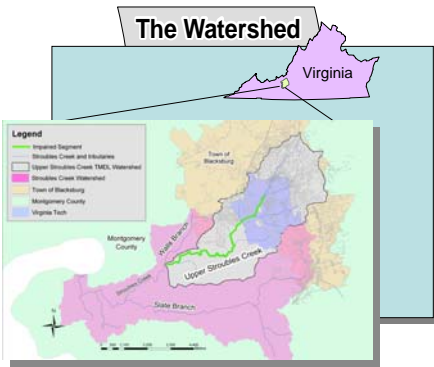


Implementation Strategies in the Upper Stroubles Creek Watershed

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The Watershed

Virginia

The Situation

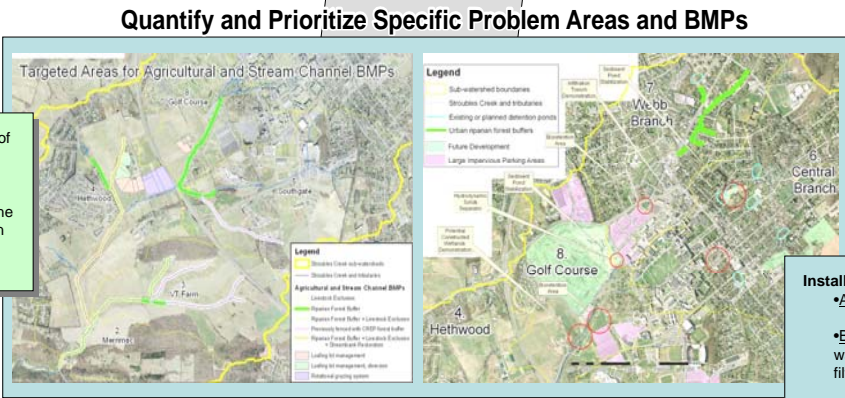
The 2,486 ha Upper Stroubles Creek watershed lies in the headwaters of the New River and includes the majority of the Town of Blacksburg and the Virginia Tech campus. Stroubles Creek was initially listed on the 303(d) list for a benthic impairment in 1996. A TMDL study identifying sediment as the primary stressor was completed in October 2003 and the implementation plan was completed in March 2006, with implementation beginning immediately. Initial implementation efforts are focused on external grants and the State Agricultural BMP Program for funding.

Identify General Watershed Problems

- Lack of streamside forest
- Livestock access to streams
- Agricultural runoff
- Increasing development and peak flows from stormwater runoff
- Stream channel modifications
- Sewer overflows
- Downtown business wastewater disposal
- Pollutant buildup on impervious surfaces
- Enforcement of Erosion & Sediment regulations at construction sites
- Improper disposal of grass clippings and trash

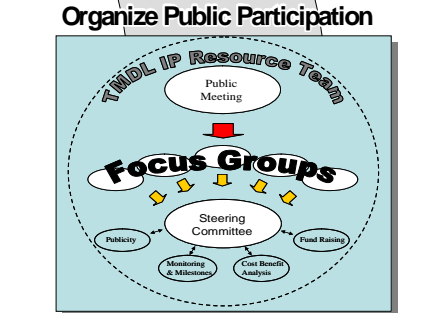
Integrate Using an Implementation Planning Matrix

