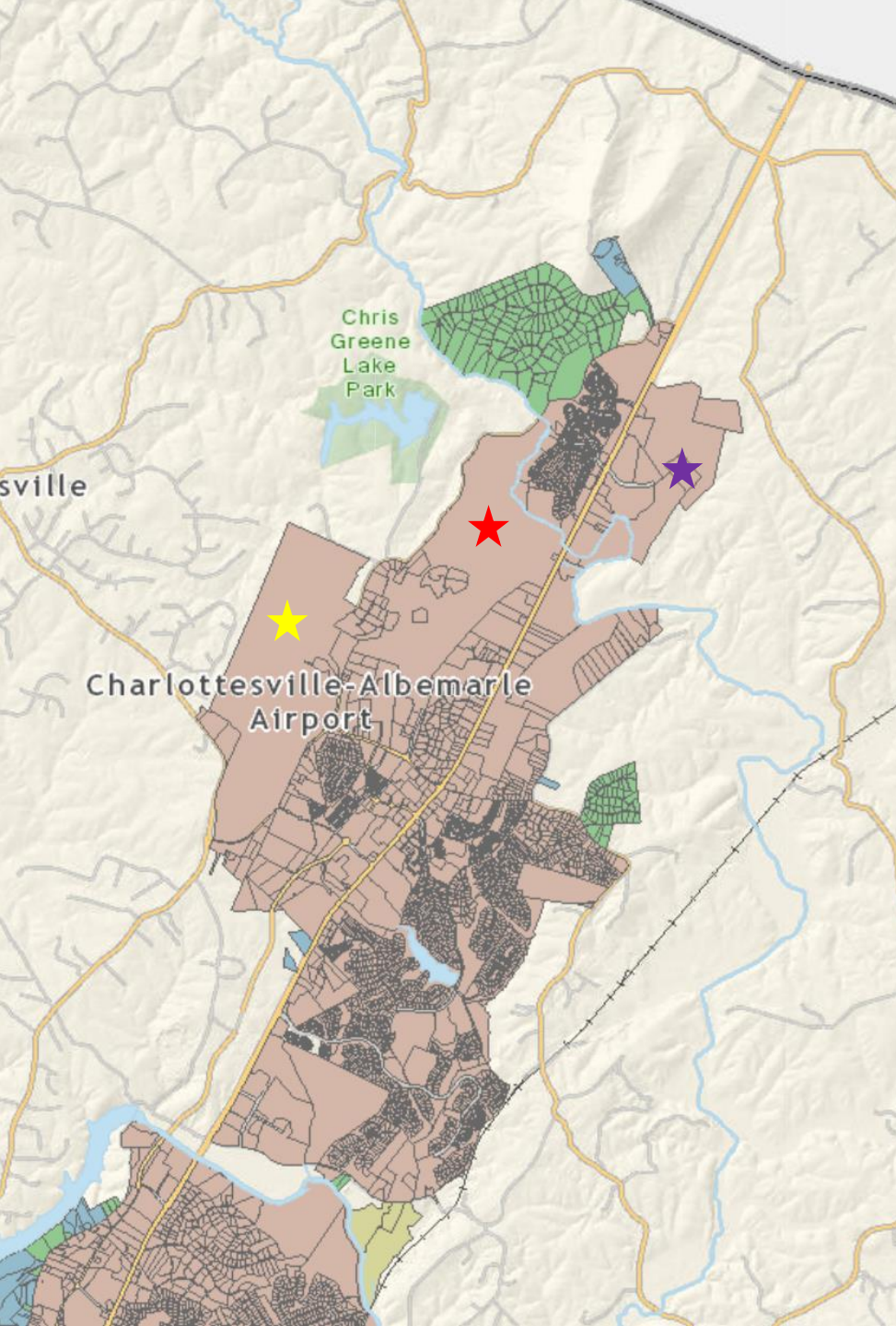


Plan for Urban Utilities, Northern Urban Area

For: Board of Directors

By: Jennifer Whitaker, Director of Engineering & Maintenance

March 22, 2022

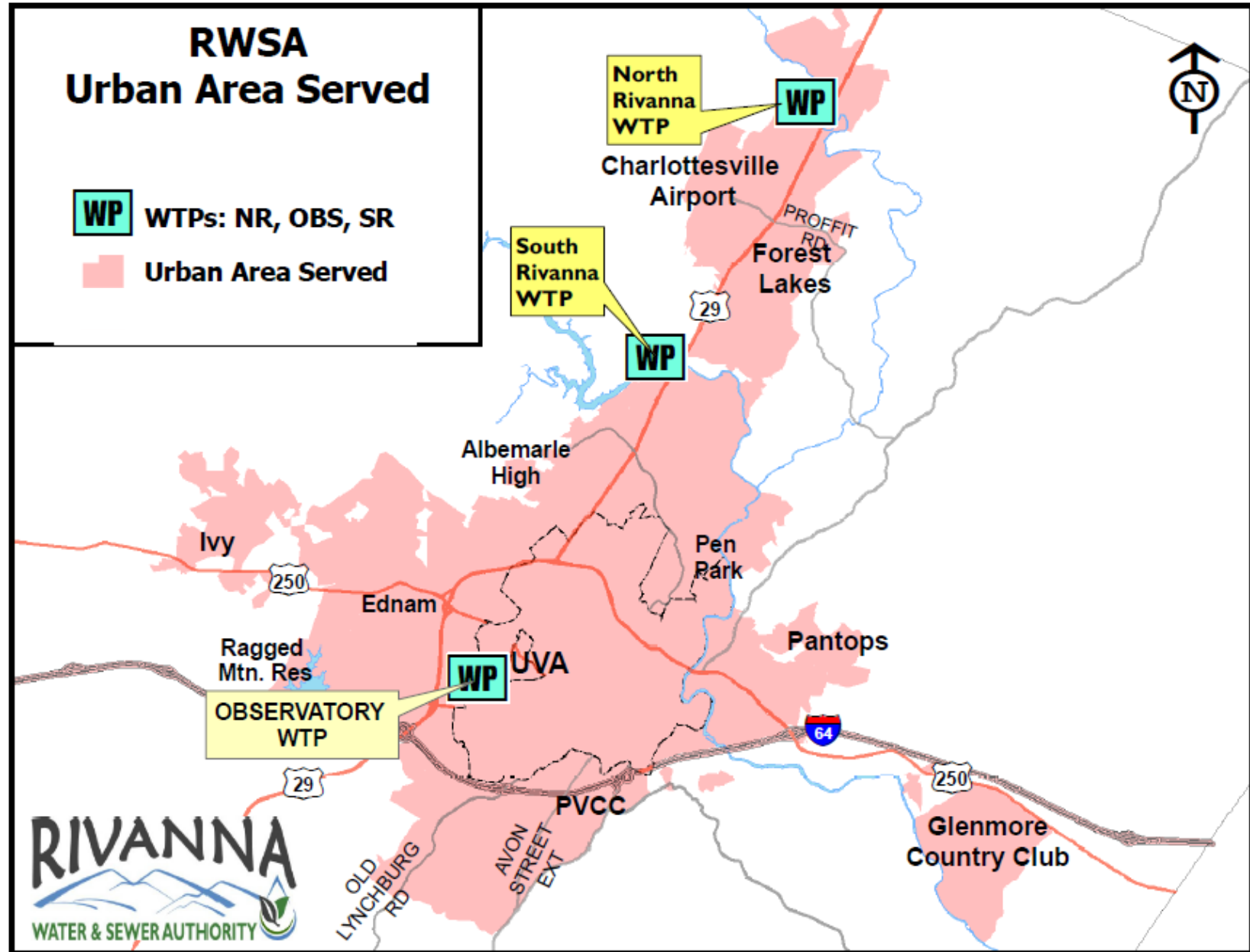


Planning and Coordination

- RWSA and ACSA have recently been approached about water and sewer availability for major projects envisioned in the northern Urban utility systems along Rt.29.
- This includes growth areas such as the UVA North Fork Research Park★, National Ground Intelligence Center★, and the Airport★, as well as other residential and commercial districts envisioned within Albemarle’s “Places29” Master Plan.
- RWSA, ACSA and the City have a plan to systematically improve drinking water infrastructure to serve these areas, as well as areas of the City including UVA, in a strategic and affordable manner over the next 10 - 15 years. Sewer infrastructure improvements are also planned for the 2050-2060 timeframe.
- Future projects with significant utility demands in these areas will need to coordinate with our infrastructure plans and schedules.

