


May 6, 2010

TMDL Implementation Plan for the James River and Selected Tributaries in the Lynchburg Area



May 6th, 2010

Implementation Plan for the James River and Selected Tributaries

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A Joint Effort

- Virginia's Region 2000 Local Government Council
- City of Lynchburg
- Virginia's Department of Environmental Quality


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Why are we here today?

- Fecal Bacteria in James River and selected tributaries in the Lynchburg area.
 - What's Fecal Bacteria?
 - Bacteria associated with feces from warm blooded animals (fecal coliform, *E. coli*)
 - Why should we care?
 - Pathogens (including some strains of *E. coli*)
 - Parasites
 - Water Quality Standard
 - Swimming & Fishing Use
 - Instantaneous: 235 cfu/100 ml *E. coli*
 - Monthly Geometric Mean: 126 cfu/100 ml *E. coli*

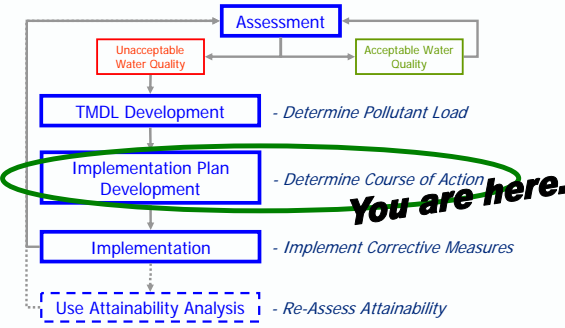


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TMDL Process




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TMDL Implementation Plan

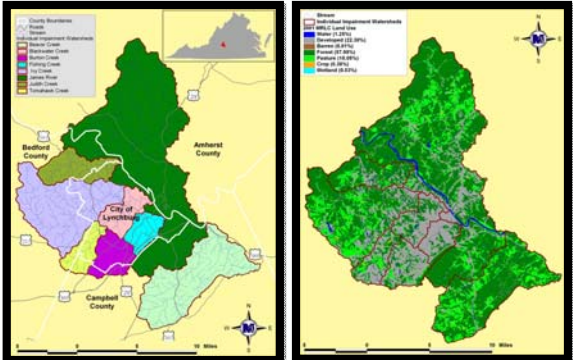
Document that details actions or strategies that must be undertaken to achieve load reductions as defined by the TMDL.



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Bacteria Reduction Goals

Impaired Segment	Livestock Direct	Cropland Pasture	Straight Pipes	Urban & Residential	CSOs
Beaver Creek	99	99	100	64	--
Judith Creek	99	0	100	0	--
Ivy Creek	99	87	100	87	100
Tomahawk Creek	99	87	100	87	--
Burton Creek	100	87	100	87	--
Fishing Creek	72	67	100	67	100
Blackwater Creek	92	87	100	87	100
James River	83	75	100	75	75


No Reductions from wildlife sources indicated.


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- ## Components of an Implementation Plan
- Review of TMDL
 - Corrective Actions
 - BMPs, educational programs, regulatory authority, incentives
 - Cost/Benefit Analysis
 - Measurable Goals
 - Timeline to Achieve Water Quality Objectives
 - Includes monitoring plan to assess progress
 - Public Participation
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- ## Corrective Actions
- Assess needs
 - TMDL allocations
 - Identify Corrective Actions (existing/potential)
 - Spatial Analysis
 - Define constraints
 - Staffing, financial, technical, social ...
- 
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- ## Corrective Actions
- | | |
|---|---|
| <p>“Standard Toolbox”</p> <ul style="list-style-type: none"> ■ Livestock Fencing ■ Pasture Management ■ Loafing Lot Management ■ Septic System Repair/Installation ■ Manure Management ■ Composting ■ Pet Sanitation ■ Retention/Detention Ponds | <p>“Outside the Box”</p> <ul style="list-style-type: none"> ■ Bioretention Basins ■ Rain Gardens ■ Vegetated Swales ■ Porous Pavement ■ Subsurface Gravel Wetland ■ Tree Box Filter ■ Green Roofs ■ Rain Barrels |
|---|---|
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- ## Bioretention Basins
- 
- Collects parking lot run-off
 - Reduces stormwater peak flow by detention
 - Reduces stormwater volume by infiltration
 - Water quality benefits
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- ## Rain Gardens
- Diverts stormwater to garden instead of sewer
 - Reduces stormwater volume by infiltration
- 
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Tree Boxes

