

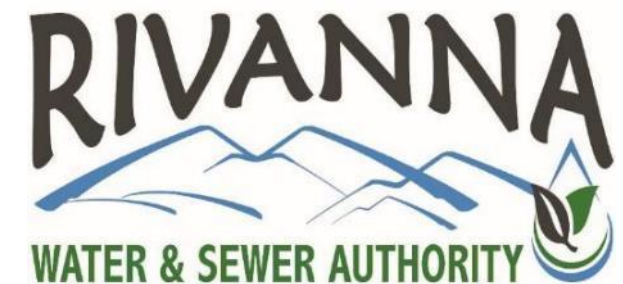
Crozet Area Projects



PRESENTED TO THE CROZET COMMUNITY ADVISORY COMMITTEE

BY: JENNIFER WHITAKER, RWSA DIRECTOR OF ENGINEERING AND MAINTENANCE

MAY 10, 2023



Agenda

- Rivanna Water and Sewer Authority Background
- Crozet Water System
- Crozet Wastewater System
- Recent Capital Improvements and Studies
- Current and Near-Term Improvements
- Operations

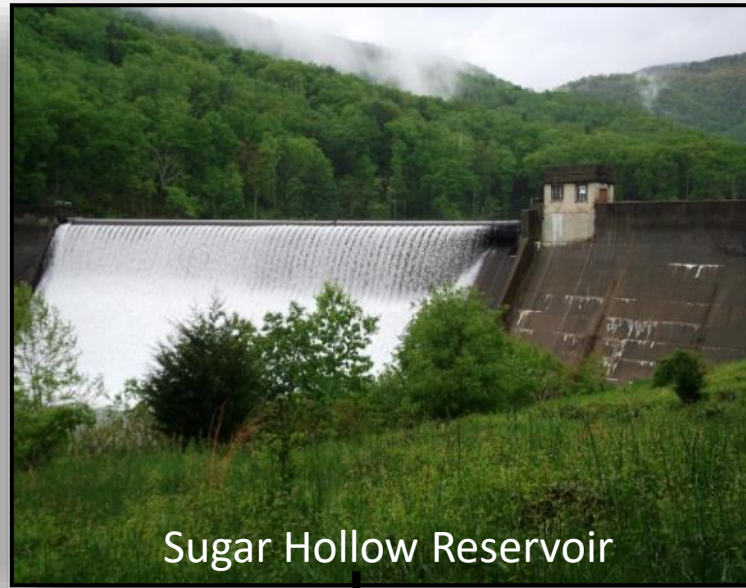
RWSA provides Wholesale Drinking Water and Wastewater Treatment for Two Customers

- Albemarle County Service Authority (ACSA)
- City of Charlottesville Public Utilities





