Rivanna Water and Sewer Authority

Board of Directors Meeting

April 24, 2018

2:15pm

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

BOARD OF DIRECTORS

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

DATE: **April 24, 2018**

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

TIME: **2:15 p.m.**

AGENDA

1. ***CALL TO ORDER***

2. ***MINUTES OF PREVIOUS BOARD MEETINGS***
   a. *Minutes of Regular Board Meeting on March 27, 2018*

3. ***RECOGNITION***
   Government Finance Officers Association's Certificate of Achievement for Excellence in Financial Reporting has been awarded to the RWSA for its 2017 comprehensive annual financial report (CAFR) – received by RWSA's Director of Finance and Administration, Lonnie Wood

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. *Engineering Services – South Rivanna Reservoir To Ragged Mountain Reservoir Water Line Right-Of-Way – Birdwood Golf Course Water Main*

8. ***OTHER BUSINESS***
   (JOINT SESSION WITH THE RSWA; RECONVENE THE RSWA MEETING; MOTION REQUIRED)

   a. *Strategic Plan Implementation – Katie McIlwee, Communication Manager, Executive Coordinator and Goal Team Leader*

(RECESS TO COMPLETE THE RSWA MEETING; MOTION REQUIRED)

b. *Presentation Of Phase 2 - RWSA Reservoir Water Quality Management Study – Andrea Terry, Water Resources Manager And Kelly Dinatale, DiNatale Water Consultants*

c. *Hybrid GAC System Review – Bill Mawyer, Executive Director and Dave Tungate, Director of Operations*

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)

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

RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
March 27, 2018

A regular meeting of the Rivanna Water & Sewer Authority (RWSA) Board of Directors was held on Tuesday, March 27, 2018 at 2:15 p.m. in the 2nd floor conference room, Administration Building, 695 Moores Creek Lane, Charlottesville, Virginia.

Board Members Present: Ms. Kathy Galvin (arrived at 2:23 p.m.); Ms. Lauren Hildebrand; Mr. Maurice Jones; Mr. Gary O'Connell; Dr. Liz Palmer and Mr. Jeff Richardson (left at 2:48 p.m.).

Board Members Absent: Mr. Mike Gaffney.

Staff Present: Ms. Miranda Baird, Mr. Tim Castillo, Mr. Dom Freeman, Mr. Bill Mawyer, Ms. Katie McIlwee, Ms. Betsy Nemeth, Mr. Scott Schiller, Ms. Michelle Simpson, Ms. Andrea Terry, and Mr. Lonnie Wood.

Also Present: Mr. Kurt Krueger, RWSA counsel.

1. CALL TO ORDER

Mr. Jones, as Vice Chair, presided in Mr. Gaffney's absence and called to order the Board of Directors of the Rivanna Water and Sewer Authority at 2:15 p.m.

2. MINUTES OF PREVIOUS BOARD MEETINGS

a. Minutes of Regular Board Meeting on February 27, 2018

Mr. O'Connell moved to approve the minutes of February 27, 2018. Dr. Palmer seconded the motion, which passed unanimously (5-0). Mr. Gaffney was absent from the meeting and the vote and Ms. Galvin had not yet arrived at the meeting.

3. RECOGNITION

Mr. Jones noted that there were no recognitions this month and moved onto the Executive Director's report.

4. EXECUTIVE DIRECTOR'S REPORT

Mr. Mawyer reported that four out of the five reservoirs were full, and Ragged Mountain was the only exception at 91% full. He noted that Rivanna had started filling Ragged Mountain on January 22, 2018 at which time it was about 80% full – so it has taken over two months to gain 10%, with another two months needed to fill the reservoir if Sugar Hollow stays full. He referenced the state drought condition map, stating that the February 25th map showed groundwater in a "warning" stage that continues to remain in that stage, but the streamflow has improved from the "watch" to the "normal" level. Mr. Mawyer mentioned that precipitation, reservoir levels, and streamflows were all normal, with the groundwater level still in a "watch" stage.

Mr. Mawyer reported that Rivanna had met with DEQ on March 25 to discuss the drinking water infrastructure plan for the Crozet area and to review calculations on safe yield, as well as the minimum instream flow requirement that the regulators would have for Beaver Creek Reservoir. He noted that this was part of the 50-year water supply plan for Crozet, and state and federal agencies were receptive to Rivanna's report. Mr. Mawyer stated that the RWSA had not yet made official joint permit application but would in the next few months. He stated that the primary topic was whether a larger water supply was needed for the Crozet area for the next 50 years, but preliminarily there seems to be an adequate supply. Mr. Mawyer noted that Rivanna planned to meet with the Crozet Community Advisory Committee on June 20, 2018.

Dr. Palmer asked if Rivanna felt they had sufficient water for Crozet for the next 50 years.

Mr. Mawyer confirmed that they did but was still going through the calculations of safe yield and how much would be required in a stream release. He stated that Rivanna was hoping for a reasonable application of DEQ requirements, balanced with RWSA needs, and that no expansion of water supply in Crozet would be required.

Dr. Palmer asked if RWSA had not had instream flow requirements below the dam to date.

Mr. Mawyer confirmed that this was the case, adding that Beaver Creek was a grandfathered facility with no official minimum instream requirement. He noted that Rivanna was still working through the numbers with DEQ and other regulators in terms of how much water was coming in to the reservoir, how much had to be released to the stream, and what safe yield would be available. Mr. Mawyer commented that this water supply assessment fit in with plans for expanding the water treatment plan in Crozet from 1 MGD to 2 MGD, as some peak day demands were challenging the 1 MGD production. He stated that the RWSA was already designing that project.

Mr. O'Connell asked if the community meeting was set in June.

Mr. Mawyer responded that it was scheduled for June 20 at 7 p.m. at the Crozet Library.

Mr. Mawyer reported that Rivanna had met with the UVA Foundation regarding the South Rivanna Reservoir to Ragged Mountain Reservoir pipeline and the likelihood it would cross

Birdwood Golf Course, with coordination needed related to the Foundation's planned construction there and the possibility of getting Rivanna's pipeline in as part of that golf course project. He stated that UVA plans to start construction in July, so Rivanna is doing everything possible to get the pipeline coordinated with that effort.

Mr. Mawyer reported that the RWSA has had active community outreach, and Wastewater Department Manager Tim Castillo, Water Department Manager Dave Tungate, and Director of Engineering and Maintenance Jennifer Whitaker have all spoken to classes at UVA, as well as given tours. He stated that Water Resources Manager Andrea Terry and Water Quality Specialist Bethany Houchens had participated in the City of Charlottesville's "Fix a Leak 5K," with Ms. Terry and Katie McIlwee also participating in the World Water Day events sponsored by the Ivy Creek Foundation. Mr. Mawyer noted that he was scheduled the following day to speak to the League of Women Voters and the Sierra Club about Rivanna's water treatment and water supply programs.

Mr. Mawyer stated that Rivanna has scheduled celebration events for the granular-activated carbon project, with invitations to be extended soon. He stated that there would be an event held on May 8, 2018 at the South Rivanna Water Treatment Plant in conjunction with National Drinking Water Week May 7-11, and there would be a similar ceremony and celebration at the Crozet Water Treatment Plant on May 9, and at the Scottsville Water Treatment Plant on May 10. Mr. Mawyer reported that May 14-18 was National Infrastructure Week, and Rivanna plans to celebrate completion of its odor control project with a ceremony and cookout at Riverview Park on May 17 at 12 noon.

Mr. Mawyer reported that Rivanna was continuing to participate in the Alum litigation with other utilities in Virginia, and Aqualaw PLC in Richmond and Ballard-Spahr from Philadelphia were serving as Rivanna's counsel on that project.

Mr. Mawyer noted that Scottsville had begun treating water with the GAC system in February, and Crozet and the North Rivanna plants would begin treating water with the GAC system in March; the South Rivanna and Observatory plants would begin at the end of April.

5. ITEMS FROM THE PUBLIC

There were no items from the public.

6. RESPONSES TO PUBLIC COMMENTS

There were no responses to public comments from the previous month.

7. CONSENT AGENDA

a. Staff Report on Finance

b. Staff Report on Ongoing Projects

c. Staff Report on Operations

d. MCAWRRF Second Centrifuge Project – Request for Additional Construction Change Order Authorization and Project Budget

Dr. Palmer moved to approve the Consent Agenda as presented. Mr. Richardson seconded the motion, which passed unanimously (6-0). Mr. Gaffney was absent from the meeting and the vote.

8. OTHER BUSINESS

a. Presentation from Rivanna Conservation Alliance, Executive Director, Robbie Savage

Ms. Savage reported that she had come before the RWSA Board in 2017 to talk about the Rivanna Conservation Alliance in terms of what the organization was doing to enhance its water quality monitoring – and they have exceeded all goals and expectations. She stated that the Level 3 Bacteria Monitoring Program was achieved and approved by the DEQ, and the Alliance is at the highest levels for both benthic and bacteria programs, as well as being the only nonprofit that has this program. Ms. Savage noted that they may also be the only one who has it within the Chesapeake Bay area, and with programs nationally being reduced, eliminated, or decreased in rigor, it was important at the local level to have the kind of monitoring that enables them to maintain environmental programs over time. She stated that what it means for Level 3 is that all the data collected by staff and volunteers is equivalent to anything the state, USGS, or EPA provide. She stated that those organizations use that data for decision making for things like TMDL, water quality inventory, or development of water quality standards.

Ms. Savage mentioned that the Alliance received the Virginia Earth Team award in December for its outstanding use of citizen volunteers, and would receive the Southwest Regional NRCS award in April; the American Fisheries Society awarded her with a Virginia "Conservationist of the Year" award in February. She noted that she would be retiring as of December 31, 2018, but she had a wonderful staff that would continue providing an excellent level of service to the community. Ms. Savage stated that their new office would be located on 1150 River Road, and they would be sharing this building with The Nature Conservancy.

RWSA Board members thanked Ms. Savage for her service to the community.

b. Introduction of Proposed FY 2018 – 2019 Budget: Executive Director, Bill Mawyer

Mr. Mawyer recognized staff for their work in putting the budget together, stating that he would briefly present it to the Board. He mentioned that in the past year, Rivanna completed the GAC project and had substantially finished the odor control project. Mr. Mawyer stated that they completed their strategic plan, and Lonnie Wood and Betsy Nemeth had finished the classification and compensation study presented to the Board in February. He stated that there had been 14 out of 84 water and sewer positions turn over in the last year, with Ms. Nemeth's staff recruiting replacements, and there were 3 new positions added that were also filled. Mr. Mawyer noted that Rivanna had improved some staff credentials, particularly water operators

who increased their license levels – with the highest being Class 1 – and this would help with licensing requirements at the Observatory and South Rivanna plants.

Mr. Mawyer reported that Rivanna would be implanting its strategic plan in the coming year and at the April RWSA Board meeting would describe projects and implementation. He stated that Ms. Nemeth and her staff have met with Piedmont Virginia Community College and have developed a leadership development program, with many staff – especially middle managers – taking half-day classes through a PVCC instructor.

Mr. Mawyer reported that Rivanna would continue with the South Rivanna to Ragged Mountain pipeline right-of-way project; the Avon to Pantops pipeline; South Rivanna and Observatory water treatment plant improvements; Crozet Water Treatment Plant upgrades including a water treatment plant upgrade, construction of a water pump station, a wastewater flow equalization tank near Route 250, and Beaver Creek Dam modifications.

Mr. Mawyer stated that Rivanna has about $306 million in assets, including the five reservoirs, five water treatment plants, four wastewater treatment plants, wastewater and water pump stations, and water/wastewater distribution piping. He stated that they also manage Lickinghole Creek Basin as a storm water impoundment. Mr. Mawyer stated that the proposed budget for FY19 is $33,277,000, with 47% comprised of debt service to pay for construction projects, personnel costs at 25% or $8.2 million; general services, including utilities, insurance, permits, professional fees at 12%; and operation and maintenance comprising the remaining 16%. He stated that the current proposed budget was $2.3 million greater than last year, or a 7.3% increase, and that includes an operating expense increase of $1 million and debt service expense increase of $1.3 million.

Mr. Mawyer stated that to fund these increases in expenses, Rivanna is proposing an increase in revenue or charges to the City of approximately $681,000 – a 5% increase; and a $1.6 million increase to the Albemarle County Service Authority, representing a 10.4% increase. He stated that the operating budget of $1 million is comprised of a 3% merit pool for personnel, three additional positions for FY19 – a water plant operator, an instrumentation specialist to assist in monitoring and managing the devices in the water treatment plants and the meters in the system, and a software analyst to help manage SCADA, GIS, document management, and financial management systems. Mr. Mawyer noted that their health insurance consultant states that Rivanna should anticipate a 10% increase in health insurance rates.

Mr. Mawyer stated that personnel costs align with Rivanna's strategic plan goal of workforce development, and $115K is included in the budget to help with strategic plan implementation and provide resources to help achieve stated goals – which could include paying for Raftelis, training with PVCC, necessary software to help enhance both internal and external communications, and safety improvements. He reported that reservoir management reflects a cost increase, primarily for bathymetric studies to remeasure the volume of the Ragged Mountain and South Rivanna reservoirs – supporting the strategic plan goal of environmental stewardship. Mr. Mawyer stated that the urban wastewater system has a cost increase, largely due to the new Rivanna Sewage Pump Station. He stated they have been exceeding their prior budget in the

Crozet interceptor system as they convey sewage back and forth, with odor concerns along the way that have been mitigated by vendor chemical costs.

Mr. Mawyer reported that he has been advocating for a technology master plan, and as Rivanna considers purchasing a new asset management system and has multiple administrative systems, Rivanna needs to have a plan as to how these systems will all work together – ensuring that they are able to be integrated. He commented that they want GIS to serve as asset inventory, with data pertaining to pumps and pipes maintained within the GIS and asset management integrated with GIS so it can pull data out and help with predictive maintenance and replacement through GIS.

Mr. Mawyer referenced an organizational chart reflecting the three divisions as approved by the Board in 2018 and the three new positions included in the budget. He stated that debt service is the other part the $2.3 million increase, largely due to upgrades to treatment plants, the Avon to Pantops pipeline, and the Ragged Mountain to Observatory pipe and pump station replacement. He noted that there was a lot of work pending in Crozet and a lot of work for the urban water systems, which were collectively creating the debt service increase. Mr. Mawyer stated that Rivanna talked about the Ragged Mountain/Observatory project in their CIP discussion in February, noting that they replaced the pipes from Ragged Mountain Reservoir to the Observatory Treatment Plant. He explained that the existing pump stations pump the untreated raw water from Ragged Mountain to Observatory, which is about 100 years old, and as they upgrade that plant they want to make sure they can get the water to the plant. Mr. Mawyer referenced a map showing the new water line that would replace the two existing water lines and the new pump station that would serve the dual purpose of pumping water from Ragged Mountain Reservoir to the Observatory Treatment Plant and would pump back to the north to the South Rivanna Treatment Plant – serving as the southern terminus pump station as needed, when the pipeline is constructed.

Mr. Mawyer noted that Board members had been interested in the cost per gallon that would be translated to retail customers, but Ms. Hildebrand and Mr. O'Connell would need to provide that information.

Dr. Palmer responded that the ACSA was working on their rate structure and would not be passing all of those costs at once onto customers.

Mr. O'Connell explained that for an average 4,000-gallon-per-month residential customer, the ACSA would be looking at an 3.31% increase, equating to just over $2.00 per month per customer. He noted that depending on the season of the year, people used about 3,200 to 3,400 gallons per month. Mr. O'Connell clarified that the increase was for both water and sewer, bringing the Rivanna wholesale rate to the retail rate being charged to customers, and this would go before the ACSA Board on April 19.

Mr. Jones mentioned that the City would be considering water rates in May.

Dr. Palmer moved to approve the proposed rate resolution authorizing the RWSA to advertise water and sewer rates and set a public hearing for May 22, 2018. Ms. Galvin

seconded the motion, which passed unanimously (6-0). Mr. Gaffney was absent from the meeting and the vote.

9. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA

Mr. O'Connell asked Mr. Mawyer to address the status of the Observatory lease.
Mr. Mawyer explained that Rivanna had evolved from one lease for all University facilities to two leases with a separate lease for the Alderman Road pump station, as well as an easement for waterlines in between. He stated that the discussions with UVA were going positively, with Mr. Krueger drafting documents and Ms. Whitaker preparing the plats for the easements. He stated that after reviewing easements, staff was now ready to meet again with Mr. Krueger to discuss those – then would go back to UVA in April and again in May. He noted that they would involve the City to review the documents as they separate the lease, with the City having agreements on water rates and the RWSA having the lease for facilities. Mr. Mawyer stated that the lease went from being one document to at least three, but in the long run would be a good thing and was a 99-year lease, with UVA's details regarding lighting and noise to be integrated in the new documents.

Mr. Krueger mentioned that the original lease from 1922 was amended multiple times, and there have been add-on easements since then. He stated that Ms. Whitaker had catalogued the entire list of assets and they have been categorizing items into what goes into the plant lease, the other lease, and the easements, etc. Mr. Krueger noted that the survey Rivanna has commissioned would be a visual picture of all the pieces that need to go into various documents.

Mr. Mawyer commented that they hoped to have it wrapped up by the end of the year.

Ms. Galvin asked if the strategic plan had been helpful.

Mr. Mawyer responded that it had, stating that when different topics arise, they look to see how this fits and what guidance the plan can provide. He stated that the six goal teams were actively meeting now and were putting together the more detailed projects, thinking collectively about improvements and how to get there – so the plan was helping communications and networking, as well as results.

10. CLOSED MEETING

There was no closed meeting held.

11. *ADJOURNMENT*

Ms. Hildebrand moved to adjourn the meeting. Mr. O'Connell seconded the motion, which passed 4-0. Mr. Gaffney was absent from the meeting and the vote and Dr. Palmer and Mr. Richardson had left the meeting at 2:48 p.m. and were not present for the vote.

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

MEMORANDUM

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

FROM: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **EXECUTIVE DIRECTOR'S REPORT**

DATE: **APRIL 24, 2018**

New Director of Operations

SP GOAL: Workforce Development

I am pleased to announce that David Tungate has been selected as the new Director of Operations for the Rivanna Water and Sewer Authority. In this position, Dave will manage the Water, Wastewater and Laboratory Departments. For the past six years, Dave has served as the Water Department Manager in charge of our five water treatment plants.

With over 20 years of experience in the water industry, Dave began his career with the City of South Bend (Indiana) Water Works as the Water Quality Supervisor. Prior to coming to RWSA, Dave worked as the Water Utility Director at the City of South Bend Water Works, where he was responsible for overseeing the distribution of safe drinking water to over 115,000 people. Dave holds a Bachelor of Science degree in Natural Resources and Environmental Science from Purdue University, and a Master of Science degree in Soils Science & Groundwater from the University of Illinois.

Community Outreach

SP GOAL: Communication and Collaboration

Our Communications Manager, Katie McIlwee, developed a new "Education" page on our web site to provide information about projects, topics and resources related to our water/wastewater/refuse/recycling programs.

We provided a presentation and tour of the Moores Creek Wastewater facilities to several classes from PVCC, as well as a tour of Ragged Mountain Reservoir for a UVA Sustainability class. We gave a water and wastewater presentation to a class from Greene County HS.

The Environmental Studies Program at Western Albemarle High School toured our Moores Creek Wastewater facilities and Crozet Water Treatment Plant.