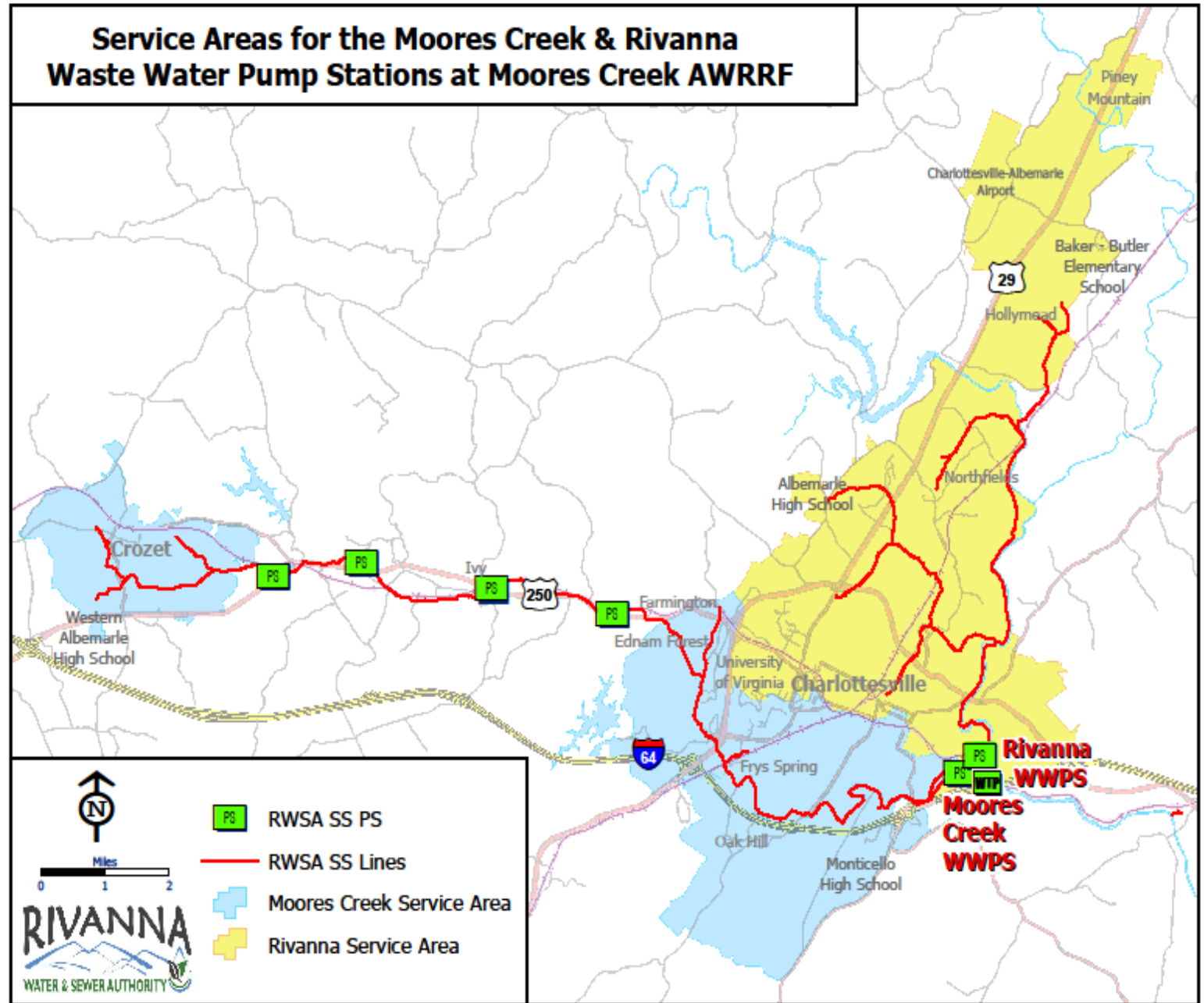
Urban Water Treatment System

S. Rivanna WTP	12 MGD
Observatory WTP	7.7 MGD
N. Rivanna WTP	<u>2 MGD</u>
	21.7 MGD



Urban Wastewater System

Moore's Creek: 15 mgd



On-Going Planning Efforts

RWSA Strategic Plan Goal: **Infrastructure and Master Planning**

- *To plan, deliver, and maintain dependable infrastructure in a financially responsible manner.*

