



Rivanna Water and Sewer Authority

Board of Directors Meeting

January 22, 2019

2:15pm



695 MOORES CREEK LANE
CHARLOTTESVILLE, VA 22902-9016
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BOARD OF DIRECTORS

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

DATE: January 22, 2019

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 December 11, 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. Approval of Capital Improvement Plan Amendment and Contract Award – Valve Repair-Replacement (Phase 2) - Garney Companies*
 - e. Approval of Term Contract for Safety and Industrial Hygiene Services - Circle Safety and Health Consultants*
- 8. OTHER BUSINESS**
 - a. Presentation: Value Engineering for CIP Projects; Bill Mawyer, Executive Director*
- 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)



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RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
December 11, 2018

A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was held on Tuesday, December 11, 2018 at 2:15 p.m. in the 2nd floor conference room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Mike Gaffney, Mike Murphy, Liz Palmer, Kathy Galvin, Jeff Richardson, Lauren Hildebrand, and Gary O'Connell.

Board Members Absent: None.

Staff Present: Bill Mawyer, Katie McIlwee, Phil McKalips, David Rhoades, Michelle Simpson, Liz Coleman, Lonnie Wood, Jennifer Whitaker, Bob Clouser, Scott Schiller, Andrea Terry, Austin Marrs, Dave Tungate, and Tim Castillo.

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

1. CALL TO ORDER

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

2. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on November 13, 2018

There were no changes to the minutes presented.

Dr. Palmer moved to approve the RWSA Board meeting minutes of November 13, 2018.
Mr. O'Connell seconded the motion, which passed 7-0.

3. RECOGNITION

a. Resolution of Appreciation for Robert Clouser, Water Operator

Mr. Gaffney read the following resolution into the record:

WHEREAS, Mr. Clouser has served in a number of positions, most recently as a Water Operator Class 2 in the Observatory Water Treatment Plant, for the Rivanna Water and Sewer Authority since November, 1997; and

WHEREAS, over the same period in excess of 21 years, Mr. Clouser has demonstrated leadership in his field and has been a valuable resource to the Authority and its employees; and

WHEREAS, Mr. Clouser's understanding of the Authority's operation and dedication and loyalty to the Authority has positively impacted the Authority, its customers and its employees; and

WHEREAS, the Rivanna Water and Sewer Authority Board of Directors is most grateful for the professional and personal contributions Mr. Clouser has provided to the Rivanna Water and Sewer Authority and to its customers and its employees; and

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

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

Dr. Palmer moved to approve the resolution for Mr. Clouser as presented. Ms. Galvin seconded the motion, which passed 7-0.

Mr. Mawyer also recognized Duane Houchens, who recently passed the state exam to move from a Wastewater Operator Class 4 to Class 3.

4. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer reported that work at Birdwood was getting underway with temporary erosion control measures that needed to be put in place before land was disturbed, as well as building temporary access entrances and materials staging areas. He stated that staff was managing that effort, and Rivanna expected pipe to start going in the ground in late January or February. Mr. Mawyer noted that RWSA was scheduled, along with the UVA Foundation staff, to meet with Bellair residents every month as part of an ongoing update meeting to keep them informed. He stated that the pictures presented were of the Sugar Hollow caretakers house and some of the other outbuildings that were there and had now been demolished. Mr. Mawyer noted that this was underway and was part of the project to replace the transfer meter that measured how much water they were conveying from Sugar Hollow to Ragged Mountain Reservoir, and the project was being managed by Scott Schiller and Austin Marrs.

Mr. Mawyer reported that as part of community outreach, RWSA offered assistance to the Louisa County Water Authority when they experienced water challenges the week of December 3rd and put them in contact with Cornwell Engineering, one of Rivanna's consultants. He stated that Pam Baughman of the Louisa Authority indicated that they did not determine what the odor or gas was that had caused the issue, but they had done a sewer line assessment as well as water

87 testing -- which ultimately showed that the water was fine. He noted that the area around the
88 Town of Louisa was where they had the evacuation, and he pointed out the location of the Glen
89 Mary Shopping Center where there were concerns about gas in the water.
90

91 Mr. Mawyer reported that staff continued to have outreach with St. Anne's Belfield and UVA, as
92 well as the Thomas Jefferson Soil and Water Conservation District.
93

94 He mentioned that Katie McIlwee, along with City and ACSA staff, had worked on "Imagine a
95 Day Without Water" that the three entities have sponsored every year. He stated that there had
96 been an awards ceremony several weeks ago to honor the winners of the poster contest
97 associated with that event, and David Tungate's son Max's teacher was awarded, along with two
98 other teachers.
99

100 **5. ITEMS FROM THE PUBLIC**

101 There were no items from the public.
102

103 **6. RESPONSES TO PUBLIC COMMENTS**

104 There were no responses to public comments.
105

106 **7. CONSENT AGENDA**

107 *a. Staff Report on Finance*
108

109 *b. Staff Report on Ongoing Projects*
110

111 *c. Staff Report on Operations*
112

113 *d. Approval of Engineering Services, Term Contract for Professional Wastewater Treatment*
114 *Plant Engineering Services*
115

116 **Dr. Palmer moved to approve the Consent Agenda as presented. Ms. Galvin seconded the**
117 **motion, which passed 7-0.**
118

119 **8. OTHER BUSINESS**

120
121 *a. Comprehensive Annual Financial Report For Fiscal Year Ending June 30, 2018; Mr. Robert*
122 *Huff, Robinson, Farmer, Cox Associates*
123

124 Mr. Huff reported that this was similar to previous reports given to the RWSA, but there was one
125 additional opinion in this report that addressed federal programs -- so there are three total,
126 including the basic financial statement, internal control, and compliance with laws and
127 regulations applicable to federal programs. He stated that those were all "unmodified." Mr. Huff
128 reported that RWSA's financial position ended with a net increase of \$6.2 million, and this was
129 reflected on the balance sheet. He noted that \$376K was added as an additional OPEB liability,
130 and considering the size of a large organization, this was not significant. Mr. Huff emphasized
131 that this was a positive report overall and he commended the Board for their good work and good
132 governance.

133
134 *b. Presentation: Virtual Tours; Crozet Water System, South Rivanna and Observatory Water*
135 *Treatment Plants; Executive Director, Bill Mawyer*
136

137 Mr. Mawyer reported that in May, when they had the granular-activated carbon system grand
138 opening events, members of the Board had suggested having virtual tours of facilities so we
139 could show the public what the facilities look like, particularly with upcoming renovations to the
140 South Rivanna Treatment Plant and Observatory Treatment Plant. He presented videos of three
141 facilities, with the Crozet Water Treatment Plant underway, and the South Rivanna Treatment
142 Plant and Observatory Treatment Plant also featured.
143

144 Board members commented on the good quality of the videos.
145

146 Dr. Palmer asked how big the Beaver Creek watershed was.
147

148 Staff clarified that it was approximately 10 square miles.
149

150 Dr. Palmer stated that her assumption was that it was not forested but was instead a lot of
151 farmland.
152

153 Staff responded that there was farmland but also a lot of forest there as well.
154

155 Ms. Galvin commented that this would be helpful in allowing the public and other entities to
156 understand where the capital improvements went, and it was nice to have some tangible data but
157 also tie it together with visuals of places the facilities were serving.
158

159 Mr. Mawyer stated that he would bring the videos to the Board of Supervisors on January 9, and
160 they were also available for use by the ACSA and City Council, and would be put on the
161 Rivanna website.
162

163 Mr. Murphy mentioned that Mr. Mawyer was not scheduled to give an actual presentation to
164 City Council until April.
165

166 Ms. Galvin commented that they could wait until then, but she felt it was really important.
167

168 Dr. Palmer asked if they had mentioned that the pipeline would be connected from the Rivanna
169 Reservoir to the Ragged Mountain Reservoir.
170

171 Mr. Mawyer responded that staff viewed that as a separate project and video, and planned to do
172 an aerial video of the route.
173

174 Mr. Gaffney stated that this would be good in 2023 when it showed the finished Observatory
175 Water Treatment Plant and the “before and after.”
176

177 Mr. Mawyer commented that they attempted to have the videos strike a balance between positive
178 aspects and areas needing improvement, and he recognized Ms. McIlwee for getting the videos

done, Andrew Shurtleff for narrating, and Ms. Whitaker, Mr. Wood, and Mr. Tungate for developing the scripts. He mentioned that the drone technology was amazing, with \$4,800 paid for all three videos.

Mr. Mawyer stated that budgeting for future videos would be discussed in future CIP discussions.

Mr. Murphy commented that he found the second two videos more appealing because there was more foliage visible.

Mr. Gaffney stated that the pipeline route could be easiest to see when covered in snow.

Mr. Mawyer noted that Rivanna had met with UVA several weeks earlier to discuss the Observatory leases and were moving forward with those efforts, with easements for all the piping crossing UVA property from Ragged Mountain Reservoir to Observatory WTP, and from Observatory WTP to Alderman WPS and through the grounds. He stated there was a separate lease for pumps at the Alderman Road pump station.

Dr. Palmer asked if this included the end of the new pipeline at the golf course to wherever the pump station would reside.

Mr. Mawyer responded that it did not yet, but Rivanna was poised to go back to UVA with other easement needs pertaining to the pipeline from Ragged to Observatory. He added that the UVA Foundation had property that would host the southern end of the pipeline and a good section of the northern part beyond Birdwood, and Rivanna would also be coordinating with other property owners regarding Lambs Road, Jouett MS, etc. -- as well as VDOT because of Colthurst Drive, Ingleside Farm, and multiple properties around Route 250. Mr. Mawyer noted that these efforts were all moving along well.

Mr. Mawyer thanked the Board members for their work in 2018 and wished them happy holidays.

9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

There were no other items presented.

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10. CLOSED MEETING

There was no closed meeting held.

11. ADJOURNMENT

Ms. Galvin moved to adjourn the meeting. Dr. Palmer seconded the motion, which passed 7-0.

The RWSA Board adjourned its meeting at 2:59 p.m.

MEMORANDUM

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

FROM: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: EXECUTIVE DIRECTOR'S REPORT

DATE: JANUARY 22, 2019

STRATEGIC PLAN GOAL: WORKFORCE DEVELOPMENT

Recognitions

The professional qualifications of our staff continue to improve and enhance our services. The following employee has successfully completed the requirements for a higher-level license from the State:

- Thomas Barger – Water Operator Class 2 License

STRATEGIC PLAN GOALS: INFRASTRUCTURE AND MASTER PLANNING, OPERATIONAL OPTIMIZATION, ENVIRONMENTAL STEWARDSHIP

Termination of VDEQ Sanitary Sewer System Consent Order

The Director of the VDEQ has terminated the Consent Order issued on behalf of the State Water Control Board to the Rivanna Water and Sewer Authority on August 5, 2011. This Consent Order was originally issued to RWSA due to sanitary sewer overflows.

