

**Montgomery County**  
**Phase II WIP & MS4 Permit Implementation Strategy Meeting**  
**April 6, 2011**

Rockville Regional Library 2nd floor meeting room from 1:30-3:30 pm

- **Welcome and Introductions - Meo Curtis. MCDEP 10 minutes**
- **Introduction to the WIP II process and available resources. Ken Yetman, DNR 30 minutes (w/questions)**
  - Discussion of WIP I that has been completed and WIP II process
  - Pilot Counties (Anne Arundel and Caroline)
  - Important elements of the WIP II
    - Partnerships
    - Load allocations - Done by sector
      - County and municipalities
      - State facilities
      - Federal facilities
      - Other major land holders
    - Developing a strategy, scenario builder & Bay model
    - Accounting for growth (offsets)
    - Reasonable assurance
  - Schedule & EPA Guidance Memo. <http://www.epa.gov/chesapeakebaytmdl/>
  - Ken's role as facilitator
  - MDE web site and other resources  
<http://www.mde.maryland.gov/programs/water/tmdl/tmdlimplementation/pages/phaseiibaywipdev.aspx>
  - April 13 webinar. <https://mddnr.ilinc.com/join/xtbcbvz/yhmxccb>
- **Montgomery County's Draft MS4 Permit Implementation Strategy 20 minutes with questions**  
[http://www.montgomerycountymd.gov/content/dep/downloads/Countywide\\_CIS\\_Draft\\_Combined\\_021611.pdf](http://www.montgomerycountymd.gov/content/dep/downloads/Countywide_CIS_Draft_Combined_021611.pdf)
- **Status of other MS4 permits in Montgomery County 15 minutes**  
**Input from other participants**
- **Current Capacity 10 minutes**
  - Questionnaire
  - Intended Use**
- **Barriers, Needs & 2-Yr Milestones 10 minutes**
- **Initiate discussion of Tracking & Reporting 10 minutes**
  - Existing tracking systems
    - Stormwater
    - Septic
    - Agriculture, WWTP and air will be done by others
- **Next Steps 15 minutes**

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**Questions for MDE**

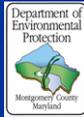
1. Can Phase 2 municipalities get early WLAs from the State?
2. Will allocations be provided by major watershed as well as by County and sector?
3. What State agency will require offsets for new growth and how will it be tracked?
4. What is the tracking framework for the Phase 2 WIP?
5. How will information from the meetings be made available?

**Montgomery County  
Phase II WIP & MS4 Permit Implementation Strategy Meeting**

DATE:	April 6, 2011	
LOCATION:	Rockville Regional Library 2nd floor meeting room from 1:30-3:30 pm	
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# The Countywide Coordinated Implementation Strategy for Montgomery County



Meosotis Curtis  
Watershed Management Division

April 6, 2011

## Montgomery County, MD

- 500 sq. miles; 950,000 residents
- about 12% impervious overall
- Second only to Baltimore City in average people per square mile
- >95% of land zoned for development has already been developed
- Executive Branch has implementation responsibility
- Three municipalities
  - Gaithersburg, Rockville, Takoma Park
- Two bi-county, state-commissioned agencies
  - Maryland National Capital Park and Planning Commission
  - Washington Suburban Sanitary Commission-water and sewer infrastructure



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# Must Address Urban Water Quality Impacts



Untreated oily runoff from a parking lot



Threats to infrastructure



Illegal dumping

# Too much flow and too many pollutants



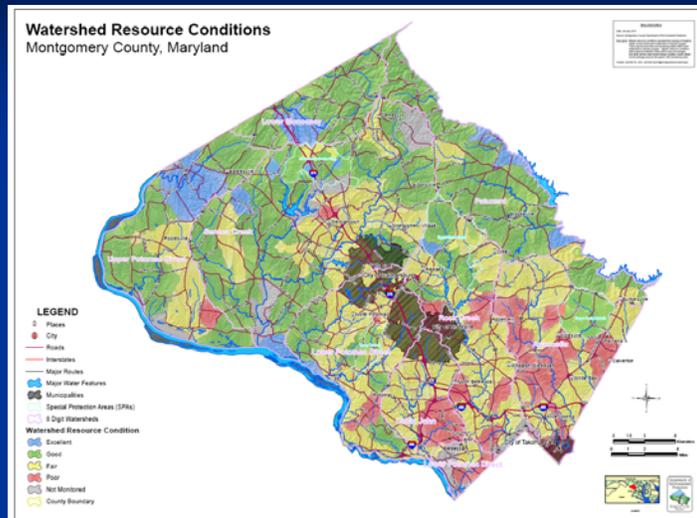
# Too much trash in our streams



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# Goal: Protect and Restore



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## Goal: Meet Permit Requirements