September 2016 – Comprehensive Sanitary Sewer Model Report

July 2020 – Urban System Water Demand Forecast Report

- *Considers Comprehensive Plans from the County, City and UVA ***

July 2020 – Urban Safe Yield and Reliability Analysis Update Report

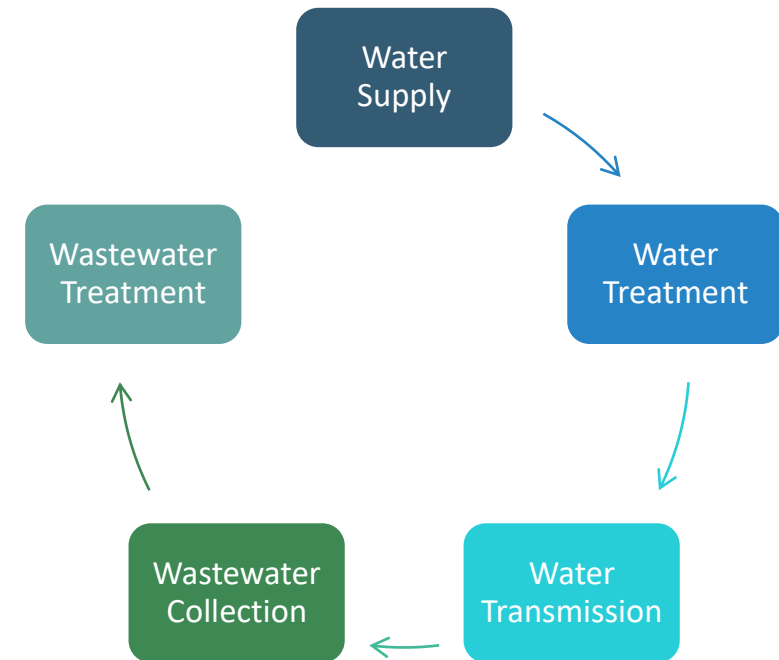
July 2021 – Wastewater Cost Allocation Analysis

