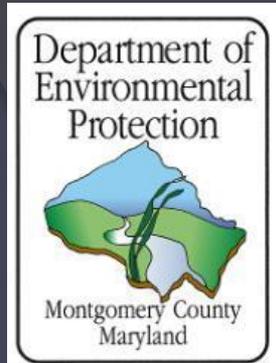


# Watershed Outreach



## Today's Agenda

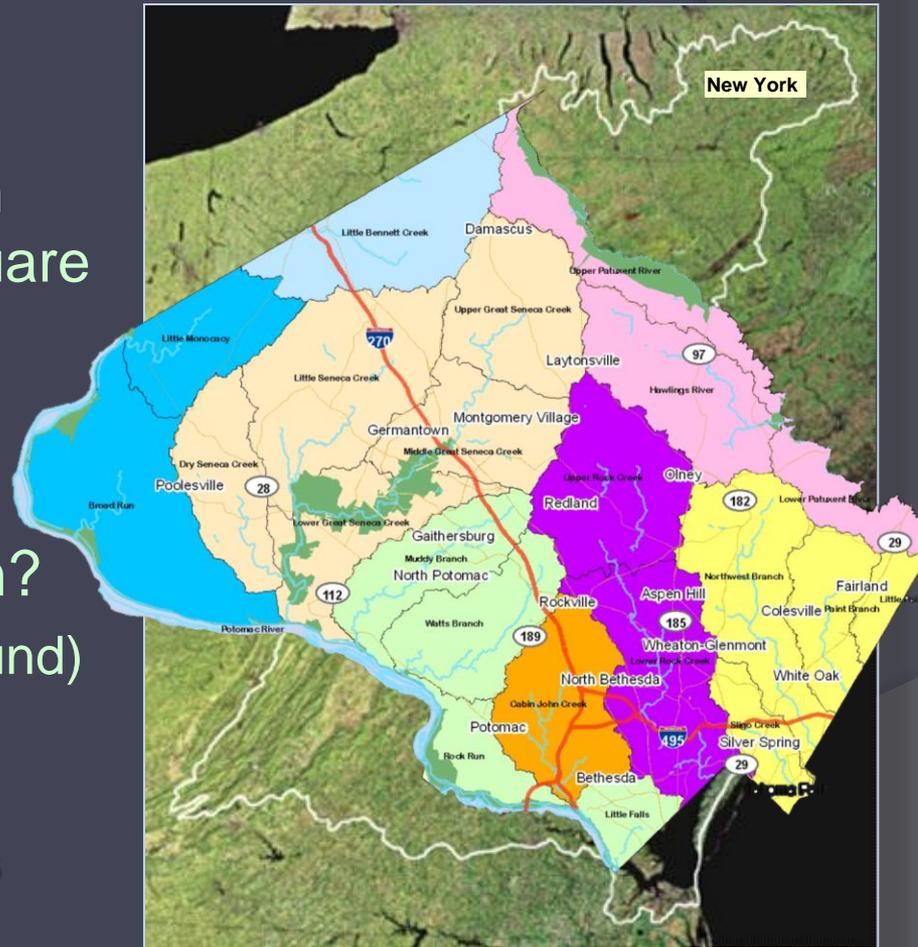
- Review: MS4 permit requirements
- Public Outreach and Stewardship Workplan
  - 8 Priority Stormwater Education topics
  - Focusing Efforts
- Efforts & Accomplishments since 2010
  - Achieving Community Involvement
  - Reaching beyond the Choir
- Linking Outreach to Restoration Efforts

# Montgomery County, MD

- 500 sq. miles
- 970,000 people
- about 12% impervious overall
- Second only to Baltimore City within Maryland in average people per square mile
- Drains to Anacostia, Potomac and Patuxent Rivers
- **MS4 Permit** – What does it mean?
  - Issued February 16, 2010 (Third Round)

## We are responsible for:

- What goes into our stormwater pipes
- What comes out of them
- What flows into the streams



