to improve structural stability and spillway capacity. The original metal spillway gates were replaced with a manufactured five-foot-high inflatable rubber dam that is bolted to the existing concrete structure. This rubber dam allows for the normal storage of water in the reservoir with the ability to be lowered during extreme storm events. The rubber dam has an approximate service life of twenty years and is therefore now due for replacement. The aging intake tower structure will be inspected and evaluated. Recommended repairs may include issues relating to the intake gate valves and tower walls, including repair or replacement of intake trash racks, and sealing/grouting of minor concrete wall cracks.

23. Avon to Pantops Water Main (on hold until completion of the Urban Water Master Plan)

Design Engineer:	Michael Baker International (Baker)
Project Start:	August 2017
Project Status:	Preliminary Engineering Report
Construction Start:	2020
Completion:	2022
Total Capital Project Budget:	\$13,000,000

Current Status:

Route alignment determination, hydraulic modeling, and preliminary design were underway. Due to the complicated nature of our finished water systems, it was decided at the August 2018 Board meeting that a more comprehensive approach is warranted and we should complete the Finished Water Master Plan prior to moving forward with final design and construction of the Avon to Pantops Water Main. This project is on hold.

History:

The focus of this project is on the southern half of the urban area water system which is currently served predominantly by the Avon Street and Pantops water storage tanks. The Avon Street tank is hydraulically well connected to the Observatory Water Treatment Plant while the Pantops tank is well connected to the South Rivanna Water Treatment Plant. The hydraulic connectivity between the two tanks, however, is less than desired, creating operational challenges and reduced system flexibility. In 1987, the City and ACSA developed the Southern Loop Agreement which laid out two key phases (with the first being built at the time). The 1987 Agreement and planning efforts will service as a starting point for this current project.

An engineering contract has been negotiated and was approved by the Board of Directors in July 2017.

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

Design Engineer:	Michael Baker International (Baker)
Project Start:	October 2017
Project Status:	Preliminary Engineering Report
Completion:	2021
Total Capital Project Budget:	\$2,295,000

Current Status:

The PER will be completed by November 2018. Easement acquisition negotiations will begin by May 2019.

History:

The approved 50-year Community Water Supply Plan includes the future construction of a raw water line from the South Fork Rivanna Reservoir to the Ragged Mountain Reservoir. This water line will replace the existing Upper Sugar Hollow Pipeline along an alternative

alignment to increase raw water transfer capacity in the Urban Water System. The preliminary route for the water line followed the proposed Route 29 Charlottesville Bypass; however, the Bypass project was suspended by VDOT in 2014, requiring a more detailed routing study for the future water line. This project includes a routing study, preliminary design and preparation of easement documents, as well as acquisition of water line easements along the approved route.

RWSA has negotiated a scope and fee with Michael Baker International for the routing study, preliminary design, plat creation and easement acquisition process. Preliminary design work began in November 2017. Property owners have been contacted to request permission to access properties for topographical surveying which will take place following completion of the PER. A recommendation for a tentative final alignment was presented at a community information meeting in June 2018.

25. Urban Water Demand and Safe Yield Study

Design Engineer:	Hazen and Sawyer
Project Start:	August 2018
Project Status:	0% complete
Construction Start:	N/A
Completion:	June 2019
Total Capital Project Budget:	\$154,000

Current Status:

A project kick-off meeting is anticipated this month.

History:

The City of Charlottesville, Albemarle County Service Authority, and RWSA entered into the Ragged Mountain Dam Project Agreement in 2012. This Agreement included provisions to monitor the bathymetric capacity of the Urban water reservoirs as well as a requirement to conduct reoccurring demand analysis, demand forecasting and safe yield evaluations. This study will evaluate and calculate current and future demands and present safe yield. Per the project Agreement, these analyses shall be completed by calendar year 2020.

26. Urban Finished Water Infrastructure Master Plan

Design Engineer:	Michael Baker International (Baker)
Project Start:	August 2018
Project Status:	0% complete
Construction Start:	N/A
Completion:	November 2019
Total Capital Project Budget:	\$253,000

Current Status:

A project kick-off meeting is anticipated this month.

History:

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

27. South Rivanna River Crossing and North Rivanna Transmission Main

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2020
Project Status:	Planning
Construction Start:	2021
Completion:	2023
Total Capital Project Budget:	\$5,340,000

Current Status:

An update to the Airport Zone Study Report was completed in summer of 2018, confirming the need for and timing of the river crossing and transmission main. Design of the project will begin in summer 2020.

History:

RWSA has previously identified through master planning that a 24-inch water main will be needed from the South Rivanna Water Treatment Plant (SRWTP) to Hollymead Town Center to meet future water demands. Two segments of this water main were constructed as part of the VDOT Rt. 20 Solutions projects, including approximately 10,000 LF of 24-inch water main along Rt. 29 and 600 LF of 24-inch water main along the new Berkmar Drive Extension, behind the Kohl's department store. To complete the connection between the SRWTP and the Airport Road Pump Station Site, RWSA plans to construct a new river crossing at the South Fork Rivanna River and two "gap" sections of 24-inch water main between the already completed sections. Much of the new water main route is within VDOT right-of-way; however, acquisition of right-of-way will be required at the river crossing and on the Kohl's Property at Hollymead Town Center.

28. Route 29 Pump Station

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2019
Project Status:	Planning
Construction Start:	2021
Completion:	2022
Total Capital Project Budget:	\$2,300,000

Current Status:

Design of the pump station will begin in the summer of 2019.

History:

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

29. South Rivanna Hydropower Plant Decommissioning

Consultant:	Gomez and Sullivan
Project Start:	October 2016
Project Status:	Exemption Surrender Process – Phase 2 Underway
Construction Start:	2019
Completion:	2020
Total Capital Project Budget:	\$1,000,000

Current Status:

A consultation document was provided to local regulatory agencies and a meeting was held on May 21, 2018 with the agencies to discuss the decommissioning process. Minor comments were provided by those agencies and development of the surrender application for submission to FERC is underway. As part of the application, a draft decommissioning plan has been developed and is being reviewed by RWSA. Submission of the application to FERC is anticipated for October 2018.