STRATEGIC PLAN GOAL: INFRASTRUCTURE AND MASTER PLANNING

Birdwood Water Line

Construction of erosion control measures, as well as temporary access entrances and material staging areas, is underway. Installation of piping will begin in late January / February after the piping is manufactured and delivered, weather permitting. Staff will participate with UVAF staff in a monthly project update meeting with the residents of the Bellair subdivision.

South Rivanna to Ragged Mountain Water Line

Meetings are in progress with the UVA Foundation about locations for the water line easements located north and south of the water line being constructed on the Birdwood property. We plan to contact many of the large property owners along the alignment over the next month to review easement locations.

Observatory Water Treatment Plant Lease

Meetings are in progress with UVA staff to review the terms of the leases and easements, as well as architectural, lighting, fencing and stormwater components of the plant renovation and upgrade.

FY 2019 – 2020 Budget Schedule

FY 20 – 24 CIP Review	February 26, 2019
FY 20 Operating Budget Review	March 26, 2019
Public Hearing and Approval of the FY 20 – 24 CIP and FY 20 Budget	May 28, 2019

STRATEGIC PLAN GOAL: COMMUNICATION AND COLLABORATION

Community Outreach

Mr. Tim Castillo, Wastewater Manager, provided a tour of the Moores Creek Advanced Water Resource Recovery Facility for a boy scout who is working on his SPLASH award. The SPLASH award requires boy scouts to research how water affects every day life and requires the scout to visit a location where water is being processed either by humans or by nature, take tour, and speak with a professional about the processing of the water.

MEMORANDUM

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

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

REVIEWED: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: NOVEMBER MONTHLY FINANCIAL SUMMARY – FY 2019

DATE: JANUARY 22, 2019

Urban Water flows and rate revenues are 5% over budget estimates for the first five months of this fiscal year, and Urban Wastewater flows and rate revenues are 37% over budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	\$ 3,109,937	\$ 4,466,524	\$ 879,846	\$ 8,456,307
Expenses	(3,001,079)	(3,386,530)	(910,128)	(7,297,737)
Surplus (deficit)	\$ 108,858	\$ 1,079,994	\$ (30,282)	\$ 1,158,570
Debt Service				
Revenues	\$ 2,677,674	\$ 3,659,869	\$ 485,117	\$ 6,822,660
Expenses	(2,652,359)	(3,576,132)	(484,135)	(6,712,626)
Surplus (deficit)	\$ 25,315	\$ 83,737	\$ 982	\$ 110,034
Total				
Revenues	\$ 5,787,611	\$ 8,126,393	\$ 1,364,963	\$ 15,278,967
Expenses	(5,653,438)	(6,962,662)	(1,394,263)	(14,010,363)
Surplus (deficit)	\$ 134,173	\$ 1,163,731	\$ (29,300)	\$ 1,268,604

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 incurred some unbudgeted expenditures for Engineering and Technical Services related to safe yield modeling. This rate center has also spent more than the annual budget for legal fees related to the Observatory plant lease.
- B. Other Services & Charges (Urban Water, Urban Wastewater, Engineering – pages 2, 5, 11) – July’s payment of the annual property and liability insurance premium (\$120,700) is causing Urban Water and Wastewater to be over budget in this category. Urban Water and Wastewater are also over budget on the cost of hauling biosolids off site to be composted. Urban Wastewater is over budget on odor control costs for the Crozet Interceptor/Pump Stations, and utilities are 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 included in the FY 2019 budget.
- C. Information Technology (Engineering – page 11) – The Engineering department paid \$25,000 in July to renew an annual GIS computer software license agreement, as budgeted.
- D. Operations & Maintenance (Urban Water, Crozet Water, Scottsville Water, Urban Wastewater, Glenmore Wastewater, Lab, Maintenance, Engineering – pages 2-6, 9-11) – Urban Water paid about \$200,000 for June’s North Rivanna Waterline emergency repairs, and the annual lease payment for the Observatory WTP property (\$32,313) was paid in September. Crozet Water is over the prorated budget on algae treatment of the Beaver Creek Reservoir. Urban Wastewater is over the prorated budget for purchases of chemicals, and Glenmore Wastewater went over the prorated budget on pump repairs. The Lab and Engineering departments are over the prorated budget on vehicle and equipment repairs, and the Maintenance department has spent more than the total budget for the year. Scottsville Water purchased instrumentation equipment for the Red Hill Community Water System in October for about \$10,000, which pushed this category over the annual budget, but this cost will be billed to ACSA and recorded as revenue for this rate center.
- E. Communications (Urban Water – page 2) -The annual payment to the County of Albemarle for Rivanna’s share of the radio system maintenance cost (\$20,567) was made in September.
- F. Equipment Purchases (Urban Water, Scottsville Water – pages 2, 4) – Scottsville Water spent \$50,000 in October for the unbudgeted purchase of a replacement flocculator, and Urban Water went over the full annual budget in November with unbudgeted purchases of small tools and equipment.

Attachments

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

Consolidated
Revenues and Expenses Summary

Operating Budget vs. Actual

Notes

Revenues

Operations Rate Revenue	\$ 16,387,174	\$ 8,193,587	\$ 9,742,615	\$ 1,549,028	18.91%
Lease Revenue	100,000	50,000	47,637	(2,363)	-4.73%
Admin., Maint. & Engineering Revenue	462,000	231,000	252,259	21,259	9.20%
Other Revenues	528,084	264,042	360,170	96,128	36.41%
Interest Allocation	28,050	14,025	21,154	7,129	50.83%
Total Operating Revenues	\$ 17,505,308	\$ 8,752,654	\$ 10,423,834	\$ 1,671,180	19.09%

Expenses

Personnel Cost	\$ 8,429,784	\$ 4,214,892	\$ 3,969,568	\$ 245,324	5.82%
Professional Services	A 710,250	355,125	395,545	(40,420)	-11.38%
Other Services & Charges	B 2,814,735	1,407,368	1,717,329	(309,961)	-22.02%
Communications	E 143,105	71,553	88,660	(17,108)	-23.91%
Information Technology	C 341,450	170,725	98,005	72,720	42.59%
Supplies	43,920	21,960	19,644	2,316	10.55%
Operations & Maintenance	D 3,719,660	1,859,830	2,140,262	(280,432)	-15.08%
Equipment Purchases	F 459,400	229,700	250,834	(21,134)	-9.20%
Depreciation	843,000	421,500	421,500	-	0.00%
Reserve Transfers	-	-	-	-	
Total Operating Expenses	\$ 17,505,304	\$ 8,752,652	\$ 9,101,348	\$ (348,697)	-3.98%
Operating Surplus/(Deficit)	\$ 4	\$ 2	\$ 1,322,486		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 14,852,531	\$ 7,426,266	\$ 7,426,260	\$ (6)	0.00%
Use of Reserves for 2016 Bond DS	300,000	150,000	150,000	-	0.00%
Septage Receiving Support - County	109,440	54,720	109,441	54,721	100.00%
Buck Mountain Surcharge	118,600	59,300	65,600	6,300	10.62%
Buck Mountain Lease Revenue	1,600	800	-	(800)	-100.00%
Trust Fund Interest	46,400	23,200	87,148	63,948	275.64%
Reserve Fund Interest	344,000	172,000	362,355	190,355	110.67%
Total Debt Service Revenues	\$ 15,772,571	\$ 7,886,286	\$ 8,200,804	\$ 314,518	3.99%

Debt Service Costs

Total Principal & Interest	\$ 12,295,400	\$ 6,147,700	\$ 6,147,700	\$ -	0.00%
Reserve Additions-Interest	343,000	171,500	362,355	(190,855)	-111.29%
Debt Service Ratio Charge	725,000	362,500	362,500	-	0.00%
Reserve Additions-CIP Growth	2,409,175	1,204,588	1,204,588	-	0.00%
Total Debt Service Costs	\$ 15,772,575	\$ 7,886,288	\$ 8,077,143	\$ (190,855)	-2.42%
Debt Service Surplus/(Deficit)	\$ (4)	\$ (2)	\$ 123,661		

Summary

Total Revenues	\$ 33,277,879	\$ 16,638,940	\$ 18,624,638	\$ 1,985,699	11.93%
Total Expenses	33,277,879	16,638,939	17,178,491	(539,552)	-3.24%
Surplus/(Deficit)	\$ 0	\$ 0	\$ 1,446,147		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2018

Urban Water 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	\$ 7,034,788	\$ 3,517,394	\$ 3,552,985	\$ 35,591	1.01%
Lease Revenue	70,000	35,000	33,776	(1,224)	-3.50%
Miscellaneous	-	-	1,600	1,600	
Interest Allocation	12,000	6,000	8,985	2,985	49.76%
Total Operating Revenues	\$ 7,116,788	\$ 3,558,394	\$ 3,597,347	\$ 38,953	1.09%

Expenses

Personnel Cost	\$ 1,903,779	\$ 951,889	\$ 885,360	\$ 66,530	6.99%
Professional Services	A 329,250	164,625	256,808	(92,183)	-56.00%
Other Services & Charges	B 582,700	291,350	302,654	(11,304)	-3.88%
Communications	E 64,200	32,100	39,174	(7,074)	-22.04%
Information Technology	65,300	32,650	18,961	13,689	41.93%
Supplies	5,000	2,500	3,413	(913)	-36.52%
Operations & Maintenance	D 1,570,660	785,330	882,850	(97,520)	-12.42%
Equipment Purchases	F 106,600	53,300	87,230	(33,930)	-63.66%
Depreciation	300,000	150,000	150,000	-	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	\$ 4,927,489	\$ 2,463,744	\$ 2,626,449	\$ (162,705)	-6.60%
Allocation of Support Departments	2,189,298	1,094,649	994,376	100,273	9.16%
Total Operating Expenses	\$ 7,116,787	\$ 3,558,393	\$ 3,620,825	\$ (62,432)	-1.75%
Operating Surplus/(Deficit)	\$ 1	\$ 1	\$ (23,478)		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 5,863,271	\$ 2,931,636	\$ 2,931,636	\$ 1	0.00%
Trust Fund Interest	18,000	9,000	29,892	20,892	232.13%
Reserve Fund Interest	184,000	92,000	193,860	101,860	110.72%
Buck Mountain Surcharge	118,600	59,300	65,600	6,300	10.62%
Lease Revenue	1,600	800	-	(800)	-100.00%
Total Debt Service Revenues	\$ 6,185,471	\$ 3,092,736	\$ 3,220,988	\$ 128,252	4.15%

Debt Service Costs

Total Principal & Interest	\$ 4,190,796	\$ 2,095,398	\$ 2,095,398	\$ -	0.00%
Reserve Additions-Interest	184,000	92,000	193,860	(101,860)	-110.72%
Debt Service Ratio Charge	400,000	200,000	200,000	-	0.00%
Reserve Additions-CIP Growth	1,410,675	705,338	705,338	-	0.00%
Total Debt Service Costs	\$ 6,185,471	\$ 3,092,736	\$ 3,194,596	\$ (101,860)	-3.29%
Debt Service Surplus/(Deficit)	\$ -	\$ -	\$ 26,392		