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- Renewal due date July 2006; Re-issued February 2011
- Add stormwater management to an additional 20% of impervious area currently not treated to the maximum extent practicable (MEP)
- Meet wasteload allocations (WLAs) to Achieve Total Maximum Daily Loads (TMDLs)
  - TMDLs set pollutant reduction goals
- Meet commitments in Trash Free Potomac Treaty
- Use Environmental Site Design (ESD) to the MEP
- Assure public input and stewardship opportunities
- Develop implementation plans for WLAs and Trash Reduction within 1 year

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## In process FY 2009-2011

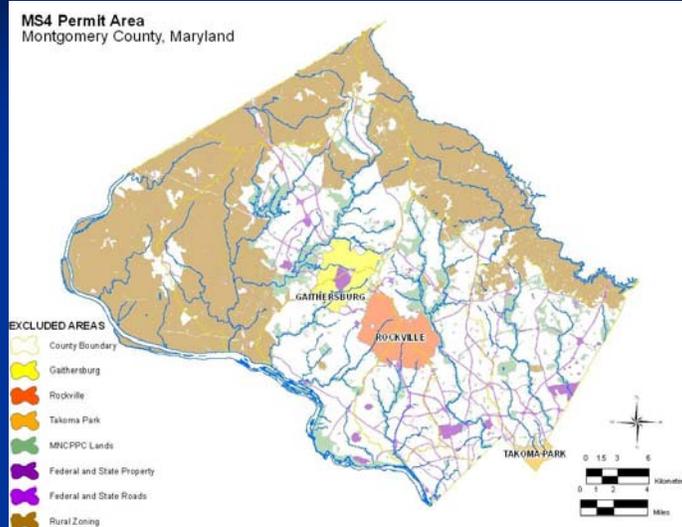
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- Continue watershed restoration efforts
  - CIP implementation consistent with existing 6-year projection levels (\$84M in revenue bonds)
  - Non-CIP restoration efforts: RainScapes Rewards and Neighborhoods
- Complete County Code Review to assure implementation of ESD to the MEP
- Continue inspections, maintenance, monitoring
- Re-establish watershed outreach program
- Identify baseline and potential trash reduction programs

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# MS4 Permit Area



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# Countywide Strategy

## ■ Impervious Cover Tracking

Description	Area in Acres
Total	324,552
Total Area of Impervious Surface	35,965
County Subject to Stormwater Permit (1)	138,649
Impervious Cover Subject to Stormwater Permit	25,119
Adequately Treated Impervious Cover	3,661
Inadequately Treated Impervious Cover	21,458
<b>20% of Inadequately Treated Impervious Cover</b>	<b>4,292</b>

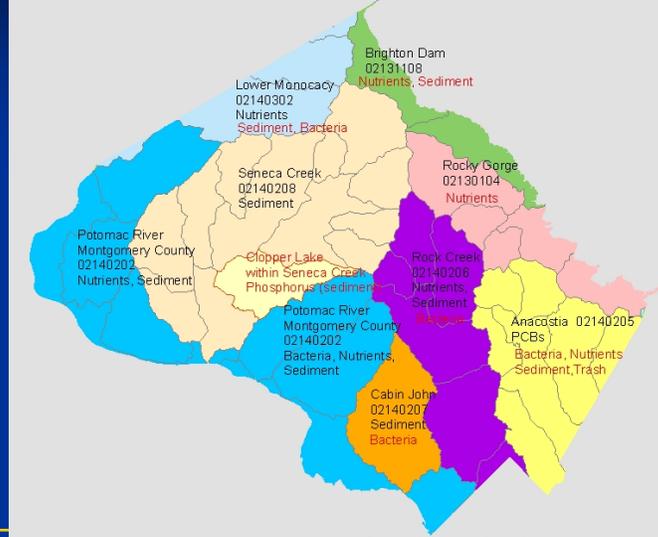
(1) Exclusions include: Certain zoning codes, parklands, forests, municipalities with own stormwater management programs, state and federal properties, and state and federal maintained roads

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## County Watersheds on Maryland's Impaired List January 2011

EPA approved TMDLs shown in red



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## Coordinated Countywide Implementation Strategy

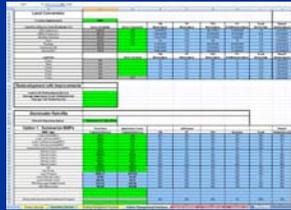
- Based on Eight Watershed Groups
  - separate implementation plans
- Meet MS4 permit restoration goal
- Reduce pollutant loads for TMDLs
- Make progress for Trash Treaty
- Assure Environmental Site Design (ESD) to the Maximum Extent Practicable (MEP)
- Develop public outreach and stewardship plan
- Consultant Team led by Biohabitats, Inc.
- Began in June 2009
- Now under MDE review and out for public comment



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# Analytical Approach

## Watershed Treatment Model



**Land Use**

- EMC (Urban)
- Unit Load (Non-urban)



**Soils & Rainfall**

- Annual Runoff Volume



**Pollutant Load**

- Before
- treatment



**BMPs**

- Performance Code
- Removal Efficiency



**Discount Factors**

- BMP specific
- Treatability Factor



**Pollutant Reduction**

- Applied to baseline load

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# Countywide and Watershed Goals