History:

RWSA constructed a hydropower plant at the South Fork Rivanna Dam in 1987. Power generation at the plant was limited for a number of years due to various mechanical issues. In December 2011, RWSA retained HDR to perform a mechanical and electrical equipment assessment and to provide recommendations for capital expenditures and continued operation. This assessment identified the need to perform a number of mechanical and electrical modifications to improve operation of the hydropower plant. On June 16, 2013, while the plant was down for testing associated with repairs to the speed reducer and generator, the powerhouse flooded during a heavy rainfall event. A post-flood inspection indicated that the rising water damaged the electrical equipment. In addition to electrical system issues, the turbine blades were “stuck” and inoperable prior to the flood event. Prior to beginning any rehabilitation work on the hydropower plant, it was determined that a feasibility study should be performed that reviewed previous recommendations and took into account interaction with the Federal Energy Regulatory Commission (FERC) to determine if it was cost effective for RWSA to rehabilitate the facility. The feasibility study was conducted by Gomez and Sullivan and concluded that rehabilitation of the facility would most likely not provide a return on investment based on current market

conditions. Staff recommended that RWSA proceed with surrendering the exemption to licensure with FERC and decommission the facility. During the meeting on October 25, 2016, the Board of Directors agreed with the recommendation and staff began to proceed with the surrender process.

Work associated with the first phase of the exemption surrender process with Gomez and Sullivan and Van Ness Feldman was completed confirming with FERC what the next steps in the surrender process would include. A work authorization with Gomez and Sullivan for Phase 2 of the exemption surrender process was finalized in August 2017 and includes tasks to manage the local regulatory agencies consultation process and development of the surrender application and decommissioning plan.

30. Security Enhancements

Design Engineer:	TBD
Project Start:	July 2018
Project Status:	Planning
Construction Start:	2019
Completion:	2021
Total Capital Project Budget:	\$2,400,000

Current Status:

Staff has begun coordination of an upcoming, preliminary meeting among various RWSA personnel. The meeting will be based upon the information contained in the final 2018 Risk Assessment (RA) Report, and the goal of the meeting is to develop an internal Security Project Team. This team will help RWSA prioritize the implementation of the RA's recommendations based upon their applicability to RWSA's raw and finished water systems, wastewater system, and internal capabilities. As the project's scope of work is refined through the internal Project Team, a consultant will be selected to provide project assistance. As such, a Work Authorization will be developed by RWSA staff to begin the design process.

History:

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

31. Upper Schenks Branch Interceptor, Phase II

Design Engineer:	Frazier Engineering, P.A.
Construction Contractor:	TBD
Construction Start:	TBD
Percent Complete:	%
Base Construction Contract + Change Orders to Date = Current Value:	\$
Expected Completion Date:	TBD
Total Capital Project Budget:	\$4,700,000

Current Status:

Discussions are underway to determine an alignment for the replacement sewer line, generally located between the McIntire Recycling Center and Preston Avenue along McIntire Road.

History:

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

The remaining sections, which are considered the Upper Schenks Branch Interceptor, were split into 2 phases. The first phase is to be located within City-owned Schenks Greenway adjacent to McIntire Road and the second phase is to be located on County property (baseball field and County Office Building) adjacent to McIntire Road. Both phases are included in a DEQ Consent Order. As a result of discussions between RWSA and DEQ, DEQ approved a milestone schedule for completing the Phase 1 section by March 31, 2017 and set in “abeyance” a schedule for completing work on Phase 2 as a result of complications associated with the execution of the necessary easements. Phase 2, preliminary construction drawings and specifications have been developed. No new agreements concerning right-of-way have been reported to RWSA regarding Phase 2. No bidding or construction can take place until one of the following two options occur: (1) County grants RWSA a suitable easement on County property; or (2) City grants RWSA permission and a street cut permit to install the sewer directly under McIntire Road.

32. Engineering and Administration Building

Design Engineer:	Dewberry
Project Start:	April 2018
Project Status:	Space Needs Analysis
Construction Start:	2021
Completion:	2023
Total Capital Project Budget:	\$3,000,000

Current Status:

An assessment of space needs for the departments housed within the existing Administration Building and Engineering Building has been completed and layouts for an expanded Administration Building have been developed along with a draft final report. The report and layouts are being reviewed by a committee at RWSA to provide any additional comments before the documents are finalized.

History:

RWSA currently has its administrative headquarters in two buildings on the grounds of the MCAWRRF. The two-story Administration Building was constructed in the early 1980's and houses offices, IT server space, meeting space, and a full-service laboratory. The second building is a series of four trailers installed in between 2003-2010 that house the engineering department. The Administration Building is located at the head of the wastewater treatment plant and is surrounded by underground piping and process functions that may conflict with existing parking and/or the building in a future expansion. There is currently a need to house additional staff; increase office and meeting space; plan for the replacement of the trailers; bring IT server workrooms to modern standards; and provide classroom space for education outreach. Staff has procured a consultant to perform a space needs analysis and provide recommendations on how to address future building needs.

33. Asset Management Plan

Design Engineer:	GHD, Inc.
Project Start:	July 2018
Project Status:	Work Authorization Under Negotiation
Completion:	2020
Total Capital Project Budget:	\$500,000

Current Status:

A work authorization and Agreement has been finalized with GHD to perform the first phase of the process which includes the development of an asset management framework and implementation roadmap. An internal Asset Management Project Team is scheduled for September 18, 2018 and a kick-off meeting with GHD is scheduled for October 12, 2018.

History:

Asset management is the practice of managing our infrastructure to minimize the total cost of owning and operating these assets while providing desired service levels. In doing so,

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

MEMORANDUM

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

FROM: DAVE TUNGATE, DIRECTOR OF OPERATIONS

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: OPERATIONS REPORT FOR AUGUST 2018

DATE: SEPTEMBER 25, 2018

WATER OPERATIONS:

The average daily/monthly total water distributed for August 2018 was as follows:

<i>Water Treatment Plant</i>	<i>Average Daily Production (MGD)</i>	<i>Total Monthly Production (MG)</i>	<i>Maximum Daily Production in the Month (MGD)</i>
Observatory	1.41	43.81	---
South Rivanna	8.31	257.72	---
North Rivanna	<u>0.43</u>	<u>13.34</u>	---
<i>Urban Total</i>	10.15	314.87	12.00 (8/28/18)
Crozet	0.588	18.23	0.780 (8/10/18)
Scottsville	<u>0.048</u>	<u>1.50</u>	0.074 (8/06/18)
<i>RWSA Total</i>	10.79	334.60	---

