



CAPITAL IMPROVEMENT PROGRAM

2022 - 2025



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Mission Statement

The Bedford Regional Water Authority exists to provide its customers with high quality water and wastewater services at rates that are reasonable and just. The Authority shall anticipate the needs of the greater community by continually maintaining responsive, reliable service and through systematic expansion whenever economically possible.



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Our History

The Bedford Regional Water Authority (“Authority”) was created pursuant to the Water and Sewer Authorities Act Chapter 28, Title 15.1 code of Virginia of 1950, as amended. In accordance with the Reversion Agreement executed in August, 2012, the Authority was created by the Bedford County Board of Supervisors (“Supervisors”) by resolution dated November 14, 2012 and the Bedford City Council (“Council”) by resolution dated November 27, 2012.

Three of the initial members were appointed by the Supervisors on November 14, 2012, and three of the initial members were appointed by the Council on December 11, 2012. The State Corporation Commission approved the Articles of Incorporation on December 13, 2012. The first board meeting was held on December 18, 2012. The seventh board member was interviewed and recommended to the Supervisors and Council by the initial six board members at the January 22, 2013 board meeting. The seventh board member was approved by the governing bodies and sworn in prior to the February 26, 2013 board meeting.



Vision Statement:
The Authority strives to provide quality, responsive, reliable, and efficient services utilizing the latest technology and highly trained staff. Through leadership, the Authority endeavors to maintain a work environment that attracts and retains professional, highly competent, motivated, and dedicated employees.

VALUES



CREATIVITY



INDEPENDENCE



EFFICIENCY



HONESTY



INTEGRITY



RESPECT

Providing quality service to everyone.



Bedford
Regional
Water Authority

Meet Our Board of Directors



Robert Flynn, Chair
Term: 2020-2023



Thomas Segroves, Finance Committee
Term: 2019-2022



Jay Gray, Policies and Projects Committee
Term: 2021-2024



Walter Siehien, Policies and Projects Committee
Term: 2019-2022



Kevin Mele, Finance Committee
Term: 2021-2024



Michael Moldenhauer, Vice-Chair & Personnel Committee
Term: 2020-2023



Rusty Mansel, Personnel Committee
Term: 2021-2024



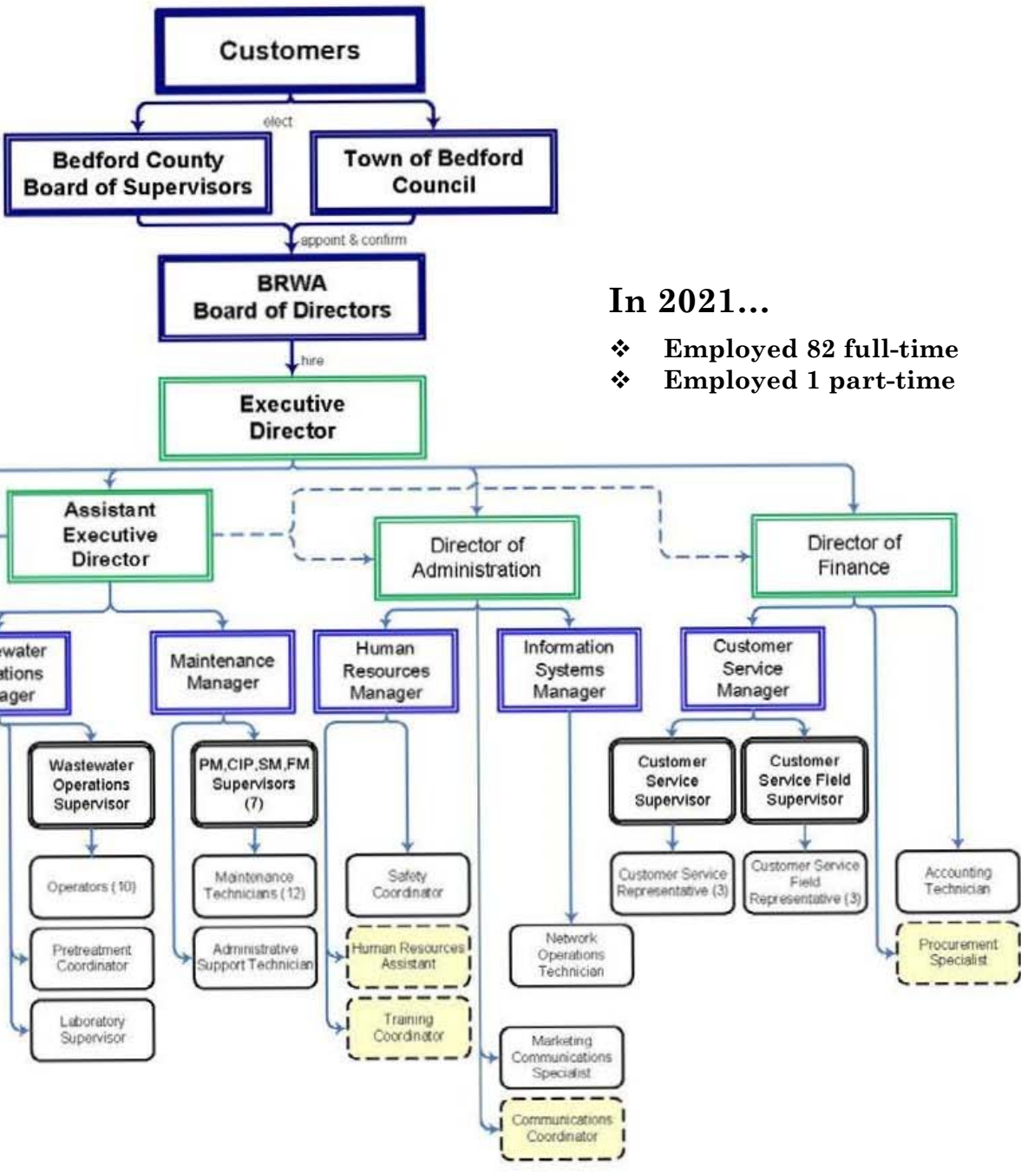
Our Organization



Brian M. Key, P.E.
Executive Director



Nathan Carroll
Assistant Executive Director



In 2021...

- ❖ Employed 82 full-time
- ❖ Employed 1 part-time

LEGEND

- Directors** (Green box)
- Managers** (Blue box)
- Supervisors** (Black box)
- Staff** (White box)
- Proposed** (Yellow box)
- Future** (Dashed box)
- Managerial Report** (Solid line)
- Indirect Report** (Dashed line)



Our Water System



In 2021...

- ❖ Had 5 Water Treatment Plants
- ❖ Had 15 Water Storage Tanks
- ❖ Had 2 Water Pump Stations
- ❖ Produced 1.2 Billion Gallons
- ❖ Had 398 Miles of Water Line
- ❖ Had 14,274 Total Water Connections
- ❖ Added 241 new water connections



Water Distribution Service Areas:

1. Bedford Central: The Authority provides water to the area inside and around the Town of Bedford through the Mountain Water Drive Treatment Plant. The plant uses a surface water reservoir located at the foothills of the Peaks of Otter. The Water Treatment Plant (“WTP”) is rated at approximately 3.0 million gallons per day (“MGD”). The Town also receives water from the Smith Mountain Lake Water Treatment Facility.

2. Forest Central: The Authority provides water to the Forest, New London, and Boonsboro areas of the County from the Smith Mountain Lake Water Treatment Facility and through purchasing water from the City of Lynchburg; the Authority then sends this water through the Authority’s distribution system. Water is treated by Lynchburg from the James River and the Pedlar Reservoir. There is not currently a contract limit to the capacity of the water purchased from Lynchburg, and the City of Lynchburg WTPs are rated at a capacity of 26 MGD.

3. Lakes: Jointly owned with Western Virginia Water Authority, the Smith Mountain Lake Water Treatment Facility uses membrane technology to treat water that is withdrawn from Smith Mountain Lake (SML). This water provides the majority of the water for the Lakes Central system around the SML area while also providing water for Franklin County, the Town of Bedford, and Forest. The SMLWTF is rated at 4.0 MGD, and it can easily be expanded to 6.0 MGD. The Authority also owns three (3) independent water systems that use wells as the source and are located in the Mountain View Shores, Valley Mills Crossing, and Paradise Point subdivisions.

4. Stewartsville: The Authority owns a water system in the Stewartsville area where water is purchased from the Western Virginia Water Authority (“WVWA”) and then distributed by the Authority. There is no contract limit to capacity of water purchased from the WVWA.

Our Wastewater System

In 2021...

Wastewater Collection Service Areas:

1. Bedford Central: The Authority provides sewer service inside and around the Town of Bedford using a Wastewater Treatment Plant (“WWTP”) located on Orange Street in Bedford. The Central WWTP is rated at 2.0 million gallons a day (“MGD”).

2. Forest Central: The Authority provides sewer service to the Forest and New London areas of the County by collecting the wastewater and transmitting it to the Lynchburg Regional WWTP for treatment. The Authority owns 1.0 MGD capacity in the Lynchburg WWTP.

3. Lakes Central: The Authority owns a WWTP in Moneta which provides sewer service to the Lakes community around the 122 corridor. The WWTP is rated at 0.5 MGD.

4. Montvale: The Montvale WWTP is located behind the Elementary school. It is rated at 0.05 MGD and provides service to the Montvale Elementary School, the Montvale Library, the Montvale Center for Business, and the central Montvale community.

- ❖ Had 5 wastewater treatment plants
- ❖ Had 32 sewer pump stations
- ❖ Treated 635 million gallons

- ❖ Had 5,406 total sewer connections
- ❖ Added 134 new sewer connections



Capital Improvement Program Executive Summary



The Bedford Regional Water Authority's Capital Improvement Program (CIP) is intended to ensure that capital improvements are coordinated, timed to maximize the Authority's financial resources, and promote a measured approach to long range asset planning. The Capital Improvement Program is a planning document intended to provide an analysis of potential long-range funding needs, specifically addressing the upcoming two to three years in combination with fiscal expectations. Actual appropriations for projects occurring under the plan are made on an annual basis, and the CIP is reviewed annually to address changes in priorities and any funding issues or opportunities. Projects projected beyond FY 2022-2023 will be reviewed during the annual budget process for the given fiscal year and may be revised or rescheduled depending on preliminary cost estimates, changing priorities and the availability of funding in any particular year. Priority criteria will be utilized to further identify project and purchase priorities in coming fiscal years as funding becomes available.

The Authority serves more than 15,500 customers, with more than 375 miles of water lines and 150 miles of sewer lines. Water and sewer services require extensive capital investment to maintain and periodically upgrade deteriorating infrastructure to support continued service to customers and allow for system growth. Some of the considerations in determining necessary projects and purchases include:

- Purchasing and upgrades of equipment to achieve efficient and reliable operations
- Water system improvements to address growing demand, potential operational savings, and other operational efficiencies
- Energy savings through improved processes and upgraded equipment
- Gravity sewer extension to reduce operational costs and support continued growth in the Forest service area
- General maintenance and security of facilities
- Regulatory requirements

The Bedford Regional Water Authority has identified over \$70 million in capital improvement projects that are needed in its water and sewer systems, not including a large number of water and sewer replacement projects to be managed through separate set-aside funding. Some of these investments are crucial to supporting continued service to customers and allow system growth. Other projects provide for the long-term reduction in operating costs, reduced manpower requirements for repairs, proactive replacements and upgrades, and more dependable and reliable service to the customers.

Proposed projects and purchases for the coming fiscal year are based on expected available capital funds as projected in the Fiscal Year Operating Budget. Future years are based upon data reported in the January 2020 financial study completed by Davenport & Company, taking into consideration funds to be used for debt service projects and increased replacement set-asides.



Capital Improvement Program Projects Listing FY23-25



Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	Residual/Other Funds				Total Priority Score	Priority Score Color Codes 20 <30 30 30-39 50 40-59 65 60+	Notes
							2023	2024	2025			
	1	PROJECTS WITH DEBT SERVICE										
Central	2	Energy Saving Project - Central WWTP								67		Majority of the costs is in the blowers; also includes modifying the plant DO and level controls.
	3	Central Wastewater Treatment Upgrades (VRA)	-1	2022	\$4,243,599		319,110	319,372	319,122			
	4	Central Wastewater Treatment Upgrades (Addtl)	R		\$1,038,000	1,038,000						Additional capital from residual funds to subsidize VRA loan.
Forest	5	Ivy Creek 5 & 6 Design, Construction & Capacity	0	2023	\$12,520,000		84,771	674,661	674,661	77		Payments begin 6 months after construction is complete.
	6	Total Debt Service:			\$16,763,599		403,881	994,033	993,783			
	7	ARPA FUNDED PROJECTS										
	8	Town Projects										
Central	9	Helm Street Tank Replacement	0	2023	\$2,000,000		2,000,000			46		Design and construction of a new tank and associated appurtenances.
Central	10	Bell Town Road Waterline Extension	0	2023	\$500,000		500,000			46		Waterline extension to serve properties affected by Town landfill leachate.
Central	11	Town & Country Subdivision Sewer Replacements	0	2023	\$2,000,000		2,000,000			46		Rehabilitation and replacement of sewer lines serving the Town & Country subdivision.
	12	Total ARPA Funding:			\$4,500,000		4,500,000	-	-			
	13	WATER PROJECTS										
	26	System Structures & Tanks										
Boonsboro	27	Fox Runn Booster Station - Structure repairs/replacement	0	2023	\$25,000		25,000			56		Building is in need of repair and door needs to be replaced for accessibility and security. Due to condition of building, door cannot be replaced without repairs to the structure.
	31	Operational Needs										
Central	32	Forest to Lakes Permanent Booster Station	R		\$2,300,000	2,300,000				56		Needed for transferring water from Forest to Central or Lakes, or if serving all of Forest from the Lakes. Provides backup source upon failures on Route 122 water main.
Forest	34	Lynchburg Entry Point Control Valve (Graves Mill Rd)	2	2025	\$120,000				120,000	49		First step in being able to control and meter flow at the three major feeds from Lynchburg. Will reduce personnel time from manually adjusting valves, and provide immediate usage data to better manage water purchase from Lynchburg.
Various	35	Lead Service Line (LSL) Inventory	0	2023	\$50,000		50,000			60		EPA is requiring localities to perform an LSL inventory, replacements and compliance planning as necessary by October 2024. The inventory is the first step towards meeting this requirement.
	36	SCADA Needs										
Various	37	SCADA Hatch Intrusion Switches for Water Tanks	0	2023	\$25,000		25,000			53		For water system security, as identified in the 2021 Risk and Resilience Assessment for 7 BRWA tanks and 3 SML tanks.
Various	38	SCADA Communications Architecture Enhancements	2	2025	\$20,000				20,000	53		Change primary communication at 10 critical water sites from B2X to Verizon VPN Digi Modems for better reliability, particularly during adverse weather events.
Various	39	Sample Hydrants Phase 2A (7)	1	2024	\$11,000			11,000		45		Guarantees accessibility and representative water for compliance samples. (Phased)
Various	40	Sample Hydrants Phase 2B (8)	2	2025	\$12,000				12,000	45		Guarantees accessibility and representative water for compliance samples. (Phased)
Central	43	Central Water Upgrades										
	45	Upgrade chemical feeders to liquid chemical (others)	2	2025	\$15,000				15,000	51		Liquid chemicals would eliminate the need for daily elevator use and enhance treatment capabilities. With no dry chemicals added to the water, less sediment would need to be cleaned and hauled.
	49	Central WTP - Install Security Alarm and Fire Alarm Systems	0	2023	\$20,000		20,000			56		Facility is not staffed for 16 hours of each day, and security cameras are not monitored during off hours. A single vandalism or fire event could cause significant damage to critical equipment necessary to provide service to customers.
	50	Central WTP Rewash valves (2)	2	2025	\$25,000				25,000	41		Replacement of obsolete valves that allow flushing of the filter to waste after a backwash; existing valves do not work consistently.
	51	Central WTP Replacement Turbidimeters (4)	0	2023	\$20,000		20,000			52		Replacement of the 4 existing turbidimeters that monitor particulate water quality at different stages of treatment. The existing units are failing, no longer supported by the manufacturer, and are critical for VDH compliance.
	52	Central WTP Flocculators	0	2023	\$65,000		65,000			54		The 1st flocculator mixer has crumbled apart from rust and is not functional. The 2nd and 3rd are in similar condition. All must be replaced for proper water treatment.
	53	Central WTP Filter Control SCADA Interface (2)	0	2023	\$35,000		35,000			39		The new valves and meters that are being installed can not be controlled using the old pneumatic levers. These interface panels will integrate all the new filter control valves, sensors and meters into one system to replace the old filter table controls which operated the old valves via water pressure.

