

# WASHINGTON COUNTY



Division of Environmental Management

MARYLAND



## Antietam Creek Watershed Restoration Plan

# Local TMDL Implementation: Thinking Outside the “Black Box”

Alex Reed - *Watershed Specialist*  
areed@washco-md.net  
240-313-2677

# WASHINGTON COUNTY '8' DIGIT WATERSHEDS

*Where we are!*

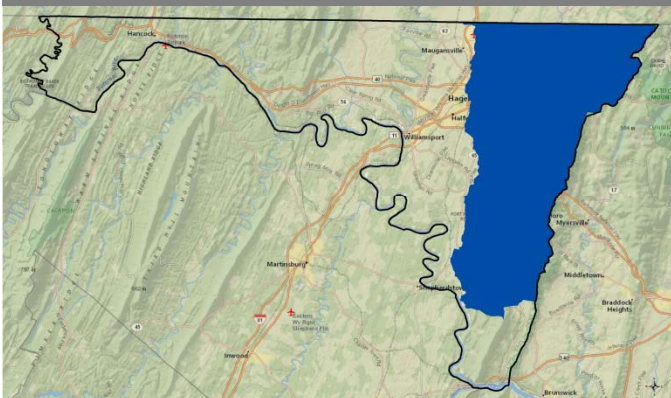
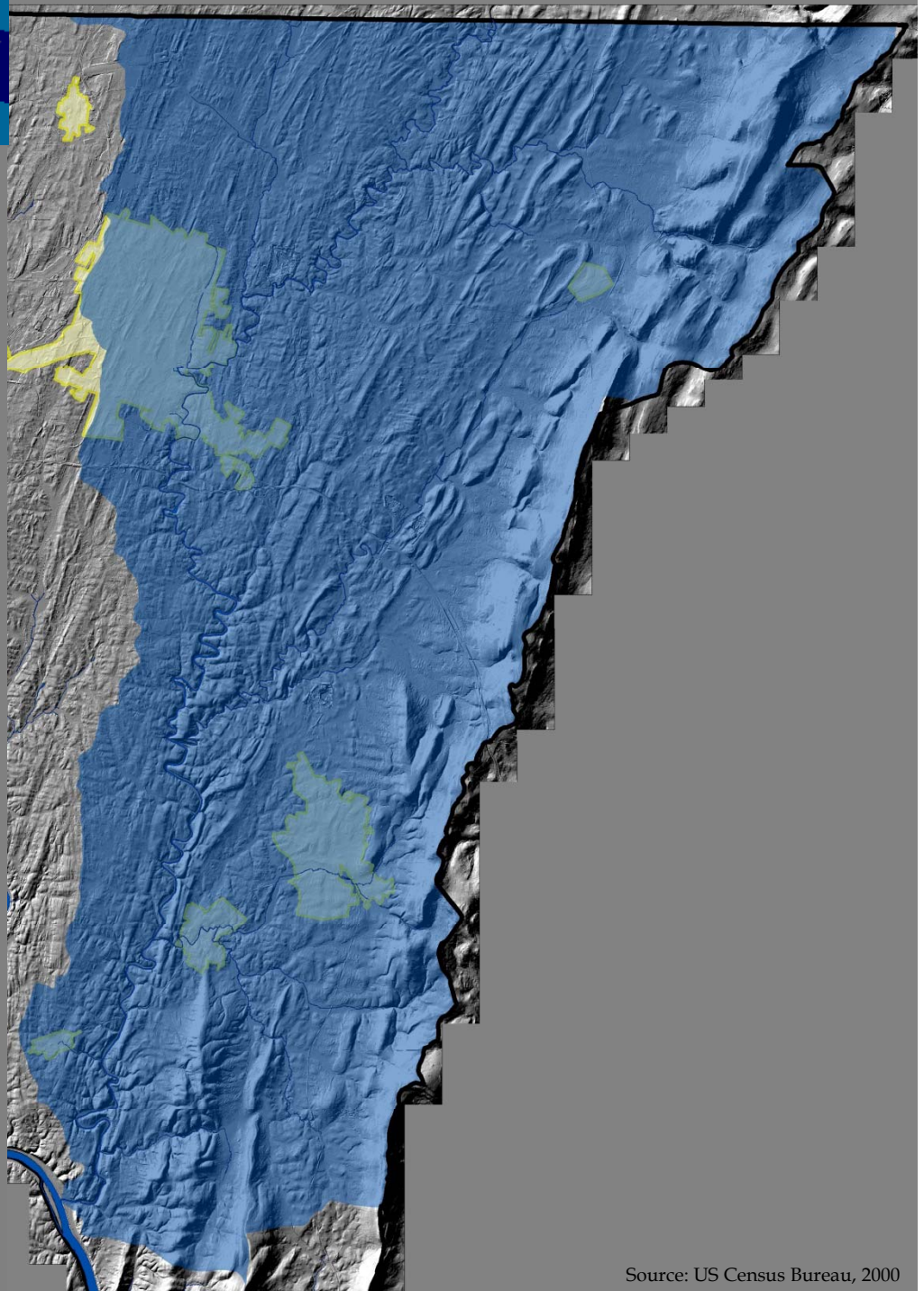


Key		
Waterbodies w/names	8 Digit Watersheds	Potomac River AL Cnty
Lakes and Ponds	Antietam Creek	Potomac River FR Cnty
Municipalities	Conococheague Creek	Potomac River WA Cnty
Washington County, MD	Little Conococheague	Sideling Hill Creek
	Little Tonoloway Creek	Tonaloway Creek
	Marsh Run	





- Total area: 290<sup>2</sup> Miles
- Total area in Wash Co: 185.5<sup>2</sup> Miles
- Total Length of stream: 54 miles
- Total length in Wash Co: 42 Miles
- Sub-Watersheds: 19, with some extending north into PA
- Approx. Population: 82,000
- Landuse
  - 31% Forest
  - 28% Cropland
  - 27% Urban
  - 14% Pasture