We will celebrate completion of our Granular Activated Carbon project during National Drinking Water Week, May 7 – 11. A ribbon-cutting ceremony with tours will be held on Tuesday, May 8 at the South Rivanna Water Treatment Plant at 10 a.m. Similar ceremonies will be held at the Crozet Water Treatment Plant on Wednesday, May 9 at 10 a.m., and at the Scottsville Water Treatment Plant on Thursday, May 16 at 10 a.m. Invitations have been extended to Board Members, elected officials, the media and the public for these events.

We will celebrate completion of our Odor Control project during National Infrastructure Week, May 14 – 18. A ceremony and cook-out will be held on Thursday, May 17 at noon in the Riverview Park. Invitations have been extended to Board Members, elected officials, the media and the public for this event.

Water Supply

SP GOAL: Operational Optimization:

Four of our five reservoirs are full and overflowing. Ragged Mountain Reservoir is 95% full. We started transferring water from Sugar Hollow to RMR on January 22, 2018.

The State Drought Monitoring Report continues to indicate central Virginia (our Middle James Region) is in a moderate drought.

Chairman Mike Gaffney and staff met with the UVA Foundation to coordinate installation of the SRR – RMR pipeline where it will cross Birdwood Golf Course for about 1 mile. We are working with our design engineer and making every effort to complete the design of this section of the piping so it can be constructed when the golf course modifications are being completed from July 2018 – April 2019.

Determination of the SRR – RMR water line alignment continues. We mailed 140 letters to owners requesting permission to access properties to complete preliminary investigations and surveying. We are responding to inquiries received from property owners, and will schedule neighborhood meetings to extend our communications. We have also placed maps of the 9-mile-long water line on our web page, along with a one-page summary of information about the project. The maps and summary are enclosed.

695 Moores Creek Lane
Charlottesville, VA 22902-9016
Tel: 434.977.2970
Fax: 434.293.8858
www.rivanna.org

South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Project Summary

April 2018

History

Drought in Central Virginia in 2001 - 2002 sparked a ten-year long water supply planning process and completion of a Community Water Supply Plan (2002-2012). This plan required the Rivanna Water & Sewer Authority (RWSA) to construct and operate:

- a new earthen dam at the Ragged Mountain Reservoir (completed in 2014)
- a water line from the South Rivanna Reservoir to the Ragged Mountain Reservoir
- modifications to raise the Ragged Mountain Reservoir water level an additional 12 feet when community water demand equals 85% of the available water capacity

Details

The water line will be a 9-mile-long, 36-inch diameter pipe with the capacity to transfer 25 million gallons per day of untreated water from the South Rivanna Reservoir to Ragged Mountain Reservoir, or transfer 16 million gallons per day of untreated water from the Ragged Mountain Reservoir to the South Rivanna Water Treatment Plant. In addition to the water line, the project will include an intake structure at the South Rivanna Reservoir, two raw water pump stations, and a pretreatment facility at the South Rivanna Water Treatment Plant to remove sediment and nutrients. This project is estimated to cost $80 million (in 2017 dollars).

Benefits and Timing

- ***Enhanced Dependability of Our Drinking Water System***: By connecting the South Rivanna Reservoir and the Ragged Mountain Reservoir, as well as the South Rivanna and Observatory Water Treatment Plants, our system will be capable of providing drinking water to the urban area from multiple facilities if there is a natural occurrence (earthquake, hurricane, drought, etc.) or incident (plane crash, fuel spill, equipment malfunction, etc.) which impacts our water storage or treatment facilities.
- ***Increased Water Supply***: Completion of the water line and raising the Ragged Mountain Reservoir water level an additional 12 feet will provide an adequate water supply in the urban area for at least 50 years.
- ***Less Impact to Water Costs***: Existing RWSA construction loan payments will decrease in about 2032. New loans in about 2032will have less impact on costs to water customers when existing loans have been reduced.
- ***Lower State and Federal Environmental Permit Costs***: Compliance with environmental regulations may become more costly with each passing decade.

Schedule

The preliminary engineering, route determination, and easement acquisition process began in 2017. Completion of this initial phase of the project is anticipated by 2021. Final design and construction of the project is anticipated between 2027 and 2040. The RWSA Board of Directors will review the schedule after it receives updated water demand and water storage data by 2020.

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

MEMORANDUM

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

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

SUBJECT: **MARCH MONTHLY FINANCIAL SUMMARY – FY 2018**

DATE: **APRIL 24, 2018**

Urban Water flows and rate revenues are 4% under budget estimates for the first nine months of this fiscal year, and Urban Wastewater rate revenues are 11% under budget. Revenues and expenses are summarized in the table below:

	Urban Water	Urban Wastewater	Total Other Rate Centers	Total Authority
Operations				
Revenues	$ 4,930,544	$ 4,833,118	$ 1,526,419	$ 11,290,081
Expenses	(4,797,980)	(5,738,045)	(1,434,531)	(11,970,556)
Surplus (deficit)	$ 132,564	$ (904,927)	$ 91,888	$ (680,475)
Debt Service				
Revenues	$ 4,257,603	$ 6,202,345	$ 629,934	$ 11,089,882
Expenses	(4,205,584)	(6,187,111)	(630,911)	(11,023,606)
Surplus (deficit)	$ 52,019	$ 15,234	$ (977)	$ 66,276
Total				
Revenues	$ 9,188,147	$ 11,035,463	$ 2,156,353	$ 22,379,963
Expenses	(9,003,564)	(11,925,156)	(2,065,442)	(22,994,162)
Surplus (deficit)	$ 184,583	$ (889,693)	$ 90,911	$ (614,199)

Some expense categories are over the prorated year-to-date budget as follows:

A. Personnel Costs (Lab – page 10) – Lab salaries are over budget due to the August payment of accumulated leave balances to the lab manager upon his retirement, and due to overlapping salaries in July for the former lab manager and his replacement.

B. Other Services & Charges (Urban Wastewater, Administration, Maintenance, Engineering - pages 5, 8, 9, 11) - Urban Wastewater is over budget on odor control

costs for Crozet Interceptor/Pump Stations, and Utility costs are running higher than budget estimates. The Administration department is over budget on strategic planning costs. The Maintenance and Engineering departments are also over budget in this category.

C. Equipment Purchases (Crozet Water, Scottsville Wastewater – pages 3, 7) – Crozet Water and Scottsville Wastewater made some unbudgeted equipment purchases.

D. Professional Services (Urban Water, Crozet Water, Administration – pages 2, 3, 8) – Urban Water is $87,000 over the total budget for the year for professional services, $44,000 for legal fees related to the Observatory plant lease and $43,000 for engineering and technical services. Crozet Water has spent $42,000 on unbudgeted engineering and technical services. Administration is currently $23,000 over the prorated budget for professional services, but is within the annual budget.

E. Operations and Maintenance (Urban Wastewater, Administration, Lab – pages 5, 8, 9) – Urban Wastewater is $134,000 over the prorated budget for Pipelines and Appurtenances due to emergency repairs. Urban Wastewater is also over budget on chemical purchases and repairs and maintenance. The Administration, Maintenance, and Lab departments are over budget on repairs.

Attachments

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

Consolidated
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 15,403,127	$ 11,552,345	$ 10,725,876	$ (826,469)	-7.15%
Lease Revenue		64,000	48,000	69,793	21,793	45.40%
Admin., Maint. & Engineering Revenue		410,000	307,500	331,928	24,428	7.94%
Other Revenues		534,630	400,973	411,426	10,454	2.61%
Use of Watershed Management Funds		80,000	60,000	58,789	(1,211)	-2.02%
Interest Allocation		15,000	11,250	24,197	12,947	115.08%
Total Operating Revenues		**$ 16,506,757**	**$ 12,380,068**	**$ 11,622,009**	**$ (758,058)**	**-6.12%**
Expenses						
Personnel Cost	**A**	$ 7,841,522	$ 5,769,664	$ 5,483,148	$ 286,516	4.97%
Professional Services	**D**	590,350	442,763	503,086	(60,324)	-13.62%
Other Services & Charges	**B**	2,552,662	1,914,497	2,142,035	(227,539)	-11.89%
Communications		142,605	106,954	107,195	(242)	-0.23%
Information Technology		324,400	243,300	172,130	71,170	29.25%
Supplies		44,970	33,728	32,705	1,022	3.03%
Operations & Maintenance	**E**	3,613,450	2,710,088	2,831,445	(121,358)	-4.48%
Equipment Purchases	**C**	336,300	252,225	235,362	16,863	6.69%
Depreciation		788,000	591,000	591,000	(0)	0.00%
Reserve Transfers		272,500	204,375	204,375	0	0.00%
Total Operating Expenses		**$ 16,506,759**	**$ 12,268,592**	**$ 12,302,483**	**$ (33,891)**	**-0.28%**
Operating Surplus/(Deficit)		**$ (2)**	**$ 111,476**	**$ (680,474)**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 13,561,158	$ 10,170,869	$ 10,170,873	$ 5	0.00%
Use of Reserves for 2016 Bond DS		600,000	450,000	450,000	-	0.00%
Septage Receiving Support - County		109,440	82,080	109,441	27,361	33.33%
Buck Mountain Surcharge		84,000	63,000	123,100	60,100	95.40%
Buck Mountain Lease Revenue		1,600	1,200	1,309	109	9.06%
Trust Fund Interest		46,400	34,800	13,502	(21,298)	-61.20%
Reserve Fund Interest		100,500	75,375	221,657	146,282	194.07%
Total Debt Service Revenues		**$ 14,503,098**	**$ 10,877,324**	**$ 11,089,882**	**$ 212,558**	**1.95%**
Debt Service Costs						
Total Principal & Interest		$ 12,370,200	$ 9,277,650	$ 9,277,650	$ -	0.00%
Reserve Additions-Interest		100,500	75,375	221,657	(146,282)	-194.07%
Debt Service Ratio Charge		725,000	543,750	543,750	-	0.00%
Reserve Additions-CIP Growth		1,307,400	980,550	980,550	-	0.00%
Total Debt Service Costs		**$ 14,503,100**	**$ 10,877,325**	**$ 11,023,607**	**$ (146,282)**	**-1.34%**
Debt Service Surplus/(Deficit)		**$ (2)**	**$ (2)**	**$ 66,275**		

Summary

Total Revenues	$ 31,009,855	$ 23,257,391	$ 22,711,891	$ (545,500)	-2.35%
Total Expenses	31,009,859	23,145,917	23,326,090	(180,173)	-0.78%
Surplus/(Deficit)	**$ (4)**	**$ 111,474**	**$ (614,199)**		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Urban Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 6,758,077	$ 5,068,558	$ 4,841,692	$ (226,866)	-4.48%
Lease Revenue		35,000	26,250	49,299	23,049	87.81%
Miscellaneous		7,000	5,250	-	(5,250)	-100.00%
Use of Reserves		40,000	30,000	29,394	(606)	-2.02%
Interest Allocation		6,300	4,725	10,159	5,434	114.99%
Total Operating Revenues		**$ 6,846,377**	**$ 5,134,783**	**$ 4,930,544**	**$ (204,239)**	**-3.98%**
Expenses						
Personnel Cost		$ 1,828,852	$ 1,346,829	$ 1,288,391	$ 58,438	4.34%
Professional Services	D	142,450	106,838	229,754	(122,916)	-115.05%
Other Services & Charges		606,100	454,575	326,547	128,028	28.16%
Communications		64,690	48,518	48,218	299	0.62%
Information Technology		65,300	48,975	21,211	27,764	56.69%
Supplies		7,000	5,250	5,608	(358)	-6.81%
Operations & Maintenance		1,522,660	1,141,995	1,052,000	89,995	7.88%
Equipment Purchases		106,500	79,875	54,568	25,307	31.68%
Depreciation		260,000	195,000	195,000	(0)	0.00%
Reserve Transfers		250,000	187,500	187,500	0	0.00%
Subtotal Before Allocations		$ 4,853,552	$ 3,615,354	$ 3,408,797	$ 206,557	5.71%
Allocation of Support Departments		1,992,824	1,469,443	1,389,184	80,260	5.46%
Total Operating Expenses		**$ 6,846,377**	**$ 5,084,797**	**$ 4,797,980**	**$ 286,817**	**5.64%**
Operating Surplus/(Deficit)		**$ 0**	**$ 49,985**	**$ 132,564**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 5,345,730	$ 4,009,298	$ 4,009,302	$ 5	0.00%
Trust Fund Interest		18,000	13,500	5,306	(8,194)	-60.69%
Reserve Fund Interest		18,000	13,500	118,586	105,086	778.42%
Buck Mountain Surcharge		84,000	63,000	123,100	60,100	95.40%
Lease Revenue		1,600	1,200	1,309	109	9.06%
Total Debt Service Revenues		**$ 5,467,330**	**$ 4,100,498**	**$ 4,257,603**	**$ 157,106**	**3.83%**
Debt Service Costs						
Total Principal & Interest		$ 4,242,130	$ 3,181,598	$ 3,181,598	$ -	0.00%
Reserve Additions-Interest		18,000	13,500	118,586	(105,086)	-778.42%
Debt Service Ratio Charge		400,000	300,000	300,000	-	0.00%
Reserve Additions-CIP Growth		807,200	605,400	605,400	-	0.00%
Total Debt Service Costs		**$ 5,467,330**	**$ 4,100,498**	**$ 4,205,584**	**$ (105,086)**	**-2.56%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 52,020**		

Rate Center Summary

Total Revenues	$ 12,313,707	$ 9,235,280	$ 9,188,147	$ (47,133)	-0.51%
Total Expenses	12,313,707	9,185,295	9,003,564	181,731	1.98%
Surplus/(Deficit)	**$ 0**	**$ 49,985**	**$ 184,583**		
Costs per 1000 Gallons	1.99		1.95		
Thousand Gallons Treated	3,432,018	2,574,014	2,458,960	(115,054)	-4.47%
or					
Flow (MGD)	9.403		8.974		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Crozet Water Rate Center
Revenues and Expenses Summary

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual						
Revenues						
Operations Rate Revenue		$ 915,336	$ 686,502	$ 686,502	$ -	0.00%
Lease Revenues		29,000	21,750	20,494	(1,256)	-5.77%
Use of Reserves		24,000	18,000	20,752	2,752	15.29%
Interest Allocation		900	675	1,526	851	126.11%
Total Operating Revenues		**$ 969,236**	**$ 726,927**	**$ 729,274**	**$ 2,347**	**0.32%**
Expenses						
Personnel Cost		$ 289,212	$ 213,027	$ 202,358	$ 10,669	5.01%
Professional Services	D	47,000	35,250	89,561	(54,311)	-154.07%
Other Services & Charges		121,480	91,110	81,433	9,677	10.62%
Communications		4,230	3,173	3,609	(436)	-13.75%
Information Technology		14,200	10,650	509	10,141	95.22%
Supplies		670	503	739	(236)	-46.97%
Operations & Maintenance		233,630	175,223	179,036	(3,813)	-2.18%
Equipment Purchases	C	26,400	19,800	28,981	(9,181)	-46.37%
Depreciation		25,000	18,750	18,750	0	0.00%
Reserve Transfers		20,000	15,000	15,000	(0)	0.00%
Subtotal Before Allocations		$ 781,822	$ 582,485	$ 619,976	$ (37,491)	-6.44%
Allocation of Support Departments		187,417	138,195	131,347	6,848	4.96%
Total Operating Expenses		**$ 969,238**	**$ 720,680**	**$ 751,323**	**$ (30,643)**	**-4.25%**
Operating Surplus/(Deficit)		**$ (2)**	**$ 6,247**	**$ (22,048)**		
Debt Service Budget vs. Actual						
Revenues						
Debt Service Rate Revenue		$ 691,476	$ 518,607	$ 518,607	$ -	0.00%
Trust Fund Interest		1,800	1,350	513	(837)	-61.99%
Reserve Fund Interest		2,700	2,025	3,325	1,300	64.19%
Total Debt Service Revenues		**$ 695,976**	**$ 521,982**	**$ 522,445**	**$ 463**	**0.09%**
Debt Service Costs						
Total Principal & Interest		$ 426,977	$ 320,233	$ 320,233	$ -	0.00%
Reserve Additions-Interest		2,700	2,025	3,325	(1,300)	-64.19%
Reserve Additions-CIP Growth		266,300	199,725	199,725	-	0.00%
Total Debt Service Costs		**$ 695,977**	**$ 521,983**	**$ 523,283**	**$ (1,300)**	**-0.25%**
Debt Service Surplus/(Deficit)		**$ (1)**	**$ (1)**	**$ (838)**		
Rate Center Summary						
Total Revenues		$ 1,665,212	$ 1,248,909	$ 1,251,719	$ 2,810	0.23%
Total Expenses		1,665,215	1,242,662	1,274,606	(31,943)	-2.57%
Surplus/(Deficit)		**$ (3)**	**$ 6,247**	**$ (22,886)**		
Costs per 1000 Gallons		5.31		5.17		
Thousand Gallons Treated		182,610	136,958	145,218	8,261	6.03%
Flow (MGD)		0.500		0.530		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Scottsville Water Rate Center
Revenues and Expenses Summary

	Budget FY 2018	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Operating Budget vs. Actual					
Notes					
Revenues					
Operations Rate Revenue	$ 412,236	$ 309,177	$ 309,177	$ -	0.00%
Use of Reserves	16,000	12,000	8,642	(3,358)	
Interest Allocation	400	300	632	332	110.71%
Total Operating Revenues	**$ 428,636**	**$ 321,477**	**$ 318,452**	**$ (3,025)**	**-0.94%**
Expenses					
Personnel Cost	$ 154,467	$ 113,799	$ 106,580	$ 7,219	6.34%
Professional Services	26,000	19,500	11,851	7,649	39.23%
Other Services & Charges	19,490	14,618	19,529	(4,912)	-33.60%
Communications	3,210	2,408	2,642	(235)	-9.74%
Information Technology	7,000	5,250	1,131	4,119	78.46%
Supplies	750	563	75	488	86.67%
Operations & Maintenance	66,570	49,928	43,769	6,158	12.33%
Equipment Purchases	14,400	10,800	1,939	8,861	82.04%
Depreciation	17,000	12,750	12,750	(0)	0.00%
Reserve Transfers	2,500	1,875	1,875	0	0.00%
Subtotal Before Allocations	$ 311,387	$ 231,489	$ 202,141	$ 29,348	12.68%
Allocation of Support Departments	117,247	86,466	82,711	3,755	4.34%
Total Operating Expenses	**$ 428,634**	**$ 317,955**	**$ 284,852**	**$ 33,103**	**10.41%**
Operating Surplus/(Deficit)	**$ 2**	**$ 3,522**	**$ 33,600**		
Debt Service Budget vs. Actual					
Revenues					
Debt Service Rate Revenue	$ 129,448	$ 97,086	$ 97,083	$ (3)	0.00%
Trust Fund Interest	400	300	149	(151)	-50.49%
Reserve Fund Interest	1,500	1,125	1,773	648	57.62%
Total Debt Service Revenues	**$ 131,348**	**$ 98,511**	**$ 99,005**	**$ 494**	**0.50%**
Debt Service Costs					
Total Principal & Interest	$ 129,848	$ 97,386	$ 97,386	$ -	0.00%
Reserve Additions-Interest	1,500	1,125	1,773	(648)	
Reserve Additions-CIP Growth	-	-	-	-	
Total Debt Service Costs	**$ 131,348**	**$ 98,511**	**$ 99,159**	**$ (648)**	**-0.66%**
Debt Service Surplus/(Deficit)	**$ -**	**$ -**	**$ (154)**		

