



North Fork Rivanna River TMDL Implementation Plan

First Public Meeting

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Welcome and Introductions

- DEQ Staff
- Meeting Attendees

Purpose and Objectives of this Meeting

- Provide information and opportunities to comment on DEQ's plans
- Ensure meeting participants understand:
 - Implementation Plan project area and environmental concerns
 - Process and Schedule for IP development
 - Key elements of an Implementation Plan
 - Value of an IP for project area environmental restoration
 - How to comment on and participate in IP development

Virginia's Water Quality Process

- Water Quality Monitoring & Assessment:
 - Collect and analyze data
- Reporting:
 - Identify impaired waters
- Cleanup Studies:
 - Plans for restoring impaired waters (TMDL)
 - 2008 Bacteria TMDL
 - 2019 Benthic TMDL
- Cleanup Implementation Plans:
 - Plans for actions needed to restore water quality (NPS pollution)
 - **We are HERE!**
- Implementing Control Measures:
 - Permits, best management practices, cleanup actions
 - 319 Grant funding available for IP NPS BMPs



What is a TMDL?

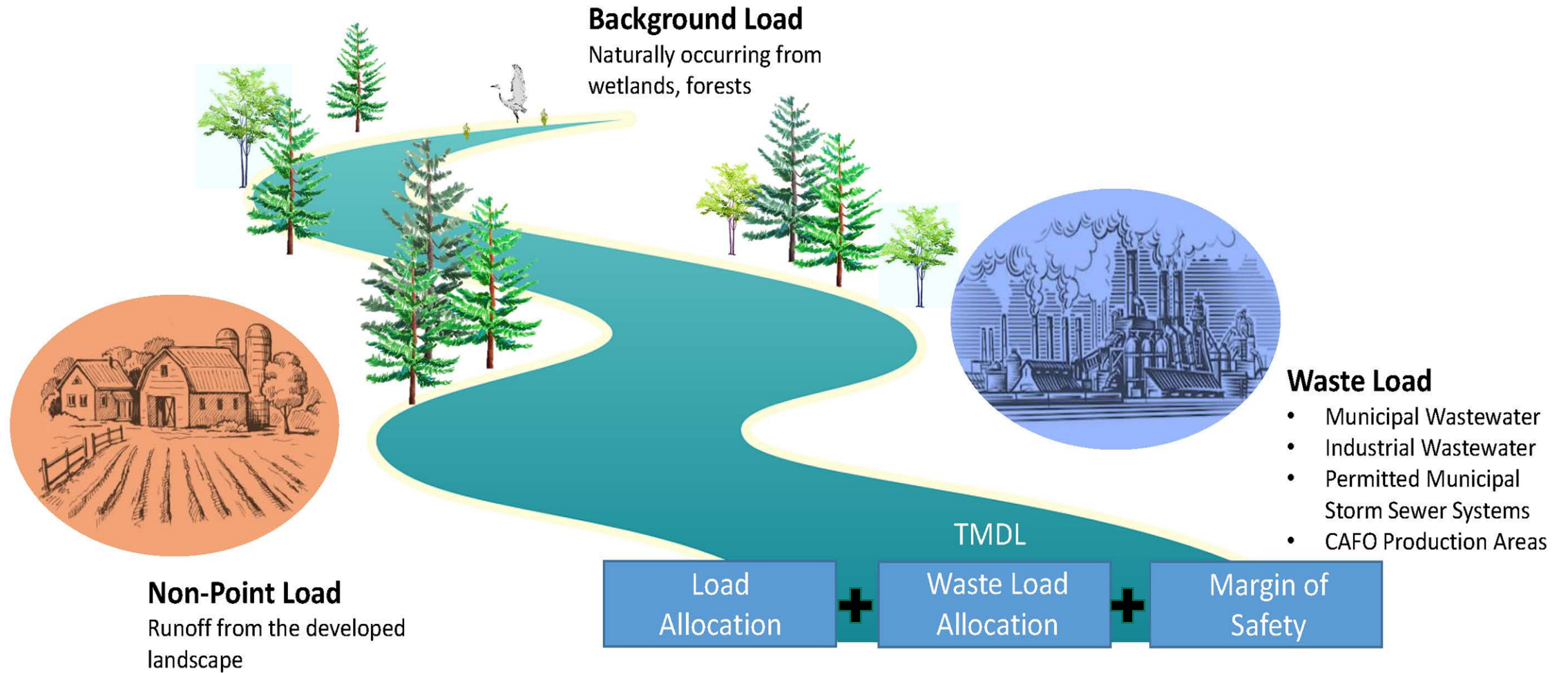
Total Maximum Daily Load is the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards.

