CAPITAL IMPROVEMENT PROGRAM

2021 - 2024

Bedford Regional Water Authority

Table of Contents

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.

Bedford Regional Water Authority

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.

Providing Quality Service to Everyone

Our 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.

Bedford Regional Water Authority

Meet Our Board of Directors

Robert Flynn, Chair

Term: 2020-2023

Thomas Segroves, Finance Committee

Term: 2019-2022

Walter Siehien, Policies and Projects Committee

Term: 2019-2022

Michael Moldenhauer, Vice-Chair & Personnel Committee

Term: 2020-2023

Bedford Regional Water Authority

Jay Gray, Policies and Projects Committee

Term: 2021-2024

Kevin Mele, Finance Committee

Term: 2021-2024

Rusty Mansel, Personnel Committee

Term: 2021-2024

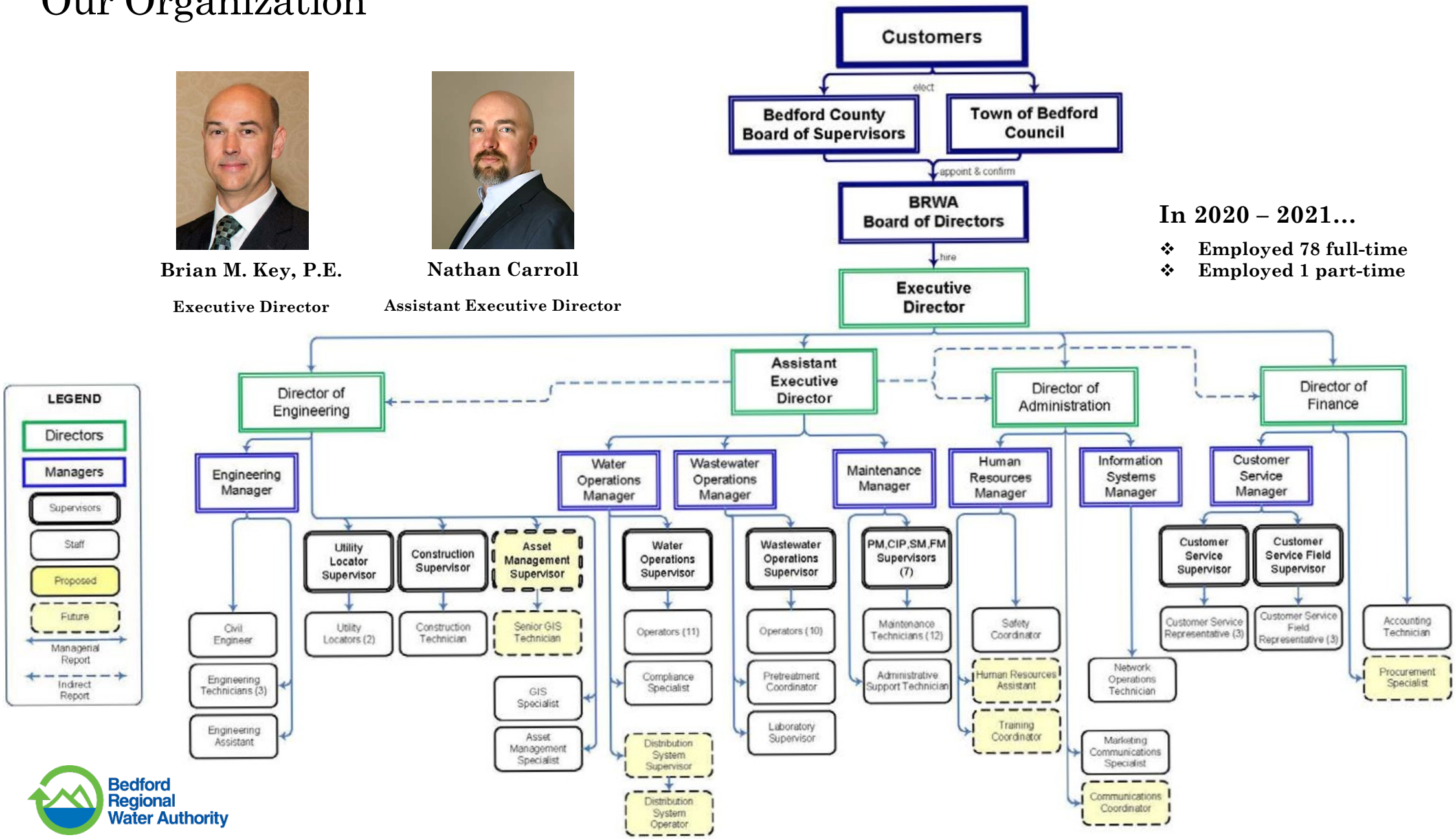
Our Organization

Brian M. Key, P.E.

Executive Director

Nathan Carroll

Assistant Executive Director



In 2020 – 2021…

- Employed 78 full-time
- Employed 1 part-time

Bedford Regional Water Authority

Our Water System

In 2020 – 2021…

- **Had 2 Water Treatment Plants**
- **Had 12 Water Storage Tanks**
- **Had 2 Water Pump Stations**
- **Produced 1.1 Billion Gallons**
- **Had 388 Miles of Water Line**
- **Had 14,753 Total Water Connections**
- **Added 342 new water connections**

Bedford Regional Water Authority

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 ("MDG"). 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 from 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 two (2) independent water systems that use wells as the source and are located in the Mountain View Shores and Valley Mills Crossing 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

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.

Bedford Regional Water Authority

In 2020 – 2021…

- **Had 3 wastewater treatment plants**
- **Had22 sewer pump stations**
- **Treated 708 million gallons**
- **Had 144 miles of sewer line**
- **Had 4,809 total sewer connections**
- **Added 177 new sewer connections**

Capital Improvement Program Executive Summary

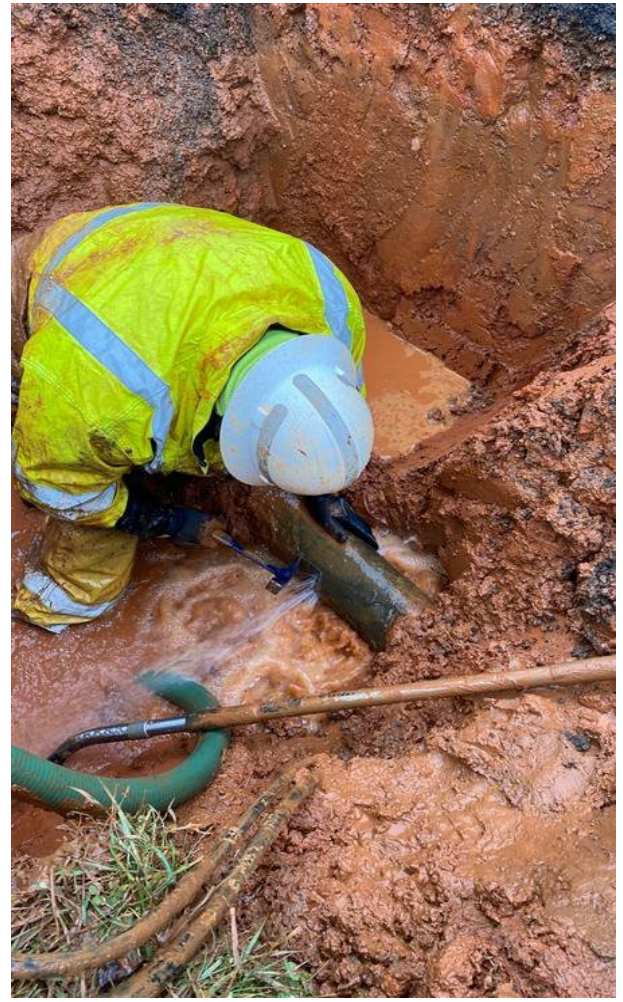
The Bedford Regional Water Authority's Capital Improvement Program (CIP) is intended to ensure that capital improvements are coordinated, timed to maximize the Authority's financial resources, and promote a measured approach to long range asset planning. The Capital Improvement Program is a planning 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 2021-2022 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 and capacity to reduce operational costs and support continued growth in the Forest service area
- Supporting staff growth to enable cost-effective completion of more tasks internally
- General maintenance and security of facilities

The Bedford Regional Water Authority has identified over $60 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 capital funding can be dependent upon customer growth, a capital rate component to the regular user charges should be considered in the future to provide stability in continuing to fund necessary projects.

Funding availability has been based on the anticipated capital funds available for the 2021-2022 Fiscal Year, with future years 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.



Bedford Regional Water Authority

Capital Improvement Program Projects Listing FY22-24

Bedford Regional Water Authority

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	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)	0	2022	$4,243,599			66,930	318,335	319,110	319,372		
	4	Central Wastewater Treatment Upgrades (Addtl)	R		$1,038,000	1,038,000							Additional capital from residual funds to subsidize VRA loan.
	3	**Total Project Cost (Energy Saving Project):**			**$5,281,599**	**1,038,000**		**66,930**	**318,335**	**319,110**	**319,372**		
Forest	5	**Ivy Creek 5 & 6 Design, Construction & Capacity**	1	2023	$12,520,000					84,771	674,661	77	Payments begin 6 months after construction is complete.
	6	Interceptor purchases to 1.0 MGD (Included)			$730,000							43	May consider incremental increase to 0.908 MGD at $510k.
	7	**Total Project Cost (Ivy Creek Sewer):**			**$12,520,000**					**84,771**	**674,661**		
	8	**WATER PROJECTS**											
	20	**System Structures & Tanks**											
Boonsboro	21	Fox Runn Booster Station Upgrade	2	2024	$600,000						600,000	46	Aging station in need of tank replacements and upgraded equipment. If station is upsized, could also serve Blackburn subdivision water system. Contracted costs difficult to justify for number of customers to be served; consider construction in-house upon available staffing. (21 lots served with potential of up to 12 more)
Forest	22	Altha Grove/Cottontown Tank - Mixer	1	2023	$25,000					25,000		57	Mixer needed to destratify water and improve DBPs.
Forest	23	Altha Grove Tank Altitude Valve Replacement	2	2024	$20,000						20,000	38	Continued issues with existing G-A altitude valve causing tank overflows.
Central	25	Helm Street - New Tank Design	2	2024	$100,000						100,000	51	Similar cost for rehab of round tank versus construction of a new tank.
		Total Water System Structures & Tanks:			$745,000					25,000	720,000		
	27	**Operational Needs**											
Central	28	Forest to Lakes Permanent Booster Station	R		$2,000,000	2,000,000						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, and removes need for temporary pump station setup and maintenance.
	31	Sample Hydrants Phase 1 (5)	0	2022	$5,000				5,000			45	Guarantees accessibility and representative water for compliance samples. (Phased)
	32	Sample Hydrants Phase 2 (15)	1	2023	$15,000					15,000		45	Guarantees accessibility and representative water for compliance samples. (Phased)
Central	35	Central Water Upgrades											
	36	Replace control valves (influent, bw, rewash) CARRYOVER	-2	2020	$80,000		80,000					47	Valves are original 1972 hydraulic valves that are leaking and will not close without water supply - no hand option; no replacement parts are available. Replace with electronic controllers and hand wheel backup. Cannot operate due to concerns of further problems and inability to repair.
	37	Replace control valves (waste)	0	2022	$30,000				30,000			47	16" waste valves are plunger type; replacement will require fabricated knife gates with transitions.
	38	Replace filter media / rebuild filters	2	2024	$30,000						30,000	55	Needed to meet filter optimization and reduce volume discharged to holding ponds; new coagulant may delay the need for media.
	39	Upgrade chemical feeders to liquid chemical (Delpac/PaCl)	0	2022	$10,000				10,000			51	Changing coagulant to liquid PACl (DELPAC) will extend filter runs, reduce waste, delay media replacemenet, reduce lime use by 75% and improve water quality. With no dry chemicals added to the water, less sediment would need to be cleaned and hauled.
	41	Overhaul of WTP Elevator	2	2024	$150,000						150,000	53	Without the elevator to take chemicals to the top floor, the WTP will be difficult to operate. With 122 waterline not in service, an elevator failure could be critical.
	42	Booster station & finished line for customers directly served (Construction)	1	2023	$700,000					700,000		44	Design complete. Addresses several customers directly connected to plant that are currently affected by plant maintenance. Contractor costs difficult to justify for number of customers to be served; consider performing in-house upon additional staff availability. (Approximately 7 lots served)

Priority Score Color Codes

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

Capital Improvement Program Projects Listing FY22-24

Bedford Regional Water Authority

Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
													Priority Score Color Codes: 20 <30; 30 30-39; 50 40-59; 65 60+
Central	43	Stoney Creek Reservoir Telemetry	0	2022	$10,000				10,000			54	New broadband tower enables ability to provide telemetry upon equipment being installed.
Central	44	Reservoir Drain Valve Analysis & Contingency Plan	0	2022	$15,000				15,000			57	Drain valve should be operated annually; DCR recommended contingency plan from consultant prior to operation. May analyze use of siphon system to allow access for valve operation without use of boat.
Stewartsville	45	Stewartsville GAC & Rechlorination PER	0	2022	$30,000				30,000			55	Review feasibility of repurposing GAC units from Highpoint to remove DBPs and boost chlorination for adequate residual.
Lakes	46	Bridgewater Bay Pressure Reducing Valve (PRV)	0	2022	$65,000				65,000			62	System pressures of 130-170psi. Piping materials rated to 200 psi, while meters rated at 150 psi. Customers' standard residential PRVs insufficient for pressure and regularly failing.
Lakes	47	Valley Mills Building addition for chemical addition	1	2023	$20,000					20,000		56	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.
Lakes	48	Mountain View Shores Filter Replacement	0	2022	$150,000				150,000			43	The filters are in danger of failure due to serious corrosion. Price is for full replacement.
	49	Paradise Point SCADA	0	2022	$15,000				15,000			51	Provide remote monitoring of well system; included in rate evaluation for Paradise Point.
Lakes	50	SML WTF (Costs represent shared portion with WVWA)											
	51	SCADA Upgrades to tie in existing equipment	0	2022	$10,000				10,000			48	Any monitor or chemical additions must be added to SCADA; however, all input blocks are full. New rail cabinet and I/O equipment along with programming is needed. Already have equipment waiting to be added.
	53	PACI System Completion	0	2022	$5,000				5,000			48	PACI has been determined to be beneficial for organics removal. The system needs to be finalized per VDH requirements including plans, specs and additional equipment.
	54	Sewer Pump Station 4 Upgrades	1	2023	$20,000					20,000		54	Upgrades may be needed to pumps and piping to support volume of flow from WTP; can only support 65 gpm with both pumps running. Funding to cover conversion of septic tank for use as EQ; FM ARV replacements and disk filter work should result in improvements.
		Total Water Operational Needs:			$3,360,000	2,000,000	80,000		345,000	755,000	180,000		
	55	**SEWER PROJECTS**											
	61	**Operational Needs**											
Lakes	62	Moneta WWTP											
	64	Replace magnetic ballasts & wiring harness	2	2024	$10,000						10,000	43	Replace with electronic ballasts; magnetic ballasts are no longer available per EPA. If flow increases, will be needed immediately.
Central	66	Central WWTP											
	67	Concrete repairs on anoxic and pre-air tanks	0	2022	$20,000				20,000			31	Repair cracks
	72	Lab & Sludge Building Renovations	1	2023	$60,000					60,000		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.
	73	New RAS Pump	1	2023	$20,000					20,000		45	Existing pumps are 20+ years old. The primary settling tank is currently out of service due to broken railing, drives, and chains.
Central	74	Central Sewer Pump Stations											
	75	Pump Stations 1, 2, 3 - Security Cameras	0	2022	$5,000				5,000			41	Allow operators to view station remotely for overflow concerns or security issues.
	76	Pump Station 1 - Soft starts and new control panel	0	2022	$50,000				50,000			54	Reduce water hammer effect on receiving force main.
	77	Pump Station 1 - Replacement Pump #1	0	2022	$45,000				45,000			55	3 pumps are >20 years old; 1st phase for replacement. Will reduce overflows.
	78	Pump Station 1 - Replacement Pump #2	2	2024	$45,000						45,000	55	3 pumps are >20 years old; 2nd phase for replacement. Will reduce overflows.
	80	Pump Station 2 - Replacement Pump #1	0	2022	$45,000				45,000			55	3 pumps are >20 years old; 1st phase for replacement. Will reduce overflows.

