2nd Community Engagement Meeting for the development of a Clean Up Plan (Implementation Plan) for the

Pigg River, Poplar Branch, Fryingpan Creek, and Beaverdam Creek Watersheds

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Nonpoint Source Coordinator, Blue Ridge Regional Office

June 25, 2024

What do we hope to accomplish today?

- Remind us where we are in the process
- Discuss proposed BMPs, costs, timeline and priority areas to reduce sediment and bacteria in the watershed
  - Agriculture
  - Residential septic/pet waste (Beaverdam Creek)
- Next steps

Meeting Takeaway

- To understand what the proposed BMPs are for this IP, including understanding the costs and timelines associated with them

- To gather input and feedback from today's meeting and do any remaining adjustments to our data

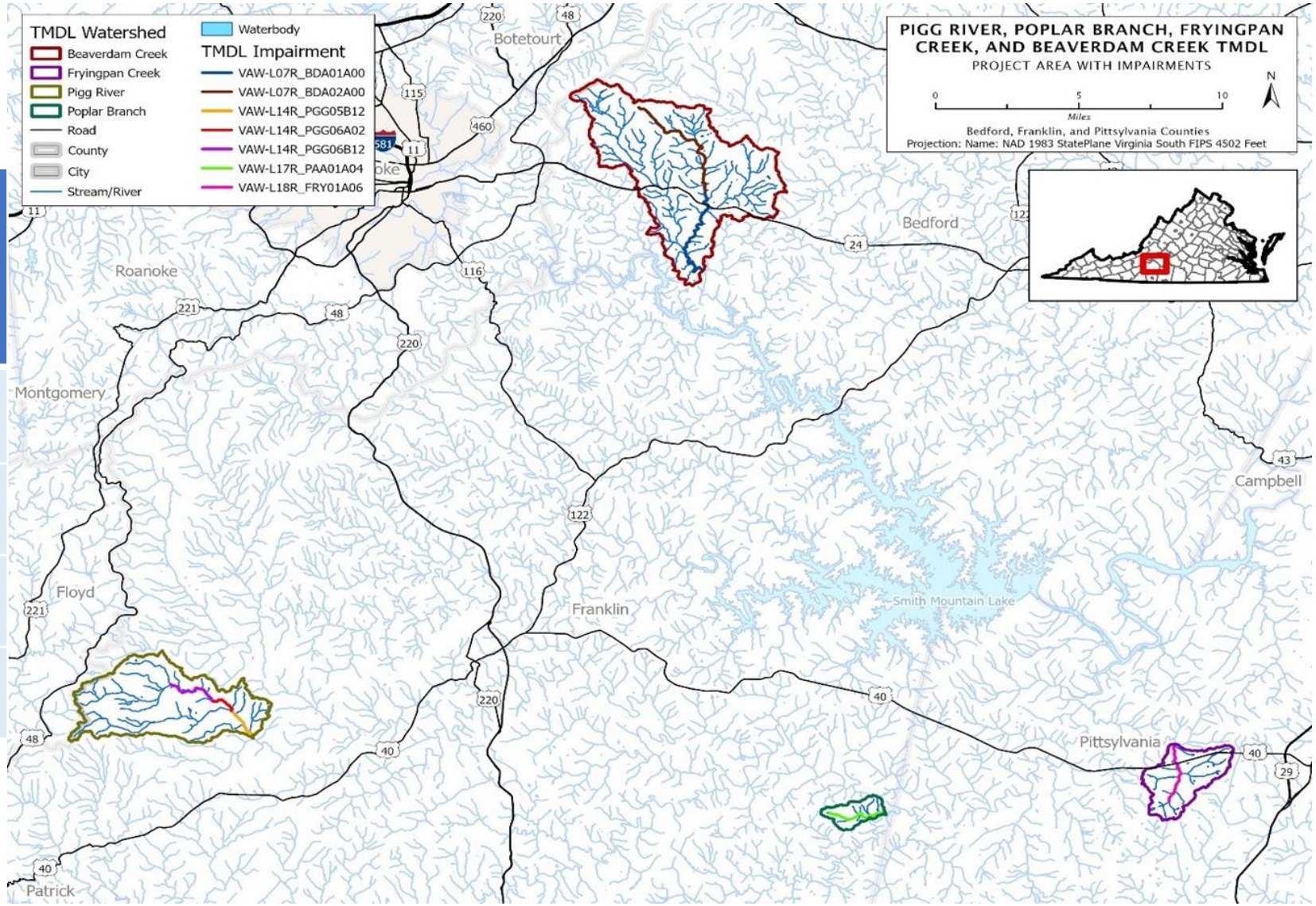
Virginia's Water Quality Process

- **Cleanup Implementation Plans**
  - Plans for actions needed to restore water quality (NPS pollution)
- **Implementing Control Measures**
  - Permits (TMDLs), best management practices, cleanup actions
  - 319 Grant funding available for IP NPS BMPs

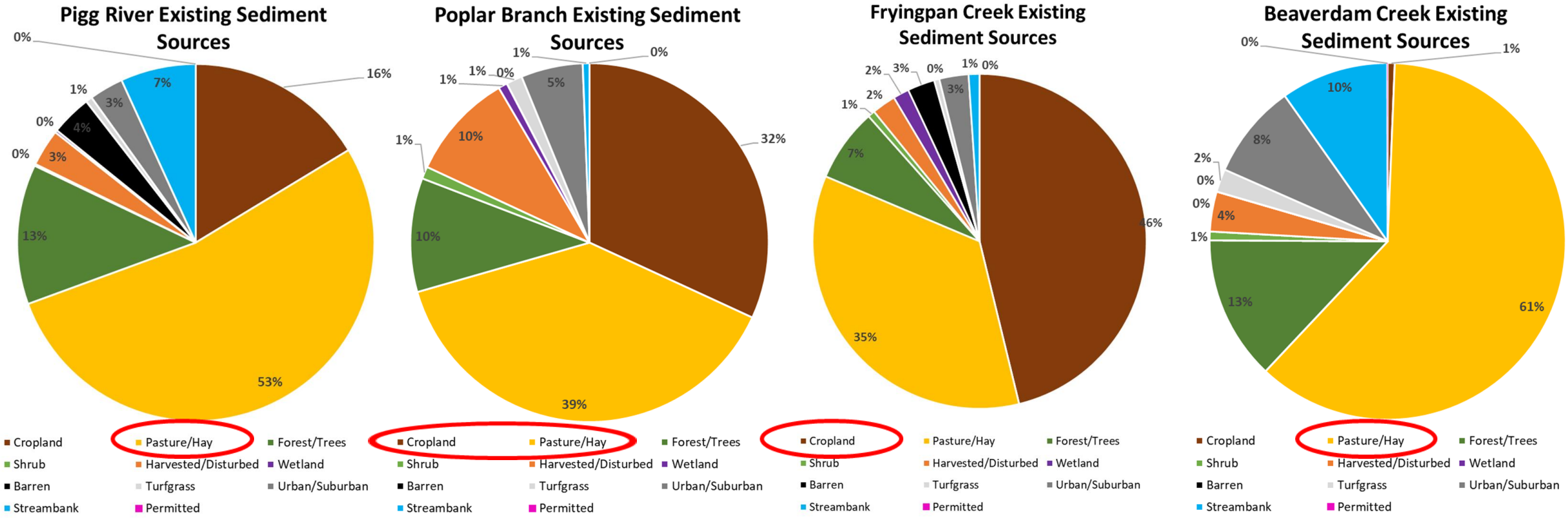
Impaired Stream Segments

Impaired Streams	Initial Listing Year (Benthic)	Initial Listing Year (Bacteria)
Beaverdam Creek*	2010	2006
Fryingpan Creek	2006	
Pigg River	2012	
Poplar Branch	2008	

***- TMDLs developed for both Sediment and Bacteria**



From the 2022 TMDL study:



Pigg River- Livestock Stream Exclusion

*Assumes one exclusion system averages 2,000 linear feet of stream fencing.