Source: US Census Bureau, 2000

# WASHINGTON COUNTY MARYLAND

Division of Environmental Management



<p><b>Total Maximum Daily Load of Sediment in the Antietam Creek Watershed, Washington County, Maryland</b></p> <p>REVISED FINAL</p>  <p>DEPARTMENT OF THE ENVIRONMENT 1800 Washington Boulevard, Suite 340 Baltimore, Maryland 21230-1718</p> <p>Submitted to: Watershed Protection Division U.S. Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, PA 19103-2029</p> <p>September 2009</p> <p>EPA Submittal Date: Aug EPA Approval Date: Decem</p> <p>Antietam Creek Sediment TMDL Document version: September 21, 2009</p>	<p>FINAL</p> <p><b>Total Maximum Daily Loads of Fecal Bacteria for the Antietam Creek Basin in Washington County, Maryland</b></p> <p>FINAL</p>  <p>DEPARTMENT OF THE ENVIRONMENT 1800 Washington Boulevard, Suite 340 Baltimore MD 21230-1718</p> <p>Submitted to: Water Protection Division U.S. Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, PA 19103-2029</p> <p>September 2009</p> <p>EPA Submittal Date: Ju EPA Approval Date: Oct</p> <p>Antietam Creek TMDL Fecal Bacteria Document version: September 21, 2009</p>	<p>FINAL</p> <p><b>Watershed Report for Biological Impairment of the Antietam Creek Watershed in Washington County, Maryland Biological Stressor Identification Analysis Results and Interpretation</b></p> <p>FINAL</p>  <p>DEPARTMENT OF THE ENVIRONMENT 1800 Washington Boulevard, Suite 340 Baltimore, Maryland 21230-1718</p> <p>Submitted to: Water Protection Division U.S. Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, PA 19103-2029</p> <p>May 2012</p> <p>EISD Analysis Results Antietam Creek Document version: May 2012</p>	<p>FINAL</p> <p><b>Total Maximum Daily Loads of carbonaceous Biochemical Oxygen Demand (CBOD) and Nitrogenous Biochemical Oxygen Demand (NBOD) for Antietam Creek, Washington County, Maryland</b></p> <p>FINAL</p> <p>Prepared by: Maryland Department of the Environment 2506 Broening Highway Baltimore, MD 21224</p> <p>Submitted to: Watershed Protection Division U.S. Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, PA 19103</p> <p>December 2001</p> <p>Submittal Date: December 21, 2001 EPA Concurrence Date: September 16, 2002 Document version date: December 21, 2001</p>	<p>FINAL</p> <p><b>Total Maximum Daily Load of Phosphorus in the Antietam Creek Watershed, Washington County, Maryland</b></p>  <p>DEPARTMENT OF THE ENVIRONMENT 1800 Washington Boulevard, Suite 340 Baltimore, Maryland 21230-1718</p> <p>Submitted to: Watershed Protection Division Environmental Protection Agency, Region III 1650 Arch Street Philadelphia, PA 19103-2029</p> <p>August 2012</p> <p>EPA Submittal Date: September 18, 2012 EPA Approval Date: September 25, 2013</p>
---	--	---	--	--

## Small Library of TMDLs

# WASHINGTON COUNTY



MARYLAND

Division of Environmental Management

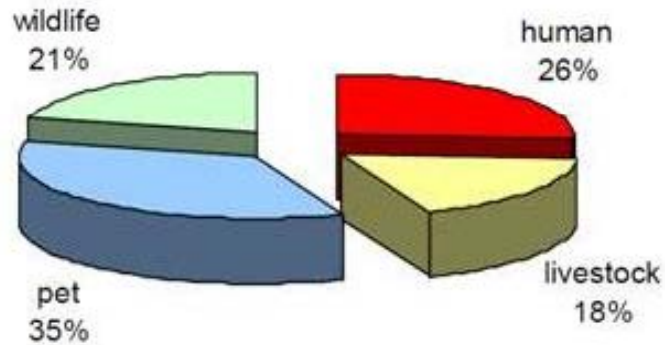
- DEVELOPED TO ADDRESS LOCAL, SEDIMENT AND FECAL COLIFORM TMDL'S
- LOCALLY DRIVEN, SUPPORTED BY STATE AND LOCAL PARTNERS, WASHINGTON COUNTY, MDE CVI AND ACWA WERE KEY
- GRANT FUNDING PROVIDED BY MDE, 319 PROGRAM AND WASHINGTON COUNTY
- LEAD AGENCY WAS SOIL CONSERVATION DISTRICT

# WASHINGTON COUNTY MARYLAND



Division of Environmental Management

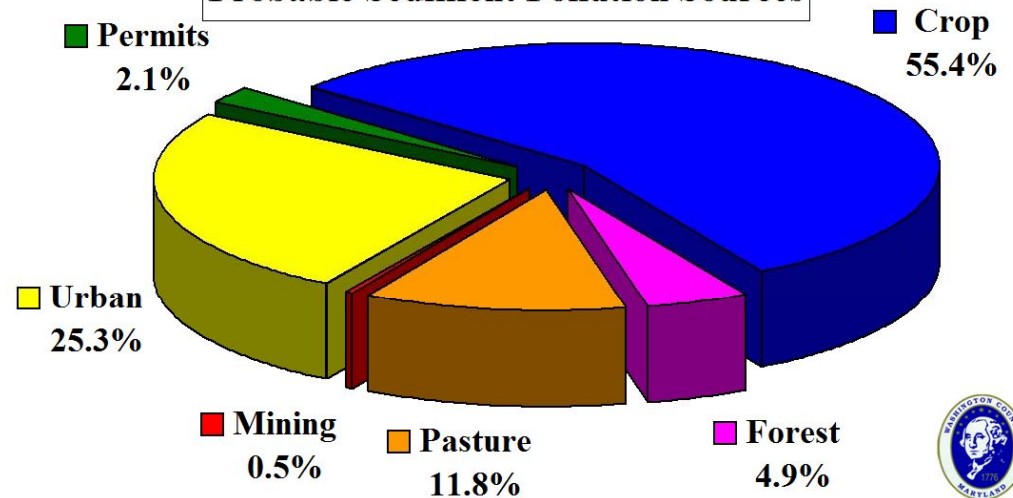
Antietam Creek Watershed  
Probable Bacterial Pollution Sources