Capital Improvement Program Projects Listing FY22-24

Bedford Regional Water Authority

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
													Priority Score Color Codes: 20 <30; 30 30-39; 50 40-59; 65 60+
	81	Pump Station 2 - Replacement Pump #2	1	2023	$45,000					45,000		55	3 pumps are >20 years old; 2nd phase for replacement. Will reduce overflows.
	83	Pump Station 3 - Replacement Pump #1	0	2022	$45,000				45,000			55	3 pumps are >20 years old; 1st phase for replacement. Will reduce overflows.
	86	Pump Station 4 SCADA	1	2023	$10,000					10,000		52	Allow remote view and ability to trend station performance.
	91	Pump Station 10 SCADA	2	2024	$10,000						10,000	52	Allow remote view and ability to trend station performance.
	92	Pump Station 4 Replacement	1	2023	$235,000					235,000		47	Bring station above ground; water often present in the bottom of the station, presenting concern of safety hazard due to electrical presence.
	93	Pump Station 5 Replacement	-1	2021	$186,000			186,000				65	Smith & Loveless pump station with failed steel wet well, plug and check valve.Replacing in 20-21 as part of emergency repair of complete failure.
	94	Pump Station 7 Replacement	0	2022	$186,000				186,000			54	Smith & Loveless pump station with failing steel wet well.
	95	Pump Station 8 Replacement	2	2024	$186,000						186,000	57	Smith & Loveless pump station with failing steel wet well.
Lakes	96	Mariners Landing Sewer Upgrades											
	97	WWTP Upgrades	R		$103,000	103,000						67	Various upgrades identified with system transfer.
	98	WWTP Upgrades (Additional)	0	2022	$40,000				40,000			67	Additional funding needed to complete the rebuild of both BIOWHEELS and new BIOWHEEL gearbox.
	99	Pump Stations 1 & 2 SCADA	R		$40,000	40,000						54	Allow remote view and ability to trend station performance.
	100	Pump Station 3 SCADA	0	2022	$10,000				10,000			51	Allow remote view and ability to trend station performance.
	101	Pump Station 4 SCADA	0	2022	$10,000				10,000			51	Allow remote view and ability to trend station performance.
		Total Wastewater Operational Needs:			$1,406,000	143,000		186,000	456,000	370,000	251,000		
	102	**OFFICE IMPROVEMENTS**											
	103	Admin Parking Lot [CARRYOVER]	-2	2020	$300,000		300,000					49	Parking lot redesigned to north side of facilities; changes during design related to property lines & layout increased parking area potential and overall costs.
	104	Admin Parking Lot - Public & Employee Lot	2	2024	$300,000						300,000	49	Additional grading and paving planned from initial design to maximize proposed parking. May be moved to 2024-2025 fiscal year; must be completed prior to permit expiration in early 2026.
	105	Administration Offices - New Gate	0	2022	$28,000				28,000			46	The gate is not functioning properly due to being too heavy for the current set-up, creating accessibility and security concerns.
	106	Administration Offices - Surface coat rear parking lot	0	2022	$10,000				10,000			38	Need to have the cracks filled, surface treated, and new lines painted on the rear parking lot behind the Annex Building to prevent complete pavement failure.
	108	Heated Garage - additional bays	2	2024	$75,000						75,000	38	More room needed for additional equipment.
	113	South Mobile Roof Replacement/Repair	0	2022	$6,000				6,000			45	Mobile near heated garage. Roof was not replaced upon moving the mobile and moisture is causing damage to files stored inside. If roof determined in adequate shape, may build diversion above mobile to divert stormwater runoff away from base of mobile. Addressing source of water will provide protection to files currently stored and allow file cabinets from Board Room to be moved upon files being scanned.
	114	North Mobile Roof Replacement/Repair	1	2023	$6,000					6,000		42	Mobile near inventory building. Roof was not replaced upon moving the mobile and moisture issues may need to be addressed prior to use of the building.
		Total Office Improvements:			$725,000		300,000		44,000	6,000	375,000		
	115	**LINE REPLACEMENT & REHAB PROJECTS [Operational Set-asides]**											Most projects to be completed with Replacement Set-aside funds; due to volume of sewer projects in Town, additional funding may be required at times through CIP funds.
	116	**PURCHASES**											
	117	Admin											
	118	Key System - Phase 1a (Admin & Annex-ext/pub)	0	2022	$50,000				50,000			59	Replacement key system for all exterior and public area doors on site. Adds security.
	119	Key System - Phase 1b (Admin & Annex-interior)	0	2022	$50,000				50,000			59	Replacement key system for all interior doors on site.
	120	Key System - Phase 2 (Various sites)	1	2023	$100,000					100,000		59	
	121	Key System - Phase 3 (Various sites)	2	2024	$100,000						100,000	59	
	122	Website Redesign	0	2022	$65,000				65,000			59	BRWA website currently on an outdated platform that limits and prohibits some functionality of the site. Site will no longer be supported after April 2021.
		Total Purchases Administration & Inofsys:			$365,000				165,000	100,000	100,000		

Capital Improvement Program Projects Listing FY22-24

Bedford Regional Water Authority

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
	124	Customer Service											
	125	Billing Software - InHance Impresse	0	2022	$79,600				79,600			67	BillMaster no longer supported. InHance Impressa part of same parent company for smooth transition.
	126	Gateway Antenna (1)	1	2023	$10,000					10,000		62	Additional antenna to enable access to more remote read meters from the office.
	127	Bill Pay Kiosk	0	2022	$33,275				33,275			40	To allow customers to pay their bill when the office is closed (whether through pandemic, after-hours, or weekends). The kiosk will allow the customer to pay with cash, by check or credit/debit card and receive a receipt.
		Total Purchases Customer Service :			$122,875				112,875	10,000			
	128	Water Operations											
	129	Leak Detection Equipment (linked to new position)	0	2022	$30,000				30,000			36	To be used by new Water Operations distribution position.
	130	Vehicle for New Water Operations Position	0	2022	$26,050				26,050			28	Associated with personnel request.
		Total Purchases Water Operations:			$56,050				56,050				
	131	Maintenance											
	132	Aluminum Trench Boxes (2)	0	2022	$18,000				18,000			44	Wider and lighter trench boxes with 4 sides instead of 2. Beneficial where sloping not required. Better protection for employees and within VOSH standards. Rental costs to obtain necessary trench boxes until these are purchased.
	133	Mini Excavator	0	2022	$50,000				50,000			39	Currently have 4 line crews and only 3 excavators, including one that should be sold since it was replaced; includes John Deere 35G w/ thumb & angle blade.
	134	Mini Excavator - Trailer	0	2022	$7,000				7,000			39	Hooper trailer to carry requested mini-excavator.
	135	Mini Excavator - Rock hammer	0	2022	$9,000				9,000			36	Rock hammer to fit new excavator; each excavator has its own.
	136	Plate compactor - excavator attachment	0	2022	$8,000				8,000			41	Plate compactor will help compaction, especially around roadways. Can be used with existing equipment. To be used where handheld jumping-jack compactor cannot be used. Reduces time and labor necessary for compacting backfill.
	137	Skid Steer Attachment-Bush Hog	0	2022	$15,000				15,000			39	Assists with easement clearing; provides access into smaller areas than tractor.
	138	Skid Steer Attachment-Power Rake	0	2022	$14,000				14,000			41	More efficient and smoother cleanup than manual rakes.
	139	Skid Steer Attachment - Sewer Clearing Easement Machine	0	2022	$20,000				20,000			38	
	140	Dump Truck (single Axle)	0	2022	$120,000				120,000			38	Larger dump truck to dedicate to CIP crew construction; crew typically requires use of 2 dump trucks of the 4 currently owned.
	141	New FM Employee-Dodge RAM 2500 w\ utility body	0	2022	$52,000				52,000			41	Vehicle required for additional employee allotted for Facilities Maintenance.
	142	New FM Employee - Tools for new vehicle	0	2022	$15,000				15,000			41	Tools to outfit new Facilities Maintenance vehicle.
	143	Utility Body & Ladder Rack for Supervisor Truck	0	2022	$16,000				16,000			41	2014 RAM 2500 converted to supervisor vehicle and needs associated utility body installed.
	144	Preventative Maintenance											
	145	Push Camera Tilt/Pan Head for existing unit	0	2022	$13,000				13,000			41	This will replace the existing camera head, providing pan/tilt capabilites required for inspecting laterals.
	146	Diamond blade can root cutters	0	2022	$13,000				13,000			47	These cutters will allow root removal, reducing back-ups. Will inflict less damage to aging sewer system.
		Total Purchases Maintenance:			$370,000				370,000				
		TOTALS:			**$8,187,925**	**3,181,000**	**380,000**	**186,000**	**1,548,925**	**1,266,000**	**1,626,000**		

Priority Score Color Codes

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

Capital Improvement Program Departmental Summary

Bedford Regional Water Authority

Project	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024
PROJECTS WITH DEBT SERVICE							
Total Project Cost (Energy Saving Project):	**$5,281,599**	**1,038,000**		**66,930**	**318,335**	**319,110**	**319,372**
Total Project Cost (Ivy Creek Sewer):	**$12,520,000**					**84,771**	**674,661**
OTHER PROJECTS THROUGH FY 2024							
Total Water System Structures & Tanks:	$745,000					25,000	720,000
Total Water Operational Needs:	$3,360,000	2,000,000	80,000		345,000	755,000	180,000
Total Wastewater Operational Needs:	$1,406,000	143,000		186,000	456,000	370,000	251,000
Total Office Improvements:	$725,000		300,000		44,000	6,000	375,000
Total Purchases Administration & Inofsys:	$365,000				165,000	100,000	100,000
Total Purchases Customer Service :	$122,875				112,875	10,000	
Total Purchases Water Operations:	$56,050				56,050		
Total Purchases Maintenance:	$370,000				370,000		
Totals:	**$8,187,925**	**3,181,000**	**380,000**	**186,000**	**1,548,925**	**1,266,000**	**1,626,000**

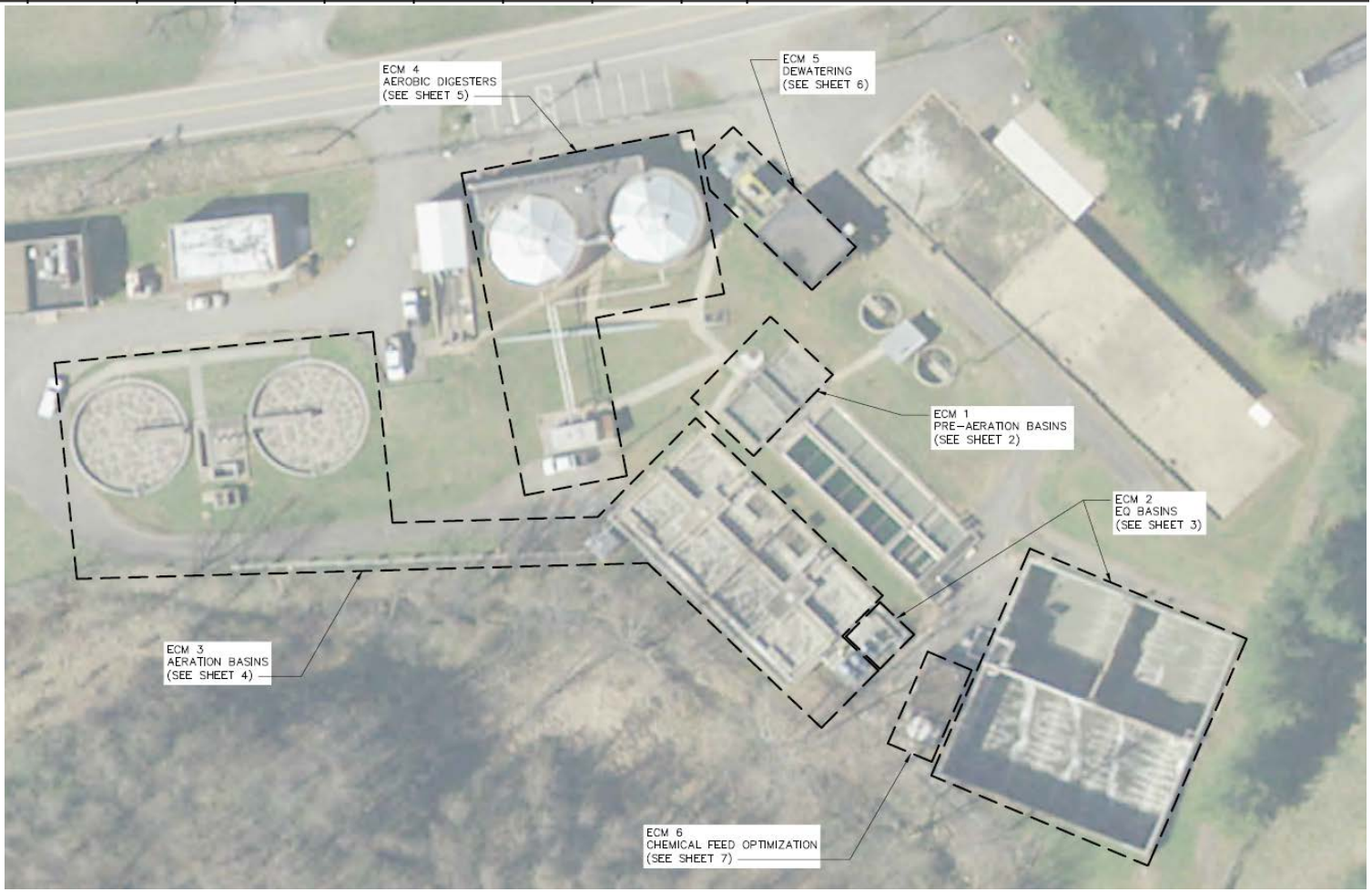
CIP Project Requests with Debt Service

Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	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)	0	2022	$4,243,599			66,930	318,335	319,110	319,372		
	4	Central Wastewater Treatment Upgrades (Addtl)	R		$1,038,000	1,038,000							Additional capital from residual funds to subsidize VRA loan.
	3	Total Project Cost (Energy Saving Project):			$5,281,599	1,038,000		66,930	318,335	319,110	319,372		

Priority Score Color Codes: 20 <30; 30 30-39; 50 40-59; 60 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.