Capital Improvement Program Projects Listing FY23-25



Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	Residual/Other Funds				Total Priority Score	Priority Score Color Codes 20 <30 30 30-39 50 40-59 65 60+
							2023	2024	2025		
Notes											
	54	Central WTP Motor Control Center Replacement	0	2023	\$100,000		100,000			54	Main switch gear is corroded and does not cut power, with other parts of the panel corroded. Failure of this equipment would render the plant inoperable.
	55	Central WTP Streaming Current Monitor	0	2023	\$15,000		15,000			47	Replacement of a manual 50 year old zeta meter used for bench testing to determine optimum chemical dosage, with a streaming current monitor to provide constant monitoring of the treatment effectiveness.
Central	56	Stoney Creek Reservoir - Ph 1 (Repairs & PER)	0	2023	\$100,000		100,000			54	Drain valve and sluice gate require replacement to operate, involving dredging to access both. Drain line is leaking and in need of repairs. A PER will review options and costs to provide access to the outside of the dam for draining the reservoir during an emergency, with design upon completion of PER.
Central	57	Stoney Creek Reservoir - Ph 2 (Repairs / Design)	0	2023	\$100,000		100,000			54	Additional funding to complete repairs and/or design and begin Installation of a siphon system to drain the reservoir, removing the need to access the drain valve by water or by way of the dam in an emergency situation. PER and design are needed first to determine construction cost.
Central	58	Stoney Creek Reservoir - Ph 3 (Siphon Construction)	2	2025	\$200,000				200,000	54	Installation of a siphon system to drain the reservoir, removing the need to access the drain valve by water or by way of the dam in an emergency situation. PER and design are needed first to determine construction cost.
Lakes	59	Valley Mills Building addition for chemical addition	2	2025	\$20,000				20,000	54	Due to age and configuration, the waterworks experiences treatment upsets that require the tank to be dumped for dilution. The pH is very low and no pH adjustment is currently provided. The current building size is not feasible for any treatment additions or reconfigurations.
SML	60	SML WTF (Costs represent shared portion with WWA)									
	61	Sewer Pump Station 4 Upgrades Ph 1 (EQ)	0	2023	\$20,000		20,000			54	Inadequate capacity at the station to handle large backwash dishcharge volumes from SMLWTF. An existing septic tank on site can be converted to an equalization chamber to modulate flows.
	62	Sewer Pump Station 4 Upgrades Ph 2 (Pumps)	1	2024	\$30,000			30,000		54	Increase pump capacity as existing station is only able to support 65 gpm with both pumps running. Limitations on capacity causes the SMLWTF to be shut down to prevent overflows.
	63	SMLWTF - Add Security System to Fire Alarm System	0	2023	\$10,000		10,000			56	Facility is not staffed for 16 hours of each day, and security cameras are not monitored during off hours. A single vandalism or fire event could cause significant damage to critical equipment necessary to provide service to customers.
	64	SMLWTF GAC Pump and associated parts	0	2023	\$25,000		25,000			44	Purchase larger capacity pump, variable frequency drive and associated plumbing to enable full treatment capacities of both GAC units.
	66	Raw Water Intake Standby Generator	0	2023	\$50,000		50,000			50	Permanent standby power generator for the SMLWTF raw water pumps to replace the older portable generator. Will reduce manpower needed to operate the portable generator and provide greater flexibility and automation.
	67	SML Tank - Standby generator	2	2025	\$15,000				15,000	45	Permanent stand by power generator for the SML Water Tank that will maintain various sensors and network service for the area.
	68	SEWER PROJECTS									
	74	Operational Needs									
Lakes	75	Moneta WWTP									
	77	Replace magnetic ballasts & wiring harness	2	2025	\$10,000				10,000	43	Replace with electronic ballasts; magnetic ballasts are no longer available per EPA. If flow increases, will be needed immediately.
	79	New chains on Train 1 BIOWHEELS	0	2023	\$20,000		20,000			46	Chains are showing wear and have cracked and had to replace links
	80	New chains on Train 2 BIOWHEELS	2	2025	\$20,000				20,000	38	Chains life is 5 years
Lakes	81	Moneta Pump Stations									
	82	Blower system at pump station 1	0	2023	\$15,000		15,000			54	Reduce/eliminate gases due to low flows. Concrete in wet starting to deteriorate.
Central	83	Central WWTP									
	89	New RAS Pump #1	0	2023	\$55,000		55,000			47	Existing pumps are 20+ years old. The primary settling tank is currently out of service due to broken railing, drives, and chains.
	90	New RAS Pump #2	2	2025	\$55,000				55,000	47	Existing pumps are 20+ years old.
	92	Replace railings and chains on primary basin #1	0	2023	\$20,000		20,000			54	Railings are currently broke and not operating (basin is being bypassed)
	93	Replace railings and chains on primary basin #2	2	2025	\$20,000				20,000	46	This basin is operating and starting to show wear on railings.
	94	Replace the air actuator valves to electric valves on sandfilters	2	2025	\$60,000				60,000	46	Electric valves will allow backwashing filters below freezing temperatures as air lines currently freeze in the winter and prevent the ability to backwash.
	95	Carport to cover sludge dumpster	0	2023	\$8,000		8,000			31	Keep solids dry for less expensive disposal.

Capital Improvement Program Projects Listing FY23-25



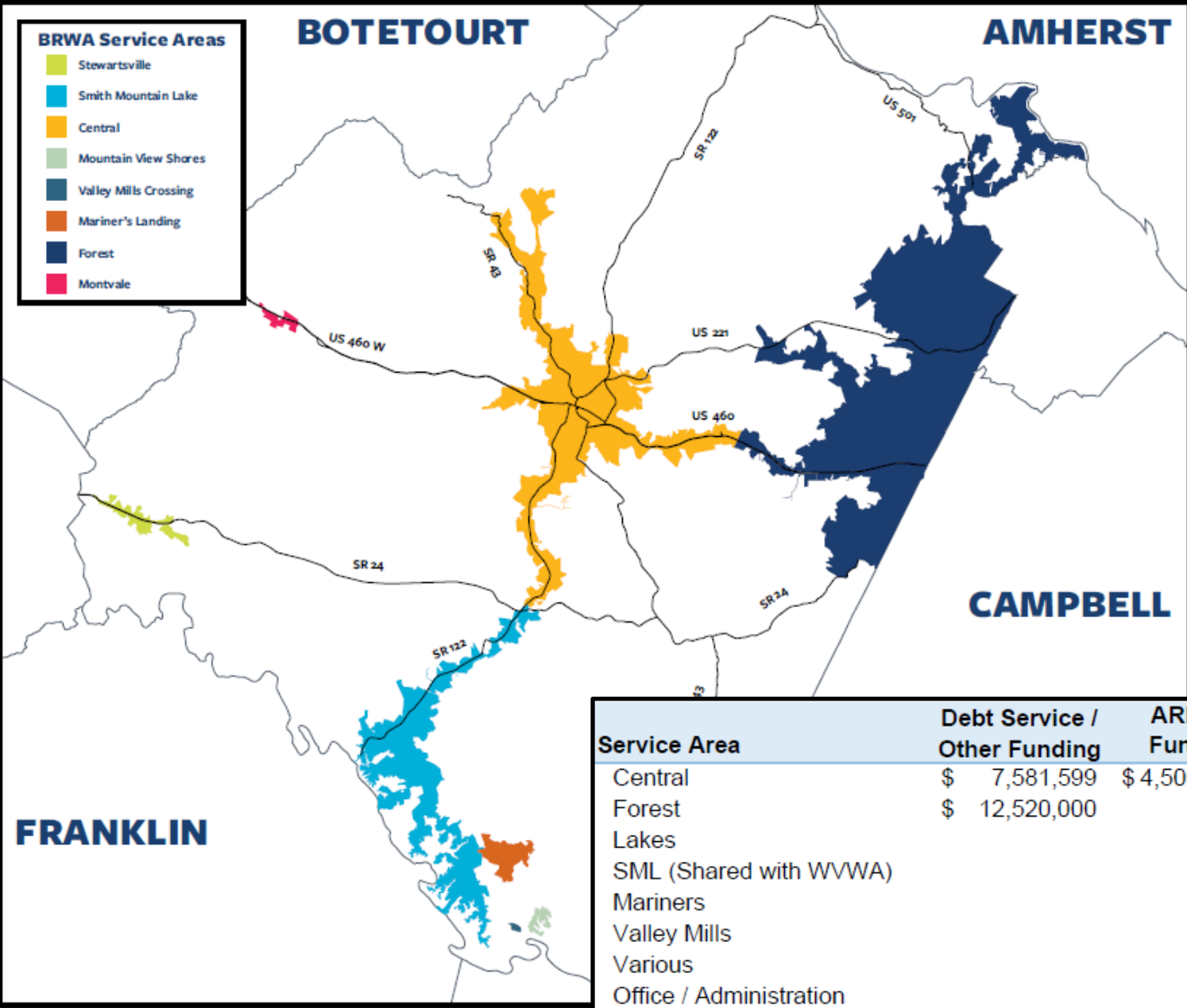
Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	Residual/Other Funds				Total Priority Score	Notes
							2023	2024	2025		
Central	96	Central Sewer Pump Stations									
	97	Pump Station 3 Bank Restoration and armoring	0	2023	\$40,000		40,000			59	The creek bank has washed away at the fence line near the overflow pipe.
	98	Pump Station 1 - Replacement Pump #2	1	2024	\$45,000			45,000		55	3 pumps are >20 years old; 2nd phase for replacement. Will reduce overflows.
	99	Pump Station 1 - Replacement Pump #3	1	2024	\$45,000			45,000		55	3 pumps are >20 years old; 3rd phase for replacement. Will reduce overflows.
	105	Pump Station 7 SCADA	0	2023	\$20,000		20,000			52	Allow remote view and ability to trend station performance.
Mariners	108	Mariners WWTP									
	109	New control panels for both Trains	0	2023	\$25,000		25,000			46	Some of the controls are not functioning had contractor inspect and suggested replacing both control panels.
	110	Install bracing on influent basin on Train 1 and 2	0	2023	\$20,000		20,000			51	The old bracing is rusting causing a safety hazard.
Mariners	111	Mariners Pump Stations									
	112	Pump Stations pump replacement	0	2023	\$20,000		20,000			54	This will allow us to start replacing pumps that are 20+ years old.
	113	Pump Station 5 SCADA	0	2023	\$10,000		10,000			57	Allow remote view and ability to trend station performance. If failure occurs, flow will go directly into the lake.
	114	Pump Station 9 SCADA	0	2023	\$10,000		10,000			57	Allow remote view and ability to trend station performance. If failure occurs, flow will go directly into the lake.
	122	PURCHASES									
	123	Admin									
	124	Key System - Phase 2A (Various sites)	0	2023	\$20,000		20,000			59	
	125	Key System - Phase 2B (Various sites)	1	2024	\$30,000			30,000		59	
	126	Key System - Phase 2C (Various sites)	2	2025	\$50,000				50,000	59	
	130	Customer Service									
	132	Bulletproof Glass & Front Desk modifications	1	2024	\$75,000			75,000		54	Bulletproof modifications for the front desk to address safety and security of employees.
	133	Operations									
Various	134	Operations/Billing/Cartegraph Web Application	1	2024	\$55,000			55,000		54	Integration of Operations data, Billing data, and Cartegraph data. Eliminates individual spreadsheets and allows multi-year analysis with data security and validation. May assist with statistical information and revenue forecasting.
Various	135	SCADA Server Architecture Reliability Enhancements	0	2023	\$78,000		78,000			59	Creates a distributed SCADA server network for redundancy and resiliency. Updates to the latest version of Ignition from 7.9 to 8.1, a major update.
Forest	136	New London Tank Standby Generator	0	2023	\$6,000		6,000			49	For communications equipment to have power during a power outage.
	137	Engineering									
	138	Fireproof Safe	0	2023	\$5,500		5,500			46	Additional space needed to store legal records.
Central	140	Central Sewer Survey Phase 1	1	2024	\$100,000			100,000		47	Engineering Term Consultant to perform field survey of Central Sewer to be used for Central Sewer Mapping and Modeling. Will assist in identifying appropriate pumps for replacement at Central pump stations.
	142	Maintenance									
	143	John Deere Skid Steer	0	2023	\$90,000		90,000			36	Skid steer to be used with PM crew for easement management.
	144	DODGE RAM 5500 with dump bed	0	2023	\$90,000		90,000			36	Additional smaller dump truck for line crews to use to ensure availability when needed.
	145	Portable Air Compressor for CIP	2	2025	\$27,000				27,000	36	Air compressor unit for Capital crew to use with Hole Hawg for service installations, as well as concrete and asphalt removal.
	146	Skid Steer concrete saw for CIP	2	2025	\$30,000				30,000	34	Saw attachment for cutting asphalt and concrete to provide better efficiencies, accuracy, and longer cuts.
TOTALS:					\$ 26,904,099	3,338,000	1,212,500	391,000	699,000		

Capital Improvement Program Departmental Summary



		Residual Funds			
Project	Project Costs		2023	2024	2025
PROJECTS WITH DEBT SERVICE					
Energy Saving Project - Central WWTP	\$5,281,599	1,038,000	319,110	319,372	319,122
Ivy Creek 5 & 6 Design, Construction & Capacity	\$12,520,000		84,771	674,661	674,661
ARPA FUNDED PROJECTS					
Town Projects					
Helm Street Tank Replacement	\$2,000,000		2,000,000		
Bell Town Road Waterline Extension	\$500,000		500,000		
Town & Country Subdivision Sewer Replacements	\$2,000,000		2,000,000		
OTHER PROJECTS THROUGH FY 2024					
System Structures & Tanks	\$25,000		25,000		
Water Operational Needs	\$3,403,000	2,300,000	635,000	41,000	427,000
Sewer Operational Needs	\$518,000		263,000	90,000	165,000
Administration Purchases	\$100,000		20,000	30,000	50,000
Customer Service Purchases	\$75,000			75,000	
Operations Purchases	\$139,000		84,000	55,000	
Engineering Purchases	\$105,500		5,500	100,000	
Maintenance Purchases	\$237,000		180,000		57,000
TOTALS - OTHER PROJECTS:	\$4,602,500	3,338,000	1,212,500	391,000	699,000

Capital Improvement Program – Costs By Service Area



Service Area	Debt Service / Other Funding	ARPA Funds	FY 2022-23	FY 2023-24	FY 2024-25	Total
Central	\$ 7,581,599	\$ 4,500,000	\$ 598,000	\$ 190,000	\$ 375,000	\$ 13,244,599
Forest	\$ 12,520,000		\$ 31,000		\$ 120,000	\$ 12,671,000
Lakes			\$ 35,000		\$ 30,000	\$ 65,000
SML (Shared with WVWA)			\$ 105,000	\$ 30,000	\$ 15,000	\$ 150,000
Mariners			\$ 85,000			\$ 85,000
Valley Mills					\$ 20,000	\$ 20,000
Various			\$ 153,000	\$ 66,000	\$ 32,000	\$ 251,000
Office / Administration			\$ 205,500	\$ 105,000	\$ 107,000	\$ 417,500
Total	\$ 20,101,599	\$ 4,500,000	\$ 1,212,500	\$ 391,000	\$ 699,000	\$ 26,904,099

