

Montgomery County

Working together for a cleaner, greener,
more economically vibrant community.



DEPARTMENT OF
**ENVIRONMENTAL
PROTECTION**

MONTGOMERY COUNTY • MARYLAND

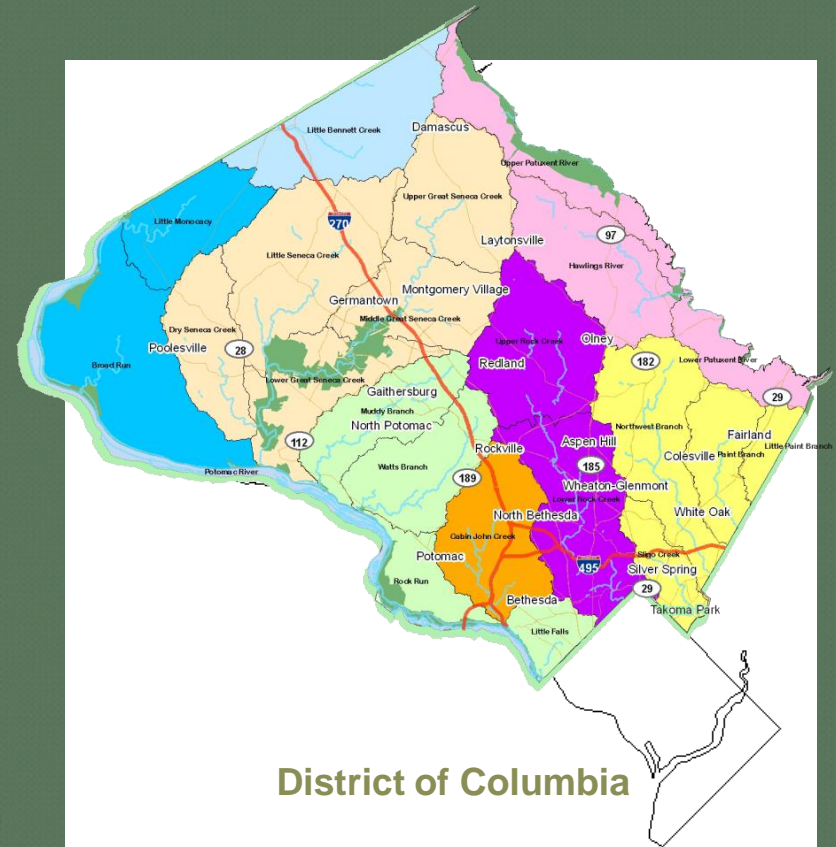


DEP

- Watershed Management
- Environmental Policy & Compliance
- Solid Waste Services
- Water and Wastewater

Montgomery County, MD

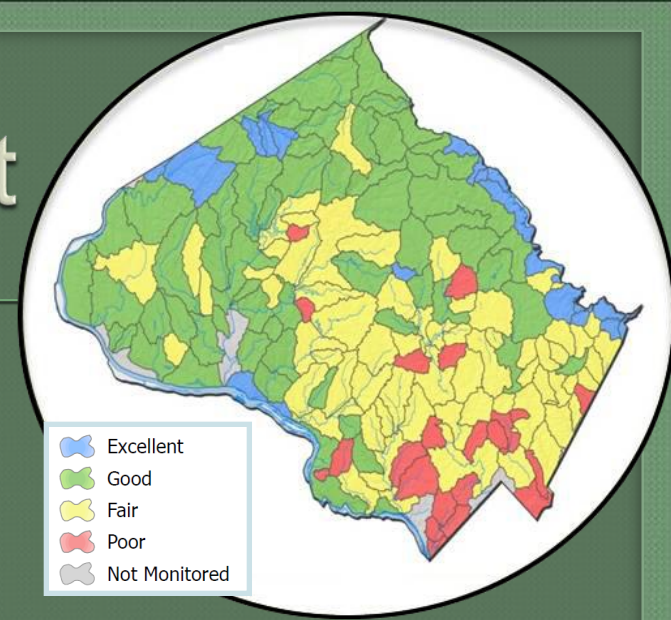
- 507 sq. miles
- >1,000,000 people
 - 184 languages spoken
- About 12% impervious surface
 - About the size of the District of Columbia
- Over 1,500 miles of streams
- Two major river basins:
 - Potomac
 - Patuxent
- Eight local watersheds
- Water Quality Protection Charge



Meeting the MS4 Permit

What must the County do to protect our streams?

- Restore streams and watersheds by adding runoff management
- Meet water quality protection goals (TMDLs)
 - Reduce pollutants entering our streams
 - Focus on watersheds showing greatest impacts
- Requires additional stormwater management for **20 percent** of impervious surfaces
 - (3,777 acres). Equivalent to 3,307 football fields!
- Educate and engage County stakeholders



Stormwater Facility Maintenance

Montgomery County, MD
Department of Environmental Protection



Audra Lew
SWFM Planner



What governs us?



National Pollutant Discharge Elimination System (**NPDES**) permit program decreases water pollution by regulating pollution sources.



The Maryland Department of the Environment (**MDE**) requires the County to obtain an **MS-4** Permit. This regulates Stormwater Discharges and requires the County to inspect and maintain all stormwater structures.



Code of Montgomery County, Article II, Ch. 19 (**COMCOR**) requires DEP to inspect and enforce maintenance of all stormwater structures in the County.