South Fork Rivanna Reservoir



Sugar Hollow Reservoir



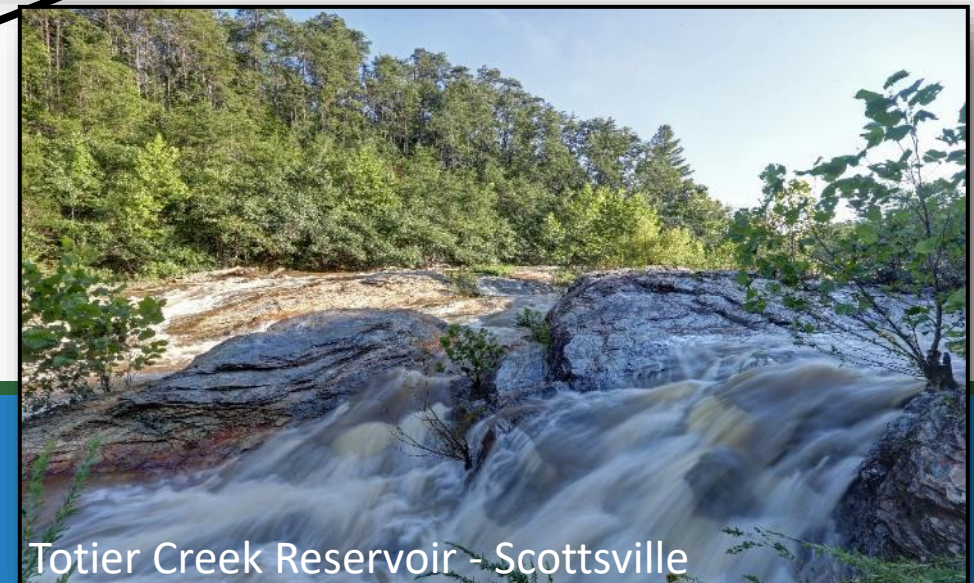
Ragged Mountain Reservoir



Beaver Creek Reservoir - Crozet

Urban
Area

3.3 Billion Gallons

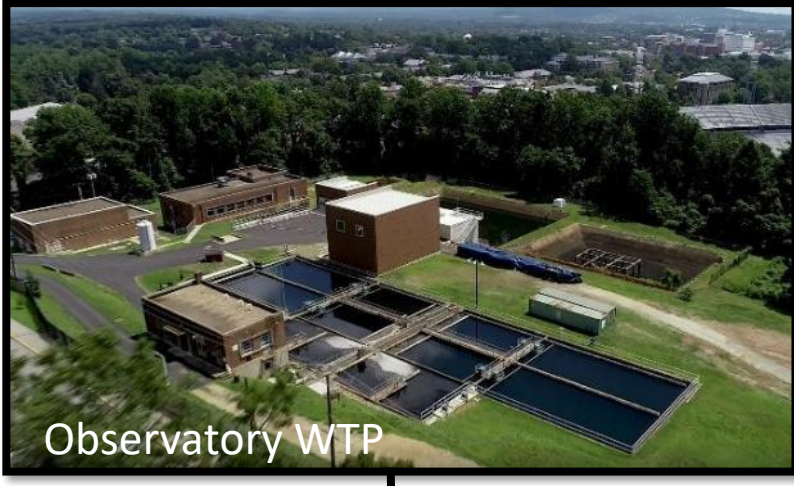


Totier Creek Reservoir - Scottsville

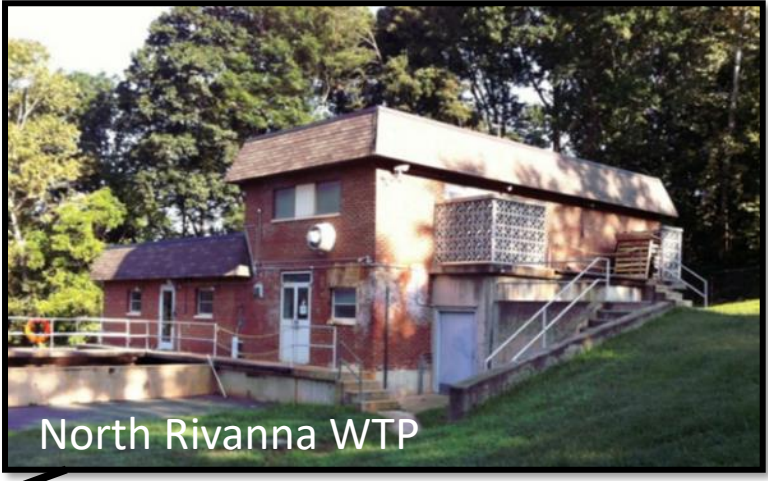
5 Water Supply Reservoirs



South Rivanna WTP



Observatory WTP



North Rivanna WTP

Urban Area



Scottsville WTP