CIP Project Requests with Debt Service

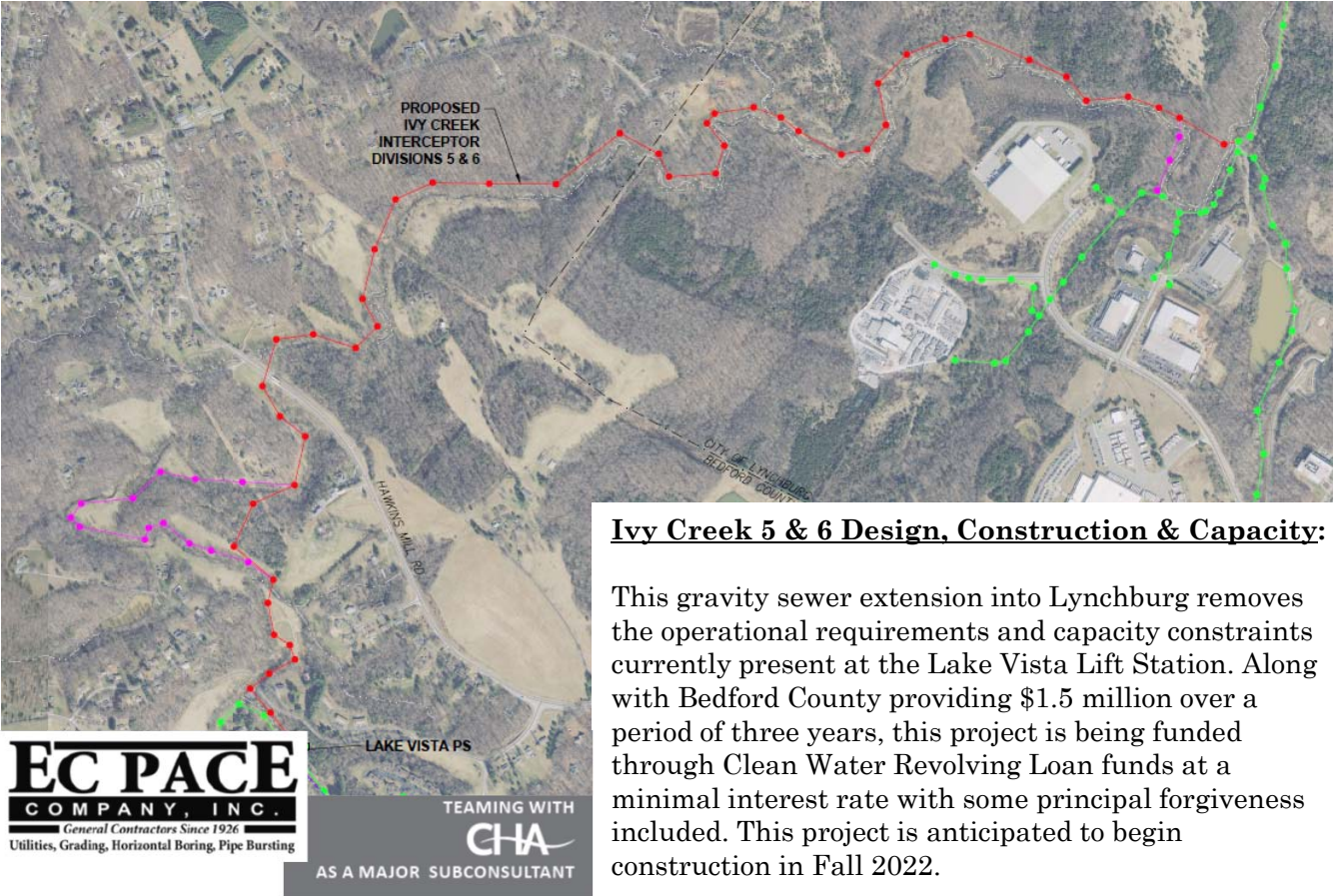
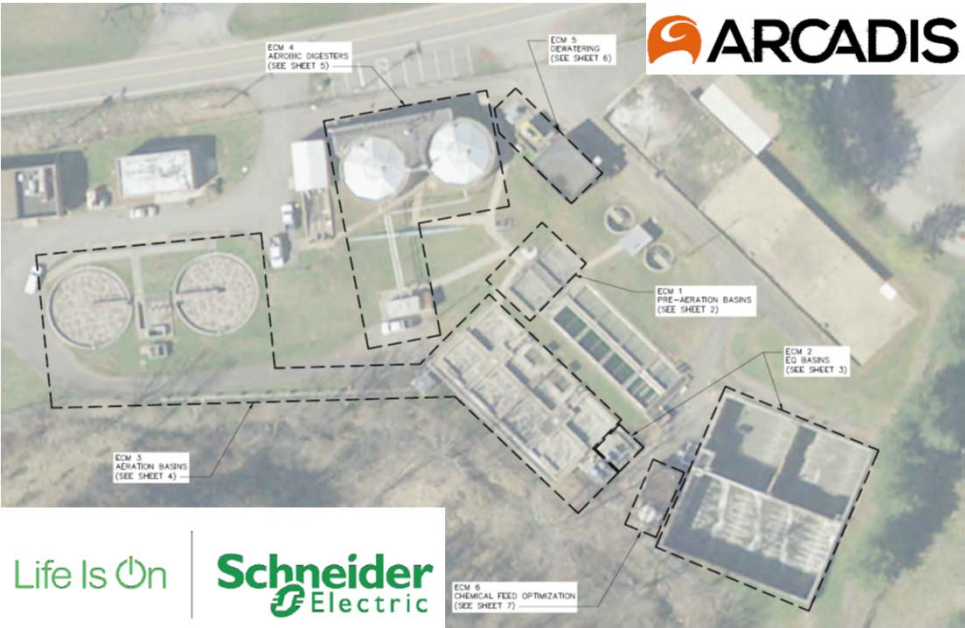


Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	Residual Funds	202320242025			Total Priority Score	Notes
	1	PROJECTS WITH DEBT SERVICE									
Central	2	Energy Saving Project - Central WWTP								67	Majority of the costs is in the blowers; also includes modifying the plant DO and level controls.
	3	Central Wastewater Treatment Upgrades (VRA)	-1	2022	\$4,243,599		319,110	319,372	319,122		
	4	Central Wastewater Treatment Upgrades (Addtl)	R		\$1,038,000	1,038,000					Additional capital from residual funds to subsidize VRA loan.
Forest	5	Ivy Creek 5 & 6 Design, Construction & Capacity	0	2023	\$12,520,000		84,771	674,661	674,661	77	Payments begin 6 months after construction is complete.
	6	Total Debt Service:			\$16,763,599		403,881	994,033	993,783		

Priority Score Color Codes	
20	<30
30	30-39
50	40-59
65	60+

Energy Saving Project – Central WWTP:

This project addresses efficiencies and deficiencies in the operation of the Central Wastewater Treatment Plant through improved processes and newer and more energy efficient equipment. Most of the project that is funded through debt service will realize savings through reduced energy, labor, and/or chemical costs that will cover most of the annual debt service cost. Construction is scheduled to be completed in Fall of 2022.



Ivy Creek 5 & 6 Design, Construction & Capacity:

This gravity sewer extension into Lynchburg removes the operational requirements and capacity constraints currently present at the Lake Vista Lift Station. Along with Bedford County providing \$1.5 million over a period of three years, this project is being funded through Clean Water Revolving Loan funds at a minimal interest rate with some principal forgiveness included. This project is anticipated to begin construction in Fall 2022.

American Rescue Plan Act Projects – Town of Bedford



With the American Rescue Plan Act (ARPA), funding was made available to localities for select improvements that had been previously identified, including those necessary for water and sewer infrastructure. In cooperation with the Town of Bedford, the Authority entered into a Grant Subrecipient Agreement on December 1, 2021 with the Town to utilize ARPA funds in addressing select replacements of sewer line infrastructure, a deteriorated water storage tank, as well as provide a waterline extension in the area near the Town’s former landfill.

Helm Street Tank: The existing 1.22 million-gallon round water storage tank at Helm Street was previously taken out of service due to a failing coating system and a deteriorating concrete structure. Upon lead being found in a portion of the coating system, abatement and corrections for the structure were deemed to possibly exceed the cost of a new and more dependable water storage tank. The existing 0.73 million-gallon square storage tank at the site was lined while under the ownership of the Town of Bedford, and the exterior coated in 2019. With water storage that is central to the water system of significant importance to limit water age and disinfection byproducts, design is underway by Whitman, Requardt & Associates for a new 1 million-gallon welded steel water tank at this site.

Bell Town Road Waterline Extension: To address concerns regarding the quality of the groundwater within a select area of Bell Town Road and the potential for landfill leachate intrusion, design is underway by Engineering Concepts, Inc. for an 1800 foot public waterline extension.

Service Area	LINE ID	Project	Project Costs
	7	ARPA FUNDED PROJECTS	
	8	Town Projects	
Central	9	Helm Street Tank Replacement	\$2,000,000
Central	10	Bell Town Road Waterline Extension	\$500,000
Central	11	Town & Country Subdivision Sewer Replacements	\$2,000,000
	12	Total ARPA Funding:	\$4,500,000

Town & Country Subdivision Sewer Replacements: The Authority has been working with Hurt & Proffitt, Inc. through design and field investigations necessary for targeted replacements of deteriorating sewer lines within the Town and Country Subdivision. The construction of these replacements were previously intended to span over many years as funding became available through the Authority’s Sewer Replacement Setasides. With the ARPA funding available, most phases of the sewer replacements in this subdivision will be completed by the end of 2023.



CIP Water Project Requests



Various water projects have been identified in the Forest, Central, and Lakes service areas to be addressed over the next few years. Some projects have funding previously allocated toward them. Projects identified to assist with water system operation include the following:

- Water booster station to allow efficient transfer of water between Lakes, Central and Forest service areas (currently underway)
- Control valve at City of Lynchburg entry point to efficiently coordinate purchase volumes from Lynchburg with production volumes from Smith Mountain Lake Water Treatment Facility
- Building repairs to the Fox Runn booster station necessary for continued security of the facility
- Lead Service Line inventory for compliance with EPA regulations
- Security measures through SCADA communications, as identified in the 2021 Risk and Resilience Assessment
- Sampling stations to provide best representation of water quality in the system, guarantee operator accessibility, and remove dependency upon quality plumbing within private homes and the homeowners' availability for sample collections
- Upgrades and maintenance of the Central Water Treatment Plant, including:
 - Replacement of crucial valves that are deteriorating due to significant age, adding automation for more efficient operation
 - Installation of a control center and monitoring interface to enable operation of the filters and equipment in a centralized location at the plant
 - Replacement of obsolete and failing equipment
 - Chemical feeder upgrades from granular to liquid for cleaner and more consistent dosing
 - Alarm system to alert of vandalism or fire emergencies when plant is not in operation
- Stoney Creek Reservoir upgrades and permitting needs, including:
 - Repairs/Improvements at the reservoir to provide the ability for draining of the reservoir upon emergency need, as required by the Department of Conservation and Recreation in the Dam Operating Permit
- Valley Mills building addition to allow for chemical addition and pH adjustment
- Mountain View Shores filter replacement to address rusting and corrosion of existing filters



CIP Water Project Requests



Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	Residual/Other Funds				Total Priority Score	Priority Score Color Codes	Notes
							2023	2024	2025			
	13	WATER PROJECTS										
	26	System Structures & Tanks										
Boonsboro	27	Fox Runn Booster Station - Structure repairs/replacement	0	2023	\$25,000		25,000			56	Building is in need of repair and door needs to be replaced for accessibility and security. Due to condition of building, door cannot be replaced without repairs to the structure.	
	31	Operational Needs										
Central	32	Forest to Lakes Permanent Booster Station	R		\$2,300,000	2,300,000				56	Needed for transferring water from Forest to Central or Lakes, or if serving all of Forest from the Lakes. Provides backup source upon failures on Route 122 water main.	
Forest	34	Lynchburg Entry Point Control Valve (Graves Mill Rd)	2	2025	\$120,000				120,000	49	First step in being able to control and meter flow at the three major feeds from Lynchburg. Will reduce personnel time from manually adjusting valves, and provide immediate usage data to better manage water purchase from Lynchburg.	
Various	35	Lead Service Line (LSL) Inventory	0	2023	\$50,000		50,000			60	EPA is requiring localities to perform an LSL inventory, replacements and compliance planning as necessary by October 2024. The inventory is the first step towards meeting this requirement.	
	36	SCADA Needs										
Various	37	SCADA Hatch Intrusion Switches for Water Tanks	0	2023	\$25,000		25,000			53	For water system security, as identified in the 2021 Risk and Resilience Assessment for 7 BRWA tanks and 3 SML tanks.	
Various	38	SCADA Communications Architecture Enhancements	2	2025	\$20,000				20,000	53	Change primary communication at 10 critical water sites from B2X to Verizon VPN Digi Modems for better reliability, particularly during adverse weather events.	
Various	39	Sample Hydrants Phase 2A (7)	1	2024	\$11,000			11,000		45	Guarantees accessibility and representative water for compliance samples. (Phased)	
Various	40	Sample Hydrants Phase 2B (8)	2	2025	\$12,000				12,000	45	Guarantees accessibility and representative water for compliance samples. (Phased)	
Central	43	Central Water Upgrades										
	45	Upgrade chemical feeders to liquid chemical (others)	2	2025	\$15,000				15,000	51	Liquid chemicals would eliminate the need for daily elevator use and enhance treatment capabilities. With no dry chemicals added to the water, less sediment would need to be cleaned and hauled.	
	49	Central WTP - Install Security Alarm and Fire Alarm Systems	0	2023	\$20,000		20,000			56	Facility is not staffed for 16 hours of each day, and security cameras are not monitored during off hours. A single vandalism or fire event could cause significant damage to critical equipment necessary to provide service to customers.	
	50	Central WTP Rewash valves (2)	2	2025	\$25,000				25,000	41	Replacement of obsolete valves that allow flushing of the filter to waste after a backwash; existing valves do not work consistently.	
	51	Central WTP Replacement Turbidimeters (4)	0	2023	\$20,000		20,000			52	Replacement of the 4 existing turbidimeters that monitor particulate water quality at different stages of treatment. The existing units are failing, no longer supported by the manufacturer, and are critical for VDH compliance.	
	52	Central WTP Flocculators	0	2023	\$65,000		65,000			54	The 1st flocculator mixer has crumbled apart from rust and is not functional. The 2nd and 3rd are in similar condition. All must be replaced for proper water treatment.	
	53	Central WTP Filter Control SCADA Interface (2)	0	2023	\$35,000		35,000			39	The new valves and meters that are being installed can not be controlled using the old pneumatic levers. These interface panels will integrate all the new filter control valves, sensors and meters into one system to replace the old filter table controls which operated the old valves via water pressure.	
	54	Central WTP Motor Control Center Replacement	0	2023	\$100,000		100,000			54	Main switch gear is corroded and does not cut power, with other parts of the panel corroded. Failure of this equipment would render the plant inoperable.	
	55	Central WTP Streaming Current Monitor	0	2023	\$15,000		15,000			47	Replacement of a manual 50 year old zeta meter used for bench testing to determine optimum chemical dosage, with a streaming current monitor to provide constant monitoring of the treatment effectiveness.	

Priority Score Color Codes

20	<30
30	30-39
50	40-59
65	60+

CIP Water Project Requests



Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	Residual/Other Funds				Total Priority Score	Notes
							2023	2024	2025		
Central	56	Stoney Creek Reservoir - Ph 1 (Repairs & PER)	0	2023	\$100,000		100,000			54	Drain valve and sluice gate require replacement to operate, involving dredging to access both. Drain line is leaking and in need of repairs. A PER will review options and costs to provide access to the outside of the dam for draining the reservoir during an emergency, with design upon completion of PER.
Central	57	Stoney Creek Reservoir - Ph 2 (Repairs / Design)	0	2023	\$100,000		100,000			54	Additional funding to complete repairs and/or design and begin Installation of a siphon system to drain the reservoir, removing the need to access the drain valve by water or by way of the dam in an emergency situation. PER and design are needed first to determine construction cost.
Central	58	Stoney Creek Reservoir - Ph 3 (Siphon Construction)	2	2025	\$200,000				200,000	54	Installation of a siphon system to drain the reservoir, removing the need to access the drain valve by water or by way of the dam in an emergency situation. PER and design are needed first to determine construction cost.
Lakes	59	Valley Mills Building addition for chemical addition	2	2025	\$20,000				20,000	54	Due to age and configuration, the waterworks experiences treatment upsets that require the tank to be dumped for dilution. The pH is very low and no pH adjustment is currently provided. The current building size is not feasible for any treatment additions or reconfigurations.



CIP Water Project Requests – Smith Mountain Lake WTF



Projects and purchases directly related to the operation of the Smith Mountain Lake Water Treatment Facility reflect shared costs with Western Virginia Water Authority as the joint partner of the facility. Projects identified to assist with water system operation include the following:

- Increased capacity at receiving sewer pump station 4 to support large volume of backwash discharge from the facility
- Increased pumping capacity to send greater volumes through the granular activated carbon (GAC) vessels for improved organic removal
- Standby generators for the raw water intake and water storage tank for improved reliability and communication
- Alarm system to alert of vandalism or fire emergencies when plant is not in operation



Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	Residual/Other Funds				Total Priority Score	Notes
							2023	2024	2025		
SML	60	SML WTF (Costs represent shared portion with WVWA)									
	61	Sewer Pump Station 4 Upgrades Ph 1 (EQ)	0	2023	\$20,000		20,000			54	Inadequate capacity at the station to handle large backwash discharge volumes from SMLWTF. An existing septic tank on site can be converted to an equalization chamber to modulate flows.
	62	Sewer Pump Station 4 Upgrades Ph 2 (Pumps)	1	2024	\$30,000			30,000		54	Increase pump capacity as existing station is only able to support 65 gpm with both pumps running. Limitations on capacity causes the SMLWTF to be shut down to prevent overflows.
	63	SMLWTF - Add Security System to Fire Alarm System	0	2023	\$10,000		10,000			56	Facility is not staffed for 16 hours of each day, and security cameras are not monitored during off hours. A single vandalism or fire event could cause significant damage to critical equipment necessary to provide service to customers.
	64	SMLWTF GAC Pump and associated parts	0	2023	\$25,000		25,000			44	Purchase larger capacity pump, variable frequency drive and associated plumbing to enable full treatment capacities of both GAC units.
	66	Raw Water Intake Standby Generator	0	2023	\$50,000		50,000			50	Permanent standby power generator for the SMLWTF raw water pumps to replace the older portable generator. Will reduce manpower needed to operate the portable generator and provide greater flexibility and automation.
	67	SML Tank - Standby generator	2	2025	\$15,000				15,000	45	Permanent stand by power generator for the SML Water Tank that will maintain various sensors and network service for the area.