A TMDL includes:

1. Identifying sources of pollution
 - Bacteria
 - Benthic (sediment & phosphorus)
2. Modeling their path to the stream
3. Determining the reductions needed from each source to meet the standard.



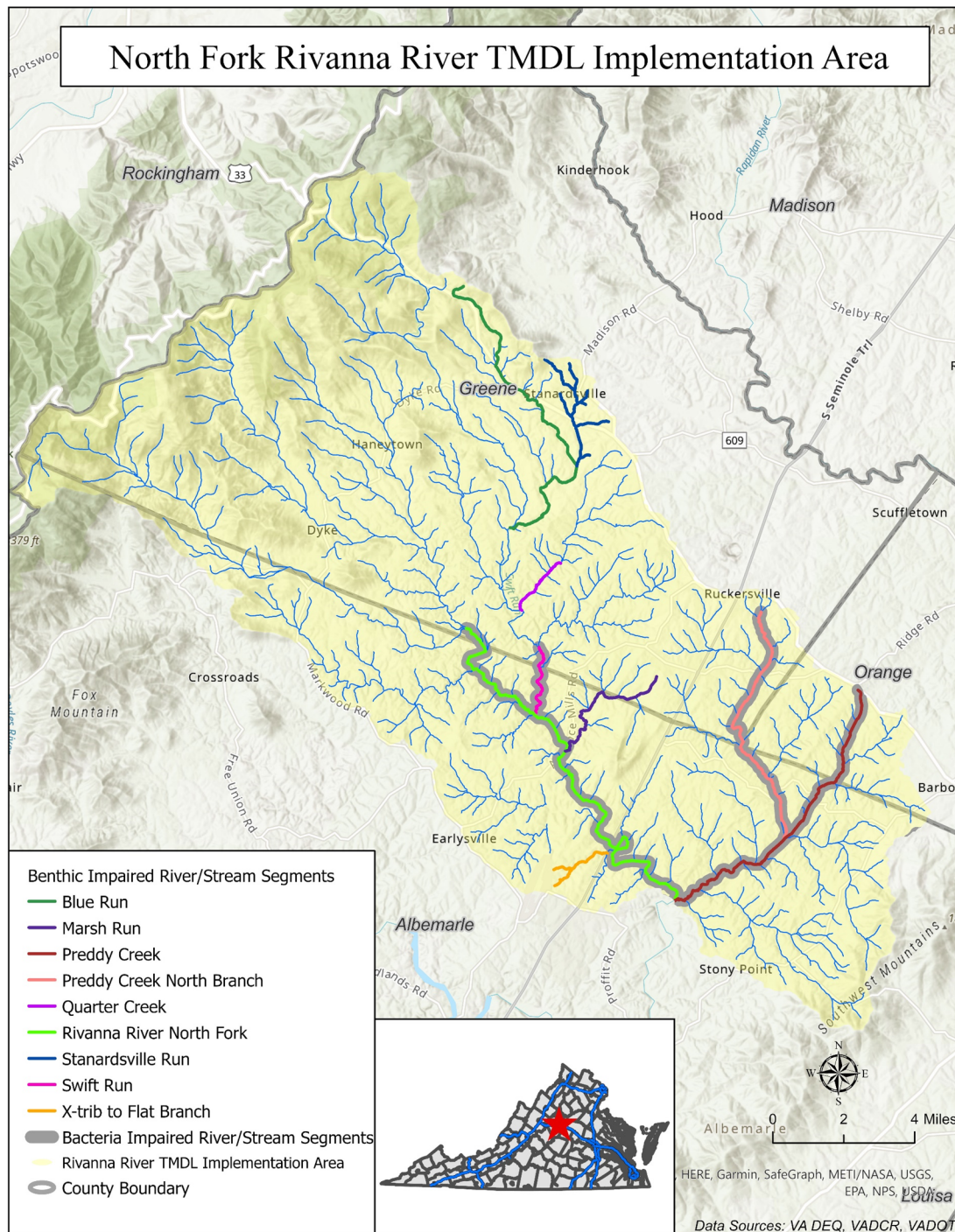
TMDL Equation



TMDL = Waste Load Allocation (point source) + Load Allocation (nonpoint source) + Margin of Safety