Stormwater Inspection and Maintenance

- DEP is responsible for inspection of all stormwater management facilities*
- DEP is responsible for ensuring all stormwater facilities* are functioning properly
- Funded by Water Quality Protection Charge

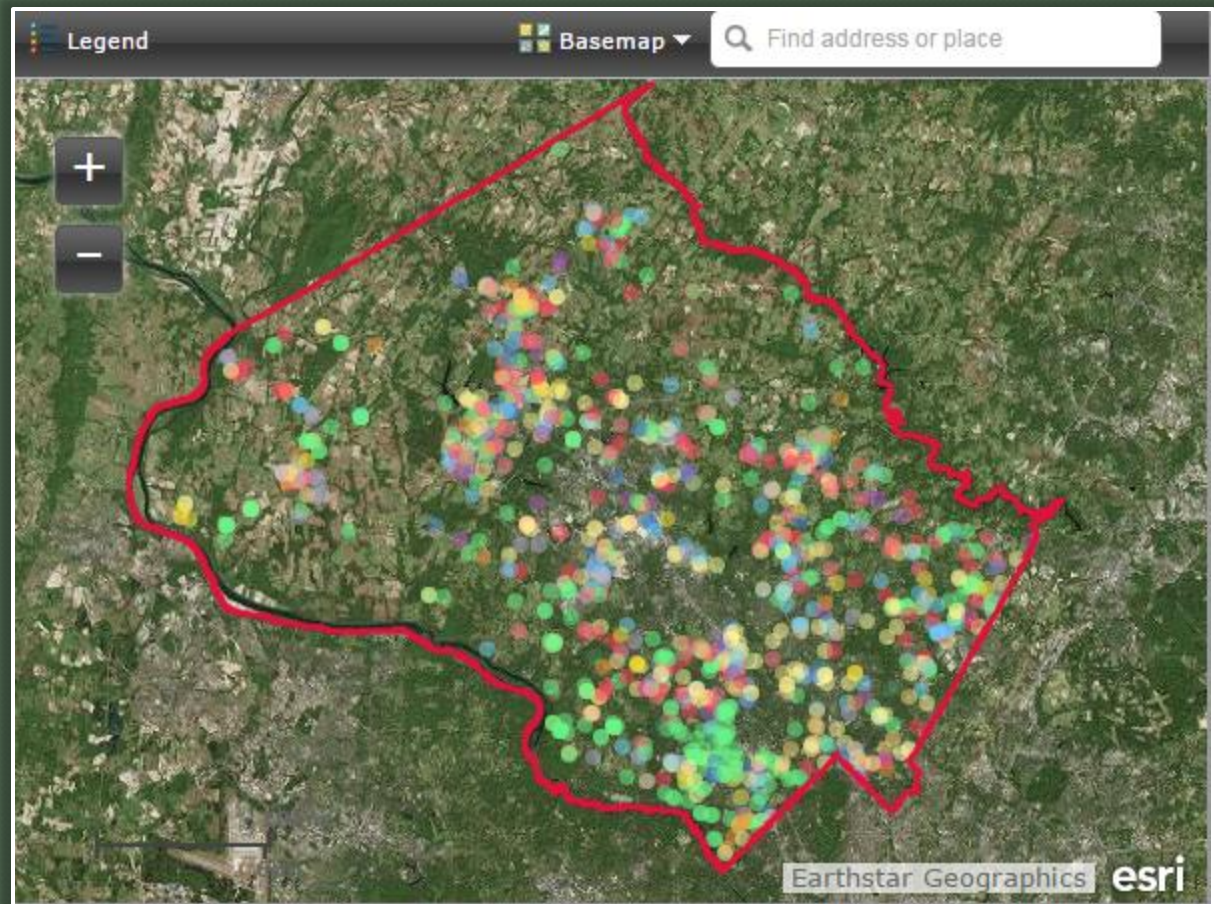


Water Quality Protection Charge

- Part of Montgomery County property tax bills.
- Calculated based on the potential for a property to contribute to stormwater runoff.
- All property owners in Montgomery County pay the WQPC, including businesses, HOAs, and non-profit organizations.
- The WQPC raises funds to improve the water quality of our streams and reduce the impacts of stormwater runoff.