Rate Center Summary

Total Revenues	\$ 13,302,259	\$ 6,651,130	\$ 6,818,334	\$ 167,205	2.51%
Total Expenses	13,302,258	6,651,129	6,815,421	(164,292)	-2.47%
Surplus/(Deficit)	\$ 1	\$ 1	\$ 2,914		
Costs per 1000 Gallons	2.09		2.11		
Thousand Gallons Treated or Flow (MGD)	3,397,700	1,698,850	1,716,418	17,568	1.03%
	9.309		9.328		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2018

Crozet Water 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	\$ 957,384	\$ 478,692	\$ 478,692	\$ -	0.00%
Lease Revenues	30,000	15,000	13,861	(1,139)	-7.59%
Interest Allocation	1,700	850	1,272	422	49.68%
Total Operating Revenues	\$ 989,084	\$ 494,542	\$ 493,825	\$ (717)	-0.14%

Expenses

Personnel Cost	\$ 288,389	\$ 144,195	\$ 133,623	\$ 10,572	7.33%
Professional Services	30,000	15,000	1,925	13,075	87.16%
Other Services & Charges	126,960	63,480	53,473	10,007	15.76%
Communications	4,450	2,225	2,910	(685)	-30.78%
Information Technology	14,200	7,100	240	6,860	96.62%
Supplies	620	310	879	(569)	-183.51%
Operations & Maintenance	261,150	130,575	201,014	(70,439)	-53.94%
Equipment Purchases	26,450	13,225	3,870	9,355	70.74%
Depreciation	30,000	15,000	15,000	-	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	\$ 782,219	\$ 391,110	\$ 412,934	\$ (21,824)	-5.58%
Allocation of Support Departments	206,863	103,431	93,917	9,515	9.20%
Total Operating Expenses	\$ 989,082	\$ 494,541	\$ 506,850	\$ (12,309)	-2.49%
Operating Surplus/(Deficit)	\$ 2	\$ 1	\$ (13,025)		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 995,568	\$ 497,784	\$ 497,784	\$ -	0.00%
Trust Fund Interest	1,800	900	3,050	2,150	238.91%
Reserve Fund Interest	6,700	3,350	7,189	3,839	114.59%
Total Debt Service Revenues	\$ 1,004,068	\$ 502,034	\$ 508,023	\$ 5,989	1.19%

Debt Service Costs

Total Principal & Interest	\$ 426,071	\$ 213,036	\$ 213,036	\$ -	0.00%
Reserve Additions-Interest	6,700	3,350	7,189	(3,839)	-114.59%
Reserve Additions-CIP Growth	571,300	285,650	285,650	-	0.00%
Total Debt Service Costs	\$ 1,004,071	\$ 502,036	\$ 505,874	\$ (3,839)	-0.76%
Debt Service Surplus/(Deficit)	\$ (3)	\$ (2)	\$ 2,149		

Rate Center Summary

Total Revenues	\$ 1,993,152	\$ 996,576	\$ 1,001,848	\$ 5,272	0.53%
Total Expenses	1,993,153	996,577	1,012,725	(16,148)	-1.62%
Surplus/(Deficit)	\$ (1)	\$ (1)	\$ (10,876)		
Costs per 1000 Gallons	5.02		4.97		
Thousand Gallons Treated	196,946	98,473	101,900	3,427	3.48%
Flow (MGD)	0.540		0.554		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2018

Scottsville Water 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	\$ 443,328	\$ 221,664	\$ 221,664	\$ -	0.00%
Red Hill	-	-	16,303	\$ 16,303	
Interest Allocation	750	375	570	195	52.04%
Total Operating Revenues	\$ 444,078	\$ 222,039	\$ 238,537	\$ 16,498	7.43%

Expenses

Personnel Cost	\$ 153,885	\$ 76,942	\$ 70,513	\$ 6,429	8.36%
Professional Services	20,000	10,000	16,456	(6,456)	-64.56%
Other Services & Charges	28,680	14,340	14,384	(44)	-0.30%
Communications	3,210	1,605	1,876	(271)	-16.87%
Information Technology	7,000	3,500	6,348	(2,848)	-81.37%
Supplies	750	375	-	375	100.00%
Operations & Maintenance	66,570	33,285	41,013	(7,728)	-23.22%
Equipment Purchases	14,000	7,000	51,279	(44,279)	-632.56%
Depreciation	20,000	10,000	10,000	(0)	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	\$ 314,095	\$ 157,047	\$ 211,870	\$ (54,822)	-34.91%
Allocation of Support Departments	129,988	64,994	59,174	5,820	8.96%
Total Operating Expenses	\$ 444,083	\$ 222,041	\$ 271,043	\$ (49,002)	-22.07%
Operating Surplus/(Deficit)	\$ (5)	\$ (2)	\$ (32,506)		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 129,280	\$ 64,640	\$ 64,638	\$ (2)	0.00%
Trust Fund Interest	400	200	871	671	335.73%
Reserve Fund Interest	3,300	1,650	3,600	1,950	118.19%
Total Debt Service Revenues	\$ 132,980	\$ 66,490	\$ 69,110	\$ 2,620	3.94%

Debt Service Costs

Total Principal & Interest	\$ 129,680	\$ 64,840	\$ 64,840	\$ -	0.00%
Reserve Additions-Interest	3,300	1,650	3,600	(1,950)	
Reserve Additions-CIP Growth	-	-	-	-	
Total Debt Service Costs	\$ 132,980	\$ 66,490	\$ 68,440	\$ (1,950)	-2.93%
Debt Service Surplus/(Deficit)	\$ -	\$ -	\$ 669		

Rate Center Summary

Total Revenues	\$ 577,058	\$ 288,529	\$ 307,647	\$ 19,118	6.63%
Total Expenses	577,063	288,531	339,483	(50,952)	-17.66%
Surplus/(Deficit)	\$ (5)	\$ (2)	\$ (31,837)		
Costs per 1000 Gallons	23.70		32.55		
Thousand Gallons Treated	18,738	9,369	8,326	(1,043)	-11.13%
or					
Flow (MGD)	0.051		0.045		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2018

Urban Wastewater 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	\$ 7,277,082	\$ 3,638,541	\$ 5,151,977	\$ 1,513,436	41.59%
Stone Robinson WWTP	28,084	14,042	11,088	(2,954)	-21.04%
Septage Acceptance	410,000	205,000	226,228	21,228	10.36%
Nutrient Credits	90,000	45,000	104,060	59,060	131.24%
Miscellaneous Revenue	-	-	891	891	
Interest Allocation	12,500	6,250	9,482	3,232	51.71%
Total Operating Revenues	\$ 7,817,666	\$ 3,908,833	\$ 5,503,726	\$ 1,594,893	40.80%

Expenses

Personnel Cost	\$ 1,282,792	\$ 641,396	\$ 604,366	\$ 37,030	5.77%
Professional Services	A 54,000	27,000	36,719	(9,719)	-36.00%
Other Services & Charges	B 1,816,225	908,113	1,216,629	(308,517)	-33.97%
Communications	10,430	5,215	7,372	(2,157)	-41.36%
Information Technology	57,250	28,625	1,068	27,557	96.27%
Supplies	2,700	1,350	687	663	49.11%
Operations & Maintenance	D 1,408,900	704,450	818,618	(114,168)	-16.21%
Equipment Purchases	74,500	37,250	30,184	7,066	18.97%
Depreciation	470,000	235,000	235,000	(0)	0.00%
Reserve Transfers	-	-	-	-	
Subtotal Before Allocations	\$ 5,176,797	\$ 2,588,398	\$ 2,950,644	\$ (362,245)	-13.99%
Allocation of Support Departments	2,640,868	1,320,434	1,198,754	121,680	9.22%
Total Operating Expenses	\$ 7,817,665	\$ 3,908,833	\$ 4,149,398	\$ (240,565)	-6.15%
Operating Surplus/(Deficit)	\$ 1	\$ 0	\$ 1,354,328		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 7,854,820	\$ 3,927,410	\$ 3,927,408	\$ (2)	0.00%
Use of Reserves for 2016 Bond DS	300,000	150,000	150,000	-	0.00%
Septage Receiving Support - County	109,440	54,720	109,441	54,721	100.00%
Trust Fund Interest	26,200	13,100	53,247	40,147	306.47%
Reserve Fund Interest	148,000	74,000	155,544	81,544	110.19%
Total Debt Service Revenues	\$ 8,438,460	\$ 4,219,230	\$ 4,395,640	\$ 176,410	4.18%

Debt Service Costs

Total Principal & Interest	\$ 7,539,261	\$ 3,769,631	\$ 3,769,631	\$ -	0.00%
Reserve Additions-Interest	148,000	74,000	155,544	(81,544)	-110.19%
Debt Service Ratio Charge	325,000	162,500	162,500	-	0.00%
Reserve Additions-CIP Growth	426,200	213,100	213,100	-	0.00%
Total Debt Service Costs	\$ 8,438,461	\$ 4,219,231	\$ 4,300,774	\$ (81,544)	-1.93%
Debt Service Surplus/(Deficit)	\$ (1)	\$ (1)	\$ 94,866		

Rate Center Summary

Total Revenues	\$ 16,256,126	\$ 8,128,063	\$ 9,899,366	\$ 1,771,303	21.79%
Total Expenses	16,256,126	8,128,063	8,450,172	(322,109)	-3.96%
Surplus/(Deficit)	\$ (0)	\$ (0)	\$ 1,449,194		
Costs per 1000 Gallons	2.31		1.73		
Thousand Gallons Treated or Flow (MGD)	3,390,400	1,695,200	2,400,735	705,535	41.62%
	9.289		13.047		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 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	\$ 186,360	\$ 186,360	\$ -	0.00%
Interest Allocation	600	300	464	164	54.78%
<i>Total Operating Revenues</i>	\$ 373,320	\$ 186,660	\$ 186,824	\$ 164	0.09%

Expenses

Personnel Cost	\$ 94,490	\$ 47,245	\$ 44,654	\$ 2,590	5.48%
Professional Services	3,000	1,500	-	1,500	
Other Services & Charges	39,510	19,755	19,793	(38)	-0.19%
Communications	2,600	1,300	1,834	(534)	-41.06%
Information Technology	3,350	1,675	-	1,675	100.00%
Supplies	100	50	-	50	100.00%
Operations & Maintenance	121,450	60,725	50,375	10,350	17.04%
Equipment Purchases	2,900	1,450	1,200	250	17.24%
Depreciation	5,000	2,500	2,500	0	0.00%
<i>Subtotal Before Allocations</i>	\$ 272,400	\$ 136,200	\$ 120,356	\$ 15,843	11.63%
Allocation of Support Departments	100,915	50,458	46,221	4,237	8.40%
<i>Total Operating Expenses</i>	\$ 373,315	\$ 186,657	\$ 166,577	\$ 20,080	10.76%
<i>Operating Surplus/(Deficit)</i>	\$ 5	\$ 3	\$ 20,247		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 1,586	\$ 793	\$ 792	\$ (1)	-0.13%
Trust Fund Interest	-	-	-	-	
Reserve Fund Interest	1,000	500	1,087	587	117.41%
<i>Total Debt Service Revenues</i>	\$ 2,586	\$ 1,293	\$ 1,879	\$ (1)	-0.08%