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

Status of Reservoirs (as of September 19, 2018):

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

WASTEWATER OPERATIONS:

All RWSA Water Resource Recovery Facilities (WRRFs) were in regulatory compliance with their effluent limitations during the month of August 2018. Performance of the WRRFs in August was as follows compared to the respective VADEQ permit limits:

WRRF	Average Daily Effluent Flow (mgd)	Average CBOD₅ (ppm)		Average Total Suspended Solids (ppm)		Average Ammonia (ppm)	
		RESULT	LIMIT	RESULT	LIMIT	RESULT	LIMIT
Moore's Creek	11.5	1.7	10	0.1	22	0.08	2.0
Glenmore	0.138	2.6	15	3.0	30	0.12	NL
Scottsville	0.063	1.4	25	2.2	30	0.26	NL
Stone Robinson	0.001	NR	30	NR	30	NR	NL

NR = Not Required

NL = No Limit

<QL: Less than analytical method quantitative level (2 ppm for CBOD, and 1 ppm for TSS) is reported as zero.

Nutrient discharges at the Moore's Creek AWRRF were as follows for August 2018:

State Annual Allocation (lb./yr.)	Average Monthly Allocation (lb./mo.)*	Moore's Creek Discharge (lb./mo.)	Performance as % of Average Allocation*
Nitrogen	282,994	4645	20%
Phosphorous	18,525	374	24%

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

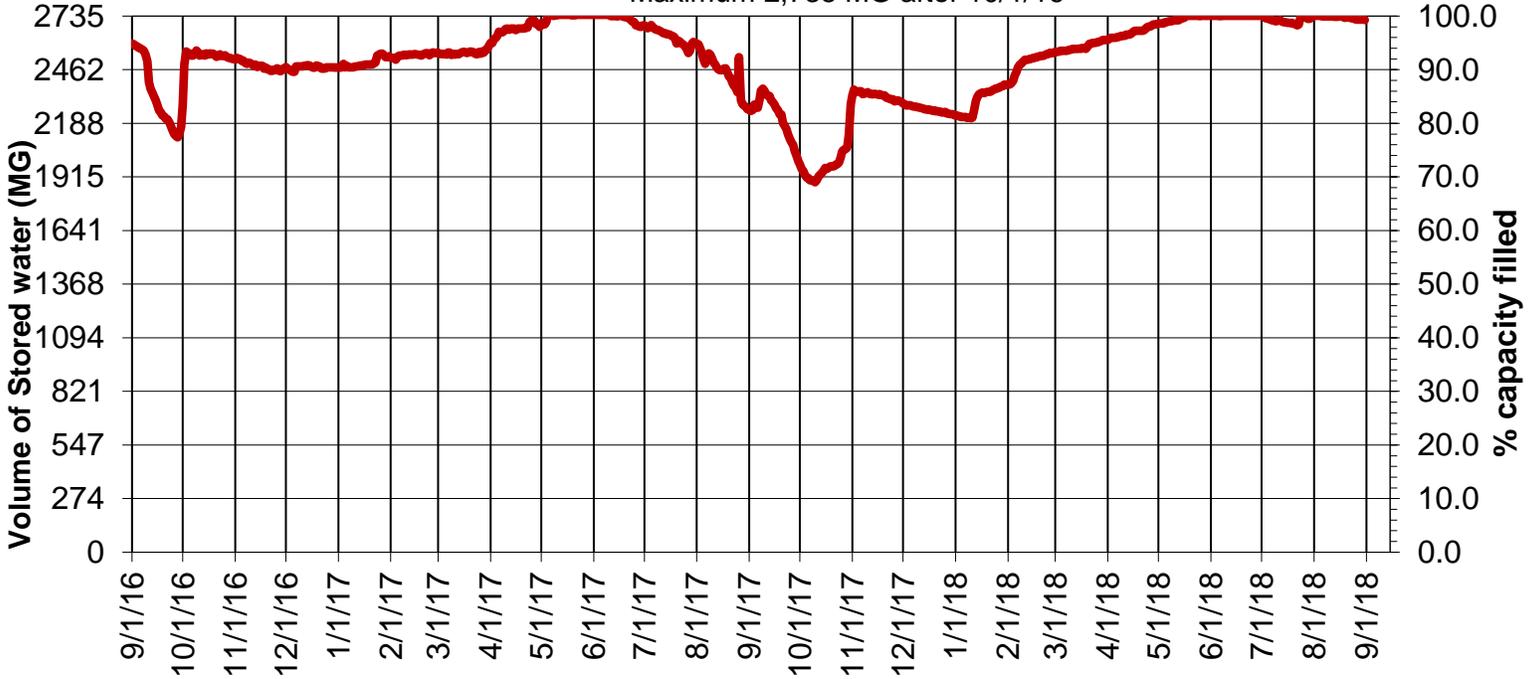
WATER AND WASTEWATER DATA:

The following graphs are provided for review:

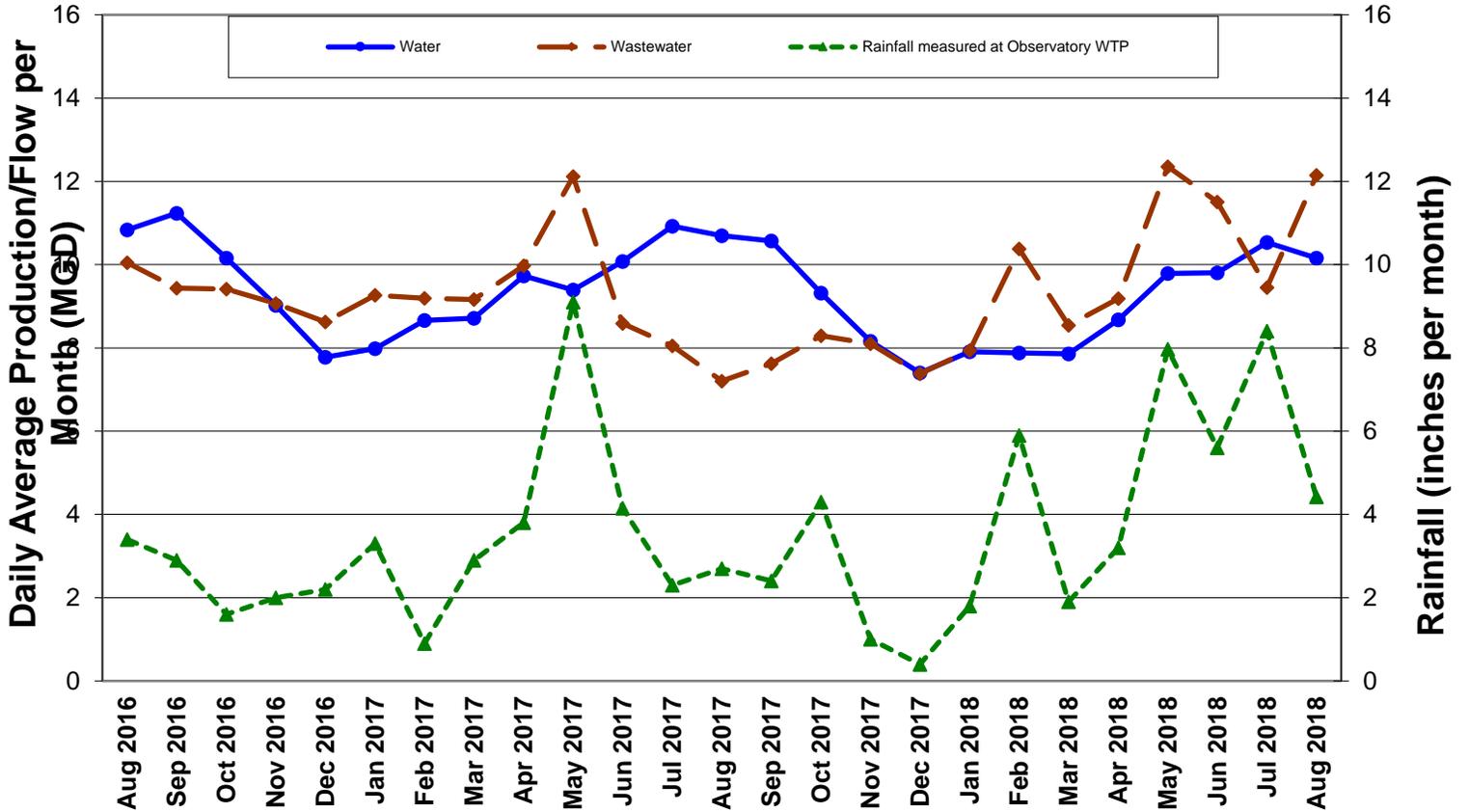
- Usable Urban Reservoir Water Storage
- Urban Water and Wastewater Flows versus Rainfall

Usable Urban Reservoir Water Storage

Maximum 2,735 MG after 10/1/16



Urban Water and Wastewater Flows versus Rainfall



MEMORANDUM

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

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

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

**SUBJECT: CAPITAL IMPROVEMENT PLAN AMENDMENT AND
CONSTRUCTION CONTRACT AWARD - CROZET WATER
TREATMENT PLANT – EXPANSION AND REHABILITATION**

DATE: SEPTEMBER 25, 2018

The Crozet water treatment system is currently permitted and rated to supply up to 1.0 million gallons per day (mgd) of drinking water to the distribution system. Over the past several years, average day usage of water has increased steadily, with maximum day demand approaching plant capacity on multiple occasions.

In an effort to promptly address the current need for additional water capacity at the plant, the RWSA hired Short Elliot Hendrickson (SEH) to complete a Preliminary Engineering Report (PER) to analyze what plant and capacity upgrades could be achieved at the site. SEH completed the PER and concluded that the current treatment plant can be upgraded, and the capacity increased through installation of newer, and more technologically advanced equipment within the existing footprint of the filter plant. By modernizing the outdated equipment within these treatment systems, the plant discharge capacity can be improved to 2.0 mgd.

In addition to providing more plant capacity, this project will also upgrade the building and other plant systems that have not significantly changed since the original 1960s construction. Proposed upgrade work will include several treatment plant system improvements including: general building rehabilitation, filter improvements, sedimentation basin improvements, chemical feed improvements, flocculator expansion, alum storage/feed improvements, and plant waste sludge handling, storage and removal improvements.

Construction bids for the project were opened on September 6, 2018, and four bids were received ranging from \$7,170,000 to \$7,693,000. The apparent low bidder was Orders Construction Company, Inc. of St. Albans, WV with a total bid of \$7,170,000. Since the apparent low bid exceeded the total Capital Budget for the project, negotiations were initiated with the contractor. Through a review of the contract documents we determined that the painting requirements for the project needed to be clarified, which will result in a cost reduction of \$286,000. This cost reduction will be included in Change Order #1. If the Board approves the award of this contract to Orders

Construction Company, Inc., the Capital Improvement Program will need to be increased from \$6,900,000 to \$8,500,000 to provide adequate project funding to complete the work.

SEH has reviewed the bid documents submitted by Orders Construction Company, Inc. and verified that the bid and attached documents are both responsive and responsible. SEH recommends awarding a construction contract for \$7,170,000 to Orders Construction Company, Inc..

Board Action Requested:

Staff recommends that the Board of Directors authorize award of the construction contract for the Crozet Water Treatment Plant – Expansion and Rehabilitation Project to Orders Construction Company, Inc. in the amount of \$7,170,000, and execution of any Change Orders when necessary for the completion of this project up to 10% of the awarded contract amount.

Staff also requests the Board of Directors to amend the Capital Improvement Plan for Fiscal Years 2019 – 2023 to increase the total capital budget for the Crozet Water Treatment Plant Expansion Project by \$1,600,000 to a revised total budget of \$8,500,000.



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MEMORANDUM

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

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

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

**SUBJECT: CAPITAL IMPROVEMENT PLAN AMENDMENT AND
CONSTRUCTION WORK AUTHORIZATION – SUGAR
HOLLOW TO RAGGED MOUNTAIN RESERVOIR TRANSFER
FLOW METER**

DATE: SEPTEMBER 25, 2018

Historically, the transfer of raw water between the Sugar Hollow and Ragged Mountain Reservoirs has been regulated by a manual gate valve located near the Sugar Hollow Dam. This requires RWSA staff to travel to the Sugar Hollow Dam to manually actuate the valve. In addition, there is currently no flow meter equipment in place to monitor and record flow transferred between the two reservoirs. To rectify these issues, this project proposes to install a new 18-inch flow meter, a modulating control valve, and new power and SCADA control wiring, to provide the means to regulate the flow between the two reservoirs remotely at the Observatory WTP. Additional work has been added to this project including replacement of an existing, original gate valve at the site, demolition of four existing small utility structures and sheds that have not been used in many years, demolition of the existing Gatekeeper's House, and a separate control valve vault that will optimize the accuracy of the new flow meter by creating adequate separation distance between the meter and modulating control valve.

