

Every Drop Counts: The Howard County Watershed Stewards Academy's Work with Public Stakeholders

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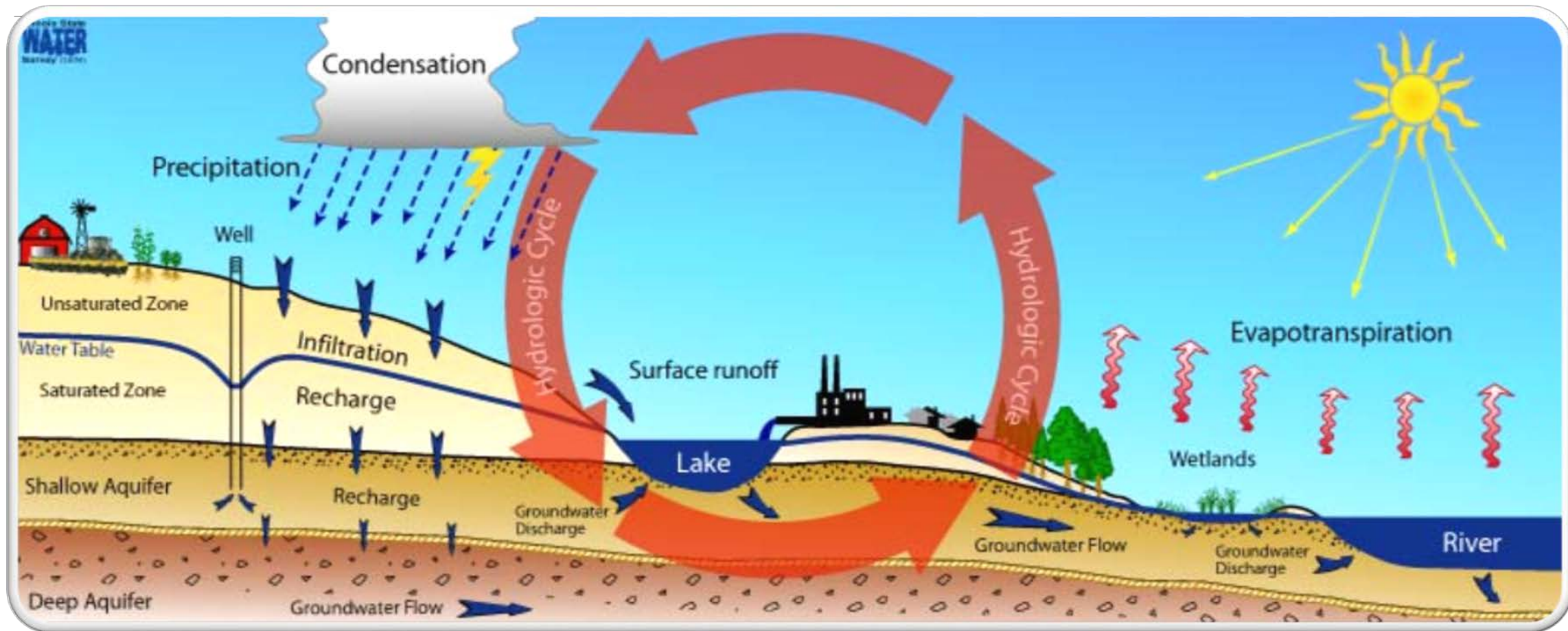


Presentation Outline

- Background
- Stormwater Issues in Howard County
- Howard County Watershed Stewards Academy
- Lessons Learned
- Questions