Priority Score Color Codes

20	<30
30	30-39
50	40-59
65	60+

CIP Sewer Project Requests



The sewer projects planned for the coming years are mostly located in the Central service area, with some repairs and upgrades at plants in the Lakes service area. Some of the upgrades in the Mariners Landing sewer system have funding previously allocated as work continues on those projects. Other projects that will utilize capital funding over the next few years include:

- Moneta Wastewater Treatment Plant upgrades, including:
 - Replacing ballasts in the second train to allow use of second train should maintenance be needed on first train or flow exceed the capability of a single train
 - Replacement of Biowheel chains on each train
- Central Wastewater Treatment Plant upgrades including:
 - Replacement of older return activated sludge (RAS) pumps
 - Replacement of railings and chains on basins
 - Upgrade at sandfilters from air actuated valves to electric valves that are not temperature dependent for operation
 - Addition of a carport over the sludge dumpster to maintain dry solids for reduced costs in landfill disposal
- Central Wastewater Pump Station upgrades, including:
 - Bank restoration at Pump Station 3, where the creek bank has significant erosion near the overflow pipe
 - Staggered replacement of older pumps in Pump Stations 1, 2, and 3, in coordination with sewer survey and modeling, to reduce maintenance and overflows at each station
 - SCADA implementation for Pump Station 7, in conjunction with the station replacement underway, to allow remote monitoring and trending of station performance
- Mariners Landing sewer system upgrades including:
 - Replacement of control panels that are beginning to experience failures
 - Replacement of rusting bracing at influent basins for safety
 - Replacement of older pumps in various pump stations
 - SCADA implementation for Pump Stations 5 and 9 to allow remote monitoring and alarming of stations that have close proximity to Smith Mountain Lake.



CIP Sewer Project Requests



Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	Residual/Other Funds				Total Priority Score	Notes
							2023	2024	2025		
	68	SEWER PROJECTS									
	74	Operational Needs									
Lakes	75	Moneta WWTP									
	77	Replace magnetic ballasts & wiring harness	2	2025	\$10,000				10,000	43	Replace with electronic ballasts; magnetic ballasts are no longer available per EPA. If flow increases, will be needed immediately.
	79	New chains on Train 1 BLOWHEELS	0	2023	\$20,000		20,000			46	Chains are showing wear and have cracked and had to replace links
	80	New chains on Train 2 BLOWHEELS	2	2025	\$20,000				20,000	38	Chains life is 5 years
Lakes	81	Moneta Pump Stations									
	82	Blower system at pump station 1	0	2023	\$15,000		15,000			54	Reduce/eliminate gases due to low flows. Concrete in wet starting to deteriorate.
Central	83	Central WWTP									
	89	New RAS Pump #1	0	2023	\$55,000		55,000			47	Existing pumps are 20+ years old. The primary settling tank is currently out of service due to broken railing, drives, and chains.
	90	New RAS Pump #2	2	2025	\$55,000				55,000	47	Existing pumps are 20+ years old.
	92	Replace railings and chains on primary basin #1	0	2023	\$20,000		20,000			54	Railings are currently broke and not operating (basin is being bypassed)
	93	Replace railings and chains on primary basin #2	2	2025	\$20,000				20,000	46	This basin is operating and starting to show wear on railings.
	94	Replace the air actuator valves to electric valves on sandfilters	2	2025	\$60,000				60,000	46	Electric valves will allow backwashing filters below freezing temperatures as air lines currently freeze in the winter and prevent the ability to backwash.
	95	Carport to cover sludge dumpster	0	2023	\$8,000		8,000			31	Keep solids dry for less expensive disposal.
Central	96	Central Sewer Pump Stations									
	97	Pump Station 3 Bank Restoration and armoring	0	2023	\$40,000		40,000			59	The creek bank has washed away at the fence line near the overflow pipe.
	98	Pump Station 1 - Replacement Pump #2	1	2024	\$45,000			45,000		55	3 pumps are >20 years old; 2nd phase for replacement. Will reduce overflows.
	99	Pump Station 1 - Replacement Pump #3	1	2024	\$45,000			45,000		55	3 pumps are >20 years old; 3rd phase for replacement. Will reduce overflows.
	105	Pump Station 7 SCADA	0	2023	\$20,000		20,000			52	Allow remote view and ability to trend station performance.
Mariners	108	Mariners WWTP									
	109	New control panels for both Trains	0	2023	\$25,000		25,000			46	Some of the controls are not functioning had contractor inspect and suggested replacing both control panels.
	110	Install bracing on influent basin on Train 1 and 2	0	2023	\$20,000		20,000			51	The old bracing is rusting causing a safety hazard.
Mariners	111	Mariners Pump Stations									
	112	Pump Stations pump replacement	0	2023	\$20,000		20,000			54	This will allow us to start replacing pumps that are 20+ years old.
	113	Pump Station 5 SCADA	0	2023	\$10,000		10,000			57	Allow remote view and ability to trend station performance. If failure occurs, flow will go directly into the lake.
	114	Pump Station 9 SCADA	0	2023	\$10,000		10,000			57	Allow remote view and ability to trend station performance. If failure occurs, flow will go directly into the lake.

Priority Score Color Codes

20	<30
30	30-39
50	40-59
65	60+



CIP Purchase Requests



Several capital purchases are identified for the coming years that will assist with better efficiency in operation, employee safety, and allow for the additional equipment necessary to maintain an expanding service area. Some of these purchases include:

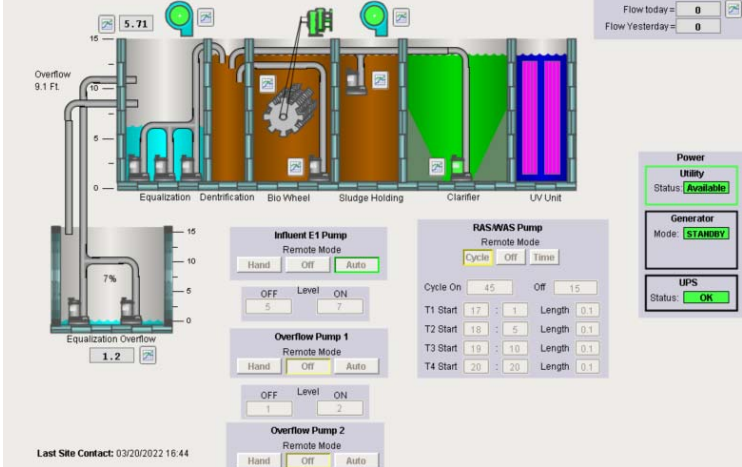
- Internal improvements and upgrades to assist with efficiencies and security, including:
 - Continued implementation phases of a new key system to provide improved site security options and improve appropriate accessibility
 - Bulletproof glass in the Customer Service area, to protect from the potentials for both physical harm and airborne viruses
 - Integration of multiple data sources for efficiencies in reporting and effective data forecasting
 - Updates to the Supervisory Control and Data Acquisition (SCADA) architecture to allow continued expansion and expanded functionality of the SCADA system
- Additional storage for sensitive legal records
- Contracted services for survey in the Central Sewer service area as necessary for modeling the sewer system and providing guidance for pump replacements
- Equipment for maintenance personnel to maintain safety and work efficiencies



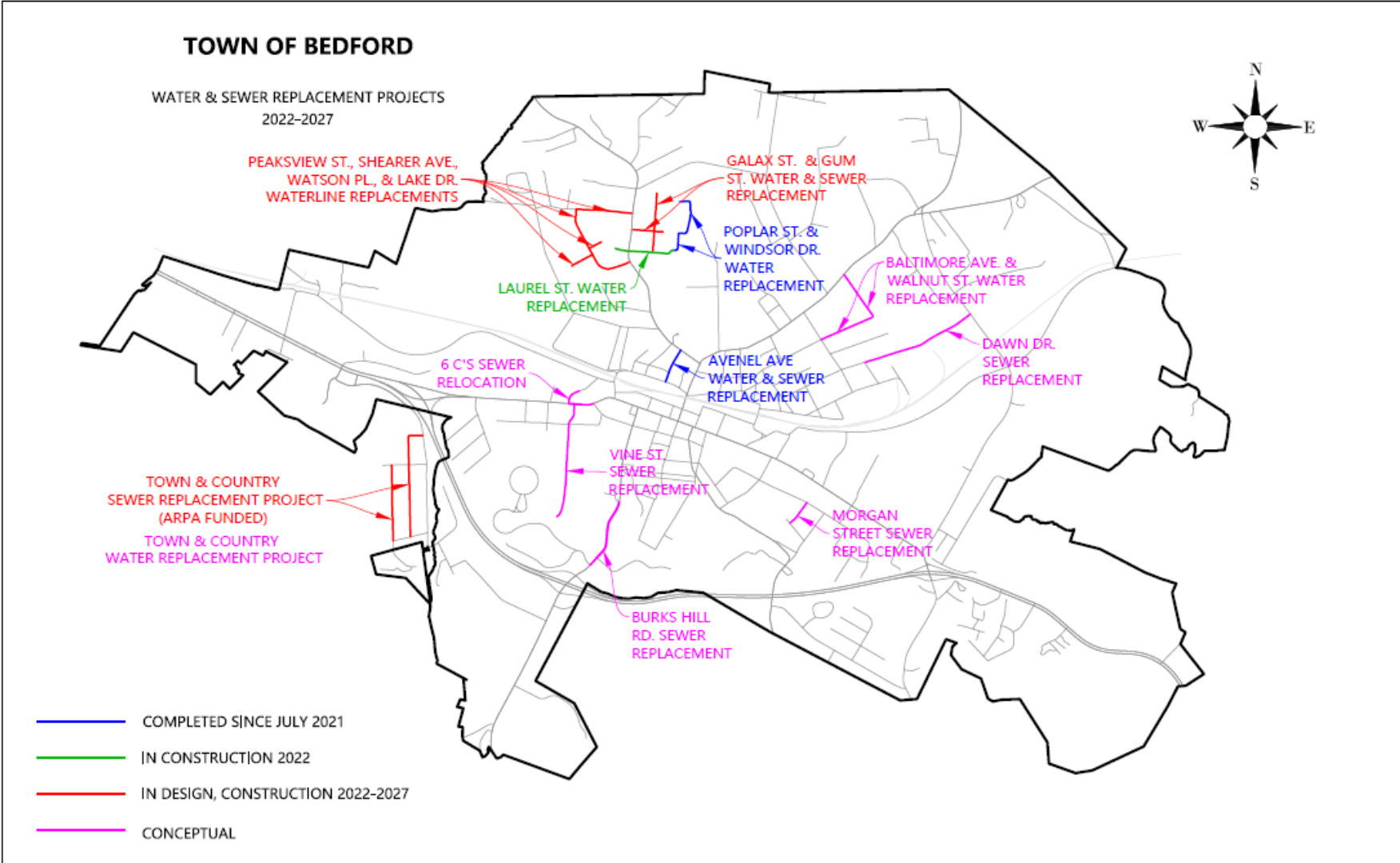
CIP Purchase Requests



Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	Residual/Other Funds				Total Priority Score	Notes
							2023	2024	2025		
	122	PURCHASES									
	123	Admin									
	124	Key System - Phase 2A (Various sites)	0	2023	\$20,000		20,000			59	
	125	Key System - Phase 2B (Various sites)	1	2024	\$30,000			30,000		59	
	126	Key System - Phase 2C (Various sites)	2	2025	\$50,000				50,000	59	
	130	Customer Service									
	132	Bulletproof Glass & Front Desk modifications	1	2024	\$75,000			75,000		54	Bulletproof modifications for the front desk to address safety and security of employees.
	133	Operations									
Various	134	Operations/Billing/Cartegraph Web Application	1	2024	\$55,000			55,000		54	Integration of Operations data, Billing data, and Cartegraph data. Eliminates individual spreadsheets and allows multi-year analysis with data security and validation. May assist with statistical information and revenue forecasting.
Various	135	SCADA Server Architecture Reliability Enhancements	0	2023	\$78,000		78,000			59	Creates a distributed SCADA server network for redundancy and resiliency. Updates to the latest version of Ignition from 7.9 to 8.1, a major update.
Forest	136	New London Tank Standby Generator	0	2023	\$6,000		6,000			49	For communications equipment to have power during a power outage.
	137	Engineering									
	138	Fireproof Safe	0	2023	\$5,500		5,500			46	Additional space needed to store legal records.
Central	140	Central Sewer Survey Phase 1	1	2024	\$100,000			100,000		47	Engineering Term Consultant to perform field survey of Central Sewer to be used for Central Sewer Mapping and Modeling. Will assist in identifying appropriate pumps for replacement at Central pump stations,
	142	Maintenance									
	143	John Deere Skid Steer	0	2023	\$90,000		90,000			36	Skid steer to be used with PM crew for easement management.
	144	DODGE RAM 5500 with dump bed	0	2023	\$90,000		90,000			36	Additional smaller dump truck for line crews to use to ensure availability when needed.
	145	Portable Air Compressor for CIP	2	2025	\$27,000				27,000	36	Air compressor unit for Capital crew to use with Hole Hawg for service installations, as well as concrete and asphalt removal.
	146	Skid Steer concrete saw for CIP	2	2025	\$30,000				30,000	34	Saw attachment for cutting asphalt and concrete to provide better efficiencies, accuracy, and longer cuts.



Replacement and Rehabilitation Projects



As the Authority’s water and sewer systems age, it is necessary to prepare for replacements of older lines to maintain continued service to customers. The majority of water line and sewer line replacement or rehabilitation projects are currently covered through operational set-asides accounts created for these purposes rather than through the Authority’s Capital Improvement Plan. Funding to these set-aside accounts is regularly increased where feasible through the annual operating budget process. The replacement set-aside accounts assist with unexpected emergency replacement projects that may arise, as well as allow for planned replacements through the Authority’s Maintenance crews or contractors.

The majority of current line replacement projects are located within the Central service area. The Central water and wastewater systems have many older lines that are past their normal life span and are a source of many repairs. Much of the current water focus is on replacement of small diameter galvanized waterlines with larger and more durable lines that are able to provide dependable, quality service to these areas. Sewer line replacements are currently focused on older lines in subdivisions that require regular root treatment to prevent overflows, as well as beginning to address many undersized 6-inch gravity sewer lines within the Town service area.

Replacement and Rehabilitation Projects



Paradise Point Waterline Replacement

Project Description:

The BRWA obtained the existing water treatment system and water distribution system in the Paradise Point subdivision on May 25, 2021, previously owned and operated by Paradise Point Corporation. The well system provides service to 24 customers in the subdivision.

The existing water distribution system consists of galvanized and cast iron piping that is nearly 60 years old. Water mains will be replaced along Hales Ford Road, Contentment Lane, and Daniels Court to include placement of new meters at each service connection. The waterline replacements will be completed by a combination of directional drilling services of a contractor and the in-house Capital Crew to ensure costs are minimized for this project.