As part of the site demolition work, all existing above-ground structures and facilities will be completely removed where feasible in order to allow for a more beneficial use of the property. Extensions of above-ground structures and facilities, such as building footers and foundations, are included. This is an expansion of the project's original scope, which did not include the demolition of certain features and structures on the site. As such, the revised total not to exceed cost estimate of \$354,904.79 provided by the Contractor (G.L. Howard) exceeds the current Capital Improvement Plan (CIP) Budget (\$315,000). This represents an increase of \$68,241 to the CIP Budget, including a 10% construction contingency.

In May 2018, the Executive Director executed a Work Authorization with G.L. Howard which allowed them to procure materials with long lead times (up to 14 weeks). This Work Authorization was not presented to the Board, as its total value was \$41,000 (less than \$100,000). Since the total scope of the project (including all labor) has been finalized, a total Construction Work Authorization not to exceed value of \$354,904.79 has been determined. This value includes the \$41,000 for the procurement of long lead materials. If the Board of Directors approves this work, a second Construction Work Authorization in the amount of \$313,904.79 will be issued to G.L. Howard, which accounts for the remaining materials and labor required for the project beyond the \$41,000 that was already authorized.

Board Action Requested:

Staff requests that the Board of Directors authorize the Executive Director to execute a Construction Work Authorization with G.L. Howard for a total not to exceed value of \$313,904.79 for the Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter Project, and any Change Orders to the Construction Work Authorization, only when necessary for completion of this project, provided the total amount of any Change Orders does not exceed 10% of the total Construction Work Authorization Value.

Staff also requests the Board of Directors amend the Capital Improvement Plan for Fiscal Years 2019 - 2023 to include a budget increase for the Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter Project of \$68,241 (includes 10% construction contingency) in Fiscal Year 2019. This amendment would bring the total budget for the Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter Project to \$383,241.