## What are the issues?

## Point & Non-Point

Antietam Creek Watershed  
Probable Sediment Pollution Sources



# WASHINGTON COUNTY MARYLAND

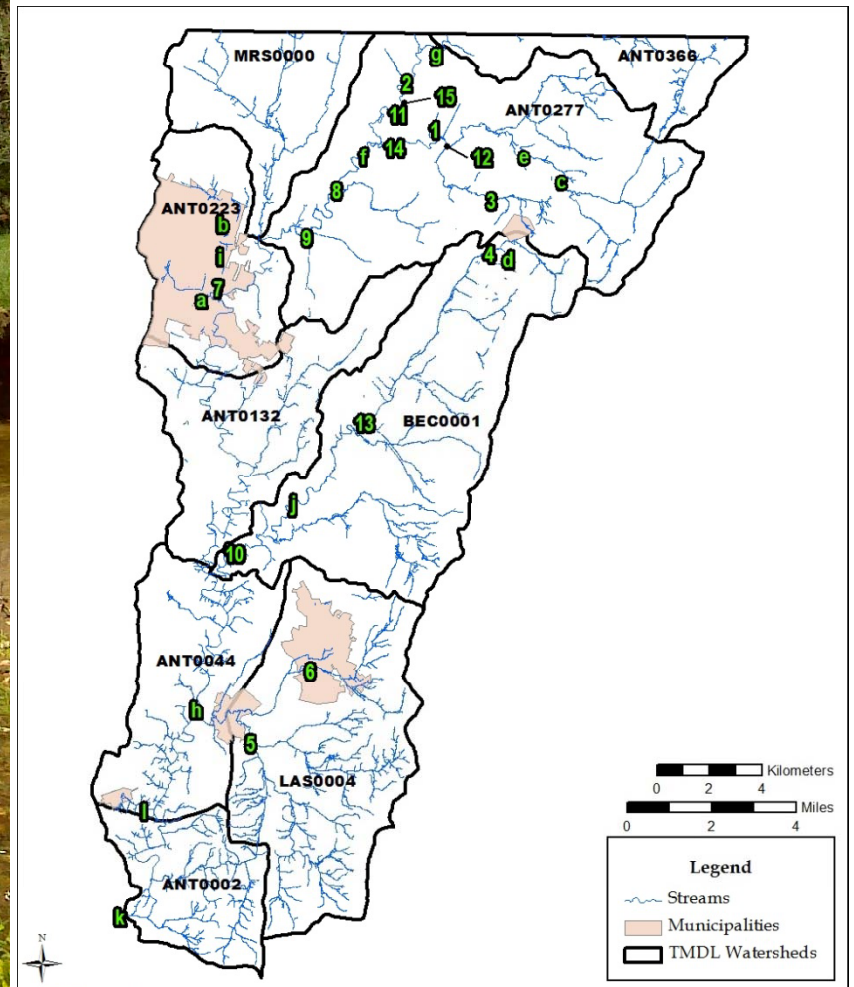


Division of Environmental Management



## Stream Restoration

All sites have landowner interest and have been visited. Sites are prioritized using the BEHI (Bank Erosion Hazard Index) Method.



Prepared by:  
Washington County Maryland  
Division of Environmental Management  
16232 Elliott Parkway  
Williamsport, MD 21795-4083  
Date: March 21, 2012

Data Sources:  
Watersheds: MD Dept. of Natural Resources  
Streams: U.S. Geologic Survey  
Stream Restoration Sites: Washington County Soil Conservation District

# WASHINGTON COUNTY MARYLAND



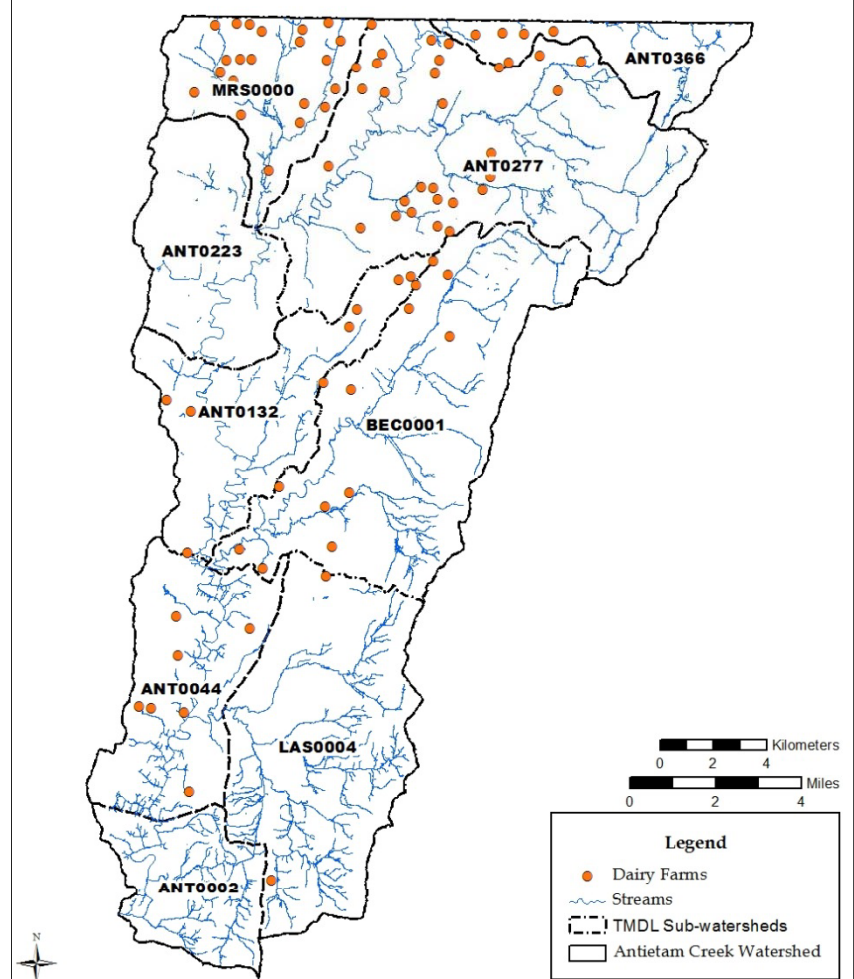
Division of Environmental Management



## Dairy Farms



Soil Conservation District will have Conservation Plans on 80% of farms, not just dairy.