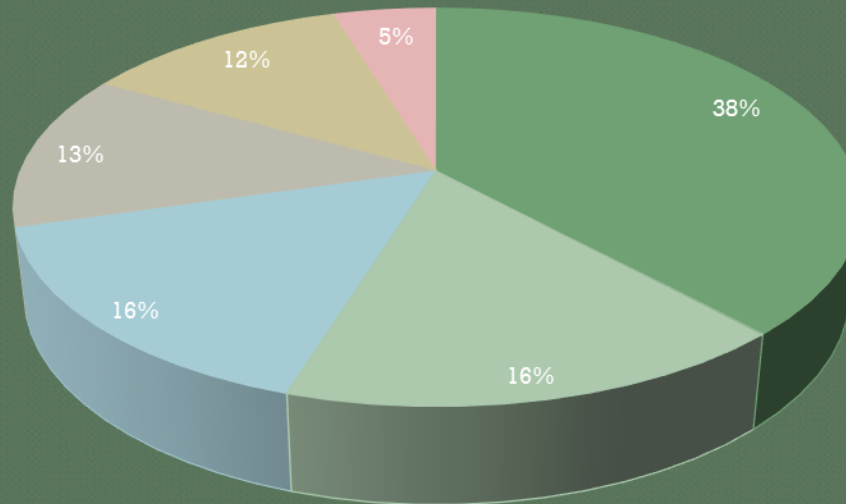
Stormwater Facility Locations

We currently have over 9000 stormwater facility measures in the County



Over 9000 Facilities in the County

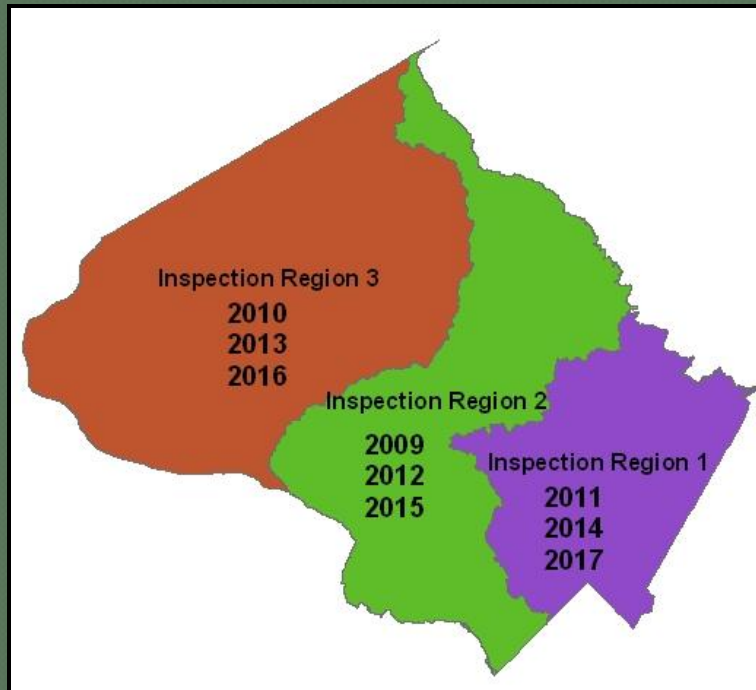
% Types of SWM Facilities



- Environmental Site Design (ESD) 38%
- Filtration 16%
- Other 16%
- Ponds 13%
- Hydrodynamic Structures 12%
- Underground Storage 5%

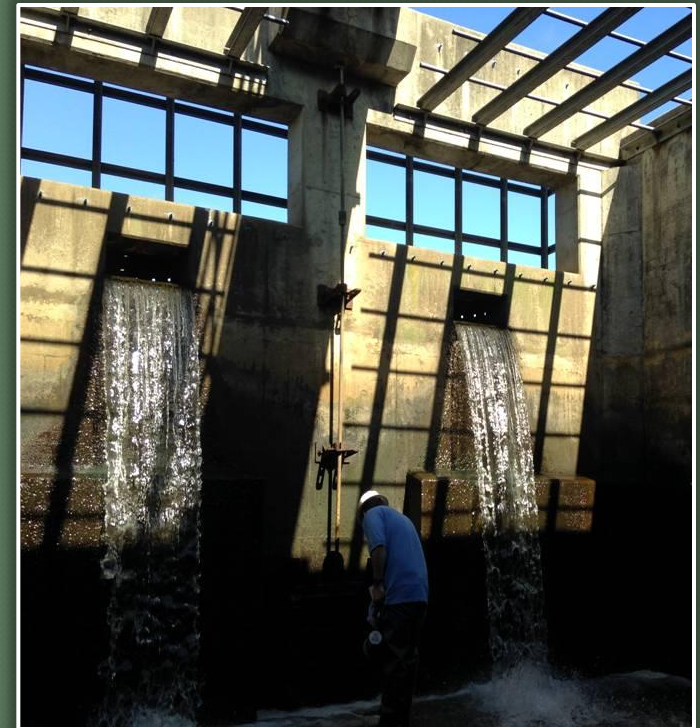
Program Operations

- Inspect all SW structures once every 3 years
- Notify property owners of required maintenance
- Maintain structures on County, MCPS, and Parks property + transfers*



Maintenance Responsibility

- ◉ Primarily property owner
- ◉ In 2003, DEP started a shared maintenance program for residential property owners = **Transfer Program**
 - Property owner is responsible for non-structural maintenance
 - County performs structural maintenance



Non-Structural Maintenance



- Landscaping
- Mowing
- Over grown vegetation
- Woody vegetation
- Trash removal
- Aesthetics

Structural Maintenance

○ Typical - Routine

- Blocked low flow
- Animal burrows
- Minor sediment removal
- Sand filter tilling
- Flow splitter cleaning
- Cleaning UG facilities



Structural Maintenance, cont.

- Capital Projects
 - Dredging
 - Slip-lining
 - Dam failures
 - Barrel replacements
 - Riser replacements
 - Safety improvements
 - Retrofits