Overview of Local & National Utility Projects



including the

Water Infrastructure Finance and Innovation Act
(WIFIA) of 2014

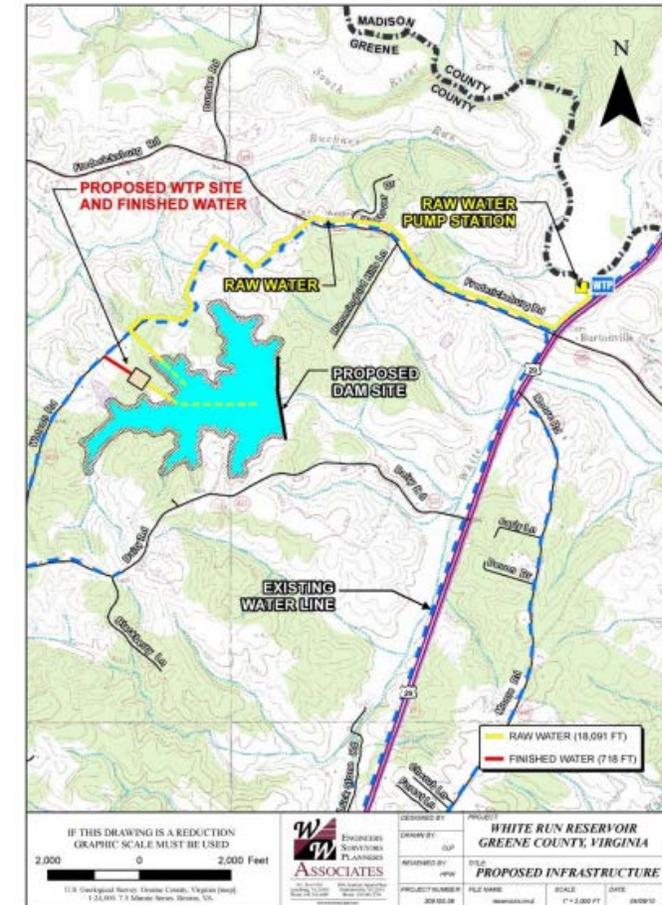
BILL MAWYER, EXECUTIVE DIRECTOR

SEPTEMBER 25, 2018

Va Projects – Greene County

White Run Reservoir Project

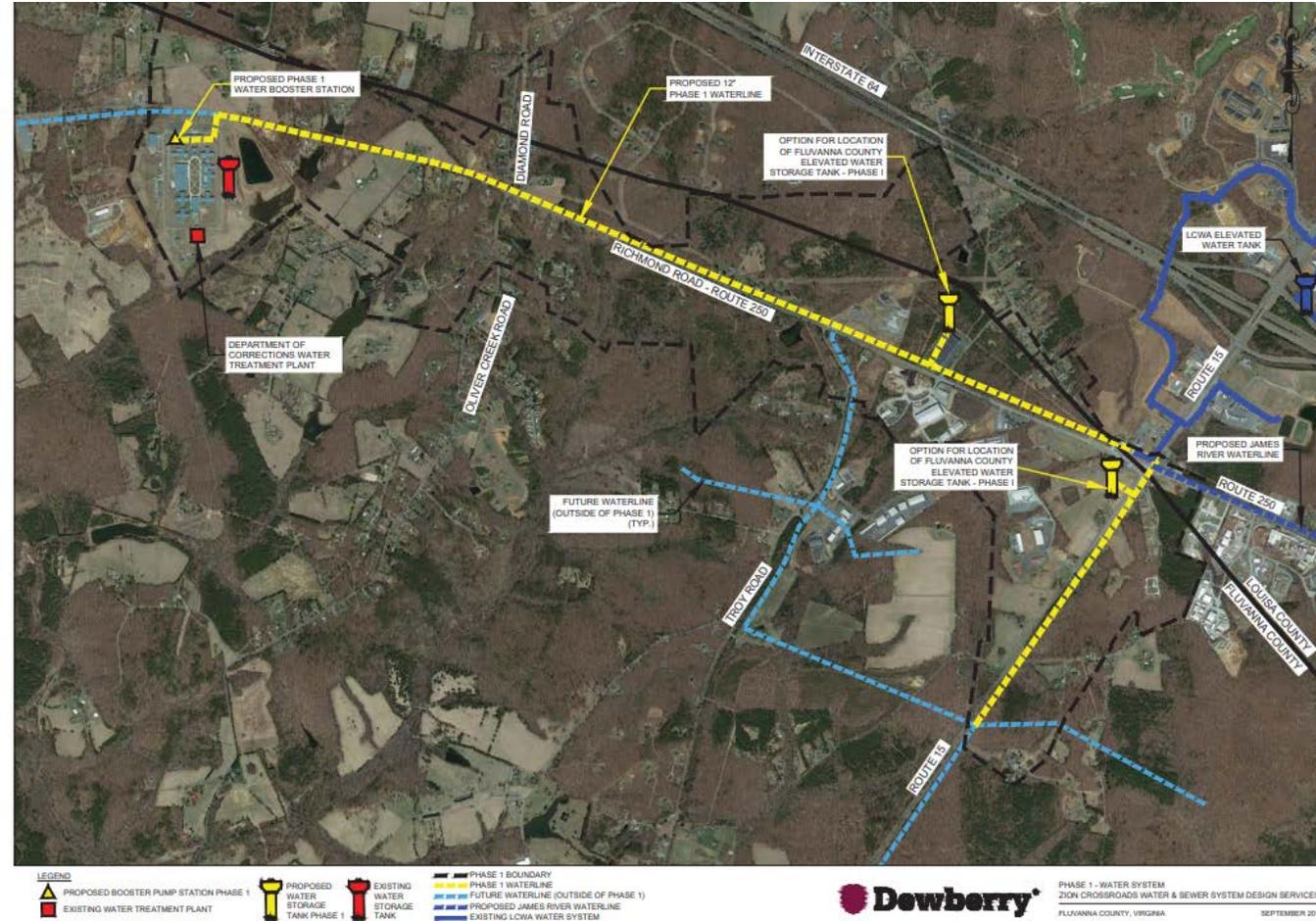
- The White Run Reservoir Project's goal is to supply Greene County and the Town of Stanardsville with a reliable water supply into the year 2050.
- This project proposes to build a 75-foot-tall and 1,460-foot-long dam along Whites Run and would inundate 125 acres; a 900 million gallon storage capacity.
- Current Status: the County is moving forward with the site specific design and engineering. This requires the design of the Rapidan River intake, raw water pipe to the reservoir, water treatment plant and the earthen dam. The County is also exploring and negotiating the costs to provide the Stream and Wetland credits required by Federal and State law.
- Project Completion: 2019 - 2020
- Total Project Estimate: \$45 - \$65 million



Va Projects – Fluvanna County

Zion Crossroads Water and Sewer System

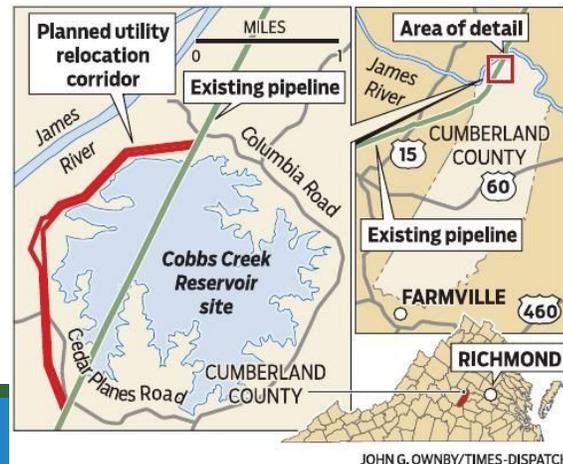
- The project consists of:
 - 22,921 linear feet of 12" waterline
 - 9,825 linear feet of 10" force main
 - 12,412 linear feet of 8" force main
- Water Booster Station and Wastewater Pump Station: \$1 M
- Water and Sewer System: \$9,300,000
- Bids due October 2, 2018



Va Projects – Henrico County

Cobbs Creek Reservoir

- 14.8 billion-gallon reservoir located in Cumberland County
- 1800 acres; 1100 acre pool
- Water will be pumped from the James River into the reservoir in the wetter months and released into the James River in the drier months
- 47 mgd safe yield
- Completion: June 2017 - December 2021
- \$280 million



Va Projects – Hampton Roads

SWIFT Research Center

- Hampton Roads Sanitation District (HRSD)
- Sustainable Water Initiative for Tomorrow
 - Produces up to 1 mgd of drinking quality water from wastewater using advanced treatment processes
 - Then treated to match existing groundwater and used to recharge the Potomac Aquifer
 - Goal of expanding to 120 mgd by 2030
- Completed: May 18, 2018
- \$27 million





EPA's WIFIA Program

- The Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) established the WIFIA program, a federal credit program administered by Environmental Protection Agency (EPA) for eligible water and wastewater infrastructure projects.
- The WIFIA program's mission is to:
 - *Accelerate investment in our nation's water and wastewater infrastructure by providing long-term, low-cost supplemental credit assistance under customized terms to creditworthy water and wastewater projects of national and regional significance.*
- Eligible borrowers are:
 - Local, state, tribal, and federal government entities
 - Partnerships and joint ventures
 - Corporations and trusts
 - Clean Water and Drinking Water State Revolving Fund (SRF) programs

FY 2017 WIFIA Projects

Important Program Features:

- \$20 million: Minimum project size for large communities.
- \$5 million: Minimum project size for small communities (population of 25,000 or less).
- 49%: Maximum portion of eligible project costs that WIFIA can fund.
- Total federal assistance may not exceed 80% of a project's eligible costs.
- 35 years: Maximum final maturity date from substantial completion.
- 5 years: Maximum time that repayment may be deferred after substantial completion of the project.
- Interest rate will be equal to or greater than the U.S. Treasury rate of a similar maturity at the date of closing.
- Projects must be creditworthy and have a dedicated source of revenue.