January 2022 – North Rivanna WTP Decommissioning Study

February 2022 – Moores Creek AWRR Facility Master Plan**

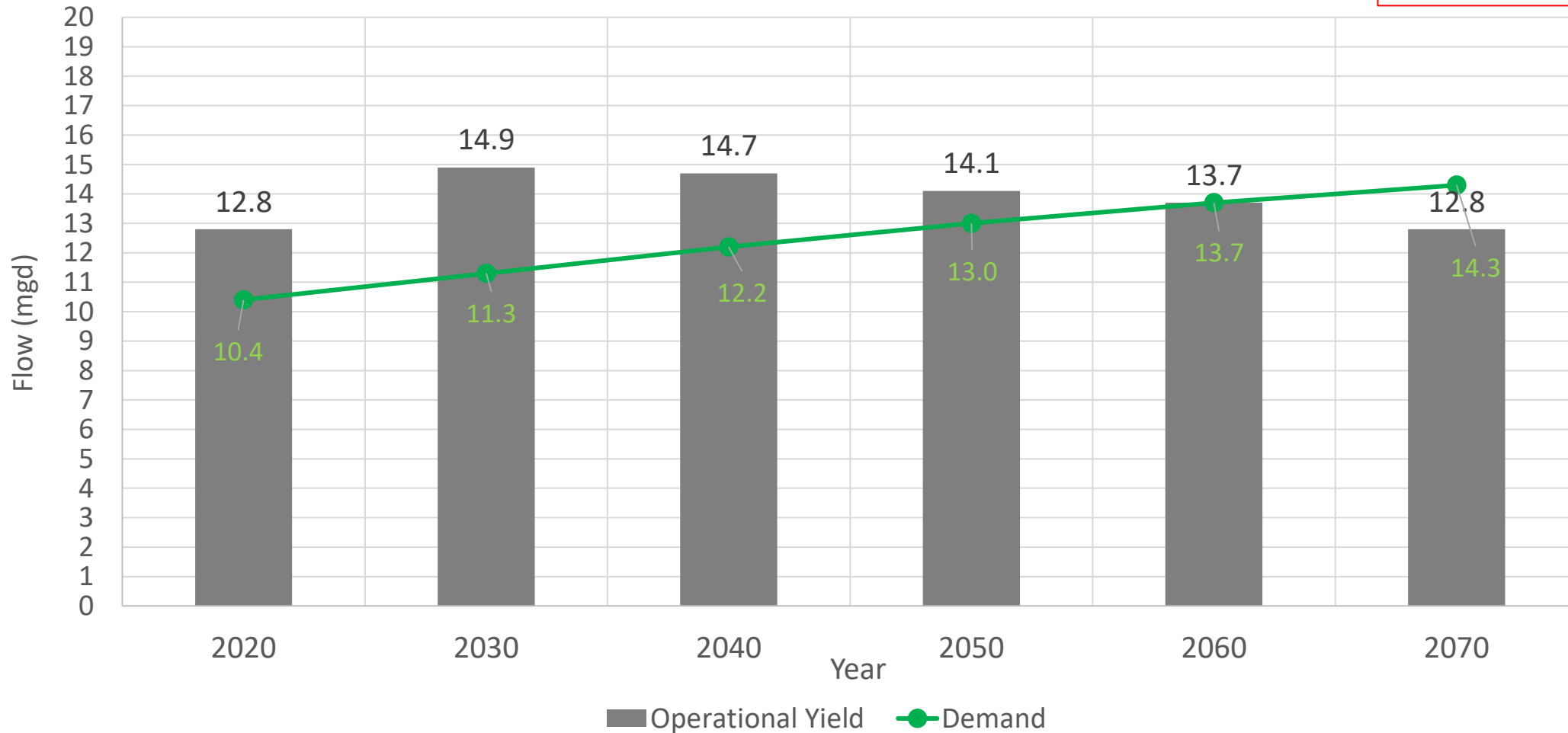
April 2022 – Urban Finished Water Master Plan **