Routine Maintenance Matters



**Sign for
reference**



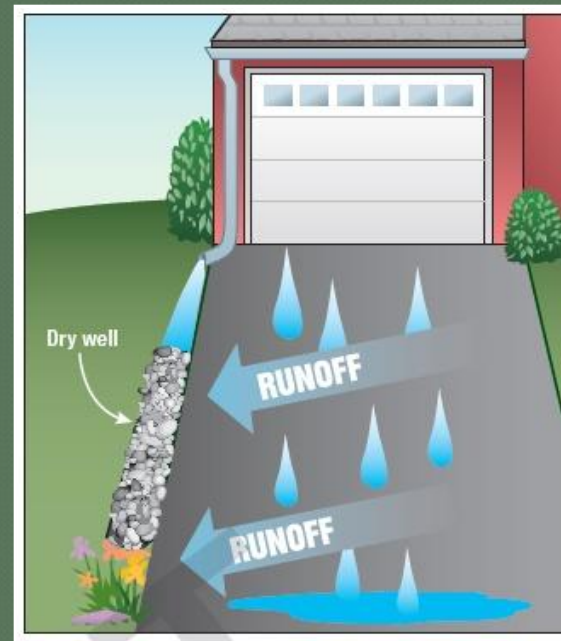
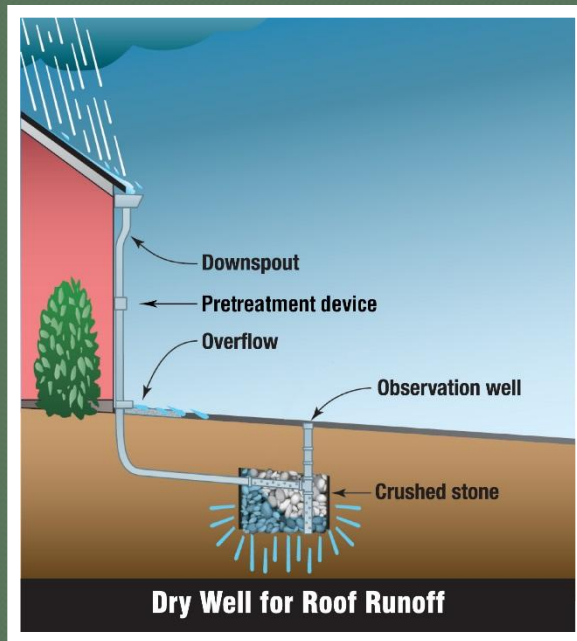
Green Streets: ESD Gardens in the Right of Way



- Rough environment... hard to keep “pretty”
- Exploring plant make up combos and residential aesthetic tolerance



NEW: Residential ESD Inspection and Maintenance



Drywells are the most common type of ESD practices on residential lots.

- In 2010, a new MDE regulation went into effect, requiring the use of Environmental Site Design to the Maximum Extent Possible (ESD to the MEP).
- Requires Right of Entry and Maintenance Agreement.
- Residents can self-inspect their ESD measure and apply for WQPC at the same time.

2 Page Maintenance Fact Sheets

The image displays seven fact sheets from Montgomery County, Maryland, Department of Environmental Protection, Stormwater Facility Maintenance Program. Each sheet includes a title, a brief description, and maintenance instructions.

- How to maintain your POROUS PAVEMENTS**: Porous pavement can replace traditional concrete surfaces with a material that allows water to infiltrate the ground.
- How to maintain your GREEN ROOFS**: A green roof absorbs rainwater that falls on your roof. These roofs are partially or completely covered by a specifically designed soil and vegetation system.
- How to maintain your SWALES**: A swale is an open channel designed to collect stormwater runoff.
- How to maintain your SUBMERGED GRAVEL WETLANDS**: Wetland uses wetland plants and soil to remove pollutants from stormwater runoff.
- How to maintain your RAIN GARDEN, BIOSWALE, AND MICRO-BIORETENTION AREA**: Rain gardens, bioswales, and micro-biorentention areas are functional landscaping features.
- How to maintain your NON-STRUCTURAL PRACTICES**: Common non-structural practices include directing rainwater from your roof gutters or downspouts to nearby vegetated areas.
- How to maintain your DRY WELLS**: A dry well collects and stores rainwater. A dry well is a small excavated underground pit filled with stone or gravel.

Green Business Certification



- A voluntary recognition program designed to encourage businesses and other organizations to take steps that reduce their ecological footprint.

Five Different Certification Programs

- 1) DEP “home grown” program
- 2) Green Seal
- 3) B Lab
- 4) Green America
- 5) Green Restaurant Association



Who is eligible?

- Virtually all businesses and organizations are eligible.
- 85 Certified Green Businesses



Benefits

- Competitive advantage
- Enhanced reputation
- Savings
- Align business operations with personal values



Resources available on website

- How-to Guides
 - Metrics
 - Policies
 - Green Purchasing
- Video profiles
- Web links

 HOME / GET CERTIFIED / GREEN BUSINESS DIRECTORY / MEDIA AND RESOURCES / ABOUT

Our Mission

Vision

The intent of the Green Business Certification Program is to help Montgomery County businesses catalyze and prosper in a new green economy. The program seeks to spur innovation and environmental stewardship so that forward-looking businesses that embed issues of sustainability into their day to day operations and supply chain decisions are not only rewarded for their environmental leadership, but spark the adoption of broader sustainable best practices throughout the County.

Mission

The mission of the Green Business Certification Program is to:

- Empower businesses to green their operations through the provision of tools, incentives, inspirational ideas, collaboration, and leadership opportunities.
- Encourage local consumers and other businesses to consider Certified Green Businesses when making purchasing decisions.



BUSINESSES AND DEP STAFF NETWORKING AT A GREEN BUSINESS FORUM EVENT.

Quick Links

- Get Certified
- Green Business Directory
- How To Guides
- FAQs
- Contact

Online Policy

- Privacy Policy
- User Rights Policy
- Accessibility
- MC311

About

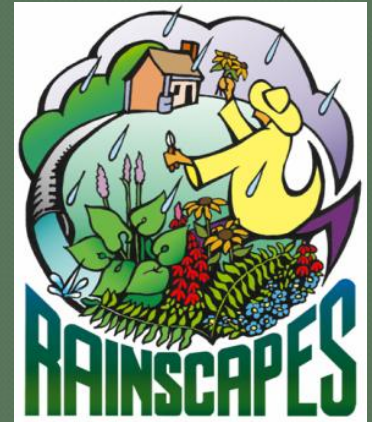
The Montgomery County Green Business Certification Program is a voluntary recognition program designed to encourage businesses and other organizations to take steps that reduce their ecological footprint.

 DEPARTMENT OF ENVIRONMENTAL PROTECTION
Working together for a cleaner, greener county.



www.mcgreenbiz.org

RainScapes



Mission:

To educate and incentivize private property owners to reduce the impervious surface stormwater runoff pollution from their property that is contributing to the degradation of our streams and the Chesapeake Bay.

