

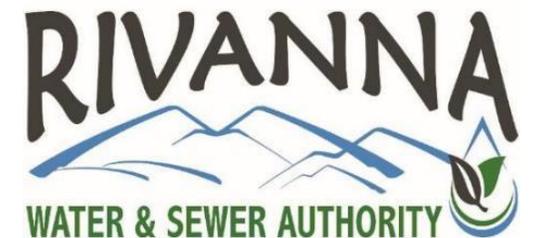
# Rivanna Water & Sewer Authority Overview



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Presented to the Places29-Hydraulic Citizens Advisory Committee  
By: Jennifer A. Whitaker, PE – RWSA Director of Engineering & Maintenance

June 11, 2024



# Agenda

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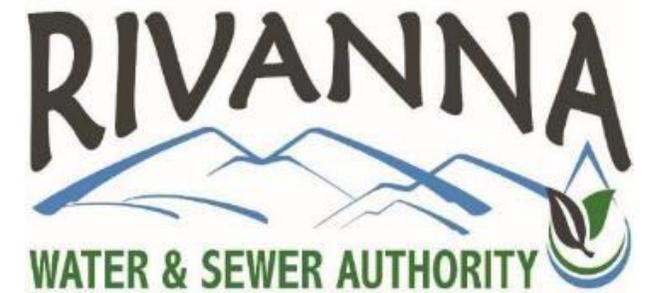
- Background
- Urban Service Area
- Capital Improvement Plan
- Community Water Supply Plan
- Other Local Projects
- Questions

# Background



# Rivanna Water and Sewer Authority

- Created in 1972 by joint action of the Charlottesville City Council and Albemarle County Board of Supervisors
- Provides wholesale drinking water and wastewater services for the public utility customers of the City and the County
- 100 Employees
- \$55 M Annual Operating Budget
- \$ 371 M 5-year Capital Improvement Budget



# Rivanna Water and Sewer Authority Board of Directors



**Mike Gaffney, RWSA Board Chair**



**Sam Sanders, RWSA Secretary-Treasurer  
City Manager, Charlottesville**



**Jeff Richardson, RWSA Vice-Chair  
County Executive, Albemarle County**



**Brian Pinkston, Councilor  
Charlottesville City Council**



**Ann Mallek, Supervisor  
Albemarle County Board of Supervisors**



**Lauren Hildebrand  
Director of Utilities  
City of Charlottesville**



**Gary O'Connell  
Executive Director  
Albemarle County Service Authority**

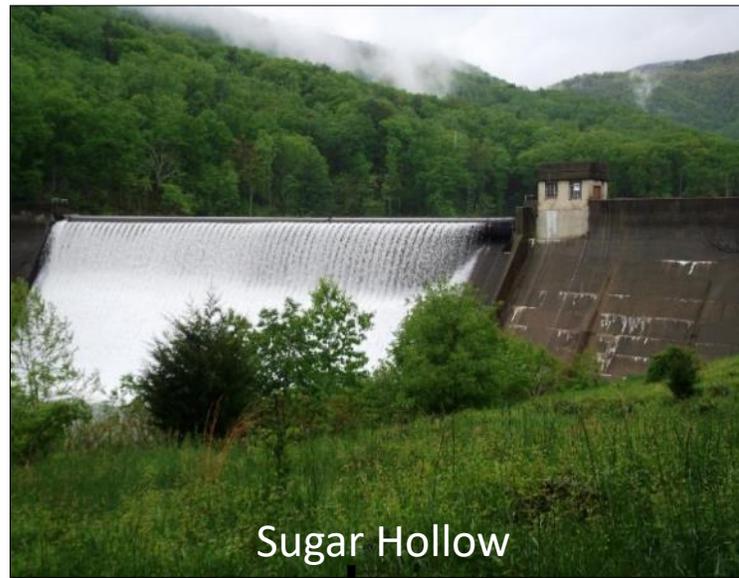
# RWSA provides Wholesale Drinking Water and Wastewater Treatment for 2 Customers