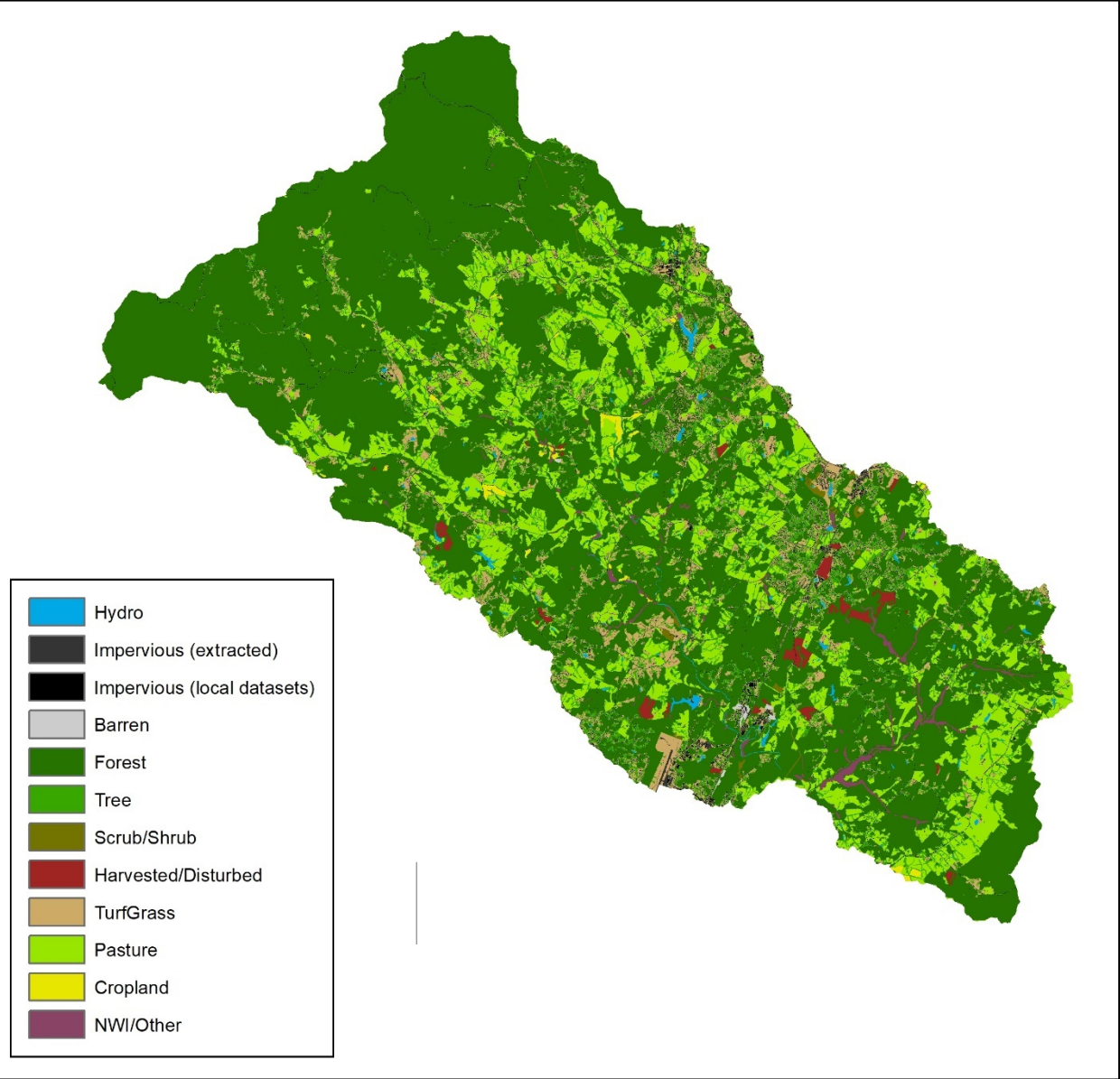
Review of the North Fork Rivanna River TMDLs