RainScapes Rewards

Incentive Program

- **Rebates for single family residences:**
 - \$2,500 per property, with lifetime project caps
- **Rebates for multi-family/commercial / institutional:**
 - \$10,000 per property, with lifetime project caps

RainScapes Incentives

- **Rain Gardens**
- **Conservation Landscaping**
- **Urban Tree Canopy**
- **Permeable Pavers & Pavement Removal**
- **Green Roofs**
- **Water Harvesting**
 - Rain Barrels & Cisterns
 - Dry Wells



RainScapes Techniques at home



Green Roof

" .623 gallons of water falls on each sq. ft. of roof during the during a normal rainstorm of 1". A 1000 sq. ft conventional roof can shed 623 gallons when there is an inch of rain. Green roofs reduce and clean this stormwater runoff before it hits the ground.

Conservation Landscape

Loosened and improved soil, planted with easy-to-maintain native plants that soak up the rain.

Dry Well

collects stormwater from rooftops or driveways and filters the rainwater through a small stone-filled pit, then into the underlying soils



Canopy Trees

Leaves intercept raindrops and retain them, thus reducing stormwater runoff

Pavement Removal

allows more water to soak into the ground when you plant native plants.

Rain Gardens

A spoon-like, concave area filled with a special soil mix that collects rainfall and allows it to filter into the ground

Cistern

Larger than a rain barrel, cisterns perform the same water harvesting benefits and are no more aesthetically intrusive than an air conditioner.

Rain Barrels

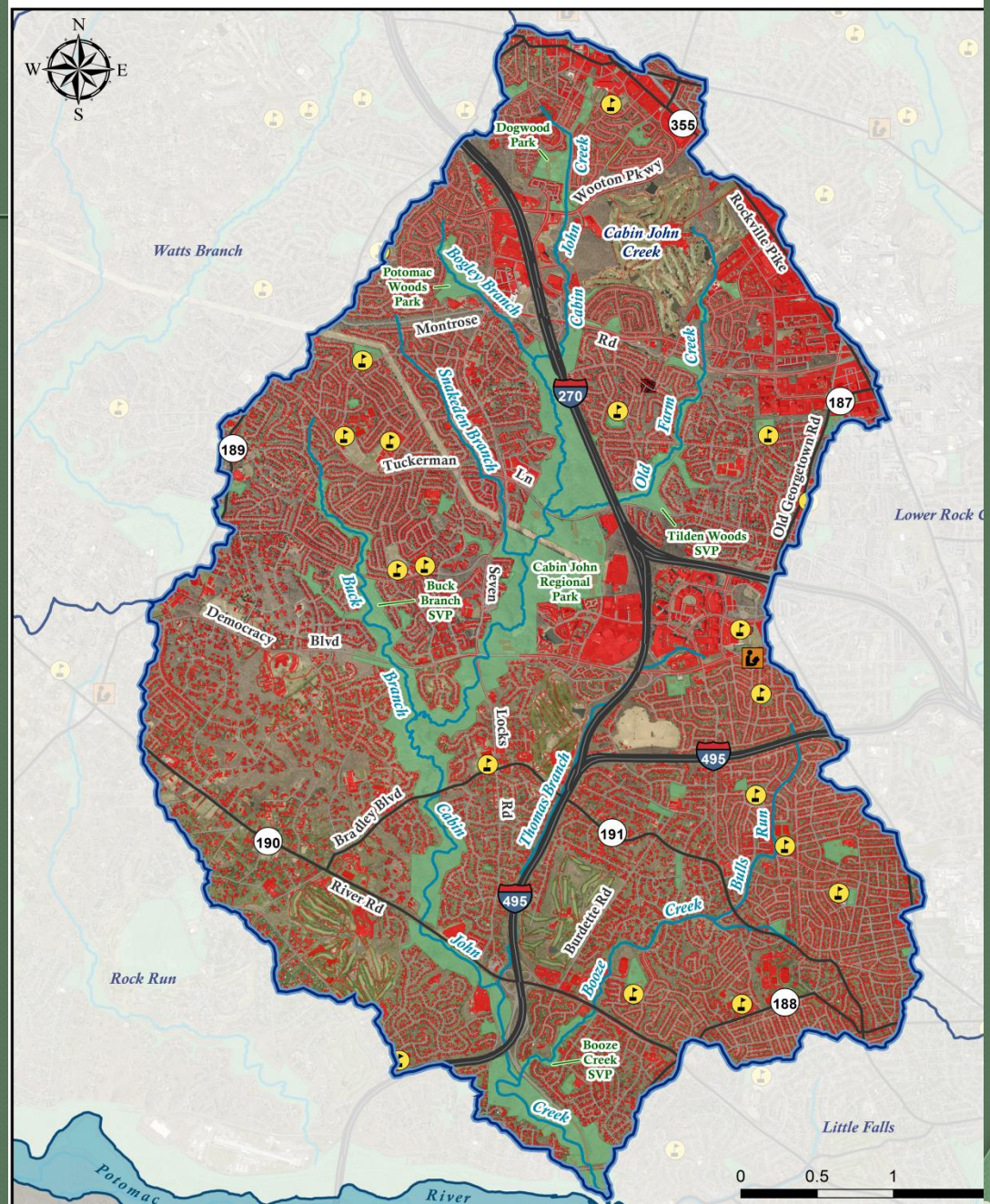
collects and stores rain water from rooftops

Permeable Surfaces

allow rainwater to rapidly infiltrate and enter the ground where it is naturally filtered

Making an Impact

- Red = Impervious
- Are we making a dent?