Estimated Cost: \$105,000

Estimated Length/Size: Over 2,300 LF of 2" & 3"

Status: Construction underway



Capital Improvement Program Priority Ranking



Service Area	LINE ID	Project	Project Costs	Priority Classification	Priority Ranking	Expected Useful Life	Failure Potential	Benefit/Failure	Effect on O&M Costs:	Effect on Revenue	Environmental Impact	Total Priority Score	Notes
				10 - Mandatory 7 - Maintenance 5 - Efficiency 2 - New Service	10 - Very High 7 - High 5 - Medium 2 - Low	10 - 20+ yrs 7 - 10-19 yrs 5 - 5-9 yrs 2 - < 5yrs	10- High 7 - Medium 5 - Low 2 - N/A	10- High 5 - Medium 2 - Low 0 - N/A	10 - Reduce 5 - Unchanged 2 - Increased	10 - Increase 5 - Unchanged 2 - Decrease	10 - High 5 - Medium 2 - Low/ None		
	1	PROJECTS WITH DEBT SERVICE											
Central	2	Energy Saving Project - Central WWTP		7	10	10	10	10	10	5	5	67	Majority of the costs is in the blowers; also includes modifying the plant DO and level controls.
	3	Central Wastewater Treatment Upgrades (VRA)	\$4,243,599										
	4	Central Wastewater Treatment Upgrades (Addtl)	\$1,038,000										Additional capital from residual funds to subsidize VRA loan.
Forest	5	Ivy Creek 5 & 6 Design, Construction & Capacity	\$12,520,000	7	10	10	10	10	10	10	10	77	Payments begin 6 months after construction is complete.
	6	Total Debt Service:	\$16,763,599										
	7	ARPA FUNDED PROJECTS											
	8	Town Projects											
Central	9	Helm Street Tank Replacement	\$2,000,000	7	5	7	5	5	5	5	7	46	Design and construction of a new tank and associated appurtenances.
Central	10	Bell Town Road Waterline Extension	\$500,000	7	5	7	5	5	5	5	7	46	Waterline extension to serve properties affected by Town landfill leachate.
Central	11	Town & Country Subdivision Sewer Replacements	\$2,000,000	7	5	7	5	5	5	5	7	46	Rehabilitation and replacement of sewer lines serving the Town & Country subdivision.
	12	Total ARPA Funding:	\$4,500,000										
	13	WATER PROJECTS											
Countywide	14	Neighborhood Line Extensions (NLE) - Setaside Fund	\$20,000	2	2	10	2	0	5	10	2	33	Consider funding setaside to support NLE construction costs that exceed sum of Project Fees; allows extension of public waterlines where water quality and/or quantity is an issue and at least 70% of owners participate. Supports projects such as Howard Drive, Audobon, and Smugglers Neck.
Forest	15	Blackburn Subdivision NLE	\$400,000	5	5	10	2	2	2	10	2	38	Most of subdivision served with public water through privately maintained booster station. NLE would connect them behind the existing Fox Runn booster station.
Countywide	16	System Loops for Stability											
Forest	17	Everett Road Loop - Otterview to Walkers Crossing	\$600,000	7	5	10	5	2	10	5	2	46	Provides Forest loop and better ability to serve part of Forest system from SML Central.
Forest	18	Goode Waterline Loop - Everett to Ashwood (Rt. 221)	\$2,300,000	5	2	10	5	2	5	10	2	41	Provides loop between Goode and Forest along Route 221.
Forest	19	Cottontown Road Loop - Riley Run to Autumn Run	\$700,000	5	2	10	5	2	5	10	2	41	Improve turnover / circulation in the area and provide loop.
Stewartsville	20	Stewartsville West Loop - Drewrys Hill Road	\$300,000	7	5	10	2	0	5	5	2	36	Provides system loop.
Lakes	21	Whitehouse Road Loop	\$4,500,000	2	2	10	2	2	5	10	2	35	Needed when more than 4 MGD is flowing to Town/Forest from SMLWTF.
	22	Future System Growth											
Lakes	23	Goodview Waterline - SML to Sycamore Ridge	\$3,000,000	2	2	10	2	2	2	10	2	32	Routine flushing would be necessary until adequate number of connections.
Lakes	24	MVS to Valley Mills Ext (Lochwood, Capewood, Trading Post)	\$900,000	2	5	10	5	5	2	10	2	41	To provide water service to the Saunders Point Neighborhood from MVS and eliminate Valley Mills well system.
Lakes	25	SML Phase 5 to Mountain View Shores	\$6,000,000	5	2	10	5	5	5	10	2	44	Will reduce operations requirement at MVS and Valley Mills; will increase flushing needs until sufficient number of customers exist.
	26	System Structures & Tanks											
Boonsboro	27	Fox Runn Booster Station - Structure repairs/replacement	\$25,000	7	10	10	7	5	10	5	2	56	Building is in need of repair and door needs to be replaced for accessibility and security. Due to condition of building, door cannot be replaced without repairs to the structure.
Boonsboro	28	Fox Runn Booster Station Upgrade	\$600,000	7	5	10	7	5	5	5	2	46	Aging station in need of tank replacements and upgraded equipment. If station is upsized, could also serve Blackburn subdivision water system. <i>Contracted costs difficult to justify for number of customers to be served; consider construction in-house upon available staffing.</i> (21 lots served with potential of up to 12 more)
Forest	29	Altha Grove/Cottontown Tank - Mixer	\$25,000	7	10	5	5	10	10	5	5	57	Mixer needed to destratify water and improve DBPs.
Forest	30	Altha Grove Tank Altitude Valve Replacement	\$40,000	7	5	7	7	0	5	5	2	38	Continued issues with existing G-A altitude valve causing tank overflows.
	31	Operational Needs											
Central	32	Forest to Lakes Permanent Booster Station	\$2,300,000	7	7	10	10	5	10	5	2	56	Needed for transferring water from Forest to Central or Lakes, or if serving all of Forest from the Lakes. Provides backup source upon failures on Route 122 water main.
Central	33	Connect Bedford Lowe's to Town Distribution System	\$200,000	7	10	10	5	5	5	5	2	49	Enables full use of the 460 Pump Station when pumping from the Forest system; Lowe's at Shiloh Church Road loses pressure and fire protection in the current configuration.
Forest	34	Lynchburg Entry Point Control Valve (Graves Mill Rd)	\$120,000	5	10	10	2	5	10	5	2	49	First step in being able to control and meter flow at the three major feeds from Lynchburg. Will reduce personnel time from manually adjusting valves, and provide immediate usage data to better manage water purchase from Lynchburg.
Various	35	Lead Service Line (LSL) Inventory	\$50,000	10	10	10	5	5	5	5	10	60	EPA is requiring localities to perform an LSL inventory, replacements and compliance planning as necessary by October 2024. The inventory is the first step towards meeting this requirement.

Capital Improvement Program Priority Ranking



Service Area	LINE ID	Project	Project Costs	Priority Classification 10 - Mandatory 7 - Maintenance 5 - Efficiency 2 - New Service	Priority Ranking 10 - Very High 7 - High 5 - Medium 2 - Low	Expected Useful Life 10 - 20+ yrs 7 - 10-19 yrs 5 - 5-9 yrs 2 - < 5yrs	Failure Potential 10 - High 7 - Medium 5 - Low 2 - N/A	Benefit/Failure 10 - High 5 - Medium 2 - Low 0 - N/A	Effect on O&M Costs: 10 - Reduce 5 - Unchanged 2 - Increased	Effect on Revenue 10 - Increase 5 - Unchanged 2 - Decrease	Environmental Impact 10 - High 5 - Medium 2 - Low/ None	Total Priority Score	Priority Score Color Codes 20 - <30 30 - 30-39 50 - 40-59 65 - 60+	Notes
	36	SCADA Needs												
Various	37	SCADA Hatch Intrusion Switches for Water Tanks	\$25,000	7	10	7	7	10	5	5	2	53	53	For water system security, as identified in the 2021 Risk and Resilience Assessment for 7 BRWA tanks and 3 SML tanks.
Various	38	SCADA Communications Architecture Enhancements	\$20,000	7	10	7	7	10	5	5	2	53	53	Change primary communication at 10 critical water sites from B2X to Verizon VPN Digi Modems for better reliability, particularly during adverse weather events.
Various	39	Sample Hydrants Phase 2A (7)	\$11,000	5	10	5	5	5	5	5	5	45	45	Guarantees accessibility and representative water for compliance samples. (Phased)
Various	40	Sample Hydrants Phase 2B (8)	\$12,000	5	10	5	5	5	5	5	5	45	45	Guarantees accessibility and representative water for compliance samples. (Phased)
Central	41	Central Bulk Fill Station (Central WWTP)	\$40,000	7	10	7	7					31	31	Add water filling station in Central service area and limit operator time to provide service
Central	42	Central WTP Holding Pond Sewer	\$500,000	5	7	7	7	5	10	5	2	48	48	Sewer line from holding ponds to public sewer for surge control release; easements would be required. Operational savings every 4 years for dredging holding ponds.
Central	43	Central Water Upgrades												
	44	Replace filter media / rebuild filters	\$30,000	5	10	5	5	10	10	5	5	55	55	Needed to meet filter optimization and reduce volume discharged to holding ponds; new coagulant may delay the need for media.
	45	Upgrade chemical feeders to liquid chemical (others)	\$15,000	5	10	7	7	5	10	5	2	51	51	Liquid chemicals would eliminate the need for daily elevator use and enhance treatment capabilities. With no dry chemicals added to the water, less sediment would need to be cleaned and hauled.
	46	Overhaul of WTP Elevator	\$150,000	7	10	7	7	5	5	5	7	53	53	Without the elevator to take chemicals to the top floor, the WTP will be difficult to operate. If 122 waterline not in service, an elevator failure could be critical.
	47	Booster station & finished line for customers directly served (Phase 1 Construction - Booster Station)	\$550,000	5	10	10	5	2	5	5	2	44	44	Design complete. Addresses several customers directly connected to plant that are currently affected by plant maintenance. <i>Contractor costs difficult to justify for number of customers to be served; consider performing portions in-house upon additional staff availability.</i> (Approximately 7 lots served)
	48	Booster station & finished line for customers directly served (Phase 2 Construction - Lines)	\$150,000	5	10	10	5	2	5	5	2	44	44	Design complete. Addresses several customers directly connected to plant that are currently affected by plant maintenance. A portion of lines may fall under replacement while other sections will be new to connect to the new booster station. Lines can be installed by BRWA Capital Crew.
	49	Central WTP - Install Security Alarm and Fire Alarm Systems	\$20,000	7	10	10	7	10	5	5	2	56	56	Facility is not staffed for 16 hours of each day, and security cameras are not monitored during off hours. A single vandalism or fire event could cause significant damage to critical equipment necessary to provide service to customers.
	50	Central WTP Rewash valves (2)	\$25,000	7	7	5	5	5	5	5	2	41	41	Replacement of obsolete valves that allow flushing of the filter to waste after a backwash; existing valves do not work consistently.
	51	Central WTP Replacement Turbidimeters (4)	\$20,000	10	10	5	10	5	5	5	2	52	52	Replacement of the 4 existing turbidimeters that monitor particulate water quality at different stages of treatment. The existing units are failing, no longer supported by the manufacturer, and are critical for VDH compliance.
	52	Central WTP Flocculators	\$65,000	7	10	10	10	5	5	5	2	54	54	The 1st flocculator mixer has crumbled apart from rust and is not functional. The 2nd and 3rd are in similar condition. All must be replaced for proper water treatment.
	53	Central WTP Filter Control SCADA Interface (2)	\$35,000	7	10	5	5	0	5	5	2	39	39	The new valves and meters that are being installed can not be controlled using the old pneumatic levers. These interface panels will integrate all the new filter control valves, sensors and meters into one system to replace the old filter table controls which operated the old valves via water pressure.
	54	Central WTP Motor Control Center Replacement	\$100,000	10	10	10	7	5	5	5	2	54	54	Main switch gear is corroded and does not cut power, with other parts of the panel corroded. Failure of this equipment would render the plant inoperable.
	55	Central WTP Streaming Current Monitor	\$15,000	5	10	5	5	5	10	5	2	47	47	Replacement of a manual 50 year old zeta meter used for bench testing to determine optimum chemical dosage, with a streaming current monitor to provide constant monitoring of the treatment effectiveness.
Central	56	Stoney Creek Reservoir - Ph 1 (Repairs & PER)	\$100,000	10	10	10	7	5	5	5	2	54	54	Drain valve and sluice gate require replacement to operate, involving dredging to access both. Drain line is leaking and in need of repairs. A PER will review options and costs to provide access to the outside of the dam for draining the reservoir during an emergency, with design upon completion of PER.
Central	57	Stoney Creek Reservoir - Ph 2 (Repairs / Design)	\$100,000	10	10	10	7	5	5	5	2	54	54	Additional funding to complete repairs and/or design and begin installation of a siphon system to drain the reservoir, removing the need to access the drain valve by water or by way of the dam in an emergency situation. PER and design are needed first to determine construction cost.
Central	58	Stoney Creek Reservoir - Ph 3 (Siphon Construction)	\$200,000	10	10	10	7	5	5	5	2	54	54	Installation of a siphon system to drain the reservoir, removing the need to access the drain valve by water or by way of the dam in an emergency situation. PER and design are needed first to determine construction cost.
Lakes	59	Valley Mills Building addition for chemical addition	\$20,000	5	10	7	7	5	10	5	5	54	54	Due to age and configuration, the waterworks experiences treatment upsets that require the tank to be dumped for dilution. The pH is very low and no pH adjustment is currently provided. The current building size is not feasible for any treatment additions or reconfigurations.

Capital Improvement Program Priority Ranking



Service Area	LINE ID	Project	Project Costs	Priority Classification	Priority Ranking	Expected Useful Life	Failure Potential	Benefit/Failure	Effect on O&M Costs:	Effect on Revenue	Environmental Impact	Total Priority Score	Notes
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SML	60	SML WTF (Costs represent shared portion with WVWA)											
	61	Sewer Pump Station 4 Upgrades Ph 1 (EQ)	\$20,000	7	10	5	10	2	10	5	5	54	Inadequate capacity at the station to handle large backwash discharge volumes from SMLWTF. An existing septic tank on site can be converted to an equilization chamber to modulate flows.
	62	Sewer Pump Station 4 Upgrades Ph 2 (Pumps)	\$30,000	7	10	5	10	2	10	5	5	54	Increase pump capacity as existing station is only able to support 65 gpm with both pumps running. Limitations on capacity causes the SMLWTF to be shut down to prevent overflows.
	63	SMLWTF - Add Security System to Fire Alarm System	\$10,000	7	10	10	7	10	5	5	2	56	Facility is not staffed for 16 hours of each day, and security cameras are not monitored during off hours. A single vandalism or fire event could cause significant damage to critical equipment necessary to provide service to customers.
	64	SMLWTF GAC Pump and associated parts	\$25,000	7	10	5	5	5	5	5	2	44	Purchase larger capacity pump, variable frequency drive and associated plumbing to enable full treatment capacities of both GAC units.
	65	SML New Membrane Modules	\$140,000	7	5	2	5	10	5	5	2	41	Full membrane module replacement of one train or partial replacement of multiple trains. Degredation of the membranes has become less predictable.
	66	Raw Water Intake Standby Generator	\$50,000	7	10	7	7	10	2	5	2	50	Permanent standby power generator for the SMLWTF raw water pumps to replace the older portable generator. Will reduce manpower needed to operate the portable generator and provide greater flexibility and automation.
	67	SML Tank - Standby generator	\$15,000	7	10	7	7	5	2	5	2	45	Permanent stand by power generator for the SML Water Tank that will maintain various sensors and network service for the area.
	68	SEWER PROJECTS											
Forest	69	Lynchburg Sewer Capacity Purchases (Future Growth)											
Forest	70	Ivy Creek 1-4 Capacity (1.5 MGD Avg/ 3.75 Peak)	\$1,900,000	2	5	7	5	0	5	10	2	36	Not necessary right away - currently own 1.29 MGD Peak in Ivy 1 & 2, 1.52 MGD Peak in Ivy 3; 1.89 MGD Peak in Ivy 4.
Forest	71	Lynchburg WWTP Capacity (2.4 MGD)	\$2,800,000	2	5	7	5	0	5	10	2	36	Not necessary until more than 1 MGD needed; \$1.4M for 1.68 MGD, \$1.6M for 1.808 MGD, and \$1.9M for 1.9 MGD.
	72	Future System Growth											
Stewartsville	73	Stewartsville Sewer	\$14,000,000	2	2	10	2	0	2	10	2	30	Minimal water customers currently in this service area. PER completed in 2012 reviewing options, with cheapest capital option as a new WWTP estimated at \$8.5M at time of report.
	74	Operational Needs											
Lakes	75	Moneta WWTP											
	76	New Disk Filter Construction	\$650,000	5	2	7	5	0	5	5	5	34	Equipment quoted in 2017 at \$155k; per Wiley/Wilson, budget \$500k. Needed if septage is accepted at the plant.
	77	Replace magnetic ballasts & wiring harness	\$10,000	10	7	7	10	0	2	5	2	43	Replace with electronic ballasts; magnetic ballasts are no longer available per EPA. If flow increases, will be needed immediately.
	78	Composting sludge from Central Sewer & Moneta WWTP	\$100,000	5	7	7	2	0	10	5	2	38	Low priority; costs unknown
	79	New chains on Train 1 BIOWHEELS	\$20,000	7	10	5	10	2	5	5	2	46	Chains are showing wear and have cracked and had to replace links
	80	New chains on Train 2 BIOWHEELS	\$20,000	7	7	5	5	2	5	5	2	38	Chains life is 5 years
Lakes	81	Moneta Pump Stations											
	82	Blower system at pump station 1	\$15,000	10	10	7	7	5	5	5	5	54	Reduce/eliminate gases due to low flows. Concrete in wet starting to deteriorate.
Central	83	Central WWTP											
	84	Move sandfilter controls from basement to control room	\$35,000	10	7	7	5	0	2	5	2	38	Remove from basement to prevent future water damage
	85	Sand and repaint effluent clarifiers	\$50,000	10	7	7	5	0	2	5	2	38	Paint is chipping and rusting
	86	Sand and repaint thickener units	\$20,000	10	7	7	5	0	2	5	2	38	Paint is chipping and rusting
	87	Digester Access Improvements (SAFETY)	\$100,000	10	7	7	7	0	5	5	2	43	Need ladder with harness system for personnel access; need alternate solution for cleaning; costs unknown.
	88	Lab & Sludge Building Renovations	\$60,000	5	7	10	2	0	5	5	2	36	To upgrade very old facilities. Removes cabinets to provide more space for operators by converting lab to office space & a breakroom; move lab to existing breakroom.
	89	New RAS Pump #1	\$55,000	5	10	5	5	10	5	5	2	47	Existing pumps are 20+ years old. The primary settling tank is currently out of service due to broken railing, drives, and chains.
	90	New RAS Pump #2	\$55,000	5	10	5	5	10	5	5	2	47	Existing pumps are 20+ years old.
	91	New RAS Pump #3	\$55,000	5	7	5	5	10	5	5	2	44	Existing pumps are 20+ years old.
	92	Replace railings and chains on primary basin #1	\$20,000	7	10	7	10	5	5	5	5	54	Railings are currently broke and not operating (basin is being bypassed)
	93	Replace railings and chains on primary basin #2	\$20,000	7	7	7	5	5	5	5	5	46	This basin is operating and starting to show wear on railings.
	94	Replace the air actuator valves to electric valves on sandfilters	\$60,000	7	7	7	5	5	5	5	5	46	Electric valves will allow backwashing filters below freezing temperatures as air lines currently freeze in the winter and prevent the ability to backwash.
	95	Carport to cover sludge dumpster	\$8,000	2	10	5	2	0	5	5	2	31	Keep solids dry for less expensive disposal.