Debt Service Costs

Total Principal & Interest	\$ 1,586	\$ 793	\$ 793	\$ -	0.00%
Reserve Additions-Interest	1,000	500	1,087	(587)	-117.41%
<i>Total Debt Service Costs</i>	\$ 2,586	\$ 1,293	\$ 1,880	\$ (587)	-45.40%
<i>Debt Service Surplus/(Deficit)</i>	\$ -	\$ -	\$ (1)		

Rate Center Summary

Total Revenues	\$ 375,906	\$ 187,953	\$ 188,703	\$ 750	0.40%
Total Expenses	375,901	187,950	168,457	19,493	10.37%
Surplus/(Deficit)	\$ 5	\$ 3	\$ 20,246		
Costs per 1000 Gallons	8.60		5.95		
Thousand Gallons Treated or Flow (MGD)	43,412	21,706	27,981	6,275	28.91%
	0.119		0.152		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 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	\$ 150,936	\$ 150,936	\$ -	0.00%
Interest Allocation	500	250	380	130	51.90%
Total Operating Revenues	\$ 302,372	\$ 151,186	\$ 151,316	\$ 130	0.09%

Expenses

Personnel Cost	\$ 94,515	\$ 47,257	\$ 44,655	\$ 2,603	5.51%
Professional Services	2,000	1,000	-	1,000	100.00%
Other Services & Charges	28,400	14,200	11,410	2,790	19.65%
Communications	2,630	1,315	2,194	(879)	-66.86%
Information Technology	2,350	1,175	-	1,175	100.00%
Supplies	100	50	446	(396)	-791.02%
Operations & Maintenance	57,850	28,925	22,761	6,164	21.31%
Equipment Purchases	3,200	1,600	1,200	400	25.00%
Depreciation	18,000	9,000	9,000	-	0.00%
Subtotal Before Allocations	\$ 209,045	\$ 104,522	\$ 91,665	\$ 12,857	12.30%
Allocation of Support Departments	93,328	46,664	42,731	3,933	8.43%
Total Operating Expenses	\$ 302,372	\$ 151,186	\$ 134,396	\$ 16,790	11.11%
Operating Surplus/(Deficit)	\$ (0)	\$ (0)	\$ 16,920		

Debt Service Budget vs. Actual

Revenues

Debt Service Rate Revenue	\$ 8,006	\$ 4,003	\$ 4,002	\$ (1)	-0.02%
Trust Fund Interest	-	-	87	87	
Reserve Fund Interest	1,000	500	1,075	575	115.07%
Total Debt Service Revenues	\$ 9,006	\$ 4,503	\$ 5,165	\$ 662	14.69%

Debt Service Costs

Total Principal & Interest	\$ 8,006	\$ 4,003	\$ 4,003	\$ -	0.00%
Reserve Additions-Interest	-	-	1,075	(1,075)	
Estimated New Principal & Interest	1,000	500	500	-	
Total Debt Service Costs	\$ 9,006	\$ 4,503	\$ 5,578	\$ (1,075)	-23.88%
Debt Service Surplus/(Deficit)	\$ -	\$ -	\$ (414)		

Rate Center Summary

Total Revenues	\$ 311,378	\$ 155,689	\$ 156,480	\$ 791	0.51%
Total Expenses	311,378	155,689	139,974	15,715	10.09%
Surplus/(Deficit)	\$ (0)	\$ (0)	\$ 16,506		
Costs per 1000 Gallons	15.14		8.74		
Thousand Gallons Treated or Flow (MGD)	19,966	9,983	15,371	5,388	53.97%
	0.055		0.084		

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 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	\$ 230,000	\$ 230,000	\$ (0)	0.00%
Miscellaneous Revenue	2,000	1,000	6,478	5,478	547.85%
Total Operating Revenues	\$ 462,000	\$ 231,000	\$ 236,478	\$ 5,478	2.37%

Expenses

Personnel Cost	\$ 1,796,150	\$ 898,075	\$ 865,552	\$ 32,523	3.62%
Professional Services	228,000	114,000	75,384	38,616	33.87%
Other Services & Charges	140,980	70,490	60,572	9,918	14.07%
Communications	20,280	10,140	11,549	(1,409)	-13.90%
Information Technology	138,500	69,250	40,517	28,733	41.49%
Supplies	21,000	10,500	11,448	(948)	-9.03%
Operations & Maintenance	60,400	30,200	18,624	11,576	38.33%
Equipment Purchases	27,500	13,750	6,250	7,500	54.55%
Depreciation	-	-	-	-	
Total Operating Expenses	\$ 2,432,810	\$ 1,216,405	\$ 1,089,897	\$ 126,508	10.40%

Department Summary

Net Costs Allocable to Rate Centers		\$ (1,970,810)	\$ (985,405)	\$ (853,418)	\$ (131,987)	13.39%
<u>Allocations to the Rate Centers</u>						
Urban Water	44.00%	\$ 867,157	\$ 433,578	\$ 375,504	\$ 58,074	
Crozet Water	4.00%	\$ 78,832	\$ 39,416	\$ 34,137	\$ 5,279	
Scottsville Water	2.00%	\$ 39,416	\$ 19,708	\$ 17,068	\$ 2,640	
Urban Wastewater	48.00%	\$ 945,989	\$ 472,994	\$ 409,641	\$ 63,354	
Glenmore Wastewater	1.00%	\$ 19,708	\$ 9,854	\$ 8,534	\$ 1,320	
Scottsville Wastewater	1.00%	\$ 19,708	\$ 9,854	\$ 8,534	\$ 1,320	
	100.00%	\$ 1,970,810	\$ 985,405	\$ 853,418	\$ 131,987	

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 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

Total Operating Revenues

-	-	1,534	1,534	
\$ -	\$ -	\$ 1,534	\$ 1,534	

Expenses

Personnel Cost

Professional Services

Other Services & Charges

Communications

Information Technology

Supplies

Operations & Maintenance

Equipment Purchases

Depreciation

D

Total Operating Expenses

\$ 1,304,247	\$ 652,123	\$ 585,115	\$ 67,008	10.28%
-	-	-	-	
17,500	8,750	10,729	(1,979)	-22.62%
17,325	8,663	12,070	(3,408)	-39.34%
6,500	3,250	3,025	225	6.92%
2,000	1,000	361	639	63.94%
64,300	32,150	42,191	(10,041)	-31.23%
105,650	52,825	46,053	6,772	12.82%
-	-	-	-	
\$ 1,517,522	\$ 758,761	\$ 699,545	\$ 59,216	7.80%

Department Summary

Net Costs Allocable to Rate Centers

\$ (1,517,522)	\$ (758,761)	\$ (698,010)	\$ (57,682)	7.60%
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Allocations to the Rate Centers

Urban Water

30.00%

\$ 455,256

\$ 227,628

\$ 209,403

\$ 18,225

Crozet Water

3.50%

\$ 53,113

\$ 26,557

\$ 24,430

\$ 2,126

Scottsville Water

3.50%

\$ 53,113

\$ 26,557

\$ 24,430

\$ 2,126

Urban Wastewater

56.50%

\$ 857,400

\$ 428,700

\$ 394,376

\$ 34,324

Glenmore Wastewater

3.50%

\$ 53,113

\$ 26,557

\$ 24,430

\$ 2,126

Scottsville Wastewater

3.00%

\$ 45,526

\$ 22,763

\$ 20,940

\$ 1,823

100.00%	\$ 1,517,522	\$ 758,761	\$ 698,010	\$ 60,750
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Rivanna Water & Sewer Authority
Monthly Financial Statements - December 2018

Laboratory

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

N/A

Expenses

Personnel Cost	\$	301,100	\$	150,550	\$	148,093	\$	2,457	1.63%
Professional Services		-		-		-		-	
Other Services & Charges		14,230		7,115		1,658		5,457	76.70%
Communications		800		400		1,153		(753)	
Information Technology		2,500		1,250		-		1,250	100.00%
Supplies		2,150		1,075		386		689	64.14%
Operations & Maintenance	D	53,500		26,750		34,251		(7,501)	-28.04%
Equipment Purchases		72,100		36,050		10,818		25,232	69.99%
Depreciation		-		-		-		-	
Total Operating Expenses		\$ 446,380		\$ 223,190		\$ 196,358		\$ 26,832	12.02%

Department Summary

Net Costs Allocable to Rate Centers		\$ (446,380)	\$ (223,190)	\$ (196,358)	\$ (26,832)	12.02%
<u>Allocations to the Rate Centers</u>						
Urban Water	44.00%	\$ 196,407	\$ 98,204	\$ 86,398	\$ 11,806	
Crozet Water	4.00%	17,855	8,928	7,854	1,073	
Scottsville Water	2.00%	8,928	4,464	3,927	537	
Urban Wastewater	47.00%	209,799	104,899	92,288	12,611	
Glenmore Wastewater	1.50%	6,696	3,348	2,945	402	
Scottsville Wastewater	1.50%	6,696	3,348	2,945	402	
	100.00%	\$ 446,380	\$ 223,190	\$ 196,358	\$ 26,832	

Rivanna Water & Sewer Authority
Monthly Financial Statements - December 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

\$ -	\$ -	\$ 14,246	\$ 14,246	
\$ -	\$ -	\$ 14,246	\$ 14,246	

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	\$ 605,219	\$ 587,636	\$ 17,583	2.91%
	44,000	22,000	8,252	13,748	62.49%
B	19,550	9,775	26,027	(16,252)	-166.26%
	17,180	8,590	8,528	62	0.72%
C	44,500	22,250	27,847	(5,597)	-25.15%
	9,500	4,750	2,026	2,724	57.35%
	54,880	27,440	28,565	(1,125)	-4.10%
	26,500	13,250	12,750	500	3.77%
	-	-	-	-	
	\$ 1,426,548	\$ 713,274	\$ 701,631	\$ 11,643	1.63%

Department Summary

Net Costs Allocable to Rate Centers

\$ (1,426,548)	\$ (713,274)	\$ (687,385)	\$ 2,603	-0.36%
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Allocations to the Rate Centers