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South Fork Rivanna



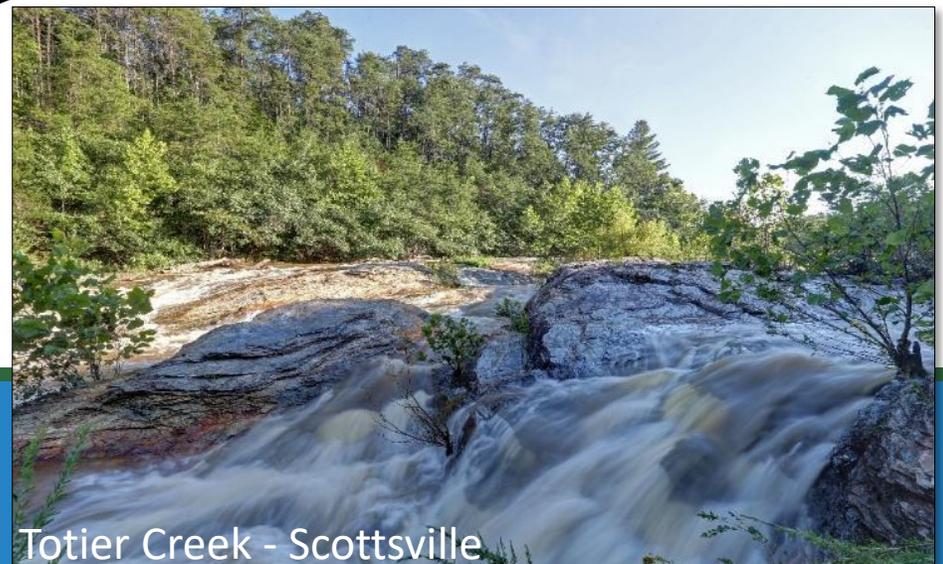
Sugar Hollow



Ragged Mountain



Beaver Creek - Crozet



Totier Creek - Scottsville

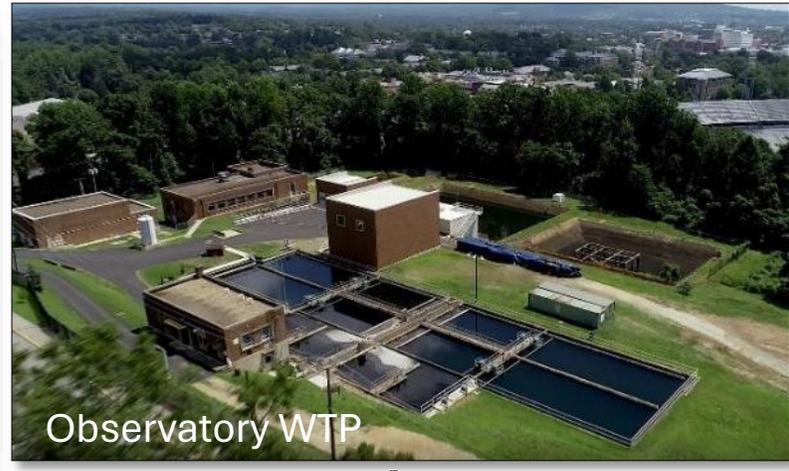
Urban Area

3.3 Billion Gallons

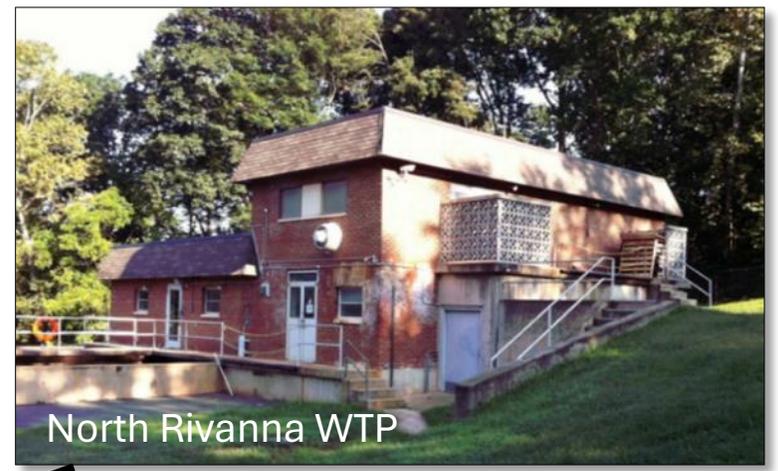
# 5 Water Supply Reservoirs



South Rivanna WTP

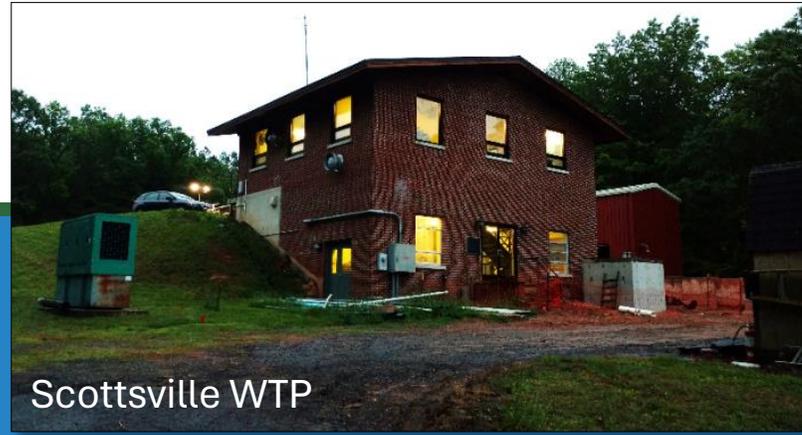


Observatory WTP



North Rivanna WTP