Capital Improvement Program Priority Ranking

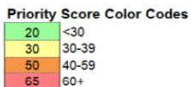


Service Area	LINE ID	Project	Project Costs	Priority Classification	Priority Ranking	Expected Useful Life	Failure Potential	Benefit/Failure	Effect on O&M Costs:	Effect on Revenue	Environmental Impact	Total Priority Score	Notes
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Central	96	Central Sewer Pump Stations											
	97	Pump Station 3 Bank Restoration and armoring	\$40,000	10	10	7	7	5	5	5	10	59	The creek bank has washed away at the fence line near the overflow pipe.
	98	Pump Station 1 - Replacement Pump #2	\$45,000	5	10	5	5	10	5	5	10	55	3 pumps are >20 years old; 2nd phase for replacement. Will reduce overflows.
	99	Pump Station 1 - Replacement Pump #3	\$45,000	5	10	5	5	10	5	5	10	55	3 pumps are >20 years old; 3rd phase for replacement. Will reduce overflows.
	100	Pump Station 2 - Replacement Pump #2	\$45,000	5	10	5	5	10	5	5	10	55	3 pumps are >20 years old; 2nd phase for replacement. Will reduce overflows.
	101	Pump Station 2 - Replacement Pump #3	\$45,000	5	10	5	5	10	5	5	10	55	3 pumps are >20 years old; 3rd phase for replacement. Will reduce overflows.
	102	Pump Station 3 - Replacement Pump #2	\$45,000	5	10	5	5	10	5	5	10	55	3 pumps are >20 years old; 2nd phase for replacement. Will reduce overflows.
	103	Pump Station 3 - Replacement Pump #3	\$45,000	5	10	5	5	10	5	5	10	55	3 pumps are >20 years old; 3rd phase for replacement. Will reduce overflows.
	104	Pump Station 6 SCADA	\$20,000	10	10	7	5	5	5	5	5	52	Allow remote view and ability to trend station performance.
	105	Pump Station 7 SCADA	\$20,000	10	10	7	5	5	5	5	5	52	Allow remote view and ability to trend station performance.
	106	Pump Station 4 Replacement & SCADA	\$290,000	10	5	7	5	5	5	5	5	47	Bring station above ground; water often present in the bottom of the station, presenting concern of safety hazard due to electrical presence.
	107	Pump Station 8 Replacement & SCADA	\$470,000	10	5	10	7	5	5	5	10	57	Smith & Loveless pump station with failing steel wet well.
	108	Mariners WWTP											
	109	New control panels for both Trains	\$25,000	5	10	7	7	5	5	5	2	46	Some of the controls are not functioning had contractor inspect and suggested replacing both control panels.
	110	Install bracing on influent basin on Train 1 and 2	\$20,000	10	10	7	7	5	5	5	2	51	The old bracing is rusting causing a safety hazard.
Mariners	111	Mariners Pump Stations											
	112	Pump Stations pump replacement	\$20,000	5	10	7	7	5	5	5	10	54	This will allow us to start replacing pumps that are 20+ years old.
	113	Pump Station 5 SCADA	\$10,000	10	10	7	5	5	5	5	10	57	Allow remote view and ability to trend station performance. If failure occurs, flow will go directly into the lake.
	114	Pump Station 9 SCADA	\$10,000	10	10	7	5	5	5	5	10	57	Allow remote view and ability to trend station performance. If failure occurs, flow will go directly into the lake.
	115	OFFICE IMPROVEMENTS											
	116	Flooring and Painting for Annex Building	\$70,000	7	5	7	5	0	5	5	2	36	Same work as performed in Admin Building in 2019.
	117	Heated Garage - additional bays	\$150,000	5	7	10	2	0	2	10	2	38	More room needed for additional equipment.
	118	New Building		7	2	10	2	0	2	5	2	30	
	119	Design - Building	\$150,000										Design of new building to address expanding personnel needs.
	120	Office/Maintenance Building Construction	\$2,400,000										New two story building behind Annex building.
	121	Sewer Extension to Office Building	\$600,000	7	5	10	5	2	2	5	5	41	Pressure sewer extension, 6000' from gravity line.

Capital Improvement Program Priority Ranking



Service Area	LINE ID	Project	Project Costs	Priority Classification	Priority Ranking	Expected Useful Life	Failure Potential	Benefit/Failure	Effect on O&M Costs:	Effect on Revenue	Environmental Impact	Total Priority Score	Notes
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	122	PURCHASES											
	123	Admin											
	124	Key System - Phase 2A (Various sites)	\$20,000	5	10	7	10	10	10	5	2	59	
	125	Key System - Phase 2B (Various sites)	\$30,000	5	10	7	10	10	10	5	2	59	
	126	Key System - Phase 2C (Various sites)	\$50,000	5	10	7	10	10	10	5	2	59	
	127	Key System - Phase 3A (Various sites)	\$50,000	5	10	7	10	10	10	5	2	59	
	128	Key System - Phase 3B (Various sites)	\$50,000	5	10	7	10	10	10	5	2	59	
	129	Portable Water Station for Community Events	\$55,000	2	2	10	5	10	5	5	2	41	Water buggy trailer for marketing and public service. Could be used with line breaks.
	130	Customer Service											
	131	Gateway Antenna (1)	\$10,000	5	5	5	7	5	10	5	2	44	Additional antenna to enable access to more remote read meters from the office.
	132	Bulletproof Glass & Front Desk modifications	\$75,000	10	10	10	2	10	5	5	2	54	Bulletproof modifications for the front desk to address safety and security of employees.
	133	Operations											
Various	134	Operations/Billing/Cartegraph Web Application	\$55,000	5	10	10	7	5	10	5	2	54	Integration of Operations data, Billing data, and Cartegraph data. Eliminates individual spreadsheets and allows multi-year analysis with data security and validation. May assist with statistical information and revenue forecasting.
Various	135	SCADA Server Architecture Reliability Enhancements	\$78,000	10	10	7	10	10	5	5	2	59	Creates a distributed SCADA server network for redundancy and resiliency. Updates to the latest version of Ignition from 7.9 to 8.1, a major update.
Forest	136	New London Tank Standby Generator	\$6,000	5	7	10	5	5	10	5	2	49	For communications equipment to have power during a power outage.
	137	Engineering											
	138	Fireproof Safe	\$5,500	7	7	10	5	5	5	5	2	46	Additional space needed to store legal records.
	139	Water & Sewer Master Plan	\$150,000	5	5	7	5	2	5	5	2	36	Comprehensive master planning document has not been created since Consolidation plan would need to coordinate with the Town and County's Comprehensive Plans and zoning.
Central	140	Central Sewer Survey Phase 1	\$100,000	5	5	10	7	5	5	5	5	47	Engineering Term Consultant to perform field survey of Central Sewer to be used for Central Sewer Mapping and Modeling. Will assist in identifying appropriate pumps for replacement at Central pump stations.
Central	141	Central Sewer Survey Phase 2	\$150,000	5	5	10	7	5	5	5	5	47	Central Sewer Mapping and Modeling. Will assist in identifying appropriate pumps for replacement at Central pump stations.
	142	Maintenance											
	143	John Deere Skid Steer	\$90,000	5	10	7	2	0	5	5	2	36	Skid steer to be used with PM crew for easement management.
	144	DODGE RAM 5500 with dump bed	\$90,000	5	10	7	2	0	5	5	2	36	Additional smaller dump truck for line crews to use to ensure availability when needed.
	145	Portable Air Compressor for CIP	\$27,000	5	10	7	2	0	5	5	2	36	Air compressor unit for Capital crew to use with Hole Hawk for service installations, as well as concrete and asphalt removal.
	146	Skid Steer concrete saw for CIP	\$30,000	5	10	5	2	0	5	5	2	34	Saw attachment for cutting asphalt and concrete to provide better efficiencies, accuracy, and longer cuts.
TOTALS: \$72,614,099													



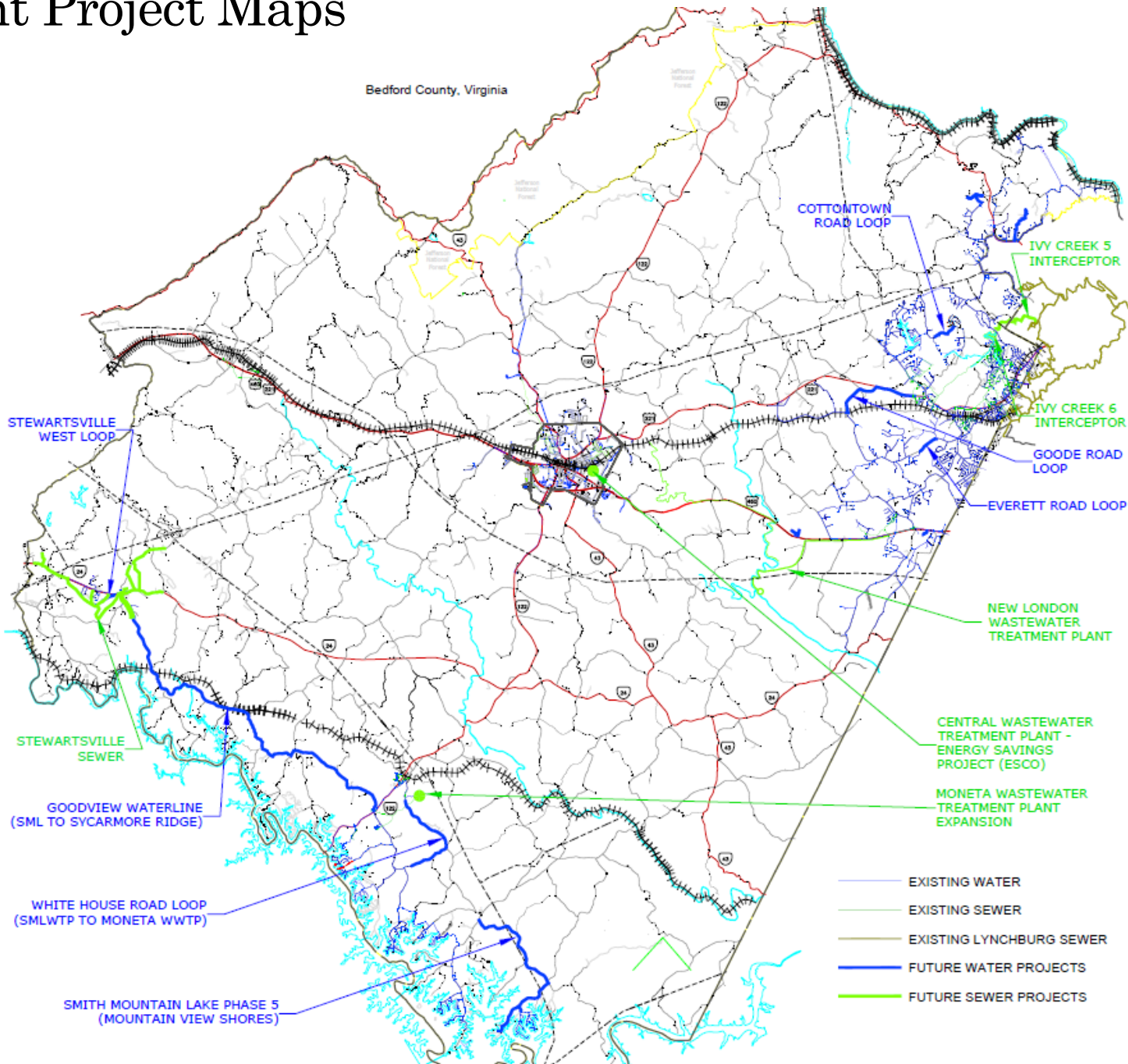
Future Capital Improvement Project Maps

Current CIP Projects Underway:

- Central Wastewater Treatment Plant – Energy Savings Project
- Ivy Creek Sewer Phase 5 & 6

Future CIP Projects (not yet funded):

- Moneta Wastewater Treatment Plant Expansion
- Central Water Treatment Plant Booster Station & Service Line Replacement
- Everett Road Waterline Loop
- Goode Waterline Loop
- Cottontown Road Waterline Loop
- Stewartsville-West Waterline Loop
- White House Road Waterline Loop
- Goodview Waterline – SML to Sycamore Ridge
- Stewartsville Sewer
- Smith Mountain Lake – Phase 5 Waterline



Central WTP Booster Station & Service Line Replacement

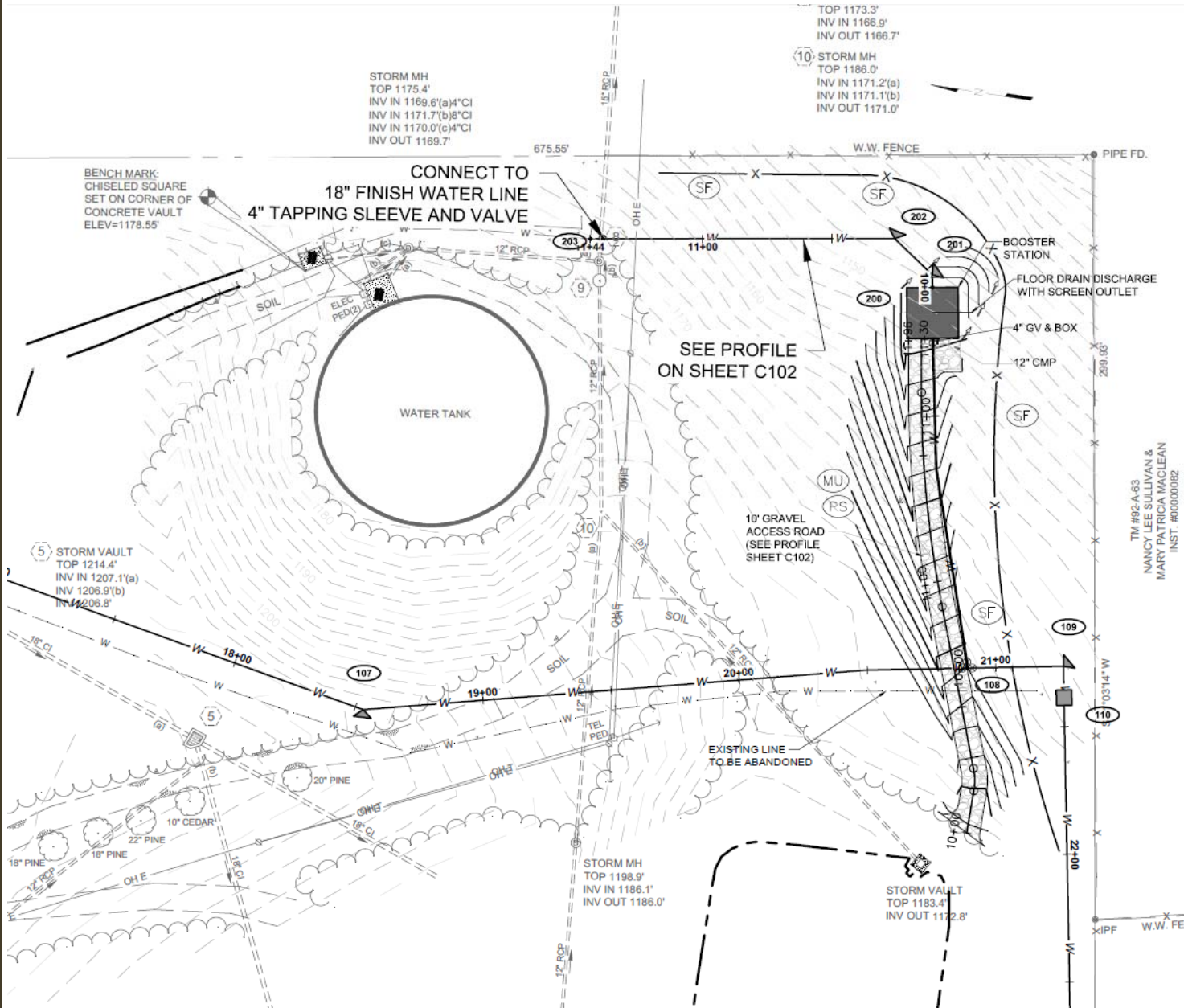
Project Description:

The purpose of this project is to provide improved water service to the area surrounding the Central Water Treatment Plant (WTP). This WTP serves approximately 10 residential connections in the immediate vicinity of the treatment plant through a hydro pneumatic tank located inside of the WTP. Keeping the hydro tank charged for the residential connections greatly restricts or eliminates the available downtime for the water treatment plant. Design has been completed for a small booster station that can serve the existing residential customers from the existing 18" line at the treatment plant. Existing 1-inch and 2-inch service lines to the existing meters will also be replaced with larger diameter lines and connected to the new booster pump station.