Red Hill WTP



Crozet WTP

6 Water Treatment Plants



Moores Creek AWRRF
Urban Area WWTP



Scottsville WWTP



Stone Roberson WWTP



Glenmore WWTP

4 Wastewater Treatment Plants

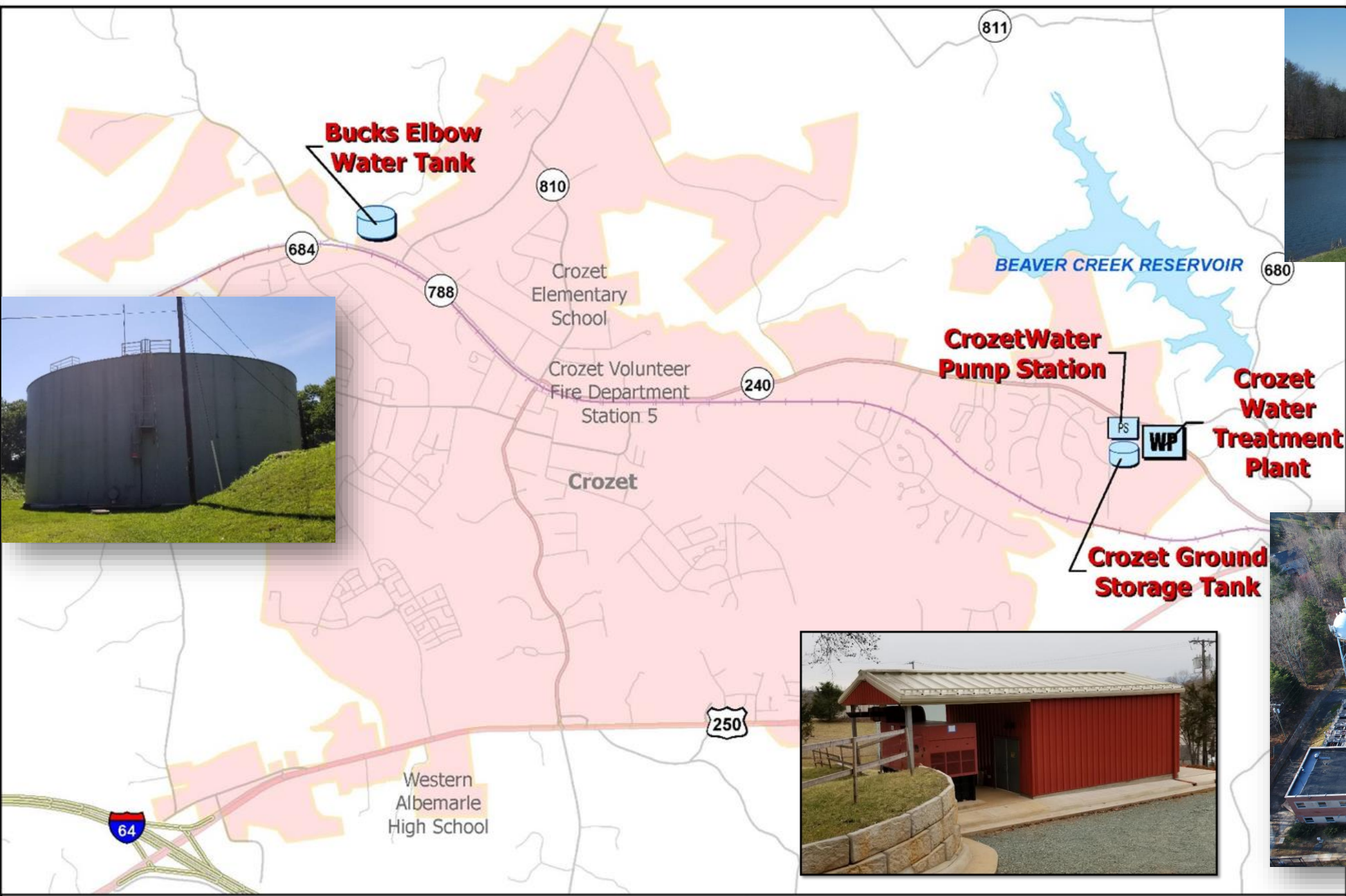
Crozet Service Area



Crozet Water Facilities

- Beaver Creek Reservoir
- Raw Water Intake & Pump Station
- Raw Water Pipeline
- Crozet Water Treatment Plant
- Finished Water Pump Station
- Buck's Elbow Tank