Problem/Implementation Practice	Target Parcels	Event	Units	Cost (\$/ha)	Technical Assistance (hours)	Integration with Other Watershed Assistance Programs (e.g. Conservation Plans, Master Plan, MS-4, projects, etc.)	Potential Cost-Share Source(s)	Cost-Share Rate	Potential Grant Source(s)	Notes	Efficiency	Action Type	Focus Group
Lack of streamside forest	Webb Farm (4)	4-20 Acres	10000	10000	1200 (300)	New River Sustainable Strategic Plan	USDF, OSEP	75%	Private ownership grant (USFWS), Stream Water Pollution Prevention Program	USFWS (100,000), USFWS (100,000), USFWS (100,000)	70%	100	A, C
Riparian forest buffers	Webb Farm (4)	4-20 Acres	10000	10000	1200 (300)	New River Sustainable Strategic Plan	USDF, OSEP	75%	Private ownership grant (USFWS), Stream Water Pollution Prevention Program	USFWS (100,000), USFWS (100,000), USFWS (100,000)	70%	100	A, C
Urban stormwater runoff	Webb Farm (4)	4-20 Acres	10000	10000	1200 (300)	New River Sustainable Strategic Plan	USDF, OSEP	75%	Private ownership grant (USFWS), Stream Water Pollution Prevention Program	USFWS (100,000), USFWS (100,000), USFWS (100,000)	70%	100	A, C
Stream channel modifications	Webb Farm (4)	4-20 Acres	10000	10000	1200 (300)	New River Sustainable Strategic Plan	USDF, OSEP	75%	Private ownership grant (USFWS), Stream Water Pollution Prevention Program	USFWS (100,000), USFWS (100,000), USFWS (100,000)	70%	100	A, C
Wetland development	Webb Farm (4)	4-20 Acres	10000	10000	1200 (300)	New River Sustainable Strategic Plan	USDF, OSEP	75%	Private ownership grant (USFWS), Stream Water Pollution Prevention Program	USFWS (100,000), USFWS (100,000), USFWS (100,000)	70%	100	A, C
Agricultural buffers	Webb Farm (4)	4-20 Acres	10000	10000	1200 (300)	New River Sustainable Strategic Plan	USDF, OSEP	75%	Private ownership grant (USFWS), Stream Water Pollution Prevention Program	USFWS (100,000), USFWS (100,000), USFWS (100,000)	70%	100	A, C
Livestock access to streams	Webb Farm (4)	4-20 Acres	10000	10000	1200 (300)	New River Sustainable Strategic Plan	USDF, OSEP	75%	Private ownership grant (USFWS), Stream Water Pollution Prevention Program	USFWS (100,000), USFWS (100,000), USFWS (100,000)	70%	100	A, C



Develop Goals and Objectives to Implement Changes

- GOAL #1:** Implement agricultural best management practices (BMPs).
- GOAL #2:** Implement stream channel BMPs, where cost-effective.
- GOAL #3:** Reduce inputs in urban, university, and residential areas through education.
- GOAL #4:** Implement storm water management practices.
- GOAL #5:** Identify and prioritize opportunities for stream protection and restoration, and ensure that codes and design standards are "water quality friendly."
- GOAL #6:** Reduce urban and residential inputs by performing inspection, monitoring and maintenance activities to eliminate illicit discharges, ensure proper storm water system performance, and prevent pollution.



- ### Identify and Seek Partners
- Citizens
 - Environmental consultants
 - Montgomery County
 - New River Valley Planning District Commission
 - Skyline Soil and Water Conservation District
 - Town of Blacksburg
 - Virginia Department of Game and Inland Fisheries
 - Virginia Tech – Architect's Office
 - Virginia Tech – Biology (Stream Team)
 - Virginia Tech Foundation
 - Virginia Tech – Site & Infrastructure
 - Izaak Walton League Save Our Streams Program

Communicate

Web-based Discussion Forum

Focus Groups

Watershed Tours

Educational Pamphlets

Progress on the Upper Stroubles Creek Implementation Plan

- Installation of Best Management Practices (BMPs)**
 - Agricultural BMPs:** Riparian buffers installed at VT farm.
 - Bioretention Ponds:** The Smithfield Road Parking Lot was constructed on campus with bioretention ponds to filter runoff before entering Stroubles Creek.
 - Sanitary Sewer Upgrade:** The undersized sanitary sewer line along Webb Branch has been replaced between West Campus Drive and Turner Street to prevent future system overflows in that area.
 - New SWM Regulations:** VT is working with state personnel to meet new site-specific stormwater management regulations.
 - Permeable Pavement:** VT is installing a test project for permeable pavement behind Vet Med to learn about maintenance needs and results.
- Education**
 - Brochure:** An educational brochure was created for distribution at *Steppin' Out* and other events.
 - Watershed Open House:** This educational event was sponsored by the Town of Blacksburg on October 7, 2006.
 - VT Educational Outreach:** VT Facilities has created a website with a photo archive of projects and retrofits showing staged implementation, as part of VT's MS4 educational outreach to meet permit requirements <http://www.facilities.vt.edu/ot/depts.asp?value=site>.
- Funding**
 - Virginia Water Quality Improvement Fund (WQIF):** A grant was received to install and assess two innovative stormwater BMPs at Blacksburg Town Hall. Installation will be in spring 2007.
 - EPA Assessment and Watershed Protection Program Grant:** This grant was awarded for development of a stormwater runoff BMP optimization tool to improve urban stormwater BMP site selection and placement.
 - EPA Targeted Watershed Grant (TWG):** This grant has been applied for and is pending. This grant will support water quality monitoring on the new Smithfield parking lot bioretention area, installation of a demonstration constructed wetland on campus, and additional urban and stream restoration projects around the watershed between 2007 and 2010.