(Years 1-5) (Years 6-10)

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Livestock stream Exclusion	Stream Exclusion with Narrow Width Buffer and Grazing Land Management	SL-6N	system (feet)	$60,000	1 (2,000)	$60,000	0	$0	1 (2,000)	$60,000
	Stream Exclusion with Wide Width Buffer and Grazing Land Management	SL-6W, SL-6F		$95,000	4 (8,000)	$380,000	4 (8,000)	$380,000	8	$760,000
	Stream Exclusion with tree planting - CREP	CREP		$100,000	1 (2,000)	$100,000	0	$0	1 (2,000)	$100,000
	Exclusion fence maintenance (10 yrs)	CCI-SE-1, CCI-SL-6N-CCI-SL-6W	feet	$5.50	821	$4,516	821	$4,516	1642	$9,032
	TOTAL ESTIMATED COST					**$544,516**		**$384,516**		**$929,032**

Livestock Exclusion Fencing

Stream Exclusion with tree planting (CREP)

Pigg River- Pasture

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Pasture	Extension of watering system	SL-7	system (acres)	$13,000	1 (40)	$13,000	1 (40)	$13,000	2 (80)	$26,000
	Pasture management	NRCS-CSP, SL-10	acres	$150	173	$25,950	389	$58,350	562	$84,300
	Afforestation of erodible pasture	FR-1		$3,000	0	$0	42	$126,000	42	$126,000
	Permanent vegetation on critical areas	SL-11		$2,000	0	$0	0.86	$1,720	0.86	$1,720
	Sediment retention, erosion or water control structure	WP-1	acres treated	$4,000	0	$0	0	$0	0	$0
	TOTAL ESTIMATED COST					**$38,950**		**$199,070**		**$235,020**

Pasture Management

Afforestation of erodible pasture

Pigg River- Cropland and Hayland

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Cropland	Continuous no till	SL-15A	acres	$100	0	$0	176	$17,600	176	$17,600
	Cover crops	SL-8B, SL-8H, SL-8M		$75	0	$0	176	$13,200	176	$13,200
	Conversion from high till to low till	N/A		$80	0	$0	0	$0	0	$0
	Long term vegetation on cropland	SL-1		$500	0	$0	25	$12,500	25	$12,500
Hayland	Forest riparian buffers	DOF-RT, FR-3	acres	$2,000	0	$0	29	$58,000	29	$58,000
	Afforestation of haylands	FR-1		$3,000	0	$0	0.6	$1,800	0.6	$1,800
	TOTAL ESTIMATED COST					**$0**		**$103,100**		**$103,100**

Cover Crops

Forest Riparian Buffers

Continuous no till

Pigg River- Urban and Residential

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Residential stormwater	Erosion & sediment controls on transitional areas	N/A	acres treated	$500	4	$2,000	0	$0	4	$2,000
	Rain gardens	RG	system	$3,000	0	$0	1	$3,000	1	$3,000
	Forest riparian buffers	N/A	acres	$1,750	0	$0	0	$0	0	$0
	TOTAL ESTIMATED COST					**$2,000**		**$3,000**		**$5,000**

Bio Retention (Rain Garden)

Forest Riparian Buffer

Pigg River- Streambank

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Streambank	Streambank stabilization	WP-2A	feet	$750	650	$487,500	0	$0	650	$487,500
	TOTAL ESTIMATED COST					**$487,500**		**$0**		**$487,500**

Streambank Stabilization

Poplar Branch- Livestock Stream Exclusion

*Assumes one exclusion system averages 2,000 linear feet of stream fencing.