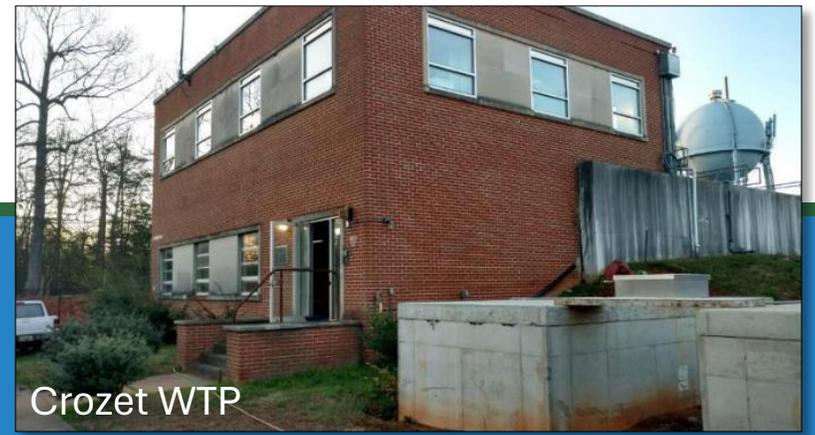
Urban Area



Scottsville WTP



Red Hill WTP



Crozet WTP

# 6 Water Treatment Plants



# 4 Wastewater Treatment Plants

# Urban Service Area





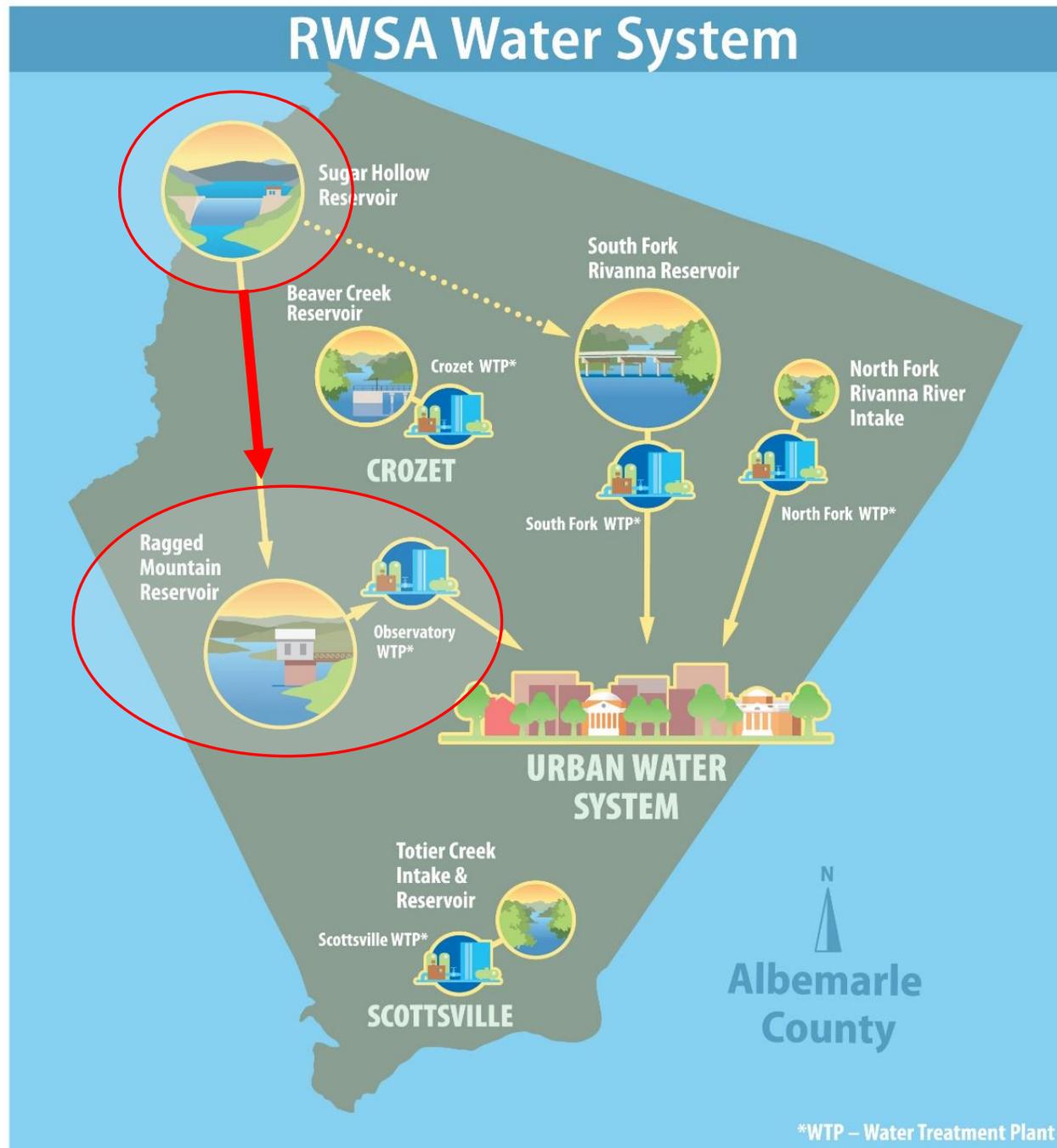
Sugar Hollow Reservoir



Ragged Mountain Reservoir



Observatory WTP





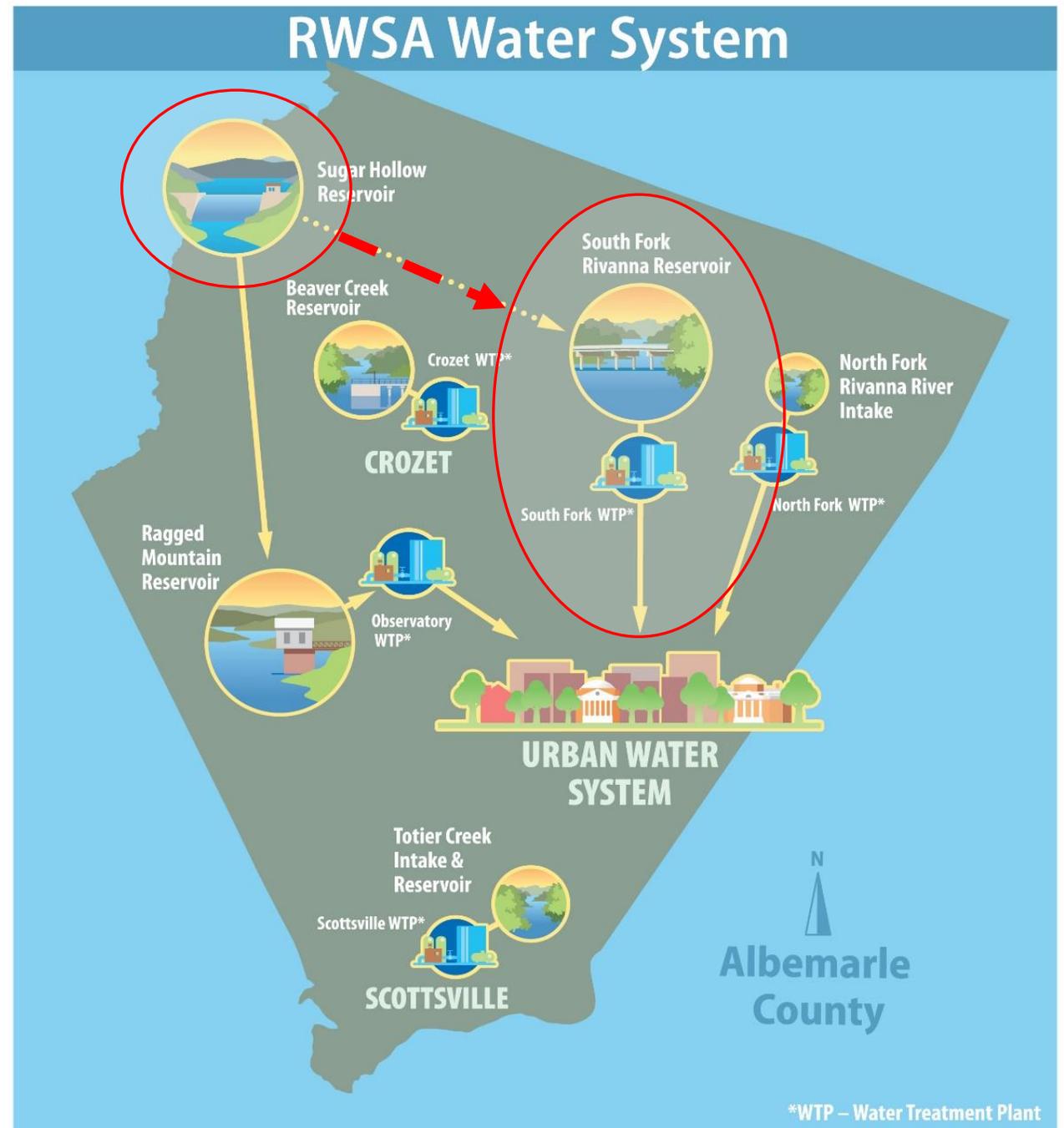
Sugar Hollow Reservoir



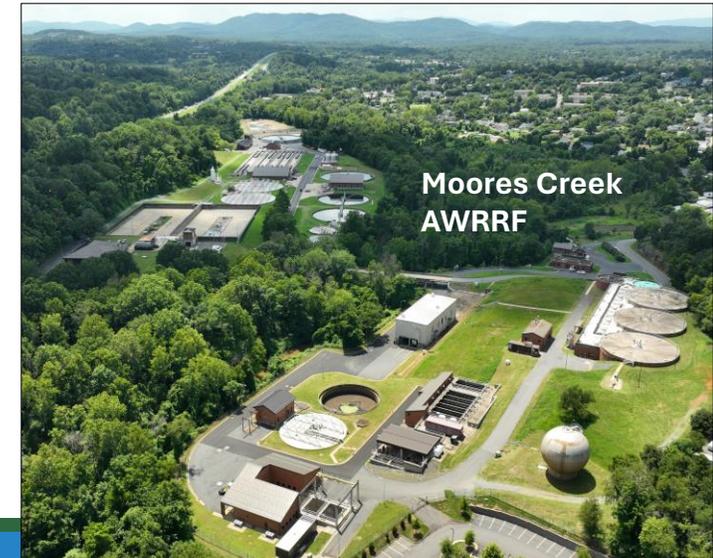
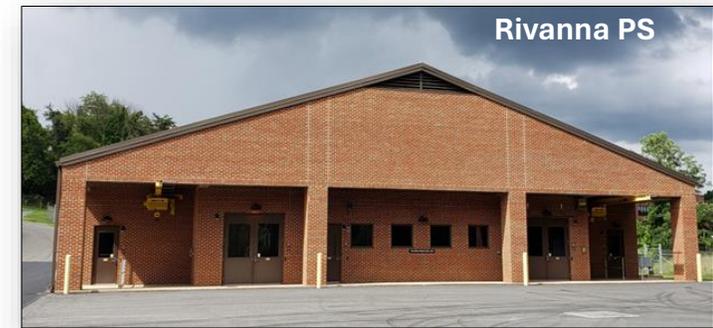
South Fork Rivanna Reservoir