Rate Center Summary

Total Revenues	$ 559,984	$ 419,988	$ 417,456	$ (2,532)	-0.60%
Total Expenses	559,982	416,466	384,011	32,455	7.79%
Surplus/(Deficit)	**$ 2**	**$ 3,522**	**$ 33,445**		
Costs per 1000 Gallons	22.39		23.06		
Thousand Gallons Treated	19,143	14,357	12,353	(2,004)	-13.96%
or					
Flow (MGD)	0.052		0.045		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Urban Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2018	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 6,680,446	$ 5,010,335	$ 4,410,731	$ (599,603)	-11.97%
Stone Robinson WWTP		27,630	20,723	15,873	(4,849)	-23.40%
Septage Acceptance		390,000	292,500	307,775	15,275	5.22%
Nutrient Credits		100,000	75,000	87,105	12,105	16.14%
Miscellaneous Revenue		10,000	7,500	673	(6,827)	-91.03%
Interest Allocation		6,800	5,100	10,960	5,860	114.91%
Total Operating Revenues		**$ 7,214,876**	**$ 5,411,157**	**$ 4,833,118**	**$ (578,039)**	**-10.68%**
Expenses						
Personnel Cost		$ 1,230,128	$ 905,589	$ 795,938	$ 109,651	12.11%
Professional Services		54,000	40,500	15,357	25,143	62.08%
Other Services & Charges	**B**	1,571,400	1,178,550	1,508,191	(329,641)	-27.97%
Communications		10,430	7,823	8,570	(748)	-9.56%
Information Technology		57,300	42,975	43,004	(29)	-0.07%
Supplies		2,700	2,025	872	1,153	56.96%
Operations & Maintenance	**E**	1,390,300	1,042,725	1,297,448	(254,723)	-24.43%
Equipment Purchases		54,000	40,500	41,829	(1,329)	-3.28%
Depreciation		465,000	348,750	348,750	-	0.00%
Reserve Transfers		-	-	-	-	
Subtotal Before Allocations		$ 4,835,258	$ 3,609,437	$ 4,059,959	$ (450,522)	-12.48%
Allocation of Support Departments		2,379,618	1,754,674	1,678,086	76,588	4.36%
Total Operating Expenses		**$ 7,214,876**	**$ 5,364,111**	**$ 5,738,045**	**$ (373,934)**	**-6.97%**
Operating Surplus/(Deficit)		**$ 0**	**$ 47,046**	**$ (904,927)**		

Debt Service Budget vs. Actual

	Budget FY 2018	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues					
Debt Service Rate Revenue	$ 7,384,689	$ 5,538,517	$ 5,538,519	$ 2	0.00%
Use of Reserves for 2016 Bond DS	600,000	450,000	450,000	-	0.00%
Septage Receiving Support - County	109,440	82,080	109,441	27,361	33.33%
Trust Fund Interest	26,200	19,650	7,521	(12,129)	-61.73%
Reserve Fund Interest	77,300	57,975	96,864	38,889	67.08%
Total Debt Service Revenues	**$ 8,197,629**	**$ 6,148,222**	**$ 6,202,345**	**$ 54,123**	**0.88%**
Debt Service Costs					
Total Principal & Interest	$ 7,561,430	$ 5,671,073	$ 5,671,073	$ -	0.00%
Reserve Additions-Interest	77,300	57,975	96,864	(38,889)	-67.08%
Debt Service Ratio Charge	325,000	243,750	243,750	-	0.00%
Reserve Additions-CIP Growth	233,900	175,425	175,425	-	0.00%
Total Debt Service Costs	**$ 8,197,630**	**$ 6,148,223**	**$ 6,187,111**	**$ (38,889)**	**-0.63%**
Debt Service Surplus/(Deficit)	**$ (1)**	**$ (1)**	**$ 15,233**		

Rate Center Summary

	Budget FY 2018	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Total Revenues	$ 15,412,505	$ 11,559,379	$ 11,035,462	$ (523,916)	-4.53%
Total Expenses	15,412,506	11,512,333	11,925,156	(412,823)	-3.59%
Surplus/(Deficit)	**$ (1)**	**$ 47,045**	**$ (889,694)**		
Costs per 1000 Gallons	2.11		2.48		
Thousand Gallons Treated	3,424,639	2,568,479	2,311,856	(256,623)	-9.99%
or					
Flow (MGD)	9.383		8.437		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Glenmore Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Operations Rate Revenue		$ 352,344	$ 264,258	$ 264,258	$ -	0.00%
Interest Allocation		300	225	508	283	125.82%
Total Operating Revenues		**$ 352,644**	**$ 264,483**	**$ 264,766**	**$ 283**	**0.11%**
Expenses						
Personnel Cost		$ 90,823	$ 66,867	$ 58,643	$ 8,224	12.30%
Professional Services		3,000	2,250	-	2,250	
Other Services & Charges		31,490	23,618	22,905	713	3.02%
Communications		2,600	1,950	2,439	(489)	-25.09%
Information Technology		3,500	2,625	119	2,507	95.49%
Supplies		100	75	-	75	100.00%
Operations & Maintenance		121,450	91,088	63,446	27,641	30.35%
Equipment Purchases		3,100	2,325	1,950	375	16.13%
Depreciation		5,000	3,750	3,750	(0)	0.00%
Subtotal Before Allocations		$ 261,063	$ 194,547	$ 153,252	$ 41,295	21.23%
Allocation of Support Departments		91,584	67,560	64,460	3,100	4.59%
Total Operating Expenses		**$ 352,647**	**$ 262,107**	**$ 217,712**	**$ 44,395**	**16.94%**
Operating Surplus/(Deficit)		**$ (3)**	**$ 2,376**	**$ 47,055**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 1,582	$ 1,187	$ 1,188	$ 2	0.13%
Trust Fund Interest		-	-	-	-	
Reserve Fund Interest		600	450	665	215	47.77%
Total Debt Service Revenues		**$ 2,182**	**$ 1,637**	**$ 1,853**	**$ 2**	**0.09%**
Debt Service Costs						
Total Principal & Interest		$ 1,582	$ 1,187	$ 1,187	$ -	0.00%
Reserve Additions-Interest		600	450	665	(215)	-47.77%
Total Debt Service Costs		**$ 2,182**	**$ 1,637**	**$ 1,851**	**$ (215)**	**-13.14%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 2**		

Rate Center Summary

Total Revenues	$ 354,826	$ 266,120	$ 266,619	$ 500	0.19%
Total Expenses	354,829	263,743	219,563	44,180	16.75%
Surplus/(Deficit)	**$ (3)**	**$ 2,376**	**$ 47,056**		
Costs per 1000 Gallons	8.12		7.22		
Thousand Gallons Treated	43,412	32,559	30,138	(2,421)	**-7.44%**
or					
Flow (MGD)	0.119		0.110		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Scottsville Wastewater Rate Center
Revenues and Expenses Summary

Operating Budget vs. Actual

	Notes	Budget FY 2018	Budget Year-to-Date	Actual Year-to-Date	Budget vs. Actual	Variance Percentage
Revenues						
Operations Rate Revenue		$ 284,688	$ 213,516	$ 213,516	$ -	0.00%
Interest Allocation		300	225	411	186	82.80%
Total Operating Revenues		**$ 284,988**	**$ 213,741**	**$ 213,927**	**$ 186**	**0.09%**
Expenses						
Personnel Cost		$ 90,848	$ 66,885	$ 58,642	$ 8,243	12.32%
Professional Services		2,000	1,500	-	1,500	100.00%
Other Services & Charges		22,900	17,175	19,313	(2,138)	-12.45%
Communications		2,630	1,973	3,159	(1,186)	-60.14%
Information Technology		4,400	3,300	-	3,300	100.00%
Supplies		100	75	-	75	100.00%
Operations & Maintenance		57,850	43,388	11,988	31,399	72.37%
Equipment Purchases	C	3,400	2,550	15,950	(13,400)	-525.49%
Depreciation		16,000	12,000	12,000	0	0.00%
Subtotal Before Allocations		$ 200,128	$ 148,845	$ 121,052	$ 27,794	18.67%
Allocation of Support Departments		84,858	62,597	59,592	3,006	4.80%
Total Operating Expenses		**$ 284,987**	**$ 211,443**	**$ 180,644**	**$ 30,799**	**14.57%**
Operating Surplus/(Deficit)		**$ 1**	**$ 2,298**	**$ 33,284**		

Debt Service Budget vs. Actual

Revenues						
Debt Service Rate Revenue		$ 8,233	$ 6,175	$ 6,174	$ (1)	-0.01%
Trust Fund Interest		-	-	13	13	
Reserve Fund Interest		400	300	443	143	47.76%
Total Debt Service Revenues		**$ 8,633**	**$ 6,475**	**$ 6,631**	**$ 156**	**2.41%**
Debt Service Costs						
Total Principal & Interest		$ 8,233	$ 6,175	$ 6,175	$ -	0.00%
Reserve Additions-Interest		400	300	443	(143)	-47.76%
Estimated New Principal & Interest		-	-	-	-	
Total Debt Service Costs		**$ 8,633**	**$ 6,475**	**$ 6,618**	**$ (143)**	**-2.21%**
Debt Service Surplus/(Deficit)		**$ -**	**$ -**	**$ 13**		

Rate Center Summary

Total Revenues	$ 293,621	$ 220,216	$ 220,558	$ 342	0.16%
Total Expenses	293,620	217,918	187,262	30,656	14.07%
Surplus/(Deficit)	**$ 1**	**$ 2,298**	**$ 33,296**		
Costs per 1000 Gallons	14.27		13.68		
Thousand Gallons Treated	19,967	14,975	13,202	(1,773)	**-11.84%**
or					
Flow (MGD)	0.055		0.048		

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Administration

Operating Budget vs. Actual

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ 409,000	$ 306,750	$ 306,750	$ (0)	0.00%
Miscellaneous Revenue		1,000	750	4,889	4,139	551.87%
Total Operating Revenues		**$ 410,000**	**$ 307,500**	**$ 311,639**	**$ 4,139**	**1.35%**
Expenses						
Personnel Cost		$ 1,544,126	$ 1,134,776	$ 1,136,212	$ (1,436)	-0.13%
Professional Services	**D**	171,900	128,925	151,656	(22,731)	-17.63%
Other Services & Charges	**B**	111,940	83,955	103,304	(19,349)	-23.05%
Communications		21,280	15,960	11,848	4,112	25.76%
Information Technology		118,000	88,500	65,414	23,086	26.09%
Supplies		22,000	16,500	19,118	(2,618)	-15.87%
Operations & Maintenance	**E**	36,600	27,450	36,319	(8,869)	-32.31%
Equipment Purchases		8,300	6,225	6,225	(0)	0.00%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 2,034,146**	**$ 1,502,291**	**$ 1,530,097**	**$ (27,806)**	**-1.85%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,624,146)**	**$ (1,194,791)**	**$ (1,218,458)**	**$ 23,667**	**-1.98%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 714,624**	**$ 525,708**	**$ 536,121**	**$ (10,413)**	
Crozet Water	4.00%	**$ 64,966**	**47,792**	**48,738**	**(947)**	
Scottsville Water	2.00%	**$ 32,483**	**23,896**	**24,369**	**(473)**	
Urban Wastewater	48.00%	**$ 779,590**	**573,500**	**584,860**	**(11,360)**	
Glenmore Wastewater	1.00%	**$ 16,241**	**11,948**	**12,185**	**(237)**	
Scottsville Wastewater	1.00%	**$ 16,241**	**11,948**	**12,185**	**(237)**	
	100.00%	**$ 1,624,146**	**$ 1,194,791**	**$ 1,218,458**	**$ (23,667)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Maintenance

Operating Budget vs. Actual

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Miscellaneous Revenue		-	-	4,610	4,610	
Total Operating Revenues		**$ -**	**$ -**	**$ 4,610**	**$ 4,610**	
Expenses						
Personnel Cost		$ 1,150,821	$ 846,812	$ 826,476	$ 20,336	2.40%
Professional Services		-	-	-	-	
Other Services & Charges	**B**	12,300	9,225	15,106	(5,881)	-63.76%
Communications		15,635	11,726	14,711	(2,984)	-25.45%
Information Technology		6,500	4,875	2,328	2,547	52.25%
Supplies		500	375	221	154	41.13%
Operations & Maintenance		64,450	48,338	53,206	(4,868)	-10.07%
Equipment Purchases		94,850	71,138	66,124	5,014	7.05%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 1,345,056**	**$ 992,488**	**$ 978,171**	**$ 14,317**	**1.44%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (1,345,056)**	**$ (992,488)**	**$ (973,561)**	**$ (9,706)**	**0.98%**
Allocations to the Rate Centers						
Urban Water	30.00%	**$ 403,517**	**$ 297,746**	**$ 292,068**	**$ 5,678**	
Crozet Water	3.50%	**47,077**	**34,737**	**34,075**	**662**	
Scottsville Water	3.50%	**47,077**	**34,737**	**34,075**	**662**	
Urban Wastewater	56.50%	**759,957**	**560,756**	**550,062**	**10,694**	
Glenmore Wastewater	3.50%	**47,077**	**34,737**	**34,075**	**662**	
Scottsville Wastewater	3.00%	**40,352**	**29,775**	**29,207**	**568**	
	100.00%	**$ 1,345,056**	**$ 992,488**	**$ 973,561**	**$ 18,927**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Laboratory

Operating Budget vs. Actual

	Notes	*Budget FY 2018*	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
N/A						
Expenses						
Personnel Cost	**A**	$ 293,948	$ 216,141	$ 249,335	$ (33,194)	-15.36%
Professional Services		-	-	-	-	
Other Services & Charges		10,412	7,809	4,649	3,160	40.46%
Communications		600	450	967	(517)	
Information Technology		2,200	1,650	270	1,380	83.64%
Supplies		1,650	1,238	2,360	(1,122)	-90.70%
Operations & Maintenance	**E**	55,000	41,250	51,192	(9,942)	-24.10%
Equipment Purchases		1,500	1,125	750	375	33.34%
Depreciation		-	-	-	-	
Total Operating Expenses		**$ 365,310**	**$ 269,662**	**$ 309,524**	**$ (39,862)**	**-14.78%**

Department Summary

Net Costs Allocable to Rate Centers		**$ (365,310)**	**$ (269,662)**	**$ (309,524)**	**$ 39,862**	**-14.78%**
Allocations to the Rate Centers						
Urban Water	44.00%	**$ 160,736**	**$ 118,651**	**$ 136,191**	**$ (17,539)**	
Crozet Water	4.00%	**14,612**	**10,786**	**12,381**	**(1,594)**	
Scottsville Water	2.00%	**7,306**	**5,393**	**6,190**	**(797)**	
Urban Wastewater	47.00%	**171,696**	**126,741**	**145,476**	**(18,735)**	
Glenmore Wastewater	1.50%	**5,480**	**4,045**	**4,643**	**(598)**	
Scottsville Wastewater	1.50%	**5,480**	**4,045**	**4,643**	**(598)**	
	100.00%	**$ 365,310**	**$ 269,662**	**$ 309,524**	**$ (39,862)**	

Rivanna Water & Sewer Authority
Monthly Financial Statements - March 2018

Engineering

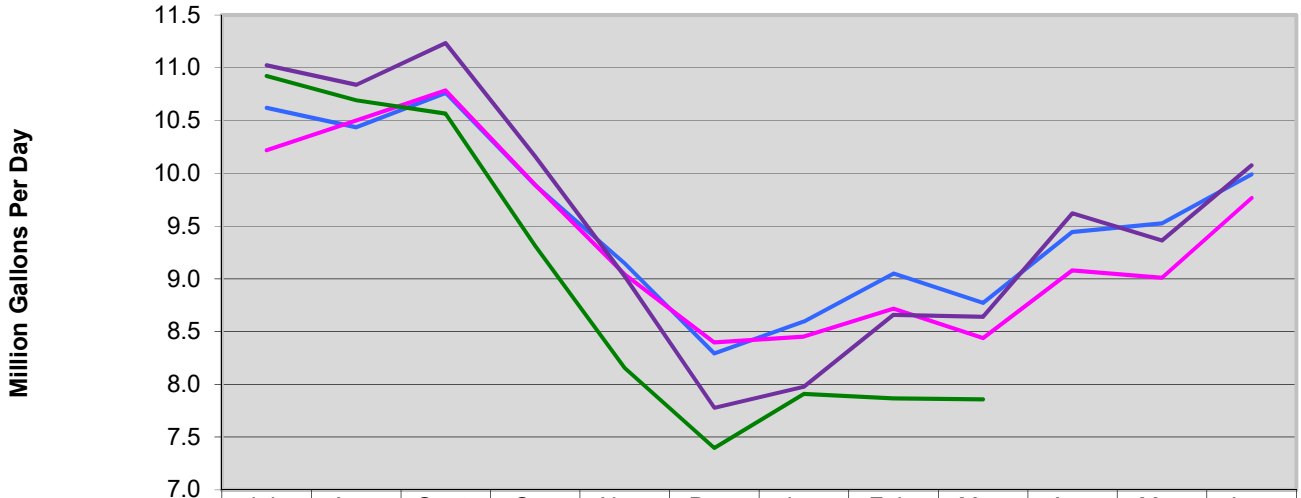
Operating Budget vs. Actual

		Budget FY 2018	*Budget Year-to-Date*	*Actual Year-to-Date*	*Budget vs. Actual*	*Variance Percentage*
Revenues						
Payment for Services SWA		$ -	$ -	$ 15,679	$ 15,679	
Total Operating Revenues		**$ -**	**$ -**	**$ 15,679**	**$ 15,679**	
Expenses						
Personnel Cost		$ 1,168,296	$ 858,939	$ 760,573	$ 98,366	11.45%
Professional Services		144,000	108,000	4,907	103,093	95.46%
Other Services & Charges	**B**	45,150	33,863	41,057	(7,195)	-21.25%
Communications		17,300	12,975	11,032	1,943	14.97%
Information Technology		46,000	34,500	38,144	(3,644)	-10.56%
Supplies		9,500	7,125	3,714	3,411	47.87%
Operations & Maintenance		64,940	48,705	43,041	5,664	11.63%
Equipment Purchases		23,850	17,888	17,046	841	4.70%
Depreciation & Capital Reserve Transfers		-	-	-	-	
Total Operating Expenses		**$ 1,519,036**	**$ 1,121,994**	**$ 919,515**	**$ 202,479**	**18.05%**