RainScapes Projects

Legend

RainScapes Communities Projects

- Neighborhood
- Watershed Group
- Schools
- ROW

RainScapes Congregations

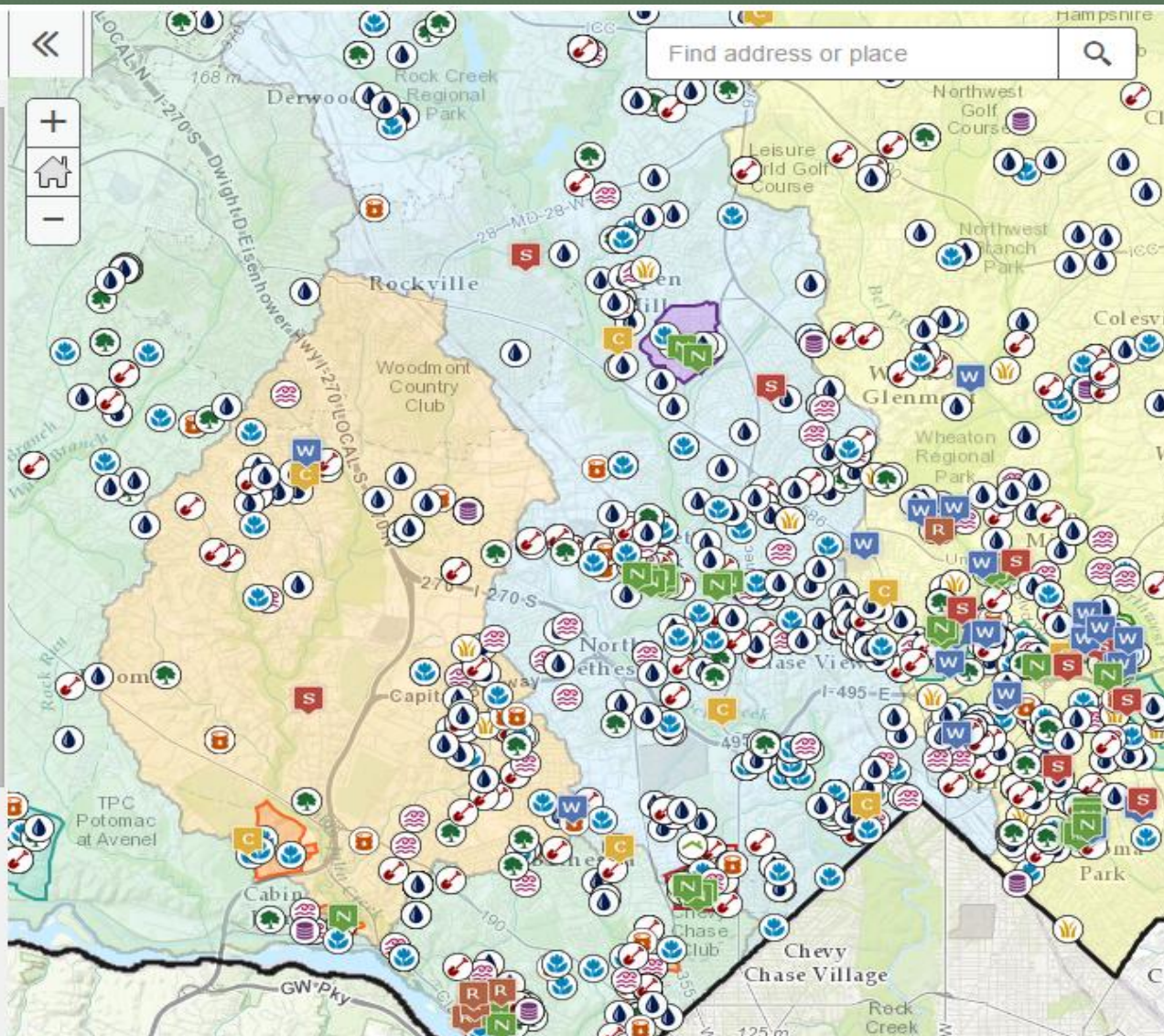


RainScapes Rewards Rebates Projects

- Rain Barrel
- Conservation Landscape
- Tree Canopy
- Rain Garden
- Permeable Paver Retrofit
- Cistern
- Dry Well
- Pavement Removal
- Green Roof