Estimated Cost: \$700,000

Estimated Length/Size: Booster Pump Station & ~1,500 LF of 4"

Status: Designed, awaiting funding for construction



Everett Road Waterline Loop

Project Description:

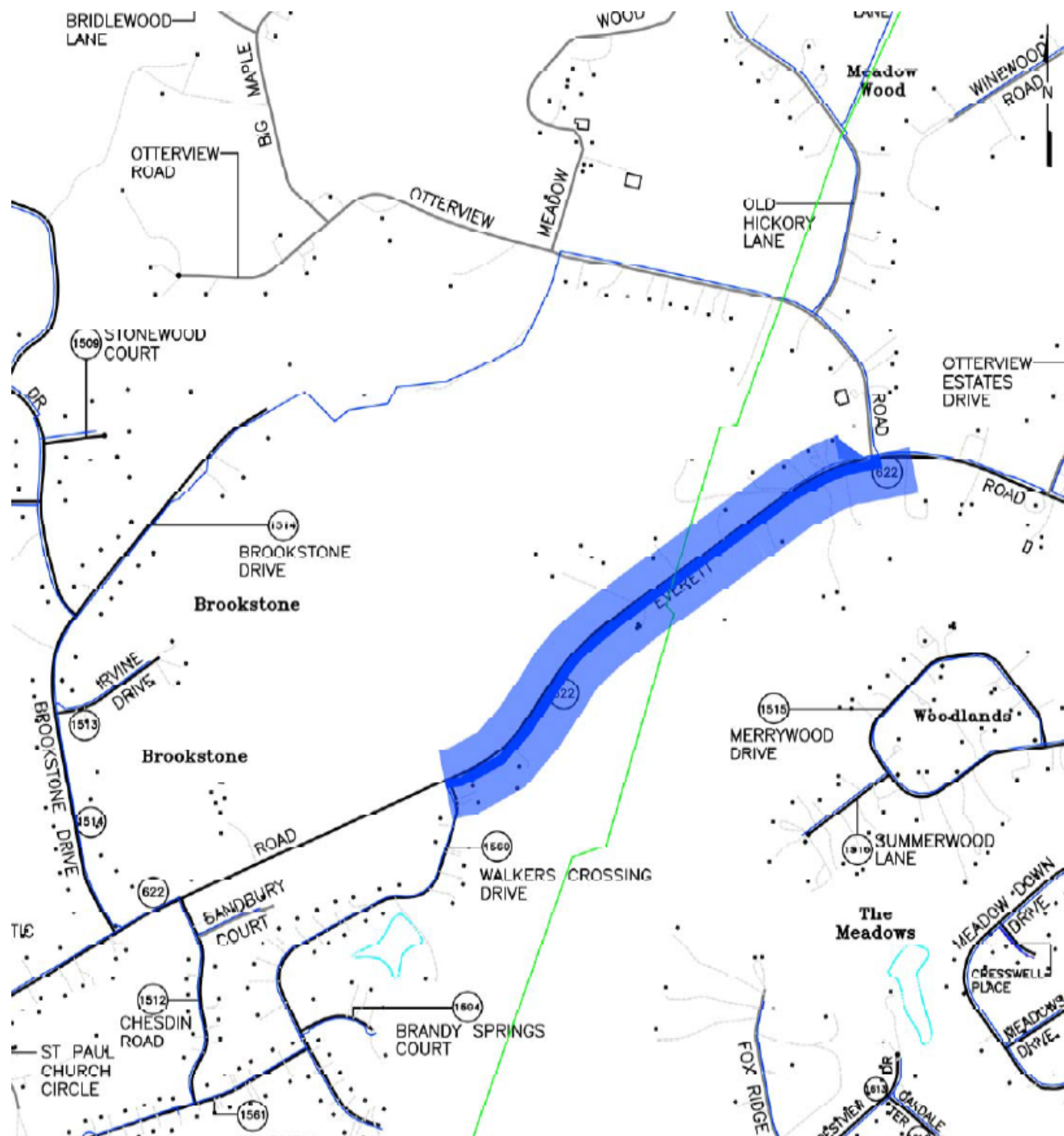
Connection of waterlines along Everett Road between Walkers Crossing Drive and Otterview Drive.

Waterlines have been extended from each direction, leaving a gap in this area along Everett Road. This project finishes a needed waterline loop for the system for greater stability. Currently there are only two water main feeds to this area, and if one must be closed for repair, additional loops are necessary to keep the system stable.

Estimated Cost: \$600,000

Estimated Length/Size: <4,000 LF of 12-inch

Status: Not yet funded



Goode Waterline Loop

Project Description:

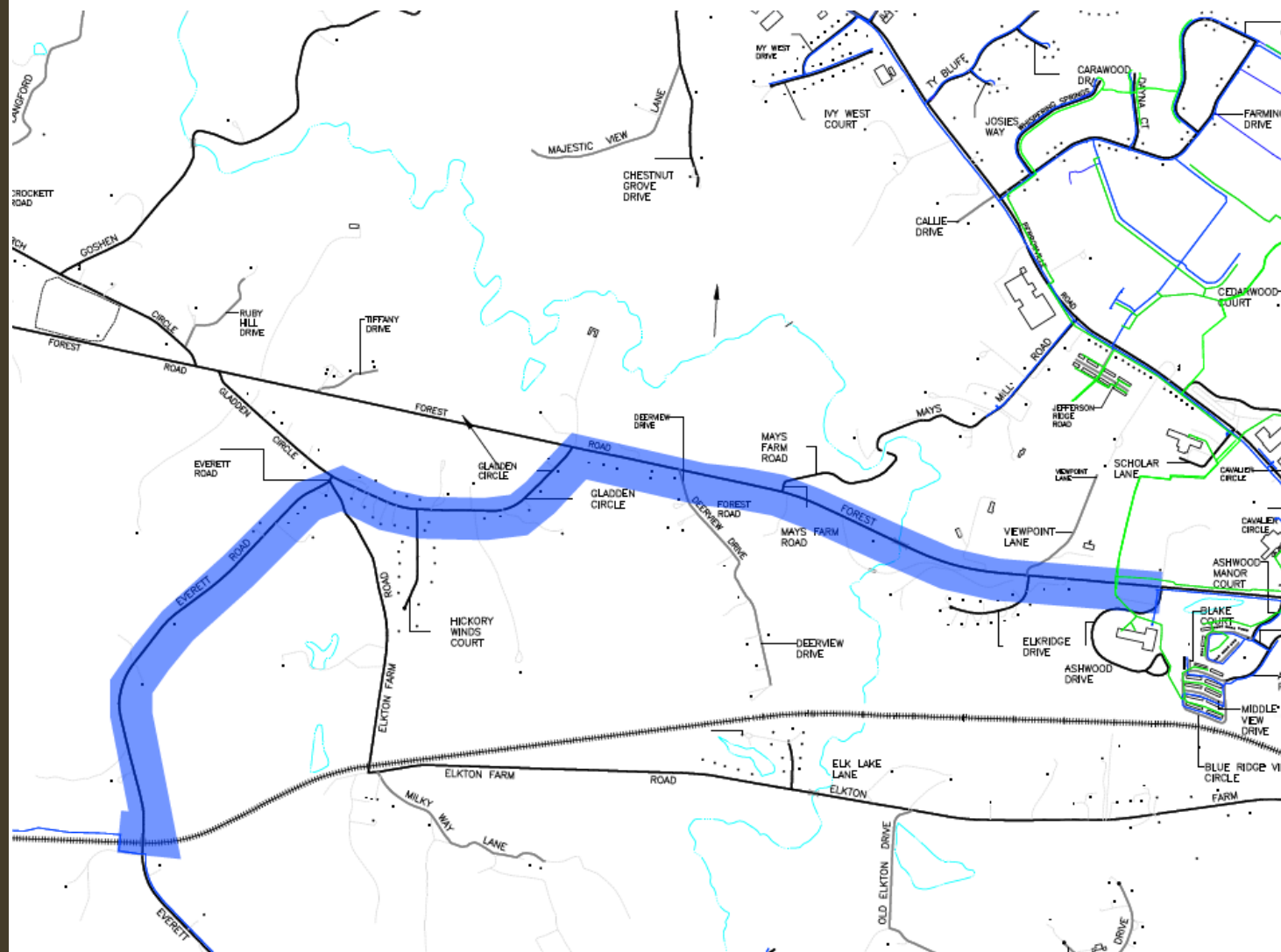
Looping waterlines at Everett Road and Canary Street to Ashwood Drive along Everett Road, Gladden Circle, and Forest Road (Route 221).

Waterlines have been extended from each direction, leaving a gap in this area along Everett Road. This project finishes a needed waterline loop for the system for greater stability. Currently there are only two water main feeds to this area, and if one must be closed for repair, additional loops are necessary to keep the system stable.

Estimated Cost: \$2,300,000

Estimated Length/Size: >3 miles of 12" – 16"

Status: Not yet funded



Cottontown Road Waterline Loop

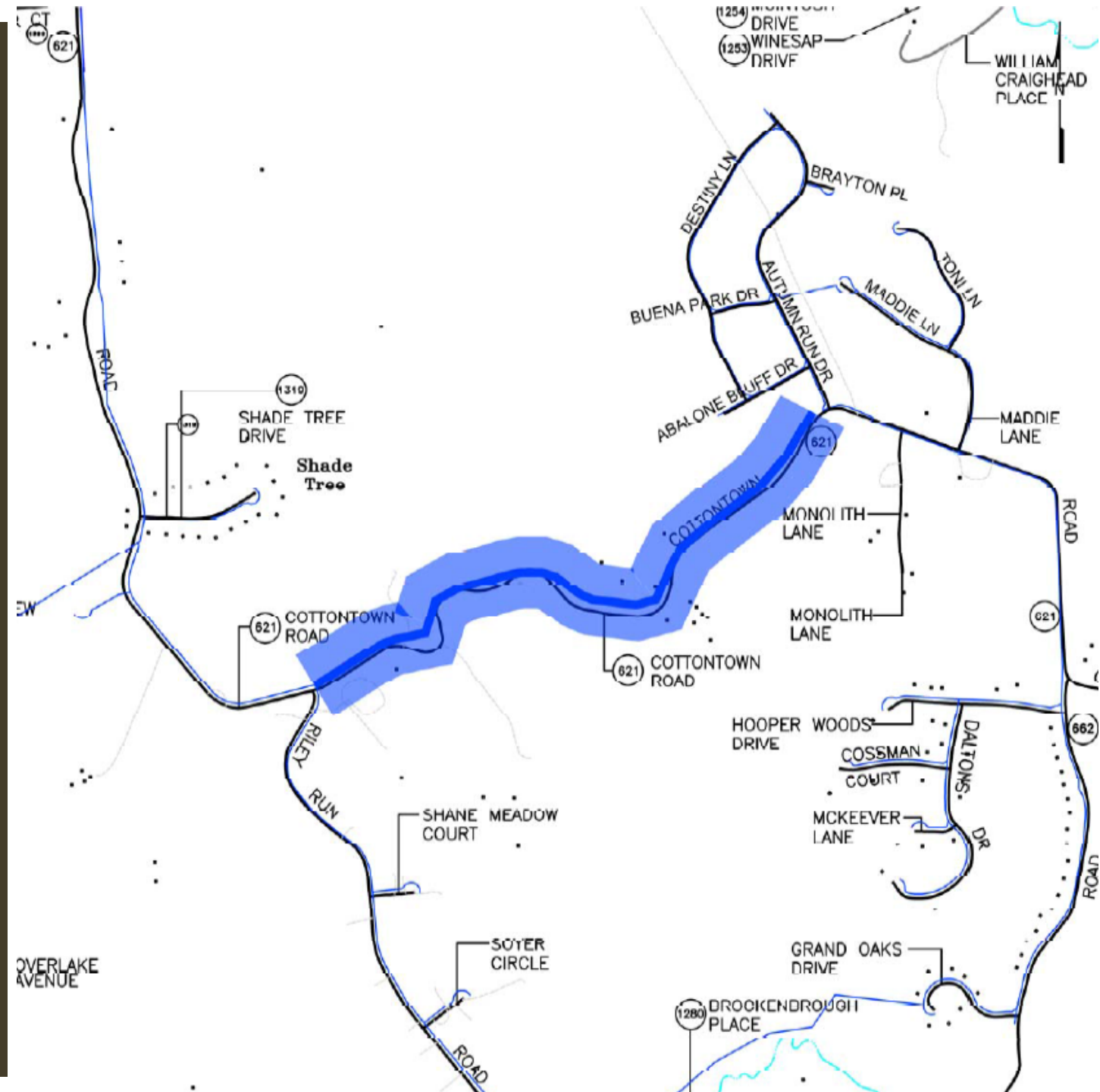
Project Description:

This project will include a waterline extension along Cottontown Road from Riley Run Road to Autumn Run Drive. This water extension will consist of over 4,800 LF looping the existing 12-inch waterline providing more stable pressures, flow, and fire suppression for the surrounding community. This loop will provide water service availability to approximately 15 existing parcels, many with the potential to develop resulting in additional customers.