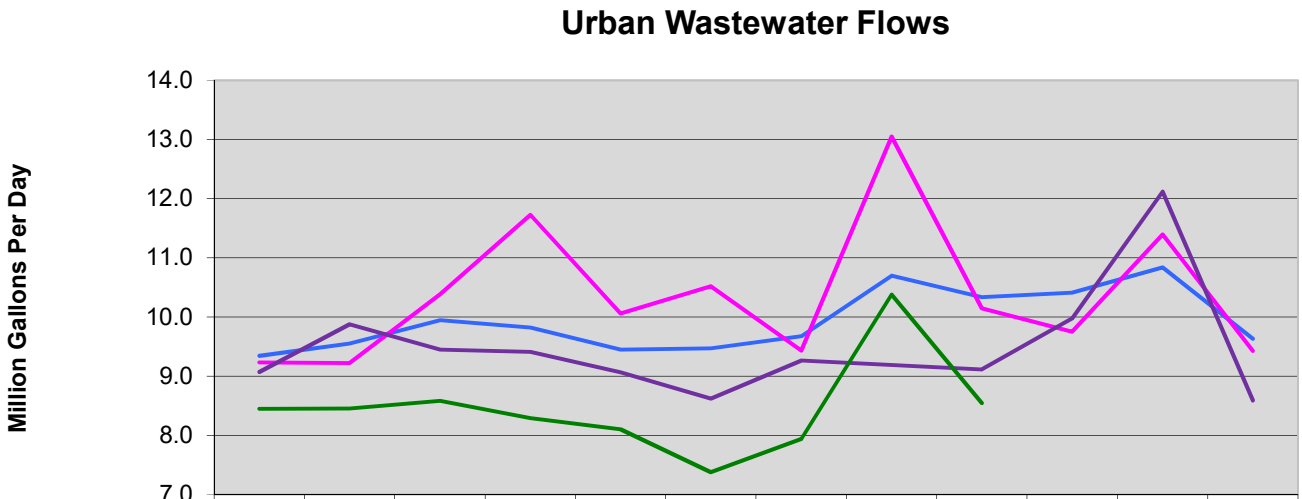
Department Summary

Net Costs Allocable to Rate Centers		**$ (1,519,036)**	**$ (1,121,994)**	**$ (903,837)**	**$ (186,800)**	**16.65%**
Allocations to the Rate Centers						
Urban Water	47.00%	**$ 713,947**	**$ 527,337**	**$ 424,803**	**$ 102,534**	
Crozet Water	4.00%	**60,761**	**44,880**	**36,153**	**8,726**	
Scottsville Water	2.00%	**30,381**	**22,440**	**18,077**	**4,363**	
Urban Wastewater	44.00%	**668,376**	**493,678**	**397,688**	**95,989**	
Glenmore Wastewater	1.50%	**22,786**	**16,830**	**13,558**	**3,272**	
Scottsville Wastewater	1.50%	**22,786**	**16,830**	**13,558**	**3,272**	
	100.00%	**$ 1,519,036**	**$ 1,121,994**	**$ 903,837**	**$ 218,158**	

Rivanna Water and Sewer Authority
Flow Graphs



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG.	10.62	10.44	10.76	9.89	9.15	8.29	8.60	9.05	8.77	9.45	9.53	9.99
FY 2016	10.22	10.50	10.79	9.89	9.04	8.40	8.45	8.72	8.44	9.08	9.01	9.77
FY 2017	11.02	10.84	11.23	10.16	9.02	7.78	7.98	8.66	8.64	9.62	9.36	10.07
FY 2018	10.92	10.69	10.57	9.31	8.16	7.40	7.91	7.87	7.86			



	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
5 YR AVG	9.34	9.55	9.95	9.82	9.45	9.47	9.67	10.70	10.33	10.41	10.84	9.63
FY 2016	9.23	9.22	10.38	11.73	10.06	10.52	9.43	13.05	10.15	9.75	11.39	9.43
FY 2017	9.07	9.87	9.45	9.41	9.06	8.62	9.26	9.19	9.12	9.97	12.12	8.59
FY 2018	8.45	8.45	8.59	8.29	8.10	7.38	7.94	10.38	8.54			

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

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: **APRIL 24, 2018**

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

Under Construction

1. Drinking Water Activated Carbon and Water Treatment Plant Improvements
2. Wholesale Water Master Metering
3. Moores Creek AWRRF Odor Control Phase 2, Bridge Repairs & Second Centrifuge
4. Crozet Finished Water Pump Station
5. Moores Creek AWRRF Roof Replacements
6. Sugar Hollow Reservoir to Ragged Mountain Reservoir Transfer Flow Meter
7. Piney Mountain Tank Rehabilitation
8. Interceptor Sewer & Manhole Repair
9. Urgent and Emergency Repairs

Design and Bidding

10. Observatory Water Treatment Plant Expansion
11. South Rivanna Water Treatment Plant Improvements
12. Crozet Water Treatment Plant Expansion
13. Interconnect Lower Sugar Hollow and Ragged Mountain Raw Water Mains
14. Route 29 Pump Station and Pipeline
15. South Fork Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way
16. Avon to Pantops Water Main
17. Crozet Interceptor Pump Stations Bypass & Isolation Valves
18. Crozet Flow Equalization Tank

Planning and Studies

19. Reservoir Management Plan
20. South Rivanna Hydropower Plant Decommissioning
21. Drinking Water Infrastructure Plan – Crozet Area

1. Drinking Water Activated Carbon and WTP Improvements

Design Engineer:	Hazen and Sawyer
Construction Contractor:	Ulliman Shutte Construction, LLC
Construction Start:	April 2015
Percent Complete:	98%
Base Construction Contract + Change Orders to Date = Current Value:	$22,563,000 + $1,394,452 = $23,957,452
Expected Completion Date:	April 2018
Total Capital Project Budget:	Urban GAC: $24,000,000 Crozet GAC: $3,418,390 Scottsville GAC: $1,600,000

Current Status:

Scottsville WTP – The GAC system has been completed. Treatment of water through the GAC system began in February. Only some final asphalt paving and other punch list item work is left for the contractor to complete.

Crozet WTP – The Granular Activated Carbon (GAC) system has under gone start-up procedures and the additional work on the carbon effluent vault has been completed. The GAC treatment process was placed into operation earlier this month. Only punch list item work is left for the contractor to complete.

North Rivanna WTP – The GAC system was placed into operation in March. Improvements to the electrical system wiring are on-going as well as work on punch list items.

South Rivanna WTP – The GAC system is anticipated to be in operation by May. The GAC metal building, GAC contactors, GAC piping and chemical feed systems have been completed. Final testing of the filter air scour system is complete. The liquid lime feed tanks and interior piping have been installed and are ready for operation. All clarifier and filter work is complete and in service. Minor electrical installations and change order work associated with basin ladders are on-going. Programming associated with the backwash system, GAC system and lime feed system is being completed this month.

Observatory WTP - The GAC system is anticipated to be in operation by May. The GAC building, Intermediate Pump Station building, and chlorine contact tank are complete. The electrical conduit and wiring installation for the buildings is complete. The new potable water service line and booster pump system is complete and in service. Landscape retaining walls and storm sewer systems have been installed, with landscaping and fencing

installation on-going. Programming associated with the backwash system and GAC system is being completed this month.

We plan to have a press release in April, with on-site celebration events for Scottsville, Crozet and the Urban System (South Rivanna Water Treatment Plant) in May.

History:

In 2006, the US EPA promulgated the Stage 2 Disinfectant and Disinfection Byproducts (D/DBP) Rule, which limits the maximum levels of certain disinfection byproducts in water distribution systems. RWSA hired Hazen and Sawyer to evaluate alternatives to reduce disinfection byproducts and ensure compliance with the Stage 2 D/DPR Rule. Hazen and Sawyer presented possible alternatives to assure continuous compliance with the Stage 2 D/DBP Rule, and the Board selected installation of granular activated carbon contactors. At the March 2015 RWSA board meeting, the Board approved a construction award to USC in the amount of $22,014,250 and a construction management work authorization in the amount of $1,686,700 to Hazen and Sawyer. In addition, the Board approved changes to the 2015-2019 Capital Improvement Plan (CIP) as follows: (1) Combined the Crozet GAC and Crozet Water Treatment Plant Improvements projects and increased the budget by $550,800 for a new total project budget of $3,190,000; (2) Increased the budget for Scottsville GAC by $382,100 for a new total project budget of $1,600,000; and (3) Combined the Urban Water GAC, South Fork Rivanna Water Treatment Plant Improvements, and the North Fork Water Treatment Plant Improvements projects into a single account with a combined total project budget of $24,000,494.

An additional CIP amendment was approved by the RWSA Board at the March 22, 2016 meeting. This adjustment increased the Crozet Water GAC and Water Treatment Plant Improvements project to $3,418,390. The RWSA Board also approved an additional change order amount to Ulliman Schutte of $840,356 at the December 15, 2015 meeting. This additional cost is for Observatory WTP flocculator upgrades, and is funded from a separate CIP project (Observatory WTP improvements).

2. Wholesale Water Master Metering

Design Engineer:	Michael Baker International (Baker)
Construction Contractor:	Linco, Inc.
Construction Start:	January 2016
Percent Complete:	94%
Base Construction Contract + Change Orders to Date = Current Value:	$2,228,254 - $221,177 = $2,007,077
Expected Completion Date:	June 2018
Total Capital Project Budget:	$3,600,000

Current Status:

Three water treatment plant flow meters and 23 of 25 distribution system flow meters have been completed. Staff terminated the construction contract with Linco, Inc. on April 2, 2018 and will coordinate the remaining work in-house. Staff anticipates completion of one

of the two remaining meters in May of 2018. The final remaining site, located adjacent to Ivy Road, will be completed by Faulconer Construction Co. under the existing on-call contract. An administrative plan to manage this program has been reviewed with the ACSA and the City, and completed.

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.

Staff met with the ACSA and the City on July 12, 2017 and established a plan for implementation of the new meters in accordance with the 2012 Water Cost Allocation Agreement and the Baker Study.

3. Moores Creek AWRRF Odor Control Phase 2, Bridge Repairs and Second Centrifuge

Design Engineer:	Hazen and Sawyer
Construction Contractor:	MEB General Contractors
Construction Start:	June 2016
Percent Complete:	99%
Base Construction Contract + Change Orders to Date = Current Value:	$6,796,000 +$1,571,652.63 =$8,367,652.63
Expected Completion Date:	April 2018
Total Capital Project Budget:	Odor Control Phase 2 - $10,108,000 MC Bridge Repairs - $330,000 Second Centrifuge - $1,290,000

Current Status:

The bio-scrubber, bridge painting, 2nd centrifuge and concrete repairs have been completed. The Contractor reached Substantial Completion on April 10, 2018. They will continue to work on punch list items through this month.

In addition to the above construction activities, the following initiatives are being conducted as part of the overall Odor Control program:

- Digester Coating ($540,000 budgeted). Odor-causing gases have been found to be emitted from the digester roofs. This project is intended to seal the interior of the digesters, reducing gas emission as well as protecting the integrity of the existing digester roof from harmful corrosion. Bids were received on August 3, 2017, and the Board approved the award at the September 2017 BOD meeting. Contract documents were executed and work began on January 2, 2018 to erect scaffolding in Digester No. 1. The coating work and air tightness testing were completed in early April 2018.

- Holding Pond Cleanout ($500,000 budgeted). Over time, grit and organic material have accumulated in the Wet Weather Holding Ponds and Equalization Basins and have been a source of odor. This project is to remove these accumulated solids in the summer of 2018 after the other components of the Odor Control project have been completed.

- Solids Handling ($550,000 budgeted). RWSA purchased covered trailers to load biosolids directly from the centrifuge's conveyor system. Conveyor system modifications are complete and the new trailers are being utilized.

History:

At its September 2013 meeting, members of City Council inquired about the possibility to add another phase of odor control to the current Capital Program in response to citizen complaints. Staff asked Hazen at that time to compile conceptual costs to implement the next phases of odor control from the 2007 master plan, which were estimated over $10 million dollars. In an effort to better define our next steps for odor control while being cost effective, Hazen performed an operations audit over the winter and two rounds of air and liquid phase sampling at the wastewater treatment facility in summer and fall of 2014. Hazen attended the Board of Directors meeting in December and presented a summary of recommendations and estimated project costs for a project that would significantly control odors from traveling beyond the MCAWRRF fence line.

At the January 27, 2015 meeting, the Board approved this project with a budget of $9,330,000 and adopted it with the 2015-2019 CIP. DEQ issued the Certificate to Construct in early November 2015. This project advertised for bid on November 6, 2015 and bids were opened on December 17, 2015. Unfortunately, all of the bids were considerably over the project budget and subsequently were rejected. The design engineers, Hazen and Short Elliot Hendrickson, Inc. evaluated ways to reduce the scope of work without sacrificing the odor control goals. The redesigned project with reduced scope

advertised for bid on February 5, 2016 and bids were opened on March 30, 2016. The Board of Directors approved award of the construction contract to MEB General Contractors, Inc. at the April 2016 Board Meeting with an associated capital budget increase.

4. <u>Crozet Finished Water Pump Station</u>

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction, Inc.
Construction Start:	May 2017
Percent Complete:	70 %
Base Construction Contract + Change Orders to Date = Current Value:	$1,941,000
Expected Completion Date:	September 2018
Total Capital Project Budget:	$2,600,000

<u>Current Status</u>:

Electrical duct banks are being constructed to the existing filter building. Pump station metal building construction is nearly complete. Both pumps and motors have been set. Interior piping work is underway. Rough grading for the driveway is complete. Construction of the south retaining wall is complete and the north retaining wall is in progress

<u>History</u>:

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

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

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

is to construct a new, larger building uphill from the existing clearwell tank. The new pump station building will be of similar construction as what is being proposed for the GAC facility at Crozet WTP.

5. Moores Creek AWRRF Roof Replacements

Design Engineer:	Hazen and Sawyer
Construction Contractor	Triangle Roofing Services, Inc.
Construction Start:	March 2018
Percent Complete	10%
Base Construction Contract + Change Orders to Date = Current Value:	$818,000
Expected Completion:	September 2018
Total Capital Project Budget:	$1,264,000

Current Status:

Roofing materials for all eight buildings are on site. Replacement of the Moore's Creek Pump Station Building roof is nearly complete and the contractor is approximately 50% complete with the Vehicle Maintenance Building roof.

History:

Construction bids were received on September 7, 2017 to replace the metal roof on eight buildings and award of the project was approved by the Board at the September Board Meeting. A Notice of Award was provided to Triangle Roofing Services, Inc. on October 10, 2017. Final Contract Documents have been executed.

The majority of the buildings at the Moores Creek Advanced Water Resource Recovery Facility were constructed in 1981 and 1982 during a major expansion of the existing treatment plant. All buildings constructed at that time were built with a metal roof system. In 2014, deficiencies were identified in the roof at the Administration Building and the roof was replaced. The materials of the original roof at the Administration Building are the same as the roof material on the other buildings. Likewise, many of the buildings have started to experience leaks and structural deficiencies. As a result, the purpose of this project is to replace the roof systems at the following buildings at the Moores Creek AWRRF: Blower Building, Moores Creek Pump Station, Sludge Pump Station No. 2, Maintenance Building 1, and Maintenance Building 2. Following additional review of the conditions of various buildings located at the Moores Creek AWRRF, this project also now includes replacement of the roof systems Sludge Pumping Building, the Primary Pump Building, and the Effluent Pump Building.

In December 2016, the Board of Directors authorized staff to enter into a work authorization with Hazen and Sawyer to design bidding documents to replace the identified roofs at Moores Creek AWRRF. A kick-off meeting was held with plant operations and maintenance staff; asbestos testing was performed to determine impacts during demolition activities; and design is ongoing. An application was submitted to the Albemarle County Architectural Review Board and approval has been obtained.

6. Sugar Hollow to Ragged Mountain Reservoir Transfer Flow Meter

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2017
Project Status:	100% Design Complete
Construction Contractor:	G.L. Howard
Construction Start:	July 2018
Completion:	September 2018
Total Capital Project Budget:	$350,000

Current Status:

This project will require the Sugar Hollow to Ragged Mt. Reservoir transfer line to be out of service and unavailable for approximately 4 weeks. Due to the current refill of Ragged Mountain Reservoir, we are delaying this project until reservoir storage capacities improve and transfers from Sugar Hollow are not needed. In anticipation of that line being out of service this summer, discussions with the contractor have begun to confirm the scope of work and identify a specific construction schedule.

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 two existing small utility structures 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. There will be some special abatement work required, and the contractor will have to include these costs in their estimate.

After initial cost estimating discussions with the contractor and RWSA staff, it was found that the current project budget is not enough to complete all of the identified work aspects. The Capital Improvement Program budget will likely have to be increased in order to perform all the work in one project.

7. Piney Mountain Tank Rehabilitation

Design Engineer:	Johnson, Mirmiran & Thompson (JMT)
Project Start:	September 2017
Project Status:	Notice of Award Issued
Construction Contractor:	Utility Service Co, Inc.

Construction Start:	March 2019
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 will be postponed until spring of 2019. Utility Service Co., Inc will remain the general contractor for this project.

History:

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.

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.

8. Interceptor Sewer and Manhole Repair

Design Engineer:	Frazier Engineering
Project Start:	July 2017
Project Status:	5% Construction Complete
Construction Start:	November 2017
Completion:	2020
Total Capital Project Budget:	$1,962,389

Current Status:

Award of the 2017 Sanitary Sewer Rehabilitation and Repair Contract to IPR Northeast was approved by the Board at the October Board Meeting and a Notice of Award has been provided. Contract Documents have been formally executed, a preconstruction meeting was held with the contractor, and a Notice to Proceed was provided. Frazier Engineering continues to conduct condition assessment activities and has completed a preliminary review of previous CCTV results. Manhole inspections on various interceptors were completed and a report documenting the results is being developed. An initial work authorization with the contractor to perform additional CCTV investigations has been developed and the contractor is reviewing the work to determine any access issues and a schedule for completion.

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.

9. Urgent and Emergency Repairs

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

Project No.	Project Description	Approx. Cost
2017-03	Crozet Sewer Force Main Air Release Valve Repair	$100,000
2018-01	Rivanna Interceptor – RVI-MH-32 Erosion Repair	$25,000

- Crozet Sewer Force Main Air Release Valve Repair

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

- 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. The issue is being reviewed to determine the cause of the erosion and to develop a preferred method of repair. A contractor has been contacted to assist with the development of a repair strategy and a site meeting was held with the contractor and the City of Charlottesville, as the repair will impact a section of the Rivanna Trail. This repair will be scheduled sequentially with the Crozet Sewer Force Main repair this summer.

10. Observatory WTP Expansion

Design Engineer:	Short Elliot Hendrickson, Inc. (SEH)
Project Start:	October 2017
Project Status:	Preliminary Engineering Report
Construction Start:	2019
Completion:	2022
Total Capital Project Budget:	$18,630,000

Current Status:

The PER will be completed by May 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 contractor needs to address some minor punchlist items in order to reach final completion.

11. South Rivanna Water Treatment Plant Improvements

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

Current Status:

The PER will be completed by May 2018. Design documents will be completed by May 2019.
History:

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

12. Crozet WTP Expansion

Design Engineer:	Short Elliot Hendrickson (SEH)
Project Start:	August 2016
Project Status:	60% Design Complete
Construction Start:	September 2018
Completion:	December 2020
Total Capital Project Budget:	$7,000,000

Current Status:

Construction documents will be completed by June 2018. Drawings developed to the 60% complete design stage were submitted and reviewed in March 2018. Permit applications have been submitted to Albemarle County.

History:

SEH has completed the Preliminary Engineering Report (PER) for this project, and is in the process of addressing comments from the Virginia Department of Health. Some preliminary watershed modeling and data collection was also performed as part of this work. In addition, raw water jar testing has been performed to finalize the type of treatment parameters necessary for the upgrade work, and the testing results were incorporated into the PER. The proposed new work will provide needed updates to equipment, as well as a plant capacity upgrade to approximately 1.5 - 2.0 million gallons per day.

A new Work Authorization with SEH was executed to perform preliminary and final design documents, as well as construction administration services.

This project was created to analyze the feasibility of increasing the supply capacity of the existing Crozet WTP by modernizing plant systems. The goal is to not drastically increase the plant footprint in regards to 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 50-100%. The project currently only includes study and design funding.