Prepared by:  
Washington County Maryland  
Division of Environmental Management  
16232 Elliott Parkway  
Williamsport, MD 21795-4083  
Date: March 21, 2012

Data Sources:  
Watersheds: MD Dept. of Natural Resources  
Streams: U.S. Geologic Survey  
Dairy Farms: Washington County Soil Conservation District



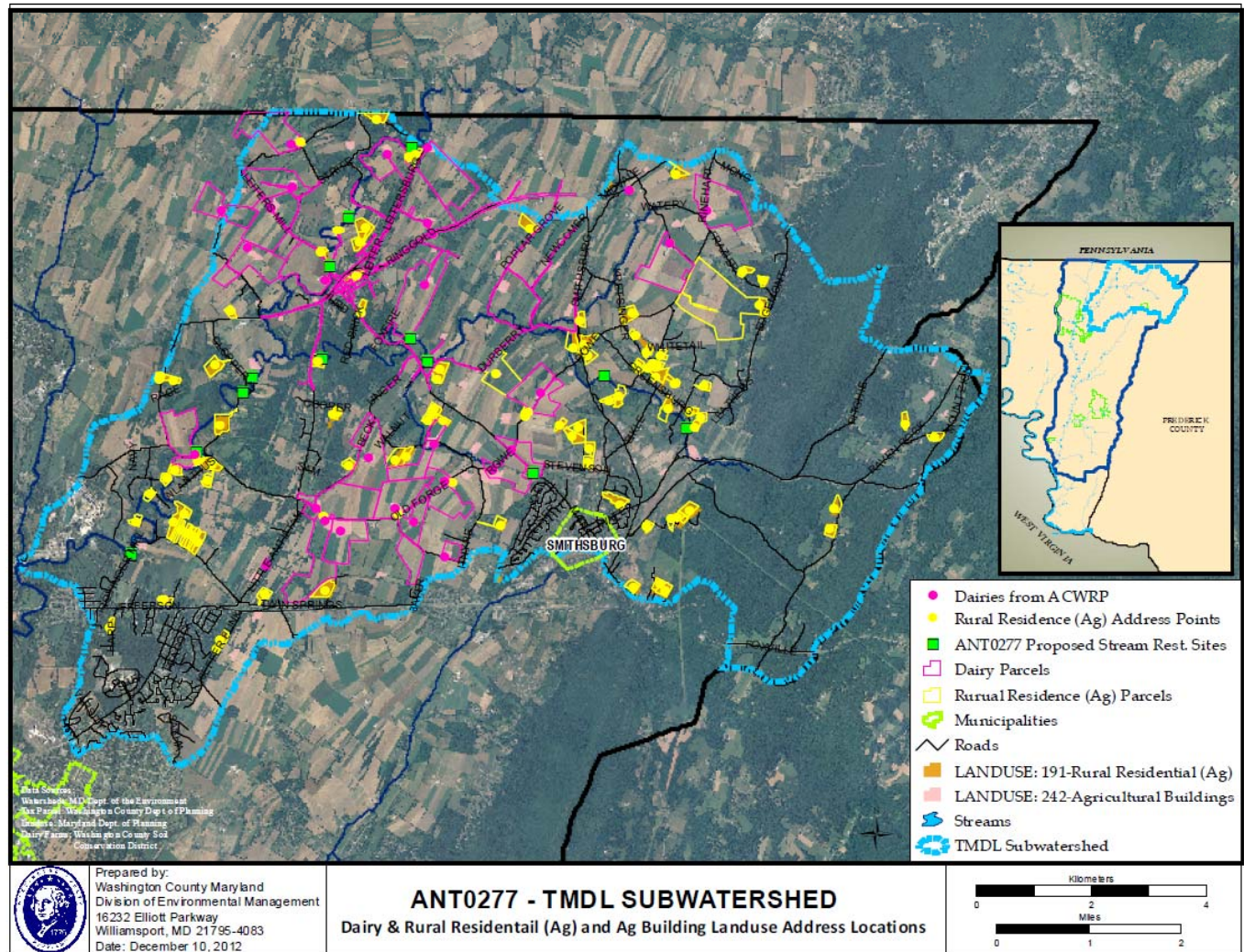
# WASHINGTON COUNTY MARYLAND



Division of Environmental Management

MARYLAND

What that looks like:  
Dairy Farms & Ag Parcels based on the TMDL subwatershed ranking to guide planning efforts.



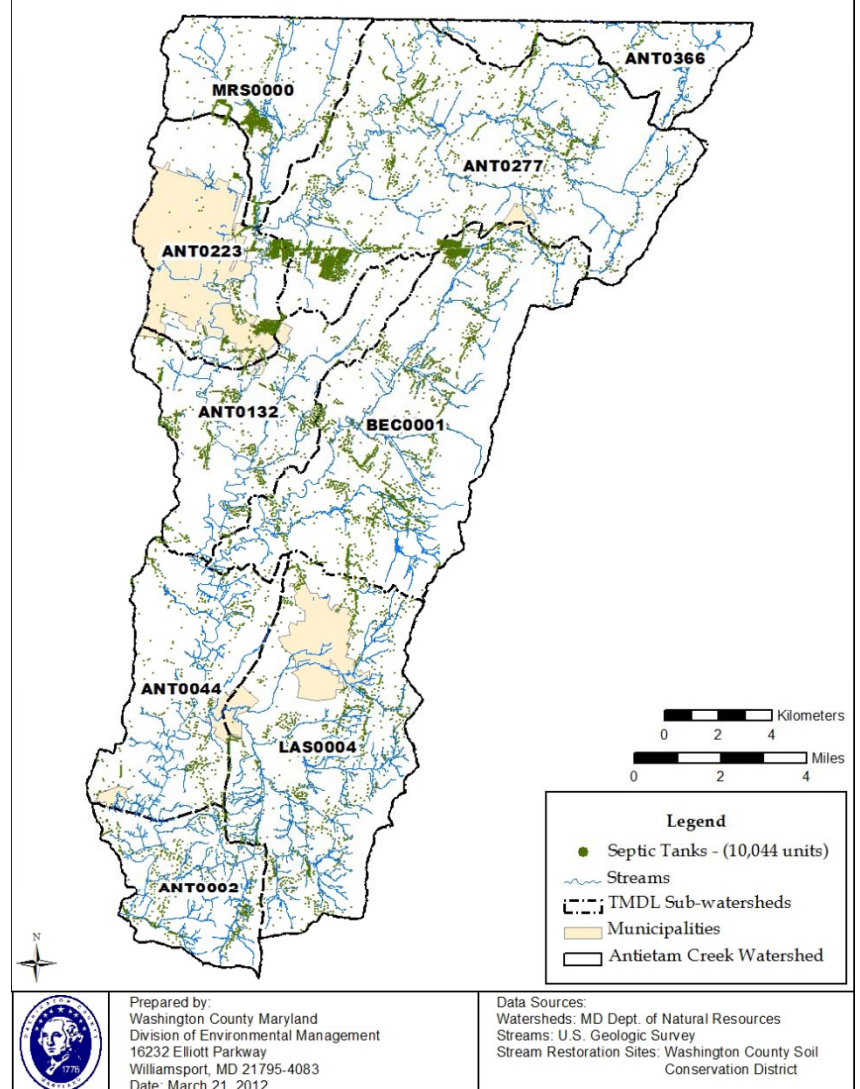


### Septic Tanks within the Watershed

(Beginning to enter the “Blackbox” elements of water quality.)