\$2.3B
WIFIA Loans
\$5.1B
Project Costs



- | | | |
|---|---|--|
| 1. King County
Georgetown WWTS | 5. City of San Diego
Pure Water San Diego | 9. City of Oak Ridge
Water Treatment Plant |
| 2. San Francisco PUC
Biosolids Digester Facilities | 6. City of Omaha
Saddle Creek RTB | 10. Maine Water Co.
Saco River Treatment Plant |
| 3. City of Morro Bay
Water Reclamation | 7. Metro St. Louis Sewer District
Sanitary Tunnel & Relief Projects | 11. City of Baltimore
Capital Improvements |
| 4. Orange Co. Water District
Groundwater Replenishment System | 8. Indiana Finance Authority
FY2017 SRF Program | 12. Miami-Dade County
Ocean Outfall Reduction |

Selected Projects & Program Features



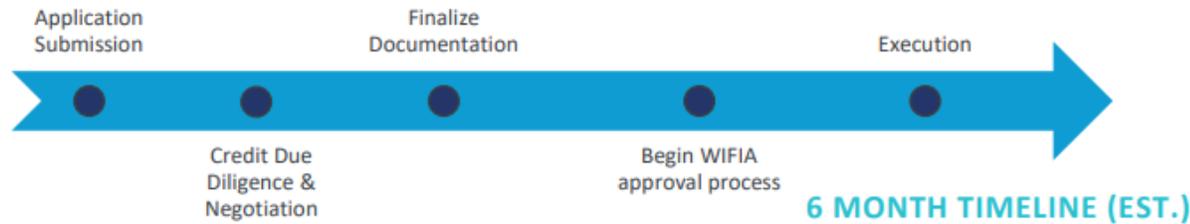
Project Name	Borrower	Project Description	Requested Loan \$	Total Project \$
Georgetown Wet Weather Treatment Station	King County, WA	Construction of a new Wet Weather Treatment Station using high-rate clarification, conveyance pipelines, and outfall structure to treat and convey combined sewer overflows prior to being discharged into the Lower Duwamish Waterway.	\$134.5 m	\$275 m
Southeast Water Pollution Control Plant Biosolids Digester Facilities Project	San Francisco Public Utilities Commission, CA	Replacement of the outdated existing 60-year old solids treatment facilities with infrastructure that produces higher-quality Class A biosolids, captures and treats odors more effectively, and maximizes biogas utilization and energy recovery.	\$699 m	\$1.4 b
Water Reclamation Facility Project	City of Morro Bay, CA	Replacement of the 62-year-old Morro Bay-Cayucos Wastewater Treatment Plant with a new water reclamation facility.	\$82 m	\$167 m
Groundwater Replenishment System Final Expansion	Orange County Water District, CA	Expansion of the existing water recycling plant from 100 millions of gallons per day to 130 millions of gallons per day by using treated wastewater from the Orange County Sanitation District Plant #2.	\$135 m	\$282 m
Pure Water San Diego	City of San Diego, CA	Construction of Phase 1-North City of San Diego's multi-year Pure Water program to achieve 30 millions of gallons per day of purified water production by 2021.	\$492 m	\$1.2 b
Saddle Creek Combined Sewer Overflow Retention Treatment Basin	City of Omaha, NE	Construction of a new retention treatment basin to address combined sewer overflows in the Saddle Creek Basin.	\$69.7 m	\$142.2 m
Deer Creek Sanitary Tunnel and Sanitary Relief	Metropolitan St. Louis Sewer District, MO	Construction of a pump station at the downstream end of a sanitary sewage storage tunnel and approximately 15,900 feet of 8-inch to 54-inch sanitary sewer and slip-line 1,700 feet of sanitary sewer and appurtenances to address sanitary sewer overflows.	\$43 m	\$88 m
Indiana Finance Authority FY 2017	Indiana Finance Authority, IN	Expand the reach of its Clean Water and Drinking Water State Revolving Fund programs and fund dozens of additional projects in communities across the state.	\$436 m	\$890 m
Water Treatment Plant Design and Construction	City of Oak Ridge, TN	Design and construction of a new 16 millions of gallons per day membrane treatment plant and associated assets to replace the existing 80-year old conventional treatment plant, which is currently at capacity and beyond its useful life.	\$22 m	\$45 m
Saco River Water Treatment Facility	Maine Water Company, ME	Construction of a new 20 millions of gallons per day water treatment facility to replace the existing facility that has been providing service to the communities of Biddeford, Saco, Old Orchard Beach, and Scarborough, Maine since 1884.	\$25 m	\$50 m
Comprehensive Infrastructure Repair, Rehabilitation and Replacement Program	Baltimore City Department of Public Works, MD	A bundled set of projects to repair, rehabilitate, replace, and upgrade the overall water system. Encompasses wastewater collection and treatment, water treatment and distribution, and stormwater management throughout the City of Baltimore.	\$200 m	\$573 m
Ocean Outfall Discharge Reduction and Resiliency Enhancement Project	Miami-Dade County, FL	Construction of new wells at three wastewater treatment plants to allow for redirecting existing effluent discharges from the ocean outfalls to injection wells.	\$79 m	\$160 m



The WIFIA program accelerates investment in our nation's water infrastructure by providing long-term, low-cost supplemental loans for regionally and nationally significant projects. The WIFIA program was established by the Water Infrastructure Finance and Innovation Act of 2014.



APPLICATION REVIEW PROCESS



A prospective borrower should submit a complete application within one year of invitation to apply for due diligence to begin.

CREDIT DUE DILIGENCE

EPA will review:

- Terms, conditions, financial structure, and security features.
- Dedicated revenue source(s) securing the financing and financial assumptions of the proposed project.
- Borrower's financial soundness and credit history and outlook.
- Strength of the business model and project economics.

TECHNICAL DUE DILIGENCE

EPA will review:

- Appropriate technology and technical feasibility.
- Technical risk factors.
- Construction cost and schedule estimate assessment.
- Federal requirement compliance and procurement documents.
- Operation and maintenance plan.
- Systems condition assessment.

LEGAL DUE DILIGENCE

EPA will review and negotiate:

- Legal structure of proposed security.
- Term sheet and loan agreement.