RainScapes Neighborhoods

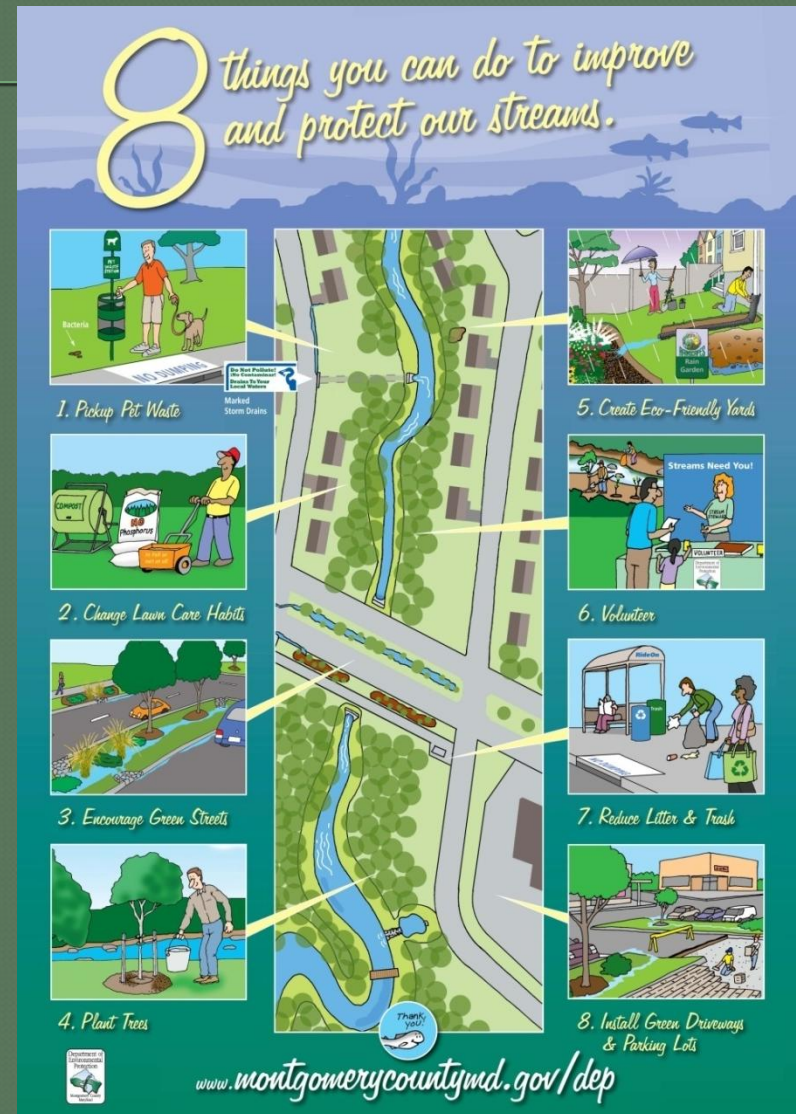
- Neighborhood For Future Effort
- Neighborhood With DEP



Outreach and Community Engagement

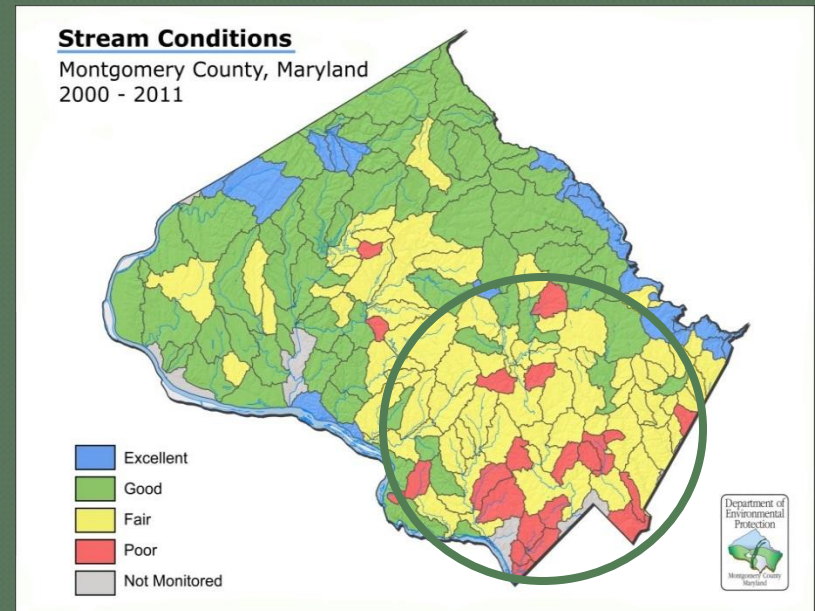
Outreach Priorities

- Establish Pet Waste Management
- Promote Lawn Stewardship
- Reduce Littering
- Encourage Green Streets
- Create Community Volunteers
- Promote Riparian Buffer
- Reduce Rooftop Runoff
- Reduce Parking Lot Runoff

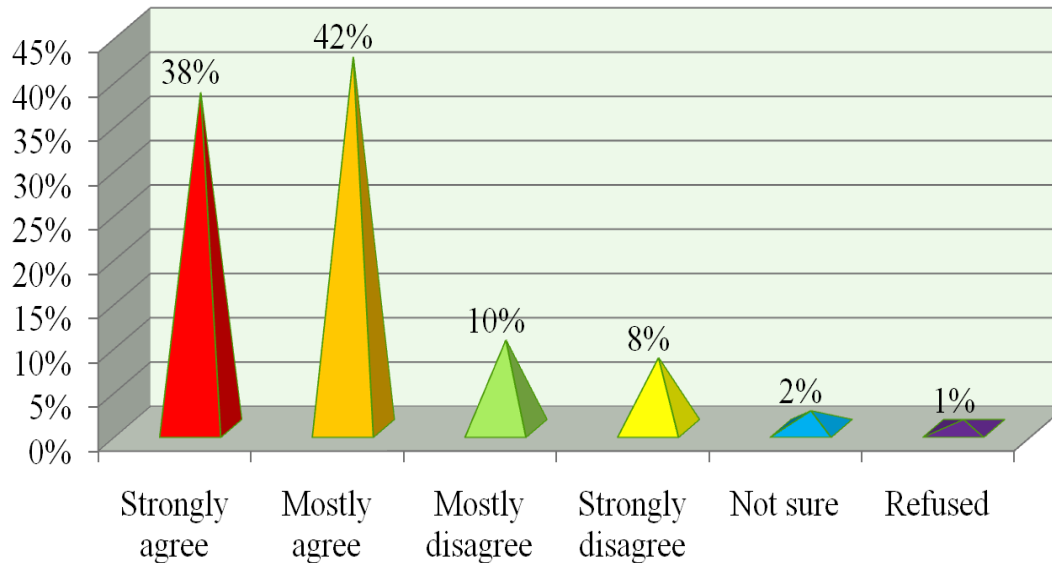


Focusing Outreach Efforts

- Most Impacted County Watersheds
 - Anacostia River
 - Rock Creek Watersheds
- Link to Restoration projects
- Increase Public Participation
- Document Behavior Change



Surveying the Public



Q.9 Changing my own behavior will help reduce the impacts of global warming and other environmental problems, such as air and water pollution.