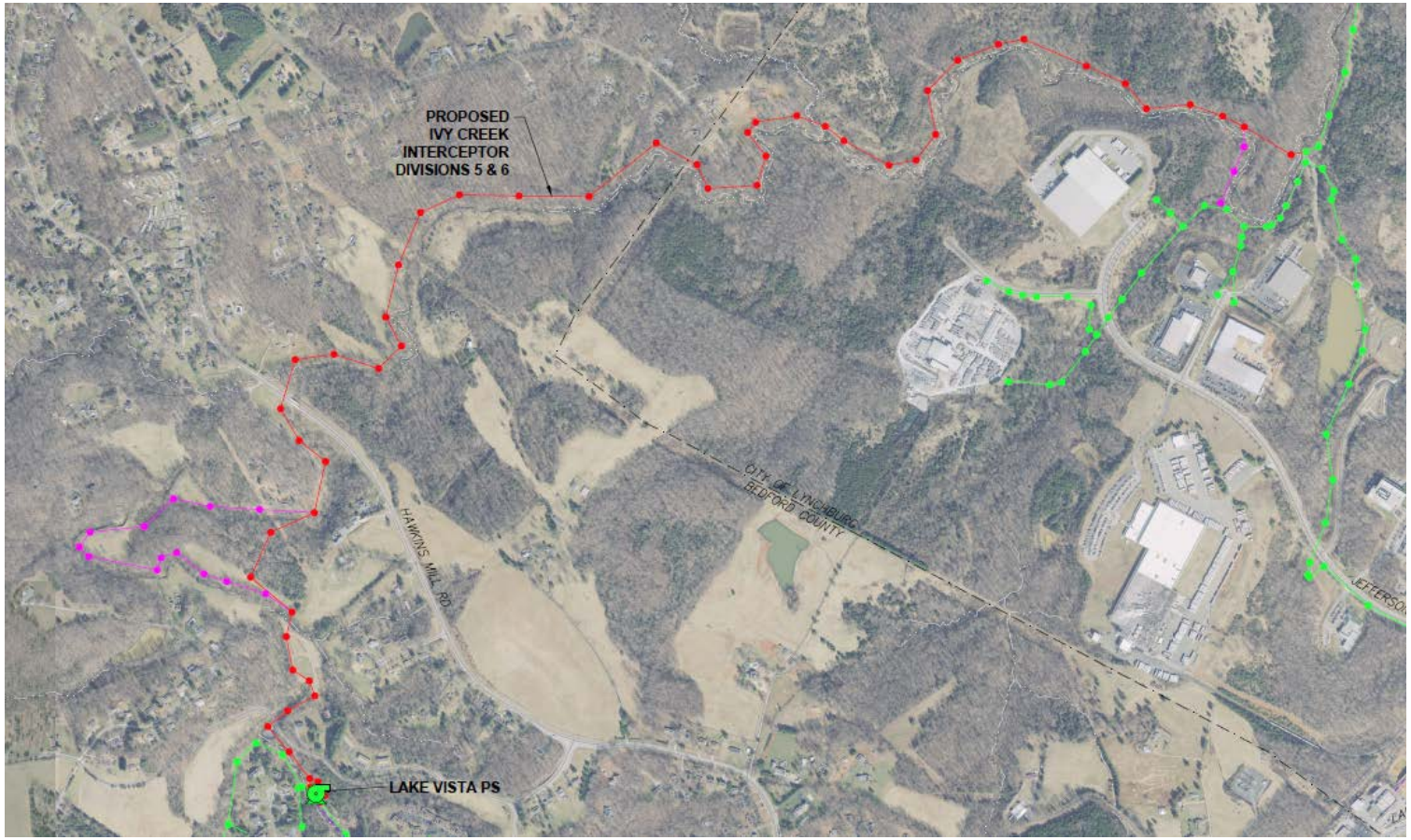
CIP Project Requests with Debt Service

Bedford Regional Water Authority

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
Forest	5	Ivy Creek 5 & 6 Design, Construction & Capacity	1	2023	$12,520,000					84,771	674,661	77	Payments begin 6 months after construction is complete.
	6	Interceptor purchases to 1.0 MGD (Included)			$730,000							43	May consider incremental increase to 0.908 MGD at $510k.
	7	**Total Project Cost (Ivy Creek Sewer):**			**$12,520,000**					**84,771**	**674,661**		

Priority Score Color Codes

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



<u>Ivy Creek 5 & 6 Design, Construction & Capacity</u>:

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 the next three years, this project is being funded through Clean Water Revolving Loan funds at a minimal interest rate with some principal forgiveness included.

EC PACE COMPANY, INC.
General Contractors Since 1926
Utilities, Grading, Horizontal Boring, Pipe Bursting

TEAMING WITH CHA AS A MAJOR SUBCONSULTANT

CIP Project Requests for Water System Structures & Tanks

There are a few projects identified to help ensure continued service in the area of the Fox Runn subdivision in Boonsboro, and continued quality water storage in the Forest and Central service areas. Aeration and mixing in water storage tanks assists with increased tank turnover and reduced disinfection byproducts.

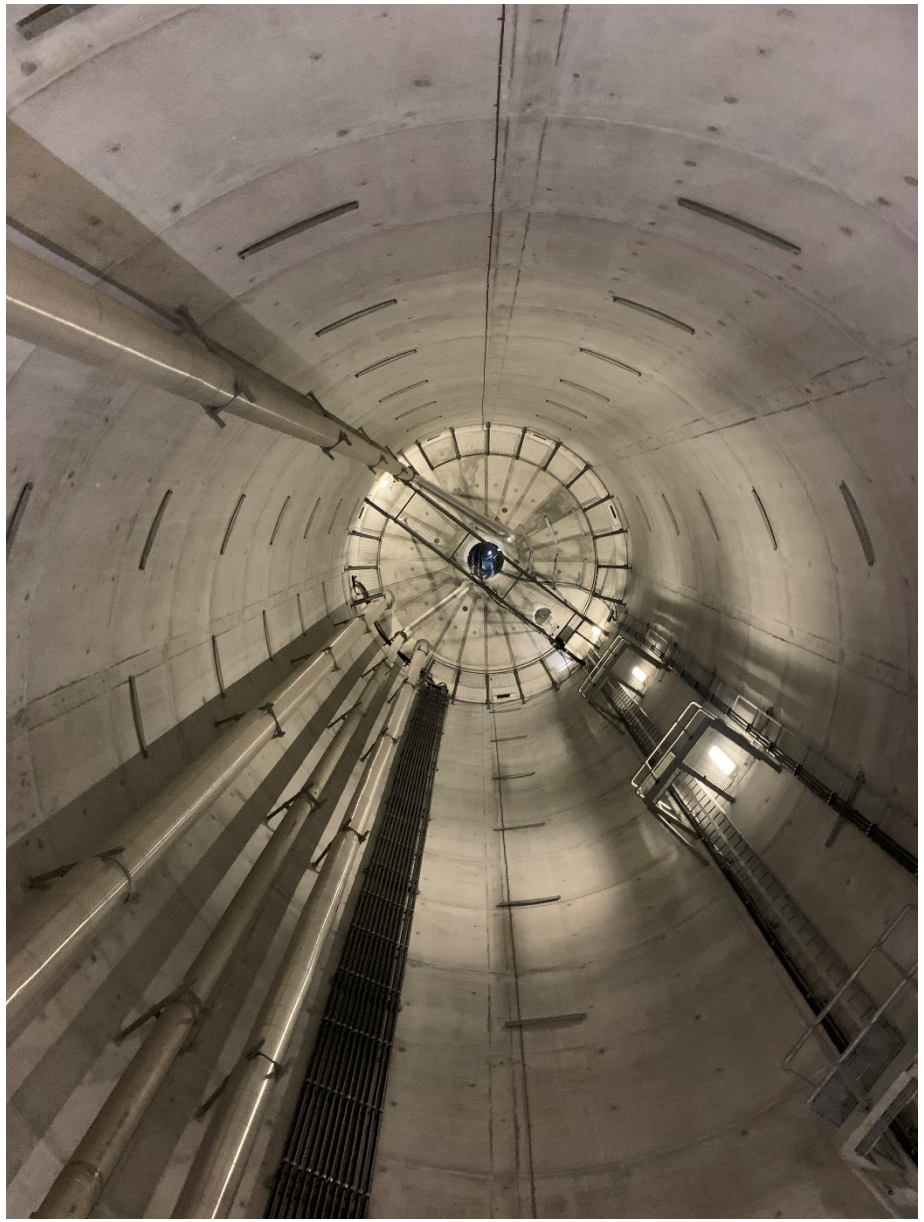
A larger project of our water system structures involves planning for the construction of a new glass-lined bolted steel water storage tank at Helm Street. The existing 1.0 million-gallon round water storage tank at Helm Street was previously taken out of service due to a failing coating system and a 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 0.75 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. The concrete structure of the round tank is of similar age and condition as that of the square tank, with the tank life limited to that of the interior floor lining. With water storage that is central to the water system of significant importance to limit water age and disinfection byproducts, design and construction of a new 1 million-gallon tank at this site to replace both aging tanks is proposed in the coming years.

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
	20	**System Structures & Tanks**											
Boonsboro	21	Fox Runn Booster Station Upgrade	2	2024	$600,000						600,000	46	Aging station in need of tank replacements and upgraded equipment. If station is upsized, could also serve Blackburn subdivision water system. Contracted costs difficult to justify for number of customers to be served; consider construction in-house upon available staffing. (21 lots served with potential of up to 12 more)
Forest	22	Altha Grove/Cottontown Tank - Mixer	1	2023	$25,000					25,000		57	Mixer needed to destratify water and improve DBPs.
Forest	23	Altha Grove Tank Altitude Valve Replacement	2	2024	$20,000						20,000	38	Continued issues with existing G-A altitude valve causing tank overflows.
Central	25	Helm Street - New Tank Design	2	2024	$100,000						100,000	51	Similar cost for rehab of round tank versus construction of a new tank.
		Total Water System Structures & Tanks:			$745,000					25,000	720,000		

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

Bedford Regional Water Authority

CIP Project Requests for Water Operations



Various water projects have been identified in the Forest, Central, Lakes and Stewartsville service areas to be addressed over the next few years. Some projects have funding previously allocated toward them, and those directly related to 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:

- Water booster station to allow efficient transfer of water between Lakes, Central and Forest service areas
- 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
    - Filter media replacement to optimize treatment process and reduce waste to holding ponds
    - Chemical feeder upgrades from granular to liquid for cleaner and more consistent dosing
    - Overhaul of elevator to ensure working condition for chemical transport to upper floors
    - Booster station near facility to remove dependency of plant operation for service to nearby customers
- Stoney Creek Reservoir upgrades and permitting needs, including:
    - Telemetry for remote viewing of water levels, particularly during emergency conditions such as drought or flooding
    - Analysis and contingency plan for reservoir drain valve, as required by the Department of Conservation and Recreation in the Dam Operating Permit, to ensure the valve can be regularly operated and used if necessary
- Preliminary Engineering Report for rechlorination and granular activated carbon options in the Stewartsville system to ensure chlorine residuals while limiting disinfection byproduct formation
- System pressure reducing valve for the Bridgewater Bay subdivision where system pressures exceed 150 psi in some areas and residents are experiencing shortened life of their private pressure reducing valves
- 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
- Smith Mountain Lake Water Treatment Facility upgrades, including:
    - SCADA upgrades to allow for monitoring of additional equipment
    - Completion of PACl implementation for improved organics removal
    - Increased capacity at receiving sewer pump station 4 to support large volume of backwash discharge from the facility

CIP Project Requests for Water Operations

Bedford Regional Water Authority

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
	27	**Operational Needs**											
Central	28	Forest to Lakes Permanent Booster Station	R		$2,000,000	2,000,000						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, and removes need for temporary pump station setup and maintenance.
	31	Sample Hydrants Phase 1 (5)	0	2022	$5,000				5,000			45	Guarantees accessibility and representative water for compliance samples. (Phased)
	32	Sample Hydrants Phase 2 (15)	1	2023	$15,000					15,000		45	Guarantees accessibility and representative water for compliance samples. (Phased)
Central	35	Central Water Upgrades											
	36	Replace control valves (influent, bw, rewash) CARRYOVER	-2	2020	$80,000		80,000					47	Valves are original 1972 hydraulic valves that are leaking and will not close without water supply - no hand option; no replacement parts are available. Replace with electronic controllers and hand wheel backup. Cannot operate due to concerns of further problems and inability to repair.
	37	Replace control valves (waste)	0	2022	$30,000				30,000			47	16" waste valves are plunger type; replacement will require fabricated knife gates with transitions.
	38	Replace filter media / rebuild filters	2	2024	$30,000						30,000	55	Needed to meet filter optimization and reduce volume discharged to holding ponds; new coagulant may delay the need for media.
	39	Upgrade chemical feeders to liquid chemical (Delpac/PaCl)	0	2022	$10,000				10,000			51	Changing coagulant to liquid PACl (DELPAC) will extend filter runs, reduce waste, delay media replacemenet, reduce lime use by 75% and improve water quality. With no dry chemicals added to the water, less sediment would need to be cleaned and hauled.
	41	Overhaul of WTP Elevator	2	2024	$150,000						150,000	53	Without the elevator to take chemicals to the top floor, the WTP will be difficult to operate. With 122 waterline not in service, an elevator failure could be critical.
	42	Booster station & finished line for customers directly served (Construction)	1	2023	$700,000					700,000		44	Design complete. Addresses several customers directly connected to plant that are currently affected by plant maintenance. Contractor costs difficult to justify for number of customers to be served; consider performing in-house upon additional staff availability. (Approximately 7 lots served)
Central	43	Stoney Creek Reservoir Telemetry	0	2022	$10,000				10,000			54	New broadband tower enables ability to provide telemetry upon equipment being installed.
Central	44	Reservoir Drain Valve Analysis & Contingency Plan	0	2022	$15,000				15,000			57	Drain valve should be operated annually; DCR recommended contingency plan from consultant prior to operation. May analyze use of siphon system to allow access for valve operation without use of boat.
Stewartsville	45	Stewartsville GAC & Rechlorination PER	0	2022	$30,000				30,000			55	Review feasibility of repurposing GAC units from Highpoint to remove DBPs and boost chlorination for adequate residual.
Lakes	46	Bridgewater Bay Pressure Reducing Valve (PRV)	0	2022	$65,000				65,000			62	System pressures of 130-170psi. Piping materials rated to 200 psi, while meters rated at 150 psi. Customers' standard residential PRVs insufficient for pressure and regularly failing.
Lakes	47	Valley Mills Building addition for chemical addition	1	2023	$20,000					20,000		56	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.
Lakes	48	Mountain View Shores Filter Replacement	0	2022	$150,000				150,000			43	The filters are in danger of failure due to serious corrosion. Price is for full replacement.
	49	Paradise Point SCADA	0	2022	$15,000				15,000			51	Provide remote monitoring of well system; included in rate evaluation for Paradise Point.
Lakes	50	SML WTF (Costs represent shared portion with WVWA)											
	51	SCADA Upgrades to tie in existing equipment	0	2022	$10,000				10,000			48	Any monitor or chemical additions must be added to SCADA; however, all input blocks are full. New rail cabinet and I/O equipment along with programming is needed. Already have equipment waiting to be added.
	53	PACl System Completion	0	2022	$5,000				5,000			48	PACl has been determined to be beneficial for organics removal. The system needs to be finalized per VDH requirements including plans, specs and additional equipment.
	54	Sewer Pump Station 4 Upgrades	1	2023	$20,000					20,000		54	Upgrades may be needed to pumps and piping to support volume of flow from WTP; can only support 65 gpm with both pumps running. Funding to cover conversion of septic tank for use as EQ; FM ARV replacements and disk filter work should result in improvements.
		Total Water Operational Needs:			$3,360,000	2,000,000	80,000		345,000	755,000	180,000		

Priority Score Color Codes

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

CIP Project Requests for Wastewater Operations

The sewer project 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 at to allow use of second train should maintenance be needed on first train or flow exceed the capability of a single train

- Central Wastewater Treatment Plant upgrades including:
  - Concrete repairs on cracks in anoxic and pre-air tanks to prevent leaking
  - Building renovations to provide additional work space for operators
  - Replacement of older return activated sludge (RAS) pump

- Central Wastewater Pump Station upgrades, including:
  - Site cameras at Pump Stations 1, 2, and 3 to allow remote monitoring for overflows and security concerns
  - New starters and control panel at Pump Station 1 to reduce water hammer on receiving force main
  - Staggered replacement of older pumps in Pump Stations 1, 2, and 3 to reduce maintenance and overflows at each station
  - SCADA implementation for Pump Stations 4 and 10 to allow remote monitoring and trending of station performance
  - Complete replacement of Pump Station 4 to bring station and controls above ground, removing safety concerns of electrical controls in a normally wet confined space environment
  - Complete replacement of Pump Stations 7 and 8 due to aging steel wet well with high potential of failure

- Mariners Landing sewer system upgrades including:
  - Rebuilding Biowheels and gearbox to prevent eminent failure
  - SCADA implementation for Pump Stations 1, 2, 3 and 4 to allow remote monitoring and trending of station performance for the largest stations in the subdivision