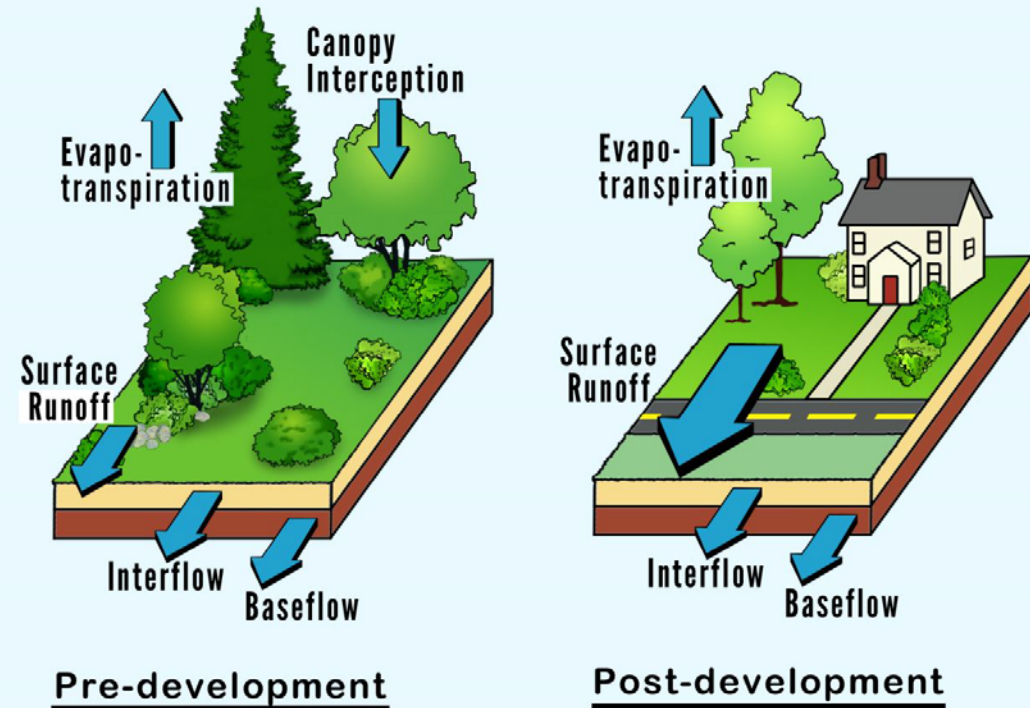
Background

Hydrologic Cycle



Water Balance with Development

Figure 1.1 Water Balance at a Developed and Underdeveloped Site
(Source: Schueler, 1987)