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Livestock stream Exclusion	Stream Exclusion with Narrow Width Buffer and Grazing Land Management	SL-6N	system (feet)	$60,000	0	$0	0	$0	0	$0
	Stream Exclusion with Wide Width Buffer and Grazing Land Management	SL-6W, SL-6F		$95,000	1 (2,000)	$95,000	0	$0	1 (2,000)	$95,000
	Stream Exclusion with tree planting - CREP	CREP		$100,000	0	$0	0	$0	0	$0
	Exclusion fence maintenance (10 yrs)	CCI-SE-1, CCI-SL-6N-CCI-SL-6W	feet	$5.50	22	$121	22	$121	44	$242
	TOTAL ESTIMATED COST					**$95,121**		**$121**		**$95,242**

Livestock Exclusion Fencing

Stream Exclusion with tree planting (CREP)

Poplar Branch- Pasture

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Pasture	Extension of watering system	SL-7	system (acres)	$13,000	1 (40)	$13,000	1 (40)	$13,000	2 (80)	$26,000
	Pasture management	NRCS-CSP, SL-10	acres	$150	28	$4,200	32	$4,800	60	$9,000
	Afforestation of erodible pasture	FR-1		$3,000	4	$12,000	7	$21,000	11	$33,000
	Permanent vegetation on critical areas	SL-11		$2,000	0.07	$140	0.07	$140	0.14	$280
	Sediment retention, erosion or water control structure	WP-1	acres treated	$4,000	0	$0	25	$100,000	0	$100,000
	TOTAL ESTIMATED COST					**$29,340**		**$138,940**		**$168,280**

Pasture Management

Afforestation of erodible pasture

Poplar Branch- Cropland and Hayland

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Cropland	Forest riparian buffers	DOF-RT, FR-3	acres	$2,000	6	$12,000	13	$26,000	19	$38,000
	Continuous no till	SL-15A		$100	10	$1,000	14	$1,400	24	$2,400
	Cover crops	SL-8B, SL-8H, SL-8M		$75	10	$750	14	$1,050	24	$1,800
	Conversion from high till to low till	N/A		$80	5	$400	0	$0	5	$400
	Long term vegetation on cropland	SL-1		$500	2	$1,000	0	$0	2	$1,000
Hayland	Forest riparian buffers	DOF-RT, FR-3	acres	$2,000	6	$12,000	13	$26,000	19	$38,000
	Afforestation of haylands	FR-1		$3,000	0.1	$300	0.1	$300	0.2	$600
	TOTAL ESTIMATED COST					**$27,450**		**$54,750**		**$82,200**

Cover Crops

Forest Riparian Buffers

Continuous no till

Poplar Branch- Residential and Streambank

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Residential stormwater	Erosion & sediment controls on transitional areas	N/A	acres treated	$500	0	$0	0	$0	0	$0
	Rain gardens	RG	system	$3,000	0	$0	1	$3,000	1	$3,000
	Forest riparian buffers	N/A	acres	$1,750	0	$0	0	$0	0	$0
	TOTAL ESTIMATED COST					**$0**		**$3,000**		**$3,000**

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Streambank	Streambank stabilization	WP-2A	feet	$750	0	$0	0	$0	0	$0
	TOTAL ESTIMATED COST					**$0**		**$0**		**$0**

Fryingpan Creek - Livestock Stream Exclusion

*Assumes one exclusion system averages 2,000 linear feet of stream fencing.

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Livestock stream Exclusion	Stream Exclusion with Narrow Width Buffer and Grazing Land Management	SL-6N	system (feet)	$60,000	0 (0)	$0	0 (0)	$0	0 (0)	$0
	Stream Exclusion with Wide Width Buffer and Grazing Land Management	SL-6W, SL-6F		$95,000	0 (0)	$0	0 (0)	$0	0 (0)	$0
	Stream Exclusion with tree planting - CREP	CREP		$100,000	0 (0)	$0	0 (0)	$0	0 (0)	$0
	Exclusion fence maintenance (10 yrs)	CCI-SE-1, CCI-SL-6N-CCI-SL-6W	feet	$5.50	228	$1,254	228	$1,254	456	$2,508
	TOTAL ESTIMATED COST					**$1,254**		**$1,254**		**$2,508**

Livestock Exclusion Fencing

Stream Exclusion with tree planting (CREP)