Estimated Cost: \$700,000

Estimated Length/Size: >4,800 LF of 12-inch

Status: Not yet funded



Stewartsville-West Waterline Loop

Project Description:

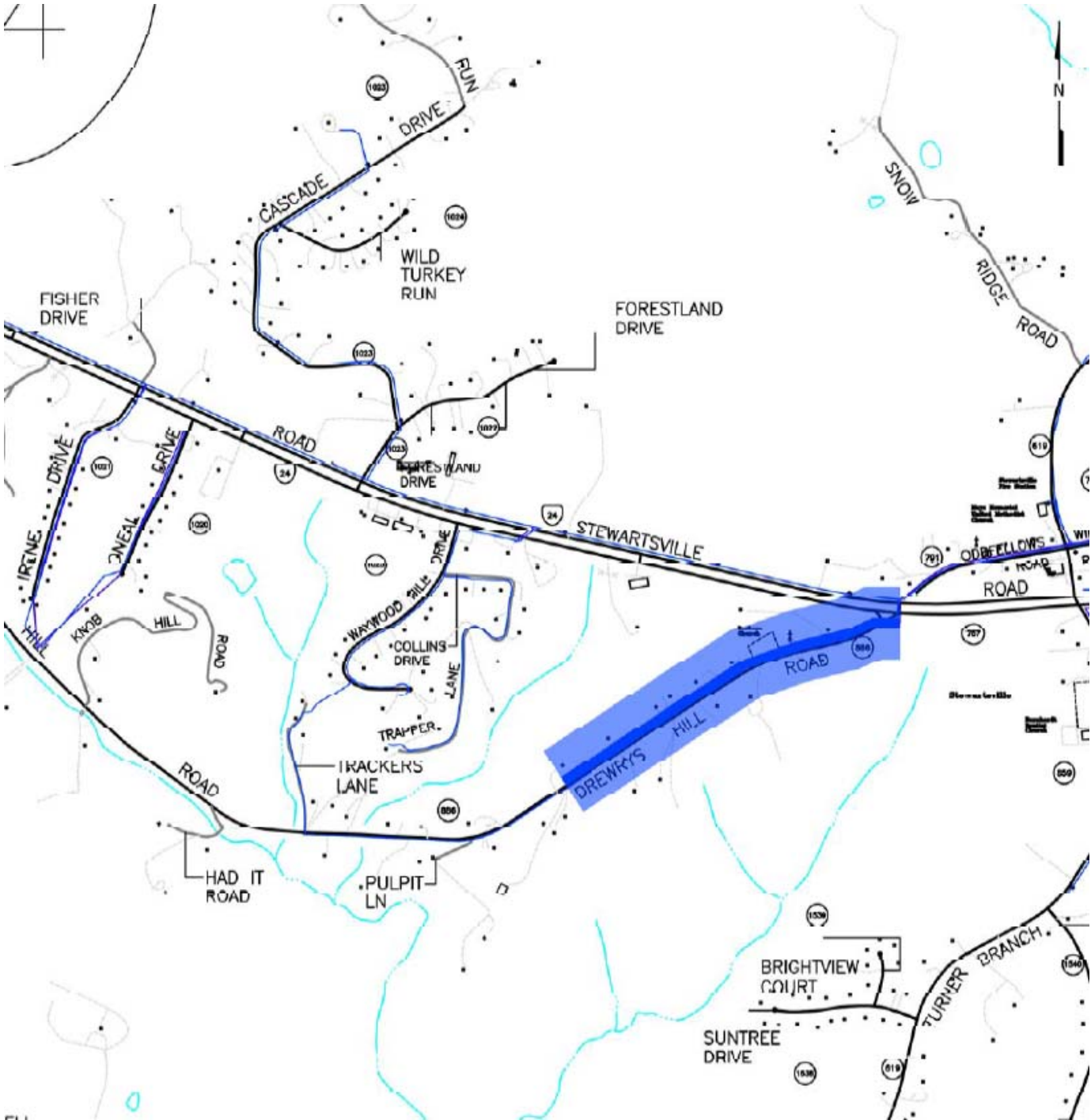
Waterline extension along Drewrys Hill Road from Pulpit Lane to Route 24 – Stewartsville Road.

This project will provide a system loop for the Waywood Hills waterline extensions. With a limited number of customers currently connected to the Stewartsville Consecutive water system, the loop is needed to assist with turnover in the lines and fresh water to the homes.

Estimated Cost: \$300,000

Estimated Length/Size: <2,400 LF of 6-inch

Status: Not yet funded



White House Road Waterline Loop

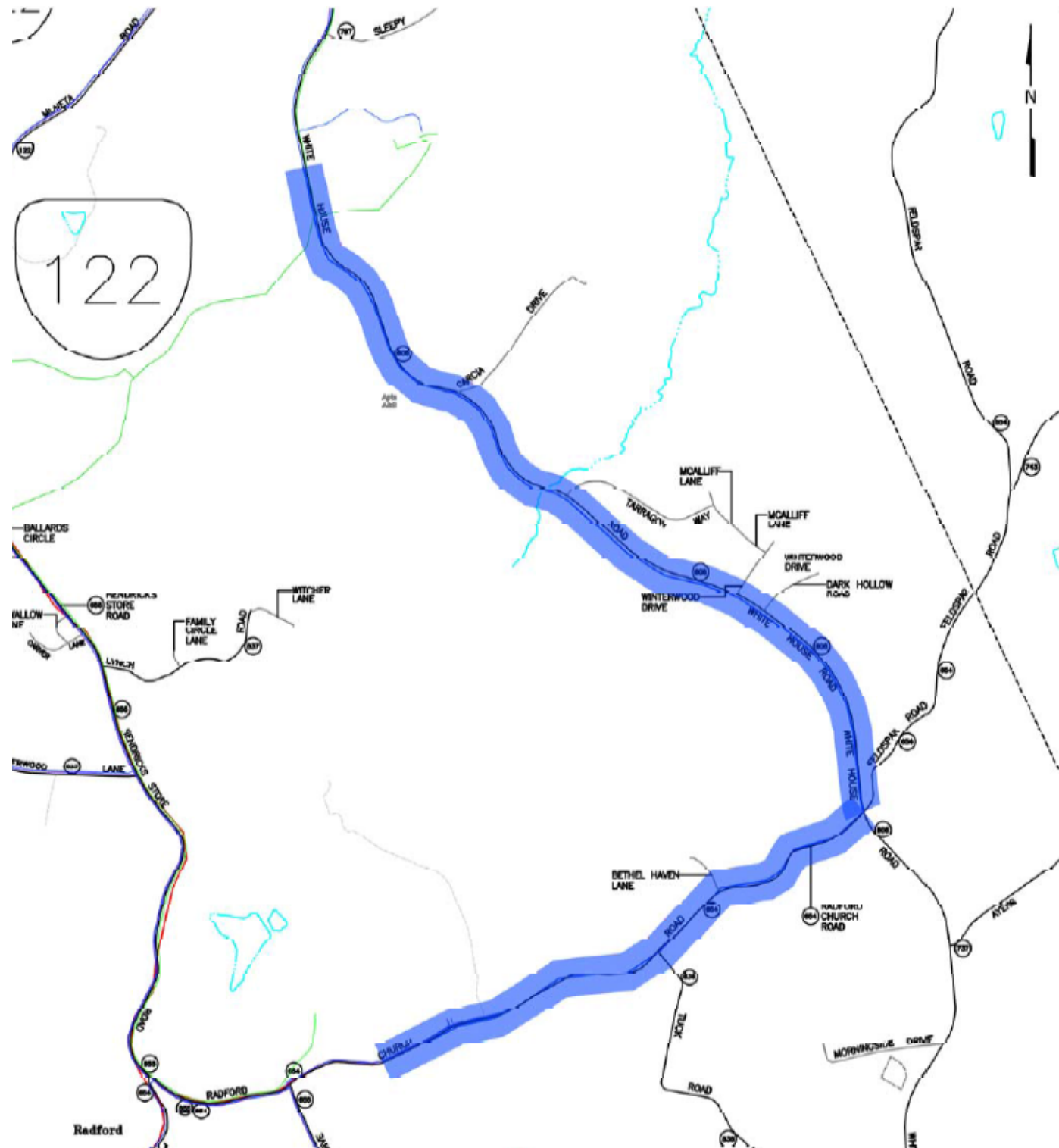
Project Description:

This project will complete the waterline loop from the SMLWTP along Radford Church Road and White House Road to the Moneta WWTP near Moneta Road (Route 122). This waterline loop will provide water service availability to over 100 existing parcels. This loop will also allow for further looping south along White House Road to Smith Mountain Lake State Parkway.

Estimated Cost: \$4,500,000

Estimated Length/Size: >3.5 miles of 8-inch

Status: Not yet funded



Goodview Waterline - SML to Sycamore Ridge

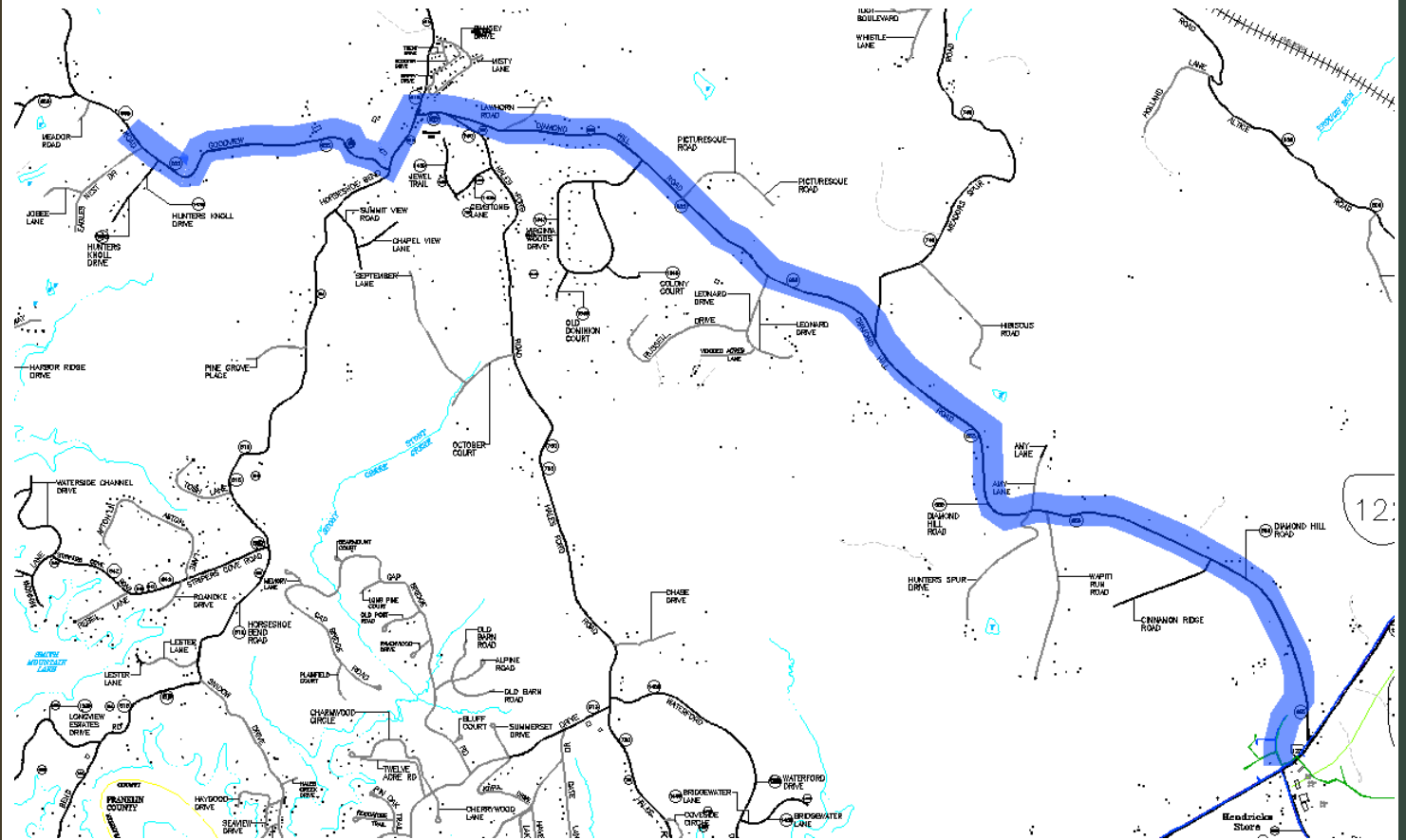
Project Description:

This project will extend waterline from Moneta Road along Diamond Hill Road to Eagles Nest Drive at the Sycamore Ridge subdivision off of Goodview Road. Multiple requests have been made for the waterline extension by current well system owners in the Goodview area. This extension would provide public water to the area and make connections more feasible.

Estimated Cost: \$3,000,000

Estimated Length/Size: >5 miles of 12-inch

Status: Not yet funded



Stewartsville Sewer

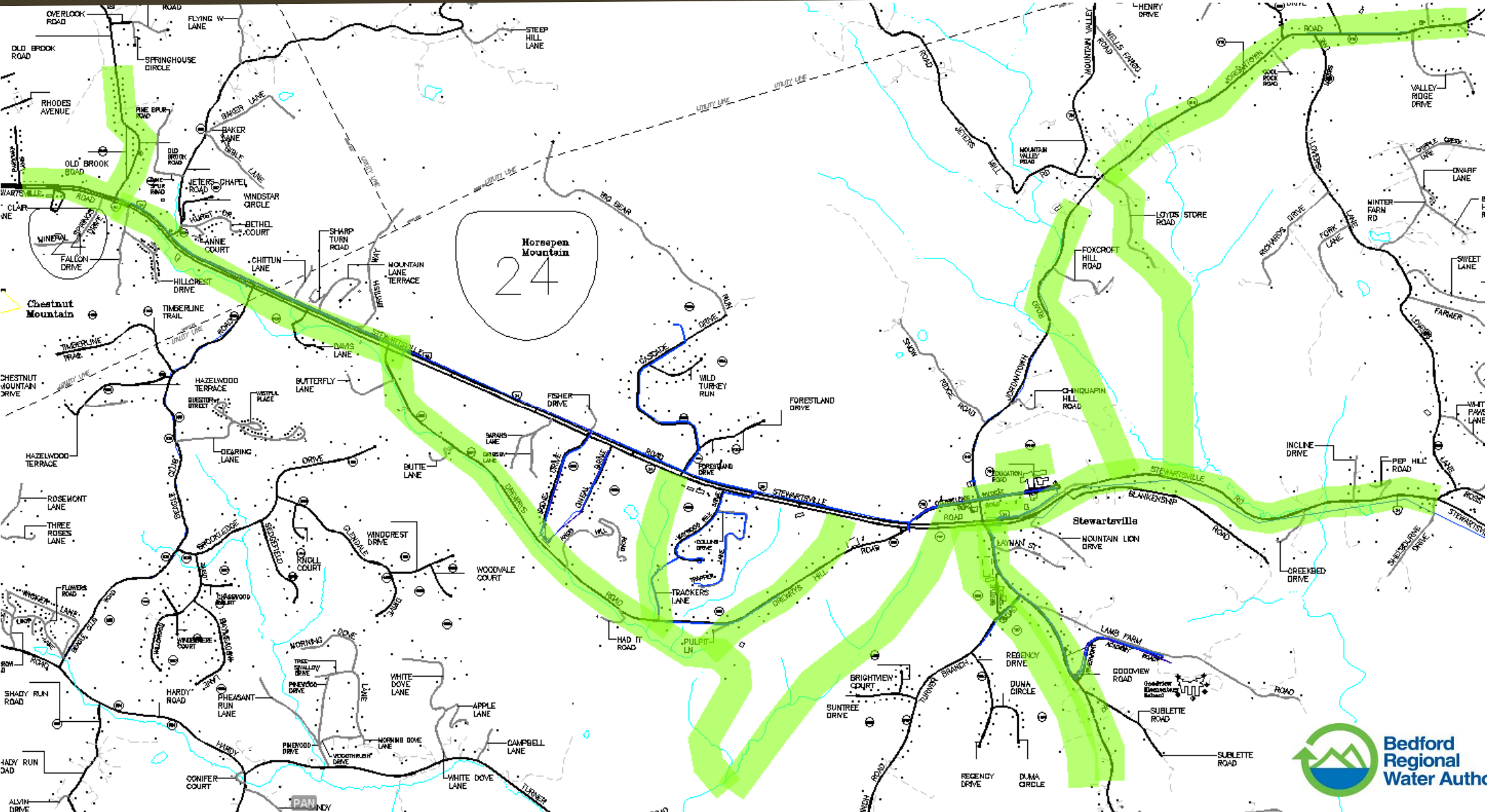
Project Description:

This project would help promote growth of water and sewer customers in the Stewartsville and Goodview areas by providing sewer availability to rural areas currently on septic systems, including residential and commercial customers.

Estimated Cost: \$14,000,000

Estimated Length/Size: TBD

Status: Not yet funded



Smith Mountain Lake Waterline – Phase 5

Project Description:

Waterline extension from Smith Mountain Lake Parkway along Tolers Ferry Road and Trading Post Road to Saunders Point Road.

The BRWA currently operates well systems in the Mountain View Shores and Valley Mills subdivisions that are located in a remote location in comparison to other facilities. Serving these subdivisions through the Mountain View Shores water system would create more cost efficiencies in the Authority's operations, eliminating two well systems and connecting them to the Lakes Central Water System. This area of the County has seen the most growth over the last year, and providing water to the area can increase the growth and tax revenue to the County, making future development around the southeastern portion of Smith Mountain Lake Parkway more feasible.

Estimated Cost: \$6,000,000

Estimated Length/Size: >6.5 miles of 8"-12"

Status: Not yet funded