- In 2019, a TMDL study was completed to address benthic impairments on the North Fork Rivanna River and several of its tributaries.
 - Excess sediment was identified as the primary stressor.
 - Excess phosphorus was also identified as a stressor in 2 tributaries (Blue Run and Stanardsville Run)
- In 2008, a TMDL study was completed to address bacteria impairments on the North Fork Rivanna River and Preddy Creek
 - In 2010, Swift Run was listed as impaired due to bacteria and will be nested under this TMDL



Impaired Streams	Pollutant(s)
Blue Run	Sediment Phosphorus
Marsh Run	Sediment
Preddy Creek	Sediment Bacteria
Preddy Creek North Branch	Sediment Bacteria
Quarter Creek	Sediment
North Fork Rivanna River	Sediment Bacteria
Stanardsville Run	Sediment Phosphorus
Swift Run	Sediment Bacteria
X-Trib to Flat Branch	Sediment

Review of the TMDL Studies: Land Use



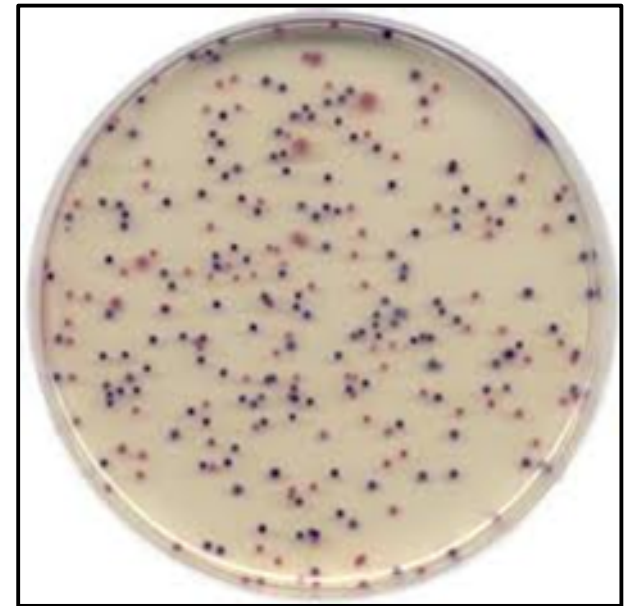
Land Cover Category	North Fork Rivanna River Watershed	
	Acres	%
Cropland	487	0.3%
Hay	9,685	6.7%
Pasture	14,710	10.1%
Forest	87,360	60.2%
Trees	16,148	11.1%
Shrub	307	0.2%
Harvested/Disturbed	1,628	1.1%
Water	686	0.5%
Wetland	1,137	0.8%
Barren	36	0.0%
Turfgrass	9,223	6.4%
Developed, pervious	615	0.4%
Developed, impervious	3,824	2.6%
Total	145,846	100%

Bacteria and Benthic Impairments: Background

Preddy Creek, North Fork Rivanna River, and Swift Run were all listed as impaired on Virginia's 303(d) Total Maximum Daily Load Priority List and Reports because of violations of the state's water quality standard for E. Coli and for fecal coliform bacterial.

Fecal bacteria levels are used to assess the **Recreational Use** water quality standard.

Fecal bacteria organisms originate in the feces of warm-blooded animals. Fecal bacteria, parasites, and viruses can cause both acute (diarrhea and infections) and chronic (ulcers and arthritis) effects in humans.