Fryingpan Creek- Pasture

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Pasture	Extension of watering system	SL-7	system (acres)	$13,000	1 (40)	$13,000	1 (40)	$13,000	2 (80)	$26,000
	Pasture management	NRCS-CSP, SL-10	acres	$150	144	$21,600	162	$24,300	306	$45,900
	Afforestation of erodible pasture	FR-1		$3,000	32	$96,000	32	$96,000	64	$192,000
	Permanent vegetation on critical areas	SL-11		$2,000	0.36	$720	0.36	$720	0.72	$1,440
	Sediment retention, erosion or water control structure	WP-1	acres treated	$4,000	0	$0	240	$960,000	240	$960,000
	TOTAL ESTIMATED COST					**$131,320**		**$1,094,020**		**$1,255,340**

Fryingpan Creek- Cropland and Hayland

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Cropland	Continuous no till	SL-15A	acres	$100	0	$0	57	$5,700	57	$5,700
	Cover crops	SL-8B, SL-8H, SL-8M		$75	26	$1,950	31	$2,325	57	$4,275
	Conversion from high till to low till	N/A		$80	84	$6,720	44	$3,520	128	$10,240
	Long term vegetation on cropland	SL-1		$500	1	$500	1	$500	2	$1,000
Hayland	Forest riparian buffers	DOF-RT, FR-3	acres	$2,000	0	$0	0	$0	0	$0
	Afforestation of haylands	FR-1		$3,000	0	$0	0	$0	0	$0
	TOTAL ESTIMATED COST					**$9,170**		**$12,045**		**$21,215**

Cover Crops

Forest Riparian Buffers

Continuous no till

Fryingpan Creek- Residential and Streambank

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Residential stormwater	Erosion & sediment controls on transitional areas	N/A	acres treated	$500	6 (2,000)	$3,000	0 (0)	$0	6 (2,000)	$3,000
	Raingardens	RG	system	$3,000	0	$0	3	$9,000	3	$9,000
	Forest riparian buffers	N/A	acres	$1,750	0.1	$175	0	$0	0.1	$175
	TOTAL ESTIMATED COST					**$3,175**		**$9,000**		**$12,175**

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Streambank	Streambank stabilization	WP-2A	feet	$750	0	$0	35	$26,250	35	$26,250
	TOTAL ESTIMATED COST					**$0**		**$26,500**		**$26,250**

Beaverdam Creek- Residential Overview

Within the Beaverdam Creek watershed, estimated totals (US Census 2020):

Estimated Population	Total Septic Systems	Houses with Failing Septic Systems	Houses with Straight Pipes	Pets	
				Dogs	Cats
		10% of households	0.5% of households	1.7 per household	2.1 per household
3,582	1,665	166	8	2,831	3,497

Beaverdam Creek- Livestock Stream Exclusion

*Assumes one exclusion system averages 2,000 linear feet of stream fencing.

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Livestock stream Exclusion	Stream Exclusion with Narrow Width Buffer and Grazing Land Management	SL-6N	system (feet)	$60,000	1 (2,000)	$60,000	1 (2,000)	$60,000	2 (4,000)	$120,000
	Stream Exclusion with Wide Width Buffer and Grazing Land Management	SL-6W, SL-6F		$95,000	18 (36,000)	$1,710,000	18 (36,000)	$1,710,000	36 (72,000)	$3,420,000
	Stream Exclusion with tree planting - CREP	CREP		$100,000	1 (2,000)	$100,000	1	$100,000	2 (4,000)	$200,000
	Exclusion fence maintenance (10 yrs)	CCI-SE-1, CCI-SL-6N-CCI-SL-6W	feet	$5.50	4,029	$22,160	4,029	$22,160	8,058	$44,320
	TOTAL ESTIMATED COST					**$1,892,160**		**$1,892,160**		**$3,784,320**

Livestock Exclusion Fencing

Stream Exclusion with tree planting (CREP)