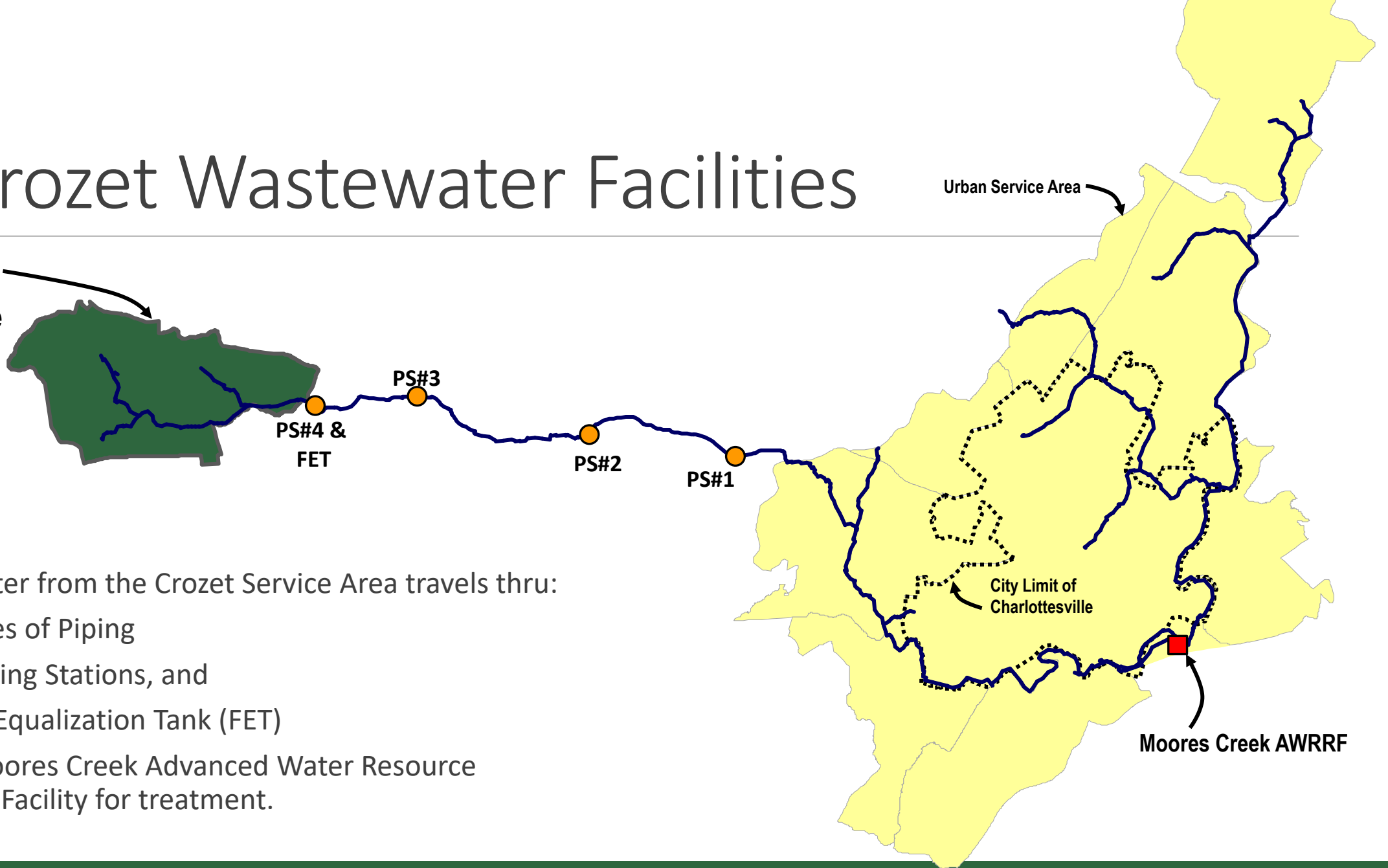




Crozet Water Service Area

Crozet Wastewater Facilities

Crozet Service Area



- Wastewater from the Crozet Service Area travels thru:
 - 17 Miles of Piping
 - 4 Pumping Stations, and
 - 1 Flow Equalization Tank (FET)