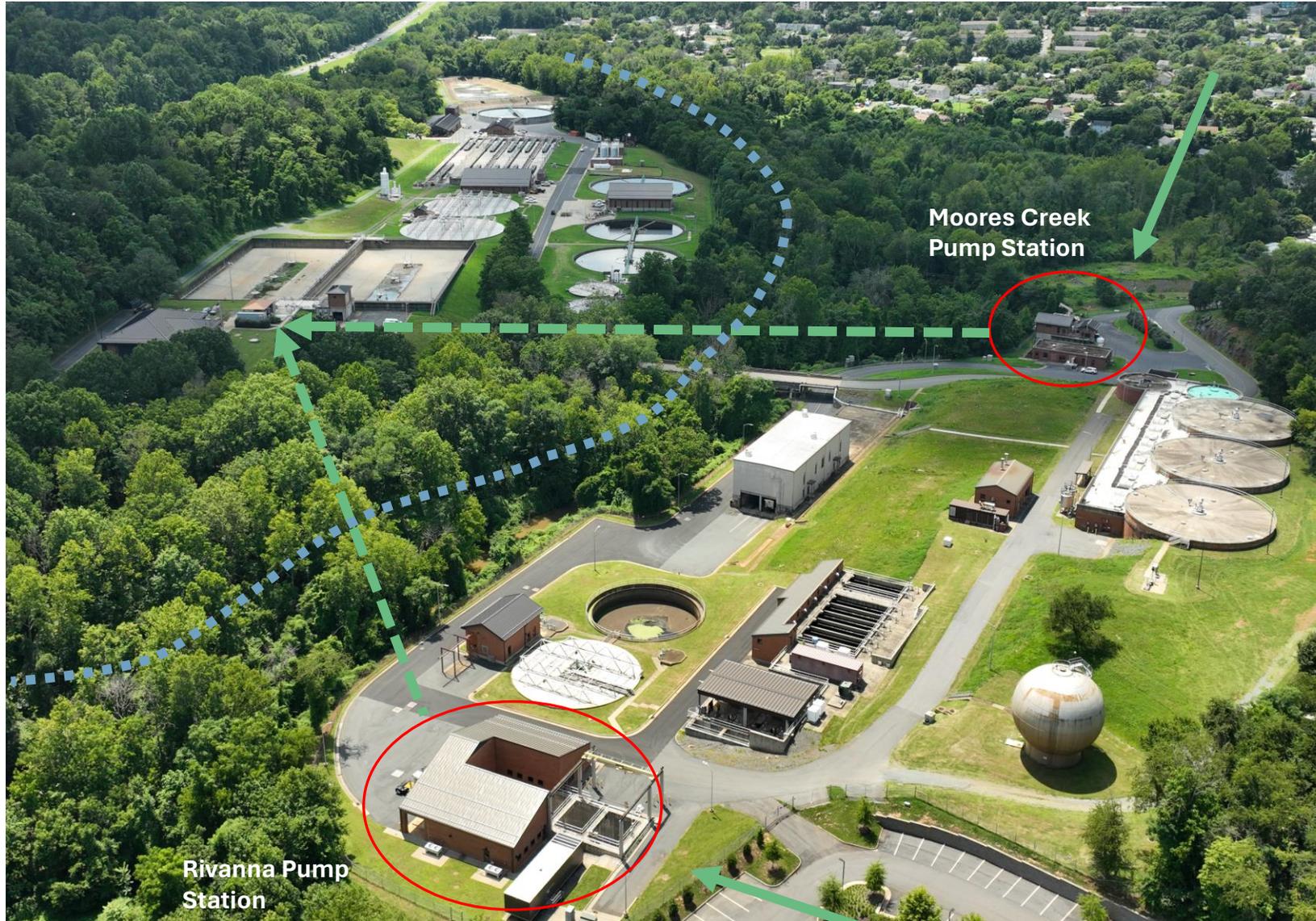
South Fork Rivanna WTP



# Waste Water Collection System



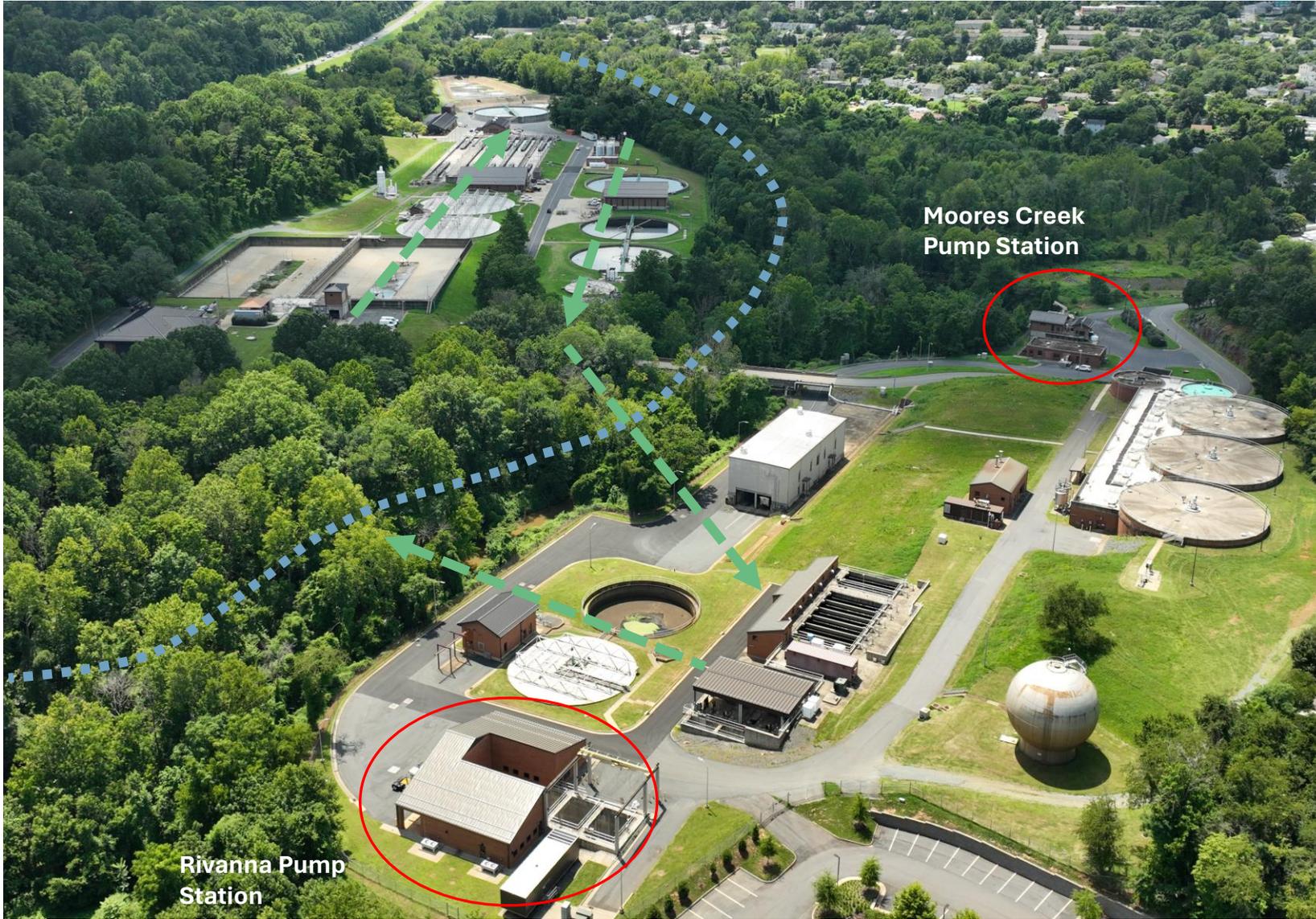
# Moore's Creek Advance Water Resource Recovery Facility



- 80 ac. Site
- Located at Charlottesville Southern Border
- Bisected by Moore's Creek
- 15 Million Gallon a day Treatment Capacity
- Peak Wet Weather Flows

# Moore's Creek Advance Water Resource Recovery Facility

Moore's Creek  
"Wet Side" →



Moore's Creek  
Pump Station

← Moore's Creek  
"Dry Side"