Urban Water

Crozet Water

Scottsville Water

Urban Wastewater

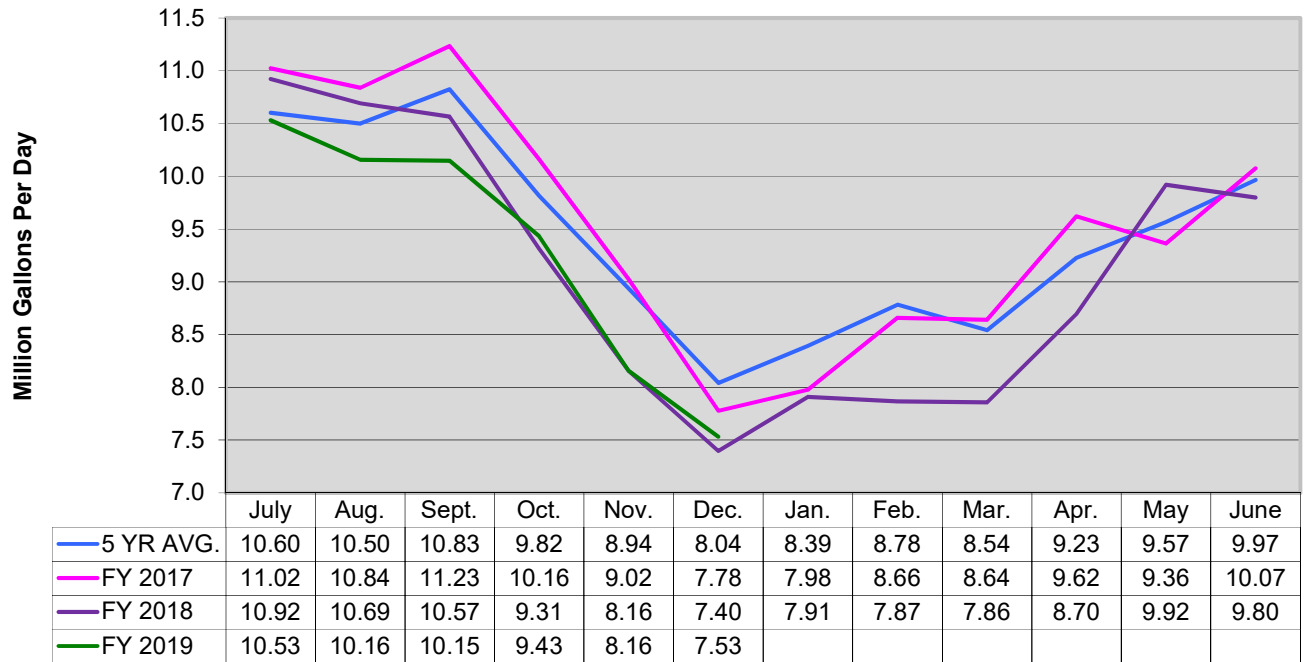
Glenmore Wastewater

Scottsville Wastewater

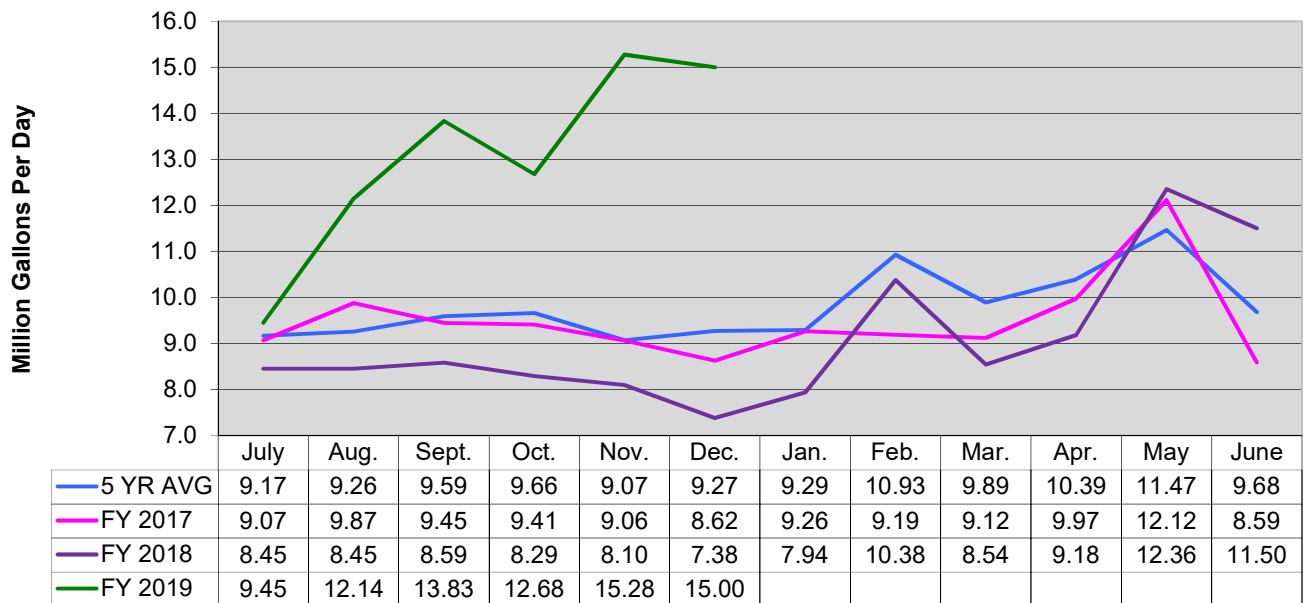
47.00%	\$ 670,477	\$ 335,239	\$ 323,071	\$ 12,168
4.00%	57,062	28,531	27,495	1,036
2.00%	28,531	14,265	13,748	518
44.00%	627,681	313,841	302,450	11,391
1.50%	21,398	10,699	10,311	388
1.50%	21,398	10,699	10,311	388
100.00%	\$ 1,426,548	\$ 713,274	\$ 687,385	\$ 25,889

**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: JANUARY 22, 2019

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

Under Construction

1. Birdwood Raw Water Main
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. Crozet Finished Water Pump Station
7. Interceptor Sewer & Manhole Repair
8. Urgent and Emergency Repairs
9. Piney Mountain Tank Rehabilitation (on hold until April 2019)

Design and Bidding

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. Scottsville WTP – Finished Water Metering Improvements
24. Avon to Pantops Water Main (on hold until completion of the Urban Water Master Plan)

Planning and Studies

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

O&M Related Projects

35. NRWTP Raw Metering Improvements
36. NRWTP Sludge Lagoon Study and Needs Assessment
37. NRWTP High Service Pump Replacement
38. MCAWRRF Cogeneration System Analysis
39. SRWTP Future Site Development Analysis

1. Birdwood Raw Water Main

Design Engineer:	Michael Baker International (Baker)
Construction Contractor:	E.C. Pace
Construction Start:	November 2018
Percent Complete:	7%
Base Construction Contract + Change Orders to Date = Current Value:	\$2,593,726
Expected Completion:	October 2019
Total Capital Project Budget:	\$4,000,000

Current Status:

A Notice to Proceed was issued to the contractor on November 26, 2018. Equipment mobilization, clearing, installation of the Route 250 construction entrance and staging area, surveying and installation of erosion control measures are underway. Water line installation will begin in January/February after piping is manufactured and delivered to the site.

History:

RWSA and the UVA Foundation wish to expedite construction of the portion of the 36-inch raw water main through the Birdwood 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 adjacent neighbors, as well as increased water line construction costs. The golf course reconstruction project is planned to be underway in November 2018. This work includes installation of approximately 6,100 linear feet of 36-inch raw water main along the eastern property boundary of the golf course.

2. Crozet Water Treatment Plant Expansion

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

Current Status:

A Notice of Award was issued and a preconstruction meeting was held on November 15, 2018. A Notice to Proceed was issued on December 13, 2018 and the contractor plans to start working on-site next 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 was 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); watershed data collection; raw water jar testing; pilot scale testing, as well as preliminary and final design.

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:	60%
Base Construction Contract + Change Order to Date = Current Value:	\$361,820
Expected Completion Date:	February 2019
Total Capital Project Budget:	\$720,000

Current Status:

The contractor has completed piping connections and valve installations at two of the pump stations (with restoration work remaining) and begun excavation work at the two remaining pump stations. Piping work is expected to be complete next month.

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:	97%
Base Construction Contract + Change Orders to Date = Current Value:	\$2,228,254 - \$284,104.24 = \$1,944,149.76
Expected Completion Date:	March 2019
Total Capital Project Budget:	\$3,200,000

Current Status:

Three water treatment plant flow meters, and all 25 distribution system flow meters have been installed. Of those 25 meters, 20 are currently functional and 5 are experiencing reporting errors due to hardware or other issues. Our consultant, meter representatives and staff are continuing to troubleshoot these issues and expect to have most if not all of these addressed by the end of January 2019. Following meter calibration by an independent consultant in early 2019, staff anticipates having a fully functioning metering system by March 2019.

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.

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.

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	40%
Base Construction Contract + Change Orders to Date = Current Value:	\$354,905
Expected Completion:	February 2019
Total Capital Project Budget:	\$383,241

Current Status:

Demolition of the Gatekeeper’s House, Existing Sheds, and Chlorine Contact Building are complete with demolition of the Existing Meter House to take place once work on the existing raw water main running through the bottom of the structure has been completed. Improvements to the Sugar Hollow to Ragged Mountain Reservoir transfer line are anticipated to begin this month as raw water line isolation procedures are confirmed. This project requires the Sugar Hollow to Ragged Mountain Reservoir transfer line to be out of service.

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 the initial Work Authorization. A subsequent Work Authorization covering the purchase of all remaining materials, construction and demolition was issued to the contractor on September 28, 2018.

The Notice to Proceed (NTP) was issued to the contractor on October 1, 2018. A Demolition Permit was issued for the Sugar Hollow Gatekeeper's House by Albemarle County during the week of November 12, 2018. Demolition of the Sugar Hollow Gatekeeper's House began during the week of November 26, 2018 and was completed during the week of December 3, 2018.

6. 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:	March 2019
Total Capital Project Budget:	\$2,600,000

Current Status:

Start-up and testing of equipment continues. Operations and Maintenance Manuals have been distributed and training has been completed. The new pump station will be put into service at the conclusion of the demonstration period. Due to a malfunction of one of two pumps, the 30-day demonstration period will be re-started this month once the repairs are complete. A number of punch list items have already been completed and following completion of the demonstration period, the existing pump station will be demolished.

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 was 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 was 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.

7. Interceptor Sewer and Manhole Repair

Design Engineer:	Frazier Engineering
Construction Contractor:	IPR Northeast
Construction Start:	November 2017
Percent Complete:	15%
Base Construction Contract + Change Orders to Date = Current Value:	\$1,244,337.19
Expected Completion:	2020
Total Capital Project Budget:	\$1,941,000

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 continues and completion is expected this winter as some additional cleaning of interceptor sections will be required to complete the investigation in easement areas with difficult access conditions. Initial results from the investigation have been provided to Frazier Engineering for review. A condition assessment report for a portion of the Morey Creek Interceptor has been completed with rehabilitation work to follow. 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.