Beaverdam Creek- Pasture and Hayland

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Pasture	Extension of watering system	SL-7	system (acres)	$13,000	1 (40)	$13,000	1 (40)	$13,000	2 (80)	$26,000
	Pasture management	NRCS-CSP, SL-10	acres	$150	813	$121,950	624	$93,600	562	$84,300
	Afforestation of erodible pasture	FR-1		$3,000	122	$366,000	653	$1,959,000	775	$2,325,000
	Permanent vegetation on critical areas	SL-11		$2,000	7	$14,000	7	$14,000	14	$28,000
	Animal waste control facility (beef)	WP-4	system	$100,000	1	$100,000	1	$100,000	2	$200,000
	Barnyard runoff management	WQ-12		$1,200	20	$24,000	197	$236,400	117	$260,400
	Sediment retention, erosion, or water control structure	WP-1	acres treated	$4,000	0	$0	180	$720,000	180	$720,000
	TOTAL ESTIMATED COST					**$638,950**		**$3,136,000**		**$3,774,950**

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Hayland	Forest riparian buffers	DOF-RT, FR-3	acres	$2,000	0	$0	36	$72,000	36	$72,000
	Afforestation of haylans	FR-1		$3,000	0	$0	0	$0	0	$0
	TOTAL ESTIMATED COST					**$0**		**$72,000**		**$72,000**

Sediment reduction goals will be met with Stage 1 practice.

Beaverdam Creek- Residential and Streambank

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Residential stormwater	Erosion & sediment controls on transitional areas	N/A	acres treated	$500	0	$0	0	$0	0	$0
	Rain gardens	RG	system	$3,000	0	$0	1	$3,000	1	$3,000
	Forest riparian buffers	N/A	acres	$1,750	2	$3,500	2	$3,500	4	$7,000
	TOTAL ESTIMATED COST					**$3,500**		**$6,500**		**$10,000**

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Streambank	Streambank stabilization	WP-2A	feet	$750	1210	$907,500	0	$0	1210	$907,500
	TOTAL ESTIMATED COST					**$907,500**		**$0**		**$907,500**

Sediment reduction goals will be met with Stage 1 practice.

Beaverdam Creek- Septic

BMP Type	Practice	Cost share code	Units	Unit cost	Stage 1		Stage 2		TOTAL	
					Number	Cost	Number	Cost	Number	Cost
Septic	Onsite sewage system repair w/ permit	RB-3	repair	$7,500	17	$127,500	16	$120,000	33	$247,500
	Full inspection and non-permitted onsite sewage system repair	RB-3M		$4,875	17	$82,875	16	$78,000	33	$160,875
	Onsite sewage system installation/replacement	RB-4	system	$12,500	18	$225,000	17	$212,500	35	$437,500
	Onsite sewage system installation.replacement w/pump	RB-4P		$16,500	18	$297,000	17	$280,500	35	$577,500
	Alternative sewage system	RB-5		$31,500	19	$598,500	19	$598,500	38	$1,197,000
	Septic tank pump-out	RB-1	pump-out	$450	278	$125,100	277	$124,650	555	$249,750
	TOTAL ESTIMATED COST					**$1,455,975**		**$1,414,150**		**$2,870,125**