13. Interconnection Lower Sugar Hollow and Ragged Mountain Raw Water Mains

Design Engineer:	Dewberry Engineers
Project Start:	October 2017
Project Status:	30% Design
Construction Start:	May 2018
Completion:	October 2018
Total Capital Project Budget:	$225,000

Current Status:

A Work Authorization with Dewberry was executed to evaluate several alignment options and to identify the most suitable alignment. Feasible alignments have been submitted and

one alignment has been recommended. A separate Work Authorization is being written to prepare final design documents.

History:

The two 18-inch water mains that supply water from Ragged Mountain Reservoir to Observatory Water Treatment Plant are 71 and 109 years old. The mains are interconnected at the top of the Ragged Mountain Dam, with one serving the 1920's Royal Pump Station and the other serving the more modern Stadium Road Pump Station. Both pump stations provide raw water to the Observatory Water Treatment Plant. This project will serve to interconnect the two raw water lines near the Route 29/Fontaine Avenue Intersection, which will provide improved reliability and operability in the event of raw water line breaks.

14. Route 29 Pump Station and Pipeline

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2018
Project Status:	Update Existing Design Report
Construction Start:	2019
Completion:	2021
Total Capital Project Budget:	$2,300,000

Current Status:

Work is currently underway to review and update the 2008 preliminary engineering report, including analysis of current water demand projections. Portions of the work have already been completed, including a temporary bypass pumping location near Kohl's department store, and the abandonment of existing pipeline in the median of Rte. 29 from the south end of Hollymead Town Center to Timberwood Boulevard. Other portions of the project have been completed including the Pump Station Site Acquisition and new 24-inch pipeline installed as part of the Rt. 29 VDOT Betterment project. Once the report update has been completed, the preliminary design of the remaining pipeline and the pump station will be started. Preliminary and final design along with construction funding will be included in the 2019-2023 CIP.

History:

This project will include construction of a 2 mgd drinking water pump station and two 1,000,000 gallon ground water storage tanks, as well as completion of a 24-inch diameter pipeline along the Meeting Street corridor. This project has been identified as a need in the County Comprehensive Plan and RWSA Capital Improvement Plan.
A report and technical memorandum on this project was previously completed in 2008. The future pump station and tanks, along with a new transmission pipeline between the pump station and the South Rivanna Water Treatment Plant, will provide an interconnection between the areas presently served by the South Rivanna WTP and the North Rivanna WTP. The interconnection is needed for redundancy of service in the event

of an emergency, during drought conditions, and to adequately serve the growing needs of the Rt. 29 area generally north of Hollymead Town Center and Airport Road.

At the May 2017 Board Meeting, a 1.6-acre parcel of land was acquired through condemnation proceedings which included a public hearing. The site location was identified in a prior project report from 2008 (completed by Michael Baker), and is also identified in the current County Comprehensive Plan. The land value of the parcel was estimated through a March 16, 2017 Property Appraisal completed by CRES, Inc., a professional real estate and appraiser company. After negotiations with the current landowner to acquire the property were unsuccessful, and final offers were refused, the land was acquired after a Certificate of Take was recorded. This property will be utilized for future construction of a new drinking water pump station and ground storage tanks.

15. <u>South Fork Rivanna Reservoir to Ragged Mtn. Reservoir Water Line Right-of-Way</u>

Design Engineer:	Michael Baker International (Baker)
Project Start:	October 2017
Project Status:	30 % Complete
Completion:	2021
Total Capital Project Budget:	$2,295,000

<u>Current Status</u>:

The PER will be completed by August 2018. Preliminary design work began in November 2017. Property owners have been contacted to request permission to access properties for topographical surveying. The consultant is in the process of data collection, and review, hydraulic modeling, and field evaluation of alignment options for the Preliminary Engineering Report.

<u>History</u>:

RWSA has negotiated a scope and fee with Michael Baker International for the routing study, preliminary design, plat creation and easement acquisition process.

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.

16. Avon to Pantops Water Main

Design Engineer:	Michael Baker International (Baker)
Project Start:	August 2017
Project Status:	50% Preliminary Design Complete
Construction Start:	2020
Completion:	2022
Total Capital Project Budget:	$13,000,000

Current Status:

Route alignment determination, hydraulic modeling, and preliminary design are underway. Route alternatives are being developed for review. Additional modeling is warranted to incorporate several new ACSA and City water projects, and potential upgrades related to VDOT work.

History:

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

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.

17. Crozet Interceptor Pump Stations Bypass and Isolation Valves

Design Engineer:	Johnson, Mirmiran & Thompson (JMT)
Project Start:	August 2017
Project Status:	95% Design Complete
Construction Start:	July 2018
Expected Completion Date:	October 2018
Total Capital Project Budget:	$720,000

Current Status:

Bidding is anticipated for May with a contract award at the June Board Meeting.

History:

A work authorization with JMT was finalized to provide design, bidding and construction administration related services for this project. Design services began in August.

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.

18. <u>Crozet Flow Equalization Tank</u>

Design Engineer:	Greeley and Hansen (G&H)
Project Start:	October 2016
Project Status:	Siting Study 100% Complete
Construction Start:	2019
Completion:	2020
Total Capital Project Budget:	$3,300,000

<u>Current Status</u>:

During execution of the finalized work authorization a contracting issue was identified. The issue is being analyzed and needs to be resolved prior to progressing with design activities.

<u>History:</u>

G&H has submitted a work authorization to continue the project through construction which was approved by the Board during the December meeting. G&H has completed a report documenting potential tank locations within the drainage basin. A meeting was held with ACSA on October 9, 2017 and a tank location was agreed upon for additional investigation work and preliminary engineering activities.

A Work Authorization with G&H to perform a siting study for the flow equalization tank project was issued in October 2016 and with completion expected in 2017. These services include the sizing of the flow equalization tank and the pumping station based on information from the updated model, a preliminary site selection process based on the sizing requirements identified in order to narrow down the number of sites, and an alternatives analysis performed for each selected site to evaluate the feasibility of locating

the facility. This is the first step in the site selection process and will be followed by a more in depth analysis of the potential tank locations and the eventual selection of a final site. As part of the first task, pump tests are being performed at all four Crozet Pump Stations to confirm existing capacities.

Rehabilitation work in the RWSA and Albemarle County Service Authority sewer systems is on-going to meet inflow and infiltration (I&I) reduction goals in the Crozet Interceptor sewer basin based on the flow metering and modeling results of the Comprehensive Sanitary Sewer Model and Study conducted in 2006. The intent was to reduce I&I in the system to meet the 2020 two-year storm flow targets.

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.

19. <u>Reservoir Management Plan</u>

Consultant:	DiNatale Water Consultants
Project Start:	November 2014
Project Status:	100% Complete
Completion:	April 2018
Total Contract Cost:	$336,475

<u>Current Status</u>:

Recommendations will be presented to the Board in April 2018.

<u>History</u>:

The second year of water quality monitoring for this project is in progress. An intensive week of sampling took place in June 2017. A project team meeting was held on June 16 to discuss the results. Sediment sampling at Beaver Creek Reservoir and South Fork

Rivanna Reservoir took place in July 2017. The Phase 1 report is complete, along with a related public information document, and both have been distributed to the Board and are also available for public review at www.rivanna.org/reservoir-study. In June 2014 staff received proposals for services to develop a Reservoir Management Plan to include all five reservoirs that RWSA manages for water supply (Beaver Creek, Ragged Mountain, South Fork Rivanna, Sugar Hollow, and Totier Creek). A selection committee represented by staff from RWSA, ACSA, and the City reviewed proposals and selected two firms for interviews. DiNatale Water Consultants was awarded this contract in the amount of the $176,334, and the contract was executed in November 2014. The contract was extended in 2016, with $160,141 being approved by the Board in August 2016 for Phase 2, for a total approved contract amount of $336,475.

20. South Rivanna Hydropower Plant Decommissioning

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

Current Status:

A consultation document to be provided to local regulatory agencies has been finalized with the intent of hosting a meeting with agencies to discuss the decommissioning process in early May 2018. Following input from local agencies based on the consultation document, a surrender application will be developed for submission to FERC.

History:

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.

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 and has been completely offline for the past four years. 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.

21. <u>Drinking Water Infrastructure Plan – Crozet Area</u>

Design Engineer:	Hazen and Sawyer
Project Start:	June 2017
Project Status:	60% Complete
Completion:	Fall 2018
Total Capital Project Budget:	$300,000

<u>Current Status</u>:

Staff met with VDEQ and other State and Federal Agencies on March 12, 2018 to provide a pre-application project overview as well as Safe Yield and Minimum Instream Flow information. Hazen is gathering final information needed to support water supply, treatment, distribution and dam modification plans when we provide an update to the Crozet Community Advisory Committee on June 20, 2018.

<u>History</u>:

A progress meeting was completed in October, and additional meetings with the County of Albemarle Planning Department and the VADEQ are scheduled for November.

Hazen is currently reviewing RWSA and ACSA historical average and peak day water demand data, as well as County zoning and land use data, to develop water demand forecasts. RWSA staff has provided Hazen with existing data, reports and service area history to start their analysis. A design team kick-off meeting has been held, and additional meetings with county staff and the VA DEQ will be scheduled this Fall, when future demand analyses have been completed. Field investigation of hydraulic data was scheduled. Hydrant flow testing were suspended until the Drought Watch restrictions were lifted.

Preliminary meetings with an Albemarle County Board member and Community Development representatives were held in May 2017. A meeting with the Crozet Community Advisory Committee was held on June 21, 2017.

This project was previously entitled the Crozet Water Master Plan, and is identified in the current Capital Improvement Plan as such. The project name has been changed to avoid confusion with the separate Crozet Master Plan document. The Crozet water service area continues to see expanded growth in the average and maximum day water demands.

Discussion with county and ACSA officials have confirmed recent growth trends that water use is increasing in Crozet. While some projects ae currently underway to address the immediate need in Crozet, this project will develop a comprehensive mid and long range plan (50 years) for the entire water system including; raw water supply, raw water pumping and conveyance, finished water treatment, finished water pumping, and finished water distribution and storage. Future water demand projections will be an important part of this project. At the June 27, 2017 Board Meeting, it was approved to award this planning project to the consulting engineering firm of Hazen and Sawyer. An Engineering Services Agreement was executed on July 5, 2017, as well as Work Authorization No. 1 for the fee of $269,120.

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

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 MARCH 2018**

DATE: **APRIL 24, 2018**

WATER OPERATIONS:

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

Water Treatment Plant	***Average Daily Production (MGD)***	***Total Monthly Production (MG)***	***Maximum Daily Production in the Month (MGD)***
Observatory	0.69	21.48	---
South Rivanna	6.86	212.56	---
North Rivanna	0.31	9.58	---
Urban Total	7.86	243.62	9.40 (3/29/18)
Crozet	0.47	14.68	0.784 (3/04/18)
Scottsville	0.044	1.36	0.086 (3/18/18)
RWSA Total	8.39	235.12	---

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

Status of Reservoirs (as of April 18, 2018):

- Urban Reservoirs: 97.2 % of Total Useable Capacity
- Ragged Mountain Reservoir is –1.39 feet (95 %)
- 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 March 2018. Performance of the WRRFs in March was as follows compared to the respective VADEQ permit limits:

WRRF	*Average Daily Effluent Flow (mgd)*	*Average $CBOD_5$ (ppm)*		*Average Total Suspended Solids (ppm)*		*Average Ammonia (ppm)*	
		RESULT	*LIMIT*	*RESULT*	*LIMIT*	*RESULT*	*LIMIT*
Moores Creek	8.30	1.3	10	1.4	22	0.13	7.0
Glenmore	0.108	1.3	15	4.4	30	0.05	NL
Scottsville	0.055	4.0	25	6.9	30	0.09	NL
Stone Robinson	0.002	19	30	20	30	3.0	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 Moores Creek AWRRF were as follows for March 2018:

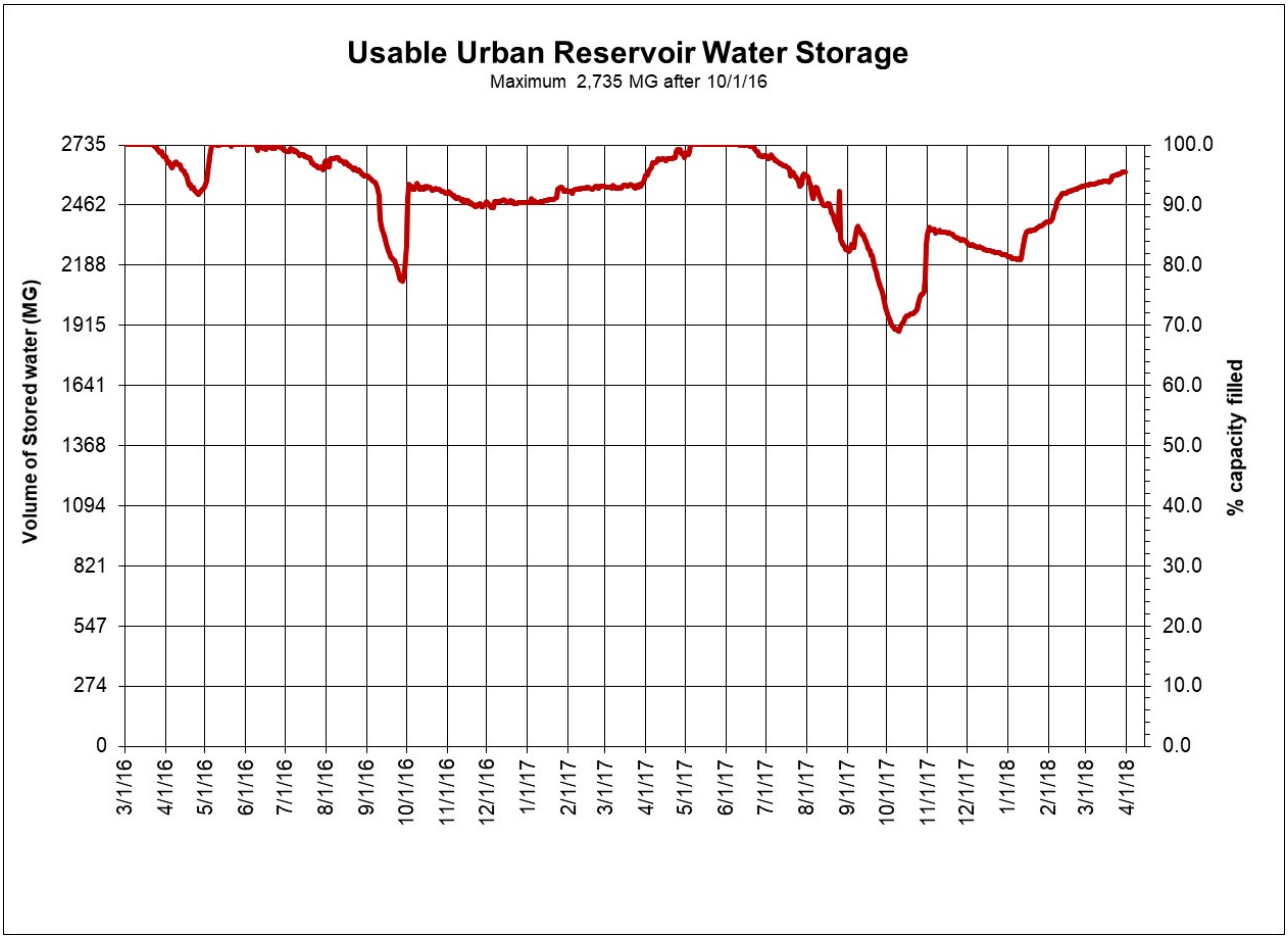
State Annual Allocation (lb./yr.)		*Average Monthly Allocation (lb./mo.)**	*Moores Creek Discharge (lb./mo.)*	*Performance as % of Average Allocation**
Nitrogen	282,994	23,583	12,544	53%
Phosphorous	18,525	1,544	513	33%

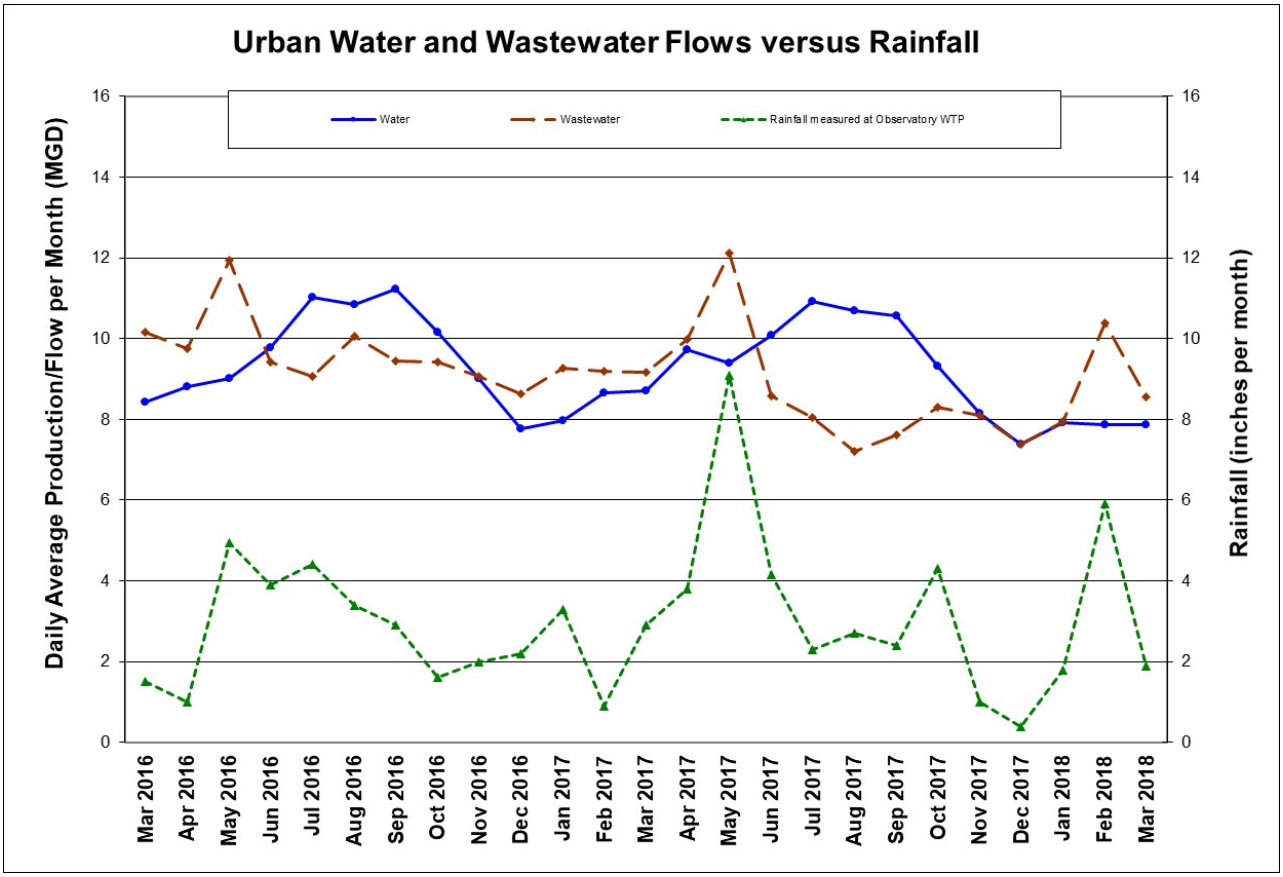
*State allocations are expressed as annual amounts. One-twelfth of that allocation is an internal monthly benchmark for comparative purposes only.