8. 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
2019-01	Pantops Water Line River Bank Repair	\$100,000
2018-08	Ragged Mountain Raw Water Line Repair at Trinity Presbyterian Church	\$25,000
2018-07	Moore's Creek Interceptor Stream Bank Repair	\$150,000
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

- Pantops Water Line River Bank Repair

RWSA was made aware by a local resident of an eroded section of the river bank along the Rivanna River that has exposed a section of the Pantops water line. This eroded section is near a previously repaired section of the river bank. RWSA personnel visited the site and plans have been made to support the area with sandbags as a project to restore the river bank is initiated.

- Moores Creek Interceptor Stream Bank Repair

An exposed section of the Moores Creek Interceptor (between MCI-MH-40 to MCI-MH-41) was found along Moores Creek. The area was supported by sandbags as permitting was acquired to access the area as necessary for a formal repair. RWSA is working with an on-call contractor to rebuild the stream bank using imbricated stone. Work has begun and the stream bank is expected to be restored by the end of January.

- Ragged Mountain Raw Water Line Repair at Trinity Presbyterian Church

A leak was found on the raw water line in a landscaped area inside the church's parking lot. RWSA utilized an existing on-call contractor crew to immediately respond to this issue and coordinated with church staff as necessary. The line has been repaired and use of the raw water line has begun. Final restoration work for the impacted area is ongoing.

- 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 winter.

- 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 winter.

- South Rivanna Dam Apron and River Bank Repairs

Intense rainfall between May 30-31, 2018 resulted in extensive flooding throughout Charlottesville and parts of Albemarle County, with flows over the South Fork Rivanna Dam reaching more than 7 feet over the spillway crest at its peak. Staff has inspected the dam and abutments to determine the extent of damage resulting from the extreme flooding. Although there is no discernible damage to the dam itself, staff found erosion damage to the north downstream 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 early 2019 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.

9. 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.

10. Observatory Water Treatment Plant Expansion

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Project Start:	October 2017
Project Status:	30% Design
Construction Start:	October 2019
Completion:	2023
Approved Capital Budget:	\$18,630,000
Current Project Estimate:	\$19,700,000

Current Status:

A project kickoff meeting with staff was held on November 14, 2018. 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. The PER has been finalized, as well as a Work Authorization with the design engineer for design, bidding and construction administration services.

11. South Rivanna Water Treatment Plant Improvements

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	October 2017
Project Status:	30% Design
Construction Start:	October 2019
Completion:	December 2022
Approved Capital Budget:	\$7,500,000
Current Project Estimate:	\$15,000,000

Current Status:

A project kickoff meeting with staff was held on November 13, 2018. Design documents will be completed by May 2019. Project scope and budget have increased to address treatment system and building needs identified during the PER phase.

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. The PER has been finalized, as well as a Work Authorization with the design engineer for design, bidding and construction administration services.

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
Approved Capital Budget:	\$6,526,000
Current Project Estimate:	\$18,000,000

Current Status:

A Work Authorization was executed in December 2018 with Michael Baker International for the raw water line routing study, preliminary design, plat creation and the easement acquisition process for this portion of the project. 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:	30% Design
Construction Start:	2019
Completion:	2020
Approved Capital Budget:	\$3,300,000
Current Project Estimate:	\$4,860,000

Current Status:

A geotechnical analysis and report, field survey work, and existing pump station evaluation have all been completed as part of the design process. Design documents will be completed by March 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:	5% Design
Construction Start:	2021
Completion:	2023
Approved Capital Budget:	\$8,830,000
Current Project Estimate:	\$15,000,000

Current Status:

A Preliminary Engineering Report has been completed for the selected design alternative. Schnabel Engineering is beginning final design of the dam improvements this month. Staff anticipates the project will bid in fall of 2020 with construction to begin in 2021.

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
Approved Capital Budget:	\$6,100,000
Current Project Estimate:	\$8,000,000

Current Status:

Staff is negotiating a Work Authorization (scope and fee) with Hazen and Sawyer for site selection work for the new Raw Water Pump Station and permitting for the Pump Station, Intake, and Beaver Creek Dam Upgrades. This work is expected to begin in January 2019.

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 algacide 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
Construction Start:	2019
Completion:	2023
Total Capital Project Budget:	\$525,000

Current Status:

The Maintenance Department has begun pump replacement work associated with this overall project. Staff is reviewing the overall scope of work for the project and will be coordinating other items 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. Buck's Elbow & Crozet Waterball Tank Painting

Design Engineer:	TBD
Project Start:	Summer 2019
Project Status:	Work Authorization Under Negotiation
Construction Start:	Spring 2021
Completion:	Summer 2021
Approved Capital Budget:	\$1,200,000
Current Project Estimate:	\$1,340,000

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. Construction for this project is scheduled to begin in Spring 2021, following completion of the Crozet WTP Expansion in October 2020.

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 2021.

18. Valve Repair – Replacement (Phase 2)

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

Current Status:

RWSA staff opened bids for the project on December 11, 2018. A report is included in this month's packet, which includes a bid award recommendation and a request for a CIP Budget Amendment. Construction is anticipated to start in Spring 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 (and potentially repair) valves on the South Rivanna, Crozet, Pantops, and Southern Loop Finished Water Systems. Once all specified valves have been repaired/replaced in Phase 2, the focus will shift to replacing older isolation valves in subsequent phases. 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.

A Request for Bids (RFB) was issued on November 6, 2018. A Pre-Bid Conference was held on November 19, 2018. The first (and only) Addendum was issued on November 30, 2018.

19. MCAWRRF Digester Sludge Storage Improvements

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

Current Status:

Preparation of construction documents will begin this Winter. 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:	November 2018
Project Status:	15% Design
Construction Start:	March 2019
Completion:	July 2019
Total Capital Project Budget:	\$470,000

Current Status:

A project kick-off meeting was held in November and preliminary design is underway. Staff is currently reviewing the design package for the UV Facility Slide Gate Replacement Project for which a quote package will be advertised this winter.

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:	Short Elliot Hendrickson (SEH)
Project Start:	Fall 2018
Project Status:	Preliminary Design
Construction Start:	2019
Completion:	2019
Approved Capital Budget:	\$50,000

Current Project Estimate: \$110,000

Current Status:

Engineering staff has developed specifications and is negotiating a fee with Lyttle Utilities for a change order to their MCAWRRF Digester Coating project 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 gases, 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:	January 2019
Project Status:	Work Authorization Under Negotiation
Construction Start:	2020
Completion:	2021
Approved Capital Budget:	\$940,000
Current Project Estimate:	\$1,140,000

Current Status:

Design will begin in early 2019 with construction to begin in 2020.

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. Scottsville WTP – Finished Water Metering Improvements

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	September 2018
Project Status:	50% Design
Construction Start:	March 2019
Completion:	May 2019
Total Capital Project Budget:	\$145,000

Current Status:

SEH has begun preliminary design work and final design documents are anticipated to be complete

in January 2019.

History:

The Scottsville WTP is permitted to provide up to 0.25 MGD of potable drinking water to RWSA customers in the Scottsville service area. After water has been treated in the plant it is collected in an existing clearwell, which was constructed with the original facility. From the clearwell, the water is pumped into the distribution system by one of the two high service pumps. The flow from these pumps is not metered. In order to keep a record of the total flow entering the Scottsville system, plant operators must periodically conduct draw-down tests to verify the pumping rate of each of the two pumps. The total flow is then calculated based on the run time of each pump. This method of measuring flow is not accurate, as the pumping rate will vary based on the clearwell level and the hydraulic grade line of the distribution system. In addition, the Virginia Department of Health has indicated that the flow should be metered during recent conversations related to the disinfection profile calculation throughout the plant. The purpose of this project is to install a finished water meter at the plant.

24. 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.

25. 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 is expected to be completed in January 2019. 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.

Baker is now completing the routing study. Preliminary design, plat creation and the acquisition of easements will take place as soon as the final route determination has been made. 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.

26. Urban Water Demand and Safe Yield Study

Design Engineer:	Hazen and Sawyer
Project Start:	November 2018
Project Status:	15% complete
Completion:	August 2019
Total Capital Project Budget:	\$154,000

Current Status:

A work authorization with Hazen and Sawyer has been executed and data is being compiled from RWSA, ACSA and the City. A kick-off meeting was held on December 12, 2018. Additional meetings with various departments at the City, County and ACSA are being scheduled for mid-January to gather information on population trends.

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.

27. Urban Finished Water Infrastructure Master Plan

Design Engineer:	Michael Baker International (Baker)
Project Start:	November 2018
Project Status:	7% complete
Completion:	January 2020
Total Capital Project Budget:	\$253,000

Current Status:

Work on this project has begun with an initial progress meeting 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.

28. 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.

29. 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 is anticipated to 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.

30. 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
Approved Capital Budget:	\$400,000
Current Project Estimate:	\$750,000

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. Due to a recent significant wet weather event, returning the 72-inch diameter penstock to a reservoir drain is being evaluated by Gomez and Sullivan. Modifications to the decommissioning plan may be necessary as a result.

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.

31. 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:

RWSA Engineering staff has begun addressing priority items discussed during the meeting it held with RWSA Operations staff in October 2018 and determining which portions of the project will require additional input from various RWSA departments. A meeting was held among RWSA Engineering and IT staff and ACSA to discuss how access control and intrusion detection systems have been implemented into that utility’s day-to-day operations. Meetings with additional utilities and organizations will be conducted to gain additional perspective on access control and other security measures. It is expected that a Request for Proposal (RFP) will be issued by RWSA staff in order to facilitate the selection of an access control system that will be implemented into the CZWTP Expansion Project as an initial measure. As the project’s scope of work is refined, a consultant will be selected to provide project assistance where needed.

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.

32. Upper Schenks Branch Interceptor, Phase II

Design Engineer:	Frazier Engineering, P.A.
Project Start:	TBD
Project Status:	Planning
Construction Start:	TBD
Completion:	TBD
Approved Capital Budget:	\$4,485,000
Current Project Estimate:	\$3,985,000

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 has been completed and is located within City-owned Schenks Greenway adjacent to McIntire Road and the second phase is to be located on County property (baseball field and County Office Building) adjacent to McIntire Road or within 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.

33. 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.

34. Asset Management Plan

Design Consultant:	GHD, Inc.
Project Start:	July 2018
Project Status:	50% Complete (Phase 1)
Completion:	2020
Total Capital Project Budget:	\$500,000

Current Status:

As part of the first phase, Asset Management awareness training was held on November 7, 2018, the Asset Management Program Development Workshop was held on November 8, 2018 and the Gap Assessment workshops were held on January 7 - 8, 2019.

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.