Septic System Pump out

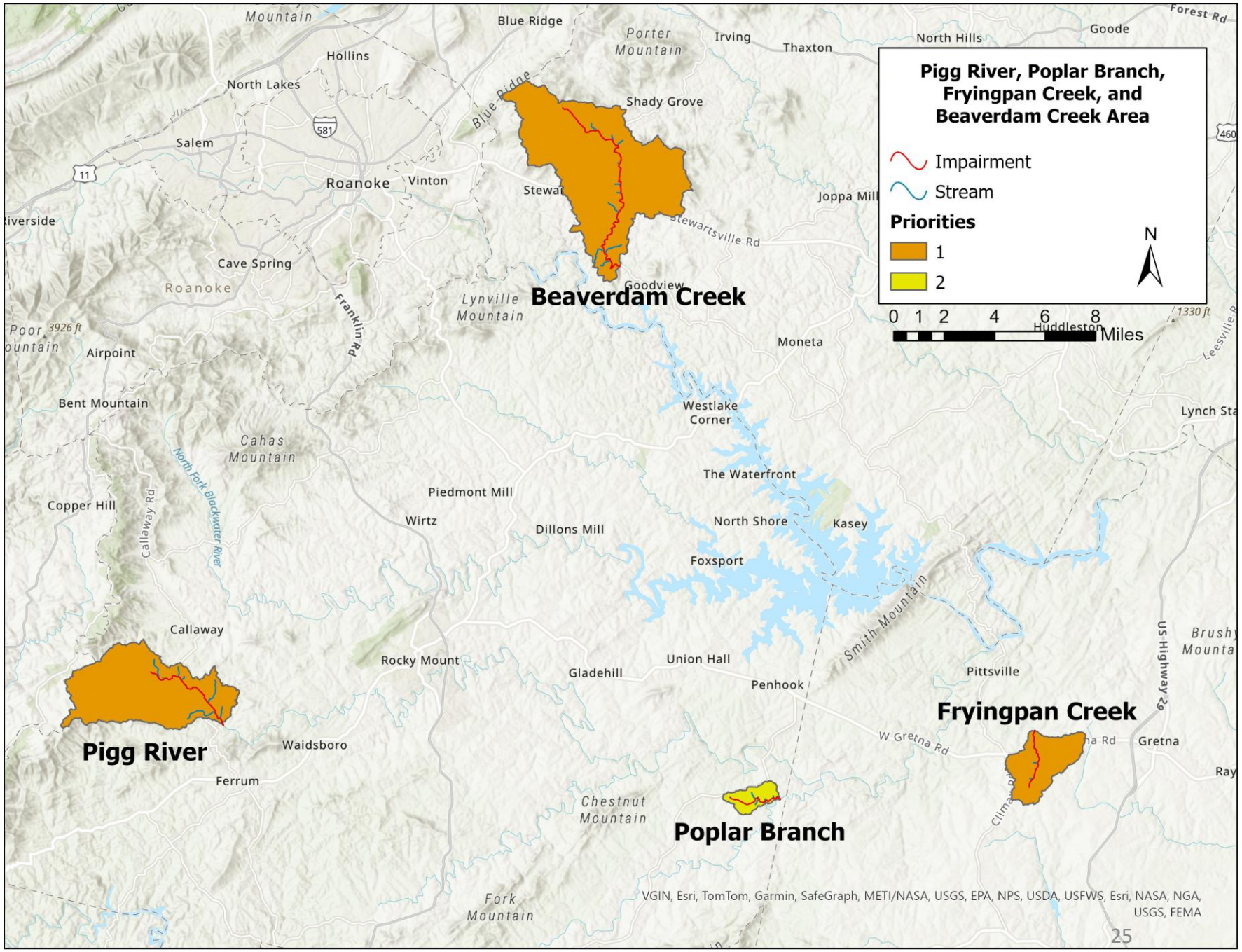
Septic System Repair

Alternative On-site Sewage Disposal System

Priority Areas

Priority 1:
- Pigg River
- Fryingpan Creek
- Beaverdam Creek

Priority 2:
- Poplar Branch



Overall Summary- All Watersheds

Watershed	Agricultural BMPs		Residential BMPs		Streambank BMPs		Septic BMPs		Costs		
	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Total
Pigg River	$583,466	$686,686	$2,000	$3,000	$487,500	$0	-	-	$1,072,966	$689,686	**$1,762,652**
Poplar Branch	$151,911	$193,811	$0	$3,000	$0	$0	-	-	$151,911	$196,811	**$348,722**
Fryingpan Creek	$141,744	$1,107,319	$3,175	$9,000	$0	$26,250	-	-	$144,919	$1,142,569	**$1,287,488**
Beaverdam Creek	$2,531,110	$5,400,160	$3,500	$6,500	$907,500	$0	$1,455,975	$1,414,150	$4,898,085	$6,820,810	**$11,718,895**
Total Estimated Cost	**$3,408,231**	**$7,387,976**	**$8,675**	**$21,500**	**$1,395,000**	**$26,250**	**$1,455,975**	**$1,414,150**	**$6,267,881**	**$8,849,876**	**$15,117,757**

***Note: 319(h) funding is one of many sources of funding that will help cover the total costs**

Technical Assistance

- One (1) full-time employee (FTE) for each SWCD for Ag BMPs?
- One (1) full-time employee (FTE) for each SWCD for Residential Septic/Pet Waste BMPs?