**MS4 = Municipal Separate  
Storm Sewer System**

# *Stormwater is the only source of urban pollution that is increasing*

- Areas of concern: Reduce the flow of stormwater to our streams and manage pollution.
- **Bacteria** - (pet waste, wildlife & sewer breaks)
- **Nutrients** – (fertilizers, nitrogen, phosphorus)
- **Sediment** – erosion
- **Trash**



**85%** of trash found in Anacostia streams is plastic bags and soda bottles

# Anacostia River Watershed: Cost Effectiveness

Per Practice -  
Lowest cost and  
highest resulting  
reduction in  
nitrogen



<i>Rank</i>	<i>Restoration Strategy</i>	<i>TN reduction</i>	<i>Incremental Cost</i>	<i>Unit Cost</i>
		lbs/yr	Million \$	lbs/Million \$
<b>1</b>	<b>Pet Waste Education</b>	15,169	0.88	17,193
2	Retrofit of Underperforming SWFs	1,769	1.20	1,475
3	Stream Restoration	72,423	93.04	778
4	Completed CIP Project Sites	6,643	9.48	701
5	FY 2009-2016 CIP Projects	3,260	6.35	513
6	Other Potential Projects Sites	43,276	254.30	170
7	Habitat Restoration	224	1.41	158
8	County-Owned Property ESD Retrofits	18,270	236.55	77
9	Priority Neighborhoods ESD Retrofits	9,271	132.78	70
10	Private Non-residential ESD Retrofits	5,594	80.18	70
11	Street Sweeping	-	1.24	-

# Anacostia Trash TMDL:

*Keep an additional 621.6 lbs of trash per day from leaving the storm drain system*

Per Practice –  
Some of the lowest  
costs and highest  
rates of reduction



<i>Rank</i>	<i>Restoration Strategy</i>	<i>Potential Trash Reduction</i>	<i>Unit Cost</i>
		lbs	lbs /Million \$
1	<b>Recycling Education</b> and Investigations	51,654	238,837
2	Plastic Bag Ban, and Misc. Enforcement	63,546	48,882
3	<b>Anti-litter Campaign, Education</b>	23,761	26,930
4	Retrofit of Underperforming BMPs	1,144	954
5	Completed CIP Project Sites	6,598	696
6	FY 2009-2016 CIP Projects	2,786	439
7	Other Potential Projects Sites	56,341	222
8	Habitat Restoration	266	188
9	Street Sweeping	204	164
10	County-Owned Property ESD Retrofits	25,348	107
11	Priority Neighborhoods ESD Retrofits	12,529	94
12	Private Non-residential ESD Retrofits	7,547	94

# Anacostia Bacteria TMDL: removal per unit cost

Highest rate of removal by cost



Rank	Restoration Strategy	<i>Enterrococci reduction</i>	<i>Incremental Cost</i>	<i>Unit Cost</i>
		Billion MPN/yr	Million \$	Billion MPN /Million \$
1	Pet Waste Education	19643	0.88	22,263
2	Retrofit of Underperforming BMPs	2,781	1.20	2,318
3	Completed CIP Project Sites	10,441	9.48	1,101
4	FY 2009-2016 CIP Projects	5,120	6.35	806
5	Other Potential Projects Sites	69,895	254.30	275
6	Habitat Restoration	310	1.41	219
7	County-Owned Property ESD Retrofits	29,025	236.55	123
8	Priority Neighborhoods ESD Retrofits	14,777	132.78	111
9	Private Non-residential ESD Retrofits	8,917	80.18	111
10	Stream Restoration	181	93.04	2
11	Street Sweeping	-	1.24	-