Moore's  
Creek →

Rivanna Pump  
Station

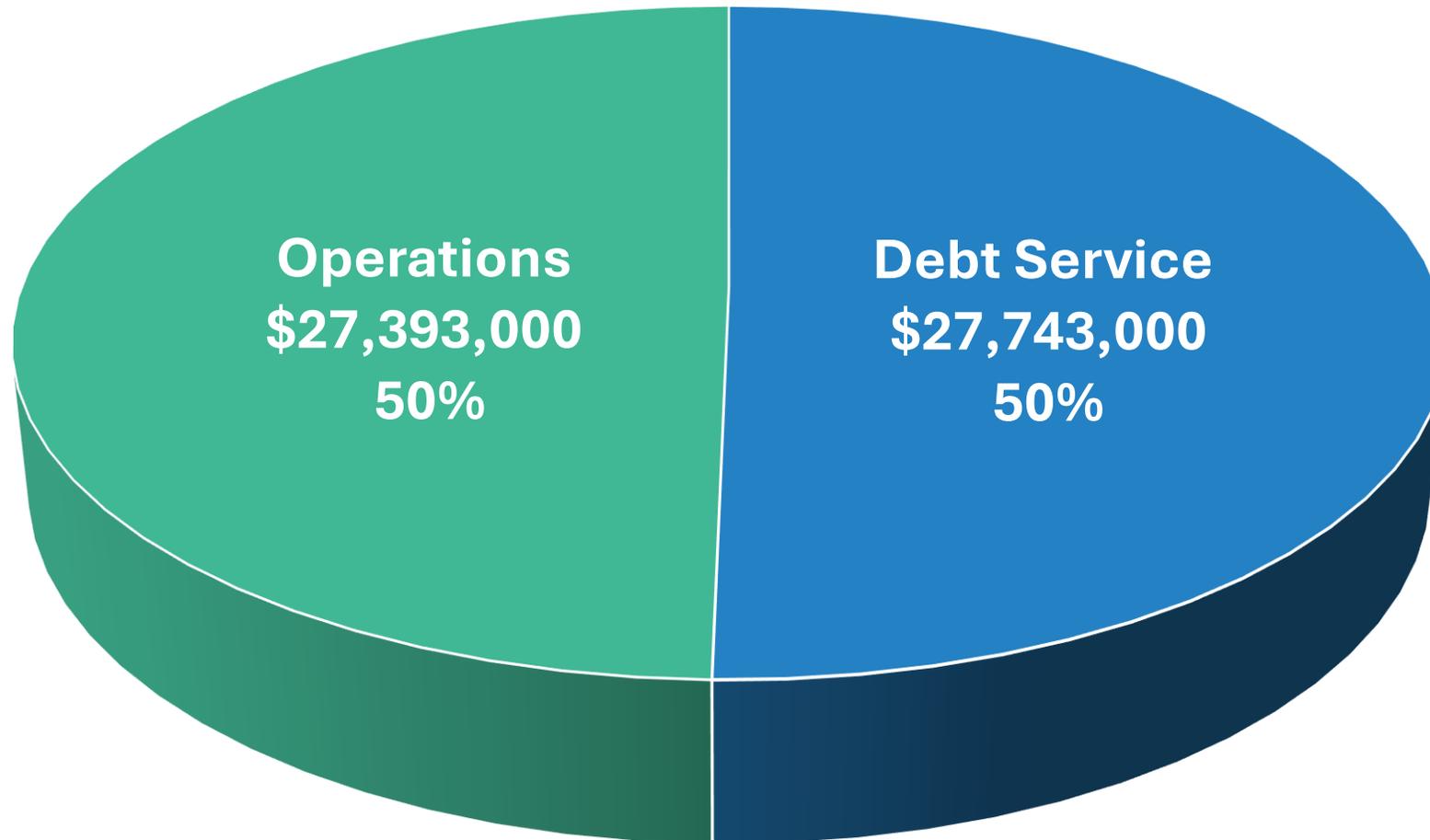
# Capital Improvement Plan



# FY 2024 – 2025

## Adopted Budget \$55.1 M

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# Goals of the FY 25 – 29 CIP

1. **Maintain** our drinking water and wastewater **infrastructure** to **provide reliable services** which comply with or exceed **regulatory requirements**.
2. In preparation for the uncertainties of **climate change**, enhance the **capacity**, **reliability** and **resilience** of our **community's drinking water supply** by completing the Rivanna to Ragged Pipeline and Pumping project as soon as possible (by 2030); completing the Ragged Mountain to Observatory Pipeline and Pumping Project, and raising the Ragged Mtn. Reservoir normal pool and begin filling by 2026 (as rainfall patterns allow).
3. Install critical drinking water infrastructure to reliably **meet the needs** of the entire service area now and in the future by constructing the Airport Road Pumping Station, the second South and North Fork Rivanna River crossings, the Central Waterline, and decommissioning of the North Fork WTP.
4. Continue to enhance our abilities to address **emerging contaminants** at both the water and wastewater facilities. Provide additional GAC filtering capacity at Red Hill and Crozet WTPs using grant funding from Albemarle County (\$400k) and VDH (\$6.23 M).
5. **Leverage partnerships** with City Utilities, UVA, and VDOT to reduce costs and disruption of piping projects in key roadways such as the Emmet Street and High Street corridors.
6. Complete the CIP in an **environmentally protective** and **financially responsible** manner.



# FY 25 – 29 Capital Improvement Program

64 Projects, \$371 M

Urban Water	Urban Wastewater	Non-Urban Projects & Shared	Total
\$223.4 M	\$76.6 M	\$71 M	\$371 M

Already Paid For	Ex. Debt Proceeds	Cash Reserves	Grants	New Debt	Total
\$14.4 M	\$9.4 M	\$14.1 M	\$24.9 M*	\$308.3 M	\$371 M

\* Additional Grant Funding received April 24 = \$2.8 M



# Major Programs and Projects

- **Water Treatment Plants: \$18 M**

- GAC Facility Dehumidification
- South Rivanna PAC Upgrades
- Observatory Hypo Tank Replacements
- Observatory Back Wash Tank
- South Rivanna Main Plant Generator Replacement
- Crozet GAC Filters\*
- Scottsville & Red Hill Upgrade & GAC Addition
- SRWTP & OBWTP Improvements

- **Capacity: \$122 M**

- Airport Rd Water Pump Station and Piping
- Admin Building Renovation & Addition
- SRR to RMR Raw Water Piping\*
- Emmet St. Water Piping
- Berkmar Ext. Waterline Phs. 2
- Maury Hill Sewer Replacement
- Glenmore WRRF Upgrade

- **Operations and Maintenance / Safety: \$63 M**

- Dam Concrete and Steel Repairs
- Security Enhancements
- WW Piping and MH Repairs
- MC Biogas Upgrades
- MC Maintenance, Blower, Pumping Building Repairs
- MC Concrete and Steel Repairs
- Tank Painting and Rehabilitation
- Crozet WW Pump Station Rehabilitations
- SRR and RMR HLOS and Aeration
- Crozet Greyrock Pump Station
- MCPS and Septage Receiving Upgrades
- ACM Remediation



- **Regulatory: \$50 M**

- Beaver Creek Dam, Pump Station and Piping\*
- Buck Mtn. Property Dam Remediation
- North Rivanna WTP Decommissioning\*

- **Reliability / Redundancy : \$117 M**

- RMR to OBWTP Piping and Pumping
- Central Water Line
- MC 5kv Electrical System Upgrade
- South Fork Rivanna River Crossing
- Scottsville WWTP Emergency Generator\*
- Upper Schenks Branch Interceptor
- AC Pipe Replacement
- North Fork Rivanna River Crossing
- Flood Resilience Enhancements\*
- IT Infrastructure
- Asset Management