Additional Funding Sources

- Virginia Nonpoint Source Implementation Program (NPS) 319 (h) funding
- Virginia Agricultural Best Management Practices Cost-Share Program (VACS)
- Virginia Water Quality Improvement Fund (WQIF)
- Virginia Agricultural Best Management Practices Tax Credit Program
- Conservation Reserve Program (CRP)
- Clean Water Revolving Loan Fund
- Environmental Quality Incentives Program
- Southeast Rural Community Assistance Program (SERCAP)
- Tool: DOF Financial Assistance Programs

Identification of Education and Outreach Strategies

Current partners in implementation plan development to date include:

- Blue Ridge Soil and Water Conservation District
- Peaks of Otter Soil and Water Conservation District
- Pittsylvania Soil and Water Conservation District
- Virginia Cooperative Extension
- Virginia Department of Forestry
- Leesville Lake Association
- Smith Mountain Lake Association
- Lynchburg College
- Ferrum College
- Franklin County
- Bedford County
- Pittsylvania County
- Central Virginia Planning District
- Tri-County Lakes Administrative Commission
- Natural Resource Conservation Service

Additional Information

- Department of Forestry – Riparian Forest for Landowners Program
- Pigg River Debris Diversion Device

Riparian Forests for Landowners Program

Providing Flexible, No-Cost Forest Buffer Installation

Forestry Topic 66 March 2024

Riparian forest buffers (buffers) are transition areas that protect streams, creeks or other water features by slowing the flow of water and capturing sediment, nutrients and pollutants in the soil before they reach the water. Buffers provide additional benefits beyond water quality protection. Tree roots stabilize the soil, prevent erosion and mitigate flood impacts. Trees shade and cool streams for aquatic life and the forest provides habitat for wildlife. A buffer can add beauty to the landscape, provide a place for relaxation and recreation, and even produce fruits and nuts for human consumption. Landowners can improve their property and protect water quality by planting a new buffer.

Program Objective

The Virginia Department of Forestry (DOF) Riparian Forests for Landowners (RFFL) program provides flexible, no-cost forest buffer installation and one year of maintenance to landowners. The program is being implemented by DOF and partner organizations in a unique watershed-based partnership.

Funding is provided by the Inflation Reduction Act through the USDA Forest Service and the Commonwealth of Virginia's Water Quality Improvement Fund Act.

Eligibility

This program is open to private property owners including property/homeowner's associations or civic leagues in rural, urban or suburban areas.

Funding and Requirements

This turnkey program covers the planning, site preparation, planting and one year of maintenance for buffer plantings.

- Buffers may be pine, hardwood or a mix of both.
- Buffers must be at least 35 feet wide and no greater than 300 feet wide per side from the water's edge.
- Land must have less than 20% coverage by invasive plant species to qualify for this program.
- The landowner must agree to retain the buffer as forest for 15 years.

BOOM ANCHOR POINT ALONG SOUTHERN BANK OF LEESVILLE LAKE - LOOKING UPSTREAM

Next Steps

	Tentative Date
First Public Meeting	**February 29, 2024** (Public comment period March 1- April 1, 2024)
# 1	April 18, 2024
# 2	June 25, 2024
Final Public Meeting	September 2024- date? (Public comment period 30 days after Final Public Meeting)
EPA Approval	Winter 2024/Spring 2025 Eligible to apply for DEQ 319 funding in 2025, funds will be disbursed to accepted applicants in 2026

Contact me with any other thoughts, questions, and/or comments!

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