- to the Moores Creek Advanced Water Resource Recovery Facility for treatment.

Recent Capital Improvements and Studies



Granular Activated Carbon Vessels

- Removes Total Organic Carbon (TOC)
- 1 MGD Capacity
- Completed: April 2018
- Cost: \$3.4 M



Finished Water Pump Station

- Pumping Capacity of 2 MGD
- Completed: September 2018
- Cost: \$2.6 M



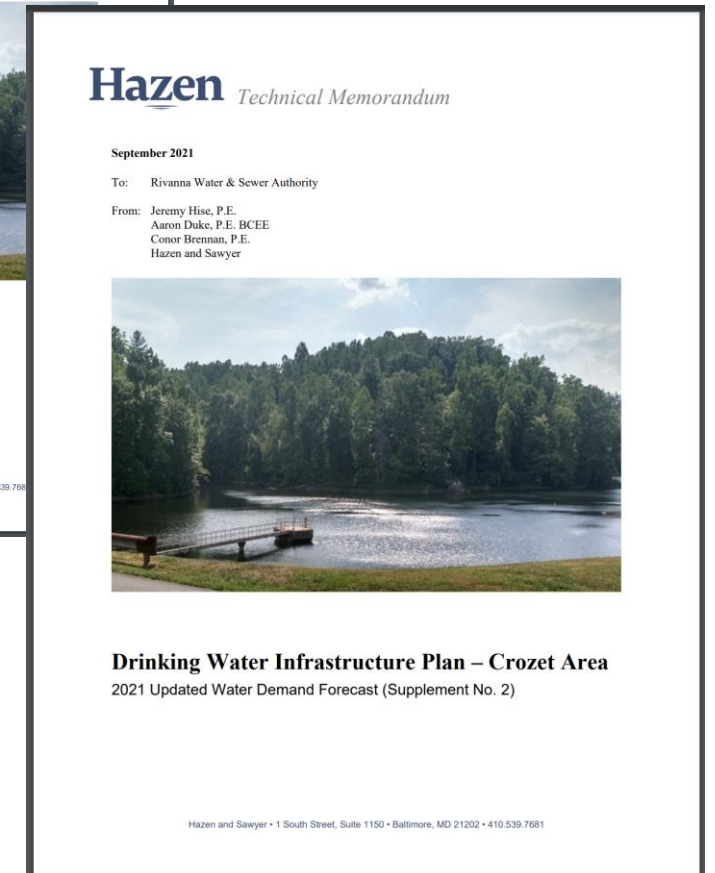
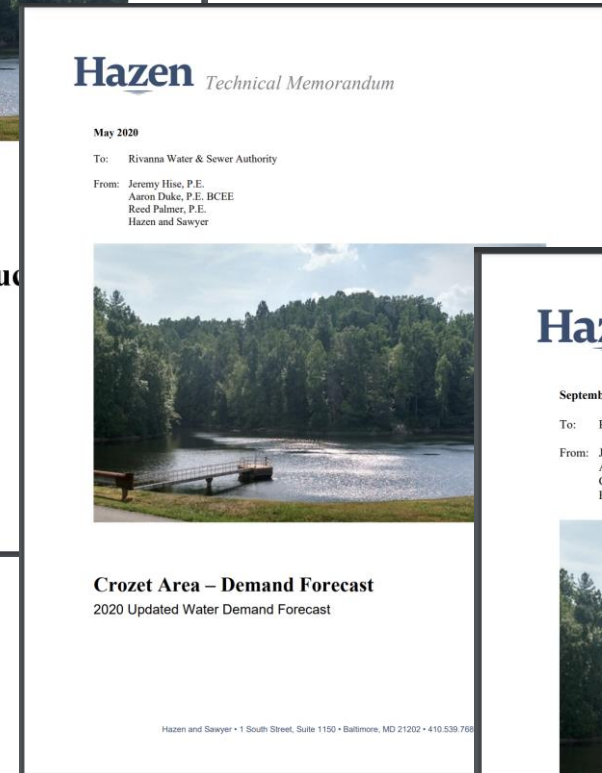
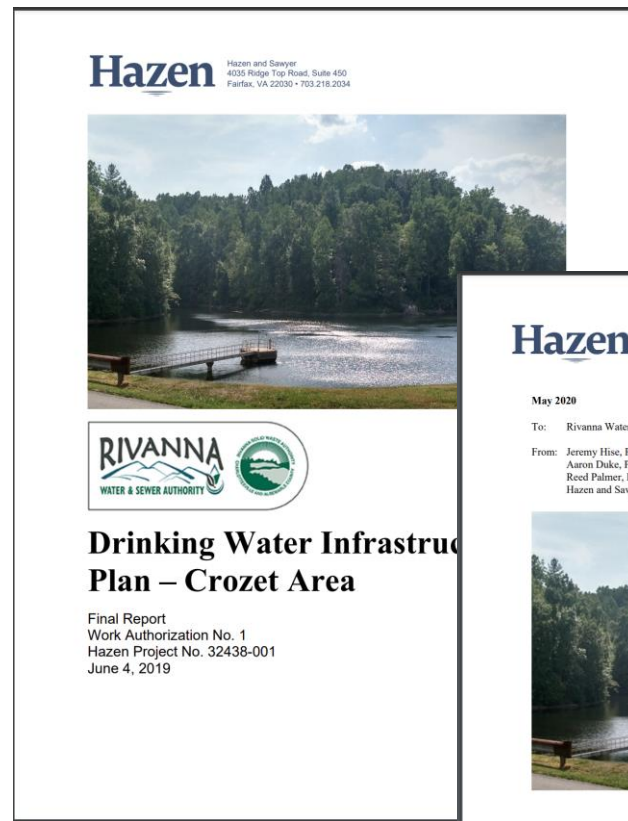
Water Treatment Plant Upgrade