Held meetings with Septic Pumping Providers

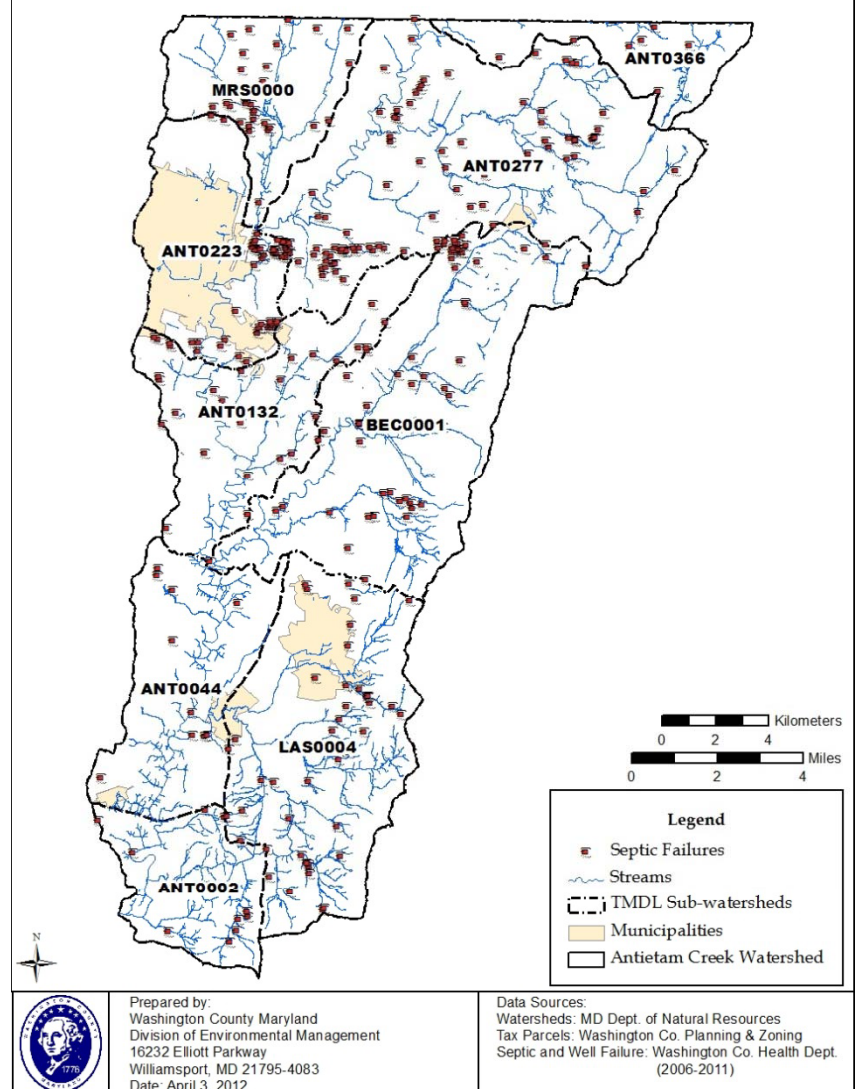
Looking at innovative methods to capture volunteer pumping and encourage more





### Septic Failures & Replacements

Gathered data from County Government for known replacements and upgrades based on permits and Health Dept reporting and mapped to look for patterns to drive planning.



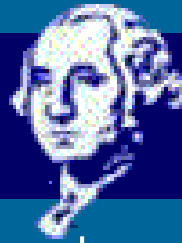
Prepared by:  
Washington County Maryland  
Division of Environmental Management  
16232 Elliott Parkway  
Williamsport, MD 21795-4083  
Date: April 3, 2012



- Cost of Plan Development

- 319 GRANT-	\$29,265
- WASH CO. -	\$19,510
- SCD (IN KIND)-	<u>\$7,920</u>
<b>- TOTAL</b>	<b>\$56,695</b>

# WASHINGTON COUNTY



MARYLAND

Division of Environmental Management

## PLAN ACTION ITEMS FOR PHASE I

- OUTREACH AND EDUCATION
  - INFORMATION KIOSKS- 10 KIOSKS
  - PET WASTE CAMPAIGN
  - LANDOWNER IMPLEMENTATION OUTREACH
  - COMMUNITY EVENTS
  - WATERSHED AND WIP SPECIFIC PUBLICATIONS
- UTILIZE EXISTING OUTREACH MATERIALS