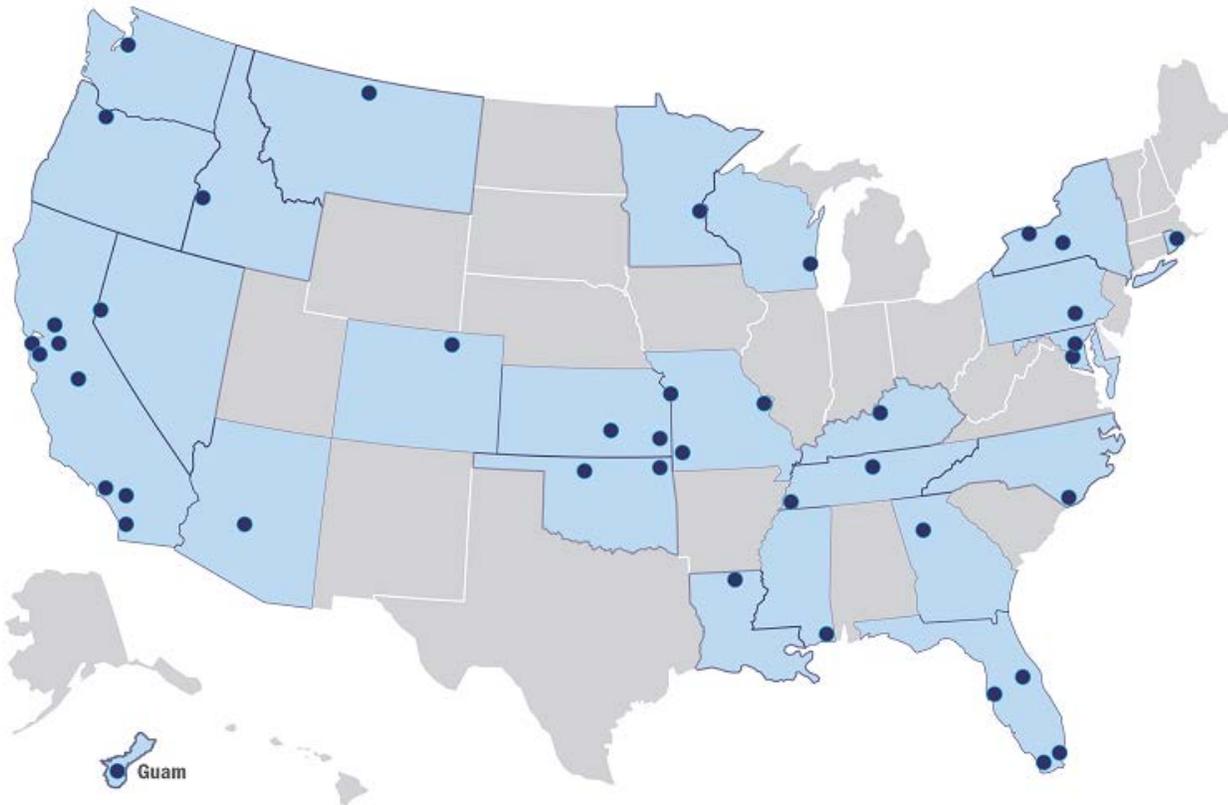


Application Fee:

- \$100,000 for large communities
- \$25,000 for small communities
- Due with application submission
- Credited to credit processing fee

Credit Processing Fee:

- Reimburses EPA for its financial, technical, and legal advisory costs
- Estimated range of \$250,000 - \$500,000
- Varies with project complexity and risk
- Due upon execution of loan



In 2018, 62 letters of interest, collectively requesting \$9.1 billion in loans, from a wide range of prospective borrowers were received.

Compared to 2017, where the WIFIA program received 43 letters of interest from prospective borrowers for water infrastructure projects across the country. In total, prospective borrowers requested \$6 billion in WIFIA loans.

Number of Projects: 62
Total Loan Amount Requested: \$9.1 billion
Total Project Investment: \$19.9 billion

WIFIA 2018 Letters of Interest



Cape Town, South Africa Water Crisis

- Drought began in 2015
- As of October 1, 2018, the water restrictions will be lowered:
 - An increase in the personal water use limit from 13.2 gallons per person per day to 18.5 gallons per person per day
 - A resetting of the overall City water usage target from 118.9 million gallons per day to 132.1 million gallons per day
- Average reservoir capacity is 70%, as of 17-Sept-18

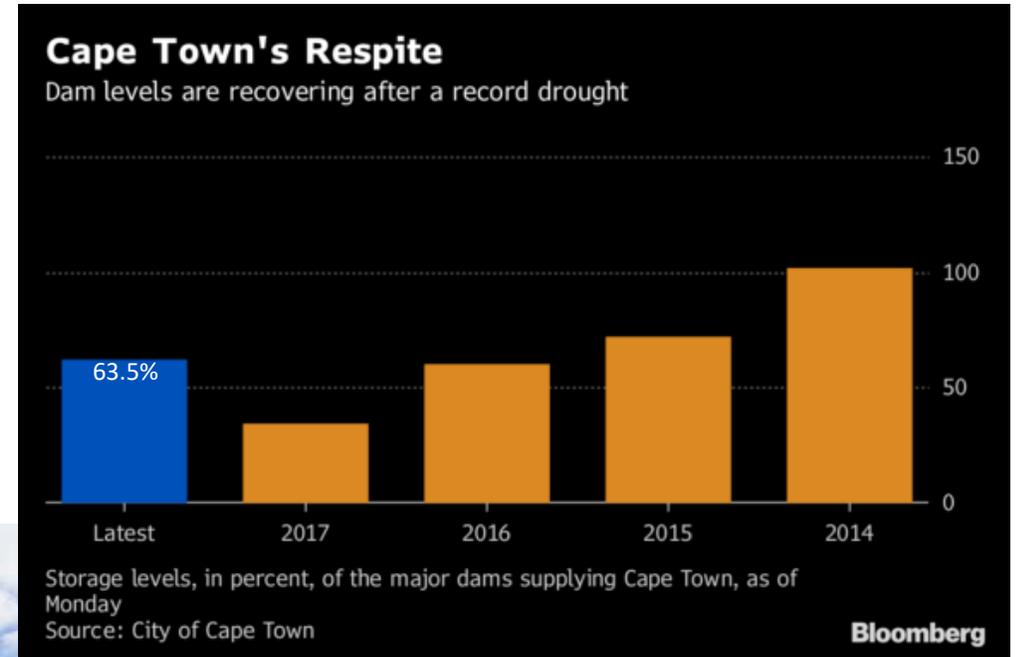


Chart Date: 28-Aug-18





Questions?