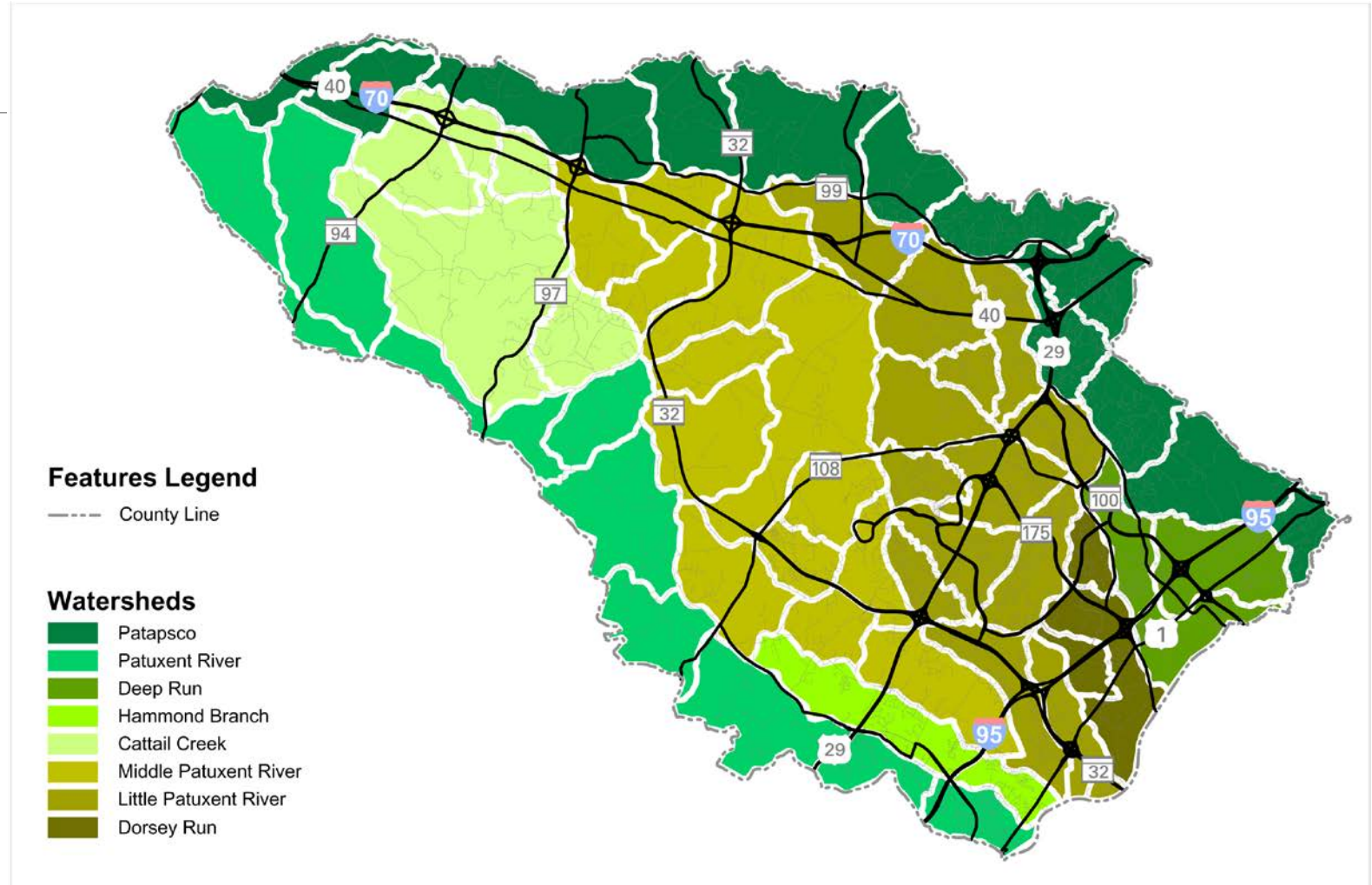
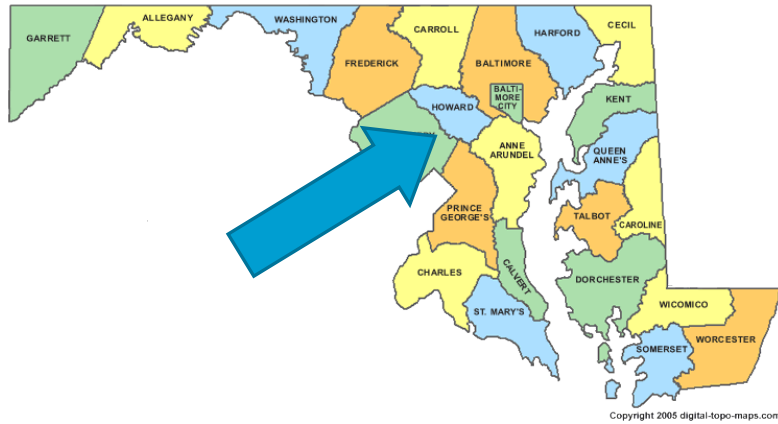
Surface runoff is minimal in an undeveloped site, but dominates the water balance at a highly impervious site.

What Typically Happens to All that Rain!



Stormwater Issues in Howard County

Howard County, Maryland



How much water falls during a storm?

- In a year, the Howard County area gets 40 - 45 inches of rain
- Say a house has a roof that is 30 ft. by 30 ft. or 900 sq. ft. Then an **inch** of rain falling on that roof and rolling down the downspouts would equal 561 gallons, enough for 14 forty-gallon baths.



Public vs Private Property

- Howard County has a population over 300,000, with approximately 100,000 people in Columbia alone.
- More than 60% of land surface is privately owned.
- There are no incorporated cities, only non-profit community associations (+/-300), and the Columbia Association to manage local populace.
- A ¼ acre lot in Howard County, on average, receives 288,511 gallons of rain per year, enough for 7,213 forty-gallon baths a year, or 20 baths a day.