## ANTIETAM CREEK WATERSHED RESTORATION PLAN

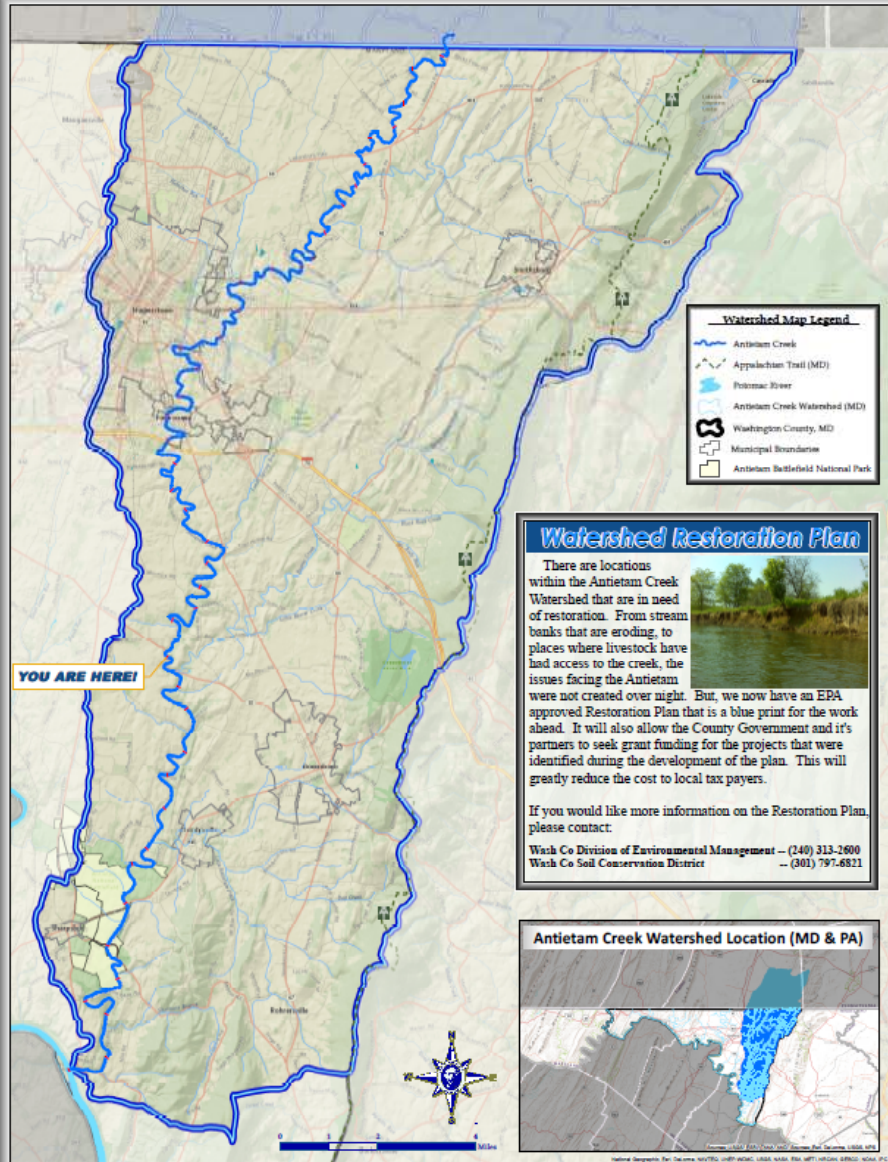


Canaan Valley Institute

**Draft August 1, 2012**

Creation of this watershed plan was a cooperative effort by:

The Washington County Soil Conservation District  
The Board of County Commissioners of Washington County  
The Antietam Creek Watershed Alliance  
The Canaan Valley Institute  
and  
Maryland Department of the Environment  
Science Services Administration  
TMDL Implementation Division



### Watershed Restoration Plan

There are locations within the Antietam Creek Watershed that are in need of restoration. From stream banks that are eroding, to places where livestock have had access to the creek, the issues facing the Antietam were not created overnight. But, we now have an EPA approved Restoration Plan that is a blue print for the work ahead. It will also allow the County Government and its partners to seek grant funding for the projects that were identified during the development of the plan. This will greatly reduce the cost to local tax payers.

If you would like more information on the Restoration Plan, please contact:

Wash Co Division of Environmental Management -- (240) 313-2600  
 Wash Co Soil Conservation District -- (301) 797-6821

## ANTIETAM CREEK WATERSHED

*What is a Watershed? It is an area of land that all drains to the same water body*



The County Government, working with the Soil Conservation District, Antietam Creek Watershed Alliance and others, has developed a "Watershed Restoration Plan" for the Antietam. This plan is focused on restoring the Antietam Creek in a fiscally and ecologically responsible way.

## The Antietam Creek

*A Historical and Modern Treasure Right Here in Washington County*



No other creek across our nation has a name that is as recognizable as the Antietam Creek. Along these banks, bridges, and surrounding fields, the U.S. suffered its bloodiest day of combat in our history. This horrific battle in 1862 earned this creek a place in our history books. Since then, the Antietam Creek has become a valued piece of our landscape and local culture. Many County residents have enjoyed floating or fishing this creek or have marveled at the stone bridges that cross it.

The headwaters of the Antietam Creek originate in Pennsylvania's Michaux State Forest. The East Branch and the West Branch join just north of the Mason-Dixon Line to form the main stem of the Antietam. As it flows its almost 43 miles in MD to the Potomac, the Antietam cuts through forests,

farm fields, pastures, towns, and backyards where excessive runoff causes water quality concerns. These pollutants can have an impact on everything from fish habitat to drinking water. Fortunately, none of these problems are irreversible! Protecting and conserving our water resources for future generations is everyone's job. So what can we do?!



- Clean up after your pets and dispose of waste properly
- Do not litter - Please help us keep the creek and the watershed clean and beautiful
- If you have a septic tank, have it pumped every three years
- Have your yard's soil tested before you apply fertilizer because excess nutrients will runoff and cause algae blooms



- Plant trees and shrubs along stream banks
- Install rain barrels or rain gardens at your home to capture and use rain water so it doesn't runoff to our streams



# WASHINGTON COUNTY



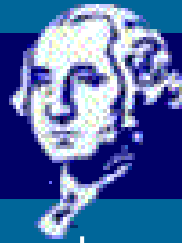
MARYLAND

Division of Environmental Management

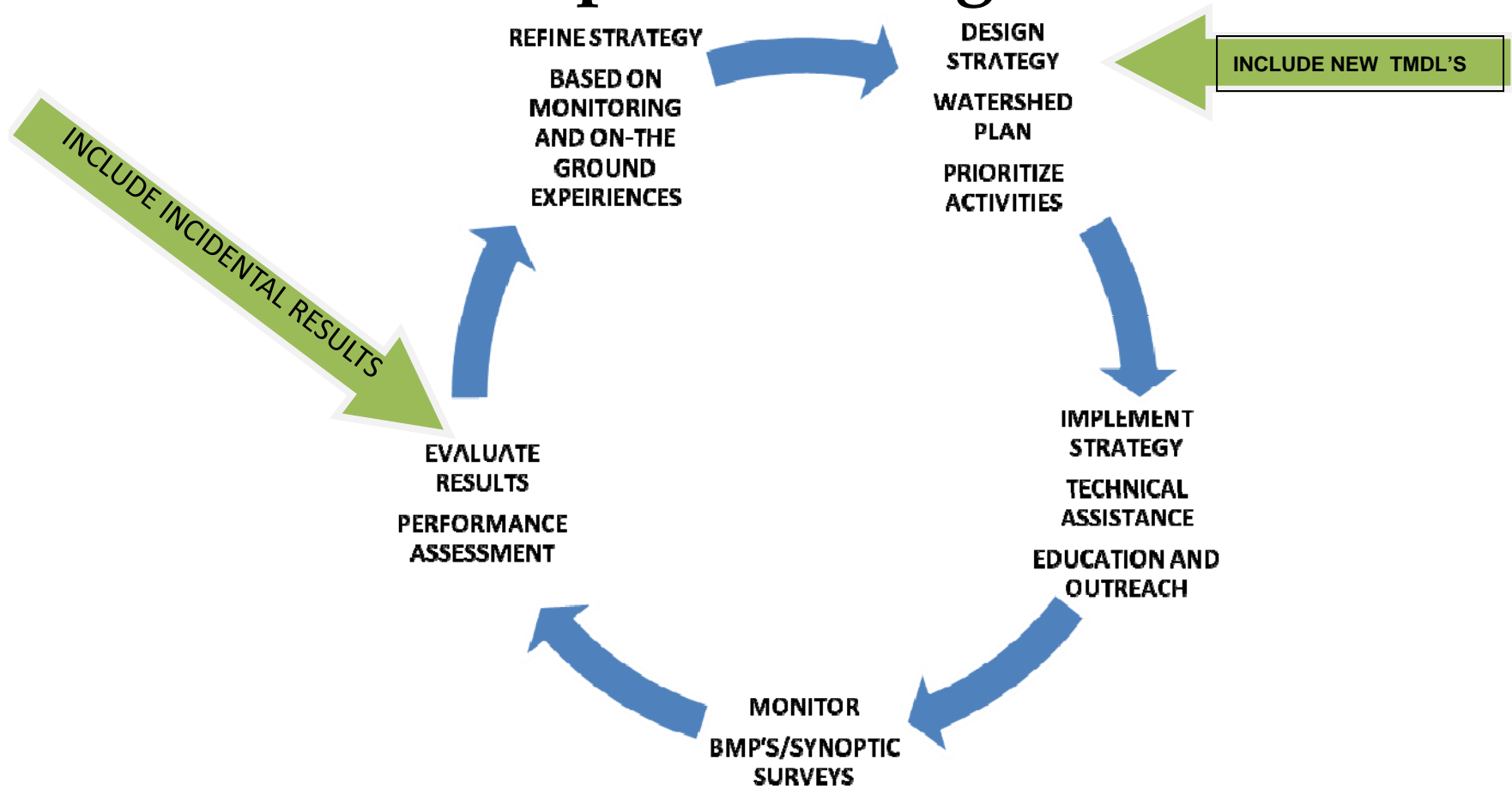
First one!