WATER AND WASTEWATER DATA:

The following graphs are provided for review:

- Usable Urban Reservoir Water Storage
- Urban Water and Wastewater Flows versus Rainfall
- Moores Creek AWRRF BOD and TSS Loadings to Receiving Stream
- Moores Creek AWRRF Effluent Monthly Average Ammonia Concentrations
- Moores Creek AWRRF Total Phosphorus Discharged
- Moores Creek AWRRF Total Nitrogen Discharged


Usable Urban Reservoir Water Storage
Maximum 2,735 MG after 10/1/16
Volume of Stored water (MG)
% capacity filled
2735
2462
2188
1915
1641
1368
1094
821
547
274
0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
3/1/16
4/1/16
5/1/16
6/1/16
7/1/16
8/1/16
9/1/16
10/1/16
11/1/16
12/1/16
1/1/17
2/1/17
3/1/17
4/1/17
5/1/17
6/1/17
7/1/17
8/1/17
9/1/17
10/1/17
11/1/17
12/1/17
1/1/18
2/1/18
3/1/18
4/1/18


Urban Water and Wastewater Flows versus Rainfall
Water
Wastewater
Rainfall measured at Observatory WTP
Daily Average Production/Flow per Month (MGD)
Rainfall (inches per month)
16
14
12
10
8
6
4
2
0
Mar 2016
Apr 2016
May 2016
Jun 2016
Jul 2016
Aug 2016
Sep 2016
Oct 2016
Nov 2016
Dec 2016
Jan 2017
Feb 2017
Mar 2017
Apr 2017
May 2017
Jun 2017
Jul 2017
Aug 2017
Sep 2017
Oct 2017
Nov 2017
Dec 2017
Jan 2018
Feb 2018
Mar 2018

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

MEMORANDUM

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

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

REVIEWED BY: **BILL MAWYER, EXECUTIVE DIRECTOR**

SUBJECT: **ENGINEERING SERVICES – SOUTH RIVANNA RESERVOIR TO RAGGED MOUNTAIN RESERVOIR WATER LINE RIGHT-OF-WAY – BIRDWOOD GOLF COURSE WATER MAIN**

DATE: **APRIL 24, 2018**

RWSA entered into a term agreement with Michael Baker International, Inc. on August 3, 2016 for Water and Sewer Engineering Consulting Services. Based on the success of similar projects completed by Baker for RWSA, Baker was selected to perform engineering services for the South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way Project, Which includes approximately 7,700 feet across the Birdwood Golf Course.

RWSA and the UVA Foundation wish to expedite construction of the portion of the 36-inch raw water main through the Birdwood Golf Course Property. This would enable pipeline work to proceed just ahead of the planned golf course reconstruction project to prevent subsequent disruption to the property. The golf course reconstruction project is planned to be underway in July 2018.

Engineering staff has negotiated a scope of work to advance design documents from the 30% stage of completion through bid-ready construction documents including VDH permit application and easement acquisition support for the portion of the project across the Birdwood property. The total fixed price fee for this work is not to exceed $113,235 which is within the approved budget for this CIP project.

Board Action Requested:
Staff requests that the Board of Directors authorize the Executive Director to execute a Work Authorization with Michael Baker International, Inc. for Engineering Services related to preparation of construction documents for the raw water main across the Birdwood Golf Course

property for an amount not to exceed $113,235 and authorize the addition of the same amount to the Capital Improvement Plan Project: “South Rivanna Reservoir to Ragged Mountain Reservoir Water Line Right-of-Way”. Staff further requests the Board of Directors authorize the Executive Director to execute amendments in additional amounts, if deemed necessary for the completion of this project, provided the total amount of all amendments does not exceed 10% of the total Work Authorization fee.

STRATEGIC PLAN IMPLEMENTATION UPDATE

Report to the Board of Directors

April 24, 2018

RIVANNA
WATER AND SEWER AUTHORITY
& SOLID WASTE AUTHORITY

Goal Team Composition

Goal	Champion
Communications	Katie McIlwee
Environmental Stewardship	Andrea Terry
Solid Waste Services	Phil McKalips
Workforce Development	Betsy Nemeth/Lonnie Wood
Infrastructure	Jennifer Whitaker
Operational Optimization	Tim Castillo/Dave Tungate

Goal Team Work: Prioritization

- Goal Teams identified the highest priority strategies & tactics
- Criteria considered:
  - Impact
  - Timing
  - Sequencing
  - Ease of Implementation
- 12-18 Month timeframe

Goal Team Work: Tactic Development

Road to Success

Prioritized, Doable, Short-term Tactics

Build on & Celebrate Success

+

Structured Reporting & Accountability

+

Organizational Involvement

+

Sustained Organizational Commitment

=

Strategies

1. Workforce Development

a. Develop a comprehensive staffing, classification, & compensation plan

b. Conduct a training needs assessment & enhance the training program

2. Operational Optimization

a. Continually evaluate, prioritize, & improve key business & operational processes

b. Protect our workforce & the public through continually growing a culture of safety

3. Communication & Collaboration

a. Create & maintain internal communication platforms

b. Create & implement a comprehensive public outreach plan

4. Environmental Stewardship

a. Increase internal environmental engagement

b. Designate resources to support environmental outreach & green initiatives

5. Solid Waste Services

a. Determine community needs & preferred service levels

b. Enhance partnerships with local governments & the University of Virginia

6. Infrastructure & Master Planning

a. Implement an Authority-wide asset management program

b. Develop & maintain long-term master plans for all critical asset classes

Workforce Development Tactics

Develop a comprehensive staffing, classification, & compensation plan

- Implement approved pay grade schedule - July 1
- Develop Master Staffing Plan
- Review staffing plans with BOD, gain approval (CONCEPTUALLY) of plan, formal approval will occur in budget approval for next fiscal year's new positions
- Continued annual review of staffing needs at an executive level

Conduct a training needs assessment & enhance the training program

- 12 month training calendar
- PVCC Leadership Training
- Employee Development Plans
- New Employee Training - scheduling, comm., trainers, ON-BOARDING specific to positions
- Training communication and scheduling

Operational Optimization Tactics

Continually evaluate, prioritize, & improve key business & operational processes

- Inventory and prioritize critical business and operational processes
- Identify key performance indicators for each department
- Research appropriate benchmarks/best practices
- Select one key business or operational process to improve as a pilot
- Create training to support efficiency and effectiveness improvements

Protect our workforce & the public through continually growing a culture of safety

- Identify and prioritize 10 safety concerns in each department regarding design engineering, operations, and preventative maintenance
- Research successful public-sector safety programs, including health and safety audits for project design
- Develop and communicate guidance for safety incident reporting, near misses, and suggestions
- Monitor and evaluate the outcomes from the vulnerability assessment
- Develop recommendations to improve cyber security

RIVANNA WATER & SEWER AUTHORITY

Communication & Collaboration Tactics

Create & maintain internal communication platforms

- Inventory current internal communications efforts and ensure all employees have equal access to internal communications
- Collaborate with Employee Council
- Create internal communication "trees" for specific types of information (e.g. safety, emergency information, on-boarding/off-boarding, etc.)
- Research and develop a digital communications protocol"
- Review SOPs for job duties
- Standardize records management protocols

Create & implement a comprehensive public outreach plan

- Inventory current public outreach activities
- Research communication planning best practices
- Develop communication service level agreements with ACSA and the City of Charlottesville
- Create communication contact lists (names, roles, responsibilities) for City of Charlottesville, Albemarle County, ACSA, and UVA
- Evaluate social media outreach options, including Facebook
- Partner with local schools and civic groups for facility tours and environmental education

RIVANNA WATER & SEWER AUTHORITY

Next Steps

- Begin active implementation
- Establish digital strategy model
- Prepare for first quarterly progress update

QUESTIONS?

Environmental Stewardship Tactics

Increase internal environmental engagement

- Inventory green initiatives
- Partner with Community/env'l groups
- Research other Organizations on green initiatives
- Identify Environmental Engagement goals
- Develop communication tools
- Create Green Road shows

Designate resources to support environmental outreach & green initiatives

- Create a standing Employee Environmental Committee (structure)
- Create a staffing plan (existing and potential new position) Coordinate with Workforce Development
- Develop an annual budget for green initiatives and activities

Solid Waste Services Tactics

Determine community needs & preferred service levels

- Research Existing Solid Waste and Recycling Practices/Data
- Communicate Data and Existing Services to Public
- Design Outreach
- Conduct Outreach
- Analyze Outreach Data
- Report on Outreach Results to Exec. Dir. & Board

Enhance partnerships with local governments & the University of Virginia

- List Potential Partnership Organizations (POs)
- Identify Points of Contact for each PO
- Craft Message (what we are, resources we have, what we do)
- Contact Pos; discuss our resources, operations, needs; define their resources, needs, operations
- Evaluation Process (turn #4 into possible Programs and evaluate)
- Present possible Programs to Exec. Dir. and Board for action (and, if needed, funding)
- Implement

Infrastructure & Master Planning Tactics

Implement an Authority-wide asset management program

- Develop an RFP for an Asset Management Plan
- Create an Asset Management Committee and Prepare for AM
- Identify and Meet Short Term Software Needs
- Procure Consultant Assistance (Phase 1 - Strategic Plan)
- Organize Current Asset Information
- Develop an Asset Management Strategic Plan

Develop & maintain long-term master plans for all critical asset classes

- Inventory all existing master plans
- Identify existing master plan obligations
- Conduct gap analysis to get to comprehensive master plans
- Classify all critical asset classes, functions, and departments that require master planning (in conjunction with Strategy 1, Tactic 5)
- Assign champions to asset class master plans
- Create a process to ensure that master plan-prioritized recommendations are linked to capital improvement program

RIVANNA WATER & SEWER AUTHORITY

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

MEMORANDUM

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

FROM: **ANDREA B. TERRY, WATER RESOURCES MANAGER**

REVIEWED BY: **BILL MAWYER, EXECUTIVE DIRECTOR**
JENNIFER WHITAKER, DIRECTOR OF ENGINEERING AND MAINTENANCE

SUBJECT: **PRESENTATION OF PHASE 2 - RWSA RESERVOIR WATER QUALITY MANAGEMENT STUDY – DINATALE WATER CONSULTANTS**

DATE: **APRIL 24, 2018**

In September 2014, the Board authorized a contract for "Reservoir Management Services" with DiNatale Water Consultants to conduct a study of RWSA's five reservoirs. Phase 1 of this study was completed in 2016, the findings of which were presented to the Board in May 2016. At that time, the Board requested that a less formal, summary document be created. Both the final ***Phase 1 Reservoir Water Quality and Management Assessment*** and the summary document ***Reservoir Water Quality and Management Study: A First Look*** are available on our website at www.rivanna.org/reservoir-study.

Phase 2 of the study was authorized by the Board in August 2016. This Phase allowed the consultant and staff to analyze additional data, conduct additional sampling and flow studies to further understand the processes occurring within our reservoirs, identify the sources of nutrient loadings (internal vs. external), and allow for refinement of the recommended reservoir management methods, all of which may help to minimize the use of algaecides for the control of algae. Kelly DiNatale, of DiNatale Water Consultants, is here today to present the Phase 2 work and results.

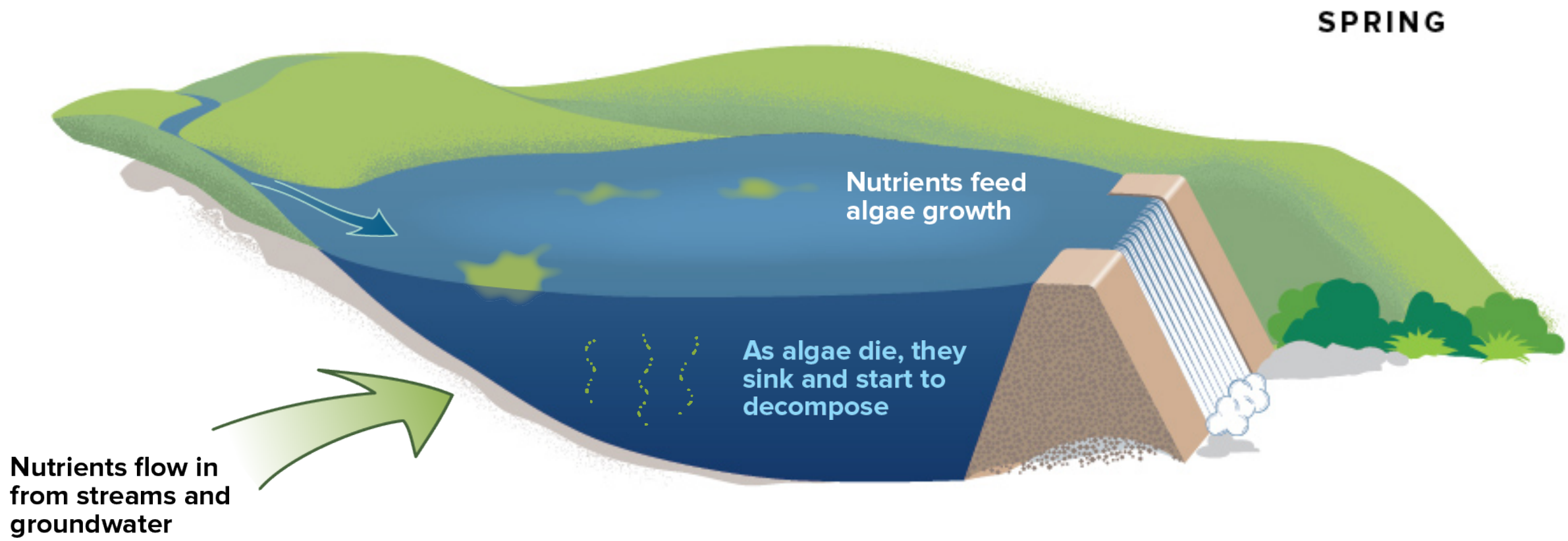
Board Action Requested:

None requested.

Reservoir Water Quality and Management Study Update

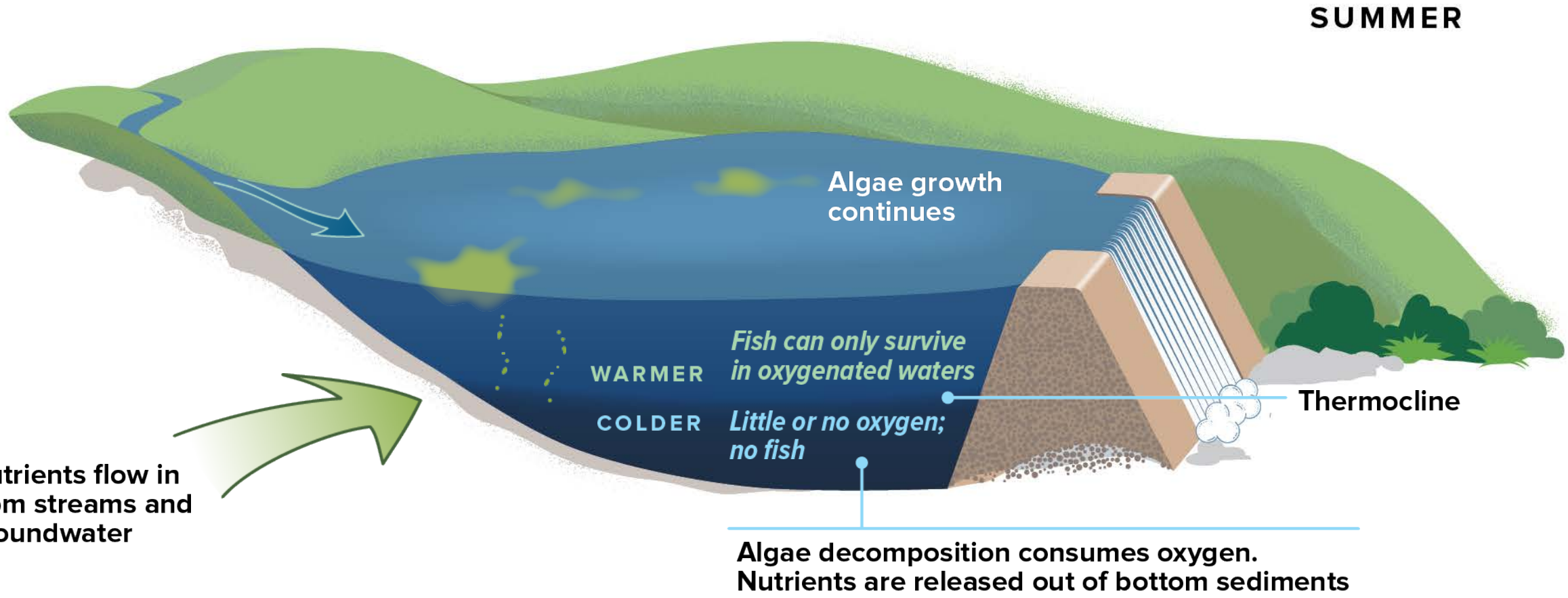
April 24, 2018

HOW A RESERVOIR CHANGES THROUGH THE SEASONS



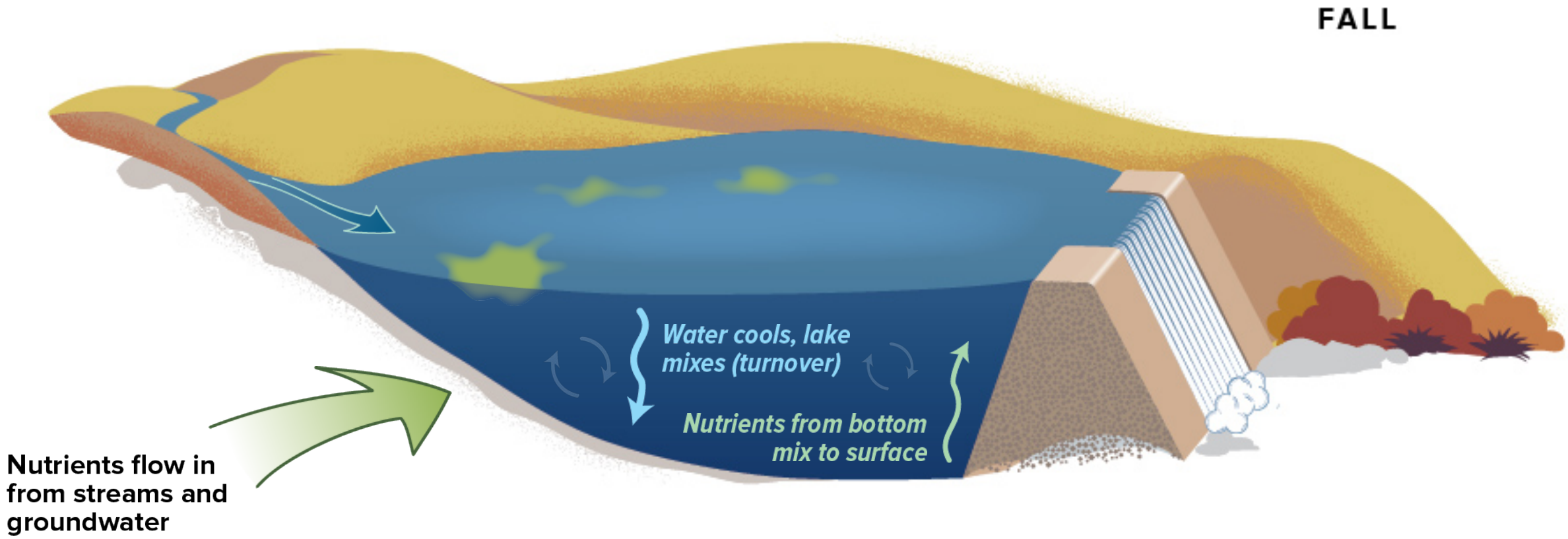
Source: DiNatale WATER CONSULTANTS

HOW A RESERVOIR CHANGES THROUGH THE SEASONS



Source: DiNatale WATER CONSULTANTS

HOW A RESERVOIR CHANGES THROUGH THE SEASONS



Turnover results in recycling of nutrients – available for fall and next year's algae growth