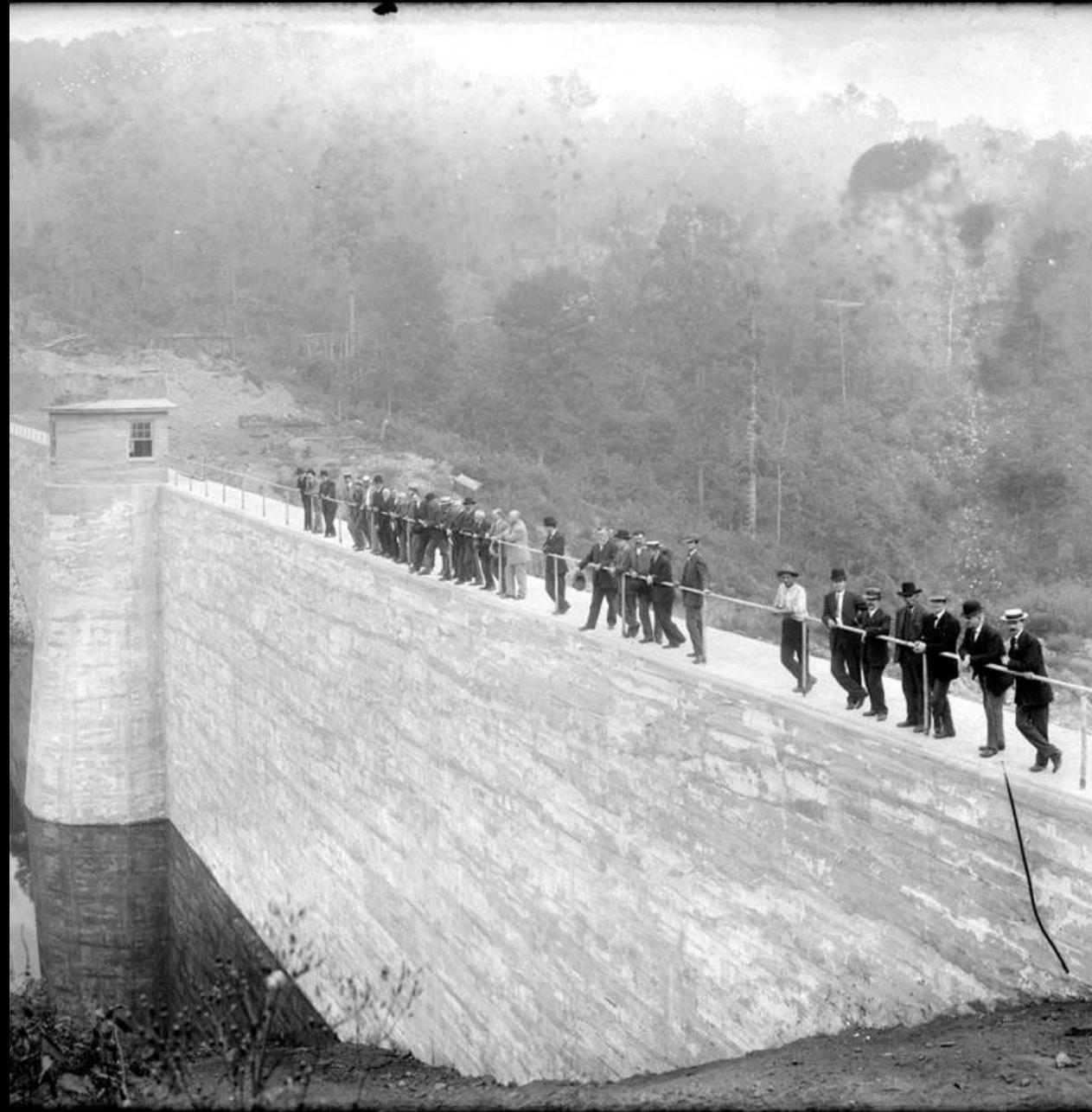
\* Indicates Partial Grant Funding

# Community Water Supply Plan



# Origin of the CWSP

- A historic drought in Central Virginia in 2002 sparked a decade-long planning process to increase the community's Urban water supply.
- The 1885 Upper and 1908 Lower Ragged Mountain Dams required significant rehabilitation.
- The community evaluated many alternatives, including taking water from the James River, but decided to “drink local” and stay within our Rivanna River watershed.
- A community water supply plan was supported by the Board of Supervisors and approved by City Council and the ACSA in 2012.



**Historic Lower Ragged Mountain Dam (1908)**

Photo Credit: Holsinger Collection UVA

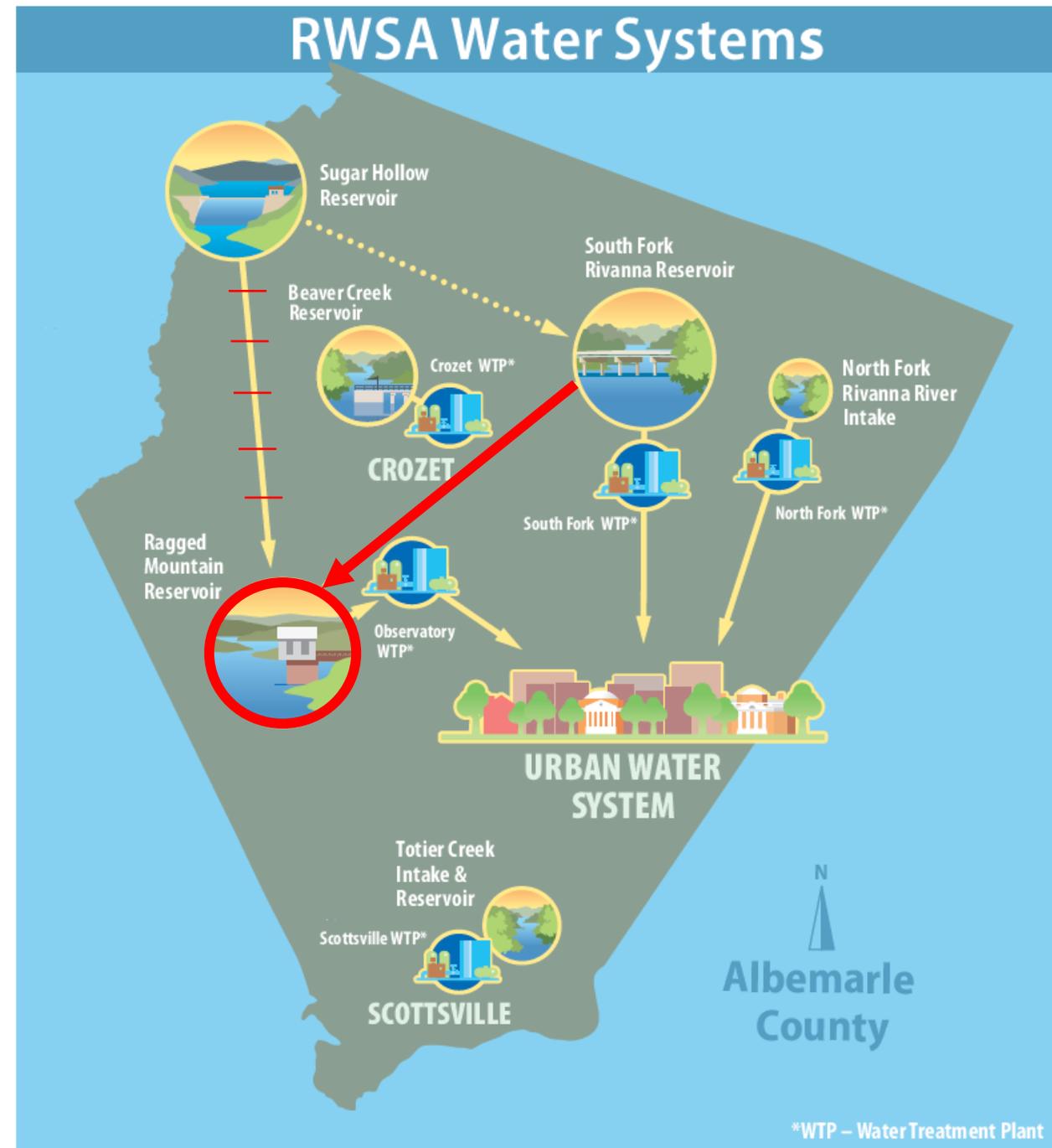
# Plan to Increase the Capacity and Reliability of our Public Drinking Water Supply

- Build new, higher dam at RMR to increase storage from 0.5 to 1.4 Billion Gallons (completed 2014)
- Build new pipe from SRR to RMR to fill RMR
- Raise RMR 12-feet to increase storage from 1.4 to 2.1 B Gallons
- Close existing pipe from SHR