Bedford Regional Water Authority

CIP Project Requests for Wastewater Operations

Service Area	LINE ID	Project	Timeframe To Start (Years)	Fiscal Year Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
	61	**Operational Needs**											
Lakes	62	Moneta WWTP											
	64	Replace magnetic ballasts & wiring harness	2	2024	$10,000						10,000	43	Replace with electronic ballasts; magnetic ballasts are no longer available per EPA. If flow increases, will be needed immediately.
Central	66	Central WWTP											
	67	Concrete repairs on anoxic and pre-air tanks	0	2022	$20,000				20,000			31	Repair cracks
	72	Lab & Sludge Building Renovations	1	2023	$60,000					60,000		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.
	73	New RAS Pump	1	2023	$20,000					20,000		45	Existing pumps are 20+ years old. The primary settling tank is currently out of service due to broken railing, drives, and chains.
Central	74	Central Sewer Pump Stations											
	75	Pump Stations 1, 2, 3 - Security Cameras	0	2022	$5,000				5,000			41	Allow operators to view station remotely for overflow concerns or security issues.
	76	Pump Station 1 - Soft starts and new control panel	0	2022	$50,000				50,000			54	Reduce water hammer effect on receiving force main.
	77	Pump Station 1 - Replacement Pump #1	0	2022	$45,000				45,000			55	3 pumps are >20 years old; 1st phase for replacement. Will reduce overflows.
	78	Pump Station 1 - Replacement Pump #2	2	2024	$45,000						45,000	55	3 pumps are >20 years old; 2nd phase for replacement. Will reduce overflows.
	80	Pump Station 2 - Replacement Pump #1	0	2022	$45,000				45,000			55	3 pumps are >20 years old; 1st phase for replacement. Will reduce overflows.
	81	Pump Station 2 - Replacement Pump #2	1	2023	$45,000					45,000		55	3 pumps are >20 years old; 2nd phase for replacement. Will reduce overflows.
	83	Pump Station 3 - Replacement Pump #1	0	2022	$45,000				45,000			55	3 pumps are >20 years old; 1st phase for replacement. Will reduce overflows.
	86	Pump Station 4 SCADA	1	2023	$10,000					10,000		52	Allow remote view and ability to trend station performance.
	91	Pump Station 10 SCADA	2	2024	$10,000						10,000	52	Allow remote view and ability to trend station performance.
	92	Pump Station 4 Replacement	1	2023	$235,000					235,000		47	Bring station above ground; water often present in the bottom of the station, presenting concern of safety hazard due to electrical presence.
	93	Pump Station 5 Replacement	-1	2021	$186,000			186,000				65	Smith & Loveless pump station with failed steel wet well, plug and check valve.Replacing in 20-21 as part of emergency repair of complete failure.
	94	Pump Station 7 Replacement	0	2022	$186,000				186,000			54	Smith & Loveless pump station with failing steel wet well.
	95	Pump Station 8 Replacement	2	2024	$186,000						186,000	57	Smith & Loveless pump station with failing steel wet well.
Lakes	96	Mariners Landing Sewer Upgrades											
	97	WWTP Upgrades	R		$103,000	103,000						67	Various upgrades identified with system transfer.
	98	WWTP Upgrades (Additional)	0	2022	$40,000				40,000			67	Additional funding needed to complete the rebuild of both BIOWHEELS and new BIOWHEEL gearbox.
	99	Pump Stations 1 & 2 SCADA	R		$40,000	40,000						54	Allow remote view and ability to trend station performance.
	100	Pump Station 3 SCADA	0	2022	$10,000				10,000			51	Allow remote view and ability to trend station performance.
	101	Pump Station 4 SCADA	0	2022	$10,000				10,000			51	Allow remote view and ability to trend station performance.
		Total Wastewater Operational Needs:			$1,406,000	143,000		186,000	456,000	370,000	251,000		

Priority Score Color Codes

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

Bedford Regional Water Authority

CIP Project Request for Office Improvements

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
	102	**OFFICE IMPROVEMENTS**											
	103	Admin Parking Lot [CARRYOVER]	-2	2020	$300,000		300,000					49	Parking lot redesigned to north side of facilities; changes during design related to property lines & layout increased parking area potential and overall costs.
	104	Admin Parking Lot - Public & Employee Lot	2	2024	$300,000						300,000	49	Additional grading and paving planned from initial design to maximize proposed parking. May be moved to 2024-2025 fiscal year; must be completed prior to permit expiration in early 2026.
	105	Administration Offices - New Gate	0	2022	$28,000				28,000			46	The gate is not functioning properly due to being too heavy for the current set-up, creating accessibility and security concerns.
	106	Administration Offices - Surface coat rear parking lot	0	2022	$10,000				10,000			38	Need to have the cracks filled, surface treated, and new lines painted on the rear parking lot behind the Annex Building to prevent complete pavement failure.
	108	Heated Garage - additional bays	2	2024	$75,000						75,000	38	More room needed for additional equipment.
	113	South Mobile Roof Replacement/Repair	0	2022	$6,000				6,000			45	Mobile near heated garage. Roof was not replaced upon moving the mobile and moisture is causing damage to files stored inside. If roof determined in adequate shape, may build diversion above mobile to divert stormwater runoff away from base of mobile. Addressing source of water will provide protection to files currently stored and allow file cabinets from Board Room to be moved upon files being scanned.
	114	North Mobile Roof Replacement/Repair	1	2023	$6,000					6,000		42	Mobile near inventory building. Roof was not replaced upon moving the mobile and moisture issues may need to be addressed prior to use of the building.
		Total Office Improvements:			$725,000		300,000		44,000	6,000	375,000		

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

Upon the expansions in personnel and equipment at the Authority, the space needed at the main office facilities for indoor and outdoor storage has also increased. Existing facilities also require some proactive and reactive maintenance. Funding has previously been allocated towards additional parking for both the public and for Authority equipment. Additional funding is requested to cover the full anticipated costs of this work. Other projects planned at the office facilities in the coming years include:

- Replacement gate to address continued issues and occasional inoperability of existing gate
- Surface coating of existing rear parking lot to lengthen life of aging asphalt
- Additional bays in heated garage to house new equipment
- Roof repairs and/or stormwater diversions for mobile units to remove current moisture issues and expand usability

Bedford Regional Water Authority

CIP Purchase Requests for Administration/Infosys

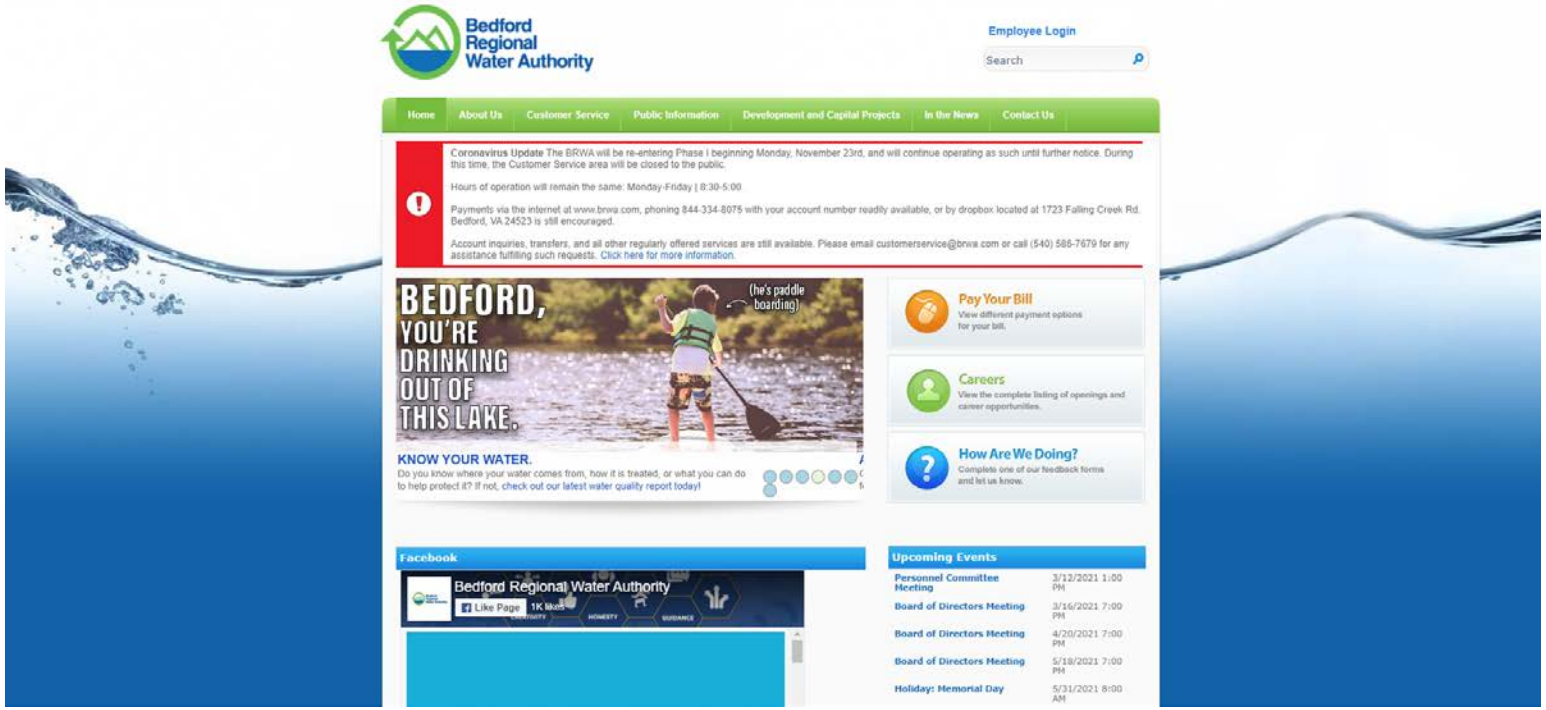
Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
	117	Admin											
	118	Key System - Phase 1a (Admin & Annex-ext/pub)	0	2022	$50,000				50,000			59	Replacement key system for all exterior and public area doors on site. Adds security.
	119	Key System - Phase 1b (Admin & Annex-interior)	0	2022	$50,000				50,000			59	Replacement key system for all interior doors on site.
	120	Key System - Phase 2 (Various sites)	1	2023	$100,000					100,000		59	
	121	Key System - Phase 3 (Various sites)	2	2024	$100,000						100,000	59	
	122	Website Redesign	0	2022	$65,000				65,000			59	BRWA website currently on an outdated platform that limits and prohibits some functionality of the site. Site will no longer be supported after April 2021.
		Total Purchases Administration & Inofsys:			$365,000				165,000	100,000	100,000		

Priority Score Color Codes

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

Several capital purchases are identified for the coming years that will assist with better efficiency in operation 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:
  - New key system to provide improved site security options and improve appropriate accessibility
- New and improved services to the public, including:
  - Website redesign to provide an improved interface for the public and replace an outdated platform that is no longer supported



Bedford Regional Water Authority

CIP Purchase Requests for Customer Service

Bedford Regional Water Authority

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
	124	Customer Service											
	125	Billing Software - InHance Impresse	0	2022	$79,600				79,600			67	BillMaster no longer supported. InHance Impressa part of same parent company for smooth transition.
	126	Gateway Antenna (1)	1	2023	$10,000					10,000		62	Additional antenna to enable access to more remote read meters from the office.
	127	Bill Pay Kiosk	0	2022	$33,275				33,275			40	To allow customers to pay their bill when the office is closed (whether through pandemic, after-hours, or weekends). The kiosk will allow the customer to pay with cash, by check or credit/debit card and receive a receipt.
		Total Purchases Customer Service :			$122,875				112,875	10,000			

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

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

- New and improved services to the public, including:
  - Bill pay kiosk outside of Administration building to offer bill pay services at any time
- Internal improvements and upgrades to assist with efficiencies and security, including:
  - New billing software to replace system that is no longer supported
  - Additional gateway antenna to allow for more remote meter reading capabilities

In 2020 – 2021…

- **Read 164,492 meters**
- **Installed/changed 1,187 meters**
- **Processed 214,524 payments**

Tracking Data for Customer Service Department

	Description	January '20	February '20	March '20	April '20	May '20	June '20	July '20	August '20	September '20	October '20	November '20	December '20	Running 12 Month Totals
1	Statements Mailed	14,491	14,466	14,551	14,600	15,017	15,091	15,149	15,179	15,170	15,175	15,180	15,183	179,252
2	Statements Sent Electronically	1,427	1,479	1,518	1,552	1,613	1,675	1,712	1,743	1,781	1,821	1,860	1,868	20,049
3	Total of Payments	12,507	12,203	12,695	12,456	11,757	13,019	12,372	12,986	12,723	12,792	12,523	12,864	150,897
4	Received	$1,249,113.22	$1,213,904.31	$1,175,968.85	$1,118,132.30	$1,166,857.67	$1,341,042.49	$1,304,444.99	$1,411,137.42	$1,382,006.43	$1,405,935.16	$1,183,110.39	$1,200,081.72	$15,151,734.95
5		2,590	2,432	2,588	2,600	2,516	2,698	2,668	2,642	2,617	2,625	2,582	2,755	31,313
6	Bill Payer Payments	$153,100.53	$148,328.91	$148,845.01	$153,214.88	$174,925.19	$186,081.65	$182,270.17	$197,183.61	$203,632.67	$192,142.84	$174,884.85	$169,578.81	2,084,189
7		20.7%	19.9%	20.4%	20.9%	21.4%	20.7%	21.6%	20.3%	20.6%	20.5%	20.6%	21.4%	20.8%
8		2,248	2,214	2,049	2,216	1,982	2,150	2,189	2,209	2,356	2,481	2,253	2,260	26,607
9	Paymentus Payments	$196,219.17	$190,474.47	$173,978.03	$192,068.19	$181,547.19	$192,581.63	$196,439.49	$209,415.28	$240,699.46	$227,598.78	$202,662.06	$192,625.85	$2,396,309.60
10		18.0%	18.1%	16.1%	17.8%	16.9%	16.5%	17.7%	17.0%	18.5%	19.4%	18.0%	17.6%	17.6%
11		1,577	1,592	1,603	1,620	1,629	1,692	1,701	1,705	1,736	1,746	1,749	1,769	20,119
12	Automatic Draft Payments (ACH)	$92,277.41	$96,016.58	$92,411.16	$91,204.25	$93,358.28	$110,038.96	$111,667.16	$118,811.43	$136,682.95	$126,465.30	$115,978.27	$124,512.13	$1,309,423.88
13		12.6%	13.0%	12.6%	13.0%	13.9%	13.0%	13.7%	13.1%	13.6%	13.6%	14.0%	13.8%	13.3%
14	Account Transfers	113	127	130	134	136	167	205	174	149	158	140	137	1,770
15	New Customers - Forest	23	14	15	17	10	18	33	23	15	19	12	13	212
16	New Customers - SML	3	-	2	2	6	3	3		6	1	3	4	33
17	Disconnects for Non-payment	55	34	19	-	-	-	-	-	-	-	-	-	108
18	Customers Still Off for Non-Payment	5	7	-	-	-	-	-	-	-	-	-	-	12
19	Repeat Disconnected Customers	9	6	5	-	-	-	-	-	-	-	-	-	20
20	Meters Read - Normal and Transfer Readings	14,253	14,264	14,277	14,289	14,315	14,334	14,363	14,369	14,385	14,399	14,415	14,477	172,140
21	Radio Read Meters	11,935	12,103	12,341	12,515	12,595	12,727	12,771	12,781	12,798	12,843	12,874	13,000	151,283
22	Manually Read Meters	2,318	2,161	1,936	1,774	1,720	1,607	1,592	1,592	1,587	1,556	1,541	1,477	20,861
23	Tower Read Meters	1,086	910	1,054	1,071	1,283	1,037	1,002	950	1,037	1,085	1,115	861	12,491
24	New Meter Installs	21	6	9	11	7	22	22	11	4	18	15	10	156
25	Broken Meters Replaced	5	12	5	13	-	4	2	1	4	3	2	5	56
26	Meters Changed - Program	49	173	209	150	78	108	10	1	4	31	5	90	908
27	Connections paid for but not installed	287	289	290	286	281	291	300	303	311	309	308	308	N/A
28	Remaining Developer's Credits	$368,484.01	$368,480.01	$368,484.01	$368,484.01	$368,484.01	$368,484.01	$368,484.01	$368,484.01	$350,484.01	$350,484.01	$341,484.01	$341,484.01	N/A
29	Bulk Water Sales - New London (Gallons)	7,315	1,410	14,969	58,475	23,485	82,673	42,738	-	6,280	12,760	9,395	835	260,335
30	Bulk Water Sales - Moneta (Gallons)	4,250	600	2,700	8,610	12,200	40,480	6,000	-	20,128	-	-	-	94,968
31	Bulk Water Sales - Central Distr (Gallons)	8,800	3,000	-	-	400	-	28,700	3,900	17,800	3,500	17,500	8,460	92,060
32	Total Bulk Water Sales	$109.97	$27.05	$95.41	$362.26	$194.86	$665.03	$418.17	$21.06	$238.72	$87.80	$145.23	$50.19	$2,415.76