- Plant Capacity Increased from 1 to 2 MGD
- Completed: March 2021
- Cost: \$8.5 M



Drinking Water Infrastructure Plan

- Master Plan for Serving Crozet Water Needs thru 2075
- Average Day Demand
 - 2022 = 0.63 MGD (approx.)
 - 2075 = 1.52 MGD
- Completed: June 2019
 - Updated: July 2020
 - Updated: Sept. 2021



Crozet Wastewater Flow Equalization Tank

- Stores Wet-Weather Flow to Minimize Impact on Downstream Sewer Capacity
- 1 MG Concrete Wastewater Storage Tank next to Pump Station No. 4
- Trims Peak Wet Weather Flows
- Completed: November 2022
- Cost: \$5.4 M



Tank
Flushing
Process
Video



Current and Near-Term Improvements



Crozet Wastewater Pump Stations 1-4 Rehabilitation

- Conveys Crozet Wastewater to the Urban System and Moores Creek Advanced Water Resource Recovery Facility
- Rehabilitate Buildings and Equipment at the end of Useful Life
- Completion: 2026
- Cost: \$10.35 M

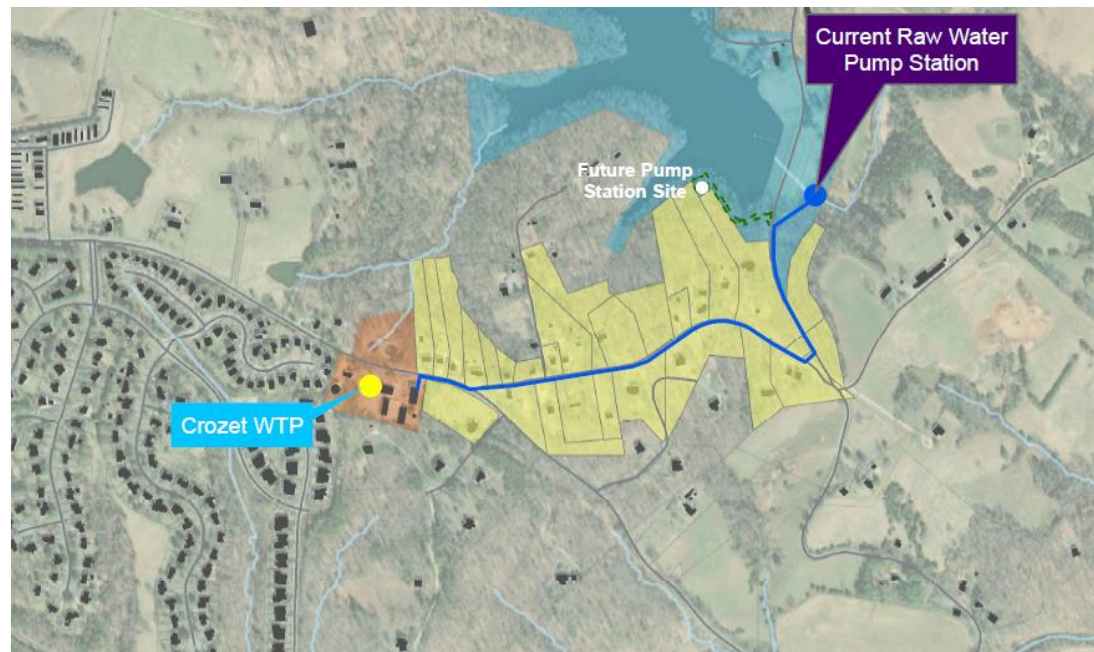


Beaver Creek Dam, Pump Station & Piping Modifications

- Replace spillway to meet VDCR Dam Safety standards
- Replace the Raw Water Pump Station, Intake, and Pipe to the Crozet WTP
- Add a HLOS (oxygenation) system
- Completion: 2024-2028
- Budget: \$42.9 M
- Requesting Federal Funding (approx. 18M)