Bacteria and Benthic Impairments: Background

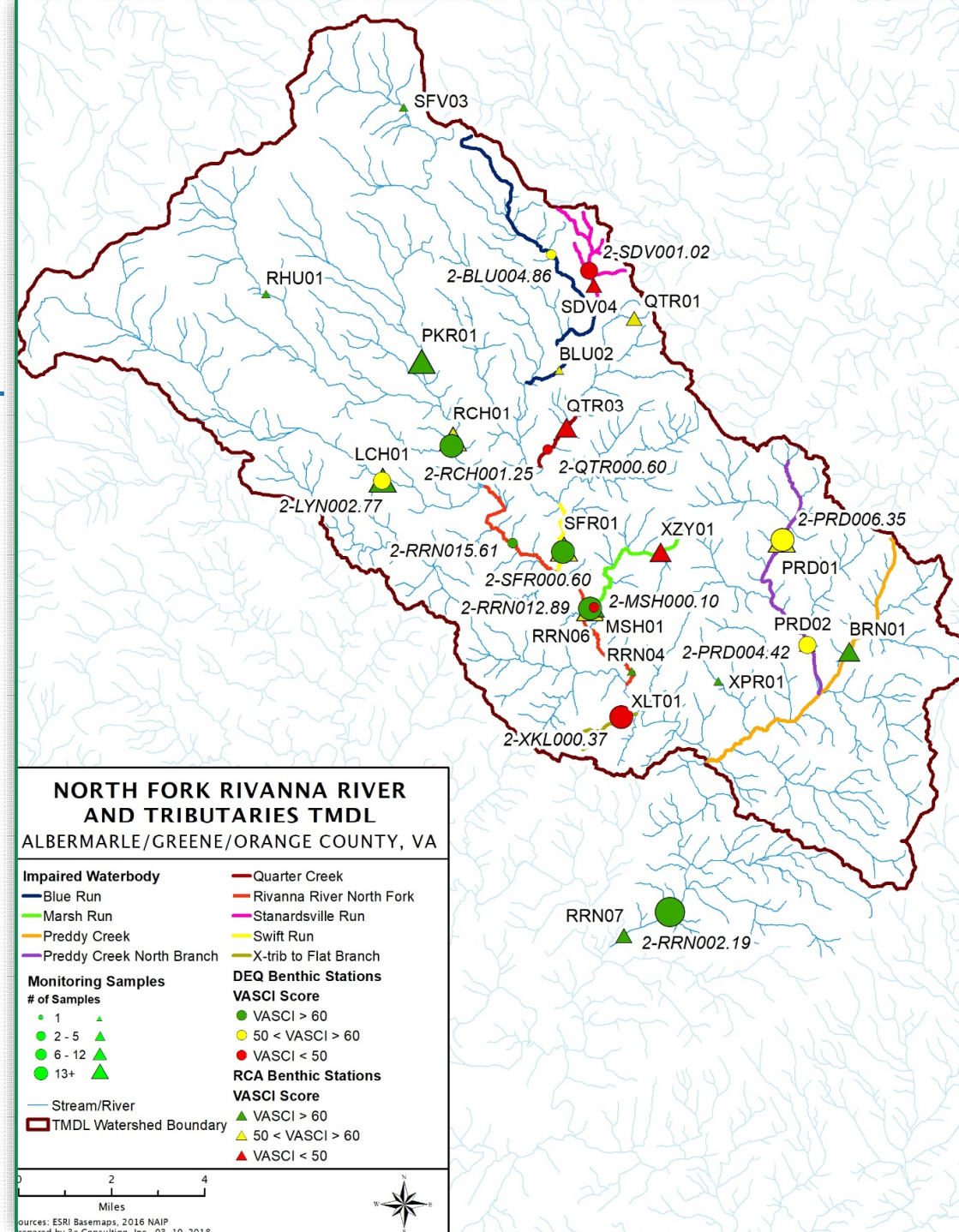
Nine (9) streams within the North Fork Rivanna River watershed currently do not support the aquatic life designated use based on biological monitoring of the benthic macroinvertebrate community.

Benthic Macroinvertebrates:

- live on stream bottoms, are seen with the naked eye, and have no backbone
- show the long-term effect of pollution/ecosystem impacts

Benthic health is measured on a scale from 0 to 100, with scores greater than 60 being acceptable.

- A stressor analysis figures out the reason for the benthic impairment, whether it be sediment, phosphorus, nitrogen, dissolved oxygen, etc...