CIP Purchase Requests for Water Operations

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
	129	Leak Detection Equipment (linked to new position)	0	2022	$30,000				30,000			36	To be used by new Water Operations distribution position.
	130	Vehicle for New Water Operations Position	0	2022	$26,050				26,050			28	Associated with personnel request
		Total Purchases Water Operations:			$56,050				56,050				

Priority Score Color Codes

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

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

CIP Purchase Requests for Maintenance

Service Area	LINE ID	Project	Timeframe To Start (Years)	FiscalYear Ending	Project Costs	CARRYOVER Residual Funds	2020	2021	2022	2023	2024	Total Priority Score	Notes
	131	Maintenance											
	132	Aluminum Trench Boxes (2)	0	2022	$18,000				18,000			44	Wider and lighter trench boxes with 4 sides instead of 2. Beneficial where sloping not required. Better protection for employees and within VOSH standards. Rental costs to obtain necessary trench boxes until these are purchased.
	133	Mini Excavator	0	2022	$50,000				50,000			39	Currently have 4 line crews and only 3 excavators, including one that should be sold since it was replaced; includes John Deere 35G w/ thumb & angle blade.
	134	Mini Excavator - Trailer	0	2022	$7,000				7,000			39	Hooper trailer to carry requested mini-excavator.
	135	Mini Excavator - Rock hammer	0	2022	$9,000				9,000			36	Rock hammer to fit new excavator; each excavator has its own.
	136	Plate compactor - excavator attachment	0	2022	$8,000				8,000			41	Plate compactor will help compaction, especially around roadways. Can be used with existing equipment. To be used where handheld jumping-jack compactor cannot be used. Reduces time and labor necessary for compacting backfill.
	137	Skid Steer Attachment-Bush Hog	0	2022	$15,000				15,000			39	Assists with easement clearing; provides access into smaller areas than tractor.
	138	Skid Steer Attachment-Power Rake	0	2022	$14,000				14,000			41	More efficient and smoother cleanup than manual rakes.
	139	Skid Steer Attachment - Sewer Clearing Easement Machine	0	2022	$20,000				20,000			38	
	140	Dump Truck (single Axle)	0	2022	$120,000				120,000			38	Larger dump truck to dedicate to CIP crew construction; crew typically requires use of 2 dump trucks of the 4 currently owned.
	141	New FM Employee-Dodge RAM 2500 w\ utility body	0	2022	$52,000				52,000			41	Vehicle required for additional employee allotted for Facilities Maintenance.
	142	New FM Employee - Tools for new vehicle	0	2022	$15,000				15,000			41	Tools to outfit new Facilities Maintenance vehicle.
	143	Utility Body & Ladder Rack for Supervisor Truck	0	2022	$16,000				16,000			41	2014 RAM 2500 converted to supervisor vehicle and needs associated utility body installed.
	144	Preventative Maintenance											
	145	Push Camera Tilt/Pan Head for existing unit	0	2022	$13,000				13,000			41	This will replace the existing camera head, providing pan/tilt capabilites required for inspecting laterals.
	146	Diamond blade can root cutters	0	2022	$13,000				13,000			47	These cutters will allow root removal, reducing back-ups. Will inflict less damage to aging sewer system.
		Total Purchases Maintenance:			$370,000				370,000				

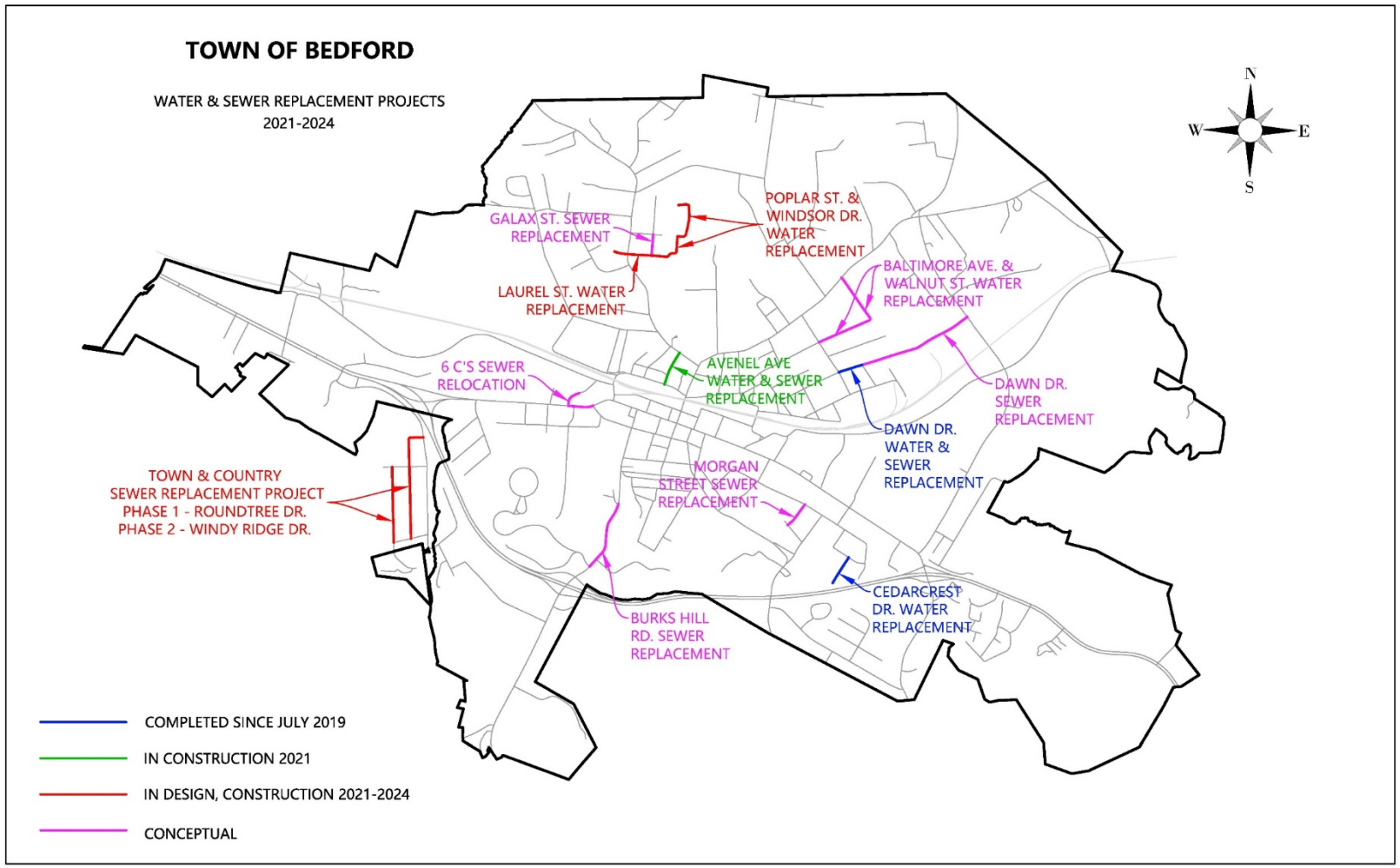
Priority Score Color Codes

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

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

- Vehicles and equipment to support new personnel
- Equipment for maintenance personnel to maintain safety and work efficiencies
- Preventative Maintenance camera heads for sewer lateral inspections, and root cutters to assist with root removal in aged sewer lines

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. There may be larger projects in the future that require additional capital funding to complete; however, current funding allocated to these set-aside accounts is appropriate for the staffing available to address these projects.

The majority of 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 a source of many repairs. 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.

Bedford Regional Water Authority

Replacement and Rehabilitation Projects

Paradise Point Waterline Replacement

Project Description:

As of May 25, 2021, the BRWA obtained the existing water treatment system and water distribution system in the Paradise Point subdivision, previously owned and operated by Paradise Point Corporation. The well system will be operated by the BRWA, with the ability for remote monitoring upon the installation of SCADA equipment.

The existing water distribution system 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 the in-house CIP Crew to ensure costs are minimalized for this project.

Estimated Cost: $46,800 (Materials Only)

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

Status: In-house design and construction to be completed in 2021

Bedford Regional Water Authority

Capital Improvement Program Priority Ranking

Bedford Regional Water Authority

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	Expectful 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	Notes
	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	Interceptor purchases to 1.0 MGD (Included)	$730,000	2	7	5	7	5	5	10	2	43	May consider incremental increase to 0.908 MGD at $510k.
	7	**Total Debt Service:**	**$16,763,599**										
	8	WATER PROJECTS											
Countywide	9	**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 quanity is an issue and at least 70% of owners participate. Supports projects such as Howard Drive, Audobon, and Smugglers Neck.
Countywide	10	**System Loops for Stability**											
Forest	11	Everett Road Loop - Otterview to Walkers Crossing	$800,000	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	12	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	13	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	14	Stewartsville West Loop - Drewrys Hill Road	$300,000	7	5	10	2	0	5	5	2	36	Provides system loop.
Lakes	15	Whitehouse Road Loop	$4,500,000	2	2	10	2	2	5	10	2	35	Needed when more than 4mgd is flowing to Town/Forest from SMLWTF.
	16	**Future System Growth**											
Lakes	17	Goodview Waterline - SML to Sycamore Ridge	$2,200,000	2	2	10	2	2	2	10	2	32	Routine flushing would be necessary until adequate number of connections.
Lakes	18	MVS to Valley Mills Ext (Lochwood, Capewood, Trading Post)	$800,000	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	19	SML Phase 5 to Mountain View Shores	$5,600,000	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.
	20	**System Structures & Tanks**											
Boonsboro	21	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. Contracted costs difficult to justify for number of customers to be served; consider construction in-house upon available staffing. (21 lots served with potential of up to 12 more)
Forest	22	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	23	Altha Grove Tank Altitude Valve Replacement	$20,000	7	5	7	7	0	5	5	2	38	Continued issues with existing G-A altitude valve causing tank overflows.
Central	24	Helm Street Tank Aeration	$100,000	7	5	7	5	5	5	5	7	46	May be needed to maintain acceptible HAA5 & TTHM levels.
Central	25	Helm Street - New Tank Design	$100,000	7	7	10	5	5	10	5	2	51	Similar cost for rehab of round tank versus construction of a new tank.
Central	26	Helm Street - New Tank & Altitude Valve Replacement	$1,200,000	7	7	10	5	5	10	5	2	51	Similar cost for rehab of round tank versus construction of a new tank. $162k available from Town funds for tank repairs.
	27	**Operational Needs**											
Central	28	Forest to Lakes Permanent Booster Station	$2,000,000	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, and removes need for temporary pump station setup and maintenance.
Central	29	Central Pressure Monitoring Phase 1	$6,000	2	10	10	2	2	5	5	5	41	Monitor Central water system pressures through SCADA with pressure transducers at PS 1,2,3, LMSPS, & WWTP.
Central	30	Central Pressure Monitoring Phase 2	$6,000	2	10	10	2	2	5	5	5	41	Monitor Central water system pressures through SCADA with pressure transducers at PS 1,2,3, LMSPS, & WWTP.
	31	Sample Hydrants Phase 1 (5)	$5,000	5	10	5	5	5	5	5	5	45	Guarantees accessibility and representative water for compliance samples. (Phased)
	32	Sample Hydrants Phase 2 (15)	$15,000	5	10	5	5	5	5	5	5	45	Guarantees accessibility and representative water for compliance samples. (Phased)
Central	33	Central Bulk Fill Station (Central WWTP)	$40,000	7	10	7	7					31	Add water filling station in Central service area and limit operator time to provide service
Central	34	Central WTP Holding Pond Sewer	$500,000	5	7	7	7	5	10	5	2	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.

Priority Score Color Codes

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

Capital Improvement Program Priority Ranking

Bedford Regional Water Authority

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													Priority Score Color Codes: 20 <30; 30 30-39; 50 40-59; 65 60+
Central	35	Central Water Upgrades											
	36	Replace control valves (influent, bw, rewash) CARRYOVER	$80,000	5	10	10	5	5	5	5	2	47	Valves are original 1972 hydraulic valves that are leaking and will not close without water supply - no hand option; no replacement parts are available. Replace with electronic controllers and hand wheel backup. Cannot operate due to concerns of further problems and inability to repair.
	37	Replace control valves (waste)	$30,000	5	10	10	5	5	5	5	2	47	16" waste valves are plunger type; replacement will require fabricated knife gates with transitions.
	38	Replace filter media / rebuild filters	$30,000	5	10	5	5	10	10	5	5	55	Needed to meet filter optimization and reduce volume discharged to holding ponds; new coagulant may delay the need for media.
	39	Upgrade chemical feeders to liquid chemical (Delpac/PaCl)	$10,000	5	10	7	7	5	10	5	2	51	Changing coagulant to liquid PACl (DELPAC) will extend filter runs, reduce waste, delay media replacemenet, reduce lime use by 75% and improve water quality. With no dry chemicals added to the water, less sediment would need to be cleaned and hauled.
	40	Upgrade chemical feeders to liquid chemical (others)	$30,000	5	10	7	7	5	10	5	2	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.
	41	Overhaul of WTP Elevator	$150,000	7	10	7	7	5	5	5	7	53	Without the elevator to take chemicals to the top floor, the WTP will be difficult to operate. With 122 waterline not in service, an elevator failure could be critical.
	42	Booster station & finished line for customers directly served (Construction)	$700,000	5	10	10	5	2	5	5	2	44	Design complete. Addresses several customers directly connected to plant that are currently affected by plant maintenance. Contractor costs difficult to justify for number of customers to be served; consider performing in-house upon additional staff availability. (Approximately 7 lots served)
Central	43	Stoney Creek Reservoir Telemetry	$10,000	5	7	7	5	5	10	5	10	54	New broadband tower enables ability to provide telemetry upon equipment being installed.
Central	44	Reservoir Drain Valve Analysis & Contingency Plan	$15,000	7	10	5	10	10	5	5	5	57	Drain valve should be operated annually; DCR recommended contingency plan from consultant prior to operation. May analyze use of siphon system to allow access for valve operation without use of boat.
Stewartsville	45	Stewartsville GAC & Rechlorination PER	$30,000	10	10	10	5	5	5	5	5	55	Review feasibility of repurposing GAC units from Highpoint to remove DBPs and boost chlorination for adequate residual.
Lakes	46	Bridgewater Bay Pressure Reducing Valve (PRV)	$65,000	7	10	10	10	5	10	5	5	62	System pressures of 130-170psi. Piping materials rated to 200 psi, while meters rated at 150 psi. Customers' standard residential PRVs insufficient for pressure and regularly failing.
Lakes	47	Valley Mills Building addition for chemical addition	$20,000	5	10	7	7	7	10	5	5	56	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.
Lakes	48	Mountain View Shores Filter Replacement	$150,000	5	7	7	7	5	5	5	2	43	The filters are in danger of failure due to serious corrosion. Price is for full replacement.
	49	Paradise Point SCADA	$15,000	5	10	7	7	5	10	5	2	51	Provide remote monitoring of well system; included in rate evaluation for Paradise Point.
Lakes	50	SML WTF (Costs represent shared portion with WVWA)											
	51	SCADA Upgrades to tie in existing equipment	$10,000	7	10	7	5	5	7	5	2	48	Any monitor or chemical additions must be added to SCADA; however, all input blocks are full. New rail cabinet and I/O equipment along with programming is needed. Already have equipment waiting to be added.
	52	SML Tank aeration	$12,500	7	7	7	7	7	7	5	5	52	Assist with reduction of DBPs for Bedford and Franklin Counties.
	53	PACl System Completion	$5,000	7	10	7	10	2	5	5	2	48	PACl has been determined to be beneficial for organics removal. The system needs to be finalized per VDH requirements including plans, specs and additional equipment.
	54	Sewer Pump Station 4 Upgrades	$20,000	7	10	5	10	2	10	5	5	54	Upgrades may be needed to pumps and piping to support volume of flow from WTP; can only support 65 gpm with both pumps running. Funding to cover conversion of septic tank for use as EQ; FM ARV replacements and disk filter work should result in improvements.