Adaptation of Household Stormwater Best Management Practices – 2013

The majority of households have not adapted these BMPs:

- 2.5% have rain gardens,
 - 7.6% have rain barrels,
 - 23.4% use low fertilizer lawn care, and
 - 10.2% use conservation landscaping,
- suggesting the need for more education and use of these BMPs.

Over half of the respondents (57%) indicated that they would be willing to put in rain gardens either at their own cost (30%) or with a rebate (70%).

Of those not choosing to have a rain garden, over half (59%) felt that the costs were too high, and almost half (44%) did not feel that they had enough information

Local Perspective

“... Wilde Lake residents [Howard County], on the other hand, often seemed convinced that their own stormwater soaked in to the ground and did not impact the lake, despite widespread awareness of flash flows of water through adjoining common areas during heavy rainstorms. In fact, across all four groups there was significant uncertainty that one’s own property had much negative impact on water quality in the nearby water body, even though there was a consensus in every focus group that the closest water body was contaminated.”

(OpinionWorks, 2015)



Howard County Watershed Stewards Academy

Howard County Watershed Stewards Academy (HoCoWSA)

The Howard County Watershed Stewards Academy is a training program to empower residents to improve the water quality of local streams. Stewards become community leaders in reducing harmful effects of polluted stormwater running off into our streams.

The Academy provides Stewards

- knowledge and expertise from lecturers,
- training in using watershed assessment tools for analyzing stormwater runoff and
- hands-on experience installing a solution to a stormwater management problem.

A consortium of experienced stormwater management practitioners will provide Stewards with on-going support for their community projects.

Topic	Speaker
Introduction to the Chesapeake Bay Watershed	Ned Tillman, Author of The Chesapeake Watershed
Watershed Science and Land Use Change	Tom Schueler, Executive Director, Chesapeake Stormwater Network
Hands-On Watershed Exercise	Lori Lilly, Watershed Ecologist/Planner, Alliance for the Chesapeake Bay
Clean Water Act and Mandate to Improve Water Quality of Local Streams	Lee Currey, Director, Science Services Administration, Maryland Department of the Environment
Pollution Sources in Howard County: Overview	Mark Richmond, PE, Chief, Stormwater Management Division, Bureau of Environmental Services, Howard County Dept. of Public Works
Illicit Discharge and Pollution Hot Spots	Angela Morales, Environmental Planner, Stormwater Management Division, Howard County Dept of Public Works
Solving Pollution Problems: Policy and Prevention	Lindsay DeMarzo, Sustainability Project Manager, Howard County Office of Community Sustainability
Pollution Solutions: BMPs for Private Landowners	John McCoy, Watershed Manager, Columbia Association
Rain Barrels and Conservation Landscaping	Amanda Rockler, Regional Watershed Protection Specialist, Sea Grant Extension Program, University of Maryland College Park
Clean Water Howard and its CleanScapes Program	Rachel Beebe, Howard County Office of Community Sustainability
GIS Principles and Utility for Stewards	Robert Slivinsky, GIS Coordinator, Howard County Dept of Communication and Technology Services
Soils	Michael Calkins, Soil Conservation Planner/Stormwater Management Specialist, Howard Soil Conservation District
Successful Community Engagement	Kacey Wetzal, Director of Outreach and Education, Chesapeake Bay Trust



HoCoWSA Program Highlights

Number of Master Watershed Stewards since program inception	23
Number of current steward candidates	8
Number of native trees/plants installed	1,238
Number of rain barrels and cisterns installed	10
Square footage of projects	16,713
Number of rain gardens/conservation landscapes installed	13
Number of volunteer hours	4,549
Number of people reached	2,533
Storm drains stenciled	59
Sq. Ft. Invasive plants removed	1002
Homeowner's Association that WSA is currently working with	14
Number of stream assessment conducted	22
Number of resident site assessments conducted	38
Sq. Ft. of Streamside Forest Buffers Planted	21,780
Number of village watershed committees founded	2
Number of presentations/workshops	31
Number of websites created	1



Figure 5. Potential project sites in the Greenleaf neighborhood.