# 8 Priorities for Implementing Behavior Change

## ○ Picking up pet waste

- Install disposal pet waste stations, create incentive program

## ○ Lawn fertilizer reduction

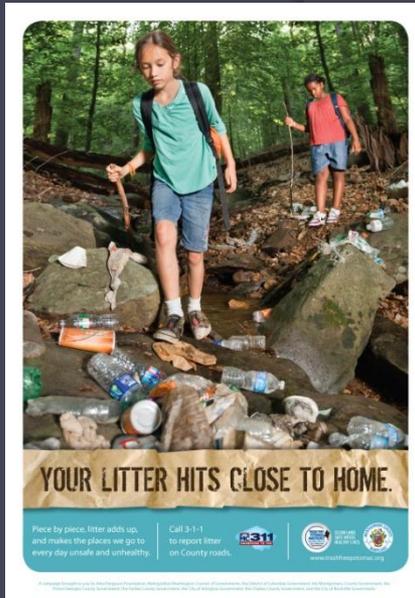
- Literature, landscaper training program & homeowner assistance

## ○ Litter reduction

- Advertising campaign & increased enforcement & staff training

## ○ Planting trees and establishing stream buffers

- Advertising and coordinating tree planting programs



# 8 Priorities for Implementing Behavior Change, cont.



## Stormwater awareness campaign -

- Create signage, community awareness & tours of ESD practices

## Reduce impervious surfaces -

- Develop campaign to encourage replacement of impervious surfaces

## Becoming a stream steward -

- Develop volunteer program to increase presence at community events

## Promoting residential runoff management

- Increasing community involvement in RainScapes practices
- Increase resources & workshops

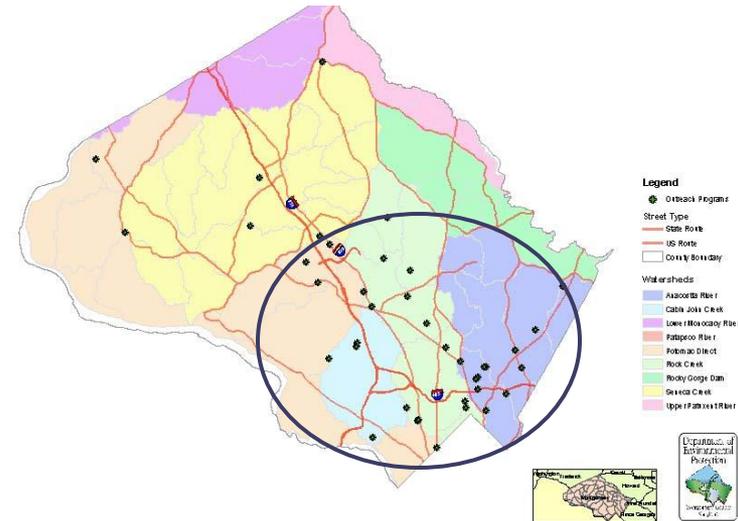


# Focusing Efforts

- Majority of outreach focused in the most impacted watersheds- Anacostia & Rock Creek
- DEP Community Presence increased by 145% from FY 10- FY 11.
- Documenting Awareness & Behavior Change – Pre & Post Surveys
- Linked to GIS Database for MS4 Reporting