- Utilizes stormwater for plant growth
- Reduces stormwater peak flow by detention
- Water quality benefits




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Porous Pavement



- Reduce run-off by infiltration
- Keeps stormwater out of sewers


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Greenroofs

- Intercepts water that would otherwise end up in sewers
- Reduces stormwater peak flow by detention
- Reduces stormwater volume by utilizing water for plant growth




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Rain Barrels



- Catch stormwater
- Use it for irrigation
- Keeps stormwater out of sewers

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Cost/Benefit Analysis

- Assess cost for implementation
- Evaluate environmental benefit through modeling
- Compare Cost-Effectiveness
- Identify/Evaluate economic benefits of Implementation
- Identify funding sources

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Example

Cost/Benefit Analysis

Control Measure	Total Cost	Reductions in Fecal Violations	Cost/Benefit
	(\$)	(%)	(\$/%)
Stream Fencing	\$150,000	10%	\$15,000
Street Sweeping	\$30,000	1%	\$30,000
Green Roofs	\$3,000,000	13%	\$230,769

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Measurable Goals/Timeline

- Phased approach (Targeting)
 - Bang for the buck
 - Spatial Analysis/Modeling
- Implementation milestones – Stakeholders
- Interim water quality milestones – Modeling
- 5 - 10 year timeframe to meet water quality standard

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Example Timeline

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Public Participation

- Public Meetings
 - Informational
 - Solicit public participation
 - Provide a forum for public comment
- Steering Committee
 - Direct the overall process
 - Review output from working groups
 - Review future implementation
- Working Groups
 - Address “community” issues/concerns

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“Sign-up” Cards

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Steering Committee

- **Includes:**
 - Agencies: DCR, DEQ, SWCD, VDH, NRCS
 - Counties: Bedford, Amherst, Campbell
 - City of Lynchburg
 - Working Group Representatives
- **Meet:** 2 – 3 meetings during plan development
- **Responsibilities:**
 - Review contractor’s results
 - Assess input from working groups
 - Address community concerns/suggestions
 - Help guide the process:
 - Are we getting “representative” input?
 - How can we do better?

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Working Groups

- **Include:**
 - Agricultural
 - Residential
 - Urban
 - Governmental
- **Meet:**
 - 2 –3 times each
 - Starting May 2010


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Agricultural Working Group

Responsibilities:

- Identify potential constraints to implementation
- Identify alternative funding sources/partnerships
- Review implementation strategies from an agricultural perspective
- Identify outreach methods for engaging agricultural producers




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Residential Working Group

Responsibilities:

- Identify possible constraints to implementation
- Identify methods of outreach to homeowners with sewage problems
- Identify alternative funding sources/partnerships
- Review implementation strategies from a homeowner's perspective





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Urban Working Group

Responsibilities:

- Identify existing efforts
- Identify possible constraints to implementation
- Identify methods of public outreach
- Identify alternative funding sources/partnerships
- Evaluate various corrective actions, costs, tracking procedures, and technical assistance needs

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Government Working Group

Responsibilities:

- Identify funding sources
- Identify available technical resources
- Identify appropriate "measurable goals" and timeline for achievement
- Identify regulatory controls currently in place
- Identify potential parties to be responsible for agricultural, residential, and urban implementation

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TMDL Implementation Plan Schedule

- Assessment of needs in progress
- May 2010 : working groups 1st meeting
- May 2010 : steering committee 1st meeting
- July 2010 : submit draft plan
- July 2010 : 2nd public meeting
- Aug 2010 : start implementation

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Contact Information

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