Ongoing Finished Water and Wastewater Flow Monitoring



Available Water Supply vs Demand | 2020 - 2070

Available Supply = Demand in 2060



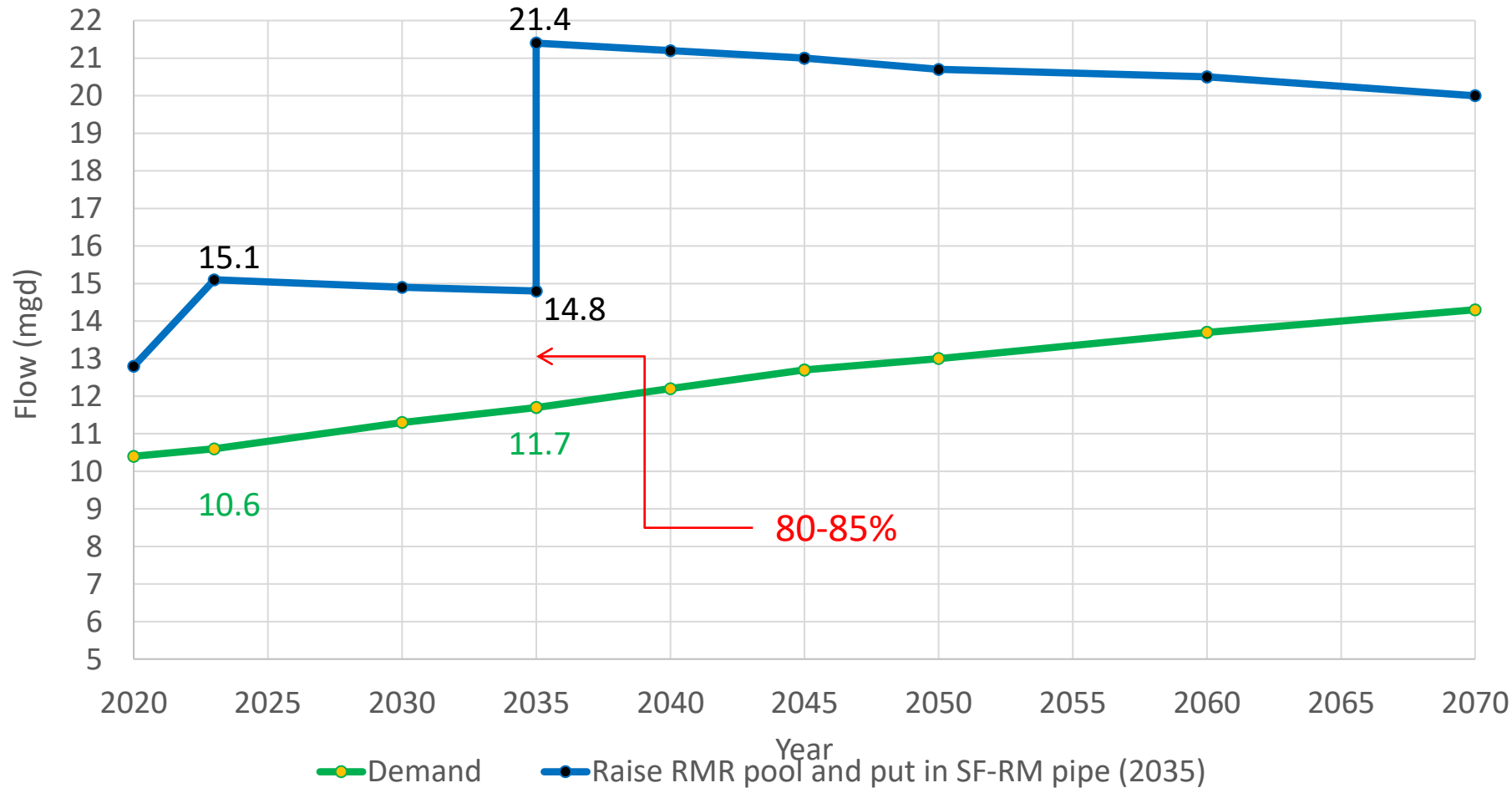
Data Sources:

Demand projections developed with significant input and data from ACSA, Albemarle County, Charlottesville, UVA, UVAF, VDOT, and Weldon Cooper.

Projections:

Steady Incremental increase in demand of about 86,000 gallons per year.

Safe Yield | Build Pipeline and Raise RMR Pool by 2035



- Build pipeline 2027-2035
- Raise RMR Pool by 2035, adding 700 MG
- Available Water Supply will be adequate until 2120
- Can be completed within the term of new permits (2038)
- Adds redundancy, resiliency, operational and environmental benefits

Existing Drinking Water Infrastructure

- Northern urban area is supplied primarily by the North Rivanna WTP. Augmented during emergencies by a portable diesel pump near Kohl's with above-ground hoses.
- NR WTP in need of wholesale plant upgrade which limits it to just under **1 mgd**. Current Average Day demand is approx. **0.5 mgd**.
- Recent Safe Yield modelling has shown that during droughts the NR River can supply no more than **0.75 mgd**.
- Remaining water demands must be supplied from the south via:
 - 50-year old mains crossing the South Rivanna (16") and North Rivanna River (12");
 - the existing SR WTP capacity (currently being renovated), and
 - the existing operational safe yield of the Urban raw water supply.
- In order to meet the future capacity needs of Northern Albemarle, system-wide improvements will be needed.