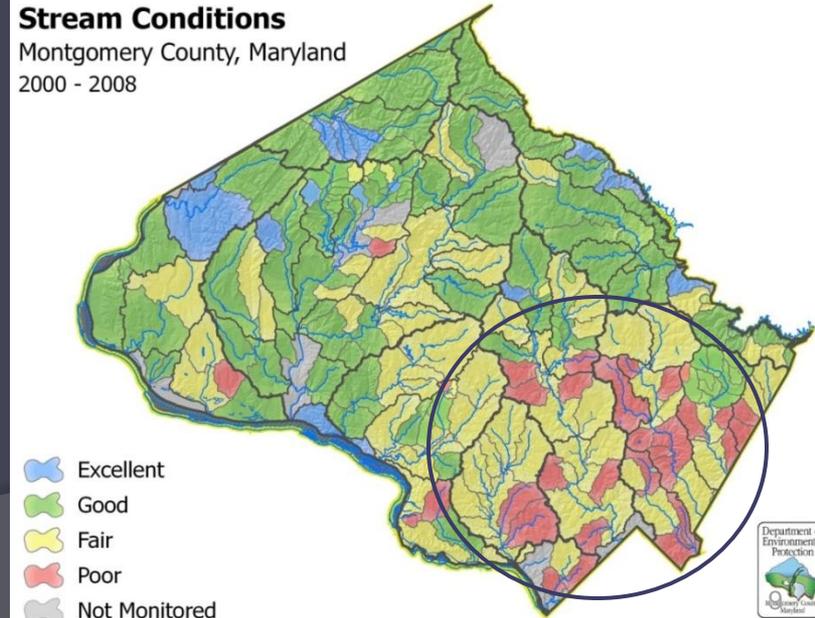


## Outreach activities



## Stream Conditions

Montgomery County, Maryland  
2000 - 2008



# Achieving Community Involvement



Marking Storm drains



Re-establishing Buffers

DATE: March 12, 2012

8 things you can do to improve and protect our streams.

1. Pickup Pet Waste
2. Change Lawn Care Habits
3. Encourage Green Streets
4. Plant Trees
5. Create Eco-Friendly Yards
6. Volunteer
7. Reduce Litter & Trash
8. Install Green Driveways & Parking Lots

www.montgomerycountymd.gov/dep



Stopping Stormwater at its Source



Stream Cleanups



Trash Pickups



# Marking Storm drains

https://mcg-a048/dectmpl.asp?url=/Content/dep/maps/inletswip.asp

File Edit View Favorites Tools Help

Test Version March 12, 2012

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montgomerycountymd.gov

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RESIDENTS GOVERNMENT BUSINESSES CULTURE & LEISURE

ADD THIS

Authenticate to edit data

Watershed: Show all Inlets Search by Inlet ID

Submit Search

Map Satellite

The Paperless Airplane

MyMontgomery Find County Service Locations Near You

Ride On Montgomery County

CountyStat

This screenshot shows a map of Montgomery County, Maryland, with numerous small white circles representing storm drains. The map is overlaid on a satellite-style background. The interface includes a search bar, navigation tools, and various utility links.

https://mcg-a048/dectmpl.asp?url=/Content/dep/maps/inletswip.asp

Favorites Tools Help

March 12, 2012

**MONTGOMERY COUNTY** MARYLAND  
tymd.gov

RESIDENTS GOVERNMENT BUSINESSES CULTURE & LEISURE

ADD THIS

Authenticate to edit data

Watershed: Middle Rock Creek Search by Inlet ID

Submit Search

Map Satellite

This screenshot shows a zoomed-in view of the Middle Rock Creek watershed. The map displays a dense cluster of white circles representing storm drains. The interface elements are consistent with the previous screenshot, including the search bar and navigation tools.

# Linking Outreach to Restoration Efforts

- Identifying events near CIP & RainScapes Projects
  - Signage, Community tours
  - Earth Day Event @ Breewood
  - Geocaching at ESD sites
- Community Watershed grants
- Community Clean Water Summit
- H2O group Capacity Building



## 2ND ANNUAL COMMUNITY Clean Water Summit



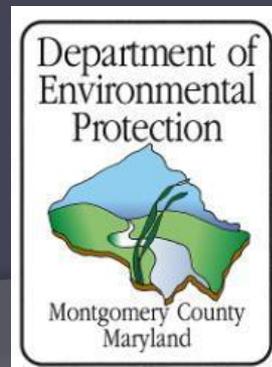
- Meet local watershed groups
- Join in the fun of keeping streams clean
- WIN PRIZES— Like a REI 3 Season Tent.  
(Must be registered to attend & present to win)

TAKE PRIDE IN HEALTHY STREAMS—JOIN US!