11/18/2013



### Adaptive Management







### *Antietam TMDLs*

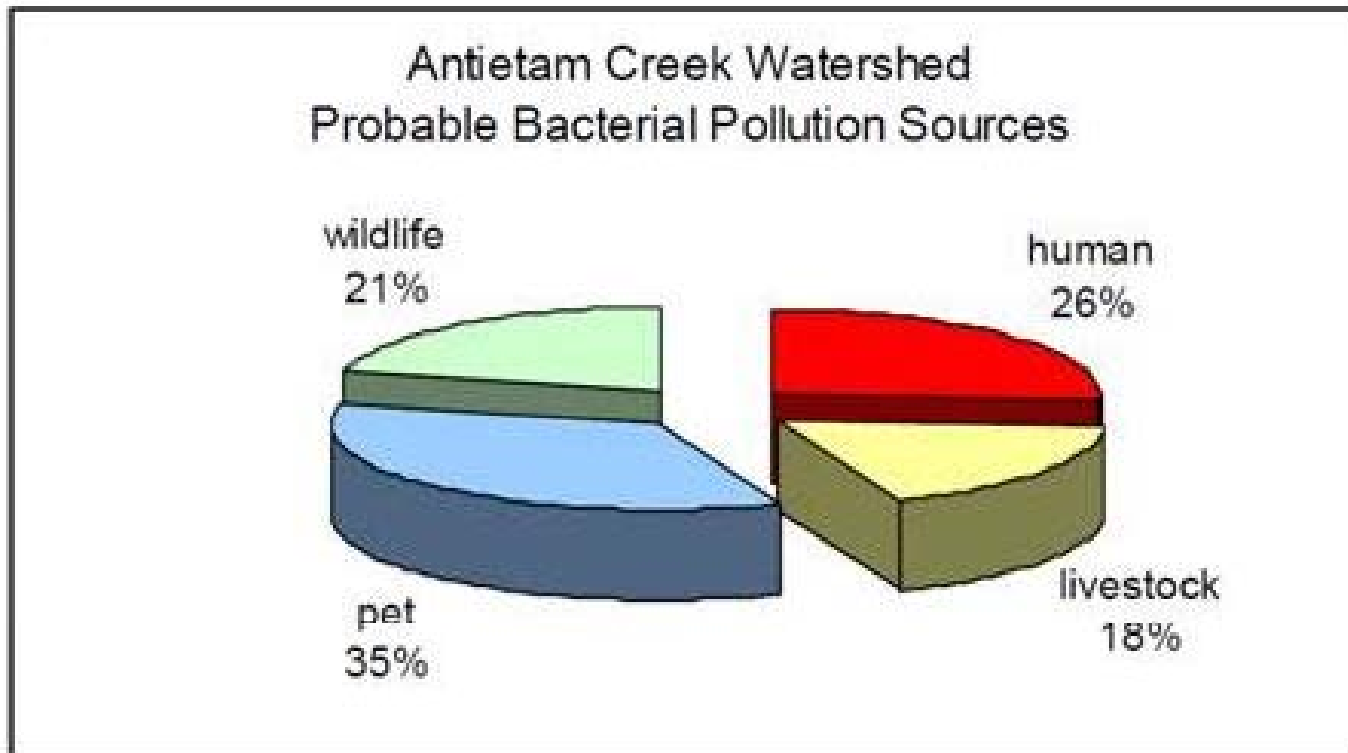
#### **Fecal Bacteria**

- Fecal bacteria are microscopic single-celled organisms (primarily fecal coliform and fecal streptococci) found in the wastes of warm-blooded animals.
- It is difficult, time-consuming, and expensive to test directly for the presence of a large variety of pathogens, so water is usually tested for coliforms and fecal streptococci instead.
- The presence of fecal contamination is an indicator that a potential health risk exists for individuals exposed to this water.



## *The Challenges*

### **Fecal Bacteria Sources (or “Blackboxes”):**



# WASHINGTON COUNTY



MARYLAND

Division of Environmental Management



Image credit: <http://www.hallsservall.com/overflowingseptic.jpg>  
[http://4.bp.blogspot.com/-Rp8viLxVj7c/TW\\_YDj8ApeI/AAAAAAAAAFs/8ht2mcm6OLM/s1600/perfectdog%255B1%255D.jpg](http://4.bp.blogspot.com/-Rp8viLxVj7c/TW_YDj8ApeI/AAAAAAAAAFs/8ht2mcm6OLM/s1600/perfectdog%255B1%255D.jpg)

11/18/2013

# WASHINGTON COUNTY



MARYLAND

Division of Environmental Management

## Chesapeake Bay TMDL

Limits are set on nutrient & sediment pollution that can come from the watershed states.

## Maryland WIP

The state was given a pollution allocation and distributed it to the Counties. Each County was tasked with developing a WIP that lays out their plan to reduce nutrient & sediment pollution.