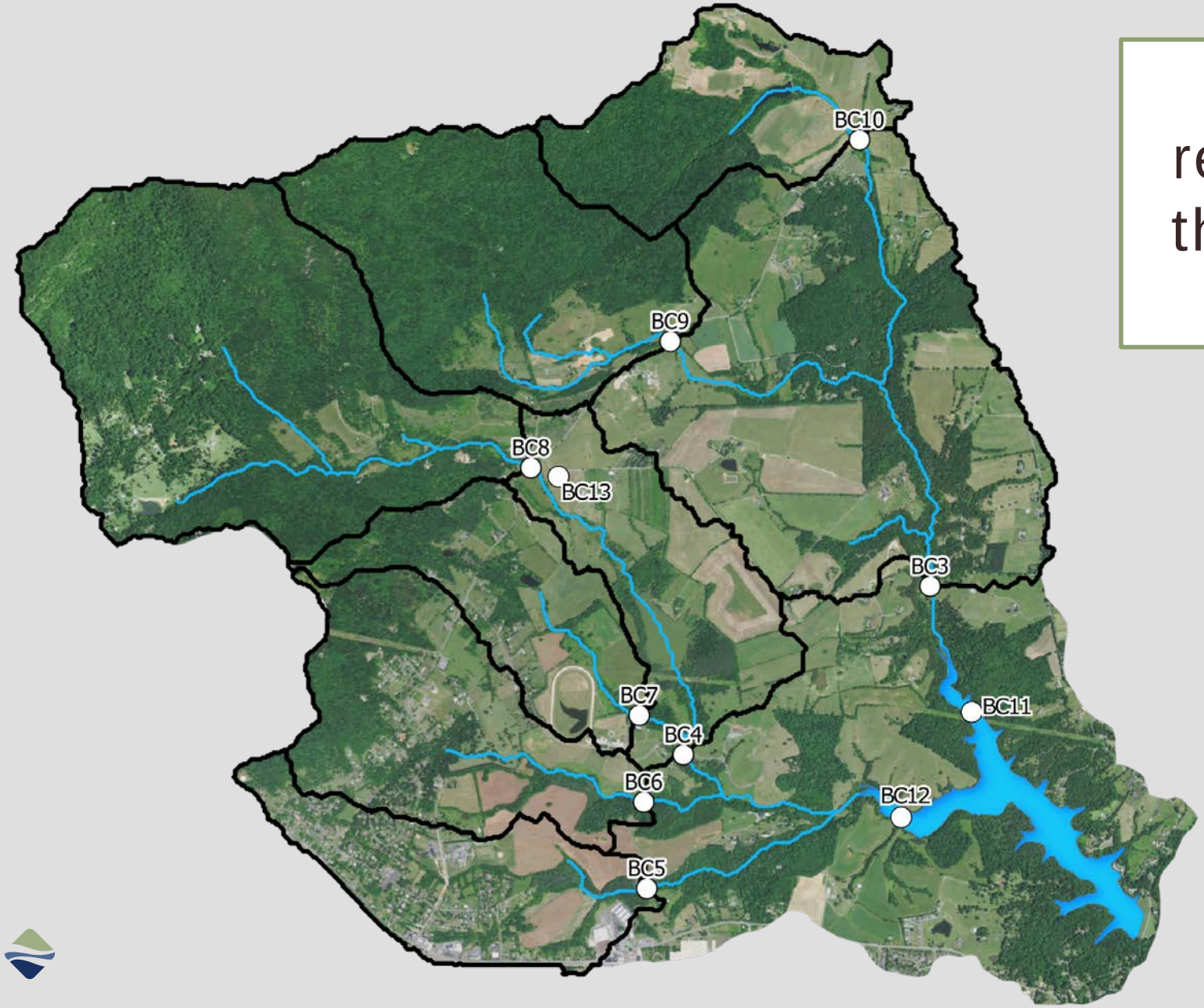
Source: DiNatale WATER CONSULTANTS

Sonde and Kemmerer sampler

Beaver Creek Watershed Sampling

Baseflow and stormflow comparisons

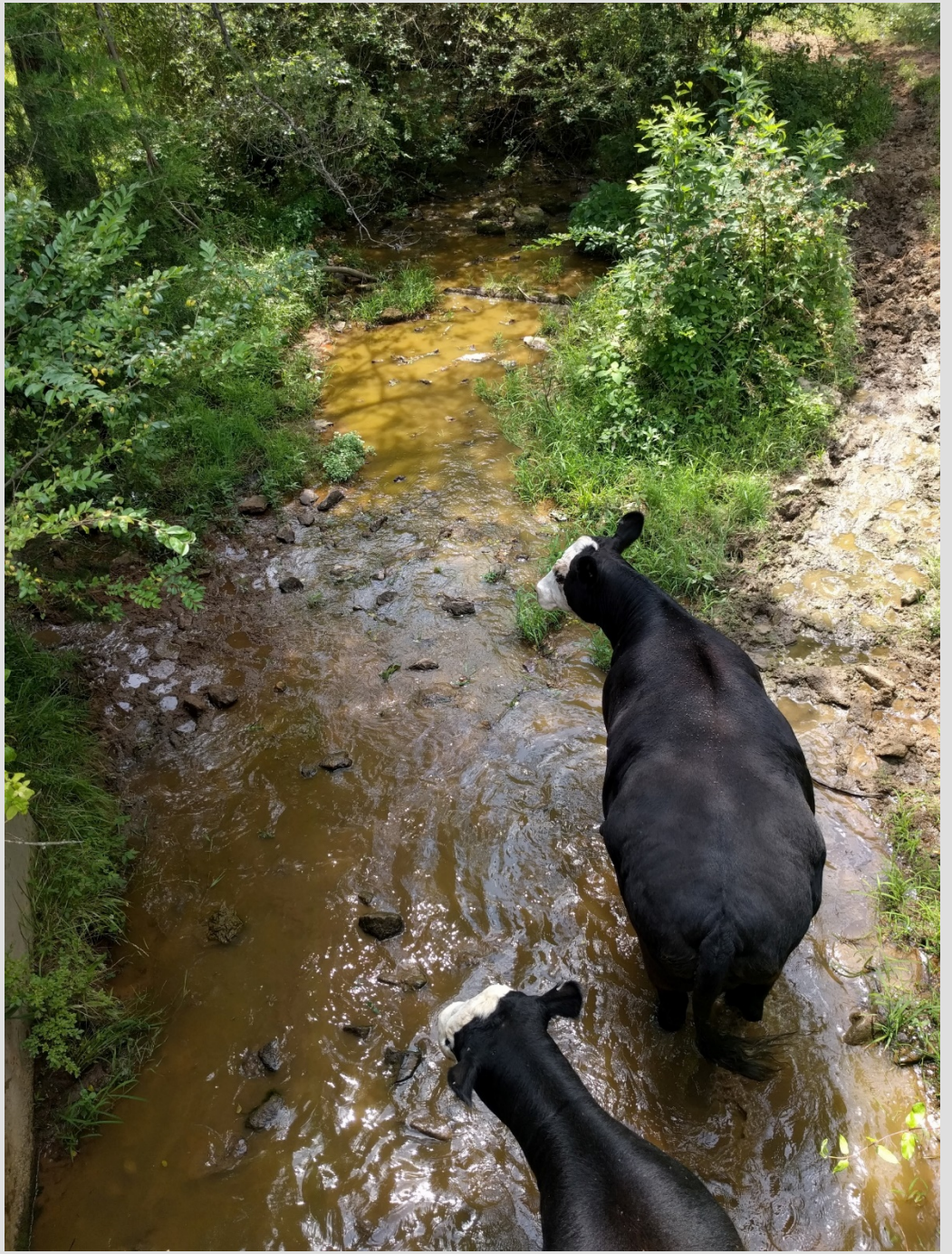
Beaver Creek Watershed Sampling



Monitoring program revealed high nutrients in the inflows and within the reservoir

Can we pinpoint the source of high nutrient loadings?

Beaver Creek residents



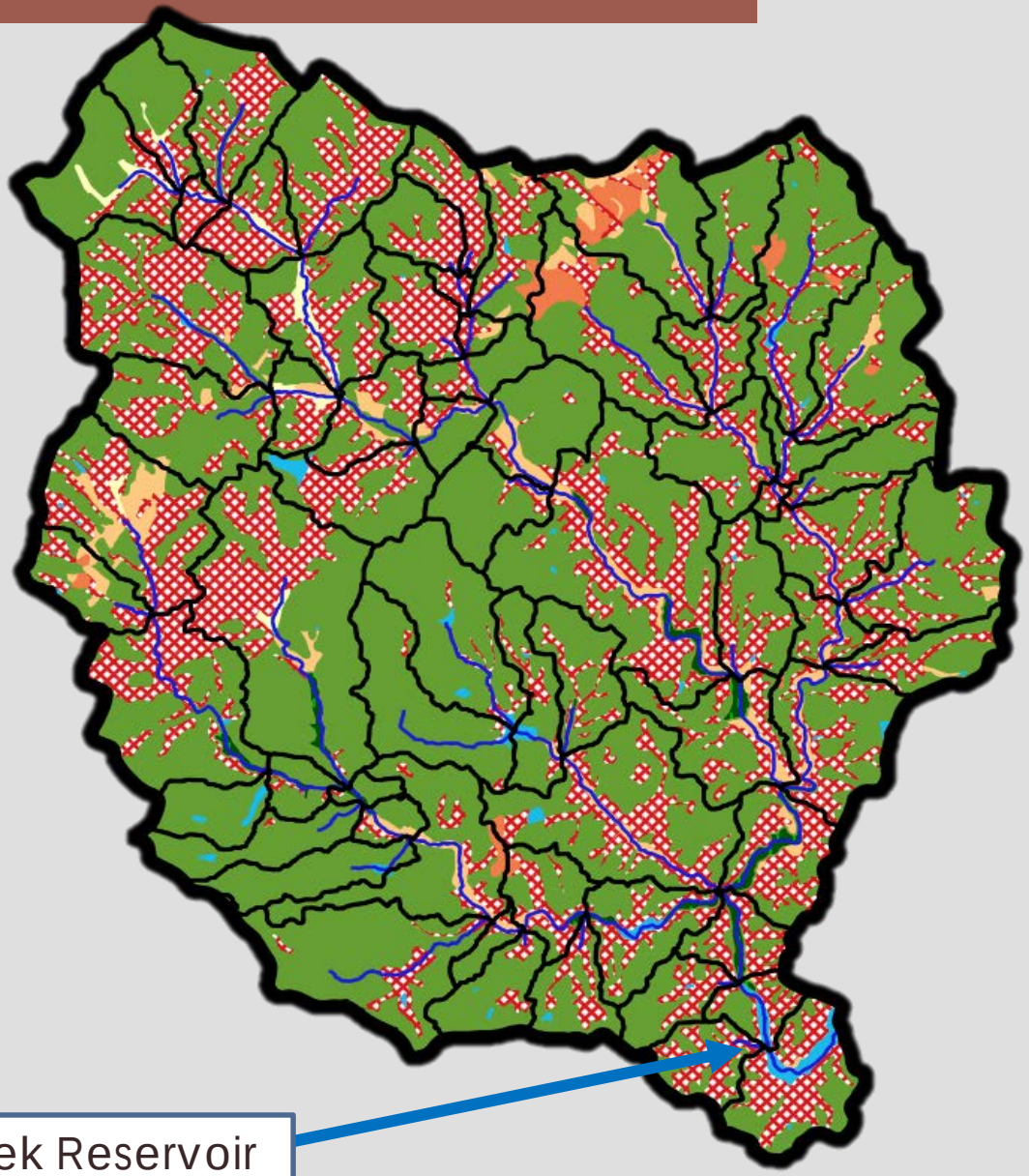
Beaver Creek Watershed Findings

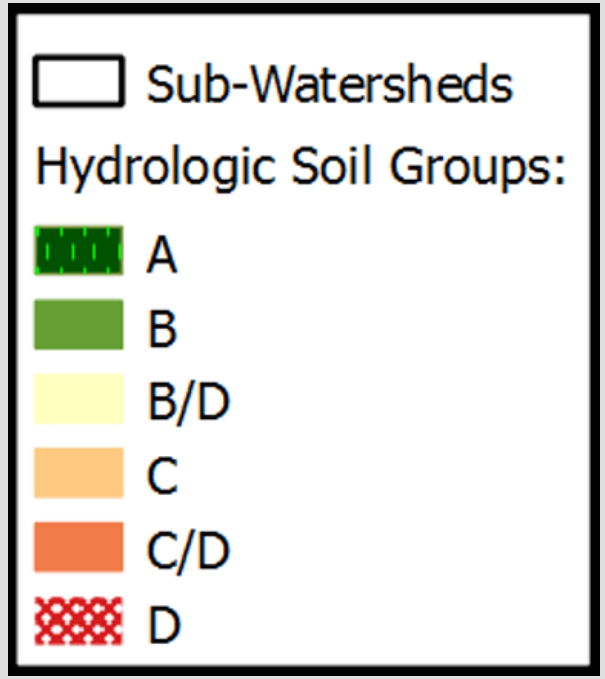
- Nutrients coming from everywhere in the watershed
- Need to take out lots of nitrogen in the creeks rain or shine
- Need to take out lots of phosphorus in the creeks during storms
- Need slight decrease in phosphorus in creek in dry weather

Totier Creek Watershed

Totier Creek Watershed Soil Groups

- Group D soils in area are prone to sheet erosion and are rich in clay
- Storms needed to erode clay soils into the creeks
- Creeks will clear within days after a storm
- Once clays flow into the reservoir, they are very slow to settle
  - Reservoir stays turbid





Totier Creek Reservoir – post storm

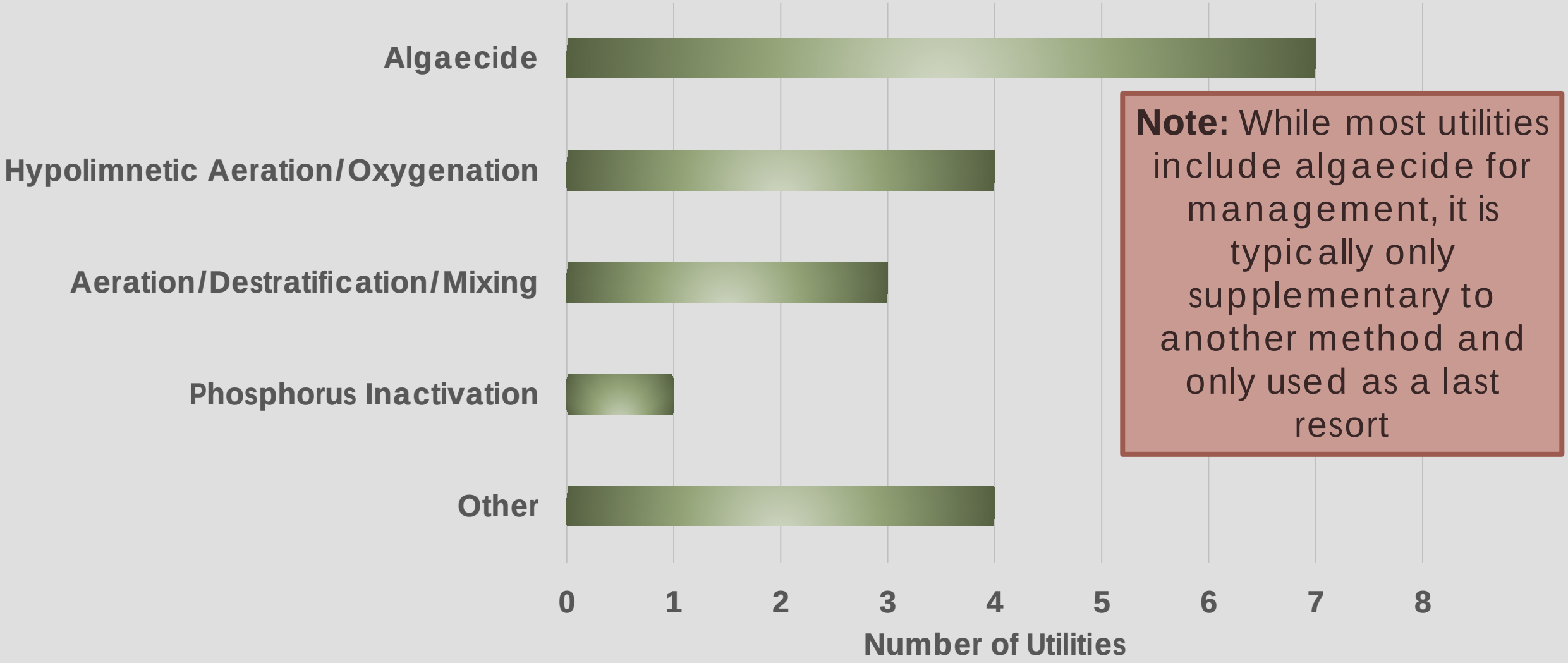
Photo: Andrew Shurtleff

Utility Case Studies

Utilities Surveyed

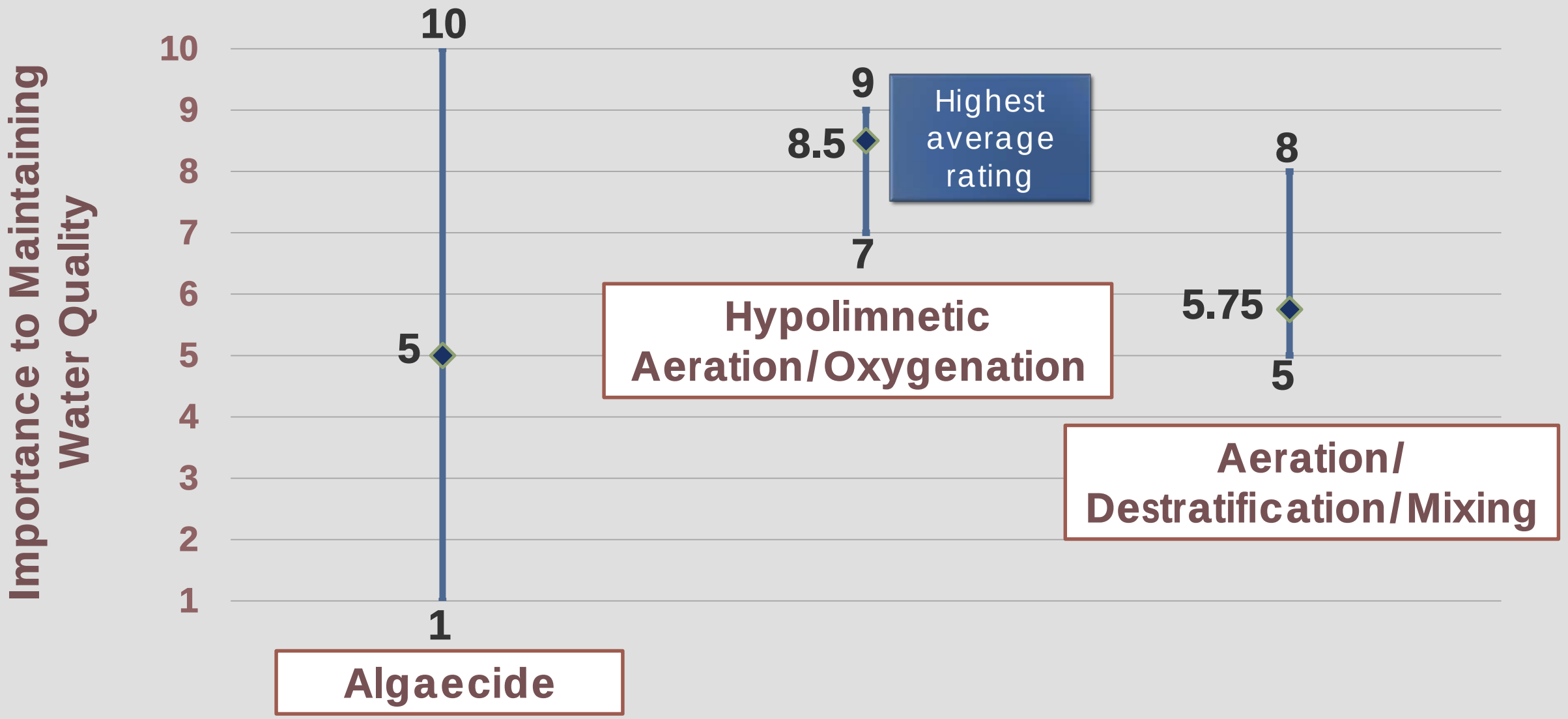
- Virginia Utilities:
  - City of Norfolk
  - Fairfax Water
  - Newport News Waterworks
  - Western Virginia Water Authority
  - Town of Culpeper
- Colorado Utilities
  - Denver Water
  - City of Thornton
- American Water (New Jersey and IL)