- Facilitate our local stakeholders in helping the County meet water quality improvement goals
- Encourage partnerships among residents, businesses, and community groups
- Focus on private property since the majority of land without stormwater management is not publicly-owned or managed
- Require sustainability, not just one-time demonstration projects

Watershed Groups - Building Capacity



2014 Chesapeake
Watershed Forum
Montgomery Roundtable

Watershed Group - Building Capacity

○ Goal:

Provide a means and direct resources in order for watershed groups to increase capacity and actively involve more residents in water quality protection and runoff reduction



Watershed Group - Building Capacity

○ Scope

- Organizational Support and Training
 - Strategic Planning
 - Board Development
 - Volunteer Management
 - One on One Consultations
- Hands on Implementation
 - RainScapes Projects
 - Storm Drain Marking



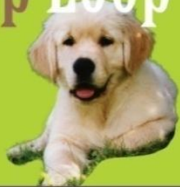
Workshop attendees installing a conservation landscape at Geneva Day School (Cabin John Watershed)

Collective Accomplishments

- 300+ events conducted
- 900 storm drain markers installed
- 10,000+ hours donated by 4,200+ volunteers
- Increases in Group memberships
- Creation of Official Bylaws, 501c3 status, Board establishment, Executive Director, Strategic Plan and Annual workplans
- Mentorship & improved communications
- Service Value to County: \$230,500*
- Challenge: Receiving consistent and complete results to include for reporting

Pet Waste Program

Join the
Poop Loop



Joining is simple! Just...

Scoop it,
Bag it,

Trash it!



- Piloted with Rock Creek Conservancy (12 months)
- Survey communities & assess need
- Developed outreach plan
- Pilot – 7 Stations installed Total waste collected: 1,826 lbs
- Program: 26 stations

H2O Summit & GreenFest



- GreenFest - Organized with 13 community partners
- Growing Attendance:
 - 2011 – 175
 - 2012 - 186
 - 2013 - 321
 - 2014 - 490
 - 2015 GreenFest ~700-1000

"I learn something great every year and network more and more. I appreciate the time and effort to share this knowledge."

"Thank you for doing this event!"

Anti-Litter Campaign – Engaging the Community

- Vital watershed group role
- Reusable bag surveys –Local Sierra Club and Neighbors of Northwest Branch
 - 2168 plastic bags found in 2011 cleanup*
 - 223 plastic bags found in 2013 cleanup
- Community meetings to highlight litter issue.
- Ground surveys:
 - Most trash found was recyclable
- Working on campaign – focused on multi-family complexes



County Executive Leggett signing the Bag Bill into Law.

* Prior to MC plastic bag law

Stream Stewards

- Developed volunteer program to expand outreach capabilities
- Community members as Outreach Ambassadors
- Funnel volunteers to Groups



Watershed group volunteers completing a storm drain marking activity

volunteer opportunity	# of hours	# of volunteers	Service Value	
office Assistance	17.5	1	\$	403.38
Orientation	230.5	127	\$	5,313.03
Watershed ambassador	817.833	128	\$	18,851.05
watershed keeper	626.5	138	\$	14,440.83
Watershed Speaker			\$	-
Total hours	1,692.333	150*	\$	39,008.28

Service value per hour = \$23.05 based on number for Maryland via Independent Sector:
http://www.independentsector.org/volunteer_time



Storm Drain Paintings in Rock Creek



Storm Drain Art



Community Service Day project



- Partnered with Rock Creek Conservancy
- 10 storm drains at high traffic libraries
- Intercept surveys & observations
- Incorporated into other programming
- Hosted Art Contest
- Created Coloring Book



Topic (awareness)	Increase
Local Moco Watersheds	91%
Stormwater Facilities	55%
Behaviors/Action Steps	45%
Stormwater Pollution	39%

*169 - Participants since summer 2014
118 – Completed Geotrail & survey*

Caching the Rain Stormwater Awareness Geotrail

Caching the Rain Stormwater Awareness Geotrail

Actions	Currently do	Highly Likely/Likely	Very Unlikely
RainScapes	11%	66%	3%
Pet Waste	40% (47% NA)	10%	2%
Fert./Pesticides	30%	46%	1%
Recycle	84%	12%	<1%
Plant a Tree	31%	45%	2%
Volunteer	10%	37% (Likely/neutral)	3%

- “Excellent geotrail! Please do another one. Very well done with nice caches and creative hides. Highly educational.*
- I noticed a bag of pet waste at the trail and after reading the hateful consequences of waste running off into the water, I went back and picked it up! Please do these [geocaches] all over!”*

Watershed Grants

- \$350,000 for FY14 funded by WQPC; 13 funded projects
- Administered by Chesapeake Bay Trust
 - **Friends of Sligo Creek, \$15,000**
 - Expand Water Watch Dogs - Citizen-based pollution reporting program
 - **Rock Creek Conservancy, \$38,000**
 - Develop the Rock Creek Park in Your Backyard program
 - **Friends of Cabin John Creek, \$42,000**
 - Support an outreach coordinator and fund stormwater projects
 - **Muddy Branch Alliance, \$10,000**
 - Support County Watershed Stewards Academy Development



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