Neighborhood Source Assessment

BENCHMARKS
Neighborhood Source Assessment (Adapted from CWP)

NSA

WATERSHED:	SUBWATERSHED:	UNIQUE SITE ID:	
DATE: ___/___/___	ASSESSED BY:	CAMERA ID:	PIC#:
A. NEIGHBORHOOD CHARACTERIZATION			
Neighborhood/Subdivision Name: _____		Neighborhood Area (acres) _____	
If unknown, address (or streets) surveyed: _____ Community Marina <input type="checkbox"/> Y <input type="checkbox"/> N			
Homeowners Association? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown If yes, name and contact information: _____			
Residential (circle average single family lot size):			
<input type="checkbox"/> Single Family Attached (Duplexes, Row Homes) <¼ ¼ ½ ¾ acre		<input type="checkbox"/> Multifamily (Apts, Townhomes, Condos)	
<input type="checkbox"/> Single Family Detached <¼ ¼ ½ 1 >1 acre		<input type="checkbox"/> Mobile Home Park	
Estimated Age of Neighborhood: _____ years	Percent of Homes with Garages: _____ %	With Basements _____ %	INDEX*
	Percent of Homes with Boats: _____ %		
Sewer Service? <input type="checkbox"/> Y <input type="checkbox"/> N			!
Index of Infill, Redevelopment, and Remodeling <input type="checkbox"/> No Evidence <input type="checkbox"/> <5% of units <input type="checkbox"/> 5-10% <input type="checkbox"/> >10%			!
Record percent observed for each of the following indicators, depending on applicability and/or site complexity		Percentage	Comments/Notes
B. YARD AND LAWN CONDITIONS			
B1. % of lot with impervious cover			!
B2. % of lot with grass cover		> 50%	!
B3. % of lot with landscaping (e.g., mulched bed areas)		<25%	!
B4. % of lot with bare soil		>50%	!
*Note: B1 through B4 must total 100%			
B5. % of lot with forest canopy		<40%	!
B6. Evidence of permanent irrigation or "non-target" irrigation		>15%	!
B7. Proportion of total neighborhood turf lawns with following management status:	High: _____	>20%	!
	Med: _____		
	Low: _____		
B8. Outdoor swimming pools? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Can't Tell Estimated # _____		>10%	!
B9. Junk or trash in yards? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Can't Tell		>25%	!
C. DRIVEWAYS, SIDEWALKS, AND CURBS			
C1. % of driveways that are impervious <input type="checkbox"/> N/A			
C2. Driveway Condition <input type="checkbox"/> Clean <input type="checkbox"/> Stained <input type="checkbox"/> Dirty <input type="checkbox"/> Breaking up		ANY ONE >25%	!
C3. Are sidewalks present? <input type="checkbox"/> Y <input type="checkbox"/> N If yes, are they on one side of street <input type="checkbox"/> or along both sides <input type="checkbox"/>			
<input type="checkbox"/> Spotless <input type="checkbox"/> Covered with lawn clippings/leaves <input type="checkbox"/> Receiving 'non-target' irrigation		>25%	!
What is the distance between the sidewalk and street? _____ ft.		>25% w/ > 6ft	!
Is pet waste present in this area? <input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> N/A		> 25%	!
C4. Is curb and gutter present? <input type="checkbox"/> Y <input type="checkbox"/> N If yes, check all that apply:			
<input type="checkbox"/> Clean and Dry <input type="checkbox"/> Flowing or standing water <input type="checkbox"/> Long-term car parking <input type="checkbox"/> Sediment		>25%	!
<input type="checkbox"/> Organic matter, leaves, lawn clippings <input type="checkbox"/> Trash, litter, or debris <input type="checkbox"/> Overhead tree canopy		>25%	!