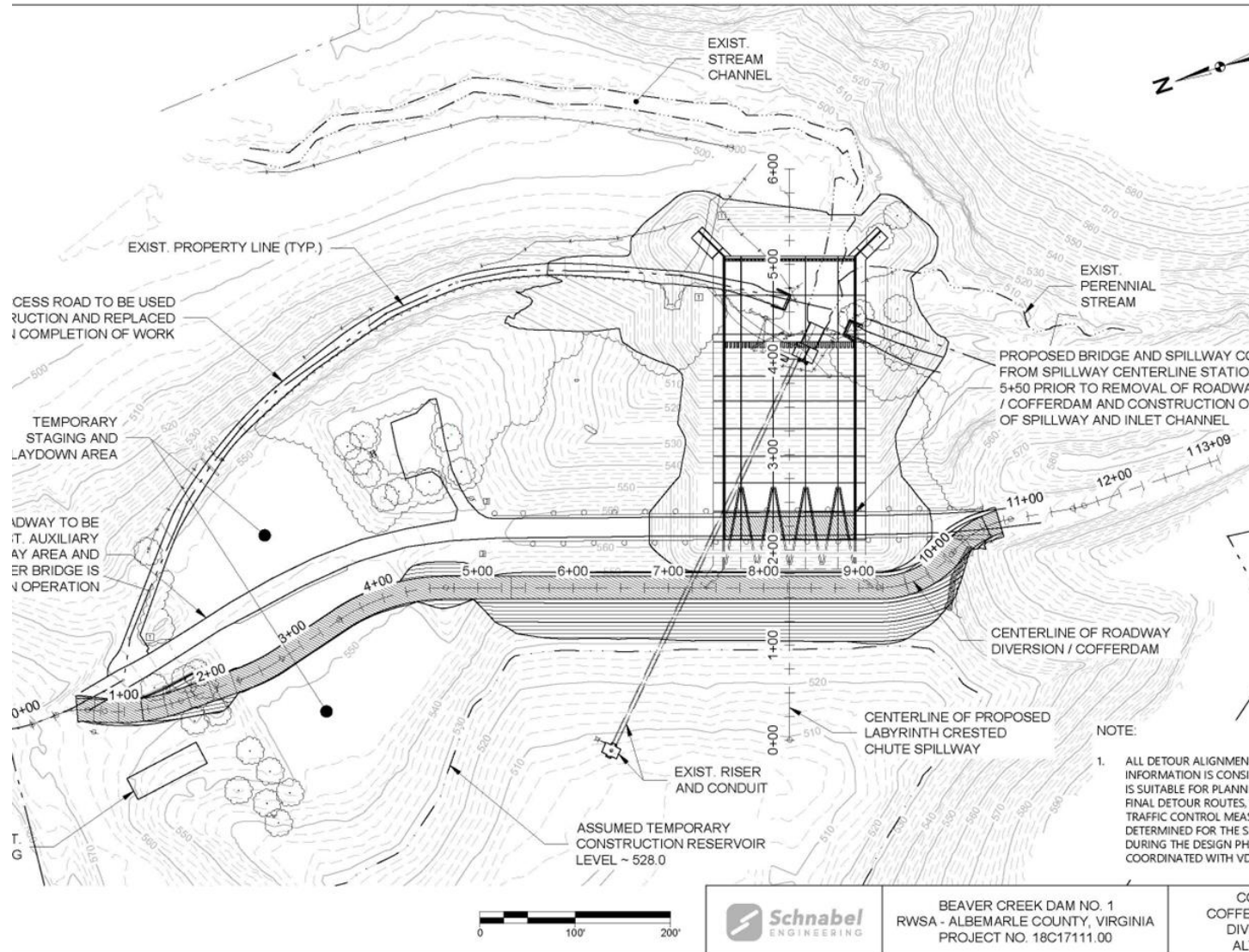


Proposed Labyrinth Spillway thru Dam with Bridge



Existing Raw Water Pump Station to be demolished

Proposed Alternative



- 4 Cycle Labyrinth Spillway through the Embankment
- Detour Road on the Upstream side of the Dam During Construction
- New Pump Station to be built on the south side of the reservoir (on the first peninsula upstream on the dam)
- Hypolimnetic Oxygenation System (HLOS) to increase subaqueous oxygen and improve water quality

Crozet WTP GAC Expansion

- Expand Granular Activated Carbon Treatment Capacity to 2 MGD
- Requires Building Expansion to the Rear of the Plant
- Completion: 2026
- Budget: \$6.55M
 - VA Dept. of Health Grant Funding of \$3M



Operations



Beaver Creek Reservoir

- Total Useable volume is **499 million gallons**
 - Community water demand: 0.5 - 1.1 MGD
 - About 7 mo. of storage, with no additional inflow
- Reservoir Treated in the Warmer Months with Algaecide
 - **Monitor** - Routine Reservoir Sampling & Lab Analysis
 - **Evaluate** - Weekly Algae Counts and Established Thresholds and Procedures
 - **Manage** - Sporadic Treatment (typ. 8-10 x /year) to prevent toxic cyanobacteria blooms
 - Professional Application with Public Notice and staff on site to answer questions
 - Approved for Drinking Water Applications
- Public Information
<https://www.rivanna.org/algal-management-program/>





Questions?