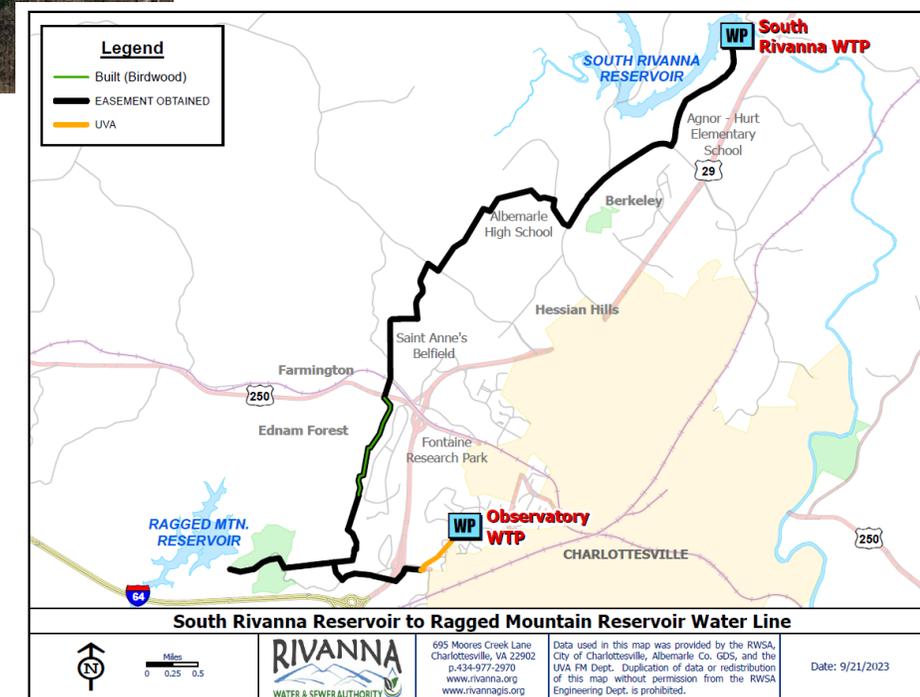
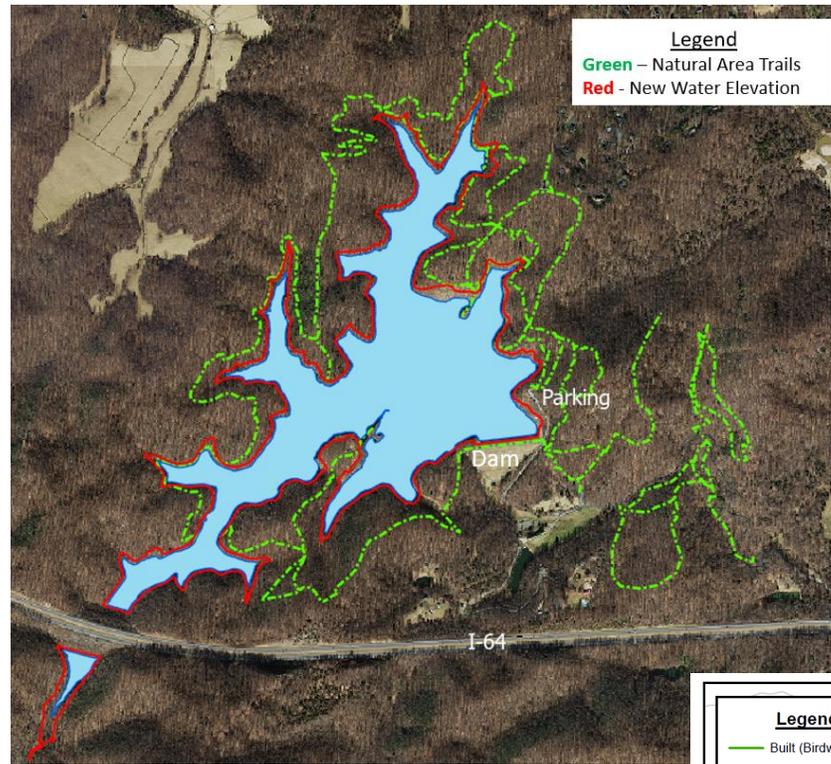
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- Close existing pipe from SHR



# SFRR to RMR Pipeline, Intake, and Facilities

- 36-in Transfer pipeline from Foxhaven Farm to SFRR (includes Birdwood to Old Garth section); 25mgd Capacity
- Raw water pump station and intake on SFRR
- Clearing vegetation around RMR; modifications to Intake Tower
- Easements have been obtained
- Completion: 2025 – 2030
- Budget \$84 M  
ACSA 80%, City Utilities 20%



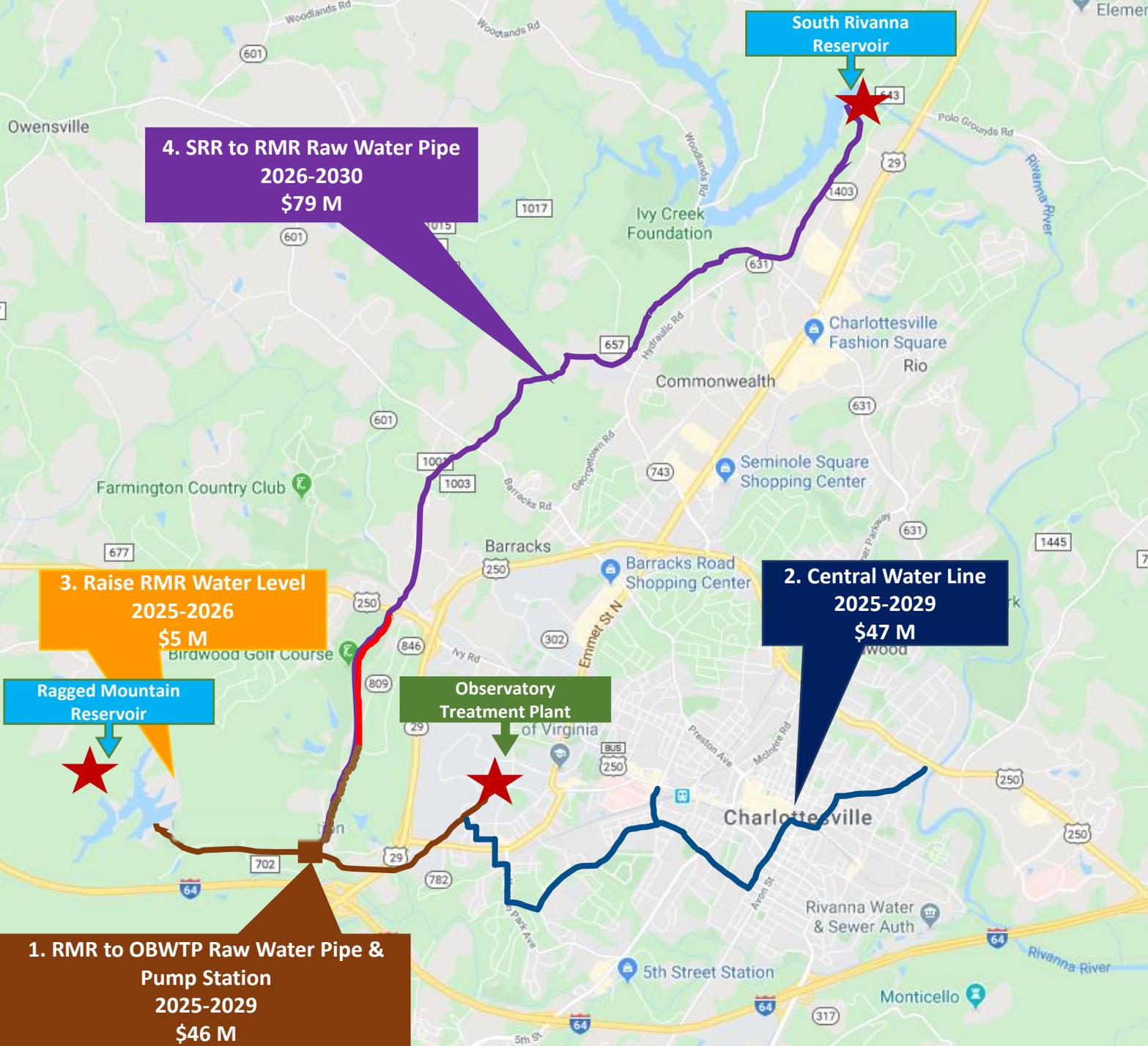
**South Rivanna Reservoir to Ragged Mountain Reservoir Water Line**

**RIVANNA**  
WATER & SEWER AUTHORITY

695 Moores Creek Lane  
Charlottesville, VA 22902  
p.434-977-2970  
www.rivanna.org  
www.rivannagis.org

Data used in this map was provided by the RWSA, City of Charlottesville, Albemarle Co. GDS, and the UVA FM Dept. Duplication of data or redistribution of this map without permission from the RWSA Engineering Dept. is prohibited.