O&M Related Projects

Staff is currently working on several O&M related projects within the water and wastewater systems as listed below:

#	Project Description	Total Approx. Value
35	NRWTP Raw Water Metering Improvements	\$135,000
36	NRWTP Sludge Lagoon Study and WTP Needs Assessment	\$60,100
37	NRWTP High Service Pump Replacement	\$200,000
38	MCAWRRF Cogeneration System Analysis	\$48,300
39	SRWTP Future Site Development Analysis	\$15,000

- **NRWTP Raw Water Metering Improvements**

The NRWTP is permitted to provide up to 2.0 MGD of potable drinking water to RWSA customers located in the Urban service area. After water is pumped from the raw water pump station on the North Fork Rivanna River, the raw water flow is metered by an orifice plate, or insert style meter, prior to entering the rap mix chamber. The meter is located behind the existing powdered activated carbon feed system and is difficult to access. In addition, RWSA recognizes that the accuracy of this style of meter is reduced by laying length conditions in comparison to modern magnetic flow meters which have been installed at other locations. RWSA is working with SEH to develop contract documents to have a magnetic flow meter installed on the raw water line in an exterior below grade vault. Bidding is expected in February 2019 and construction to be completed by July 2019.

- **NRWTP Sludge Lagoon Study and WTP Needs Assessment**

The two lagoons or settling ponds at the plant are earthen basins designed to capture and hold residuals generated through the treatment process as well as periodic draining and washdown of the sedimentation and flocculation basins. The basins were designed to allow all the residuals and solids to settle out and then the clarified water to be decanted and conveyed to the river. The operational use of these lagoons is not as originally intended, and the Virginia Department of Environmental Quality has concerns regarding their condition. A study is being performed to determine how they can be improved, and other locations on site that may be less prone to flood waters. Under this project, a needs assessment at the plant will be also be performed and updated.

- **NRWTP High Service Pump Replacement**

The two existing high service pumps at the NRWTP were installed when the plant was originally constructed in 1974 and as a result have reached the end of their serviceable lives. Due to excessive maintenance needs and concerns regarding their reliability, RWSA is working with SEH to develop

quote packages for the procurement of the pumps and then installation. Quotes have been received for the procurement of the pumps and installation and the work anticipated to begin in January 2019.

- MCAWRRF Cogeneration System Analysis

The MCAWRRF currently utilizes a cogeneration facility which accepts digester gas and uses it to create electricity and heat. The facility was put into operation in 2011. The generator supplies power back to the plant electrical distribution system providing energy usage savings through offsetting usage through the electric utility. Unfortunately, there have been a number of issues associated with operation of the generator including, expensive and proprietary maintenance services and temperature issues. With a significant and expensive scheduled maintenance event forthcoming, RWSA wanted to conduct a study to determine if these issues could be resolved or if there was a more efficient way to utilize the digester gas. This study will evaluate options for improvements to the existing system or new systems that could be implemented along with estimated costs and returns on investment. The study is expected to be complete by February 2019.

- SRWTP Future Site Development Analysis

As future water demands increase, facility expansions and additions at the SRWTP site are proposed to continue. At some point in the future RWSA has plans to increase the capacity at the SRWTP to 16 MGD along with preliminary plans for a 41 MGD raw water pump station and a 25 MGD pretreatment facility associated with the future transfer of raw water from the South Rivanna Reservoir to the Ragged Mountain Reservoir. With property development activity increasing near the plant, the intent of this analysis is to confirm what approximate space would be needed to meet the plant's future needs in order to better determine future property requirements. The analysis is expected to be complete by February 2019.

MEMORANDUM

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

FROM: DAVE TUNGATE, DIRECTOR OF OPERATIONS

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: OPERATIONS REPORT FOR DECEMBER 2018

DATE: JANUARY 22, 2019

WATER OPERATIONS:

The average daily/monthly total water distributed for December 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	1.68	52.16	2.07 (12/15/18)
South Rivanna	5.53	171.32	6.82 (12/12/18)
North Rivanna	<u>0.32</u>	<u>10.03</u>	0.41 (12/19/18)
Urban Total	7.53	233.51	8.79 (12/12/18)
Crozet	0.503	15.60	0.71 (12/30/18)
Scottsville	<u>0.045</u>	<u>1.39</u>	0.071 (12/11/18)
RWSA Total	8.08	250.50	---

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

Status of Reservoirs (as of January 19 , 2019):

- Urban Reservoirs: 100 % of Total Useable Capacity
- Ragged Mountain Reservoir is full (100%)
- 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 December 2018. Performance of the WRRFs in December 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	13.7	0.5	10	1.0	22	0.15	2.0
Glenmore	0.218	3.0	15	4.6	30	0.03	NL
Scottsville	0.109	3.0	25	6.9	30	0.04	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 AWWRF were as follows for December 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	23,583	7793	33%
Phosphorous	18,525	1,544	236	15%

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

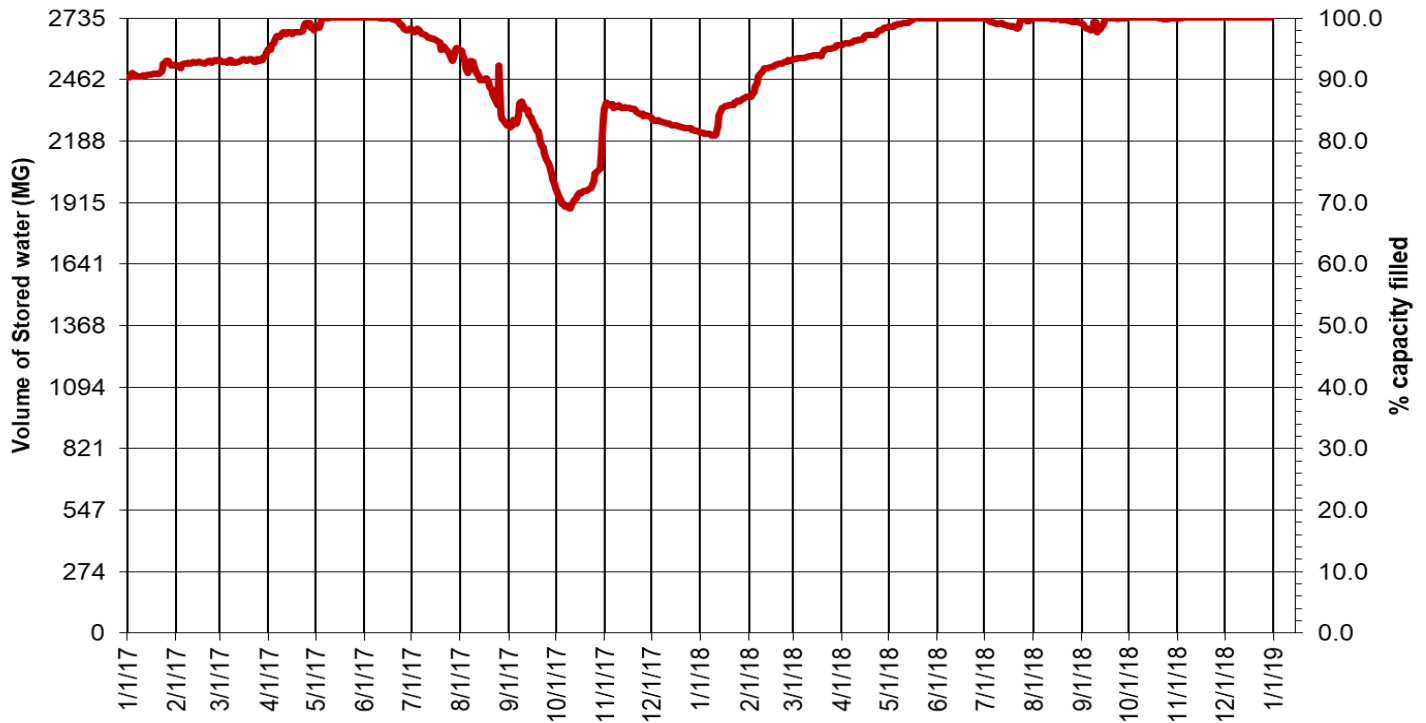
WATER AND WASTEWATER DATA:

The following graphs are provided for review:

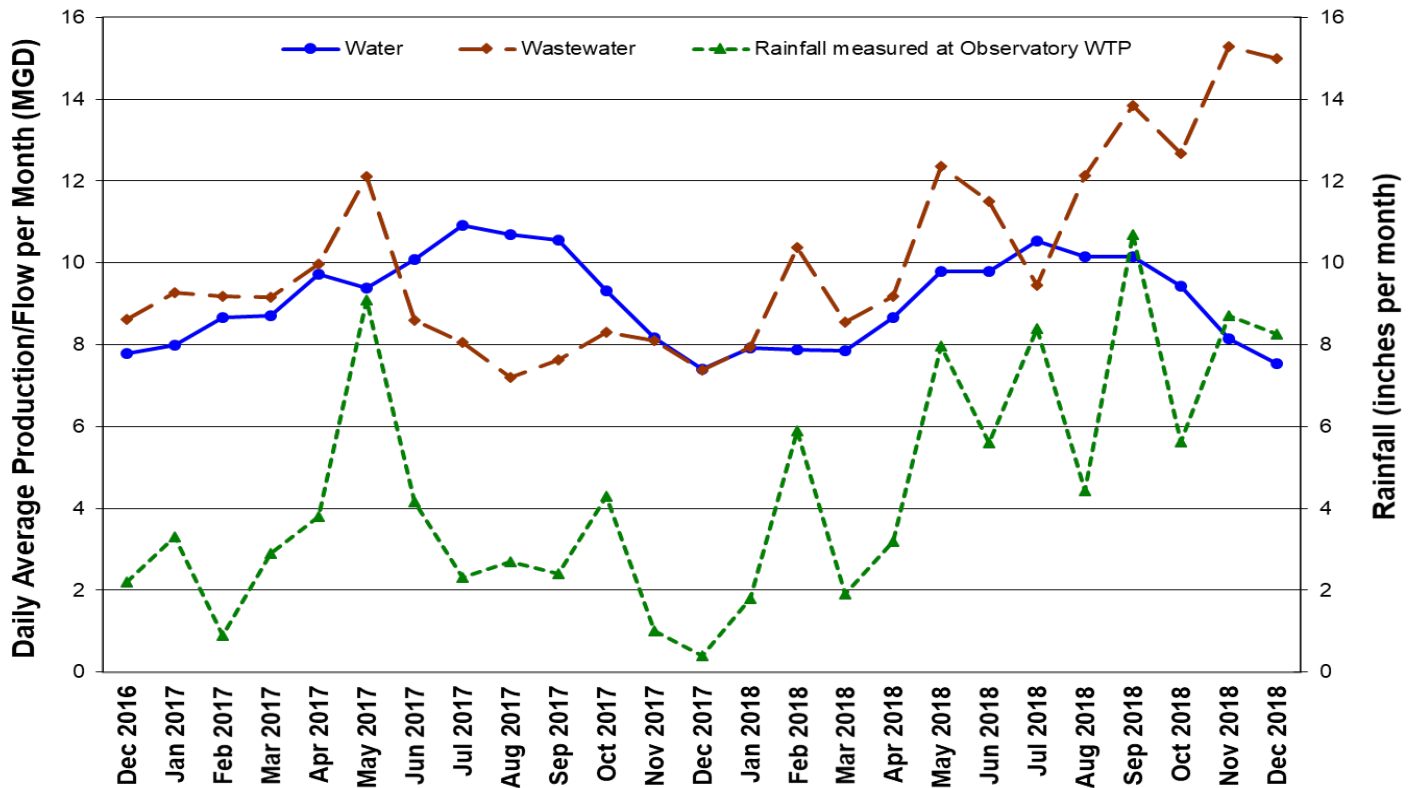
- Usable Urban Reservoir Water Storage
- Urban Water and Wastewater Flows versus Rainfall

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 AND
MAINTENANCE**

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

**SUBJECT: APPROVAL OF CAPITAL IMPROVEMENT PLAN
AMENDMENT AND CONTRACT AWARD – VALVE REPAIR-
REPLACEMENT (PHASE 2) – GARNEY COMPANIES**

DATE: JANUARY 22, 2019

Isolation valves are critical for normal operation of the water distribution system and timely emergency response to water main breaks. RWSA Engineering Staff continuously reviews results from an ongoing Valve Exercising and Condition Assessment Program conducted by the Maintenance department. The scope of Phase 2 of the RWSA Valve Repair-Replacement Project is to replace the highest-priority valves identified in the condition assessment as being inoperable and unrepairable, as well as addressing repairable valves with operational deficiencies. Construction is scheduled to begin in March 2019.