Bacteria Sources and Reductions Needed (TMDL Allocations)

North Fork Rivanna River Segment					
Scenario	Failed Septics & Pipes	Livestock (Direct)	NPS (Agricultural)	NPS (Urban)	Wildlife (Direct)
1	100%	100%	50%	58%	0%
2	100%	50%	50%	50%	0%
3	100%	75%	75%	75%	0%

Preddy Creek and Tributaries					
Scenario	Failed Septics & Pipes	Livestock (Direct)	NPS (Agricultural)	NPS (Urban)	Wildlife (Direct)
1	100%	100%	50%	48%	0%
2	100%	50%	50%	50%	0%
3	100%	75%	75%	75%	0%

Reductions in Sediment needed to clean up the impaired waters.

Percent Reduction in Sediment Loads Needed						
Stream	Crop, Pasture, Hay, and Harvested Forest	Forest, Trees, Shrubs, and Wetland	Developed Pervious and Impervious Areas and Turfgrass	Streambank Erosion	Permitted Urban Areas (MS4)	Other Permitted Sources
Blue Run	71.5	0	45.0	71.5	n/a	0
Marsh Run	70.0	0	37.5	70.0	n/a	0
Preddy Creek	13.2	0	5.0	13.2	n/a	0
Preddy Creek North Branch	57.3	0	40.4	57.3	n/a	0
Quarter Creek	70.7	0	50.0	70.7	n/a	0
Stanardsville Run	76.8	0	60.0	76.8	n/a	0
Swift Run	18.7	0	5.0	18.7	n/a	0
X-Trib to Flat Branch	50.1	0	50.1	50.1	50.1	0

Reductions in Phosphorus needed to clean up the impaired waters.

Percent Reduction in Phosphorus Loads Needed						
Stream	Crop, Pasture, Hay, and Harvested Forest	Forest, Trees, Shrubs, and Wetland	Developed Pervious and Impervious Areas and Turfgrass	Streambank Erosion	Permitted Urban Areas (MS4)	Other Permitted Sources
Blue Run	50.0	0	42.5	50.0	n/a	0
Stanardsville Run	67.8	0	67.8	67.8	n/a	0

What is a Clean Up Plan... aka Implementation Plan (IP)?

What the plan is....

- a document that details actions/strategies to achieve load reductions for nonpoint source pollutants as defined by the TMDL

1. Reviews TMDL
2. Actions to improve water quality (corrective actions)
 - BMPs, education & outreach, incentives, etc...
3. Cost-Benefit Analysis
4. Measurable goals
5. Timeline to achieve water quality goals/objectives
6. Public participation

Tells us “how” to improve water quality for nonpoint sources

What the plan isn't...

- A regulatory tool for nonpoint source pollution
- A static document



Potential Agricultural Control Measures



Livestock Exclusion Fencing



Vegetation Cover



Water Trough



Rotational Grazing

Potential Residential Control Measures



Septic System Pump out



Conventional Septic System Replacement



Septic System Repair



Alternative On-site Sewage Disposal System

Pet Waste and Stormwater Control Measures



Pet Waste Station



Bio Retention (Rain Garden)



Vegetated Buffers



Street Sweeping



Streambank Stabilization

What is your role in developing the Plan?

IPs are only as good as the information received/assessed

Need your help to know what's realistic... What are the real needs & interests?

Provide comments/feedback on:

- Land use practices
- Failing septic systems and straight pipes
- Livestock, wildlife and pet population estimates
- Are there particular management strategies that will work well in this area?
- Are there strategies that should be avoided?



Recommend outreach activities & funding sources

Identify potential partner organizations

Timeline/Next Steps for the Clean Up Plan process

	Tentative Date
First Public Meeting	September 20, 2023 (Public comment period September 20 – October 20, 2023)
Working Group Meetings	
# 1	November/December 2023 or January 2024 ?
# 2	February/March 2024 ?
Final Public Meeting	April/May 2024 (Public comment period 30 days after Final Public Meeting)
EPA Acceptance	Summer 2024? Available for DEQ 319 funding in 2025?

Submit comments to:
(Include name, organization (if any), mailing address and telephone number)

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Questions?