Management Methods in Use or Planned



Note: While most utilities include algaecide for management, it is typically only supplementary to another method and only used as a last resort

Management Methods and Rated Effectiveness



Recommendations on Management Methods

Current Challenges with RWSA Reservoirs

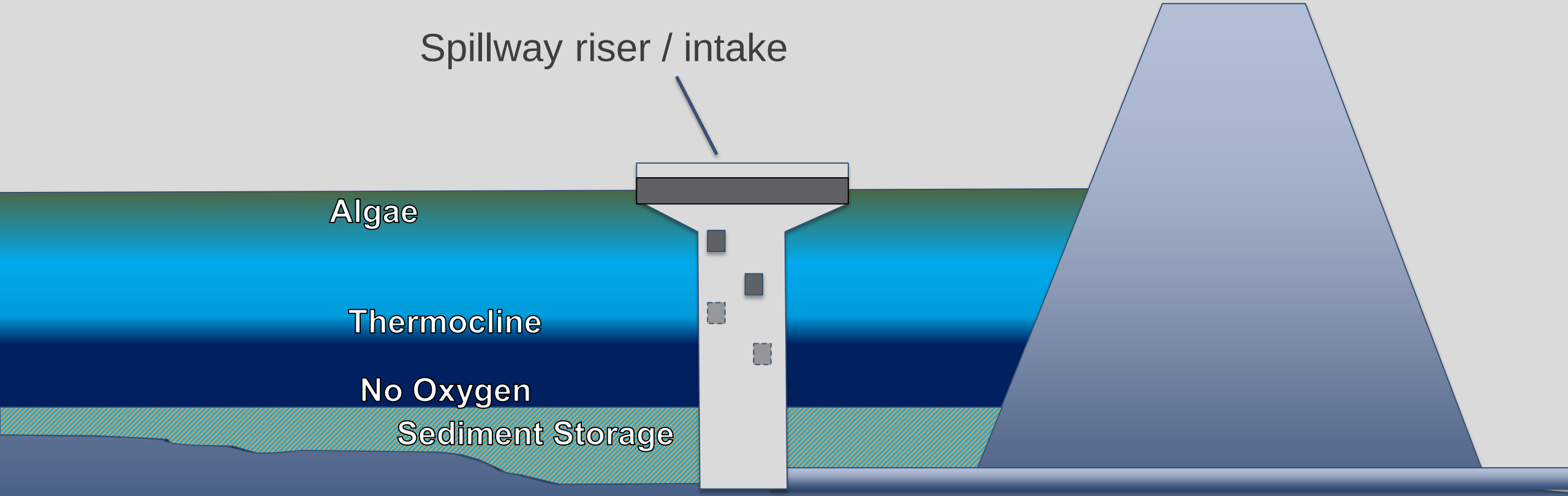
Challenge	Discussion
Taste & odor	Blue-green algae blooms stimulated by excessive nutrients
Algal toxins	Some blue-green algae can produce toxins which can cause human and animal health problems.
Anoxic bottom waters	Nutrient, iron and manganese releases
Filter clogging algae	Algae can lead to filter-clogging at the WTP and reduce filter run times.
Impacts to recreation and fisheries	Algae can affect shoreline and on-lake recreation. Low dissolved oxygen affects fisheries and can lead to fish kills.
Chemical treatments	Up to approximately $100,000 annual cost. Concern among some scientists and utilities of copper resistance by algae and accumulation in reservoir sediments.

Adaptive Management

- First improve the internal health of the reservoirs
- Evaluate feasibility of addressing watershed loadings
- Reduce reliance on algaecide treatments as primary management method
  - Important item in toolbox
  - Necessary at times
  - Can disrupt the natural food chain and impact ability of zooplankton grazers to help control algae

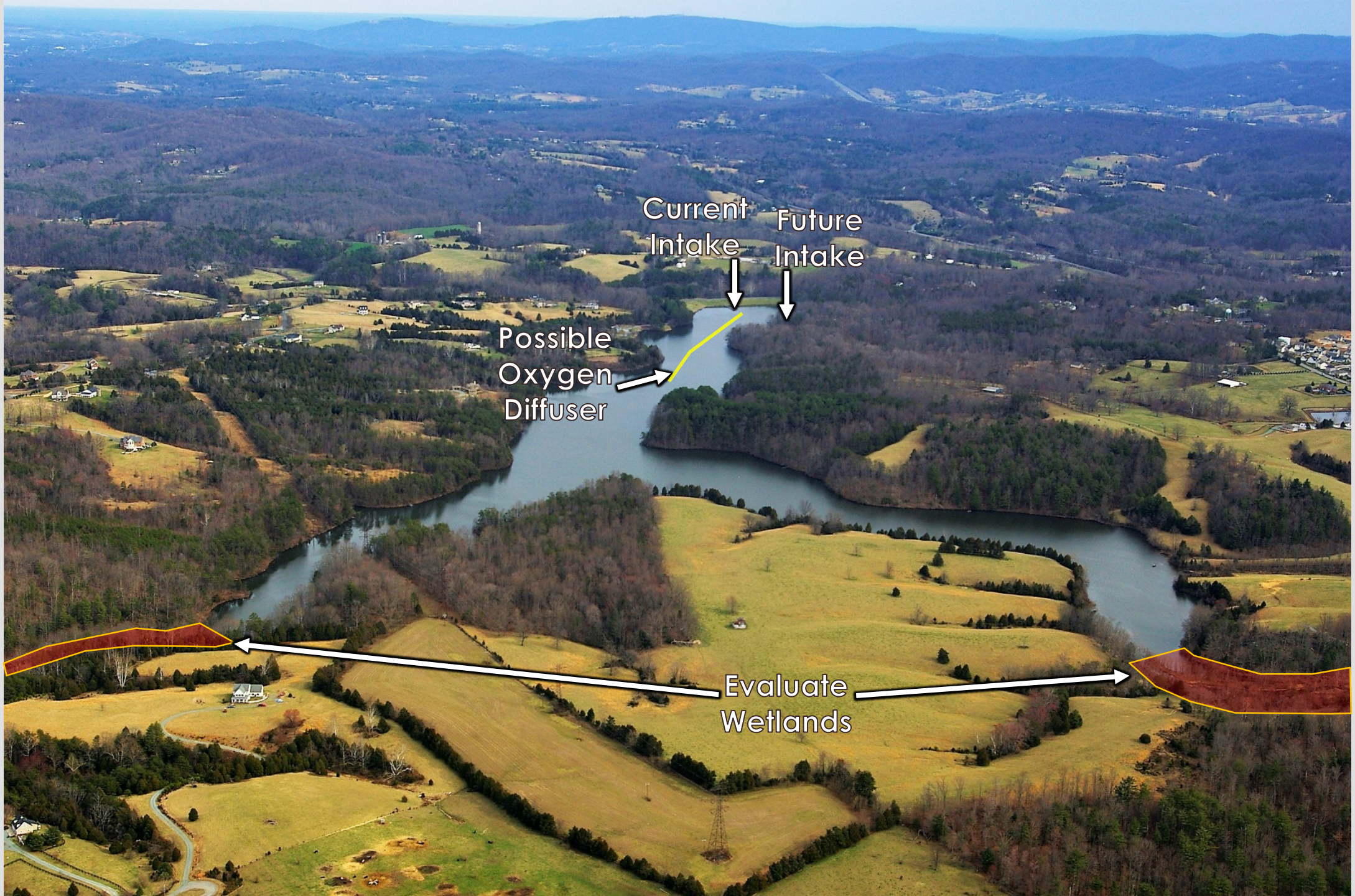
Beaver Creek Reservoir

Beaver Creek Reservoir Current Outlet



Beaver Creek Reservoir Recommendations

- Install new outlet structure to allow selection of highest quality water to WTP
- Install hypolimnetic oxygenation system
- Additional investigations on reducing nutrients in inflows
  - Enhanced wetlands


Current Intake
Future Intake
Possible Oxygen Diffuser
Evaluate Wetlands

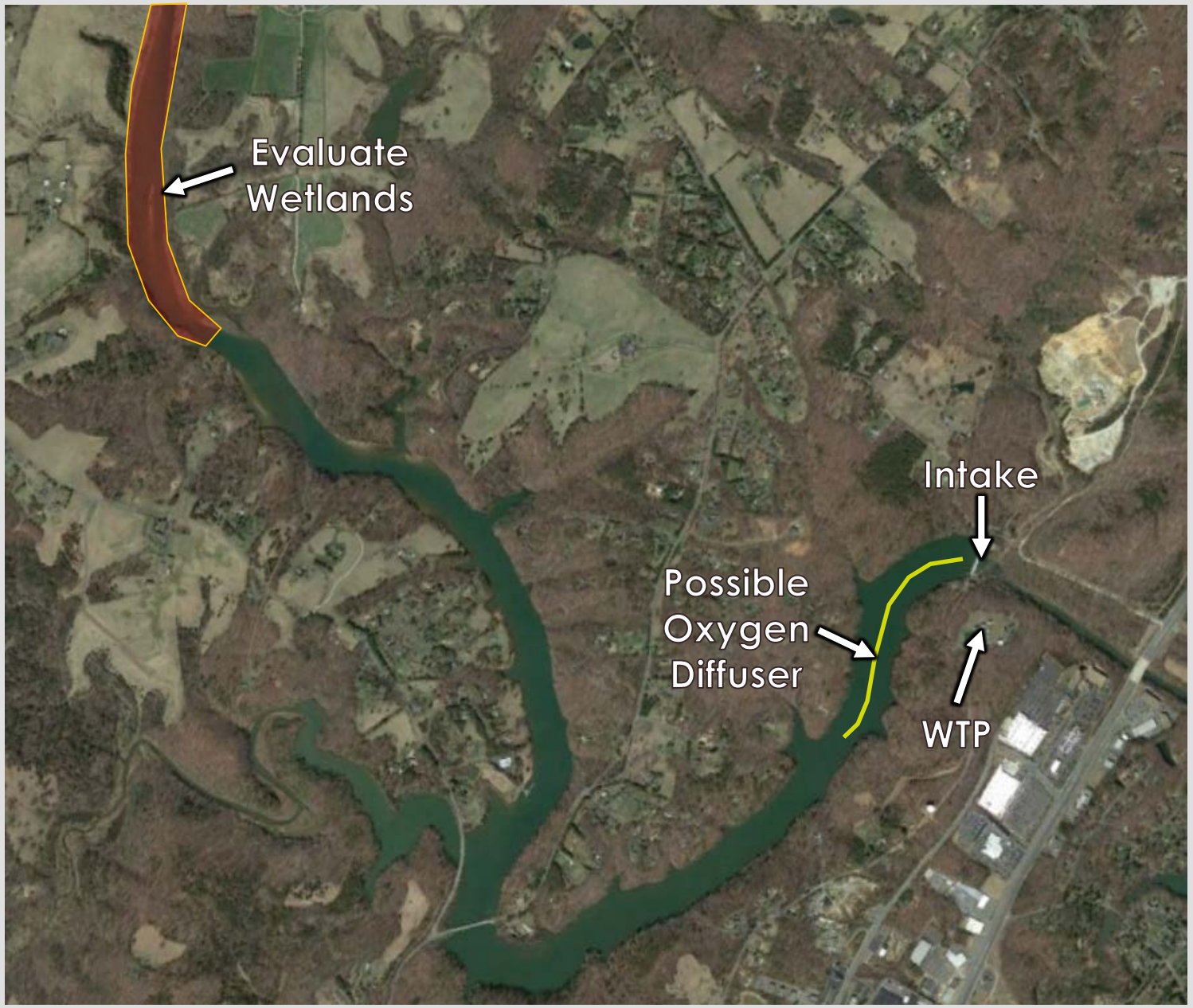
Hypolimnetic Oxygen Diffuser System
Aurora Reservoir, CO

South Fork Rivanna Reservoir

South Fork Rivanna Reservoir Recommendations

- Based on Beaver Creek results, future installation of hypolimnetic oxygenation system
- Additional investigations on treating inflows
  - Enhanced wetlands

South Fork Rivanna Reservoir

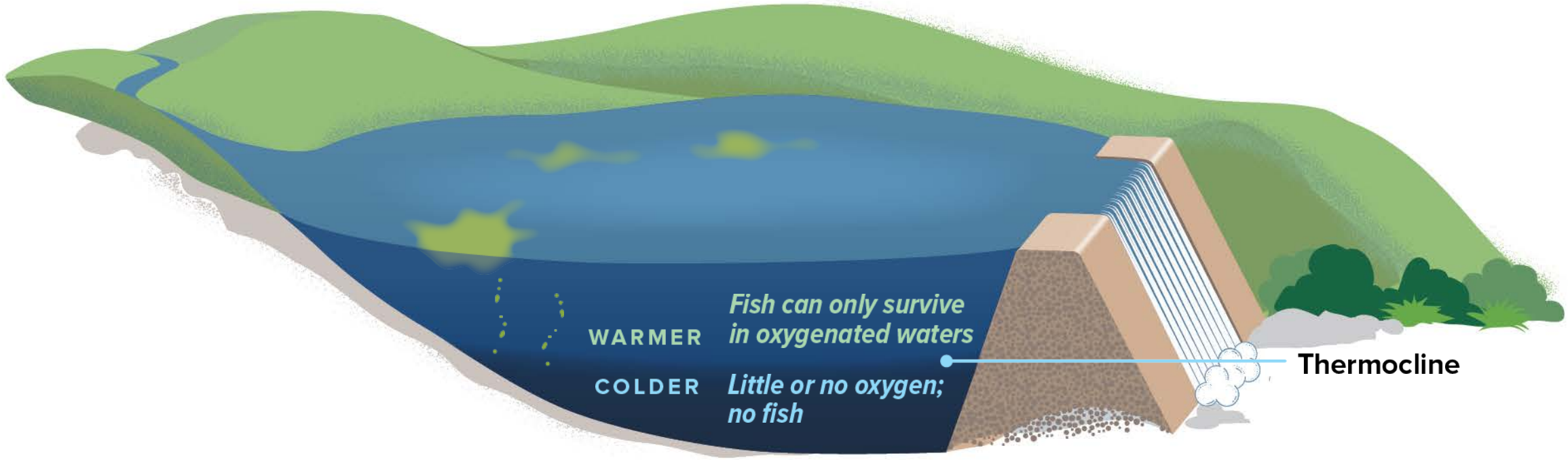


South Fork Rivanna Reservoir After a Storm

Ragged Mountain Reservoir

Ragged Mountain Reservoir

Ragged Mountain Reservoir Summer Anoxia



Source: DiNatale WATER CONSULTANTS

Ragged Mountain Reservoir
Long-term Recommendations

- Hypolimnetic oxygenation system

Totier Creek Reservoir

Totier Creek Reservoir Recommendations

- Continue current operations
  - Direct creek withdrawal
  - Reservoir as back up, but maintain ability to treat high turbidity water

Acknowledgements

- Andrea Terry, Water Resources Manager, Reservoir Water Quality and Management Assessment Project Manager
- Bethany Houchens, Water Quality Specialist
- Bill Mawyer, Executive Director
- Lonnie Wood, Director of Finance
- Jennifer Whitaker, Director of Engineering and Maintenance
- David Tungate, Director of Operations
- Matt Bussell, Assistant Water Manager
- Konrad Zeller, Water Treatment Plant Supervisor
- Patricia Defibaugh, Lab Chemist
- Debra Hoyt, Lab Technician
- Bryan Balsley, Water Operator
- Peter Jasiurkowski, Water Operator
- Brian Estes, Water Operator
- Guy Maupin, Relief Operator
- Michael Webb, Relief Operator
- Ken Holley, Water Operator
- Austin Marrs, Engineer

DiNatale
WATER CONSULTANTS

AHA

Granular Activated Carbon

Project Overview

for the Board of Directors

Presented by:
Bill Mawyer, Executive Director
Dave Tungate, Director of Operations
April 24, 2018

S. Rivanna WTP
8 Contactors
320,000 lbs of GAC
8 MGD Capacity

Observatory WTP
2 Contactors
80,000 lbs of GAC
2 MGD Capacity

N. Rivanna WTP
1 Contactor
40,000 lbs of GAC
1 MGD Capacity

Crozet WTP
2 Contactors
40,000 lbs of GAC
1 MGD Capacity

Scottsville WTP
2 Contactors
12,000 lbs of GAC
0.25 MGD Capacity

History

- GAC System Approved — July 2012
  - By City, County, ACSA & RWSA
- RWSA Board Approved GAC Hybrid Design — Dec 2013
  - Hazen & Sawyer, Design Engineer
- Construction Began — May 2015
  - Ulliman Schutte Construction
- Construction Completed — April 2018
  - $24 million
- S Rivanna WTP Celebration, 10 am — May 8, 2018
- Crozet WTP Celebration, 10 am — May 9, 2018
- Scottsville WTP Celebration, 10 am — May 16, 2018

Operational Strategy

- Completed a “performance-based” test of multiple GAC materials, and selected a carbon product for the initial contactor fill
- Balance usage of the 3 Urban WTPs to treat 100% of the water with GAC for the initial 12 – 18 months, unless conditions require otherwise
- Evaluate organic material removal efficiency and GAC replacement schedule
- Adjust operational strategy if desired, to balance treatment effectiveness and cost
- Continue to use Powdered Activated Carbon as another layer of treatment for the removal of organics, taste, and odors

Questions?