Pursuant to the project schedule coordinated with RWSA Staff, ACSA, and VDOT, RWSA engineering staff completed a design, and the project was advertised for bids (RFB No. 349) on November 6, 2018. A pre-bid conference was held on November 19, 2018, and construction bids were opened on December 11, 2018. Two competitive bids were received for the project. Fielder's Choice Enterprises, Inc. (FCE) submitted a bid of \$849,000, and Garney Companies, Inc. submitted a bid of \$843,460. Garney Companies, Inc. is the project's apparent low bidder. Staff reviewed bids from both companies and found both to be responsive to the bid requirements.

In order to achieve the project's main objective of repairing or replacing all known valves in the water distribution system that pose an operational liability, staff requests authorization to award a construction contract to Garney Companies, Inc. for \$843,460. The current Capital Improvement Plan (CIP) budget for this project is \$500,000. Incorporating this bid value into the project would represent an increase to the CIP Budget of \$382,914.

As part of this project, it was anticipated that two valves would be installed for ACSA in conjunction with RWSA valves in order to minimize system disruption associated with additional

shutdowns and outages and to take advantage of competitive pricing. ACSA will be providing funding for these valves at a value of \$77,341 based on the apparent low bidder's prices.

Work associated with valve replacement is frequently impacted by unforeseen conditions; however, as project work begins, opportunities to reduce project expenses will be reviewed and applied where appropriate. Each valve included in the project's scope of work has been identified by the RWSA Maintenance Department as having an operational deficiency. Some valves are completely inoperable, complicating the isolation of water main breaks. Site conditions vary widely for work on existing waterlines, and factors such as waterline size, depth, and proximity to other existing features and roadways all factor into the pricing provided by contractors.

Given that the pricing provided by the two contractors was similar, RWSA staff feels that the pricing is in accordance with the current market value for the work and recommends proceeding with the apparent low bidder.

Board Action Requested:

Staff requests that the Board of Directors authorize the Executive Director to award a construction contract to Garney Companies, Inc. for a total value of \$843,460 for Phase 2 of the RWSA Valve Repair-Replacement Project, and any change orders to the construction contract, only when necessary for completion of this project, provided the total amount of any change orders does not exceed 10% of the total construction contract value.

Staff also requests the Board of Directors to amend the Capital Improvement Plan for Fiscal Years 2019 - 2023 to include a budget increase for Phase 2 of the RWSA Valve Repair-Replacement Project of \$382,914 in Fiscal Year 2019. This amendment would bring the total budget for Phase 2 of the RWSA Valve Repair-Replacement Project to \$882,914.

MEMORANDUM

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

FROM: ELIZABETH COLEMAN, SAFETY MANAGER

REVIEWED BY: BILL MAWYER, EXECUTIVE DIRECTOR

**SUBJECT: APPROVAL OF TERM CONTRACT FOR SAFETY AND INDUSTRIAL
HYGIENE SERVICES - CIRCLE SAFETY AND HEALTH CONSULTANTS,
LLC**

DATE: JANUARY 22, 2019

The RWSA and RSWA have a Strategic Plan goal of Operational Optimization which includes a strategy to protect our workforce by growing a culture of safety. In support of this strategy, we have identified various safety and industrial hygiene consulting services to support on-going and future projects and programs. To procure these services, a Request for Proposals (RFP 18-04) for a term contract was developed and advertised on November 6, 2018. A proposal from Circle Safety and Health Consultants, LLC was received on December 7, 2018.

Based on the qualifications of the firm and the proposed project team, responsiveness to the scope of services, the firm's experience with similar projects and quality of previous work performed for other clients, it was determined by the Selection Committee that Circle Safety and Health Consultants, LLC was a highly qualified candidate. An interview with the firm was conducted on January 4, 2019, and the Committee determined that selection of Circle Safety and Health Consultants, LLC would be recommended.

Work tasks under this contract may include:

- Assessment of our Safety Program and completion of a Master Safety Plan to ensure regulatory compliance and strategically prioritize improvements.
- Assessment of confined spaces, asbestos-containing materials, and excessive noise levels in our work spaces.
- An update of our hazard communication and fall protection programs.
- Industrial hygiene exposure measurements for chemicals in our work spaces.
- Review and completion of lock-out / tag-out procedures.

Board Action Requested:

Staff requests that the Board of Directors authorize the Executive Director to execute an Agreement, as well as future work authorizations, with Circle Safety and Health Consultants, LLC for a term contract for safety and industrial hygiene consulting services. The contract will be awarded for one year, with the option for up to four additional one-year renewals, for a total contract length not to exceed five years.

MEMORANDUM

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

FROM: BILL MAWYER, EXECUTIVE DIRECTOR

SUBJECT: VALUE ENGINEERING FOR CIP PROJECTS

DATE: JANUARY 22, 2019

This memo and short presentation are to provide a brief review of our Value Engineering (VE) program, and our plans for use of the VE process in our upcoming CIP.

What is Value Engineering?

Value Engineering is a systematic process of review and analysis of a capital project to ensure that the project goals are met at the lowest reasonable cost. VE is an advanced form of quality and cost control typically performed by a team of independent reviewers who are each highly knowledgeable in at least one of the professional disciplines that entails a significant component of the project.

Quality and cost control are important parts of every capital project implemented by the Authority in three ways. First, all design services awarded by the Authority require engineering firms to engage internal quality and cost control as a part of design. Second, the Authority actively engages budget and cost control through staff's project management. Third, engineering staff and other department managers engage in review of project design within the limits of our staff's expertise. Separately contracted VE is more specialized; when the value or importance of a project merits a review that is both independent of the design firm and requires expertise for which the Authority must contract. VE also adds project costs; therefore, it should only be employed when the judgment of the likelihood of cost savings or other benefits "outweighs" the added costs.

Formal VE can be conducted at one or more stages of a project, as needed. The VE teams are assembled to meet the unique needs of individual projects, and as such may consist of a variety of individuals with expertise in key fields. As an example, the GAC project Value Engineering team consisted of members with expertise in water treatment, site design, mechanical engineering, electrical engineering, and structural design. The VE team typically will convene and conduct a series of review workshops, design discussions, and brainstorming sessions. The outcome of these efforts are then summarized and reviewed with the project design engineer. Not all ideas generated by the value engineering team will be feasible, viable, or implemented; however, the goal of the process is to improve the overall project efficiency by implementing the best ideas.

Existing Board Policy

Our existing policy was adopted by the Board in January 2014. The policy established a practice of obtaining independent VE services for projects with a budget greater than \$5 M. The policy also authorized latitude for the Executive Director to utilize a VE process based on the potential for cost savings and other benefits.

This policy is consistent with the Code of Virginia requirements for the use of VE on Commonwealth projects. Virginia policy allows the VE process to be included as an “integral component” of the design engineer’s contract, rather than through an evaluation by an independent firm. In all of the policy and/or guidance documents concerning the VE process, there is considerable latitude given to the agency director as to implementation.

In the upcoming FY 2019 – 2020 CIP, two projects are planned to receive a VE review as an integral component of the design process by the design engineer, and without the services of an independent firm:

- | | |
|---|--------|
| 1. Observatory Water Treatment Plant Renovation and Expansion | \$20 M |
| 2. South Rivanna Water Treatment Plant Renovation | \$15 M |

Both of these projects, along with the ongoing Crozet Water Treatment Plant Expansion project, are being designed by our consultant, SEH Engineering. Our Engineering, Operations, and Maintenance staff are extensively involved in the design decisions and equipment selection aspects of the renovations to ensure all expenditures are cost effective and include life-cycle considerations to provide value to the renovated facilities. SEH will provide a written summary of the VE considerations addressed during the design.

Board Action Requested

This information is provided only as a review of our Value Engineering program, and our plans for use of the VE process in our upcoming CIP.



Value Engineering for CIP Projects

BILL MAWYER, EXECUTIVE DIRECTOR

JANUARY 22, 2019



Value Engineering: Code of VA for State projects

- Is a systematic process of review and analysis of a capital project by a team of persons not originally involved in the project.
- Such team, which shall include appropriate licensed professionals, may offer suggestions that would improve project quality and reduce total project cost by combining or eliminating inefficient or expensive parts or steps in the original proposal or by totally redesigning the project using different technologies, materials, or methods.
- Required for capital projects > \$5 M
- Not required for:
 - Projects that have VE process included as an integral component of the project design
 - Design-build and Construction Management-at-risk projects
- Latitude to waive the requirement authorized to the Director of General Services



Use of Value Engineering

RWSA Board adopted guidance for use of a Value Engineering process in January 2014, which included:

- Use of an independent, third-party firm to complete a VE process for CIP projects > \$5 M
- Latitude to the Executive Director to utilize the VE process based on the potential for cost savings and other benefits



FY 2019 – 2020 CIP

- RWSA may have 2 projects:
 1. Observatory Water Treatment Plant Renovation and Expansion \$20 M
 2. S. Rivanna Water Treatment Plant Renovation \$15 M
- Projects are being designed by the same engineering consultant, SEH, and will be competitively bid as one construction contract to:
 - Interest larger contractors
 - Encourage volume-based costs
 - Provide consistency of equipment and materials
 - Reduce administrative costs
- 30% design to be completed in February 2019
- VE has been included as an integral component of the design process
- The design engineer will provide a written report of VE considerations



FY 2021 – 2029 CIP

- Candidate projects include:
 - Beaver Creek Dam and Pump Station
 - Raw Water Pump Station and Pipeline, RMR to OWTP
 - S. Rivanna River Crossing and Transmission Main

Questions?