Watershed/Subwatershed	Pollutants	Impervious Cover	Trash
Patuxent	TMDL	20% Countywide Goal	
Anacostia			TMDL
Rock Creek			Trash-Free Potomac
Great Seneca			
Cabin John Creek			
Lower Monocacy			
Muddy Branch/ Watts Branch			
Dry and Little Seneca			
Lower Potomac Direct			
Upper Potomac Direct			

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# Countywide Strategy – Timelines

Target Date	Goal	Metric
2015	Meeting 20% impervious cover treatment requirement within the MS4 Permit cycle	4,300 acres of Impervious Cover
2017	Interim goals for the Chesapeake Bay TMDL; in MD, implementation to meet 70% of required reductions by source for nutrients and sediment	Reductions of 9% TN, 12% TP, and 20% TSS from 2009 baseline
2020	Interim goals for the Chesapeake Bay TMDL; in MD, implementation to meet 100% of required reductions by source for nutrients and sediment  Assume additional 20% target for impervious cover treatment during this MS4 Permit cycle	Total reductions of 18% TN, 34% TP and 37% TSS from 2009 baseline  ~3,300 acres of Impervious Cover
2025	Assume addition 20% target for impervious cover treatment during this MS4 Permit cycle	~2,700 acres of Impervious Cover
2050	Assume compliance with wasteload allocations (WLAs) for current EPA-approved TMDLs	100% reduction for MS4 permit WLAs

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# Analytical Approach

## Iterative Process

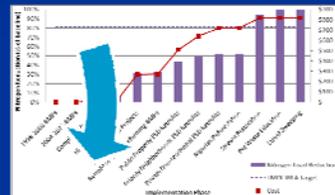
Watershed Implementation Plans

	2011	2017	2020	2025	2050
Impervious Area Treated (acres)	4,300	8,600	11,900	14,600	17,300
% of Impervious Area Treated by ESD	18%	36%	45%	54%	63%
Impervious Area Treatment Cost (\$Million)	\$40	\$80	\$110	\$140	\$170
% of Cost for ESD	15%	30%	40%	48%	57%
Nitrogen (% Reduction)	18%	36%	45%	54%	63%
Phosphorus (% Reduction)	12%	24%	30%	36%	43%
Sediment (% Reduction)	20%	40%	50%	60%	70%
Bacteria (% Reduction)	15%	30%	37%	45%	53%
Swath (% Reduction)	10%	20%	25%	30%	35%

Stakeholder input and Bay restoration

Restoration Potential

Major driver: 20% impervious



Countywide Strategy

Consider WLAs, ESD, and costs

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# Implementation Plan – Anacostia

Summary of Implementation Plan schedule with expected MS4 permit area WLA compliance endpoints

	2015	2017	2020	2025	2030	Permit/ TMDL Targets
Impervious Area Treated (acres)	1,421	2,393	3,364	4,272	4,544	
% of Impervious Area Treated by ESD	26%	44%	61%	69%	71%	
Impervious Area Treatment Cost (Million \$)	160	307	486	732	820	
% of Cost for ESD	45%	62%	71%	78%	78%	
Nitrogen (% Reduction)	25%	39%	68%	89%	100%	81.8%
Phosphorus (% Reduction)	27%	42%	77%	100%	100%	81.2%
Sediment (% Reduction)	47%	72%	100%	100%	100%	87.5%
Bacteria (% Reduction)	21%	33%	46%	59%	64%	87.9%
Trash (% Reduction)	41%	65%	89%	100%	100%	

■ TMDL Target NOT Met

■ TMDL Target Met

**Assumptions:**

1. Does not include repeated Outreach and Education costs beyond FY2015
2. Does not include an inflation multiplier

# Countywide Strategy: Implementation and Pollutant Reductions

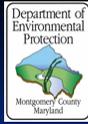
## Countywide Watersheds

Summary of Implementation Plan schedule with expected MS4 permit area WLA compliance endpoints

	2015	2017	2020	2025	2030	Permit/ TMDL Targets 2017	Permit/ TMDL Targets 2020
Impervious Area Treated (acres)	4,302	6,014	7,722	10,518	11,154	6,008	7,723
% of Impervious Area Treated by ESD	18%	34%	47%	60%	63%		
Impervious Area Treatment Cost (Million \$)	305	622	987	1,687	1,884		
% of Cost for ESD	53%	66%	70%	80%	80%		
Nitrogen (% Reduction)	18%	25%	36%	46%	51%	9%	20%
Phosphorus (% Reduction)	17%	23%	34%	44%	46%	12%	34%
Sediment (% Reduction)	23%	34%	54%	60%	62%	20%	37%
Bacteria (% Reduction)	11%	15%	20%	28%	30%		
Trash (% Reduction)	18%	26%	33%	41%	42%		

**Assumptions:**

1. Does not include repeated Outreach and Education costs beyond FY2015
2. Does not include an inflation multiplier



# Questions?



Sculpin



Stonefly

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