Date: 9/21/2023



# Water Supply Projects

(May 2024)

1. RMR to OBWTP Raw Water Pipe & Pump Station  
2025-2029

\$46 M

2. Central Water Line  
2025-2029

\$47 M

3. Raise RMR Water Level  
2025-2026

\$5 M

4. SRR to RMR Raw Water Pipe  
2026-2030

\$79 M

ACSA \$118 M  
City \$59 M

**\$177 M**

4. SRR to RMR Raw Water Pipe  
2026-2030  
\$79 M

3. Raise RMR Water Level  
2025-2026  
\$5 M

2. Central Water Line  
2025-2029  
\$47 M

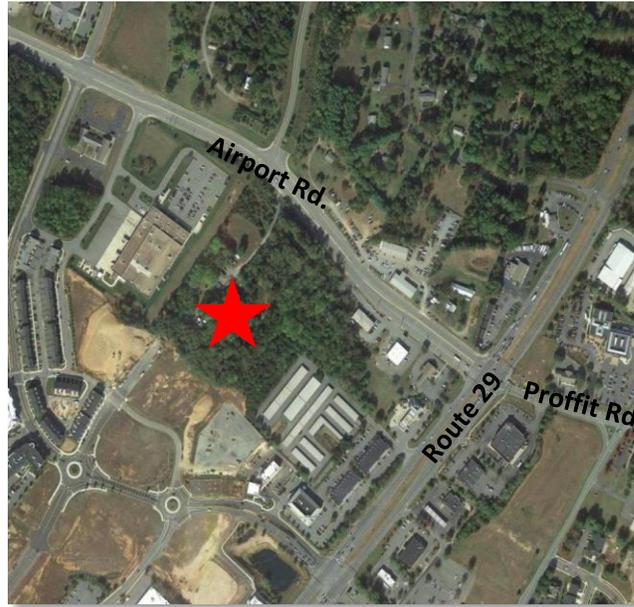
1. RMR to OBWTP Raw Water Pipe &  
Pump Station  
2025-2029  
\$46 M

# Other Local Projects



# Airport Road Water Pump Station and Piping

- Connects Piney Mountain and Urban pressure zones to improve reliability and capacity
- Will supply the Piney Mountain Tank and be part of future Airport pressure zone
- Completion: Fall 2024
- Budget: \$10 M
- 100% ACSA



New Pump Station



Outgoing Finished Water

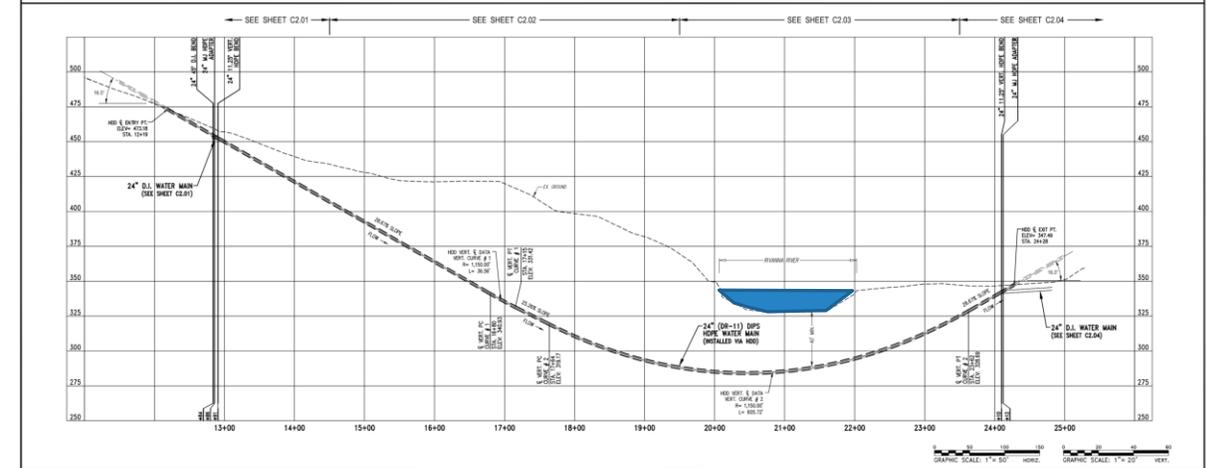
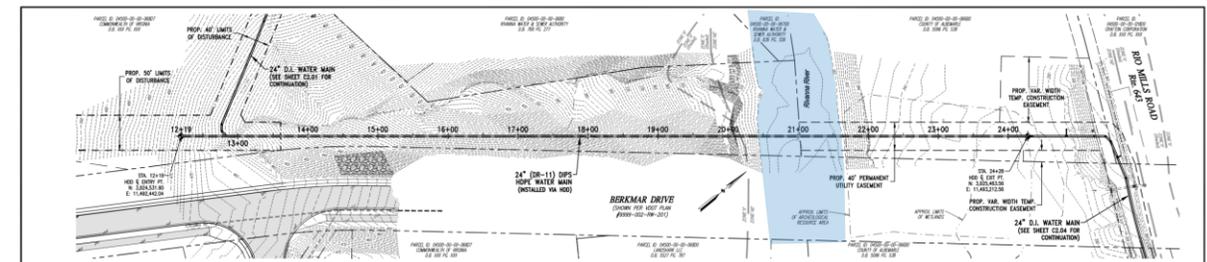
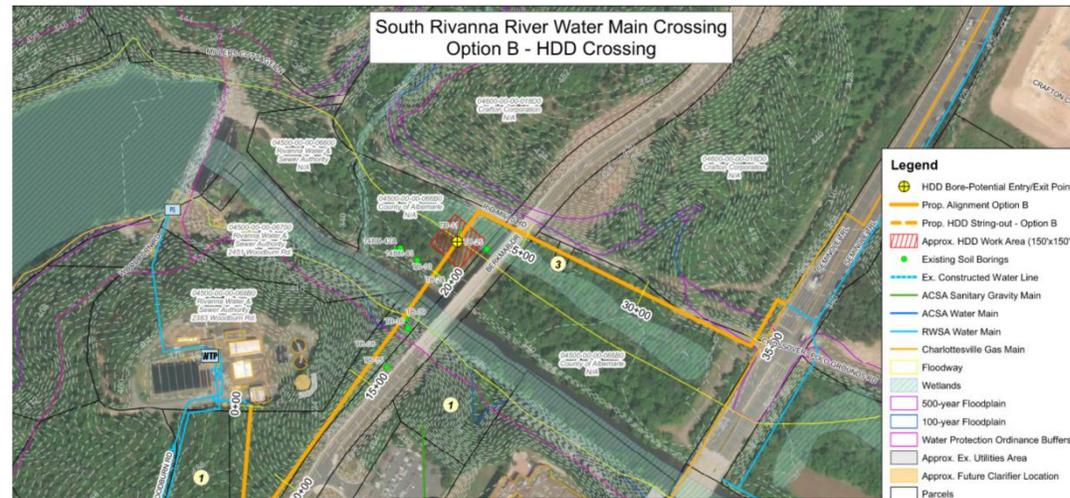


New Water Line



# South Rivanna River Crossing

- Second pipe to be installed 40 feet beneath the river to improve capacity, reliability and resiliency in the northern area of the Urban Water System
- Construction: August 2024 – June 2026
- Budget: \$7.3 M
- 100% ACSA



				<b>90% DESIGN SUBMITTAL</b> NOT FOR CONSTRUCTION		RWSA SOUTH FORK RIVANNA RIVER CROSSING WATER MAIN 24" WATER MAIN HDD OVERALL		SHEET C1.01
Rivanna Water & Sewer Authority 600 Riverside Drive Charlottesville, VA 22902 (434) 977-2070 Fax: (434) 253-8858 http://www.rwsa.org		Michael Baker INTERNATIONAL 272 Brook Road, Suite 200 • Virginia Beach, VA 23462 Phone: (757) 483-4700 • Fax: (757) 483-0500 www.michaelbaker.com		RWSA SOUTH FORK RIVANNA RIVER CROSSING WATER MAIN PROJECT NO.: DATE: JUN 2023 DRAWN BY: MSL CHECKED BY: JMB APPROVED BY: SLB DATE:		SHEET NO.: DATE:		SHEET 5 of 17

# Questions?

Jennifer A. Whitaker, PE  
Director of Engineering & Maintenance  
jwhitaker@rivanna.org  
434-977-2970  
www.rivanna.org



# Extra Slides

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# Water Sources