Capital Improvement Program Priority Ranking

Bedford Regional Water Authority

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													Priority Score Color Codes: 20 <30; 30 30-39; 50 40-59; 65 60+
	55	**SEWER PROJECTS**											
Forest	56	**Lynchburg Sewer Capacity Purchases (Future Growth)**											
Forest	57	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	58	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.
	59	**Future System Growth**											
Stewartsville	60	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.
	61	**Operational Needs**											
Lakes	62	Moneta WWTP											
	63	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.
	64	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.
	65	Composting sludge from Central Sewer & Moneta WWTP	$100,000	5	7	7	2	0	10	5	2	38	Low priority; costs unknown
Central	66	Central WWTP											
	67	Concrete repairs on anoxic and pre-air tanks	$20,000	10	7	7	5	0	2			31	Repair cracks
	68	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
	69	Sand and repaint effluent clarifiers	$50,000	10	7	7	5	0	2	5	2	38	Paint is chipping and rusting
	70	Sand and repaint thickener units	$20,000	10	7	7	5	0	2	5	2	38	Paint is chipping and rusting
	71	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.
	72	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.
	73	New RAS Pump	$20,000	5	10	5	5	10	5	5	0	45	Existing pumps are 20+ years old. The primary settling tank is currently out of service due to broken railing, drives, and chains.
Central	74	Central Sewer Pump Stations											
	75	Pump Stations 1, 2, 3 - Security Cameras	$5,000	10	7	5	2	0	10	5	2	41	Allow operators to view station remotely for overflow concerns or security issues.
	76	Pump Station 1 - Soft starts and new control panel	$50,000	5	10	7	7	10	5	5	5	54	Reduce water hammer effect on receiving force main.
	77	Pump Station 1 - Replacement Pump #1	$45,000	5	10	5	5	10	5	5	10	55	3 pumps are >20 years old; 1st phase for replacement. Will reduce overflows.
	78	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.
	79	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.
	80	Pump Station 2 - Replacement Pump #1	$45,000	5	10	5	5	10	5	5	10	55	3 pumps are >20 years old; 1st phase for replacement. Will reduce overflows.
	81	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.
	82	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.
	83	Pump Station 3 - Replacement Pump #1	$45,000	5	10	5	5	10	5	5	10	55	3 pumps are >20 years old; 1st phase for replacement. Will reduce overflows.
	84	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.
	85	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.
	86	Pump Station 4 SCADA	$10,000	10	10	7	5	5	5	5	5	52	Allow remote view and ability to trend station performance.
	87	Pump Station 6 SCADA	$20,000	10	10	7	5	5	5	5	5	52	Allow remote view and ability to trend station performance.
	88	Pump Station 7 SCADA	$20,000	10	10	7	5	5	5	5	5	52	Allow remote view and ability to trend station performance.
	89	Pump Station 5 SCADA	$20,000	10	5	7	5	5	5	5	5	47	Allow remote view and ability to trend station performance.
	90	Pump Station 8 SCADA	$20,000	10	5	7	5	5	5	5	5	47	Allow remote view and ability to trend station performance.
	91	Pump Station 10 SCADA	$10,000	10	10	7	5	5	5	5	5	52	Allow remote view and ability to trend station performance.
	92	Pump Station 4 Replacement	$235,000	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.
	93	Pump Station 5 Replacement	$186,000	10	10	10	10	5	5	5	10	65	Smith & Loveless pump station with failed steel wet well, plug and check valve.Replacing in 20-21 as part of emergency repair of complete failure.
	94	Pump Station 7 Replacement	$186,000	10	7	10	7	5	5	5	5	54	Smith & Loveless pump station with failing steel wet well.
	95	Pump Station 8 Replacement	$186,000	10	5	10	7	5	5	5	10	57	Smith & Loveless pump station with failing steel wet well.
Lakes	96	Mariners Landing Sewer Upgrades											
	97	WWTP Upgrades	$103,000	10	10	7	10	10	5	5	10	67	Various upgrades identified with system transfer.
	98	WWTP Upgrades (Additional)	$40,000	10	10	7	10	10	5	5	10	67	Additional funding needed to complete the rebuild of both BIOWHEELS and new BIOWHEEL gearbox.
	99	Pump Stations 1 & 2 SCADA	$40,000	5	10	7	7	5	5	5	10	54	Allow remote view and ability to trend station performance.
	100	Pump Station 3 SCADA	$10,000	5	7	7	7	5	5	5	10	51	Allow remote view and ability to trend station performance.
	101	Pump Station 4 SCADA	$10,000	5	7	7	7	5	5	5	10	51	Allow remote view and ability to trend station performance.

Capital Improvement Program Priority Ranking

Bedford Regional Water Authority

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	Notes
	102	**OFFICE IMPROVEMENTS**											
	103	Admin Parking Lot [CARRYOVER]	$300,000	7	10	10	5	5	5	5	2	49	Parking lot redesigned to north side of facilities; changes during design related to property lines & layout increased parking area potential and overall costs.
	104	Admin Parking Lot - Public & Employee Lot	$300,000	7	10	10	5	5	5	5	2	49	Additional grading and paving planned from initial design to maximize proposed parking. May be moved to 2024-2025 fiscal year; must be completed prior to permit expiration in early 2026.
	105	Administration Offices - New Gate	$28,000	10	10	7	7	0	5	5	2	46	The gate is not functioning properly due to being too heavy for the current set-up, creating accessibility and security concerns.
	106	Administration Offices - Surface coat rear parking lot	$10,000	5	7	7	7	0	5	5	2	38	Need to have the cracks filled, surface treated, and new lines painted on the rear parking lot behind the Annex Building to prevent complete pavement failure.
	107	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.
	108	Heated Garage - additional bays	$75,000	5	7	10	2	0	2	10	2	38	More room needed for additional equipment.
	109	New Building		7	2	10	2	0	2	5	2	30	
	110	Design - Building	$130,000										Design of new building to address expanding personnel needs.
	111	Office/Maintenance Building Construction	$2,000,000										New two story building behind Annex building.
	112	Sewer Extension to Office Building	$288,000	7	5	10	5	2	2	5	5	41	6000' from gravity line; assume $40/ft + 20% design, easements, etc.
	113	South Mobile Roof Replacement/Repair	$6,000	7	10	7	7	2	5	5	2	45	Mobile near heated garage. Roof was not replaced upon moving the mobile and moisture is causing damage to files stored inside. If roof determined in adequate shape, may build diversion above mobile to divert stormwater runoff away from base of mobile. Addressing source of water will provide protection to files currently stored and allow file cabinets from Board Room to be moved upon files being scanned.
	114	North Mobile Roof Replacement/Repair	$6,000	7	7	7	7	2	5	5	2	42	Mobile near inventory building. Roof was not replaced upon moving the mobile and moisture issues may need to be addressed prior to use of the building.
	115	**LINE REPLACEMENT & REHAB PROJECTS [Operational Set-asides]**											Most projects to be completed with Replacement Set-aside funds; due to volume of sewer projects in Town, additional funding may be required at times through CIP funds.
	116	**PURCHASES**											
	117	Admin											
	118	Key System - Phase 1a (Admin & Annex-ext/pub)	$50,000	5	10	7	10	10	10	5	2	59	Replacement key system for all exterior and public area doors on site. Adds security.
	119	Key System - Phase 1b (Admin & Annex-interior)	$50,000	5	10	7	10	10	10	5	2	59	Replacement key system for all interior doors on site.
	120	Key System - Phase 2 (Various sites)	$100,000	5	10	7	10	10	10	5	2	59	
	121	Key System - Phase 3 (Various sites)	$100,000	5	10	7	10	10	10	5	2	59	
	122	Website Redesign	$65,000	5	10	7	10	10	10	5	2	59	BRWA website currently on an outdated platform that limits and prohibits some functionality of the site. Site will no longer be supported after April 2021.
	123	Portable Water Station for Community Events	$55,000	5	10	10	5	10	5	5	2	52	Water buggy trailer for marketing and public service. Could be used with line breaks.
	124	Customer Service											
	125	Billing Software - InHance Impresse	$79,600	5	10	10	10	10	10	10	2	67	BillMaster no longer supported. InHance Impressa part of same parent company for smooth transition.
	126	Gateway Antenna (1)	$10,000	10	10	5	10	10	10	5	2	62	Additional antenna to enable access to more remote read meters from the office.
	127	Bill Pay Kiosk	$33,275	2	7	7	5	5	2	10	2	40	To allow customers to pay their bill when the office is closed (whether through pandemic, after-hours, or weekends). The kiosk will allow the customer to pay with cash, by check or credit/debit card and receive a receipt.
	128	Water Operations											
	129	Leak Detection Equipment (linked to new position)	$30,000	5	7	5	2	0	10	5	2	36	To be used by new Water Operations distribution position.
	130	Vehicle for New Water Operations Position	$26,050	5	5	7	2	0	2	5	2	28	Associated with personnel request.
	131	Maintenance											
	132	Aluminum Trench Boxes (2)	$18,000	10	10	5	2	0	10	5	2	44	Wider and lighter trench boxes with 4 sides instead of 2. Beneficial where sloping not required. Better protection for employees and within VOSH standards. Rental costs to obtain necessary trench boxes until these are purchased.
	133	Mini Excavator	$50,000	5	10	5	2	0	10	5	2	39	Currently have 4 line crews and only 3 excavators, including one that should be sold since it was replaced; includes John Deere 35G w/ thumb & angle blade.
	134	Mini Excavator - Trailer	$7,000	5	10	5	2	0	10	5	2	39	Hooper trailer to carry requested mini-excavator.
	135	Mini Excavator - Rock hammer	$9,000	7	10	5	2	0	5	5	2	36	Rock hammer to fit new excavator; each excavator has its own.
	136	Plate compactor - excavator attachment	$8,000	7	10	5	2	0	10	5	2	41	Plate compactor will help compaction, especially around roadways. Can be used with existing equipment. To be used where handheld jumping-jack compactor cannot be used. Reduces time and labor necessary for compacting backfill.
	137	Skid Steer Attachment-Bush Hog	$15,000	5	10	5	2	0	10	5	2	39	Assists with easement clearing; provides access into smaller areas than tractor.
	138	Skid Steer Attachment-Power Rake	$14,000	7	10	7	5	0	5	5	2	41	More efficient and smoother cleanup than manual rakes.
	139	Skid Steer Attachment - Sewer Clearing Easement Machine	$20,000	7	7	7	5	0	5	5	2	38	
	140	Dump Truck (single Axle)	$120,000	7	7	7	5	0	5	5	2	38	Larger dump truck to dedicate to CIP crew construction; crew typically requires use of 2 dump trucks of the 4 currently owned.
	141	New FM Employee-Dodge RAM 2500 w/ utility body	$52,000	10	10	5	2	2	5	5	2	41	Vehicle required for additional employee allotted for Facilities Maintenance.
	142	New FM Employee - Tools for new vehicle	$15,000	10	10	5	2	2	5	5	2	41	Tools to outfit new Facilities Maintenance vehicle.
	143	Utility Body & Ladder Rack for Supervisor Truck	$16,000	10	10	7	2	0	5	5	2	41	2014 RAM 2500 converted to supervisor vehicle and needs associated utility body installed.
	144	Preventative Maintenance											
	145	Push Camera Tilt/Pan Head for existing unit	$13,000	7	10	5	5	2	5	5	2	41	This will replace the existing camera head, providing pan/tilt capabilites required for inspecting laterals.
	146	Diamond blade can root cutters	$13,000	7	10	5	5	5	5	5	5	47	These cutters will allow root removal, reducing back-ups. Will inflict less damage to aging sewer system.
		TOTALS:	**$66,324,024**										

Priority Score Color Codes

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

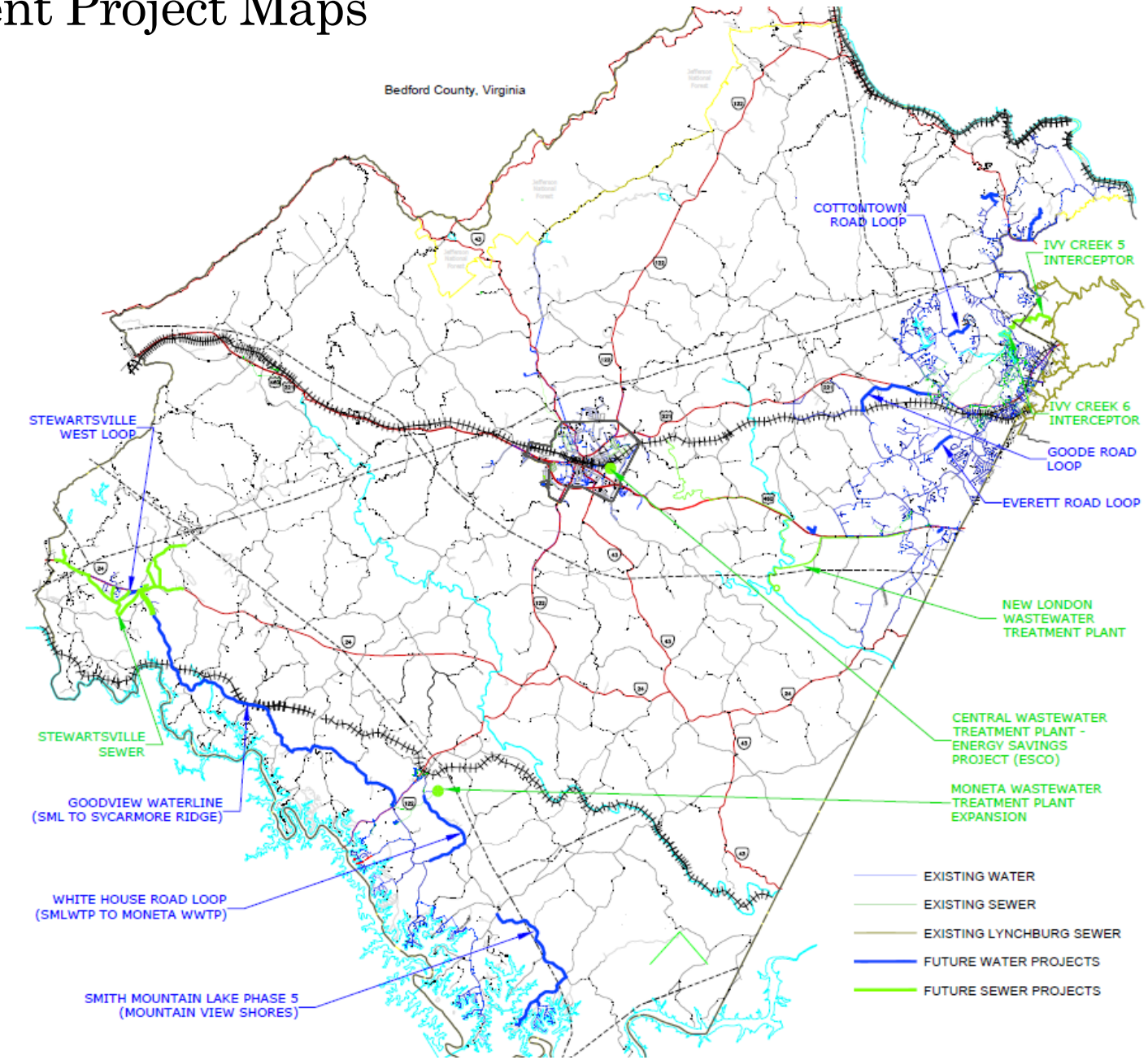
Future Capital Improvement Project Maps

Current CIP Projects in Design:

- 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



Bedford Regional Water Authority

Central WTP Booster Station & Service Line Replacement

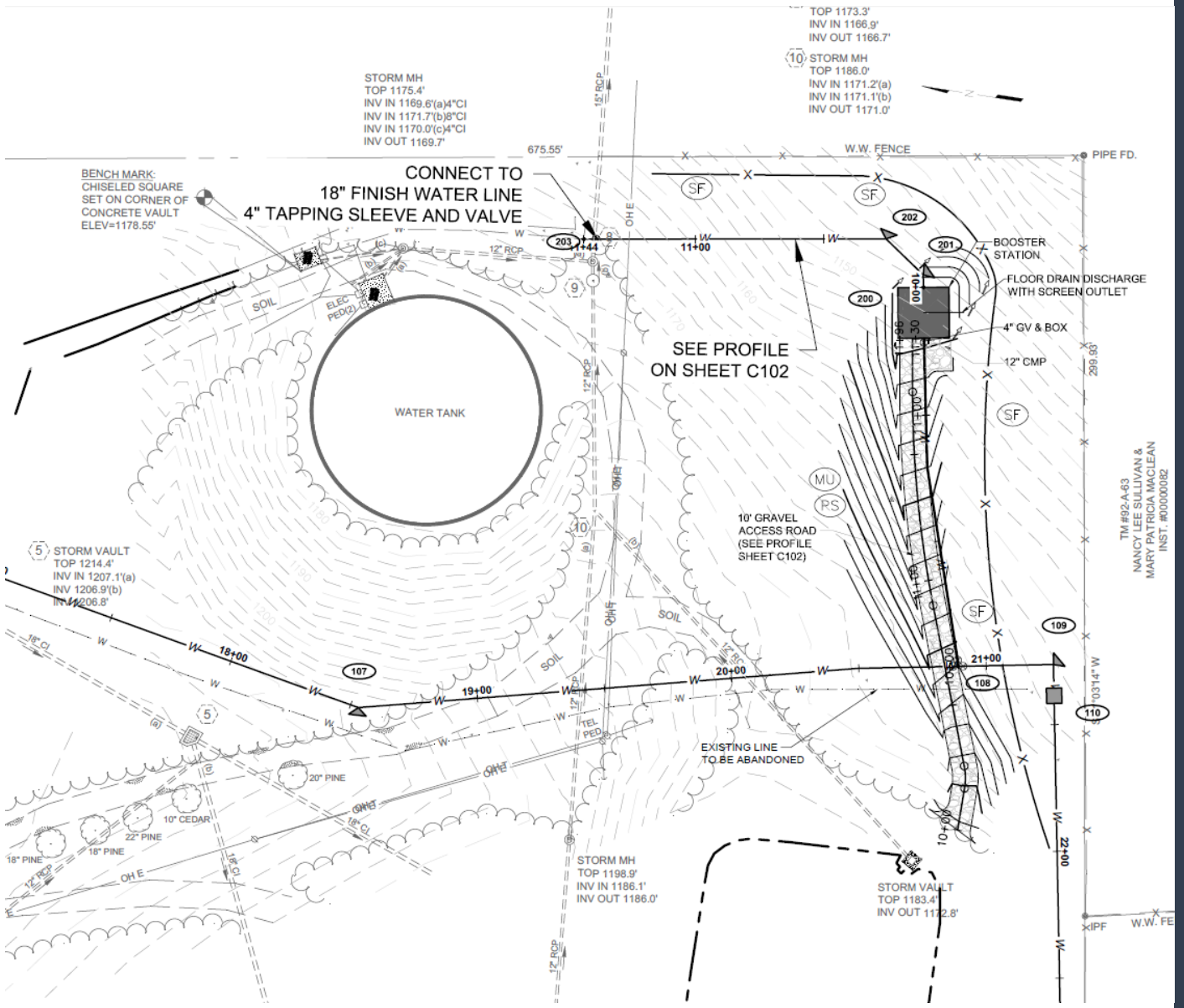
Project Description:

The purpose of this project is to provide or improve the 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 from 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. These design notes are for a small booster station that can serve the existing residential customers from the existing 18" line at the treatment plant. Service lines to the existing meters will also be replaced from the booster pump station to the meter.

Estimated Cost: $700,000

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

Status: Designed, ready for construction



Bedford Regional Water Authority

Everett Road Waterline Loop

Project Description:

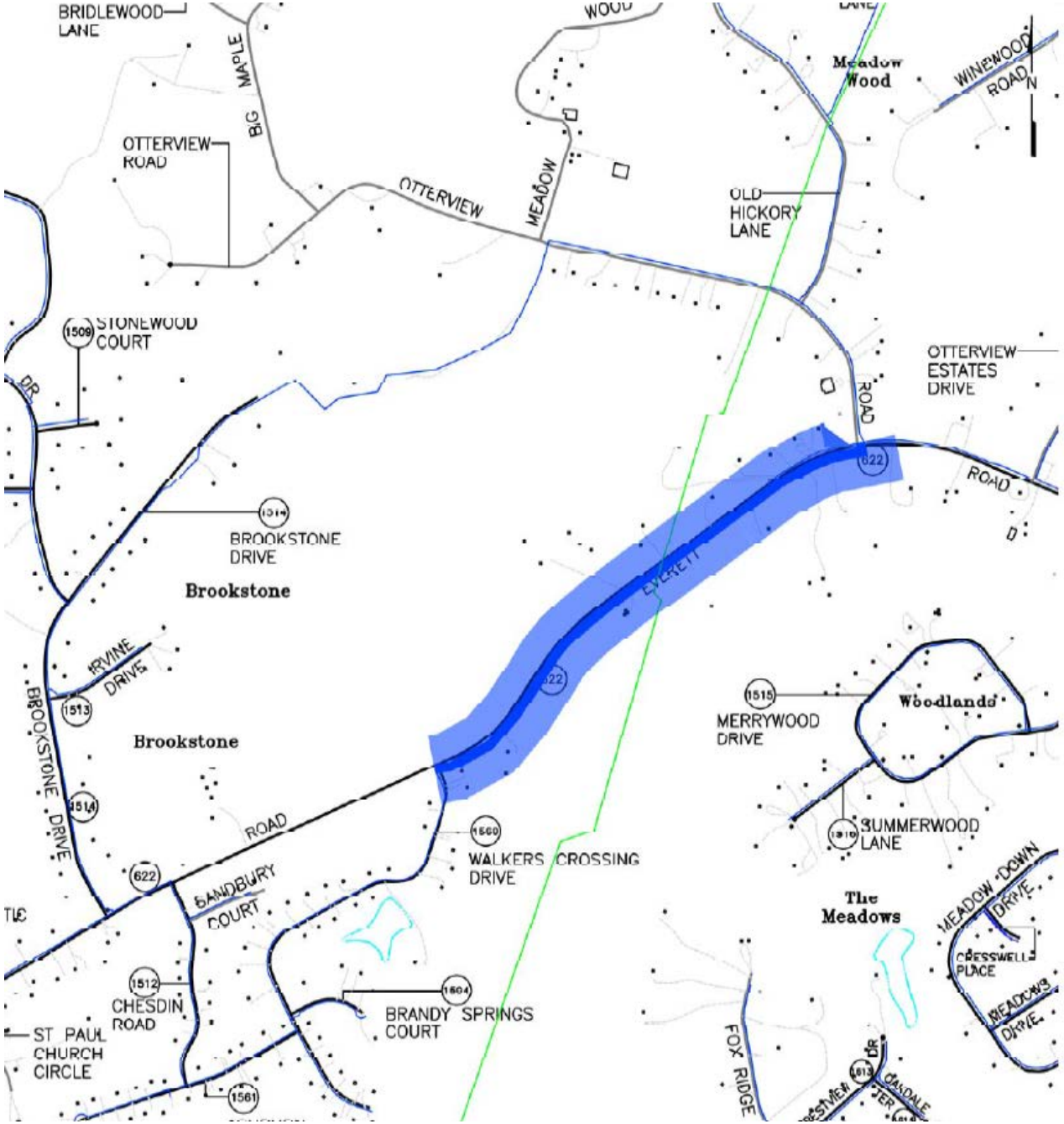
Connection of waterlines along Everett Road between Walkers Crossing Drive and Otterview Drive.

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



Bedford Regional Water Authority

Goode Waterline Loop

Project Description:

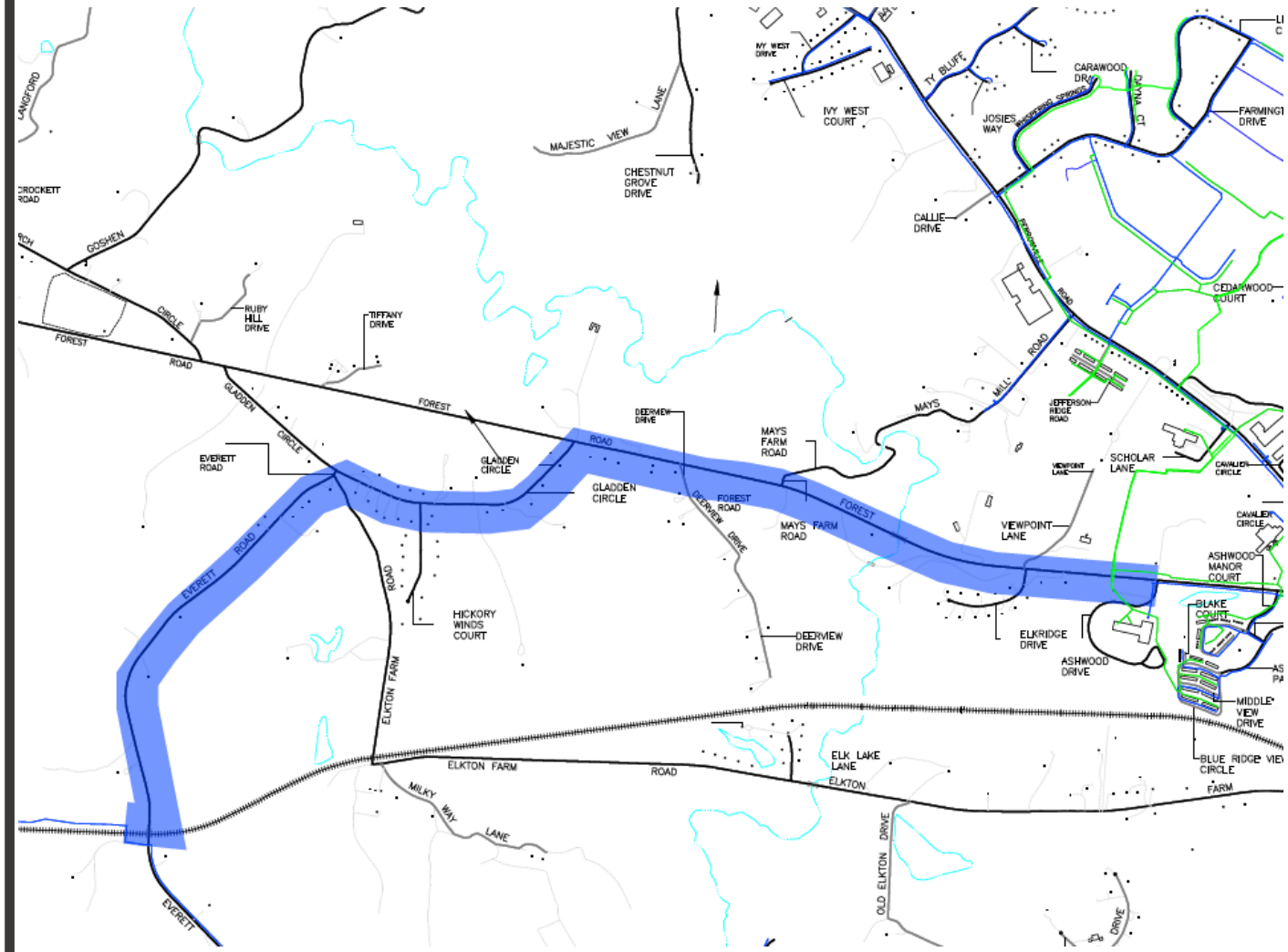
Looping waterlines at Everett Road and Canary Street to Ashwood Drive along Everett Road, Gladden Circle, and Forest Road (Route 221).

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



Bedford Regional Water Authority

Cottontown Road Waterline Loop

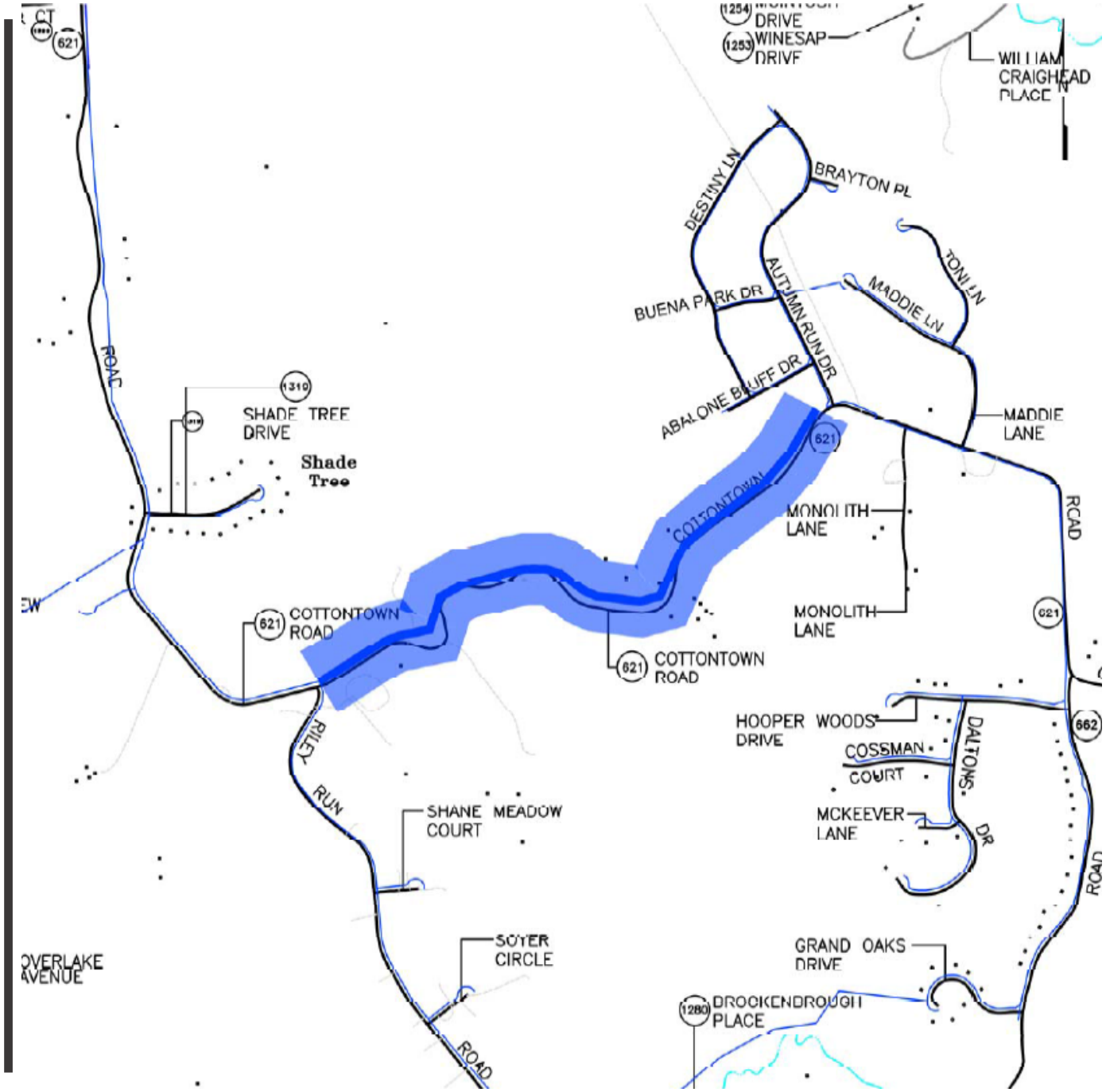
Project Description:

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



Bedford Regional Water Authority

Stewartsville-West Waterline Loop

Project Description:

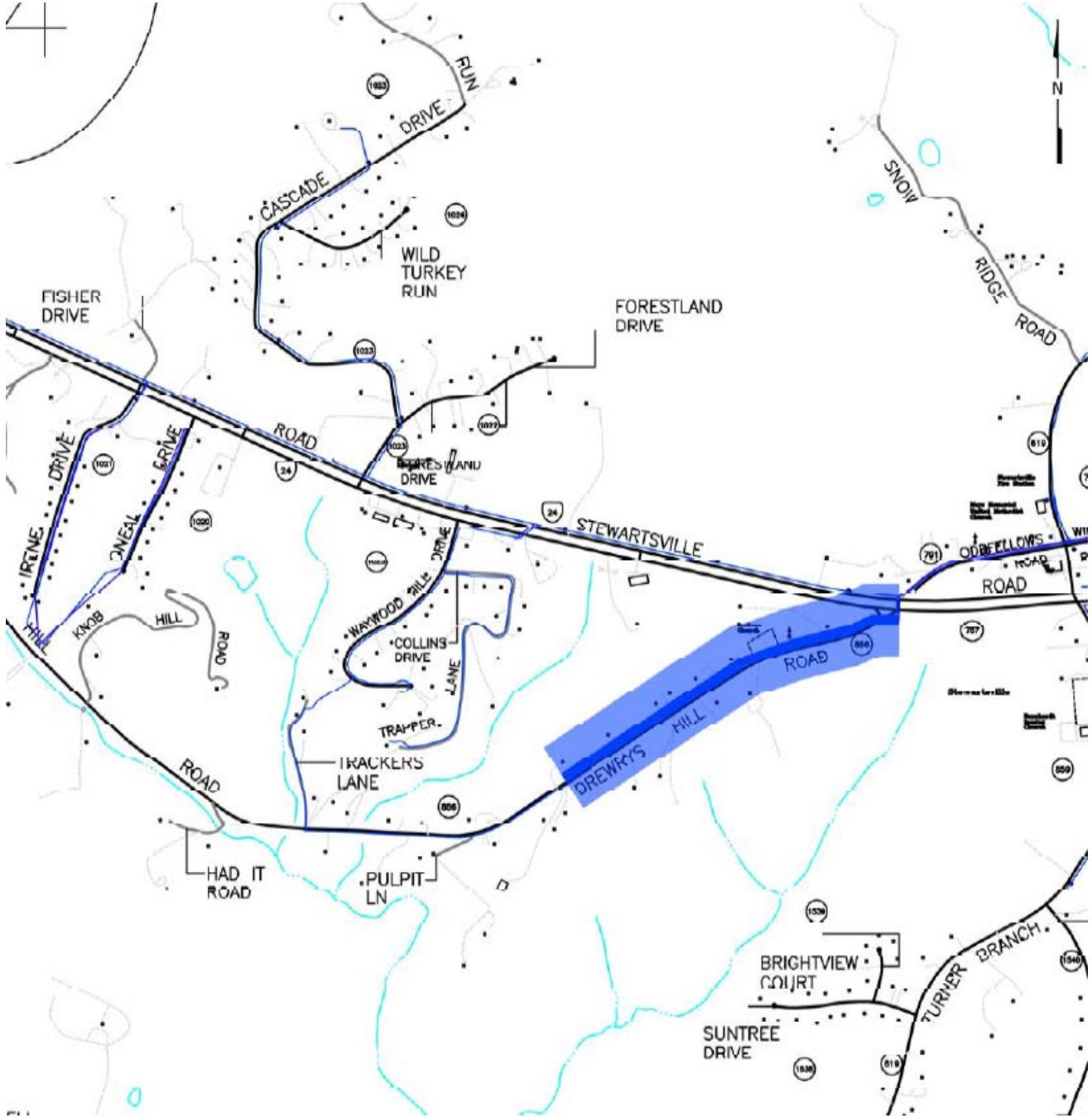
Waterline extension along Drewrys Hill Road from Pulpit Lane to Route 24 – Stewartsville Road.

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 ensure 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



Bedford Regional Water Authority

White House Road Waterline Loop

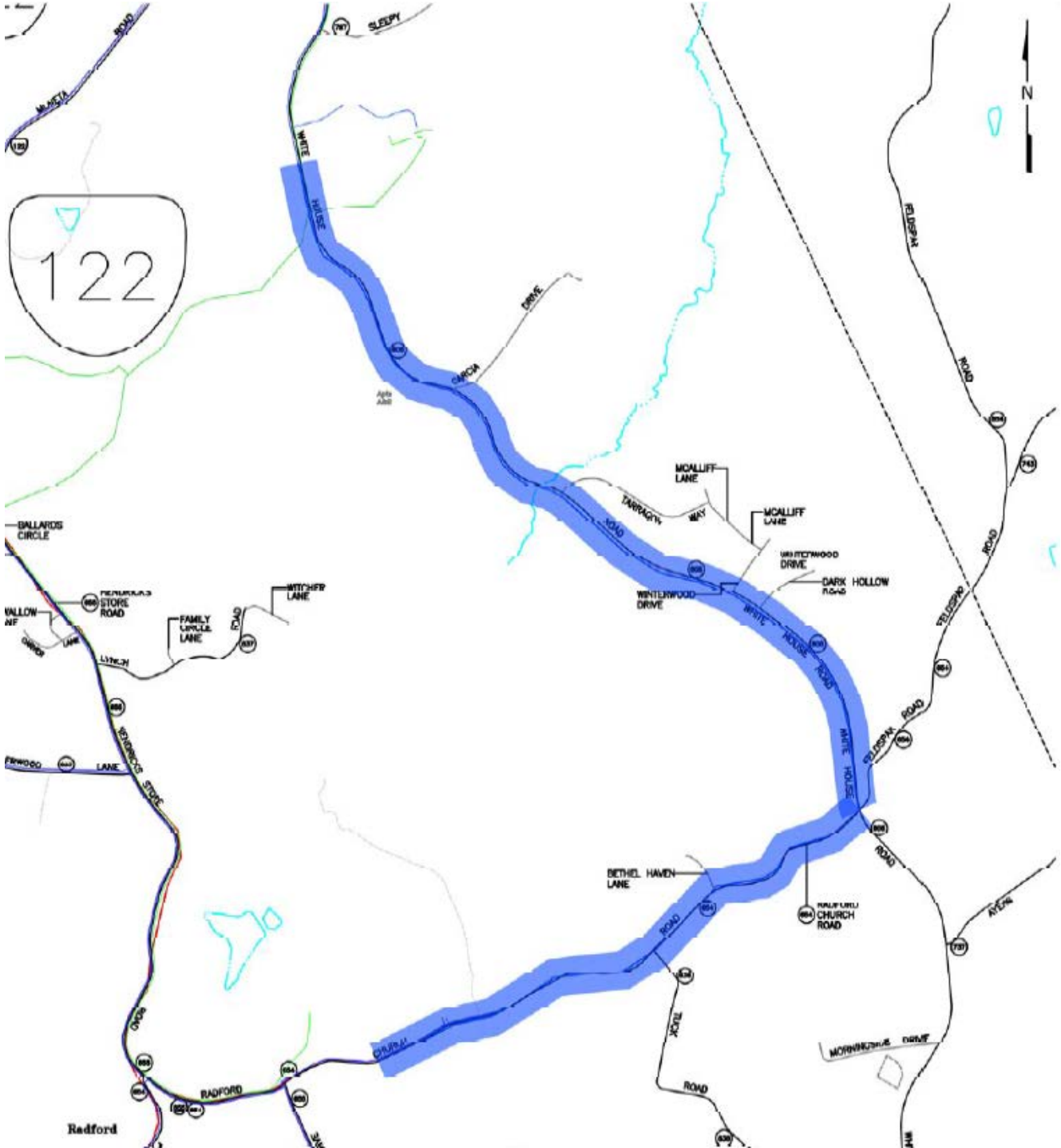
Project Description:

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



Bedford Regional Water Authority

Goodview Waterline - SML to Sycamore Ridge

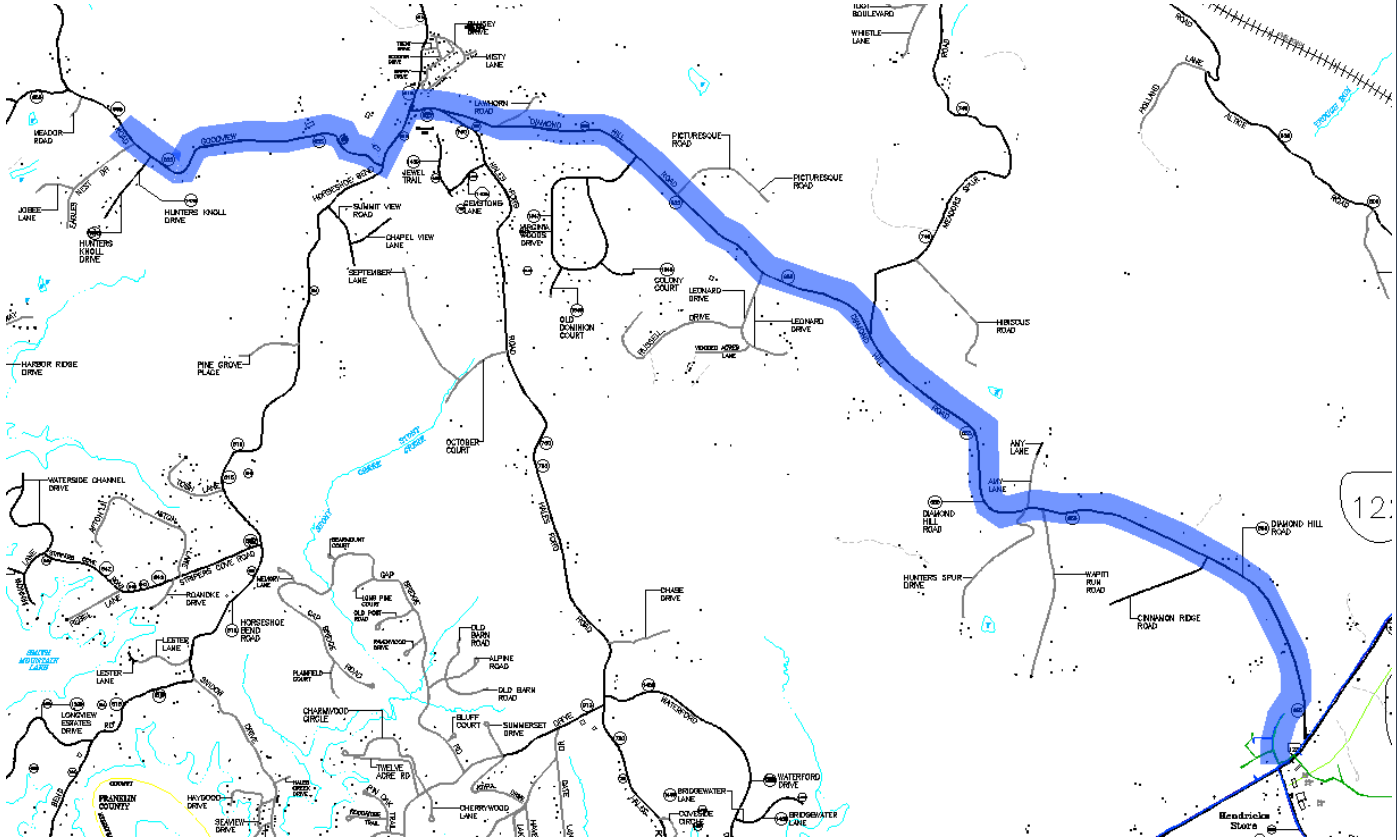
Project Description:

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: $2,200,000

Estimated Length/Size: >5 miles of TBD

Status: Not yet funded



Bedford Regional Water Authority

Stewartsville Sewer

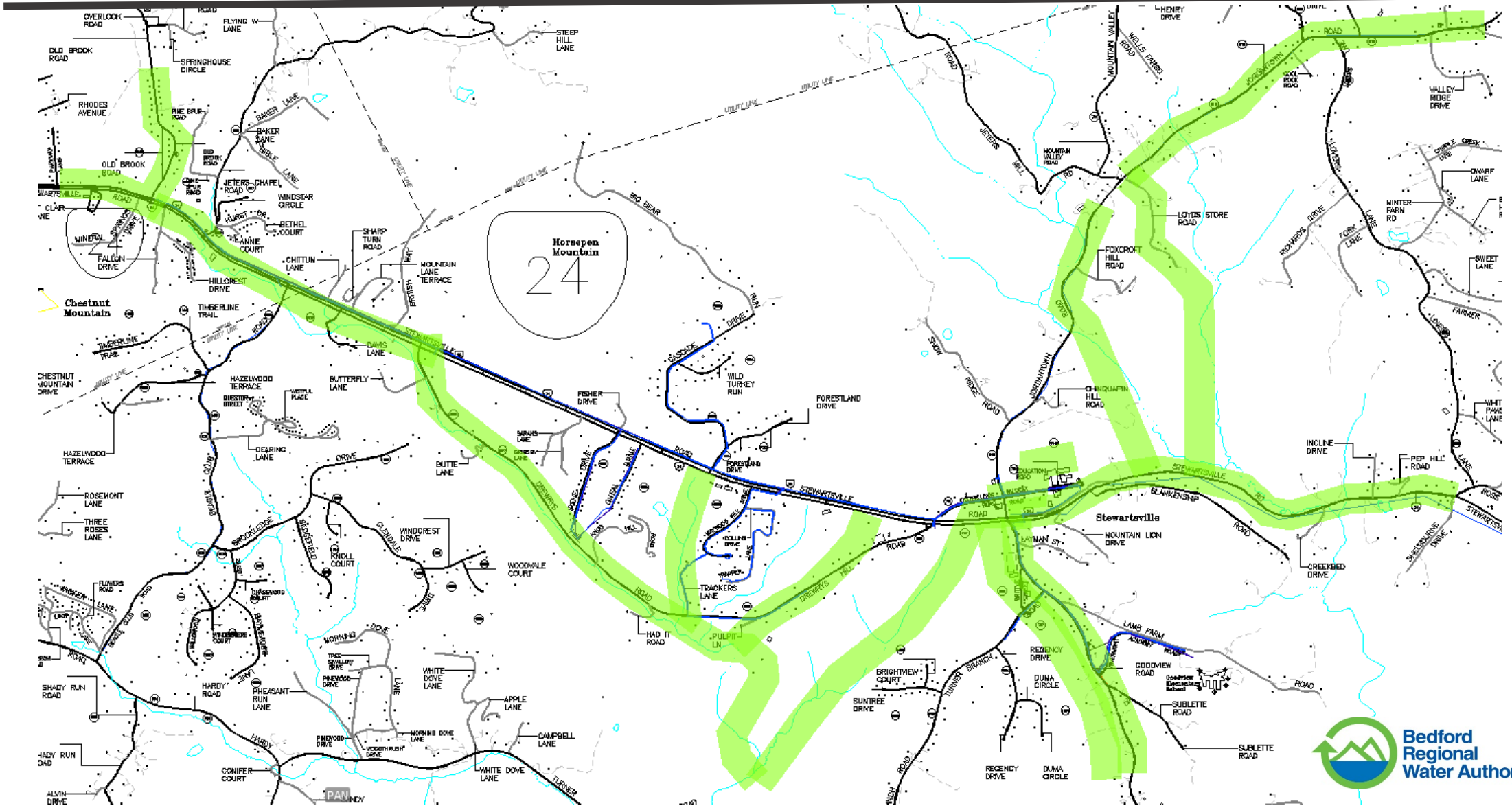
Project Description:

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: $5,600,000

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

Status: Not yet funded