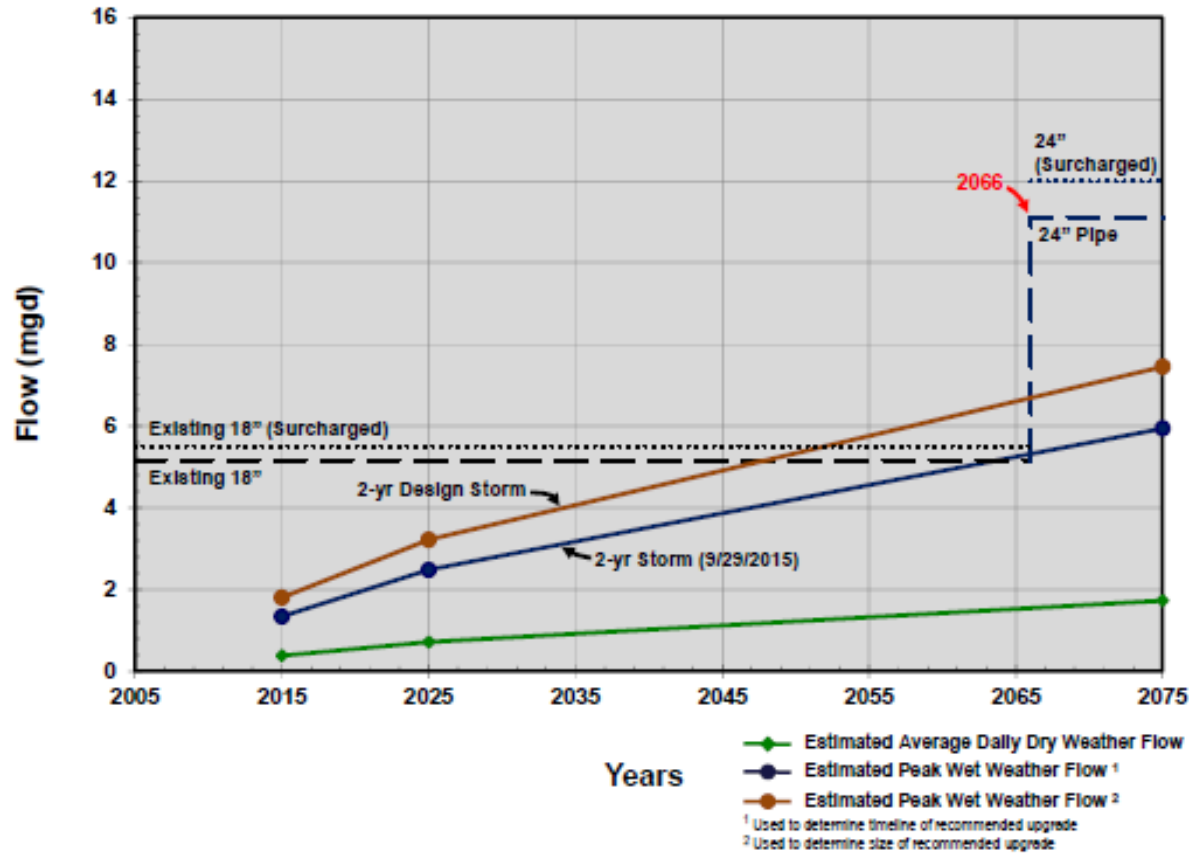
Northern Area Water Improvements Plan



	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
IMPROVEMENTS REQUIRES FOR NRWTP DECOMMISSIONING		ARPS CONSTRUCTION		\$10M									
IMPROVEMENTS FOR ARPS / NORTH RIVANNA ZONE RELIABILITY			2 ND SFR RIVER CROSSING		\$5.9M			2 ND NFR RIVER CROSSING				\$5.7M	
IMPROVEMENTS FOR URBAN ZONE RELIABILITY		OBWTP / SRWTP IMPROVEMENTS		CENTRAL WATER LINE						\$43M & \$31M			
IMPROVEMENTS FOR LONG-TERM SYSTEM RELIABILITY			RMR TO OBWTP PIPE & RWPS						\$30M				
							SFRR TO RMR TRANSFER SYSTEM					\$80M	
ANTICIPATED NRWTP DECOMMISSIONING					NRWTP DECOMMISSIONING		\$2.5M						
DEMAND DRIVEN IMPROVEMENTS*								ADDITIONAL PUMPING AND TANK STORAGE					\$5M

Upgrade Powell Creek Wastewater Interceptor

Powell Creek Interceptor Flow Management Plan for Reach PC-5



Summary

- RWSA, ACSA and the City have a plan to systematically improve drinking water infrastructure to serve the northern Urban Water system, as well as areas of the City including UVA, in an affordable manner over the next 10 - 15 years. Sewer infrastructure improvements are also planned for the 2050-2060 timeframe.
- Future development projects with significant utility demands will need to coordinate with our infrastructure plans and schedules.

Questions?