## Washington County WIP

The County received its pollution allocation from the state already divided into 4 sectors

Waste Water

Septic Tanks

Urban (SW)

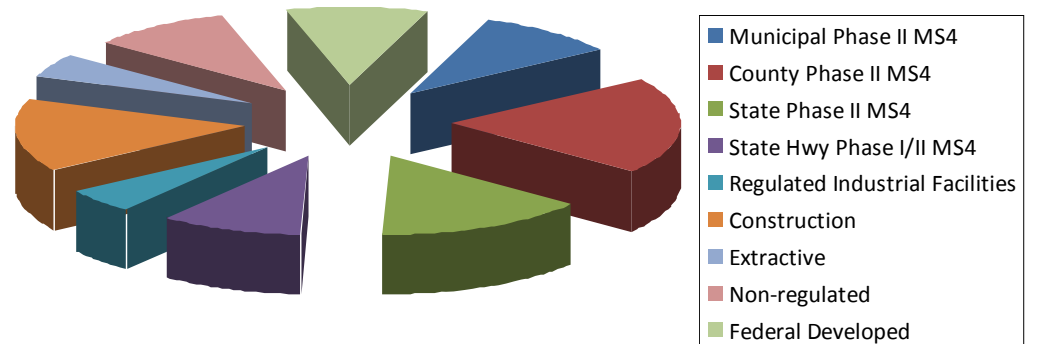
Ag.

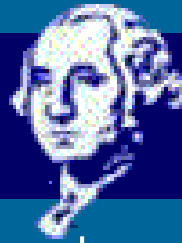
And each sector's pollution allocation was divided into subsectors. For example:

**We all know the WIP**  
**We all know TMDLs**

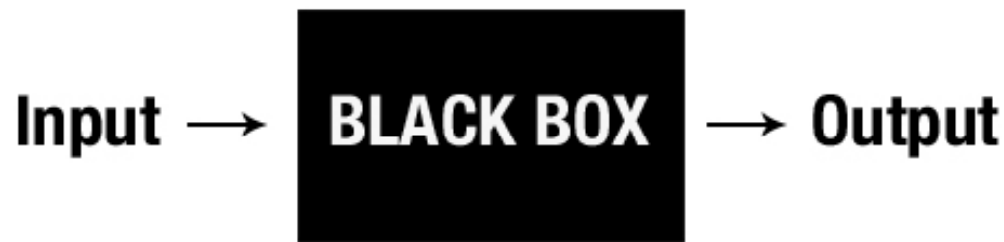
**We all know the Black Box**

Urban/Stormwater pollution "allocations"  
for the different subsectors



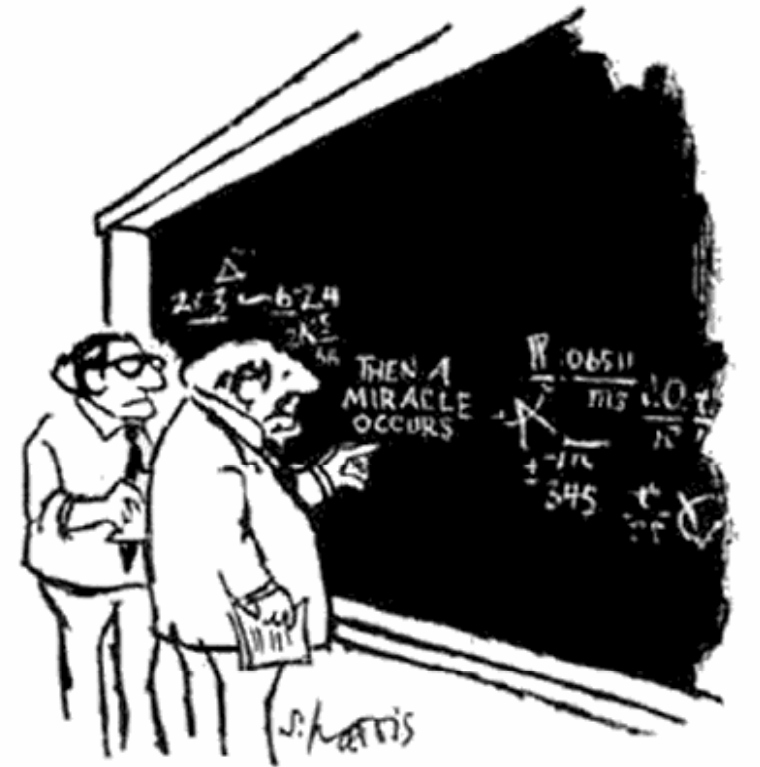


### What is a “Black Box?”



It is, by definition, an unknown.

We sometimes deal with...



“I THINK YOU SHOULD BE MORE EXPLICIT HERE IN STEP TWO.”

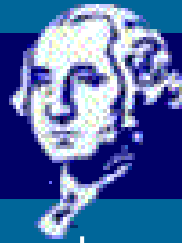
Pet Waste is an unknown.



## How do you reduce the impact of Pet Waste?

- Legislation?
- Asking nicely?
- Peer Pressure?
- Providing an informed public with the tools to solve the issue?

# WASHINGTON COUNTY



MARYLAND

Division of Environmental Management

## THE ANTIETAM CREEK IS FOR EVERYONE!

Whether you're a beginner or experienced paddler, new to the sport or long time angler, the Antietam offers more than 42 miles of opportunity to experience the historic and peaceful nature of this creek.



# Washington County

M A R Y L A N D



## GRAND OPENING CELEBRATION

Through a partnership with PetSmart, Washington County is proud to announce the opening of 70 pet waste stations in seven County parks. The following parks will now be open to pets:

- Camp Harding Park - Big Pool
- Chestnut Grove Park - Keedysville
- Devils Backbone Park - Boonsboro
- Mt. Tammany Park - Williamsport
- Piper Lane Park - Hagerstown
- Pleasant Valley Park - Rohrer'sville
- Woodland Way Park - Hagerstown
- +7 Municipal Parks



Pet Friendly. Park Friendly. People Friendly.





# WASHINGTON COUNTY MARYLAND

Division of Environmental Management



11/18/2013

# WASHINGTON COUNTY



MARYLAND

Division of Environmental Management

So, until pets can take care of themselves, it is up to us to actively work to reduce the amount of fecal bacteria entering our waterways. And the public spaces are a great place to start.



**Be innovative and let them tell you NO!**

# WASHINGTON COUNTY



MARYLAND

Division of Environmental Management

*Thank  
you!  
Questions?*