* INDEX: ! denotes potential pollution source; ! denotes a neighborhood restoration opportunity

- Neighborhood Characterization
 - ✓ Lot Size
 - ✓ Type of residence
- Yard and Lawn Conditions
 - ✓ % of lot impervious
- Driveway, Sidewalk, and Curbs
 - ✓ Presence of curb and gutter
 - ✓ Condition of driveway
- Rooftop
 - ✓ Downspout situation

Homeowner Interview & Site Assessment (HISA)



Homeowner Interview and Site Assessment

General Information

Date _____ Assessed by _____

Homeowner Name _____

Address _____

Phone _____ email _____

Homeowner Association: _____

Watershed _____

Subwatershed _____

Observed Weather Conditions _____

Rain in the past 24 hours? Yes No (circle one)

Home has

- Well water
- City water
- Septic field (sketch drainage field, if known)
- Sanitary sewer service

Is Owner

- Willing to construct and maintain a retrofit?
- Likely to use contractor?
- Knowledgeable of problem?

Homeowner Identified Issues: describe and/or sketch on map and/or include photo(s)
(Note positions of any utilities and devices, such as electric, phone, heat pumps, etc.)

General Site Conditions

Soil Description

- Soil Type (non-Urban) and components (list all) from Howard County soil table/GIS _____
 - % Sand _____
 - % Silt _____
 - % Clay _____
- % Urban soil _____
- Soil Hydrologic type (non-Urban components) ___% A, ___% B, ___% C, ___% D
- Is homeowner willing to conduct a test to determine rate of water infiltration, if a rain garden is recommended (with help of Steward)?
 - If possible, complete infiltration test
 - Infiltrate? Yes No Rate of infiltration: _____
- High groundwater (e.g., wet spot during dry weather)?
Describe _____

Sun Description

- Full Sun
 - Partial Sun
 - Shade
 - Mixture
- Repeat for each applicable side of house (East, West, North, South) or Front, Back, and Right, Left (when facing front).

Vegetation Description (Indicate on map, as needed)

- Mature trees (% of Property: _____)
 - Are trees mulched to drip line? (% of trees so mulched? _____)
- Turf grass (% of Property: _____)
 - Healthy turf
 - Mixture of grasses
 - Mixture of grasses and broadleaf weeds
 - Other _____
- Bare Spots (% of Property: _____)
- Invasive species (% of Property: _____)
- Mulched beds (shrubs, herbaceous plants) (% of Property: _____)
- Does homeowner use a lawn service for fertilization and lawn maintenance?
 - How often _____
- Does homeowner use a lawn service for pest control?

From Information To Action

Pre-contemplation phase - *where residents never seriously thought about needing to change their behavior toward stormwater running off their property*

Contemplation phase - *where we help residents begin to actively think about the need to change their behavior through a variety of tools such as questionnaires, stream assessment findings, etc., with the intent of changing their viewpoint*

Determination/Action phase - *where our outreach efforts having identified the existing barriers that residents have toward implementing actions are offset by educating them to the related benefits associated with the remediation actions to be taken*

Social Marketing Plan

- Background, Purpose, Focus
- Conduct Situation Analysis
- Select and Describe Target Audience
- Set Marketing Objectives and Goals
- Identify Audience Barriers, Benefits, and the Competition
- Craft a Desired Positioning Statement
- Develop a Strategic Marketing Mix
- Determine an Evaluation Plan
- Establish a Campaign Budget and Find Funding
- Outline an Implementation Plan

Lessons Learned

- Projects and Plans need clear vision, goals, and action items.
- Have an advocate at the HOA level.
- Develop partnerships with different parts of the community.
- Educate, educate, educate!
- Build on small successes.
- Stay in touch (newsletters, emails) with current Stewards.
- A major or perceived crisis helps.
- Keep re-evaluating the program to reach target audience.

7 Simple Things to Control Pollutants

- Slow The Flow
- Stash The Trash
- Refrain From The Drain
- Scoop The Poop
- Enable The Label
- Quash The Wash
- Landfill The Pill

Questions?

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WSA Whitepaper (Fisher et al): "A Voice for the River, A Voice for the Stream:" Organizational Perspectives on Environmental Stewardship and the Maryland Watershed Stewards Academies

http://www.cse.umd.edu/uploads/1/7/9/4/17940149/wsa_whitepaper3.pdf