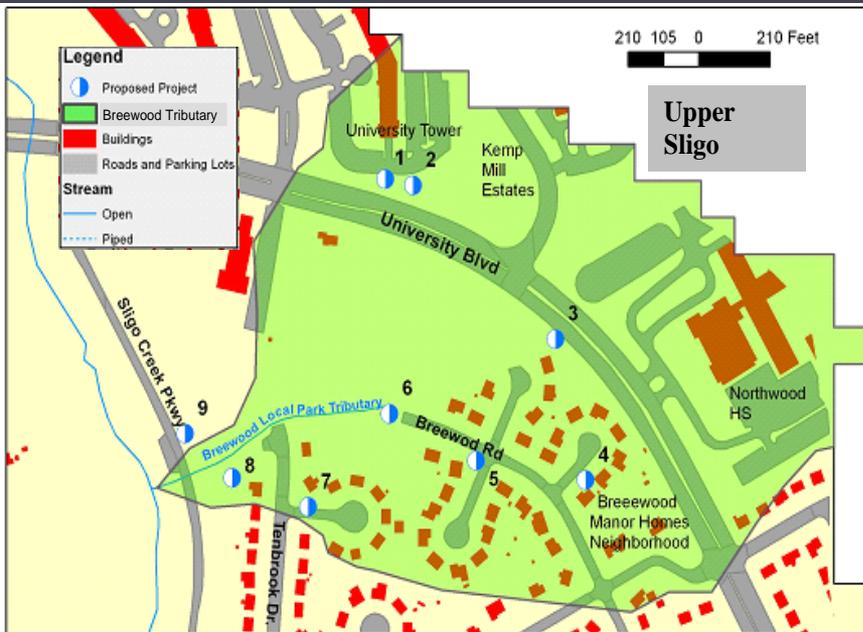
Date: March 3rd, 2012 (Snow date March 11th – same time)  
Time: 8:30am- 3:30pm  
Where: Silver Spring Civic Building  
1 Veterans Plaza, Silver Spring, MD

To register: <http://cleanwatersummit.eventbrite.com>



# Demonstrating Improvements

## *Small Watershed Approach*



### Breewood Tributary of Upper Sligo Creek

- approximately 45 acres
- 33% imperviousness

- LID and Green Streets Stormwater Retrofits
- Parking lot and tree box LID
- Roadside LID stormwater retrofit
- Stormwater Wetland Retrofit
- Stream Restoration
- Rainscapes Neighborhood
- **Environmental Outreach and Litter Reduction**
- Local Park Improvement
- Monitoring-projects and overall
- Estimated total cost: \$1.28M

# Efforts and Accomplishments

Outreach Events	Attendance	By the numbers (increases in knowledge)
Community Events	FY10 – 20 events ~1500 residents FY11 – 49 events ~3000 residents FY12 – 23 events ~3500 residents	100% increase in residents reached 145% increase in # of events attended
2011 Clean Water summit  2012 Clean Water Summit	175 residents  <b>Still reviewing results*</b>	<b>54% increase in knowledge of H2O groups</b> (pre-post) 41% increase in knowledge of county programs •New H2O group created - Muddy Branch Alliance
World of Montgomery Festival	2500 residents >600 @ DEP tent	28% knew residential over fertilization rate (50%) 62% knew storm drains flow untreated to streams 68% knew County's % impervious cover (12%) 17% knew residential pet waste pickup rate (60%) <b>12% knew what watershed they lived in</b>
Good Neighbors Speaker Series	120 HOA Reps @ Commission on Common Ownership of Communities (CCOC) mtg	8 interested in County presentation to HOA 4 presentations conducted in 2011.
Realtors Prof. Credit Workshops	35 local real estate professionals	89% increase in stormwater/watershed issues 75% comfortable pointing out SWM facility to clients 90% comfortable relaying RainScapes info to clients
Watershed Group Capacity Building Contract	40 – Seneca Creek Stakeholder mtg 23 – Conservation Landscaping training Paint Branch mtg Cabin John mtgs	Increased Activity in all 8 Current Watershed groups  Cabin John                      Northwest Branch Seneca Creek                  Sligo Creek Rock Creek                      Paint Branch Little Falls                        Muddy Branch

# Questions?

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